FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

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RICK SCOTT
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HERSCHEL T. VINYARD JR.
SECRETARY

December 14, 2012

Ms. Corinne Hermle
Land Planning Specialist
Florida Forest Service
3125 Conner Blvd, C-25
Tallahassee, FL 32399-1650

RE: Okaloacoochee Slough State Forest - Lease Number: 4247 and 4246

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 Okaloacoochee Slough State Forest land management plan. The next management plan update is due December 14, 2022.

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

Sincerely,

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

TEN-YEAR RESOURCE MANAGEMENT PLAN

FOR THE

OKALOACOOCHEE SLOUGH STATE FOREST

HENDRY AND COLLIER COUNTIES

PREPARED BY

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

FLORIDA FOREST SERVICE

APPROVED ON

DECEMBER 14, 2012

TEN-YEAR RESOURCE MANAGEMENT PLAN

FOR THE

OKALOACOOCHEE SLOUGH STATE FOREST

Approved by:

Jim Karels, Director
Florida Forest Service

9/12/12
Date

David Core, Assistant Director
Florida Forest Service

8-27-12
Date

Winnie Schreiber, Chief
Forest Management Bureau

Date

TEN-YEAR RESOURCE MANAGEMENT PLAN
OKALOACOOCHEE SLOUGH STATE FOREST

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OKALOACOOCHEE SLOUGH STATE FOREST

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LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

LEAD AGENCY: Florida Department of Agriculture and Consumer Services (FDACS), Florida Forest Service
COMMON NAME: Okaloacoochee Slough State Forest
LOCATION: Hendry and Collier Counties
ACREAGE TOTAL: 32,349.32

Historical Natural Communities	*Acreage*	*Historical Natural Communities*	*Acreage*
Slough Marsh	15,746	Mesic Hammock	991
Mesic Flatwoods	10,029	Wet Flatwoods	356
Basin Marsh	1,835	Dome Swamp	98
Depression Marsh	1,533	Unmapped	72
Wet Prairie	1,689		

LEASE/MANAGEMENT AGREEMENT NO.: 4247 & 4246 (joint ownership w/SFWMD)
USE: Single____ Multiple _X_

Management Agency	Responsibility
Florida Forest Service	General Forest Resource Management
Florida Fish and Wildlife Conservation Commission	Wildlife Resources & Laws
Division of Historical Resources	Historical and Archaeological Resource Management
South Florida Water Management District	Water Resources

DESIGNATED LAND USE: Multiple-use State Forest
SUBLEASE(S): None
ENCUMBRANCES: None
TYPE ACQUISITION: Conservation and Recreation Lands, Preservation 2000 and Save Our Rivers Funds, and Mitigation.
UNIQUE FEATURES: Okaloacoochee Slough
ARCHAEOLOGICAL/HISTORICAL: Six (6) known sites.
MANAGEMENT NEEDS: Restoration and maintenance of native ecosystems and disturbed site restoration.
ACQUISITION NEEDS: Miscellaneous adjacent parcels, and drainage parcels to the south.
SURPLUS LANDS/ACREAGE: None.
PUBLIC INVOLVEMENT: Management Plan Advisory Group Public Hearing and Meeting, Acquisition and Restoration Council, and State Forest Liaison Committee

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

ARC Approval Date: ____________________________ BTIITF Approval Date: ____________________________
Comments: ____

I. Introduction

The Okaloacoochee Slough State Forest (OSSF) is comprised of 32,349.32 acres located on a single, contiguous tract approximately thirty miles east of Fort Myers, Florida. Most of the acreage is located in Hendry County, with 8 sections located in Collier County. OSSF was purchased with Conservation and Recreation Lands, Save Our Rivers, and Preservation 2000 acquisition funds.

Many of the natural communities located in South Florida can be found on the forest. Eight distinct natural communities are currently identified on OSSF, with mesic flatwoods and slough marsh making up roughly 25,250 acres or approximately 78 percent of the habitat. OSSF is designated for multiple use management under direction of the FFS. Management activities and uses on the property will primarily center on ecosystem restoration, silvicultural management, recreation, wildlife management, hunting, archaeological and cultural resource management, environmental education and watershed management.

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

- Practice sustainable forest management for the efficient generation of revenue and in support of state forest management objectives;
- Provide for resource-based outdoor recreation opportunities for multiple interests;
- Restore and manage healthy forests and native ecosystems ensuring the long-term viability of populations and species listed as endangered, threatened or rare, and other components of biological diversity including game and 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 OSSF 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 OSSF has been completed monthly and are available from the forest manager. A table has been prepared for this plan that summarizes, in numerical format, the accomplishments for each of the past ten years (Exhibit A). The table does not account for all activities on the forest since approval of the previous management plan in November of 2002, but summarizes major activities that are more easily quantifiable. It does not list or identify the multitude of daily activities and public interactions involved in managing the forest.

