Florida Department of
Environmental Protection

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

Rick Scott
Governor

Jennifer Carroll
Lt. Governor

Herschel T. Vinyard Jr.
Secretary

December 9, 2011

Ms. Cori Hermle
Land Planning Specialist
Florida Forest Service
3125 Conner Boulevard
Tallahassee, FL 32399-1650

RE: Seminole State Forest – Lease # 3936

Dear Ms. Hermle:

The Division of State Lands, Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the Seminole State Forest land management plan. The next management plan update is due December 9, 2021.

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,

M. S. Gengenbach

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

MSG/ci

TEN-YEAR RESOURCE MANAGEMENT PLAN

FOR THE

SEMINOLE STATE FOREST

LAKE COUNTY

PREPARED BY

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

FLORIDA FOREST SERVICE

APPROVED ON

DECEMBER 9, 2011

TEN-YEAR RESOURCE MANAGEMENT PLAN

FOR THE

SEMINOLE STATE FOREST

Approved by:

Jim Karels, Director
Florida Forest Service

9.23.11
Date

David Core, Assistant Director
Florida Forest Service

July 8, 2011
Date

Steven L. Jennings, Chief
Forest Management Bureau

July 7, 2011
Date

TEN-YEAR RESOURCE MANAGEMENT PLAN
SEMINOLE STATE FOREST

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TEN-YEAR RESOURCE MANAGEMENT PLAN
SEMINOLE STATE FOREST

EXHIBITS

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LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

Lead Agency: Florida Department of Agriculture and Consumer Services, Florida Forest Service
Common Name: Seminole State Forest
Location: Lake County
Acreage Total: 27,081.63

Historical Natural Communities	*Acreage*	*Historical Natural Communities*	*Acreage*
Mesic Flatwoods	7,850	Baygall	289
Scrub	4,702	Flatwoods Lake	286
Hydric Hammock	2,812	Sandhill Upland Lake	232
Floodplain Swamp	2,358	Dome Swamp	120
Basin Swamp	2,203	Upland Mixed Forest	59
Sandhill	1,872	Floodplain Marsh	55
Basin Marsh	1325	Wet Prairie	7
Scrubby Flatwoods	1,192	Blackwater Stream	**
Wet Flatwoods	945	Spring-Run Stream	**
Depression Marsh	774		

**Acreage combined with adjacent community

Lease/Management Agreement No.: 3936 Use: Single___ Multiple _X_

MANAGEMENT AGENCY	RESPONSIBILITY
Florida DACS, Florida Forest Service	General Forest Resource Management
Florida Fish and Wildlife Conservation Commission	Wildlife Resources & Laws
St. Johns River Water Management District	Water Resource Protection & Restoration
Division of Historical Resources	Historical and Archaeological Resource Management

Designated Land Use: Multiple-use State Forest
Sublease(s): None
Encumbrances: Easements: Sumter Electric Cooperative, Progress Energy, Florida Gas Transmission, City of Orlando, Lake County, and Private ingress/egress easements. St. Johns River Water Management District has a conservation easement. Some areas have outstanding mineral rights.
Type Acquisition: CARL, Preservation 2000, Florida Forever, and Save Our Rivers
Unique Features: Significant acreage of scrub and scrubby flatwoods; small tract on northern tip of Lake Wales Ridge, 15 named springs, Wekiva River and Blackwater Creek, part of a Federally dedicated National Wild and Scenic River
Archaeological/Historical: Twenty Archaeological Sites and two Historical Sites
Management Needs: Restoration and maintenance of native ecosystems and disturbed site restoration
Acquisition Needs: Remainder of Wekiva-Ocala Greenway and Lake Wales Ridge Ecosystem
Surplus Lands/Acreage: None
Public Involvement: Management Plan Advisory Group and a Public Hearing, and the Acquisition and Restoration Council public hearing.

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

ARC Approval Date: _____ BTIITF Approval Date: _____
Comments: _____

I. Introduction

Seminole State Forest (SSF) is comprised of 27,082 acres, consisting of two separate tracts. The Seminole Tract is within the Wekiva River Basin in eastern Lake County, approximately 14 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. SSF contains 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 fifteen named springs, and portions of two of the three waterways that make up a federally dedicated National Wild and Scenic River.

These properties were acquired under the Conservation and Recreation Lands (CARL), Save Our Rivers (SOR), Preservation 2000 (P2000), DOF in-holdings and additions programs, and Florida Forever to protect significant habitat for endangered species. The 26,944 acre Seminole Tract was acquired as part of the Wekiva-Ocala Greenway CARL Project, formerly known as the Wekiva-Ocala Connector. This Tract, together with other adjacent public lands, provides a vital wildlife corridor between the Wekiva Basin and the Ocala National Forest. The 120 acre Warea Tract was acquired as part of the Lake Wales Ridge Ecosystem CARL Project.

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 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, 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 passive, outdoor recreation opportunities for multiple interests;
- Restore, manage and protect native ecosystems, and ensure the long-term viability of populations and species listed as endangered, threatened or rare, and other components of biological diversity including game and nongame wildlife and plants;
- Protect known archaeological, historical, cultural and paleontological resources;
- Restore, maintain and protect hydrological functions related water resources and the health of associated wetland and aquatic communities.

This management plan is provided according to requirements of Sections 253.034, 259.032 and 373, Florida Statutes, and was prepared utilizing guidelines outlined in Section 18-2.021 of the Florida Administrative Code. It is not an annual work plan or detailed operational plan but provides general guidance for the management of SSF for the next ten-year period and outlines the major concepts that will guide management activities on the forest.

B. Past Accomplishments

A compilation of management activities and public use on SSF has been completed monthly and is available from the forest manager. A table has been prepared for this plan that summarizes, in numerical format, the accomplishments for each over the past ten years (Exhibit A). The table does not attempt to account for all activities on the forest, but summarizes major activities that are more readily quantifiable. It does not list the multitude of daily activities and public interactions involved in managing the forest.

Since the approval of the previous management plan in December 2000, there have been many events, developments and accomplishments. Among the most noteworthy have been the following:

- Numerous land acquisitions and a land swap with the United States Forest Service resulted in an increase of 5,089 acres on SSF.
- Over 28 miles of road improvements were completed, most of which were on open designated roads that are open for public use.
- An Outdoor Recreation Plan for SSF was updated annually and many recreation improvements were completed on the Seminole Tract. The south parking area was upgraded and designated as the Bear Pond Day Use Area and Trailhead. Upgrades included additional parking, improved self service pay station, installation of a trail kiosk, relocating the anchor point of the floating dock, and the construction of a pavilion with grills and picnic tables. The north parking area was also upgraded and designated as the Cassia Trailhead. The upgrades included improvements to the information kiosk and self service pay station. A new parking area was constructed on the Clemmons parcel. The canoe launch at the Blackwater Creek Day Use Area was stabilized to reduce erosion and provide for easier public access. A wildlife viewing blind was constructed along the Florida National Scenic Trail on the Seminole Tract.
- A law enforcement position has been filled for SSF since fiscal year 2001-2002.
- Biological surveys that have been completed include: 1) a natural community survey was completed by FNAI and submitted to FFS on May 2006; 2) a non-native invasive plant survey was completed by the Forest Management Bureau/Forest Health Section in September 2006.
- Forest inventory has been completed on all new acquisitions. Normally each year, one tenth of the forest is re-inventoried. During fiscal year 2009-2010, inventory was completed on 9,588 acres.

- Active monitoring of FSJs has been ongoing since 2000, to include the identification of FLSJ territories, banding, nest searching and nest monitoring. Beginning in 2006, a census of all individual FSJs and all FSJ territories has taken place every six weeks. Since 2007, approximately 200 FSJs have been color-banded, with an average of 87% of known FSJs banded at the beginning of each year since. One hundred and fifty FSJ nest have been found and monitored since March of 2007.
- Treatments for scrub restoration in the scrub and scrubby flatwoods have included 2,467 acres of overstory removal of sand pine (*Pinus clausa*), 292 acres of chopping and 2,410 acres of prescribed burning.
- Sandhill restoration on the Seminole Tract has included dormant and growing season prescribed burns on 404 acres. Longleaf pine (*Pinus palustris*) reforestation on both improved and unimproved pastures has been completed on 261 acres.
- Restoration activities on the Warea Tract have been funded by the FFS's Plant Conservation Program. More than 75 acres have been treated with herbicides to control invasive oaks and reduce areas heavily infested with non-native species to a maintenance control level.
- Plant Conservation Program funding was used to develop a secure perimeter fire break. One growing season and one dormant season prescribed burn have been applied on the tract since 2005.
- Using groups of volunteers, two large-scale plant surveys have been conducted on the Warea Tract, producing a very useful and up-to-date spatial distribution of rare plants.
- Off-site slash pine (*Pinus elliottii*) was converted to longleaf pine on 197 acres.
- The first recorded outbreak of southern pine beetle (*Dendroctonus frontalis*) in Lake County was detected on SSF in 2001. The 12 small spots discovered on SSF were minor compared with major infestations on the adjacent LWRPSP and Seminole Woods property. Southern pine beetle surveys will continue to be conducted annually.
- A list of mitigation needs was developed and submitted to Forest Hydrology staff. Priority projects completed through mitigation include removal of a tram across Blackwater Creek and associated floodplain, and removal of an impoundment across Palm Springs Run.
- Twenty-two miles of new perimeter fire lines were mowed and/or harrowed. Maintenance of harrowed perimeter firelines has been completed on an annual basis.
- An old dairy facility and two houses were demolished and all debris removed. Demolition was also completed on an additional house, three hunt camp structures, and a real estate office, all of which were in un-useable condition.

- A new office was completed in September 2007, on the Lake Forest Area site in Leesburg to provide additional office space for SSF staff.

C. Goals/Objectives for the Next Ten Year Period

The following goals and objectives provide direction and focus management resources for the next ten year planning period. Funding, agency program priorities, and the wildfire situation 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 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. The majority of the management operations will be conducted by the FFS, although appropriate activities will be contracted to private sector vendors. All activities will enhance the property's natural resource or public recreational value.

Cost estimates are provided below for FFS services and contract services where sufficient information is available to make projections. Costs for some activities cannot be estimated at this time. Other activities will be completed with minimal overhead expense and existing staff.

The management activities listed below will be addressed within this ten year management period and are defined as short-term goals, long-term goals or ongoing goals. Short-term goals are goals that shall be achievable within a two year planning period, and long-term goals shall be achievable within a ten year planning period. Objectives are listed in priority order for each goal.

➢ GOAL 1: Sustainable Forest Management

Objective 1: Prepare and implement a five year silviculture management plan including reforestation, harvesting, prescribed burning, restoration, and timber stand improvement activities and goals. Estimated costs are noted in other objectives. (Short Term)

Performance Measure:

- Completion of five year silviculture management plan with annual updates.
- Implementation of silviculture management plan (acres treated).

Objective 2: Implement the process, as outlined in the State Forest Handbook, for conducting stand descriptions and forest inventory including a GIS database containing forest stands, roads and other attributes (including but not limited to: threatened and endangered species, archaeological resources, exotic species locations, historical areas). (Ongoing)

Performance Measure: Complete GIS database and re-inventory all attributes every 3-5 years or as needed.

Objective 3: Conduct Forest Inventory updates each year, according to established criteria. Estimated cost per year is $4,000. (Short Term)

Performance Measure: Number of acres inventoried annually.

Objective 4: Conduct all timber harvests in a manner that maintains appropriate stand densities, improves forest health, regenerates cutover stands with appropriate species, salvages wood following natural disasters, and minimizes ground disturbance. Estimated cost per year is $3,000. (Long Term)

Performance Measure: Timber sales conducted in a satisfactory and sustainable manner and in BMP compliance.

Objective 5: Evaluate the effectiveness of previous reforestation projects, and develop recommendations for additional treatments on sites where warranted (i.e. supplemental planting, herbicide applications, burning, etc.). Estimated costs based on outcome of evaluations. (Ongoing)

Performance Measure: Number of acres evaluated and recommendations developed.

Objective 6: Develop a 5 year comprehensive operational plan for prescribe burning across the forest. (Ongoing)

Performance Measure: Completion of plan.

- **<u>GOAL 2</u>: Public Access and Recreational Opportunities**

Objective 1: Update and implement the Five-Year Recreation Plan on an annual basis. Estimated cost per year for implementation is $10,000. (Short Term)

Performance Measure: Five-Year Recreation Plan updated and implemented annually.

Objective 2: Maintain and improve road system on SSF for public access. Forest roads are maintained for minimal impacts on the natural resources. Several road improvement projects are scheduled to improve year round access on key primary roads. Maintenance and improvement costs average $45,000 per year. (Ongoing)

Performance Measure: Miles of road maintained and improved.

Objective 3: Maintain public access and recreational opportunities to allow for the current recreational carrying capacity of 400 visitors per day. (Short Term)

Performance Measure: Number of visitor opportunities per day.

Objective 4: Evaluate the need for additional public access and recreational opportunities on an annual basis. Conduct at least two user group meetings a year to gather input regarding recreation. Analyze and develop additional public access and recreational opportunities as needed. Costs included in Objectives 1 and 2. (Ongoing)

Performance Measures:

- Recreational evaluations completed.
- Number of user group meetings held.
- Number of additional visitor opportunities per day developed.

Objective 5: Develop additional public access and recreational opportunities to increase carrying capacity by 200 visitors per day, bringing the total carrying capacity to 600 visitors per day. Costs included in Objectives 1 and 2. (Long Term)

Performance Measure: Number of visitor opportunities per day.

- **<u>GOAL 3</u>: Ecosystem Restoration and Improvement**

Objective 1: The objective of prescribed burning is to simulate, as much as possible, a natural fire regime where prescribe burning takes place during both the dormant and growing seasons. Prescribe burn between 3,600 and 8,100 acres annually. Estimated cost for fire line maintenance per year is $30,720, and average acreage burn cost is $87,750. Estimated total annual cost for all prescribe burning activities is $118,470. (Short-term/Long-term)

Performance Measures:

- Number of acres burned in the dormant & growing seasons.
- Prescribed Burning Plan is updated annually.

Objective 2: By the end of this 10-year planning period, increase the acreage from 4,800 to 7,500 that is within the target fire return interval. (Long Term)

Performance Measure: Number of acres of pyrogenic habitat (over the current 4,800 acres) brought into a condition of fire maintenance.

Objective 3: Reforestation of 672 acres of salvage sites from the Lee Fire over the next two years. Estimated total cost is $104,300. (Long Term)

Performance Measure: Number of acres reforested.

Objective 4: Restore 1,949 acres of scrub and scrubby flatwoods communities by means of overstory removal, necessary mechanical treatments, and prescribed fire. Estimated total cost per year is $13,000. (Long Term)

Performance Measure: Number of acres with restoration underway.

Objective 5: Restore fire excluded oak dominated sandhill communities on 364 acres using prescribe fire, timber stand improvements, herbicides, mechanical treatments, commercial hardwoods sales, removal of off-site species and planting longleaf pine. Estimated total cost per year is $12,000. (Long Term)

Performance Measure: Number of acres with restoration underway.

Objective 6: Evaluate the effectiveness of previous restoration projects, and develop recommendations for additional treatments on sites where warranted (i.e. mechanical operations, supplemental planting, herbicide applications, burning, etc.). Estimated costs based on outcome of evaluations. (Ongoing)

Performance Measure: Number of acres evaluated and recommendations developed.

Objective 7: Identify where the native groundcover has been eliminated or heavily impacted from historical land use and initiate groundcover restoration. Evaluate with a cost benefit analysis. (Long Term)

Performance Measures:

- Assessment conducted of sites where groundcover recovery is possible.
- Percentage of acres of groundcover restored or in progress.

Objective 8: Protect integrity of natural communities through acquisition of adjacent parcels within the optimal management boundary. Costs based on actual acquisitions. (Long Term)

Performance Measure: Acres acquired from willing sellers.

Objective 9: Protect environmentally sensitive communities and ecotones when preparing firelines and carrying out management activities. Develop fireline plan for SSF and train staff on recognition and protection of sensitive areas. Costs to be determined. (Long Term)

Performance Measures:

- Fireline plan developed.
- Staff training conducted.

- **<u>GOAL 4</u>: Listed and Rare Species Habitat Maintenance, Enhancement, Restoration, or Population Restoration**

Objective 1: Cooperate with FWC to conduct comprehensive surveys for federal or state listed and rare animal species with a focus on indicator species likely to occur in the historical communities of SSF, such as Florida Scrub Jay (*Aphelocoma coerulescens*), gopher tortoise (*Gopehrus polyphemus*) and Florida black bear (*Ursus americanus floridanus*). Costs to be determined. (Long Term)

Performance Measure: Completion of listed and rare animal species survey.

Objective 2: Develop baseline listed and rare species occurrence inventory list. Cost estimate is included in Objective 1. (Long Term)

Performance Measure: Baseline listed and rare species occurrence inventory list completed.

Objective 3: Develop monitoring protocols for selected listed and rare species. Costs to be determined. (Long Term)

Performance Measure: The number of listed and rare species for which monitoring protocols are developed.

Objective 4: Continue to treat areas of mature scrub and scrubby flatwoods to create habitat for the Florida Scrub-Jay (FSJ) and other scrub endemics, ultimately enabling the communities to be maintained exclusively with fire. Costs to be determined. (Ongoing)

Performance Measure: Number of acres of scrub and scrubby flatwoods treated and maintained with fire.

Objective 5: Continue to restore the sandhill community of the Warea Tract using timber stand improvements and prescribed fires. Costs to be determined. (Short Term)

Performance Measure: Number of acres of treated and burned during the dormant and growing season.

Objective 6: Continue to monitor Florida scrub-jay population stability or recovery in restoration areas and other suitable habitat. Costs to be determined. (Ongoing)

Performance Measure: Number of acres of habitat monitored.

Objective 7: Conduct a listed and rare plant survey and monitor rare plants to determine population stability or recovery. Costs to be determined. (Ongoing)

Performance Measure: Completion of listed and rare plant species survey.

Objective 8: Continue to work with other state agencies, conservation organizations and landowners to maintain habitat connectivity within the Wekiva-Ocala corridor. This could include identifying critical missing parcels, coordinating the use of prescribed fire, restoration and other land management activities, and identifying improvements needed to facilitate wildlife movement. Costs include in other Objectives. (Ongoing)

Performance Measure: Number of active partners maintained and activities completed through partnerships.

- **GOAL 5: Non-Native Invasive Species Maintenance and Control**

Objective 1: Develop a plan to locate, identify, and control non-native invasive plant and animal species. Estimated total cost per year is $13,000. (Short Term)

Performance Measures:

- Plan developed and implemented.
- Total number of acres of non-native invasive plants identified and successfully treated.
- Total number of animals eliminated.

Objective 2: In cooperation with the Florida Fish and Wildlife Conservation Commission (FWC), explore additional opportunities to increase feral hog control efforts. Estimated cost per year to be determined. (Short Term)

Performance Measure: Number of feral hogs eliminated.

- **GOAL 6: Cultural and Historical Resources**

Objective 1: Ensure all known sites are recorded in the DHR Florida Master Site file. (Long Term)

Performance Measure: Number of recorded sites.

Objective 2: Monitor recorded sites and send updates to the DHR Florida Master Site File as needed. (Long Term)

Performance Measure: Number of sites monitored.

Objective 3: Train additional personnel as archaeological monitors, and have them onsite to protect cultural sites when preparing firelines and carrying out other ground disturbing activities. Estimated cost per year is $1,000. (Short Term)

Performance Measure: Number of staff trained as archaeological monitors.

- **GOAL7: Hydrological Preservation and Restoration**

Objective 1: Protect water resources during management activities through the use of Silvicultural Best Management Practices (BMPs) for public lands. Cost estimates to be determined. (Long Term)

Performance Measure: Compliance with state lands BMPs.

Objective 2: Follow the recommendations for fireline construction in the BMP Manual and Division of Historical Resources (DHR) guidelines and rehabilitate firelines to reduce channeling of water. Cost estimates to be determined. (Short Term)

Performance Measure: Miles of firelines properly constructed and rehabilitated.

Objective 3: Complete corrective actions identified as "high priority" in the FFS Forest Hydrology Section wetland restoration needs assessment. Total estimated cost is $10,000. (Long Term)

Performance Measure: Number of items identified in the assessment that have been corrected.

Objective 4: Reevaluate the need for an additional site assessment/study to identify additional hydrology restoration needs. Restore, maintain, and protect hydrological functions focusing on the restoration of natural sheet flow and reducing impacts to wetlands caused by roads, trails and old firelines. Cost estimates for corrective actions that have been identified are $10,000. Total cost estimates are dependent on identified needs. (Short Term)

Performance Measure: Assessment conducted as needed.

Objective 5: Rehabilitate, reroute, restore and, as necessary, close those roads and trails that have evidence of erosion into surrounding water bodies causing alterations to the hydrology. (Short Term)

Performance Measure: Total number of roads and trails closed, rehabilitated, rerouted, or restored.

- **GOAL 8: Capital Facilities and Infrastructure**

Objective 1: Continue to establish and maintain perimeter lines to clearly define property boundaries and provide perimeter firebreaks. Of the 186 miles of perimeter, twenty percent (37 miles) is to be completed annually. Estimated cost per year is $22,000. (Ongoing)

Performance Measure: Percentage of perimeter lines established and maintained annually.

Objective 2: Evaluate the feasibility for a permanent forest field office/shop/equipment building and request funding as needed. Annual request for construction is $85,000. This would be a one-time expense. (Long Term)

Performance Measure: Completion of evaluation of the construction of field office/shop/equipment building.

Objective 3: FFS staff, contractors and volunteers will maintain all existing facilities, road, and trails. (Long Term)

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

Objective 4: Prepare a Five Year Road Management Plan following an inventory and needs assessment of all forest roads and road structures, such a culverts and bridges. Prepare a revised map of road system. Update schedule of work annually. Cost estimates are dependent on needs identified in plan. (Ongoing)

Performance Measure:

- Complete road inventory and needs assessment.
- Completion of the Five Year Road Management Plan and update annually.
- Completion of road map revision.

Objective 5: Demolish and provide material disposal of five abandoned buildings that are in disrepair. Estimated total cost is $20,000. (Short Term)

Performance Measure: Number of buildings demolished and disposed of.

II. Administration Section

A. Descriptive Information

1. Common Name of Property

The common name of the property is the Seminole State Forest (SSF).

2. Legal Description and Acreage

SSF is made up of two separate tracts (89 parcel acquisitions) totaling 27,081.63 acres located in Lake County, Florida (Exhibit B). 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 (Exhibit B). The property 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; Sections 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 29 East; Sections 4-8, 18-21, 30, 37, and 39-40,
Township 23 South, Range 26 East; Sections 12

A complete legal description of lands owned by the Board of Trustees of the Internal Improvement Trust Fund (BOT) and SJRWMD as part of SSF is on record at the SSF Lake Forestry Station office, Florida Department of Environmental Protection (DEP), and the FFS state office in Tallahassee.

3. Proximity to Other Public Resources

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.

Lands managed by State, Federal or Local government for conservation of natural or cultural resources that are located within approximately 12 miles of the Seminole Tract include:

TRACT	AGENCY	DISTANCE
Akron Meadows	Lake County	adjacent W
Bear Track Preserve	LCWA	adjacent S
Ellis (Royal Trails)	Lake County	adjacent N,S,W
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	DEP (DRP)	adjacent E
Martone	Lake County	adjacent NW
Maxwell Conservation Easement	DEP (DSL)	adjacent S
Ocala National Forest	USFS	adjacent N
Peavy/Cardinal Homes	Lake County	adjacent W
Rock Springs Run State Reserve	DEP (DRP)	adjacent S
Wekiva River Aquatic Preserve	DEP (CAMA)	adjacent E
Mt. Plymouth	Lake County	0.3 miles SW
Ellis Acres	Lake County	0.4 miles SW
Wilson's Landing	Seminole County	0.5 miles SW
Black Bear Wilderness Area	Seminole County	1 mile E
Neighborhood Lakes – Lake County	Lake County	1 mile SW
Pine Forest Park	Lake County	1 mile NE
Wekiwa Springs State Park	DEP (DRP)	2 miles S

TRACT	AGENCY	DISTANCE
Honey Creek Research Natural Area	USFWS	3 miles NE
Lake Lucie Conservation Area	Orange County	3 miles SW
Hontoon Island State Park	DEP(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
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	DEP (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 Easemetn	DEP (DSL)	5 miles SW
Wolf Branch Sink Preserve	LCWA	5 miles SW
Holiday Highlands Sanctuary	FL Audubon Society	6 miles SW
Lake Beresford	Volusia County	6 miles NE
Pine Meadows Conservation Area	SJRWMD	6 miles SW
Lake George State Forest	FFS	7 miles N
Sabal Point Sanctuary	FL Audubon Society	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	DEP (DRP)	10 miles NE
Fly’n R Ranch Conservation Area	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

TRACT	AGENCY	DISTANCE
Heart Island Conservation Area	SJRWMD	11 miles NE
Lake Monroe Conservation Area	SJRWMD	11 miles E
Lyonia Preserve	Volusia County	11 miles E
Sunnyhill Restoration Area	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 lands within approximately 12 miles of the Warea Tract include:

TRACT	AGENCY	DISTANCE
Scrub Point Preserve	LCWA	1 mile NE
Lake Louisa State Park	DEP (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	FL Audubon Society	7 miles SW
Inland Grove	City of Clermont	7 miles NW
Crown Point Conservation Easement	SJRWMD	8 Miles NE
Ferndale Preserve	Lake County	8 miles NW
Tibet-Butler Preserve	Orange County	8 miles SE
FL DEP Green Swamp Consrv. Easement	DEP (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 Consrv Easement	SWFWMD	11 miles SW
The Jahna Ranch Conservation Easement	DEP (DWRM)	11 miles SW
The Pasture	Lake County	11 miles W
Green Swamp	SWFWMD	12 miles SW

DEP (CAMA) – FL Dept. of Environmental Protection, Coastal and Aquatic Managed Areas
DEP (DSL) – FL Dept. of Environmental Protection, Div. of State Lands
DEP (DRP) - FL Dept. of Environmental Protection, Div. of Recreation and Parks
DEP (DWRM) – FL Dept. of Environmental Protection, Div. of Water Resources, Bureau of Mining and Minerals Regulation
DEP (OGT) - FL Dept. of Environmental Protection, Office of Greenways and Trails
FFS - FL Dept. Agriculture and Consumer Services, Florida Forest Service

FWC - FL Fish and Wildlife Conservation Commission
LCWA – Lake County Water Authority
ONP - Oakland Nature Preserve, Inc.
SJRWMD - St. Johns River Water Management District
SWFWMD - Southwest Florida Water Management District
TLNC – Trout Lake Nature Center, Inc.
USFS - United States Forest Service
USFWS - United States 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 2009. The 24,142 acres of land owned by the BOT was purchased as part of the Wekiva-Ocala Greenway and the Lake Wales Ridge Ecosystem CARL Project. The 2,922 acres Fisch parcel (Exhibit C) was purchased by SJRWMD under the SOR in 1997. The 17.35 Hubler parcel is owned by SJRWMD, and was purchased with Florida Department of Transportation (FDOT) mitigation funding in 2009. A portion of this parcel will be used for mitigation.

B. Management Authority, Purpose and Constraints

1. Purpose for Acquisition/Management Prospectus

The majority of the Seminole Tract was acquired as part of the Wekiva-Ocala Greenway CARL Project (Exhibit D). The primary goals of the project are: 1) to conserve and protect environmentally unique and irreplaceable lands; 2) to conserve and protect significant habitat for native species or endangered and threatened species; 3) to conserve, protect, manage, or restore important ecosystems, landscapes and forests in order to enhance or protect significant surface water, recreational, timber, fish or wildlife resources; 4) to provide outdoor recreation; and 5) to preserve significant archaeological or historic sites.

The Warea Tract was acquired as part of the Lake Wales Ridge Ecosystem CARL Project (Exhibit D). The project is designed to protect the best remaining tracts of unique scrub and associated ecosystems along the Lake Wales Ridge. The primary goals of the project are: 1) to restore, maintain, and protect in perpetuity all native ecosystems; 2) to integrate compatible human use; and 3) to insure long-term viability of populations and species considered rare. The scrub is inhabited by many plants and animals found nowhere else. Protection of these tracts will help preserve several endangered species and allow the public to see examples of the unique original landscape of the ridge.

2. Degree of Title Interest Held by the Board

The BOT holds fee simple title to the property with exception of the Ralph Fisch parcel (2,922 acres) and Hubler parcel (17.35 acres) (Exhibit C). SJRWMD holds fee simple title to the Fisch and Hubler parcels. The Fisch parcel, through Intergovernmental Management Agreement, Florida Department of Agriculture and Consumer Services (FDACS) Contract Number 4462, assigns management to the FFS. Lease Agreement Number 3936, between the BOT and the FDACS, FFS,

provides authority for the FFS to manage the BOT portion of SSF. The SJRWMD has a conservation easement on part 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 Lake Forestry Station office, and the DEP Division of State Lands office in Tallahassee. Some areas on the forest have outstanding mineral rights.

3. Designated Single or Multiple-Use Management

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

Multiple use is the harmonious and coordinated management of timber, recreation, conservation of fish and wildlife, forage, archaeological and historic sites, habitat and other biological resources, or water resources so that 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 of these resources and giving consideration to 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. Revenue Producing Activities

Numerous activities on the state forest 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. The potential for revenue producing activities is quite varied and a few are listed below:

- *Recreation* - Honor fees are collected for all day use activities and camping. Other recreation receipts include commercial vendor permits and annual family passes. The average annual recreation receipts for the past three years were $11,980. Within the timeframe of this plan, there is potential to increase the number of recreation fee areas and or fee rates.

- *Grazing* - SSF currently has three cattle grazing leases, for a total of 1,875 acres, providing an annual income of $31,258 per year. These leases will expire in May and June of 2012. There are additional tracts of land that have potential to become cattle grazing leases.

- *Rentals* - Rental income from manager's residence and two law enforcement officer's mobile home sites is $3,960 per year.

- *Timber Sales* - Timber revenue has been received in nine of the last ten years. Over the previous ten year period, an average of $37,034 per year was received, with an average annual harvest of 6,394 tons. Much of this tonnage was from large sales for scrub restoration. After the current sales are completed, the potential for future sales may be lower than in years past.

- *Miscellaneous Forest Products* - Crooked wood (staggerbush and wax myrtle) has provided a means of revenue in some of the areas scheduled for scrub restoration. A total of $68,102 has been received for two sales conducted in 2001 and 2008. There is potential for minor income from other forest products such as pine straw and palmetto fronds and drupes. Apiary leases may also be a potential revenue source.

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 589 and 253, Florida Statutes.

6. Legislative or Executive Constraints

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

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. Property Boundaries Establishment and Preservation

The SSF boundary lines are managed by state forest personnel in accordance with the guidelines stated in Chapter 11 of the State Forest Handbook (FFS 2008).

2. Improvements

The recreational improvements located on the Seminole Tract that are in fair to good condition include two trailheads, two day-use areas, three reservation, drive-up primitive camp sites, five hike-in primitive camp sites, and a FWC Wildlife Check Station. A small cabin on the Frey parcel and parking area on the Clemmons parcel may be developed later as additional recreational amenities, Other improvements consists of an equipment storage area and barn, manager's residence, two mobile home sites, and a concrete bridge.

Improvements located on the Seminole Tract that are in poor condition include four vacant residences, four pole barns, and two block structures.

No improvements exist on the Warea Tract.

3. On-Site Housing

Currently, three occupied residences exist on the forest. A block home built in 1991 is occupied by the Forestry Supervisor II. A privately owned mobile home is occupied by the Department of Agriculture and Consumer Services Office of Agricultural Law Enforcement (OALE) officer. Both the block home and mobile home are located on the Tanner parcel. A second private mobile home, located on the Carter parcel, is occupied by a Seminole County Sheriff's Deputy.

FFS may establish on-site housing (mobile/manufactured home) on SSF if deemed necessary to alleviate security and management issues. The need and feasibility specific 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 the purpose of establishing on-site housing, a notification will be sent to the Division of State Lands as well as packages to the DHR and 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 Director.

4. Operations Infrastructure

The current total annual budget (2010-2011) for SSF is $430,299; however, annual appropriations are subject to change. This amount includes salaries, expenses, contractual service and OPS, and is broken down as follows:

Operating Budget (general costs for fuel, supplies, etc): $123,060
Salary and benefits: $259,239
Other expenses and OPS: $48,000

Implementation of any of the activities within this management plan is contingent on availability of available funding, other resources, and other statewide priorities.

D. Additional Acquisitions and Land Use Considerations

1. Alternate Uses Considered

During this management period the following uses were considered and determined to be not compatible: water resource development projects, water supply development projects, storm-water management projects and linear facilities except as otherwise outlined in this plan. Other 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.

2. Additional Land Needs

Purchasing of additional land within the optimal management boundary (Exhibit E) would facilitate restoration, protection, maintenance, and management of the resources on SSF. The Seminole State Forest falls within the Wekiva-Ocala

Greenway Florida Forever project. 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.

3. Surplus Land Assessment

All of the property within SSF is suitable for and necessary for the management of SSF, and none should be declared surplus. Property to the north of County Road 42 (CR 42) is adjacent to the boundary of the Ocala National Forest. Land in this area can be used for exchange with the United States Forest Service (USFS). Due to the remoteness of the Warea Tract from the remainder of the forest, DOF will evaluate its management role at the Warea Tract regarding the potential assignment of responsibility to another state or county agency. Property managed by DEP (DRP) and Lake County are within three miles of the Warea Tract.

4. Adjacent Conflicting Uses

During the development of this management plan, FFS staff identified and evaluated adjacent land uses, reviewed current 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 land owners and maintains liaison with those land owners to ensure that any conflicting future land uses may be readily identified and addressed.

FFS will cooperate with adjacent property owner(s), prospective owner(s), or prospective developer(s) 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 planned Wekiva Parkway may hinder prescribed burning on this forest due to smoke management concerns. The sand mine adjacent to the Warea Tract could potentially affect the hydrology of the site.

An 80 acre motocross/All Terrain Vehicle (ATV) facility has been approved to be located adjacent to the forest. It was requested by FFS staff that a fence be required around the 80 acre track to prohibit unauthorized vehicle traffic on SSF. Fencing was made a requirement of the Conditional Use Permit approved by the county.