Among the most noteworthy events, developments and accomplishments since the approval of the previous management plan are the following:

- OSSF has implemented a 3-7 year prescribed burn cycle that has focused on fuel reduction and moving towards growing season burns. The major obstacle to burning has been acquiring the right equipment to burn the swale community. In 2009 this situation was rectified when OSSF transferred in an airboat and rollagon.
- All but the most remote and inaccessible areas of the OSSF boundary have been clearly marked. Since the acquisition of the rollagon and airboat, access to these areas of the forest will be made possible. The remaining areas requiring boundary marking will be scheduled during the next planning period. All boundaries and signs are refreshed every 5 years.
- The entire forest has been treated once for Brazilian pepper and guava. Other Florida Exotic Pest Plant Council (FLEPPC) Category 1 exotics are being aggressively treated by both in-house personnel and grant funded contractors. OSSF has secured approximately $1 million in grant funding during the last planning period. The 10 acre restoration area proposed in the previously approved management plan was not pursued because the nature of the areas in need of groundcover restoration required intensive resources. Current treatment philosophy dictates that areas of lower concentrations should be done first, then moving to areas with higher and higher rates of infestations. The areas of lower infestation rates consumed the funding that was available for restoration overall; hence, no areas were treated intensively and restored.
- In 2005, Florida Natural Areas Inventory (FNAI) completed historic community typing and ground truthing on OSSF.
- Extensive surveys have been completed for birds, mammals, and plants by a number of different entities including the Florida Fish and Wildlife Conservation Commission (FWC) and local Audubon chapters.
- The US Fish and Wildlife Service (USFWS) developed a multi-species recovery plan that is used as a guide for implementing listed species recovery efforts.

- All major drainage areas have been identified, and improvement measures have been taken where possible. Also, it has been observed that the impact from flood control activities associated with the Barron Water Control District has been minimal.
- Culverts have been installed on the causeway to Wild Cow Island, undersized culverts have been removed on Mustang Grade and a low water crossing installed, and culverts were replaced on the north end of the railroad tram to facilitate the movement of water. Approximately 23 miles of roads have been stabilized in addition to what was already present. The major remaining hydrological restoration projects that still exist on the forest are major canals located on the north end of the property. The removal of these canals may not be feasible due to potential flooding on adjacent private lands, however, beneficial alternatives to the present condition are being explored; this is to include retention areas, downstream restoration, etc.
- A Division of Historical Resources (DHR) survey was completed in 2004, and five (5) sites were identified.
- Seven kiosks were constructed, and a State Forest brochure was developed.
- Two primitive camping areas were constructed: Panther Pond Campground and Wild Cow Island Camping Area.
- Scenic vistas were installed along CR 832, as well as a 200 foot boardwalk accessible by Sic Island Road.
- A Department of Agriculture and Consumer Services, Law Enforcement Officer was added to the State Forest
- There has been one (1) forest ranger, and one (1) park ranger added to the forest.
- A grader, boom mower, tractor plow, drum chopper and dump truck were purchased for the forest.
- A pole barn was installed and renovations to a field office were completed to accommodate expanded staffing and equipment.
- A south Florida slash pine seed orchard was installed.

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 OSSF during this management period must serve to conserve, provide forest products, 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.

The management activities listed below will be addressed within the ten-year management period and are defined as short-term goals, long-term goals or ongoing goals. Short-term goals are goals that 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. 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.

GOAL 1: Sustainable Forest Management

Objective #1: Reduce hazardous fuel levels on wet and mesic flatwoods communities through the use of prescribed burns, mechanical and chemical treatments. These activities are estimated to run between $150 - $500 per acre. (Long Term Goal)

Performance Measure: Total number of acres treated for fuel reduction. Areas will need to have a minimum of two (2) treatments to achieve successful reduction of hazardous fuels.

Objective #2: Implement a process for conducting stand descriptions and forest inventory including a GIS database containing forest stands, roads & other attributes (including but not limited to: threatened & endangered species, archeological resources, exotic species locations, historical areas). (Ongoing Goal)

Performance Measures:

- Complete GIS database and reinventory all attributes as required by FFS procedures.
- Number of acres inventoried.

GOAL 2: Public Access and Recreational Opportunities

Objective #1: Continue updating the Outdoor Recreation Plan. (Short Term Goal)

Performance Measure: Outdoor Recreation Plan completed every year

Objective #2: Develop an environmental outreach program including the development and completion of informative programs for local schools, groups, and communities. (Short Term Goal)

Performance Measure: Number of environmental programs completed annually

Objective #3: Develop and maintain interpretive trail system in conjunction with interested hiking groups. This activity is estimated $100/mile annually. (Short Term Goal)

Performance Measure: Miles of trail established and maintained.

Objective #4: Install additional recreational infrastructure to include a wildlife observation tower and an extension to the current boardwalk. The estimated cost for both improvements is approximately $60,000. (Long Term Goal)

Performance Measure: Number of additional structures installed.

GOAL 3: Habitat 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. Approximately 5,000 acres will be prescribed burned each year with an annual estimated cost of $70,000. (Ongoing Goal)

Performance Measures:

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

Objective #2: Continue to annually update the OSSF Fire Management Plan. (Short Term Goal)

Performance Measure: Fire Management Plan updated annually.

Objective #3: Locate areas with remnant ground cover or of ground cover that can be recovered with prescribed fire. Develop a plan for the restoration of ground cover in at least one stand where the native ground layer has been heavily impacted from historical land use. (Short Term Goal)

Performance Measure:

- Completion of ground cover assessment.
- Completion of ground cover restoration plan.
- Monitor and treat stand densities that may be impacting native groundcover.

Objective #4: Plant south Florida slash pine in those sites that are free of exotic vegetation. This has an annual estimated cost of approximately $250/ac. (Long Term Goal)

Performance Measure: Number of acres of south Florida slash pine planted.

Objective #5: Implementation of ground cover restoration plan, at approximately $1,000/ac. (Long Term Goal)

Performance Measure:

- Total number of acres seeded or planted with native grasses or herbaceous ground cover, if planting or seeding is prescribed.
- Total number of acres treated with prescribed fire within the designated ground cover restoration area.