5. Compliance With Comprehensive Plan

This plan was submitted to the Board of County Commissioners in Lake County for review and compliance with their local comprehensive plans (Exhibit F).

6. Utility Corridors and Easements

Current linear facility easements on SSF include Progress Energy (formally Florida Power Corporation), 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 DEP's Division of State Lands and also are available at the FFS Lake Forestry Station. The 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. The FFS does not consider SSF suitable for any new linear facilities.

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), to minimize habitat fragmentation, and to limit disruption of management activities and resource-based multiple use activities, such as recreation.

Collocation 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 forest fragmentation and disruption of management and multiple use activities. The FFS will further encourage the use of underground cable where scenic considerations are desirable. Easements for such utilities are subject to the review and approval of the BOT. Requests for linear facility uses will be handled according to the Governor and the Cabinet's linear facilities policy.

The planned Wekiva Parkway would impact portions of SSF along SR 46. Parkway plans would also require shifting the existing Florida Gas Transmission Company easement further to the north to allow the relocation of two gas lines. The current gas lines are located on SSF north of SR 46 and west of the Wekiva River.

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

E. Agency & Public Involvement

1. Responsibilities of Managing Agencies

The FFS is the lead managing agency, responsible for overall forest management and public recreation activities, as stated in Management Lease Number 3936. The DACS' OALE has law enforcement responsibilities. The FWC is responsible for enforcing hunting regulations, cooperatively setting hunting season dates with FFS, and conducting other wildlife management activities with input from FFS. The FFS will cooperate with the DHR regarding appropriate management practices on historical or archaeological sites on the property as stated in Section 267.061, Florida Statutes. They will be notified prior to the initiation of any ground disturbing activities by the FFS or any other agency involved with the forest. The SJRWMD has granted management authority of the Fisch and Hubler parcels to FFS through the Intergovernmental Management Agreement Contract Number 4462. The SJRWMD will be consulted and involved in matters relating to water resources as appropriate.

2. Law Enforcement

Primary law enforcement responsibilities will be handled by law enforcement officers from the OALE and FWC. Additional assistance is provided by the Lake County Sheriff's Offices and the DEP's Division of Law Enforcement, Bureau of Park Police, as needed.

Special rules under Chapter 5I-4 of the Florida Administrative Code were promulgated for Department of Agriculture and Consumer Services, Florida Forest Service, to manage the use of State Lands and better control traffic and camping in the State Forest.

3. Public and Local Government Involvement

This plan has been prepared by FFS and will be carried out primarily by that agency. The FFS responds to public involvement through direct communication with individuals, user groups and government officials.

The FFS responds to public involvement through its Liaison Committees, Advisory Groups, public hearings, and through direct contact with user groups. A Land Management Review Team conducted a review of management plan implementation on August 5, 2004, and on September 1, 2009 (Exhibit G). The review team's recommendations were incorporated into this plan as appropriate.

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 Seminole Tract is one of many public properties located within the Wekiva River Basin. The need to coordinate the management and protection of resources within the basin led to the formation of the Wekiva River Basin Ecosystem Working Group in 1992. The FFS has participated in this working group since its inception. Other agencies and groups represented in the working group include: DEP (DRP), FWC, SJRWMD, FDOT, East Central Florida Planning Council, Lake County, Orange County, Seminole County, LCWA, City of Altamonte Springs, U.S. Corps of Engineers, Friends of the Wekiva River, Florida Federation of Garden Clubs, Florida Trail Association (FTA), The Nature Conservancy, Florida Audubon Society, Sierra Club, Florida Trail Blazers, Florida Freewheelers, Wekiva Canoe Vendors, Florida Nurserymen & Growers Association, and private landowners. This plan was submitted to the members of the Wekiva River Basin Ecosystem Working Group for their review and comment. All elements in this Ten Year Resource Management Plan have been reviewed to ensure compatibility with the Wekiva River System Comprehensive Management Plan.

This plan was developed with input from the SSF Management Plan Advisory Group and was reviewed at a public hearing on August 31, 2010. A summary of the advisory group's meetings and discussions, as well as written comments received on the plan, are included in Exhibit H. The Acquisition and Restoration Council (ARC) public hearing and meeting serve as an additional forum for public input and review of the plan.

4. Volunteers

Volunteers are important assets to SSF. Depending upon the type of volunteer service needed, volunteer activities may be one-time events or long-term projects. Volunteers have assisted with maintaining recreational trails, roads and facilities, and the surveying and monitoring threatened and endangered species. Additional volunteer recruitment will be encouraged to assist with other activities to further the FFS's mission.

III. Archaeological/Cultural Resources and Protection

A. Past Uses

Seminole Tract

Beginning in the late 1800s, many 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 exists within these areas.

Upland pine harvesting occurred on the majority of the parcels without consideration for future management of pine timber. Much of the upland areas on the Tanner, Seminole Pines, Tommy Ray and Sue Lee, Vivian Lee, River Run Dev/Roche/Lee, Design Homes, Maxwell, Marie Shockley, Knab, Johnson-/Shockley and Clemmons parcels had been cleared and planted with improved pasture grasses (Exhibit C). 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 strip bahia grass (*Paspalum notatum*) pastures planted north of Blackwater Creek where cattle operations began in the 1960s. South of Blackwater Creek, slash pine was planted in the early 1960s. A few pine stumps with turpentine "cat-faces" and clay pots have been located, indicating naval stores were active on the site in the past. Remnants of a small sawmill operation were also found on the southern end of the Carter parcel.

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 fox (*Urocyon spp.*) 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 torn down 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.

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 60 years ago but appear to have been of limited scale and duration. The presence of old pine stumps indicate past logging activity. No other previous agricultural or silvicultural uses are known.

B. Archaeological and Historical Resources

The Bureau of Archaeological Research has conducted a series of surveys on SSF. A review of information contained in the DHR's Florida Master Site file has determined that there are two (2) recorded historical structures and 20 archaeological sites on SSF. All discoveries have been on the Seminole Tract. Both structures are private residences and are in poor condition. The Carter house was built in 1938 and is located on the Carter parcel. The Griffin house (DOF BU351211) was built in 1883 and is located on the Tanner parcel.

In October 2008, GIS coverage of cultural sites and a database with the corresponding site file information was obtained. This data will be used to assist local forestry staff and law enforcement with protection of known archaeological and historical sites.

Table 1. Archaeological and Historical Sites on SSF

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	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
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 - FFS BU351211	Private Residence
LA02776	W.C.C. 1923 Camp	Historic refuse/Dump

SITE ID	SITE NAME	SITE TYPE
LA02777	Triple Pond	Lithic scatter/quarry (prehistoric: no ceramics)
LA02778	Low Ridge Slough	Lithic scatter/quarry (prehistoric: no ceramics)
LA02779	Runway Hammock	Campsite (prehistoric)
LA02780	Ponceannah	Historic Ghosttown
LA02781	Brainard's Farm	Homestead
LA02782	Electric Fence	Ceramic scatter
LA02783	Carter House	Private Residence
LA02957	Seaboard Coast Line RR Grade	Railroad grade segment

C. Ground Disturbing Activities

Representatives of DHR and FNAI will be consulted prior to the initiation of any proposed significant ground disturbing activity, not listed in this plan, by FFS or any other public agency. The FFS will make every effort to protect known archaeological and historical resources. The FFS will follow the "Management Procedures for Archaeological and Historical Sites and Properties on State Owned or Controlled Lands" (Exhibit I) and will comply with all appropriate provisions of Section 267.061(2) Florida Statutes. Ground disturbing activities not specifically covered by this plan will be conducted under the parameters of the "List of ARC/Division of State Lands Approved Interim Management Activities".

D. Survey and Monitoring

On SSF there is one FFS personnel trained by DHR as an archaeological site monitor. FFS will pursue opportunities for getting additional personnel trained. FFS will consult with public lands archaeologists at DHR to determine an appropriate priority and frequency of monitoring at each of the 22 listed sites, as well as any protection measures that might be required. FFS field staff will monitor the listed sites to note condition and any existing or potential threats.

As information becomes available, and as staffing allows, any known archaeological and historical sites will be identified on maps to aid state forest and law enforcement personnel in patrolling and protecting sites. Applicable surveys will be conducted by FFS staff or others during the process of planning and implementing multiple-use management activities. FFS personnel will remain alert for any environmentally significant resources 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 ground disturbing activities in which DHR recommends monitoring. The 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

A. Soils and Geologic Resources

1. Resources

Soils information for SSF was obtained from the United States Department of Agriculture Natural Resources Conservation Service (NRCS) Lake County Soil Survey. For detailed information on soils see Exhibit J.

2. Soil Protection

Areas of soil erosion were identified during the wetland restoration needs assessment. Management activities will be executed in a manner to minimize soil erosion. If problems arise, corrective action will be implemented by FFS staff under the direction of the FFS Forest Hydrology section.

B. Water Resources

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's Hydrology Section to incorporate wetland restoration into the overall resource management program as opportunities arise, particularly where wetland systems have been impaired or negatively impacted by previous management activities or natural disasters.

1. Resources

The SSF is located in the central lake district of Florida. In this area, the uplifted limestones of the Floridan Aquifer lie below surficial sands. The area is sandhill karst with solution basins, and there is active sinkhole development in the area.

All waters within SSF have been designated as Outstanding Florida Waters. The Wekiva River forms the southeastern border of the Seminole Tract, and portions of Blackwater Creek, a major tributary to the Wekiva River, bisect the tract. Sulphur Run, a tributary to Blackwater Creek, forms the northern perimeter of Sulphur Island. In 2000, the Wekiva River together with Blackwater Creek and Rock Springs Run (not on SSF) were designated by the United States Congress as a National Wild and Scenic River (Exhibit K). The act required the river segments be designated according to the following classification schemes:

Wild river segments (8.9 miles on SSF) - 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.

Scenic river segments (0.45 miles on SSF) - 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.

Recreational river segments (2.2 miles on or adjacent to SSF) - 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.

Two borrow pits (Bear Pond (13 acres) and Oaks Pond (1.2 acres)) 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.

Fifteen named springs are found on the Seminole Tract. The springs include Blackwater, Helene, Moccasin, Palm, Shark's Tooth, Droty, Markee, Boulder, Cedar, Green Algae Boil, Blue Algae Boil, Blueberry, Snail, Uncle Baird, and Trickle. The largest spring is Blackwater Spring, a 3rd magnitude spring. Four of the springs are 4th magnitude springs, and eight of the springs are 5th magnitude 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 Kathyrn Heights and Lake Norris.

2. Water Protection

Water resource protection measures, at a minimum, will be accomplished through the use of Best Management Practices (BMPs) as described in the most current version of Silviculture Best Management Practices Manual.

Between 1997 and 2005 all of the named springs on SSF, with the exception of Helene, Trickle, and Uncle Baird were monitored by the United States Geological Survey, SJRWMD, or Lake County, to determine water quality and discharge. Additional data collection and monitoring is ongoing. All data collected is available from SJRWMD. Helene and Uncle Baird Spring were recently discovered and data are currently being collected by SJRWMD.

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.

Eight monitoring wells of varying depths are maintained by SJRWMD on the Seminole Tract.

Consideration will be given to eliminating ditches created to drain pastures, if it can be accomplished without flooding necessary roads, structures or adjacent land owners. The removal of old trams or culverts not necessary for access within wetlands will also be considered, if such action will significantly improve restoration of the wetland hydrology. Wetland restoration will be coordinated with SJRWMD. Any activities requiring water management district permits will be handled accordingly.

In September 2007, the FFS Forest Hydrology Section completed a wetland restoration needs assessment. The sites evaluated during this assessment were prioritized, with the highest priority assigned to those sites with real or potential water quality and/or wetland function/community impairment. Of the 126 sites evaluated, 20 sites were identified as "high priority", requiring corrective action within this planning period. The majority of the improvements needed at these sites related to road conveyance structures such as culverts and ditches. Corrective actions have been taken on some of the sites identified and the remainder will be corrected during this planning period.

Fill material and culverts were used by a previous landowner to create a dam across Palm Springs Run, resulting in a 0.2-acre spring pool. In 2002 a mitigation restoration project conducted by Florida Transmission Gas Company removed the culverts and fill material. Once the project was completed, seven vents or sand boils were revealed. This restoration project continues to be monitored. Plans are currently being considered to establish a small boardwalk at this site to minimize impacts to the spring boils and spring run, as well as the associated wetland ecology.

The Florida Gas Transmission Company also completed mitigation work in 2002 removing portions of a tram and culverts in the Blackwater Creek floodplain swamp. This tram was built by a previous landowner to allow the crossing of Blackwater Creek and was breeched by significant rain events. The restoration effort created a more natural creek bank and provided for the return of sheet flow across the floodplain swamp. Monitoring of this restoration project is ongoing.

C. Wildlife Resources

1. Threatened and Endangered Species

FFS employees continually monitor the forest for threatened or endangered species while conducting management activities. Specialized management techniques will be used, as necessary, to protect or increase endangered and threatened species and species of special concern, as applicable, for both plants and animals.

The Seminole Tract contains 41 animal and ten (10) plant species with Federal or State listed status. Six (6) of those listed species have Federal endangered or threatened status. The Warea Tract has five (5) animal and thirteen (13) plant species with Federal or State listed status. Ten (10) of the listed species on the Warea Tract

have Federal endangered or threatened status. Of these ten (10) species, four (4) plants and one (1) animal are restricted to Florida's Central ridges. Due to the high diversity of rare species on the Warea Tract, priority in management is required.

Presence of listed species is based on information compiled from FNAI tracking records (Exhibit L) and FWC as well as field observations by SJRWMD and FFS. The following listed species were identified:

Table 2. Endangered or Threatened Species on SSF

Common Name	Scientific Name	Federal Status *	State Status *	FNAI Global Rank *	FNAI State Rank *
Alligator	*Alligator mississippiensis*	LT (S/A)	LS	G5	S4
Am. Swallow-tailed Kite	*Elanoides forficatus*			G5	S2
American Kestrel	*Falco sparverius paulus*		LT	G5 T4	S3
American Redstart	*Setophaga ruticilla*			G5	S3
Bachman's Sparrow	*Aimophila aestivalis*			G3	S3
Bald Eagle	*Haliaeetus leucocephalus*			G5	S3
Berner's microcaddisfly	*Hydroptila berneri*			G4 G5	S3
Bluenose shiner	*Pteronotropis welaka*		LS	G4	S3
Brittons's beargrass	*Nolina brittoniana*	LE	LE	G3	S3
Chapman's sedge	*Carex chapmanii*		LT	G3	S3
Clasping warea §	*Warea amplexifolia*	LE	LE	G1	S1
Dirunal scrub june beetle	*Phyllophaga okeechobea*			G2	S2
Drysand pinweed §	*Lechea divaricata*		LE	G2	S2
Eastern indigo snake §	*Drymarchon corais couperi*	LT	LT	G3	S3
Florida black bear	*Ursus americanus*		LT	G5 T2	S2
Florida bonamia §	*Bonamia grandiflora*	LT	LE	G3	S3
Florida burrowing owl	*Athene cunicularia floridana*		LS	G4 T3	S3
Florida cebrionid beetle	*Selonodon floridensis*			G2 G3	S2 S3
Florida hasteola	*Hasteola robertiorum*		LE	G1	S1
Florida Hypotrichia scarab beetle	*Hypotrichia spissipes*			G3 G4	S3 S4
Florida mouse §	*Podomys floridanus*		LS	G3	S3
Florida pine snake	*Pituophis melanoleucus mugitus*			G4 T3	S3

Common Name	Scientific Name	Federal Status *	State Status *	FNAI Global Rank *	FNAI State Rank *
Florida sandhill crane	*Grus canadensis pratensis*		LT	G5 T2 T3	S2 S3
Florida scrub lizard	*Sceloporus woodi*			G3	S3
Florida Scrub-Jay	*Aphelocoma coerulescens*	LT	LT	G2	S2
Florida three-awned grass	*Aristida rhizomophora*			G2	S2
Florida willow	*Salix floridana*		LE	G2	S2
Giant orchid	*Pteroglossaspis ecristata*		LT	G2 G3	S2
Glossy Ibis	*Plegadis falcinellus*			G5	S2
Gopher frog	*Rana capito*		LS	G3	S3
Gopher tortoise §	*Gopherus polyphemus*		LT	G3	S3
Great Egret	*Casmerodius albus*			G5	S4
Laced-winged roadside skipper	*Amblyscirtes aesculapius*			G3 G4	S3 S4
Lewton's polygala §	*Polygala lewtonii*	LE	LE	G3	S3
Limpkin	*Aramus guarauna*		LS	G5	S3
Little Blue Heron	*Egretta caerulea*		LS	G5	S4
Little-entrance oxyethiran microcaddisfly	*Oxyethira janella*			G5	S4 S5
Nodding pinweed §	*Lechea cernua*		LT	G3	S3
Osprey	*Pandion haliaetus*		LS	G5	S3 S4
Paper-like nailwort §	*Paronychia chartacea spp. Chartacea*	LT	LE	G3 T3	S3
Papery whitlow-wort §	*Paronychia chartacea*	LT	LE	G3 T3	S3
Pescador's bottle-cased caddisfly	*Oxyethira pescadori*			G3 G4	S3
Piedmont joint grass	*Coelorachis tuberculosa*		LT	G3	S3
Pigeon-wing §	*Clitoria fragrans*	LT	LE	G3	S3
Pinesap	*Monotropa hypopithys*		LE	G5	S1
Round-necked romulus long-horned beetle	*Romulus globosus*			G1 G2	S1 S2
Sand butterfly pea §	*Centrosema arenicola*		LE	G2 Q	S2
Sand skink §	*Neoseps reynoldsi*	LT	LT	G2	S2
Scrub bay	*Persea humilus*			G3	S3

Common Name	Scientific Name	Federal Status *	State Status *	FNAI Global Rank *	FNAI State Rank *
Scrub buckwheat §	*Eriogonum longifolium var. gnaphalifolium*	LT	LE	G4 T3	S3
Scrub holly §	*Ilex opaca var. arenicola*			G5 T3	S3
Scrub palmetto flower scarab beetle	*Trigonopeltastes floridana*			G2 G3	S2 S3
Scrub plum §	*Prunus geniculata*	LE	LE	G3	S3
Scrub schizachyrium §	*Schizachyrium niveum*		LE	G1 G2	S1 S2
Scrub stylisma §	*Stylisma abdita*		LE	G3 S3	S3
Sherman's fox squirrel §	*Sciurus niger shermani*		LS	G5 T2	S3
Silk Bay §	*Persea humulis*			G3	S3
Snowy Egret	*Egretta thula*		LS	G5	S4
Striped Newt	*Notophthalmus perstriatus*			G2G3	S2S3
Three spotted pleasing fungus beetle	*Ischyrus dunedinensis*			G2 G4	S2 S4
Wakulla Springs vari-colored microcaddisfly	*Hydroptila wakulla*			G2	S2
White Ibis	*Eudocimus albus*		LS	G5	S4
Wood stork	*Mycteria americana*	LE	LE	G4	S2
Yellow-crowned Night Heron	*Nyctanassa violacea*		LE	G5	S3
Zabulon skipper	*Poanes zabulon*			G5	S4

*** STATUS/RANK KEY**

Federal Status (USFWS): LE= Listed Endangered, LT= Listed Threatened, LT(S/A) = Listed Threatened due to similarity of appearance.

State Status (FWC): LE= Listed Endangered, LT=Listed Threatened, LS= Listed Species of Special Concern.

FNAI Global Rank: G1= Critically Imperiled, G2 = Imperiled, G3= Very Rare, G4= Apparently Secure, G5= Demonstrably Secure, T#= Taxonomic Subgroup; numbers have same definition as G#'s.

FNAI State Rank: S1= Critically Imperiled, S2= Imperiled, S3= Very Rare, S4= Apparently Secure.

§ = Endangered or Threatened Species on the Warea Tract.

The endangered wood stork does not presently nest on SSF and will require no action other than protection while on State land. Prescribed fire in the uplands will help assure that pocket gophers (*Geomys pinetis*) and gopher tortoises will thrive, and the burrows created by these animals will provide shelter for the indigo snake. Emphasis on scrub restoration will improve habitat for the Florida Scrub-Jay and Sand skink.

The Northeast Florida Scrub Working Group was formed in 2007 to facilitate communication among agencies involved in scrub management. Sub-committees were formed to focus on particular scrub-related issues. SSF staff members are participating in the scrub management and FSJ monitoring sub-committees.

Management of scrub on SSF will include consideration of ongoing management on both public and private adjacent lands.

As of June 2010, there were 43 Florida Scrub-Jay (FSJ) territories with a total of 111 individual FSJs inhabiting the sand pine scrub and scrubby flatwoods in the Seminole Tract (Exhibit M). Since 2000, treatments to restore FSJ scrub habitat (logging, roller chopping, prescribed burning, and combined approaches) have significantly improved scrub habitat on the forest. FSJs have moved into and established breeding territories in many of these treated areas, and overall it appears the FSJ population on the forest is growing. Action is required to continue the improvement of habitat for the FSJs. Special management consideration will be given to the FSJs during this ten year period. Prescribed fire and mechanical alteration of vegetation will be used. Effective management of this species will require strategically planned restoration of degraded scrub on SSF so that disjunctive fragments of suitable scrub will ultimately lie within the normal dispersal range for scrub-jays.

Florida black bears are common in the Wekiva basin and use the Seminole Tract regularly. Surveys have been conducted by FWC to evaluate the range of the local population. Black bears on SSF are known to travel between the Ocala National Forest and the Wekiva Basin. Black bears have large territories, and access to and from other State and Federal lands is imperative. Many black bear deaths occur as animals cross SR 46 going to and from the Seminole Tract. To limit the number of bear fatalities on SR 46, two wildlife underpasses were constructed between the Seminole Tract and Rock Springs Run State Reserve. The FFS is responsible for managing vegetation on the north side of SR 46 to direct bears toward the underpasses. Vegetative cover with internal travel corridors will be maintained to funnel wildlife to the underpasses. Areas adjacent to the vegetative cover will be maintained as open areas to discourage wildlife movement outside of the vegetative corridor.

The redesign of SR 46 is currently being considered as part of the Wekiva Parkway Project Development and Environment Study that is still in process. The current preferred alternative includes providing two land bridged sections of SR 46 and the Wekiva Parkway at the historical wildlife crossing areas where the wildlife underpasses exist. The bridge across the Wekiva River would also be lengthened to allow additional area for wildlife to move adjacent to the river. The existing sections of SR 46 in the footprint of the proposed land bridges would be removed. The preferred alternative would also relocate the existing CR 46A that currently bisects the SSF Design Homes parcel (Exhibit C), to an area west of the forest. The existing portion of CR 46A that crosses the Design Homes parcel could then be removed, providing a path with no roads to cross for wildlife moving from south of the parkway to the Seminole Woods property to the north.

Sand skink have been found on the Sulphur Island scrub on the Carter parcel and on the Warea Tract. There are no data on the Florida mouse population on SSF, though they are occasionally seen.

The Florida hasteola, Chapman's sedge, and Florida willow are known to occur in the hydric hammock adjacent to Sulphur Run. Surveys are needed to determine population sizes and specific locations of these three species. The Seminole Tract has one of the largest known populations of the Florida hasteola. Additional culverts have been installed along the trammed portion of Palatka Road to facilitate water movement in the floodplain in the area adjacent to the Florida hasteola populations. The hydric hammock will be protected from hydrological alterations and heavy equipment to provide protection for all endangered species that occur. An upland buffer will be maintained adjacent to the Sulphur Run hydric hammock.

Silk bay or scrub bay occurs on almost all scrub in the Seminole Tract. Also, a few scrub holly trees have been observed in the Sulphur Island Scrub. Management related to protection of FSJ habitat will help ensure the survival of scrub plant species. Piedmont joint-grass and Florida three-lawn grass are typically found around depression marshes. The areas where these species occur will be protected from hydrologic alterations and disturbances from heavy equipment.

The Warea Tract is so named for the federal & state endangered Clasping warea, an annual herb with conspicuous basal lobes which clasp the stem and is endemic to the Lake Wales Ridge. Fire breaks have been constructed around the perimeter of the Warea Tract to facilitate prescribed burning and prescribe fire has been introduced to two thirds of the tract. Pockets of xeric hammock have developed from lack of fire. Direct herbicide treatments have been applied to approximately 76 acres of these xeric hammocks, and additional acres are scheduled for treatment. Groundcover disturbance will continue to be minimized and access to the site will remain limited. Sandhill restoration efforts will continue to improve habitat for the gopher tortoise and all of the other Warea Tract listed species.

2. <u>Game Species and Other Wildlife</u>

Wildlife management will play an important role in the management of resources on SSF. The state forest currently makes up all or part 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. The FWC provides cooperative technical assistance in managing the wildlife and fish populations, setting seasons, establishing bag and season limits and overall wildlife and fish law enforcement.

The FFS and FWC cooperatively maintain six permanent wildlife openings and planted food plots on the SSF totaling 12 acres. Wildlife openings and food plots will be established and maintained in accordance with Chapter 7 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. Exhibit N lists the wildlife and plant species found on SSF. The current State Forest Handbook gives additional

details for such things as snag management and retention. Fallen trees and logs in Blackwater Creek, Sulphur Run and their tributaries are important for biological productivity within these water systems.

3. Survey and Monitoring

Species-specific management plans will be developed when necessary. FWC conducts annual monitoring of game species. Continued biological surveys will be conducted to determine locations of these species.

A comprehensive survey for Clasping warea was last conducted on the Warea Tract in the fall of 2008 and a spot survey of listed species was completed in the fall of 2009. Surveys for this plant and other listed species have been ongoing. In 2007, a 100% survey for gopher tortoise burrows was conducted on 66 acres of the Warea Tract, as part of a tortoise relocation program. Based on active and inactive burrows, it was estimated that the total resident population was 155 tortoises. Sand skink surveys have been conducted on the Warea Tract, and locations have been noted for each occurrence (surface burrow patterns and /or actual individuals seen/captured).

Sherman's fox squirrel, Bachman's Sparrow, and American Kestrels all are found on SSF, but no dedicated surveys of their populations have been conducted to date. Sherman's fox squirrels have been found on sandhills with older longleaf pines on the Tanner parcel and on the Warea Tract. Bachman's Sparrows have been heard singing on SSF during breeding season, and have been counted on Audubon Christmas Bird Counts on SSF. The American Kestrel has also been tallied on these counts on SSF, but no distinction is made then between the resident *paulus* subspecies and other subspecies that only winter here. The *paulus* subspecies can be seen on SSF during the breeding season, but is very uncommon. No other evidence of its breeding on SSF has been seen.

No formal surveys of the gopher tortoise population on the Seminole Tract have been conducted, but they and their burrows are commonly seen, particularly in early successional scrub, healthy sandhill habitats, and in the xeric soils of bahia grass pastures. They area also present, though far less common, in the mesic flatwoods.

The gopher frog has been found on Seminole in the scrub areas on the Carter, Ellis and Clemmons parcels. The protection of the gopher tortoise, and thus their burrows, preserves the gopher frog's daytime refuge, and the protection of ephemeral and seasonal ponds preserves its breeding habitat on SSF. During the 2009 and 2010 surveys for striped newt (*Notophthalmus perstriatus*), conducted by FWC and SSF personnel, five ponds on SSF were found to have gopher frog larvae. The striped newt is only known on SSF from a single pond adjacent to Grade Road in the Carter parcel. "Many" larvae were found there and a voucher sample was taken in 2006. The survey mentioned above also found larvae in that pond in June 2010.

D. Sustainable Forest Resources

The 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. A comprehensive inventory of merchantable pine stands was completed in September 1997, and the fieldwork for a hardwood inventory was completed in October 1999. Annual forest inventory updates began in 2000, following FFS's established procedures. Inventories will be updated on a continual basis according to guidelines established by FFS's Forest Management Bureau.

E. Beaches and Dune Resources

No beaches or dunes occur on the SSF.

F. Mineral Resources

Some areas on the forest have outstanding mineral rights. There are no known significant mineral deposits of commercial value on SSF.

G. Unique Natural Features and Outstanding Native Landscapes

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 Seminole Tract contains approximately 4,319 acres of sand pine scrub and 459 acres of scrubby flatwoods, which are rare and rapidly disappearing natural communities. The scrub and scrubby flatwoods provide habitat for 43 FSJ territories, and contain at least two endemic scrub plant species. The scrub is ideally located between much larger scrub-jay populations to the north and south, and therefore serves as an important link in the survival of this species.

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

At least fifteen 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 (LWRPSP). The Tract also contains nine miles of Blackwater Creek and nearly all of Sulphur Run. The Wekiva River, together with Rock Springs Run and Blackwater Creek, is designated as a National Wild and Scenic River.

A population of yellow poplar (*Liriodendron tulipfera*) occurs within the hydric hammocks adjacent to Sulphur Run and Blackwater Creek. These trees may represent the southern extent of their range.

H. Research Projects/Specimen Collection

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

All research projects to be considered on SSF must be considered in accordance with the guidelines stated in Chapter 4 of the State Forest Handbook (FFS 2008). Any requests for research projects 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 project. 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 research projects to 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.

I. Ground Disturbing Activities

Although the FFS's approach to handling ground disturbing activities is identified in various sections of this plan, the FFS's overall approach to this issue is summarized here. The 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. This includes areas such as known archaeological, fossil, and historical sites, ecotones, wetlands, and sensitive species.

When new pre-suppression firelines, recreational trails, or other low-impact recreational 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 the FNAI, DHR, and when necessary, the ARC.

V. Public Access and Recreation

The primary recreation objective is to provide the public with dispersed outdoor recreational activities that are dependent on the natural environment. The FFS will continue to promote and encourage public access and recreational use by the public while protecting resources and practicing multiple-use management. Recreation activities available on SSF include hiking, horseback riding, fishing, primitive camping, off-road bicycling, hunting, canoeing/kayaking, bird watching and nature study.

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 the FFS determines their compatibility with other forest uses and forest resources.

A. Existing

Primary access to the Seminole Tract is available to recreational users through two multi-use trailheads (Exhibit O). The Cassia Trailhead is located off of Brantley Branch Road, 500 feet east of SR 44, and provides parking for 17 vehicles and pull-through parking for four vehicle/trailer combinations. The Bear Pond Trailhead is accessible from SR 46, approximately 2,000 feet west of the Wekiva River. Parking for 20 vehicles is available along with pull-through parking for four vehicle/trailer combinations. One handicap parking spot is located adjacent to the handicap accessible fishing dock at Bear Pond, and another is adjacent to the pavilion. Both trailhead parking areas are surrounded by a slotted wooden fence.

One multi-use trail access point and three single-use trail access points are located along the LWRPSP boundary to provide connections to adjacent trails. One hiking trail access point exists at the intersection of CR 44A and SR 44. Canoe access is located at the Blackwater Creek Day Use Area, Moccasin Camp, SR 44, and CR 44A.

Dispersed recreation is encouraged from the Cassia and Bear Pond Trailhead parking areas. The trailheads provide access to hiking, bicycling and equestrian trails. Drive-in access is provided through issuance of State Forest Use Permits and allows forest visitors to use over 25 miles of open designated roads. Approximately 1,000 permits are issued each year. User fees are collected for all day use activities and camping.

An improved parking area has been established for access to the Lake Tracy Unit Seminole Forest WMA (Exhibit O). The parking area provides space for six vehicles and three pull through vehicle/trailer combinations. Four additional mowed parking areas are located along Lake Tracy Road, and four new parking areas have been created just north of the intersection of CR 44A and SR 44, Bottany Woods Drive, Lake Norris Road and on Sod Farm road. These parking areas are currently being used by hunters taking part in the quota hunts.

A parking area has also been established near the intersection of CR 46A and SR 46 for hunter access to the newest addition to the Seminole Forest WMA. This area is being referred by local staff as Seminole West.

The Bear Pond Day Use Area is the most developed recreation area on the forest. A drive by self-service pay station is located at the entrance to the parking area. User fees are collected for all day use activities and camping. Information kiosks include a large color aerial recreational trails map near the hiking trailhead and a smaller map at the horse trailhead kiosk. Two other informational signs include the Bear Pond Fishing

Regulations and FWC Wildlife Management Area signs. A pavilion which shelters four picnic tables and has two cooking grills has been constructed adjacent to Bear Pond. A floating dock is present on Bear Pond and a composting toilet is located between the dock and the pavilion. Two bear-proof garbage containers are located adjacent to the fishing dock and pavilion.

The Cassia Trailhead has a self-service pay station, information kiosk with a large color aerial recreation map, a smaller map at the horse kiosk, one bear-proof garbage can, and a portable toilet.

Horse watering stations, consisting of aluminum troughs, are located at six points along the horseback riding trails, which include the Bear Pond and Cassia Trailheads.

There are eight primitive campsites on SSF. Five of these campsites are located along the hiking trails, and are available on a first-come, first-serve basis. Three primitive campsites are available by reservation: Oaks Camp, Moccasin Springs Camp, and Jumper Camp. Moccasin Springs Camp is located on the bank of Blackwater Creek and will accommodate five people. Oaks Camp and Jumper Camp are adjacent to open fields and will accommodate up to 20 people. Each named campsite is equipped with a fire ring and picnic tables.

The Blackwater Creek Day Use Area is located on the bank of Blackwater Creek, just north of the concrete bridge on Sand Road. This site has a picnic table and a boat launching area. The bank of the creek has been stabilized to allow improved access for bank fishing and boat launching. Only hand-launched watercraft and electric motors are permitted.

The Seminole Tract provides 67 miles of recreational trails for hikers, horseback riders and off-road bicyclists. Approximately nine miles of these trails, are designated as multi-user.

The Florida Trail Association (FTA) has installed and maintained, with forest staff assistance, over 24 miles of hiking trails. These trails are comprised of loop trails; through trails; and spur trails. Eleven miles of the Florida National Scenic Trail (FNST) crosses multiple parcels of SSF, stretching from SR 46, north to the Ocala National Forest. The Lower Wekiva Loop, near the Bear Pond Trailhead, offers hikers a close-up view of scrub and scrubby flatwoods as well as mesic flatwoods and hydric hammocks. The loop is formed by the White Trail and portions of the FNST. Round trip from the trailhead is 10.4 miles. Approximately three miles of this trail meanders onto LWRPSP and then back onto SSF. The North Sulphur Island Loop goes around the north half of Sulphur Island and takes visitors through scrub in varying stages of restoration. This loop combines the Blue Trail and a portion of the FNST and totals 3.5 miles. Both of the loop trails are part of the Florida Forest Service's State Forest Trailwalker Program.