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

Objective #1: Develop baseline listed and rare species occurrence inventory list. (Long Term Goal)

Performance Measure: Completion of baseline listed and rare species occurrence inventory list.

Objective #2: Develop monitoring protocols for selected listed and rare species to determine population status. (Short Term Goal)

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

Objective #3: Implement monitoring protocols for listed and rare species. (Ongoing Goal)

Performance Measure: The number of species for which monitoring is ongoing.

Objective #4: FFS will cooperate with FWC, as necessary, to develop a wildlife management plan that addresses all appropriate game and fish species and the sustainability of each based on site-specific population data. In conjunction with this plan, institute a continuous monitoring program to ensure the viability of these populations. (Long Term Goal)

Performance Measure: Completion of the wildlife management plan.

GOAL 5: Non-Native Invasive Species Maintenance and Control

Objective #1: Develop a plan to locate, identify, and control non-native invasive plant species. Exotic species control and eradication efforts cost approximately $400/ac. (Ongoing Goal)

Performance Measure: Total number of acres identified and treated.

GOAL 6: Cultural and Historical Resources

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

Performance Measure: Number of recorded sites.

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

Performance Measure: Number of sites monitored.

Objective #3: Train personnel as archaeological monitors. (Short Term Goal)

Performance Measure: Number of personnel trained as monitors.

GOAL 7: Hydrological Preservation and Restoration

Objective #1: Protect water resources during management activities through the use of Silvicultural Best Management Practices (BMP's) for public lands. (Ongoing Goal)

Performance Measure: Compliance with state lands BMP's.

Objective #2: Reduce erosion along trails, roads and firelines by planting and encouraging vegetation growth. This activity costs between approximately $200 - $800/mile depending on site conditions and suitable species for installation. (Ongoing Goal)

Performance Measure: Percentage of trails, roads, and firelines planted with native or non-invasive species.

Objective #3: Conduct annual road inspection to determine the need for installation or replacement of culverts and low water crossing. (Ongoing Goal)

Performance Measure: Annual inspection and appropriate improvement completed.

GOAL 8: Capital Facilities and Infrastructure

Objective #1: Continue annual maintenance of state forest boundary. (Short Term Goal)

Performance Measure: Percentage of forest boundary maintained.

Objective #2: Implement a 10-Year Road Management Plan and update annually. (Short Term Goal)

Performance Measure: Completion of the 10-Year Road Management Plan and update annually.

Objective #3: Maintain all existing facilities, roads, and trails. Estimated cost is approximately $200,000/year. (Ongoing Goal)

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

II. Administration Section

A. Descriptive Information

1. Common Name of Property

The common name of the property is the Okaloacoochee Slough State Forest (OSSF).

2. Legal Description and Acreage

The OSSF is located in Collier and Hendry Counties, Florida. The state forest is comprised of a single tract. All major parcels acquired are displayed and identified in Exhibit B as well as in the table below. The property is located in all or part of Sections:

Hendry County:
Sections 1, 24, 25, 36 of Township 44 South, Range 29 East; Sections 19, 20, 28, 29, and 30 through 34 of Township 44 South Range 30 East; Sections 4 through 11, Sections 14 through 23, and Sections 26 through 36 of Township 45 South Range 30 East; Sections 12, 13, 24, and 25 of Township 45 South Range 29 East; Section 31 of Township 45 South Range 31 East; and Sections 6 through 8 of Township 46 South Range 31 East.

Collier County:
Sections 1 through 5 and 10 through 12 of Township 46 South Range 30 East.

Table 1. OSSF Acreage by Parcel

Parcel	Deed Date	Closing Date	Funding Source	County	Acres
ALICO, INC.	2/11/1999		CARL/SOR	Collier	3,635.06
ALICO, INC.	2/11/1999		CARL/SOR	Hendry	15,819.17
ALICO, INC.	2/16/1999	2/15/1999	FFS/P2000	Hendry	8,719.09
ALICO, INC.	2/16/1999	2/15/1999	FFS/P2000	Collier	1,065.00
ALICO, INC.			SOR	Hendry	2,800.92
Twelve Mile Slough – Panther Mitigation		5/27/2011	Mitigation	Hendry	310.08

Total Acres	32,349.32
CARL MGT. Acres	28,173.32
FFS/P2000	24,538.26

BOT/WMD FDACS Contract No. = 4243
BOT FDACS Contract No. = 4244
WMD FDACS Contract No. = 7168

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

3. <u>Proximity to Other Public Resources</u>

Lands managed by state, federal or local government for conservation of natural or cultural resources that are located within approximately 30 miles of the OSSF are included in Exhibit C as well as the table below:

Table 2. Nearby Public Conservation Land and Easements

TRACT	AGENCY	DISTANCE
Okaloacoochee Slough WMA	FWC	Adjacent E
Dinner Island WMA	FWC	Adjacent E
Spirit of the Wild WMA	FWC	Adjacent W
Corkscrew Marsh/Lake Trafford Wetlands	SFWMD	10 miles SW
Southwest Florida Research & Education Center	UF	10 miles S
Big Cypress Seminole Indian Reservation	BIA	12 miles SW
Big Cypress National Preserve	NPS	13 miles S
Six Mile Cypress Slough Preserve	SFWMD	14 miles W
Florida Panther National Wildlife Refuge	USFWS	15 miles SW
Nicodemus Slough	SFWMD	16 miles NW

TRACT	AGENCY	DISTANCE
Fisheating Creek WMA	FWC	18 miles N
Picayune Strand State Forest	FFS	25 miles SW
Fakahatchee Strand Preserve State Park	DEP	33 miles S

BIA – U.S. Bureau of Indian Affairs
DEP - Department of Environmental Protection
FFS - Florida Forest Service
FWC - Fish and Wildlife Conservation Commission
NPS - National Park Service
SFWMD - South Florida Water Management District
UF - University of Florida, Institute of Food and Agricultural Sciences
USFWS - United States Fish and Wildlife Service
WMA - Wildlife Management Area (OSSF is totally within the boundaries of Okaloacoochee Slough WMA.)

4. Property Acquisition and Land Use Considerations

Most of OSSF (22,255.15 acres) was purchased in 1996 from Atlantic Land and Improvement Company, Inc. (ALICO) by the SFWMD under an acquisition agreement with the State. This project was both a Conservation and Recreation Lands (CARL) project and Save Our Rivers (SOR) project. The State and SFWMD contributed an undivided one-half interest to the original purchase. As such, SFWMD was reimbursed by the BOT for half interest in 19,454.23 acres of this purchase. An additional 9,764.09 acres were acquired utilizing Preservation 2000 Inholding and Addition Program funds.

B. Management Authority, Purpose and Constraints

1. Purpose for Acquisition/Management Prospectus

The OSSF was acquired as part of the SOR and CARL programs. The goals of the SOR program include: "Protecting areas that are critical to maintaining South Florida's ecological integrity, and acquiring lands that are necessary for water management, water supply, and the conservation and protection of water resources.

The primary goals (Exhibit D) of the CARL project were:

i. to conserve and protect environmentally unique and irreplaceable lands;

ii. to conserve and protect significant habitat for native species or endangered and threatened species;

iii. 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;

iv. to provide outdoor recreation; and

v. to preserve significant archaeological or historic sites.

2. Degree of Title Interest Held by the Board

The South Florida Water Management District (SFWMD) purchased 22,255.15 acres from ALICO and took title to the property under a deed dated December 3, 1996. The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (BOT) subsequently reimbursed the SFWMD for half of the acquisition costs for

19,454.23 acres of the above-mentioned area. The BOT now hold joint, fee simple title (50% undivided interest) in this area under a deed dated February 2, 1999. This property is assigned to the FFS for management under Lease 8 Agreement 4247.

The SFWMD retained full, fee simple ownership of 2,800.92 acres of the original ALICO purchase. This property was previously managed as part of the OSSF under a Memorandum of Understanding, but was recently assigned to the FFS under SFWMD Lease Number C-1368, dated July 16, 2002. Copies of this document are on file at FFS and SFWMD headquarters.

The BOT also hold fee simple title to 9,784.09 acres that were purchased by the FFS Inholding and Additions Program using Preservation 2000 funds. This property is assigned to the FFS for management under Lease Agreement 4246.

3. Designated Single or Multiple-Use Management

The OSSF 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 Numbers 4246, 4247, and C-1368.

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 income producing activities is quite varied and a few are listed below:

- *Day Use Recreation Fees* - $3,000/year
- *Palmetto Drupe Sales*, as conditions permit - $1,000/year
- *Whole Tree Sabal Palm Harvesting*, as conditions permit - $50,000 estimated total during the planning period (not an annual activity).
- *Camping* - $5,000/year
- *Native Seed Harvesting* - $1,000/year
- *Apiary Lease* - $200/year

- *Timber*, as conditions permit - $20,000 estimated total during the planning period (not an annual activity).
- *Grazing Lease* - $8/acre

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, 259 and 253, Florida Statutes.

6. Legislative or Executive Constraints

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

7. Aquatic Preserve/Area of Critical State Concern

Sections 10, 11 and 12, of Township 46 South, Range 30 East are within the Big Cypress Area of Critical State Concern, Chapter 28-25.001 FAC.

C. Capital Facilities and Infrastructure

1. Property Boundaries Establishment and Preservation

The OSSF boundary lines are managed by state forest personnel in accordance with the guidelines stated in Chapter 11 of the State Forest Handbook (FFS 2008). Approximately 80 percent of the OSSF boundaries have had signs posted according to FFS boundary marking specifications, except for the southeast boundary. This has been due to inaccessible terrain, and a lack of equipment suited to the job. This situation was recently rectified with the acquisition of an airboat and a rollagon from Everglades District, and this situation will be rectified within the next ten year planning period.

2. Improvements

There are several improvements located on the OSSF. The following improvements are in good condition and in use: three (3) residences, shop, a metal storage building, two pump houses, a fire tower, a state forest headquarters (converted residence), an office trailer, and a pole barn.

A permanent shop/work center is being planned for construction in a disturbed farm field across County Road 832 from the headquarters site (Exhibit N).

There are also 2 primitive campgrounds: Wildcow Island with 2 sites, and Panther Pond Campground with 17 sites. There are also 2 overflow camping areas without designated sites. As well as, 2 trailheads: Twin Mills Trail Trailhead (2.3 miles), and Tram Loop Trailhead (3.9 miles). Finally, there is a boardwalk that is approximately 200' long off Sic Island Road.

3. On-Site Housing

FFS may establish on-site housing (mobile/manufactured home) on OSSF 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 Caloosahatchee Forestry 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 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 Caloosahatchee Forestry Center Manager and approved by the Director.