Horseback riding is allowed on 25 miles of designated loop and connector trails. From the Bear Pond Trailhead, riders can take a short connector to the 7.2 mile River Creek

Loop. This trail takes riders through scrubby and mesic flatwoods. From the Cassia Trailhead, a two or three mile connector trail will lead riders to the Paola Loop or Sulphur Island Loop. The Paola Loop is 4.2 miles and primarily passes around and through overgrown sand pine scrub that is undergoing restoration. The Sulphur Island Loop is 7.4 miles and roughly follows the perimeter of Sulphur Island. Sulphur Island has the highest elevation on the forest and is surrounded by Sulphur Run and Blackwater Creek. Sulphur Island and River Creek Loop are included in the Florida Forest Service's State Forest Trailtrotter program. Horseback riding is permitted only on marked horse trails. Some of the residents of the adjacent Wekiva Pine Estates have access to a perimeter gate and connector trail for horseback riding. The 1.2 mile connector trail follows the forest perimeter and then a service road before connecting to the existing southwest portion of the River Creek Loop.

Bicycles are permitted on over 25 miles of open designated roads and multi-user trails. The majority of the open designated roads have been improved, providing a stable surface for novice off-road bikers. The multi-user sections of the trail include some of these open designated roads and also unimproved forest two trails that are shared with hikers and horseback riders.

SSF is included in The Great Florida Birding Trail. This program is a project of the FWC and sites are selected for their excellent bird watching or bird education opportunities.

Environmental education on SSF has been conducted through guided tours and hands-on activity events. Other opportunities for interpretive/educational programs will be considered. Targeted groups have included the general public, school and youth groups, and various user groups. Cooperation exists between Lake County and FFS in an effort to promote eco-tourism opportunities on SSF.

The Warea Tract has limited access for research and guided tours. This tract has numerous endangered species that are sensitive to ground disturbance. Public access to the site will be reviewed during this ten year period.

On the Seminole Tract there are twenty-five miles of open designated roads that accessible to public vehicular use, of which 21 miles have been improved with crushed concrete (Exhibit P). These roads provide public access and serve as part of the recreational trail system. Maintenance and improvement of these roads represent one of the most significant costs in this state forest's budget. Other unimproved roads or firelines are used to support management activities. Unnecessary roads have been closed and are allowed to re-vegetate naturally.

Unimproved service roads exist on the perimeter of the Warea Tract, and two internal service roads divide the Tract into three 40-acre blocks. The state has an ingress/egress easement across seven private parcels to access the Tract. An improved clay road has been constructed along the easement by FFS and the easement perimeter is fenced.

B. Planned

The focus of the outdoor recreation program for the next ten years will be for the renovation of the existing facilities. New recreation opportunities and facilities, which are compatible with the primary goals and responsibilities of the FFS, will be considered only after the FFS investigates the need and impact. Frequently, recreation opportunities are limited by staffing, budgeting, and resource impacts. Therefore, improvements and additions mentioned in this plan are contingent on these items. Approximately 8.3 miles of roads are planned to be improved on the Lake Tracy Unit to serve both hunters and potential recreational users. A trail system will be evaluated and possibly developed on the Lake Tracy Unit to include hiking and horse trails. The existing parking area will serve as the recreational trailhead, and a kiosk and self-service pay station will be established. Additional opportunities to provide forest recreation opportunities for handicap users will be evaluated.

Florida National Scenic Trail

The FTA is requesting a change in the location of the Florida National Scenic route north of SR 44. This change would move the trail from existing private lands and public roads to recently acquired public lands. Two separate routes are being proposed by FTA. Both routes would begin just north of SR 44 and CR 44A intersection. The dry weather route would cross Blackwater Creek on the CR 44A bridge and then follow along on the south side of Blackwater Creek towards Lake Norris, eventually crossing the SSF Johnson/Shockley parcel before connecting with Clearwater Lake on the Ocala National Forest. This route would require constructing boardwalks through portions of the Blackwater Creek floodplain on the SSF Fisch parcel. Over two miles of boardwalk would be required on the Lake Norris Conservation Area, west of Lake Norris. The wet weather route would head north through the SSF Fisch parcel on the east side of Blackwater Creek, and would require some boardwalks. The route would continue north through the Lee and Vergara Parcels toward Maggie Jones Road (Exhibit O). Permitting for this project will be handled primarily by FTA with assistance from forest staff. The FTA prefers the dry weather route, although funding may be a limitation due to the extensive boardwalk construction that would be necessary.

The two proposed FNST routes have potential for establishing additional primitive hiking camps. Dry disturbed sites will be considered when selecting camp locations.

Bear Pond Day Use Area

The composting toilet currently located at the Bear Pond Day Use Area is planned to be upgraded to a Romtec self-contained vaulted restroom. The composting toilet would be moved to the Cassia Trailhead. Landscaping to include oaks and woody shrubs will be planted around the pavilion. Current fishing access on Bear Pond is limited to the existing dock and several open areas along the small ponds bank. Hand launched boating access on Bear Pond will be evaluated to determine if it would be compatible with current use.

Cassia Trailhead
A composting toilet is planned to be relocated from the Bear Pond Day Use Area to this trailhead. Other planned improvements include establishing power to an existing well and installing a pump. This water source would be used to fill the existing water trough.

Blackwater Day Use Area
A wooden fence will be installed between Sand Road and the Blackwater Day Use Area to restrict vehicles from the picnic area and creek bank. A cooking grill will be placed near the picnic table. A canoe trail with interpretive signs is being considered on Blackwater Creek beginning at the Blackwater Creek Day Use Area. An evaluation will be made to determine if canoe trail blazes are needed along the creek to assist users in following navigable routes. Replacement of the angular surfaced gravel at the launch area will be considered to provide for a smoother surface for walking and sliding water craft into the creek.

Frey Cabin Group Use Camp
An existing cabin on the Frey parcel may be improved to provide a special group use camp. The cabin is located on a small lake. A ramp would be established adjacent to the existing fishing dock to permit the hand launching of small boats. The ramp is needed to stabilize the bank.

Roche/Lee Parcel Hikers Shelter
Utilizing assistance from the Boy Scouts, improvements will be made to the structure. The structure will provide shelter from the weather and serve as a hiker's camp.

Upper Blackwater Creek
An evaluation needs to be conducted to determine if a canoe route could be established and maintained.

Reservation Camps
The three reservation camps are well used during the cooler months. Plans to establish additional reservation camps will be evaluated.

Recreational Trails and amenities
On a case by case basis, additions or modifications to the recreational trails and amenities system will be evaluated with local user groups input on a regular basis.

In association with the Wekiva Parkway project, FDOT has begun to evaluate the potential for developing a regional trail linking Orange, Lake and Seminole counties. Various concepts have been proposed for paved and unpaved access. FFS will need to continue to coordinate with FDOT, local counties and public land management agencies to ensure that such a trail system, if constructed, does not hinder land management efforts or interfere with the function of the wildlife crossing structures.

C. Hunter Access

Hunting and fishing is regulated by FWC. Hunting season dates, limits, and methods are established annually by FWC, in consultation with FFS. Current hunting is allowed on 13,582 acres on the Seminole Forest WMA and 9,265 acres on the Lake Tracy Unit. Participation in game hunts is limited through a random-drawn quota permit or first-come, first-serve 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 electric and water, two information kiosks, a picnic table and a skinning rack.

Areas most commonly used for fishing on SSF include Bear Pond, Oaks Pond, Blackwater Creek Day Use Area and the bridges on Sand Road, SR 44 and CR 44A. Several perennial ponds are also suitable for fishing.

Additional open designated roads are planned to provide access to the Lake Tracy Unit WMA and its new additions (8.3 miles). These roads will follow existing two-trails and would allow hunters and other potential recreational users additional access to this area. The existing roads planned as additions to the open designated system are in poor condition and will need to be improved with suitable road material.

VI. Habitat Restoration & Management Practices

A. Prescribed Fire

The FFS utilizes a total fire management program on state forests that includes wildfire prevention, detection and suppression, and prescribed burning. This program is the responsibility of the FFS's Withlacoochee Forestry Center. Emphasis will be placed on prescribed burning, wildfire prevention and education to help reduce wildfire occurrence on the forest. The FFS has three paramount considerations regarding wildfires, and these are listed in priority order: 1) protection of human lives, both the firefighter's and the public's, 2) protection of improvements, and 3) protection of natural resources.

The annual forest prescribed burning program produces multiple benefits. The purposes of prescribed burning on SSF are to facilitate forest management operations and enhance wildlife and listed species habitat, to decrease fuel loading, consequently enhancing public safely, and to restore, maintain, and protect all native ecosystems, ecotones, and their ecological processes. FFS personnel are responsible for planning and implementing the annual prescribed burn program for SSF, which will consist of growing and dormant season burns. Burns are planned by the State Forest staff with input from cooperating agencies as appropriate. A SSF annual Prescribed Burn Plan is developed each year, which identifies the individual burn unit prescriptions, whether the unit is on a growing or dormant season rotation, map of burn unit, and other information specific to that burn unit. The smoke screening system will be used as a smoke management tool to minimize the adverse impact of smoke that may affect residential communities, public roads, schools, and other smoke sensitive areas.

The Warea Tract has residential developments that border the north, south and portions of the west boundary. Managing smoke from prescribed burning to limit impacts to neighbors will be especially challenging. A large volume of dead wood has been generated from the herbicide operations conducted to reduce the number of invasive oaks occupying the site. This extra fuel loading will require thorough mop up operations.

Approximately 71% of the acreage (roughly 19,180 acres) of SSF supports vegetative communities that are fire dependent. Past land uses have left some of these historically fire dependent communities in a condition unable to carry prescribed fire. Currently, approximately 4,800 acres are in a fire maintenance condition. Fire return intervals range from 1-3 years in the sandhills to 2-4 years in the mesic flatwoods and their associated marshes, to 2-10 years in the wet flatwoods, to 5-20 years in the scrub. Based on current conditions and management objectives, SSF will plan for a minimum of 3,600 acres up to a maximum of 8,100 acres to be prescribe burned annually. Restoration of these areas by removal of the off-site species and reforestation will increase prescribed burn acreage goals over time. Meeting prescribed fire goals will be largely dependent on weather conditions, personnel, and statewide emergency situations such as wildfires, hurricanes and other natural disaster response and relief.

Presuppression firelines will be constructed in accordance with BMPs. Whenever possible, alternatives to plowed firelines, such as harrowed lines or natural breaks should be used. Post burn evaluations will be performed to monitor effectiveness of the prescribed burns. The procedures for conducting post burn evaluations are outlined in the Forest Health section of the State Forest Handbook.

B. Sustainable Forestry & Silviculture

Timber is a valuable economic and ecological resource, and timber harvesting for the purposes of generating revenue, improving stand viability, forest health, and biological restoration and maintenance, is critical to the silvicultural objectives on the state forest.

1. Strategies

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

- 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.

- To create, through natural 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. Silvicultural Operations

Silvicultural operations on SSF will be directed toward improving forest health, wildlife habitat, biological and economical sustainability, as well as toward recovery from past management practices that are not in accordance with the objectives of this plan. Stands of off-site species with merchantable volume will be scheduled for

harvest, followed by a subsequent reforestation with the appropriate tree species. Herbicide applications may be necessary to control woody competition and to re-establish desired natural species of both overstory and ground cover. Site preparation methods will include prescribed fire, mechanical vegetation control, and herbicide applications.

Prescribe fire is the most desirable method of vegetation control for fire dependent ecosystems; however, due to the existence of areas where fuel loads have reached dangerous levels or urban interphase dictates prescribed fire is not suitable, mechanical site preparation (roller chopping/gyro tracking) is a consideration. Mechanical 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 plant communities through timber harvesting will include thinning for maintenance and regeneration, and clear-cutting to remove off-site species.

All silvicultural activities (including timber harvesting and reforestation) will meet or exceed the standards in the FFS's Silviculture Best Management Practices (BMPs) and the State Forest Handbook.

3. Timber Inventory Control

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 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.

4. Timber Sales

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.

C. Non-Native Invasive Species Control

FFS employees continually monitor the forest for non-native invasive species while conducting management activities. The practice of the FFS is to locate, identify and eradicate or control non-native invasive species. When these species are discovered, an eradication or management plan will be developed with the assistance of the Forest Management Bureau's Forest Health Section as needed. The plan will be implemented based upon the severity of the infestation and the availability of personnel and funding. State Forests are periodically surveyed by FFS staff, and detection of populations of non-native invasive species are noted and prioritized for appropriate control action. Known occurrences of non-native invasive species are prioritized and treated as funding and personnel allow, with the intention of ultimately eradicating such pests from State Forest property. These occurrences are recorded in the GIS database and updated as new plants are discovered. When large infestations of Japanese climbing fern (*Lygodium japonica*)

are discovered, assistance from the FWC Invasive Plant Management Section's Lygodium Strike Team will be utilized. Adjacent landowners who are known to have these species on their property will be approached in an effort to cooperate on control measures. The FFS will enlist support from the FWC in the effort to control non-native invasive animals. Feral hogs (*Sus scrofa*) are present on some tracts of the SSF. The FWC has issued a feral hog control trapping permit to FFS for all state forests and the FFS will encourage hog removal on SSF through trapping and hunting.

A detailed non-native invasive plant survey was completed in September 2006 by FFS, which included mapping the locations of 21 non-native invasive species (Exhibit Q). Most of these species have been treated with the appropriate herbicide. Some of the non-native invasive plant species that have been identified on SSF include cogon grass (*Imperata cylindrica*), Chinese tallow (*Sapium sebiferum*), air potato (*Dioscorea bulbifera*), tropical soda apple (*Solanum viarum*), Natal grass (*Rhychelytrum repens*) and Chinaberry (*Melia azedarach*). Herbicide application has been used to initiate control of these species. A DEP grant was executed in March 2005, which provided for herbicide application on a variety of non-native invasive species. Most of these species were located in small pockets scattered across nine different parcels. Approximately 135 acres of tropical soda apple infestation on the Johnson/Shockley and Shockley Parcels were also treated under this grant. A second DEP grant was executed in April 2007, which treated 80 acres of tropical soda apple and five acres of Chinaberry on the Johnson/Shockley and Design Homes parcels. In-house funding has been used to hire vendors to assist on follow-up treatments.

Tropical soda apple persists in very low populations on the three cattle grazing lease areas that exist on SSF. The lessees assume the responsibility for monitoring and treating for tropical soda apple or other non-native plants of concern found to occur on the grazing lease areas. Forest staff will continue to monitor these areas and direct the lessees to apply treatments, if required.

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

Table 3. Non-Native Invasive Plant Species Occurring on SSF

Common Name	Scientific Name	FLEPPC / Priority	Acres Impacted	Increasing/ Decreasing
Flora				
Air-potato	*Dioscorea bulbifera*	I	1.88	Stable
Caesar's weed	*Urena lobata*	II	5.38	Decreasing
Camphor tree	*Cinnamomum camphora*	I	1.13	Decreasing
Castor bean	*Ricinus communis*	II	0.01	Stable

Common Name	Scientific Name	FLEPPC / Priority	Acres Impacted	Increasing/ Decreasing
Chinaberry	*Melia azedarach*	II	6.29	Decreasing
Chinese tallow	*Sapium sebiferum*	I	0.70	Decreasing
Cogon grass	*Imperata cylindrica*	I	0.74	Stable
Coral ardisia	*Ardisia crenata*	I	0.01	Stable
Earpod Tree	*Enterolobium contortisiliquum*		0.08	Decreasing
Guinea grass	*Panicum maximum*	II	0.49	Stable
Japanese climbing fern	*Lygodium japonicum*	I	0.10	Decreasing
Lantana	*Lantana camara*	I	0.90	Decreasing
Mimosa	*Albizia julibrissin*	I	0.04	Decreasing
Natal grass	*Rhynchelytrum repens*	I	1.91	Decreasing
Purple sesban	*Sesbania punicea*	II	0.00	Decreasing
Showy rattlebox	*Crotalaria spectabilis*		0.02	Stable
Sword fern	*Nephrolepis cordifolia*	I	0.23	Stable
Torpedo grass	*Panicum repens*	I	0.73	Stable
Tropical soda apple	*Solanum viarum*	I	77.09	Decreasing
Water-hyacinth	*Eichhornia crassipes*	I	1.00	Stable
Water-lettuce	*Pistia stratiotes*	I	1.00	Stable
Fauna				
Feral hog	*Sus scrofa*		Unknown	Unknown

FLEPPC categories are from the 2009 Florida Exotic Pest Plant Council List.
Abbreviations: N = Noxious weed listed by Florida Department of Agriculture & Consumer Services;
U = Noxious weed listed by U.S. Department of Agriculture.

D. Insects, Disease and Forest Health

Currently, there are no insect or disease problems on SSF, although the SSF has a history of southern pine beetle. During 2001 Lake County experienced its first recorded outbreak of southern pine beetle, with 12 spots located on SSF. The beetle infestations were minor on SSF in comparison to sizeable outbreaks on the Lower Wekiva River Preserve State Park and Seminole Woods property on each side of the forest. In 2007, three minor spots were found on SSF. Southern pine beetle surveys will continue to be conducted annually. In the event of an outbreak of southern pine beetle, consultation with the Forest Management Bureau's Forest Health Section will be sought to formulate an appropriate and effective response.