There are currently three (3) residences on-site for two (2) Senior Forest Rangers and one (1) Forester.

4. Operations Infrastructure

The 2010-2011 fiscal year budget was $320,547; however annual appropriations are known to change. This amount included salaries, expense and operating capital outlay and was broken down as follows:

Salary and Benefits (4 full-time employees) $135,727
Expense (general costs for fuel, supplies, parts, etc.).....$134,358
Other Personnel Services (One Park Ranger).....$20,000

To carry out the resource management work on the state forest as well as in order to maintain forest improvements such as trails, roads and facilities Table 3 lists the equipment that has been assigned or is immediately available for work on OSSF.

Table 3: Equipment Assigned or is Available for Work on OSSF

Type	Year
Volvo Road Grader	2001
JD 6310 Farm Tractor	1999
Ford F250 Diesel Pickup Truck	2003
4X4 Ford Ranger Pickup Truck	2008
IHC 7400 SBA Transport	2008
JD 650J Dozer w/ winch	2008
GMC Sonoma 2WD Pickup Truck	2000
Ford F250 7.3 4X4 Diesel Pickup Truck	1996
Chevrolet 4x4 5/4 ton Diesel Pickup Truck	1984
Dodge 2500 Mag 5.9 ltr. V-8 Gasoline 4x4 Pickup Truck	2001
GMC 2500SL 4X4 Extended Cab Gasoline Pickup Truck	2000
Chevrolet 4X4 Diesel Pick-Up 5/4 ton	1986

Type	Year
Ford Field Tractor	1988
Finish mower / Bush hog Mod#3008	1999
Hester 2-Disc Plow	1974
Fesco 2-Disc Plow	2009
Mathis 2-Disc Plow	1972
Terex Loader	1984
Dresser Loader AWD Model 520C	1993
Young Swamp Buggy	2000
Rolligon	1971
Ford F550 7.3 4X4 Dump Truck	2001
Ford F150 XL 4X4 Pickup Truck	2007
Utility Trailer	2004
Military Fuel Trailer 1/4 ton	1966
10 Ton Tilt Trailer W/Winch	2000
Lawn care trailer	1999
Trailer Lawn/fuel/Utility	2006
Trailer Air Boat	unknown
Air Boat Superior ASPT FLZ9895G888	2003

All facilities and improvements are located on the 12 acre forest headquarters site. A review of facilities and improvements on the forest that provide infrastructure support for staff and equipment include:

- 2,500 sq ft. FFS Forest Headquarters (Converted Residence)
- 2,000 sq ft. Office Trailer
- 5,400 sq ft. Metal Pole Barn for Equipment Storage
- 3 – 100 sq ft. Pump houses
- 200 sq ft. Wood Working Shed
- 2,400 sq ft. Quonset Hut
- 1,500 sq ft. Sr. Ranger Residence
- 1,000 sq ft. Sr. Ranger Residence
- 1,000 sq ft. Forester Residence
- 3,000 sq ft. Trailer Pad
- 2,000 sq ft. Trailer Pad
- 120 sq ft. Check Station

Utilities the serve the public and forest staff, located at the headquarters site, include the following:

- Three (3) – 4" Wells Providing Potable Water
- Three (3) Telephone Lines at the Forest Headquarters
- One (1) Telephone Line at the Office Trailer
- T-1 Internet Line at the Forest Headquarters
- Electric Service – FPL
- Seven (7) Septic Tanks w/ Drain Fields (Three (3) Residences, two (2) Trailer Pads, Office Trailer, and Headquarters)

In order to supplement the staff assigned to OSSF, a forester position has been created that is headquartered at the Caloosahatchee Forestry Center. This forester is responsible for coordinating the volunteer program, assisting with sales, assisting with harvests, and providing a general support mechanism.

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, stormwater management projects, linear facilities, and communication towers and antennas except as otherwise outlined in this plan. Deadhead logging is not compatible, and is not considered an appropriate use within the state forest boundaries. These and 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 OSSF. These parcels would serve to enhance management of OSSF and resolve particular management issues, provide additional areas for natural resource based outdoor recreational opportunities, protect the Slough from potential impact, and provide habitat for protected species. Primary examples are any parcels to the south and west providing access to the property from the tram and any parcel to the west of the tram in order to protect the water quality of the slough.

3. Surplus Land Assessment

All of the property within OSSF is suitable for and necessary for the management of OSSF, and none should be declared surplus.

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.

State Road 29 and County Road 832 are smoke sensitive and serve as impediments to prescribed burning. Water control structures on the north end of the forest are managed by the Barron Water Control District and regulate water flows on the forest. Management activities will be impacted by the amounts of water held back or released onto the forest during various times of the year.

5. Compliance With Comprehensive Plan

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

6. Utility Corridors and Easements

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 OSSF suitable for any new linear facilities, and currently no corridors or easements exist.

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 habitat 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.

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 Numbers 4246, 4247, and C-1368. The Florida Fish and Wildlife Conservation Commission (FWC) has law enforcement responsibilities, enforces hunting regulations, cooperatively sets hunting season dates with FFS, and conducts 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 South Florida Water Management District (SFWMD) 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 FWC. Additional assistance is provided by the Hendry County Sheriff's Offices 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, camping, and other uses 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 in January 2006 and May 2011 (Exhibit G). The review team's recommendations were incorporated into this plan as appropriate.

The plan was developed with input from the OSSF Management Plan Advisory Group and was reviewed at a public hearing on July 11, 2012. 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 OSSF. Depending upon the type of volunteer service needed, volunteer activities may be one-time events or long-term projects. Volunteer recruitment will be encouraged to assist with activities to further the FFS's mission.

III. Archaeological/Cultural Resources and Protection

A. Past Uses

ALICO, Inc. acquired the property through the Atlantic Coastline Railroad. The property was originally logged for railroad crossties, and sawmills were built for lumber production. During the 1920s, Sears, a sawmill town started by John Sears' widow and

two sons, had a large modern sawmill and was nearby. After a fire destroyed the mill, the town of Sears went into decline and essentially disappeared. During the same time period ALICO, Inc. continued logging operations utilizing two portable sawmills, which were referred to as the Twin Mills. There are still remnants of the sawdust piles off of Twin Mills Road, which also serves as a forest boundary. During the mid 1930s the property was cleared of most of its marketable timber and an extensive cattle operation was begun. Additionally, limited hunting leases were sold with the understanding that ALICO, Inc. could exclude access if roads became too rutted. This practice, along with security patrols of the property, helped to limit damage over much of the property. Other past uses included apiaries, palmetto drupe harvesting, and sabal palm harvesting.

B. Archaeological and Historical Resources

DHR undertook an archaeological survey of OSSF in December of 2004. By examining old maps, aerial photographs, and historical documents a list of approximately ten (10) sites was developed, and of those sites five (5) cultural resources sites were identified. Additionally, one site discovered by staff members at OSSF has potential historical importance. The staff at OSSF has petitioned for it to be listed as an archaeological resource on OSSF and it is currently awaiting review by the DHR. Due to OSSF's proximity to Big Cypress National Preserve, the possibility exists for additional sites to be discovered.

Table 4. Archaeological and Historical Sites on OSSF

SITE ID	SITE NAME	SITE TYPE
8HN264	OK Sawmill	Twentieth century logging site with portable sawmill ruins and large sawdust pile
8HN112	Gumbo Limbo Hammock	Prehistoric Midden
8HN113	Lambers Mound	Prehistoric Midden Mound
CR885	Corduroy Road Segments	Wooden Slab Wetland Crossing

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

Currently there are no local district FFS personnel trained by DHR as archaeological site monitors. The FFS will arrange for at least one staff member from OSSF to attend a

DHR Archaeological Resource Management class to become a trained archaeological 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 five (5) 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 ground disturbing 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 OSSF was obtained from the Hendry and Collier County Soil Surveys. For detailed information on soils see Exhibit J.

2. Soil Protection

Currently there are no known soil or erosion problems present on OSSF. 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 in conjunction with recommendations as contained in the most current version of the Florida Silviculture Best Management Practices Manual.

B. Water Resources

OSSF performs essential roles in the protection of water quality, groundwater recharge, flood control and aquatic habitat preservation. This is due to the forest's position in the landscape, unique natural features, and the number and types of water resources present; i.e.: isolated wetlands, cypress swamps, basin wetlands, etc. In the interest of maintaining these valuable hydrologic 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 Okaloacoochee Slough serves as a headwater source for the Fakahatchee Strand Preserve State Park and Big Cypress National Preserve, as identified in 1998 by the SOR program. During the rainy season waters from the slough will also flow north to the Caloosahatchee River. Flow during this time of the year will depend upon where rain has fallen on the forest, local winds, and the activities of the Barron Water Control District. During the dry season the slough serves to store wet season runoff from western Hendry County through an extensive network of swales, sloughs, depressions and other wetlands. All waters within the slough, and its contiguous wetlands, are classified as Class III Surface Waters - Recreation, Propagation, and Maintenance of a Healthy, Well-Balanced Population of Fish. The Okaloacoochee Slough has been nominated for status as an Outstanding Florida Water (OFW).

Cypress strands, hydric hammocks, depression marshes and wet flatwoods all occur on OSSF. Maintenance of naturally occurring wetland communities is a high priority and will be accomplished through prescribed fire when necessary and ensure proper planning and mitigation of activities that would threaten natural hydrology.

Consideration will be given to eliminating ditches if it can be accomplished without flooding necessary roads, structures or adjacent landowners. Wetland restoration will be coordinated with the FFS Hydrology Section and with SFWMD and DEP involvement/approval as appropriate. Any activities requiring water management district or DEP permits will be handled accordingly.

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.

OSSF falls within the water resource jurisdiction of the SFWMD, and serves as the headwaters of the Big Cypress Basin. The FFS will coordinate with SFWMD, as necessary, on activities pertaining to water resource protection and management. This will apply most directly to road construction activities, culvert installations, and low water crossings. Exhibit K shows culverts, bridges and low water crossings that have been installed on the forest. FFS and SFWMD will work with FWC on hydrologic evaluation on the effects of major canals north of County Road 832 and development of restoration plan if one is necessary. If problems do arise, corrective action will be implemented by FFS staff under the direction of FFS Forest Hydrology Section, and in accordance with accepted standards.

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.

There are twenty (20) animal and fifteen (15) plant species with either state or federal listed status that occur on OSSF. The species in Table 5 have been verified to be present now or in the past on the forest. The list was compiled by FNAI, FWC, DEP and FFS biologists. See also Exhibit L, the FNAI Managed Area Summary.