In compliance with section 388.4111, Florida Statutes and in Sec. 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. With the approval of this plan documenting this designation, the local arthropod control agency in Lake County will be notified of 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 be in compliance with DACS guidelines and using the appropriate DACS form. The plan must then be approved and mutually adopted by the county, FFS and DACS, 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.

E. <u>Use of Private Land Contractors</u>

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 or are anticipated to include:

- *Site Preparation* - Private equipment/forestry operation companies are hired routinely to site-prepare lands slated for restoration/reforestation needs.

- *Reforestation* - Private equipment/forestry operation companies have been hired to machine and hand plant, bare root and tubeling seedlings on land managed by the FFS.

- *Road Repair* - Road improvement materials delivery and road improvement work has been and will continue to be contracted as needed for upgrade and road repair projects.

- *Non-native Invasive Plant Control* -The use of contractors has been very effective in the treatment of non-native invasive plant species. Contractors will be considered for future treatment needs.

- *Boundary Maintenance* - Contractors have been used to establish permanent perimeter lines, construct boundary fencing, and mark boundaries. Due to the vast number of miles of perimeter boundary to maintain, future contractor assistance may be needed.

- *Demolition of Structures* - Several structures still require demolition, and contractor assistance will likely be required.

- *Restoration* - Contractors have been used for roller chopping in the scrub and for timber stand improvements in the sandhills. There is plenty of potential for additional contractor assistance for future restoration projects.

VII. Proposed Management Activities for Natural Communities

Restoration during this ten-year period will begin with a forest wide assessment of the fuel loading, timber densities and groundcover in order to develop a five year comprehensive operational plan for prescribed burning across the forest. Strategies may include thinning of overly dense pine plantations, mowing or chopping in areas of heavy fuel buildup and/or application of cool dormant season fires. The results of these initial efforts will be monitored and more refined and detailed restoration plans will be made. Fire return intervals are included as a guide and may vary depending upon specific conditions. The intention is to use fire in a manner and frequency that will attain the desired habitat goals. Fire frequency is generally increased or decreased depending upon the conditions of the specific area.

Table 4. Vegetation Types Found on SSF

Vegetation Type	Acres Mapped (Historic)	Acres Mapped (Current)
Mesic Flatwoods	7,850	4,554
Scrub	4,702	4,319
Hydric Hammock	2,812	3,083
Floodplain Swamp	2,358	2,542
Basin Swamp	2,203	2,641
Sandhill	1,872	692
Basin Marsh	1,325	1,408
Scrubby Flatwoods	1,192	459
Wet Flatwoods	946	1,689
Depression Marsh	774	530
Baygall	289	67
Flatwoods Lake	286	272
Sandhill Upland Lake	232	170
Dome Swamp	120	83
Upland Mixed Forest	59	260
Floodplain Marsh	55	16
Wet Prairie	7	9
Pasture-Semi-Improved		1,450
Pine Plantation on ruderal areas		1,212
Pasture-Improved		852

Vegetation Type	Acres Mapped (Historic)	Acres Mapped (Current)
Ruderal		774
Blackwater Stream	**	**
Spring-Run Stream	**	**

Note: Current community types have been verified during the forest inventory process. Differences between the above Historic and Current acres mapped are a result of this verification and deductions for Pastures, Pine Plantations (on ruderal areas) and Ruderal areas.

In May 2006, FNAI completed an inventory and natural community mapping project for SSF and a historic natural community type map (Exhibit R) was created. Current natural communities and cover types can be found in Exhibit S. The following desired future conditions, current condition descriptions, and management recommendations to attain desired future condition are taken from this 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.

A. Mesic Flatwoods

Mesic flatwoods is characterized by uneven-aged or even-aged stands of longleaf pine and slash pine, and a dense, low ground layer of low shrubs, grasses, and forbs. Large diameter trees are well represented in the stands with overall stocking averaging 60-80 square feet to the acre. There is little or no stocking of species that are not considered flatwoods species, such as water oak (*Quercus nigra*), sweetgum (*Liquidambar styraciflua*), laurel oak (*Quercus laurifolia*), and non-native species. The groundcover is continuous, species rich, and composed of fine herbaceous plants that will facilitate low intensity fires under a wide range of burning conditions. The condition of the flatwoods is process driven with the primary process being fire. Fire return interval is two to four years; all of its constituent plant species recover rapidly from fire and several species require fire to reproduce. The occurrence of these fires may occur nearly any month of the year.

Current Condition

Mesic flatwoods are the largest natural community on SSF and they occur on almost all parcels of SSF. They are the most prominent community on the Carter and Brumlick parcels between SR 44 and the Wekiva River. Approximately 4,500 acres of mesic flatwoods are in a relatively intact natural condition.

Intense wildfires swept across the mesic flatwoods of the Roche/Lee parcel and almost all of the flatwoods south of Blackwater Creek in 2005 and 2007. The scattered overstory of low to moderate densities of slash and pond pines (*Pinus serotina*) were killed, initiating timber salvage operations. Most of the longleaf was harvested when the land was under private ownership, leaving very few longleaf pines. Prior to the wildfires of 2005 and 2007, most of the mesic flatwoods south of Blackwater Creek had been prescribe burned every two to four years. A portion of these mesic flatwoods contained slash pine

plantations, which have been clearcut, mowed and strip band herbicided. Currently, reforestation of longleaf pines has established densities of 50 to 300 trees per acre, and those densities will be increased where appropriate.

Other significant mesic flatwoods sites occur on the Lee, Vergara, Clemmons, Johnson/Shockley, Marie Shockly, Knab and Mawell parcels northwest of SR 44. Previous owners of these parcels cleared the majority of the mesic flatwoods and replaced native groundcover with bahia grass. Cattle grazing leases occur on 726 acres on three separate parcels that historically would have been mesic flatwoods prior to clearing years ago for agricultural use. An additional 122 acres of mesic flatwoods have been cleared by the previous landowners for agricultural use on other parcels that are not currently under a grazing lease. Slash and longleaf pine have been planted on 1,058 acres of mesic flatwoods and an additional 1,200 acres is scheduled to be planted.

Management Actions to Attain Desired Future Condition

Management activities to be used in mesic flatwoods will include prescribed fire, site preparation for reforestation, uneven-aged management of predominate longleaf stands, even-aged management of predominate slash pine stands, hydrological restoration, and management of recreation. Recreational activities will be monitored and controlled to avoid negative impacts to flatwoods. Prescribed fire will be the preferred tool for maintenance of the flatwoods plant community. The goal will be to achieve a two to four-year fire return interval to all flatwood plant community areas.

Hardwood harvests may be used in areas where non-flatwoods tree species have invaded into flatwoods (e.g laurel oak, loblolly bay) due to the lack of routine fire. Herbicides may be used in reforestation or restoration efforts when other alternatives are unavailable.

Stand mapping will be a continuing effort in the flatwoods. These maps will help to refine timber management as well as help define wetland inclusions and assist with management of all of the flatwoods and associated plant communities.

Mesic flatwoods are vulnerable to infestation of non-native invasive plants especially cogon grass, Japanese climbing fern (*Lygodium japonicum*), sword fern, and air potato. Re-establishing a regular fire regime of burning every 2 to 4 years should help to control other potential invasive species such as skunk vine (*Paederia foetida*) and Chinese tallow. Aggressive treatment of exotic species will be undertaken to reduce negative impacts and seek eradication.

Mesic flatwoods have the ability to produce commercially valuable timber better than any other plant community in the state forest. Understocked areas will be planted with slash or longleaf pines to bring the desired stocking level to 605 to 726 seedlings per acre, with a minimum of 400 seedlings per acre surviving after the first year. Slash and longleaf pasture plantings and natural stands will be managed by even-aged and uneven-aged methods.

Mesic flatwoods will be burned every 2-4 years. Pines will be thinned to achieve desired stocking whenever basal area exceeds 80 square feet per acre. Even-aged and uneven-aged management silvicultural systems utilizing natural regeneration will be employed to regenerate these stands. When even-aged stands reach rotation age (per FFS State Forest Handbook) a shelterwood or seed tree harvest will be performed to initiate natural regeneration. Burning intervals may be interrupted to allow the establishment of natural regeneration after a seed catch following regeneration harvest.

Further review of pasture areas is needed. Considerations to include: continued grazing and pine straw raking. Natural areas with no overstory will be planted with slash or longleaf pine, depending on the site.

In areas with fire suppressed condition, such as excessive oak stocking, duff, excessive midstory stocking, prescribed fire will be introduced to these areas carefully, when burning conditions favor incomplete fuel consumption. Areas will be favored that more closely resemble desired future condition or areas that have had recent burns. Care will be taken when burning areas with high duff accumulation.

B. <u>Scrub</u>

The scrub overstory is usually minimal, consisting of occasional individual sand pine, or clusters of them, scattered though the scrub at low densities. Scattered slash pine can also be found in some areas, also at low densities. Typically no more than 1-3 mature trees per acre would be present. Typical scrub consists of dominant shrub species in non-contiguous to semi-contiguous clumps, averaging zero to ten feet in height. These shrub species consist of myrtle oak (*Quercus myrtifolia*), sand live oak (*Quercus geminata*), Chapman's oak (*Quercus chapmanii*), *Lyonia spp*., tarflower (*Befaria racemosa*), scrub rosemary (*Ceratiola ericoides*), scrub bay, scrub holly, and other low hardwood species. Together these cover approximately 80% of the ground area. The ground between the oak clumps is mostly open sand (circa 20% of total groundcover) with some leaf litter, but also with lower shrubs, herbs, forbs and grasses. Most common of these are blueberry (*Vaccinium spp.*) and huckleberry (*Gaylussacia spp*.), saw palmetto, and eastern prickly pear cactus (*Opuntia spp.*). Typical avian fauna in such scrub includes the Florida scrub-jay, eastern towhee (*Pipilo erythrophthalmus*), brown thrasher (*Toxostoma rufrum*), and blue-gray gnatcatcher (*Poliptila caerulea*); woodpecker species are attracted to the scattered pine snags, as are great-crested flycatchers (*Myiarcus crinitus*) and eastern bluebirds (*Sialia sialis*). Other vertebrates include the gopher tortoise (*Gopherus polyphemus*), eastern indigo snake (*Drymarchon couperi*), dusky pigmy rattlesnake (*Sistrurus miliarius barbouri*), six-lined racerunner (*Cnemidophorus sexlineatus sexlineatus*), scrub lizard (*Sceloporus woodi*), gopher frog, pine woods treefrog (*Hyla femoralis*), oak toad (*Bufo quercicus*), and Florida mouse. The Florida black bear can sometimes be found as well, especially in autumn, foraging for acorns and palmetto berries.

Current Condition

A local scrub restoration plan was prepared to provide direction and strategies necessary for guiding an accelerated program of restoration in the major communities of degraded

scrub and scrubby flatwoods occurring on 2,500 acres of SSF. The overall goals of the plan are:

i. To return the major scrub communities to a condition and composition so they can be maintained and managed with regular prescribed fire;
ii. To achieve and maintain scrub habitat conditions that are suitable for Florida scrub-jays and other scrub endemics;
iii. To coordinate the scrub restoration management activities on SSF with scrub management efforts on adjacent public lands; and
iv. To initiate a systematic approach for monitoring flora and fauna scrub endemics, including the Florida scrub-jay, to evaluate their response to restoration treatments.

Over the last ten years, about 50% of the scrub on SSF has been returned to early or mid post-treatment stages by mowing, chopping, burning or being treated by natural events such as, wildfires, or weather events. Of the rest, approximately 35% is characterized as a closed to open canopy forest of sand pines with dense clumps of scrub oak thickets and other shrubs dominating the understory. The height of the canopy exceeds the desired ten feet. The groundcover is generally very sparse and mostly covered by leaf/needle litter with some ground lichens or herbs. Open patches of sand are not common. Typical understory plants include sand live oak, saw palmetto, hog plum (*Prunus umbellate*), milk peas (*Galactia spp.*), greenbrier (*Smilax spp*.) and other vines, and staggerbush (*Lyonia ferruginea*). This overgrown condition has probably been caused by insufficient burning in the past. Finally, about 15% of the scrub area, approximately 800 acres, was previously cleared for use as cattle pasture. Over one third of this is naturally regenerating with scrub vegetation, but with a contiguous groundcover of bahia grass.

FSJs populations on SSF are mostly disjunct due to discontinuity of appropriate habitat. About 25% of the total scrub on SSF is now usable by FSJs. Some areas of former pasture converted from scrub have now recovered enough that FSJs are breeding successfully on them, too. However, some areas of scrub already treated are overgrowing with dense thickets of sand pine regeneration, which will ultimately exclude FSJs. Currently ~1,100 acres of SSF are claimed by FSJs as territory. Approximately 272 of these FSJ-occupied acres are on the cattle pastures, now recovering naturally since cessation of grazing following State acquisition.

Management Actions to Attain Desired Future Conditions

Prescribed fire will be the primary management tool in this ecosystem. The optimal fire /treatment rotation time for any given scrub tract would be ~5 to 20 years, depending on how fast the scrub re-grows from prior treatments. Nearly all of the scrub had been fire excluded for decades resulting in closed canopies of scrub oaks and varying densities of sand pine. Since the last management plan's completion, about 50% of this scrub has been returned to earlier successional stages by either intentional treatment (prescribed burning, chopping, logging, etc.), by weather events, or by wild fire. Around 35% still needs to receive an initial treatment, and 15% is former pasture that is either a) recovering as scrub, or b) would need additional intervention to return to healthy scrub.

The rotation or cycle of treated areas will be geared to provide a succession of pre-optimal, optimal, and post-optimal habitat conditions for scrub-jays. The spatial distribution of oak scrub succession will be managed with the following desired future condition in mind:

i. At least a third of the scrub is in short (pre-optimal for FSJs) condition, (having been burned in the last five years) with a greater than 50% of the shrub canopy in oaks, whose average height is no more than four feet, and a sparse mature pine tree canopy of three or less trees to the acre. A minimum of 20% of the area is comprised of bare sand or patches of grasses less than six inches in height.

ii. At least a third of the scrub is in short/optimal mix (optimal for FSJs) condition (having been burned within the last 5-10 years) with greater than 50% of the shrub canopy in oaks, whose average height is between 4-6 feet, and a sparse mature pine tree canopy of less than 15%. A minimum of 20% of the area is comprised of bare sand or patches of grasses less than six inches in height.

iii. No more than a third of the scrub is in tall mix (post-optimal for FSJs) condition that contains oak shrub canopy greater than six feet in average height. No area contains stands of scrub whose average height exceeds 10 feet. In these areas, pine canopy does not exceed 20% cover. All acres have burned within the last 15 years. No less than 10% of the area is comprised of bare sand or patches of grasses less than six inches in height.

iv. No area of the scrub landscape is in a tall (sub-optimal for FSJs) condition where there are areas of oak shrub taller than 10 feet, nor any areas of scrub that exceed more than one acre of tall oaks for each 25 acres of habitat.

The overall scrub management goal is to return the major scrub communities to a condition and composition where they can be maintained and managed with regular prescribed fire. Prescribed burning will be applied during the appropriate treatment cycle, or earlier, during initial restoration efforts and/or adjacent mesic flatwoods management. Initially, the return burn interval for each treatment cycle will be planned for every 9 to 12 years; however, the rate of oak height growth may require a more frequent interval to maintain canopies of desired levels. The firing technique that aids the greatest reduction of oak scrub, woody shrubs, palmetto, and consumption of ground fuels will be employed. This may include head, strip head, ring, spot and backing fires. When vegetation height exceeds desired future condition and burning alone is not an option, the mechanical reduction of the oak canopy through the use of roller chopping, or other means, such as mowing or shredding, may be required. Mechanical treatments may be done alone or in conjunction with prescribed burning. Mechanical treatments should be evaluated to see if it contributes to the spread of invasive exotics. Burning of scrub habitats is adaptive to current conditions. It is allowable or sometimes even preferable for fires to burn an area incompletely leaving a mosaic pattern or unburned fuels. For each active scrub-jay territory, it is desirable to provide a 1-2 acre area that remains unburned each year. Sand pine harvesting will primarily be related to overstory removal

as a first step toward restoration of scrub to an early successional stage. Harvesting will be done wherever it benefits the condition of the scrub and it is economically feasible. It is likely that isolated or small clumps of sand pines will be removed by fire, rather than by timber harvest, due to the inefficiency of harvesting isolated pines. Crooked wood harvesting provides a means of generating revenue in some of the areas scheduled for future mechanical treatments. Crooked wood is a term used to describe wood used for ornamental or decorative purposes. *Lyonia* species found in scrubs produce the most desirable stems, but other species are used as well. Crooked wood harvests are done by hand, producing few impacts. If sandy openings are insufficient in a treatment area, it may be desirable to use a root rake to create additional sandy openings. The location, number and size of the areas where vegetation is to be uprooted will be based on the percentage and location of existing sandy openings. Ground disturbance should be minimized so that only the areas occupied by the roots are affected. The piled vegetation, and roots must be kept as free of soil as possible to permit clean burning during the next prescribed burn.

In areas with overgrown scrub, the pine overstory will be removed and the area prescribe burned hot to reduce oaks. Oaks will be mechanically treated, if necessary, to allow safe prescribed burn. If crooked wood is present in sufficient amounts, a crooked wood sale may be conducted. The vegetation response, scrub-jays and other listed species will be monitored to evaluate effectiveness of treatments. Root rake defined areas to create sandy opening if necessary.