Table 5. Endangered or Threatened Species

Common Name	Scientific Name	Federal Status*	State Status*	FNAI Global Rank*	FNAI State Rank*
Animals					
American Alligator	*Alligator mississippiensis*	SAT	FT (S/A)	G5	S4
Audubon's Crested Caracara	*Polyborus plancus audobonii*	LT	LT	G5	S2
Eastern Indigo Snake	*Drymarchon couperi*	LT	FT	G3	S3
Florida Black Bear	*Ursus americanus floridanus*	N	ST	G5 T2	S2
Florida Burrowing Owl	*Athene cunicularia floridana*	N	SSC	G4 T3	S3
Florida Grasshopper Sparrow	*Ammodramus savannarum floridanus*	LE	FE	G5 T1	S1
Florida Mouse (Gopher Mouse)	*Podomys floridanus*	N	SSC	G3	S3
Florida Panther	*Puma concolor coryi*	LE	FE	G5 T1	S1
Florida Sandhill Crane	*Grus canadensis pratensis*	N	ST	G5 T2 T3	S2 S3
Gopher Tortoise	*Gopherus polyphemus*	N	ST	G3	S3
Limpkin	*Aramus guarauna*	N	SSC	G5	S3
Little Blue Heron	*Egretta caerulea*	N	SSC	G5	S4
Mangrove Fox Squirrel	*Sciurus niger avicennia*	N	ST	G5 T2	S2
Osprey	*Pandion haliaetus*	N	SSC±	G5	S3 S4
Roseate Spoonbill	*Ajaia ajaja*	N	SSC	G5	S2
Snail Kite	*Rostrhamus sociabilis plumbeus*	LE	FE	G4 G5 T2	S2
Snowy Egret	*Egretta thula*	N	SSC	G5	S3

Common Name	Scientific Name	Federal Status*	State Status*	FNAI Global Rank*	FNAI State Rank*
Tricolored Heron	*Egretta tricolor*	N	SSC	G5	S4
White Ibis	*Eudocimus albus*	N	SSC	G5	S4
Wood Stork	*Mycteria americans*	LE	FE	G4	S2
Plants					
Cardinal Airplant	*Tillandsia fasciculata*	N	LE		
Chiggery Grapes	*Tournefortia hirsutissima*	N	LE		
Florida joint tail Grass	*Coelorachis tuberculosa*	N	LT	G3	S3
Giant Orchid	*Pteroglossaspis ecristata*	N	LT	G2 G3	S2
Giant Wild Pine	*Tillandsia utriculata*	N	LE		
Greater Yellow Spike Orchid	*Polystachya concreta*	N	LE		
Leafless beaked ladiestresses	*Sacoila lanceolata* var. *lanceolata*	N	LT		
Leatherleaf Airplant	*Tillandsia variabilis*	N	LT		
Pine Lily	*Lilium catesbaei*	N	LT		
Redmargin Zephyrlily	*Zephyranthes simpsonii*	N	LT	G2 G3	S2 S3
Satinleaf	*Chrysophyllum oliviforme*	N	LT		
Simpson's Stopper	*Myricanthes fragans*	N	LT		
Small's Flax	*Linum carteri var. smallii*	N	LE	G2 T2	S2
Stiff-leaved Wild Pine	*Tillandsia fasciculate* var. *densispica*	N	LE		
Twisted Airplant	*Tillandsia flexuosa*	N	LT	G5	S3

***** STATUS/RANK KEY

Federal Status (USFWS): LE= Listed Endangered, LT= Listed Threatened, SAT = Listed Threatened due to similarity of appearance to a threatened species, N = Not currently listed.

State Status (FWC): FE = Listed as Endangered Species at the Federal level by the USFWS, FT = Listed as Threatened Species at the Federal level by the USFWC, LE= Species of plants listed as Endangered, LT=Species of plants listed as Threatened, ST = State population listed as Threatened by the FWC, SSC = Listed as Species of Special Concern by the FWC, N = Not currently listed, nor currently being considered for listing. SSC± indicates that this species has SSC status in Monroe county only.

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.

Six (6) of the listed animal species have federal endangered or threatened status. The endangered wood stork is not known to presently nest on OSSF (although the potential does exist) and will require no action other than protection while on state land. The threatened indigo snake requires a warm underground place to over winter, habitat which will increase in the future with proper forest management. None of the fifteen (15) listed plants species have federal endangered or threatened status.

The following management practices are recommended to protect and preserve all threatened or endangered species that are known to be present on the forest.

- Locate and map cover, habitat/foraging ranges, food, critical resources, and breeding areas for all species considered rare, endangered or species of special concern if resources are available.

- Other specialized management practices for rare and endangered species may be implemented. This includes designation of buffers for aquatic and wetland resources.

Specialized forest management techniques will be used, as necessary, to protect or increase endangered, threatened and species of special concern, as applicable for both plants and animals. The USFWS's South Florida Multi-Species Recovery Plan (1999) will be consulted in this effort. Emphasis will be on managing the habitat, rather than single species management. A multi-species management plan will be developed for those species requiring specific actions outside of general habitat management.

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

Wildlife management will play an important role in the management of resources on OSSF. The state forest currently makes up a majority of the Okaloacoochee Slough Wildlife Management Area (OSWMA). 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.

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. Research among cooperating agencies will provide valuable information in determining future management objectives of non-game species. The current State Forest Handbook gives additional details for such things as snag management and retention.