Where regeneration of scrub species is occurring in disturbed areas or old pastures, fire will be limited to allow recruitment of additional scrub species until sufficient densities exists. Areas where scrub species regeneration is not occurring will remain a low priority for restoration in order to focus on restoration of overgrown scrub areas.

Restored scrub areas after initial treatment will receive a prescribe burn approximately every 9 to 12 years or more frequently when required to maintain canopies of desired levels. Mechanical treatments of vegetation may be used in conjunction with burning when necessary. Vegetation response, scrub-jays and other listed species will be monitored to evaluate effectiveness of treatments.

C. Hydric Hammock

Hydric hammock is inundated for part of the year and is characterized by having a closed, diverse hardwood and palm canopy dominated by laurel oak, water oak, cabbage palm (*Sabal palmetto*), sweetgum, red maple (*Acer rubrum*), live oak, and slash pine, with southern red cedar (*Juniperus silicicola*) and cabbage palm common in the sub-canopy and shrub layers. The normal hydroperiod is seldom over 60 days per year. Other common canopy and sub-canopy trees are pond cypress (*Taxodium ascendens*), green ash (*Faxinus pensylvanica*), sweet bay (*Magnolia virginiana*), hackberry (*Celtis laevigata*), American elm (*Ulmus americana*), swamp dogwood (*Cornus foemina*), water hickory (*Carya aquatica*), American hornbeam (*Carpinus caroliniana*), loblolly bay, and swamp bay (*Persea palustris*). Herbaceous plants are sparse due to the closed canopy, but typically include wood oats, millet, beak sedge, lizard's tail (*Saururus cernuus*), and

Virginia chain fern (*Woodwardia virginica*). Midstory is mostly absent but there is occurrence of wax myrtle (*Myrica cerifera*) and bluestem palmetto (*Sabal minor*). Fire may be rare or occasional depending on several factors including how often the surrounding community burns and hammock size.

Current Condition

On SSF most hydric hammock exists in its desired future condition as a closed-canopy forest. Dominant trees are laurel oak, live oak, swamp tupelo (*Nyssa sylvatica* var. *biflora*), and sweetgum. The sub-canopy consists mainly of cabbage palm and young canopy saplings, with an understory of palms and ferns. Florida hasteola occurs in the he hydric hammock along Sulphur run.

Management Actions to Attain Desired Future Conditions

As with floodplain swamp, hydric hammock requires natural hydroperiods to maintain its species composition. A lowering of the water table will result in a succession to mesic hammock, while more frequent inundation will result in a conversion to a more swamp-like habitat. Management will seek to maintain natural hydrological processes and conditions. Because of their generally saturated soils and the sparseness of herbaceous groundcover, hydric hammocks rarely burn. If conditions are appropriate, prescribed fires on adjacent communities should be allowed to burn up to the edge of the hydric hammock to discourage weedy overgrowth. Silviculture activities should be kept to a minimum within hydric hammock communities. This plant community is susceptible to invasion by certain exotics including air potato, sword fern, and Chinese tallow. Invasive exotic plants will be mapped and aggressively treated.

D. Floodplain Swamp

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 overstory is composed of buttressed trees particularly with cypress, laurel oak, black tupelo (*Nyssa sylvatica*), and red maple. The groundcover is standing water, or open with bare earth, cypress knees, oak leaves, and occasional patches of herbaceous plants. There is a broad variety of reptiles and amphibians including American alligator, cottonmouth (*Agkistrodon piscivorus conanti*), brown water snakes (*Nerodia taxispilota*) and numerous sirens and salamanders. Birds include yellow-bellied sap sucker (*Sphyrapicus varius*), limpkin, great blue heron (*Ardea herodias*), wood duck (*Aix sponsa*), pileated woodpecker (*Dryocopus pileatus*), white-eyed vireo (*Vireo griseus*) etc. Migratory song birds use these areas seasonally. Floodplain swamps become seasonally inundated with variable periods of inundation lasting from a few days to several months depending on rainfall. Burning is seldom a factor due to moisture and lack of fuel.

Current Condition

Floodplain swamps on SSF mostly appear to be near desired future condition except they lack mature and over mature trees. Informal surveys of Chinese tallow have been completed in the past, revealing only a limited number of trees. All known trees have been treated.

Management Actions to Attain Desired Future Conditions

Floodplain swamp is particularly vulnerable to infestation by Chinese tallow. Routine surveying and treatment will be performed to reduce infestations before they become unmanageable. Fall color reveals Chinese tallow in this plant community, so it may be best to survey for this non-native, invasive plant in November. Recreational activities, such as canoeing, hiking, and bird watching, will be monitored to determine if disturbance to resources are within acceptable limits. Floodplain swamp is affected by water flow characteristics of the associated river. SSF should consider hydrological and non-native invasive issues in these tracts as they relate to riverine plant communities.

E. Basin Swamp

Basin swamp is a basin wetland vegetated with hydrophytic trees and shrubs that can withstand an extended hydroperiod. The dominant canopy species typically include blackgum (*Nyssa sylvatica*), cypress, red maple, swamp redbay (*Persea borbonia*), sweet bay magnolia, loblolly bay and slash pine. The shrub species represented may include fetterbush (*Leucothe racemosa*), wax myrtle, and buttonbush (*Cephalanthus occidentalis*). Sparse herbs include Virginia chain fern, netted chain fern (*Woodwardia areolata*), royal fern (*Osmunda regalis*), sawgrass (*Cladium jamaicense*) and lizard's tail. Typical animals include southern dusky salamander (*Desmognathus auriculatus*), cricket frog (*Acris gryllus*), little grass frog (*Pseudacris ocularis*), cottonmouth, turkey, barred owl (*Strix varia*), pileated woodpecker, black bear, raccoon (*Procyon lotor*) and white-tailed deer. Normal hydroperiods need to be maintained in order to allow tree growth and reproduction. Fire intervals are variable and depend on such factors as dominant vegetation, fire exposure, and drought. The interior of basin swamps may go without fire for decades or even centuries while the exposed outer edges can be more susceptible to frequent fire.

Current Conditions

The basin swamps on SSF are primarily associated with wetlands surrounding Lake Tracy, which is a large basin marsh almost completely surrounded by SSF. Most of the basin swamps have some history of disturbance. In particular, Tracy Canal, a man made drainage structure, passes through a portion of the basin swamps and basin marshes on SSF. The canal extends from Lake Kathryn to Lake Tracy to Lake Norris. Roads and utility corridors also bisect portions of the basin swamp and disrupt the natural hydrology.

Management Actions to Attain Desired Future Conditions

With the assistance of the FFS Hydrology Section, SSF staff will evaluate the need for hydrologic management or restoration of basin swamps. Any alteration of the Tracy Canal could have impacts on adjacent private properties, so care must be taken if this system is restored or altered. As a general rule ecotones and the edges of basin swamps should be burned in rotation with adjacent stands, allowing fire to enter into the basin swamps as conditions permit. There will be little or no long-term timber management on most areas of this natural community type.

F. Sandhill

Sandhill is composed of an uneven-aged stand of longleaf pines with a sparse midstory of deciduous oaks and a moderate to dense groundcover of grasses, herbs, and low shrubs. Hardwoods include turkey oak (*Quercus laevis*), blue jack oak (*Quercus incana*), sand post oak (*Quercus stellata*), sand live oak, and persimmon (*Diospyros virginiana*). Stocking of longleaf pine can typically range between 60 to 80 square feet per acre, contain at least three age classes, and contain some stocking of large trees greater than 16 inches in diameter at breast height. In extremely well drained sites, basal area can drop to 20 square feet per acre or less.

The groundcover is a grassy and herbaceous layer that is capable of carrying fire throughout the sandhill under a wide variety of burning conditions. Abundant grass species include wiregrass, pinewoods dropseed (*Sporobolus junceus*), and lopsided Indian grass. The midstory trees and low shrubs can be sparse to dense, depending on fire history. Healthy and sustainable populations of indicator animal species such as gopher tortoise, gopher frog, Sherman's fox squirrel, Bachman's sparrow, and hairy woodpecker (*Picoides villosus*) can be found. Fire is a dominant environmental factor in sandhill ecology. Frequent low-intensity ground fires in the growing season reduce hardwood competition and perpetuate pines and grasses. The natural or historic frequency of fire in sandhill is every 1-3 years.

Current Condition

Sandhill on the Seminole Tract exists in several current conditions. Approximately 909 acres of the sandhill areas were converted to pastures on the Baty Howard, Design Homes, Seminole Pines and Tanner parcels prior to acquisition. Approximately 657 acres of these areas have since been planted to longleaf pine. Sandhill on the Simpson and Tanner parcels, totaling 330 acres, exists somewhat near the desired future condition. On the Musselwhite, Poole and Tanner parcels, approximately 633 acres of sandhill has succeeded to another seral stage through insufficient burning, and the plant community has scrub or xeric hammock characteristics.

Management Actions to Attain Desired Future Conditions

There will be a strong effort to maintain burning on a 1-3 year basis. Sandhill has the ability to produce commercially valuable timber. Areas that are almost in or already in desired future condition will be burned every 1-3 years. Pines will be thinned to achieve desired stocking when basal area exceeds 80 square feet per acre. The long term goal for the longleaf pine plantations is to convert them to uneven-aged management. Target basal area of trees will be 60-80 square feet per acre. Prescribed burns should be implemented within two years of planting to promote height growth in planted seedlings. Burns should be emphasized once the average tree height in a stand is 8-10 feet. Sandhills that are undergoing restoration efforts will be burned every 1-4 years until hardwoods are in check, and then planted to desired stocking of longleaf pine. If oaks dominate and cause exclusion of fire, velpar herbicide will be applied. Prescribed burning is the preferred method to decrease hardwood dominance and stimulate groundcover for sandhills that have succeeded to a hardwood dominated seral stage. If some of these areas do not carry fire and pines are absent, a hardwood harvest may be

necessary. Hardwood harvests will be followed up with prescribed burning and, in some cases, herbicide application. In areas with severe obstacles to burning, consideration will be given changing the desired future condition to upland hardwood forest or xeric hammock.

G. Basin Marsh

Basin marshes are herbaceous or shrubby wetland situated in a relatively large and irregularly shaped basin. There is a peat substrate present but this organic soil only occurs in deeper areas. Shrubs include willows, and buttonbush but these shrubs and small trees only occur in less than 10% of the area. Groundcover plants include dog fennel (*Eupatorium capillifolium*), Spanish needle (*Bidens bipinnata*), American lotus (*Nelumbo lutea*), and a variety of grasses. Animal species include leopard frog (*Rana utricularia*), gopher frog, sandhill crane, great blue heron, American alligator, and several species of snakes. Water levels are variable and can have a great influence on the faunal component with fish and water birds present at times and being absent other times when conditions are dry. Perimeters of basin marshes may contain grassy areas and areas of less fire adapted tree species such as live oak, loblolly pine, and slash pine. Burning is the primary process that maintains basin marshes and keeps them from succeeding to bogs or basin swamps. Frequency of fire varies depending on the hydrology of the marsh and its exposure to fire from surrounding areas. Prescribed burns in marshes have to be conducted with caution to avoid peat fires that will kill the dominant species.

Current Condition

The basin marshes on SSF are primarily associated with wetlands surrounding Lake Tracy, which is a large basin marsh almost completely surrounded by SSF. Most of the basin swamps have some history of disturbance. In particular, Tracy Canal, a man made drainage structure, passes through a portions of the basin swamps and basin marshes on SSF. The canal extends from Lake Kathryn to Lake Tracy to Lake Norris. Roads and utility corridors also bisect portions of the basin swamp and disrupt the natural hydrology. Some examples of this community on SSF are fire-deprived, and as a result peat or muck has accumulated and shrubby vegetation is becoming overly abundant.

Management Actions to Attain Desired Future Conditions

These areas are susceptible to wetland weeds such as West Indian marsh grass (*Hymenachne amplexicaulis*), water hyacinth (*Eichhornia crassipes*), torpedo grass, and Chinese tallow. When possible, burn blocks that contain basin marshes should be burned on specific time periods when the marsh will carry fire. Frequent burning of surface vegetation should diminish the quantity of organic soil and keep the woody vegetation within acceptable limits. Fire return interval should be 5-7 years depending on depths of water and quantity of grass. Adaptive management will be used to adjust the fire frequency to maintain these communities in desired future condition. In fire-deprived area of basin marsh, burning will be conducted for when it would most benefit the marsh. Grassy fuels should be consumed by fire about every 3-4 years. Invasive exotic plants will be mapped and treated. Hydrological restoration, with the assistance of hydrology specialists, of the Tracy Canal will be considered.

H. Scrubby Flatwoods

Scrubby flatwoods have an open canopy of widely spaced pines, mostly slash pine, but also longleaf pine and sand pine with at least three age classes present. The basal area is 5-10 square feet of basal area per acre. It has a low, shrubby understory dominated by sand live oak, myrtle oak, Chapman's oak, and saw palmetto, often interspersed with areas of barren white sand. Groundcover is rich in species including blueberry and huckleberry spp., dwarf live oak (*Quercus minima*), wiregrass, gopher apple, blazing star, Garberia, and lichens. Avian species will include the FSJ and the other bird spp. mentioned in the scrub section above. Birds more commonly resident in scrubby flatwoods include the northern cardinal (*Cardinalis cardinalis*), northern mockingbird (*Mimus polyglotus*), Carolina wren (*Thryothorus ludovicianus*), and common yellowthroat (*Geothlypis trichas*). Reptile, amphibian, and mammal species will be as in scrub above, but some notable additions would include the southeastern pocket gopher, eastern diamondback rattlesnake (*Crotalus adamanteus*), yellow rat snake (*Elaphe obsolete quadrevittata*), the Florida pine snake, and several treefrogs (*Hyla sp.*). Natural fire frequencies can range from five to ten years, or in some cases extend to 15 years.

Current Condition

The majority of the scrubby flatwoods were planted in slash pine plantations prior to acquisition. During scrubby flatwoods restoration, these plantations were clearcut. Widely scattered natural longleaf and un-merchantable slash pine within the plantations were retained during the harvest. Fewer than three longleaf or slash pine per acre remain today. Fire has been introduced into approximately half of the cutover plantations, reducing the height of the midstory. A mixture of saw palmetto and oak scrub, less than three feet in height, occur across these burned sites in varying densities and are interspersed with sandy openings.

On the unburned sites, the scrubby oak understory has grown back densely. The height of the midstory in the unburned sites is approximately six to ten feet. A 35 acre pocket of scrubby flatwoods in the central portion of the Carter parcel is surrounded by mesic flatwoods and has very little pine overstory. The oak height in this pocket has been kept reduced by the frequent fires introduce into the surrounding mesic flatwoods. Other areas of the scrubby flatwoods are succeeding into xeric hammocks or scrub due to an insufficient fire return interval. These sites are being encroached by sand pine and have midstory oaks that exceed thirteen feet in height.

Currently, the scrubby flatwoods that were recently burned and/or harvested provide habitat for eight families of FSJs. The scrubby flatwoods and scrub of SSF are part of a continuous scrub landscape and play a vital role in maintaining the local FSJ population and other scrub endemics.

Management Actions to Attain Desired Future Condition

Management of the scrubby flatwoods will be done in coordination of the adjacent scrub areas to provide a succession of pre-optimal, optimal, and post-optimal habitat conditions for FSJs. Scrubby flatwoods are susceptible to upland non-native invasives such as

cogon grass, air potato, Japanese climbing fern, etc. When these are found, they will be aggressively targeted for removal.

Scrubby flatwoods have low stocking of pine trees. Appropriate stocking levels of good habitat make these areas undesirable for traditional silvicultural practices. On areas where FSJs, or other scrub species are present, zero stocking of pines may be appropriate and desirable. FFS will accurately map scrubby flatwoods and maintain naturally low tree densities in these areas to maintain important plant and animal species, particularly the FSJ. Scrubby flatwoods that have been clearcut will be maintained with prescribe burns on a 5-15 year rotation, coordinating burns with scrub management, to provide rotation of optimal scrub-jay habitat. If burning alone is not effective, mechanical means of brush height reduction will be used conjunction with burning. Due to presence of rare species, burning should be the only site prep. Invasive exotic plants will be mapped and treated.

In portions of scrubby flatwoods that are overgrown or succeeding into xeric hammocks, reduction of oaks should be done by mechanical means or herbicide if burning alone is not practical or effective. These areas will be maintained with prescribe burns on a 5-15 year rotation, coordinating burns with scrub management, to provide rotation of optimal scrub-jay habitat. Invasive exotic plants will be mapped and treated.

Isolated pockets of scrubby flatwoods that exist in the flatwoods matrix that do not have size for individual management will be identified and mapped. Manage the flatwoods and wetlands around them appropriately, allowing the burn regime to vary in this different plant community.

I. Wet Flatwoods

Wet flatwoods are characterized by stands of slash pines with occasional sweet bay, loblolly bay, and swamp bay. Pond pine or longleaf pine may also be present. There is little or no stocking of species that are not considered flatwoods species, such as water oak, sweetgum, laurel oak and exotics. Shrubs such as gallberry, *Lyonia spp*., and saw palmetto are present but saw palmetto becomes less abundant and restricted to patches. In the wet flatwoods groundcover contains less wiregrass than mesic flatwoods and more abundant in sedges (*Cyperaceae*), beakrush sedges (*Rhynchospora spp*.), nut sedges (*Cyperus esculentus*), meadow-beauty (*Rhexia spp*.), toothache grass (*Ctenium panzer*), *Hypericum spp*., bushy bluestem (*Andropogon glomeratus*), and white top aster (*Aster paternus*). Ferns also appear in the groundcover. The condition of wet flatwoods is process driven with the primary processes being fire, flooding, and drought. Fire return interval is every two to four years for grassy wet flatwoods. In the shrubby wet flatwoods, fire return interval is five to ten years.

Current Condition

Wet flatwoods are scattered across almost all parcels of SSF and are generally small areas, not exceeding more than 90 contiguous acres in any one area. The wet flatwoods grade into hydric hammocks, mesic flatwoods and basin marshes. A few areas grade into

scrub. The wet flatwoods have slash and pond pine, with at least two age classes present. Portions of the wet flatwoods have been prescribed burned at various time intervals.

Management Actions to Attain Desired Future Conditions
Management will utilize prescribed fire, even-age management of trees, hydrological restoration, and management of recreation. Prescribed fire will be the preferred tool for maintenance of the flatwoods plant community. A continued effort will be to maintain a three to five-year fire interval for all wet flatwood plant community areas. Areas with remnant herbaceous vegetation should be high priority for burning. Herbicides may be used for reforestation or restoration efforts when other alternatives are not effective. Monitoring and control of recreational activities will be maintained to be certain that new and negative hydrological manipulations do not occur.

The natural stands will be thinned as needed to promote individual tree health and forest health and to maintain an average 60-80 ft^2 basal area per acre. Pond pine, slash pine, and longleaf pine will all be represented in thinned stands in densities similar to pre-harvest stands. When stands reach their even-aged rotation age, per the FFS State Forest Handbook, a shelterwood or seed tree harvest will be performed to initiate natural regeneration. Wet flatwoods are vulnerable to infestation of invasive, exotic plants. Invasive exotic plants will be mapped and treated. Wet flatwoods require burning on a two to four year interval in the grassy wet flatwoods and a five to ten year interval in the shrubby wet flatwoods. Burning intervals may be interrupted to allow the establishment of natural regeneration after a seed catch following a shelterwood or seed tree harvest. There will be continued cooperation with the FFS Hydrology Section, various state agencies and research into grant opportunities to address hydrological restoration issues. Stand mapping will be a continuing effort in the flatwoods. These maps will help to refine forest management as well as help define wetland inclusions and assist with management of all of the flatwoods and associated plant communities.

J. Depression Marsh

Depression marshes are rounded, smaller wetlands found throughout the forest, but primarily in the mesic flatwoods. They have sandy bottoms and lack peat or organic substrate. They flood seasonally with hydroperiods being highly variable and erratic. Trees never occupy more than 10% of the wetland area. Typical trees species are swamp tupelo, slash pine, pond pine, and pond cypress. Buttonbush and saw-palmetto are occasional shrubs found mostly around the edge of the marsh. Maidencane (*Panicum hemitomum*), waterlily (*Nymphaea odorata*), Walter's sedge (*Carex striata*), yellow-eyed grasses (*Xyris spp.*), bladderworts (*Utricularia spp.*), Virginia chain fern, sphagnum moss (*Sphagnum ssp.*), Carolina redroot (*Lachnanthes caroliana*) and sawgrass are all common herbaceous species. Animal species include leopard frog, gopher frog, eastern spadefoot toad (*Scaphiopus holbrookii*), southern toad, white ibis, wood stork and sandhill crane.

Depression marshes often burn with the surrounding landscape and are seasonally inundated. The frequency of fire in depression marshes is a function of the fire frequency in the surrounding matrix community, as well as the fire-carrying characteristics of the

marsh vegetation. Fires in surrounding communities should be allowed to burn into depression marshes and extinguish naturally or burn through them.

Current Conditions
Most of the depression marshes are near desired future condition due to the repeated prescribe burns conducted in the surrounding mesic flatwoods. Historic wildfire control firelines were tied into some of these depressions or around their perimeter causing hydrological alterations or direct disturbance. Other depression marshes have been fire-deprived or affected by changes in local hydrology, allowing recruitment of pine and hardwood vegetation on the edges or across the pond, and sometimes allowing organic soil to be accumulated.

Management Actions to Attain Desired Future Condition
These areas are susceptible to wetland weeds such as West Indian marsh grass, water hyacinth, torpedo grass, and Chinese tallow. These exotics will be mapped and aggressively treated. Prescribed fire in the adjacent communities will be allowed to burn into the marshes to reduce the invasion of shrubs and trees. In fire deprived marshes, attempts will be made to get fire to carry across these wetlands whenever the area is burned. If smoke management is a concern, fire will be restricted from the marshes when drought conditions have created the potential for muck fires. Firebreaks will be constructed in compliance with BMPs. Evaluations will be done to determine if past hydrological disturbances are creating negative impacts on marshes. Rehabilitation of firelines will be undertaken to correct conditions. All activities around depression marshes will be conducted in compliance with silviculture BMPs.

K. Baygall

Baygall is an evergreen forested wetland of bay species situated at the base of a slope or in a depression. The overstory is composed of generally straight boled evergreen hardwoods such as swamp redbay, loblolly bay, and sweet bay. There are variable densities of holly (*Ilex spp*.), fetterbush, gallberry, wax myrtle, and greenbrier. The groundcover is somewhat open, leafy, with exposed tree roots. Vegetation includes chain fern (*Woodwardia spp.*), cinnamon fern (*Osmunda cinnamomea*), wild grape (*Vitis spp*.), poison ivy (*Toxicodendron radicans*), sphagnum moss, etc. The dominant baygall species are fire-intolerant. When possible, fires from adjacent communities should be allowed to extinguish naturally at the edges of the baygall to prevent encroachment of bay species into other communities and to maintain open, grassy wetland/upland ecotones.

Current Condition
The condition of baygalls in SSF are at or near desired future condition.

Management Actions to Attain Desired Future Condition
Regular burning of the flatwoods matrix (where baygalls exist) should be allowed to define the boundaries of true baygalls. Baygalls should be protected from fire during droughts. They may burn on occasion with a fire return interval of about 50-100 years.

Baygalls seem particularly vulnerable to air potato, skunk vine, Japanese climbing fern, and sword fern. Without regular burning there is little to control these weeds. Monitoring and control measures will be undertaken to ensure that baygalls are not overwhelmed by invasive species.

L. Flatwoods Lake

Flatwoods Lakes are a system characterized as a shallow, round or elliptical depression within flatwoods with a relatively large open water zone that generally remains throughout the year. They are surrounded by either a sparse wet prairie-like zone or a dense ring of saw-palmetto or other shrubs. Typical plants include spikerush (*Eleocharis spp.*), yellow-eyed grasses, St. Johns wort (*Hypericum spp.*), chain fern and wax myrtle. Water is derived mostly from runoff from the immediately surrounding uplands. Typical animals include lesser and greater siren (*Siren lacertina* and *Siren intermedia*), cricket frog, green tree frog (*Hyla cinerea*), bullfrog (*Rana catesbeiana*), leopard frog, alligator, water snakes, and numerous birds. These natural communities function as aquifer recharge areas by acting as reservoirs which release groundwater when adjacent water tables drop during drought periods.

Current Condition

Some of the flatwoods lakes have suffered from extended droughts and have been dry or nearly dry. Partial recovery of the lakes occurred during the tropical systems of 2008. Historic wildfire control lines were tied into some of these depressions or around their perimeter causing hydrological alterations or direct disturbance. Bear Pond was a flatwoods lake that was mined to a depth of approximately 30 feet prior to acquisition. Since the mining operation, water levels have fluctuated but it has always retained water.

Management Actions to Attain Desired Future Condition

These areas are susceptible to wetland weeds such as West Indian marsh grass, water hyacinth, torpedo grass, and Chinese Tallow. Invasive exotic plants in flatwood lakes will be mapped and aggressively treated. Prescribed fire in the adjacent communities will be allowed to burn into the depressions. An evaluation needs to be completed to determine if past disturbances are creating negative impacts. Rehabilitation of firelines will be done as needed. All activities around depression flatwood lakes will be conducted in compliance with silviculture BMPs.

M. Sandhill Upland Lake

Sandhill Upland Lakes are shallow rounded solution depressions occurring in sandy upland communities. They are generally permanent water bodies, although water levels may fluctuate substantially, sometimes becoming completely dry during extreme droughts. These lakes typically are without significant surface inflow or outflow except for ground water seepage. Water may be largely derived from lateral ground water seepage and/or from artesian sources. Sandhill upland lakes are important breeding areas for terrestrial amphibians, including gopher frogs, 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 Condition

The majority of the sandhill upland lakes have retained some water, even in the most extreme droughts. Partial recovery of the lakes occurred during the tropical systems of 2008. 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.

Management Actions to Attain Desired Future Condition

These areas are susceptible to wetland weeds such as West Indian marsh grass, water hyacinth, torpedo grass, and Chinese Tallow. Invasive exotic plants 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. Dome Swamp

Dome swamp is dominated by pond cypress with variable frequencies of other trees including blackgum, water tupelo (*Nyssa aquatica*), slash pines, and willow. Species composition is similar to basin swamps, and includes fetterbush, chain fern, greenbrier, and lizard's tail. Certain orchids (epiphytic and ground dwelling), insectivorous plants (bladderworts and sundews (*Drosera spp*.)), and mosses may also be found in these areas. Typical animals may include oak toad, pinewoods tree frog, eastern mud snake (*Farancia abacura abacura*), cottonmouth, alligator, snapping turtle (*Shelydra serpentina*), barred owl, and pileated woodpecker. The periphery of these wetlands is often rimmed with an ecotone of wetland grasses that may be classified as wet prairie. Dome swamps derive much of their water through surficial runoff from surrounding uplands. Fire is essential for maintaining the structure and the species composition of a dome swamp community. Fire frequency is generally greatest at the periphery of the dome and least in the interior, where long hydroperiods and deeper peat, and/or water, maintain high moisture levels. The normal fire cycle might be as short as three to five years along the outer edge and as long as 100 to 150 years towards the center. Since fire is important in the ecology of dome swamps, it should be allowed to burn into dome swamps from the adjacent uplands and extinguish naturally.

Current Condition

Dome swamps on SSF are primarily found on the Clemmons parcel and appear to be in relatively good condition. Past agricultural practices included establishing shallow ditches connecting these dome swamps to allow for the drainage of water off the adjacent wet flatwoods. The edges of the dome swamps appear overgrown and may require burning.

Management Actions to Attain Desired Future Condition

Flash board risers and other BMP may be used to restore portions of this community where the natural hydrology has been impacted by agricultural practices that occurred

before the property was acquired by the state. Additional research and evaluation will be necessary before restoration can be considered. This community is not well suited to timber management. High soil moisture levels and low soil stability would make harvests impractical. Prescribe fire will be allowed to burn into the perimeter of dome swamps, if conditions are appropriate. Invasive exotics will be monitored and treated as appropriate.

O. Upland Mixed Forest

The community is a closed canopy forest of upland hardwoods on rolling hills that may include southern magnolia, pignut hickory, sweetgum and live oaks, among others. Understory species may include gum bumelia (*Bumelia lanuqinosa*), hackberry, persimmon, southern red cedar, and partridge berry (*Mitchella repens*).

Current Condition

There are two small stands of upland mixed forests on the Ellis and Fisch parels that are relatively undisturbed. These stands are on the slope between scrub and either a hydric hammock or a basin marsh.

Management Actions to Attain Desired Future Condition

Upland mixed forest rarely burn. Prescribed fires conducted in adjacent plant communities will be allowed to burn into the upland mixed forest, with fire being restricted only by the current fuel conditions.

P. Floodplain Marsh

Floodplain marsh is a wetland community occurring in river floodplains and dominated by herbaceous vegetation and/or shrubs. Floodplain marsh may burn periodically depending on dominant vegetation. The rising and receding water levels help create a variable mosaic of plant communities.

Current Condition

Small irregular areas of floodplain marsh occur along Blackwater Creek. On SSF typical plants include sawgrass, buttonbush and water primrose (*Ludwigia ssp*.).

Management Actions to Attain Desired Future Condition

Management will be similar to depression marshes.

Q. Wet Prairie

Wet prairies are characterized as a treeless plain with a sparse to dense groundcover of grasses and herbs.

Current Condition

On SSF, the areas mapped by FNAI as wet prairies are ecotones between intact scrub and basin swamp. The ecotones are highly disturbed and have been used as travel corridors for cattle and previous landowners. The edges are shrubby and the centers are bahia grass strips.

Management Actions to Attain Desired Future Condition
Restoration of this plant community may occur if restoration of the entire grazing lease property is initiated.

R. Blackwater Streams

Blackwater Streams are characterized as perennial or intermittent seasonal watercourses originating deep in sandy lowlands where extensive wetlands with organic soils function as reservoirs, collecting rainfall and discharging it slowly to the stream. Emergent and floating aquatic vegetation may occur along shallower and slower moving sections, but their presence is often reduced because of typically steep banks and considerable seasonal fluctuations in water level.

Current Condition
Blackwater streams on SSF mostly appear to be near desired future condition, although water hyacinth and other non-native invasives occur.

Management Actions to Attain Desired Future Condition
Blackwater streams are vulnerable to invasion by a variety of invasive aquatic plants. FFS staff with cooperation from DEP have been monitoring, removing and treating water hyacinth on Blackwater Creek. Routine monitoring and control efforts will be continued in order to decrease the area covered by non-native invasive plants. Fallen trees and logs in Blackwater Creek, Sulphur Run and their tributaries are important for biological productivity within these water systems. Limited cutting of fallen trees and logs will be done to permit access by canoes and small boats for recreation, law enforcement, and exotic aquatic plant control. Cut material will not be removed from the water but will be allowed to fall where it is cut. Cut material may be moved to an adjacent portion of the stream if it blocks the navigable path. In areas where recreational use occurs, trails, boat launches, and access roads will be monitored. If recreational use is damaging the community, then corrective measures will be taken.

Coordinating Management
Blackwater Creek is included in the Wekiva National Wild and Scenic River System. Management activities affecting Blackwater Creek need to ensure compatibility with the Wekiva River System Comprehensive Management Plan.

S. Aquatic Cave/Spring-run Stream

The Aquatic Caves are cavities below the surface of the ground in karst areas. These caves form shallow pools to totally submerged systems. The perennial water courses derived from most, if not all, of their water from the aquatic caves are known as Spring-run Streams. These outflows are generally clear, circumneutral to slightly alkaline, and perennially cool. Typical plants include tape grass (*Vallisneria americana*), wild rice (*Zizania aquatica*), and arrowheads (*Sagittaria spp*.). Animals include mollusks, stoneflies, mayflies, caddisflies, alligators, snapping turtle, Suwannee cooter (*Pseudemys concinna suwanniensis*) and many snakes and fishes.

Current Condition
Almost all of the aquatic caves and spring-run streams on SSF are currently in a desired future condition. Two species of endemic snails, *Aphaostracon spp*. and *Cincinnatia spp*., inhabit at least six of the aquatic caves. Minor alterations of the aquatic caves and spring runs have been naturally restored over time. Active restoration was used to remove an impoundment to Palm Spring-Run Stream. Non-native species have been discovered at Droty Spring. Roads near the spring systems have been stabilized to ensure erosion does not create a negative impact.

Management Actions to Attain Desired Future Condition
Prescribed fire in the adjacent communities will be allowed to carry naturally into this community. Firebreaks will be constructed in compliance with BMPs. Water quality and discharge monitoring by the Geological Survey, SJRWMD and Lake County is ongoing and will continue. Spring systems will be monitored for invasive exotic infestation. FFS and DEP will collaborate on aggressive treatment of invasive exotic plants.

VIII. References

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IX. Glossary of Abbreviations

AMP.....Alternative Mobility Permit
ATV .....All-Terrain Vehicles
BMP .....Best Management Practices
BOT.....Board of Trustees of the Internal Improvement Trust Fund
CARL.....Conservation and Recreation Lands
CR .....County Road
DEP.....Florida Department of Environmental Protection
DEP (CAMA) .....Florida Department of Environmental Protection, Coastal and Aquatic Managed Areas

DEP (DRP).....Florida Department of Environmental Protection, Division of Recreation and Parks
DEP (OGT).....Florida Department of Environmental Protection, Office of Greenways and Trails
FFS.....Florida Forest Service
FDACS.....Florida Department of Agriculture and Consumer Services
FDOT.....Florida Department of Transportation
FNST.....Florida National Scenic Trail
FSJ.....Florida Scrub-Jay
FTA.....Florida Trail Association
FWC.....Florida Fish and Wildlife Conservation Commission
LCWA.....Lake County Water Authority
LWRPSP.....Lower Wekiva River Preserve State Park
NRCS.....Natural Resources Conservation Service
OALE.....Office of Agricultural Law Enforcement
ONP.....Oakland Nature Preserve, Inc.
P2000.....Preservation 2000
SJRWMD.....St. John's River Water Management District
SOR.....Save Our Rivers
SR.....State Road
SSF.....Seminole State Forest
SUV.....Special Use Vehicle
SWFWMD.....Southwest Florida Water Management District
USFS.....United States Forest Service
USFWS.....United States Fish and Wildlife Service
WMA.....Wildlife Management Area