Many game and non-game species inhabit the various natural communities and disturbed sites found throughout the forest (Exhibit M). This list will be continually updated with assistance from the numerous entities that perform work on this forest. This is to include data from various research projects, FWC, Audubon chapters, OSSF staff observations, FNAI, etc.

a. Birds

Resident and migratory birds utilize OSSF habitats, and one hundred forty-five (145) different species of birds have been recorded in the forest. Red-bellied woodpeckers (*Melanerpes carolinus*), northern cardinals (*Cardinalis cardinalis*), and white-eyed vireos (*Vireo griseus*) are some of the more commonly encountered species. Common winter migrants found in the forest include the belted kingfisher (*Ceryle alcyon*), tree swallow (*Tachycineta bicolor*), American robin (*Turdus migratorius*), and palm warbler (*Dendroica palmarum*). Various waterfowl and wading birds use the seasonally wet prairies and isolated ponds found throughout the forest. Many species of raptors frequent the forest including osprey (*Pandion haliaetus*), red-tailed (*Buteo jamaicensis*) and red-shouldered hawks (*Buteo lineatus*).

b. Mammals

There are nineteen (19) known species of mammals on OSSF, some of the more well-known species being the Florida panther (*Puma concolor coryi*) and the Florida black bear (*Ursus americanus floridus*). The forest also supports populations of prey species such as white-tailed deer (*Odocoileus virginianus*), cotton rats (*Sigmodon hispidus*), and feral hogs (*Sus scrofa*).

c. Fish

The canals, isolated freshwater ponds, and seasonally inundated wetlands support many native and non-native species of freshwater fish. Non-native fish outnumber native fish in diversity and abundance in canals while the less disturbed, seasonally inundated wetlands have a more favorable ratio of native to non-native species.

d. Reptiles and Amphibians

There are thirty-two (32) recorded reptile species and fifteen (15) recorded species of amphibians found in OSSF. Southern black racers (*Coluber constrictor priapus*), red rat snakes (*Elaphe guttata guttata)* and pine woods tree frogs (*Hyla femoralis*) are among the more common species encountered in the forest whereas gopher tortoises (*Gopherus polyphemus*), American alligator (*Alligator mississippiensis*) and eastern diamondback rattlesnakes (*Crotalus adamanteus*) are examples of the more rare species found in the forest.

3. Survey and Monitoring

Species-specific management plans will be developed when necessary. Continued biological surveys will be conducted to determine locations of these species. Biological surveys should concentrate on high use areas; primarily trail corridors and

locations where future activities could impact established native ground cover. Surveys should also be conducted in all habitats through the forest for groundcover diversity levels as well as presence of state and federal threatened and endangered species. Determination of specific locations and type of surveys will be determined through consultation with the FFS Ecologist, and FWC Biologist.

a. Florida Panther

The Florida panther presently occupies most of the counties in Central and South Florida. Panther habitats include cypress swamps, hardwood hammocks, pine flatwoods, seasonally flooded prairies, freshwater marshes, and some agricultural lands. The OSSF, Picayune Strand State Forest (PSSF), Fakahatchee Strand Preserve State Park (FSPSP), Florida Panther National Wildlife Refuge, Big Cypress National Preserve, Big Cypress Seminole Indian Reservation, American Prime Panther Corridor, and ranches located in southern Hendry County and northeastern Collier County provide a contiguous landscape that supports the only extant breeding panther population east of the Mississippi River. Because of their wide-ranging movements and extensive spatial requirements, panthers are particularly sensitive to habitat fragmentation (Harris 1984). The survival and recovery of the Florida panther is dependent on protection and enhancement of this extant population, associated habitats, and prey resources. Panthers require adequate cover for resting and denning sites, prey, and a relative lack of disturbance in terms of road hazards and human activity. The effect of invasion by non-native invasive plants, such as melaleuca, on panther use of natural habitats is unknown.

Adult male panthers maintain large, virtually exclusive home ranges, which encompass the ranges of up to six adult females and their dependent offspring (Land 1994). Comiskey et al. (2002) examined the home range size for 50 adult panthers (greater than 1.5 years old) monitored in south Florida for the period from 1981 to 2000 and found resident males had a mean home range of 160,682 acres and females had a mean home range of 97,927 acres. Without large areas of suitable habitat to accommodate dispersal, young males have few opportunities for recruitment as residents. As a result, the panther's ability to increase and outbreed has been severely restricted. Successful male recruitment appears to depend on the death or home range shift of a resident adult male (Maehr et al. 1991). Intraspecific aggression (males killing other cats) continues to be the most significant source of mortality.

Numerous factors influence panther home range size and the reproductive success of females, including habitat quality, prey density, and landscape configuration (Belden 1988, Comiskey et al. 2002).

White-tailed deer and feral hogs are important prey items for the Florida panther throughout South Florida (Maehr et al. 1990). Panther prey density, especially deer, is an important factor in evaluating the panther habitat. The type of prey

available to the panther affects the health and distribution of the panther, as well as its ability to breed and support young.

The FWC has several brochures at the website (http://www.floridapanthernet.org/ and http://myfwc.com/conservation/you-conserve/wildlife/black-bears/) on how to safely live in bear and panther country, and land management may implement the updated Florida Panther Recovery Plan (USFWS 1995).

b. Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act (16 U.S.C. 703-712). The South Florida ecosystem is located along one of the primary migratory routes for bird species that breed in temperate North America and winter in the tropics of the Caribbean and South America. More than 129 bird species migrate to the South Florida ecosystem to overwinter, and another 132 species breed in South Florida. Because the South Florida ecosystem is located near Cuba and the West Indies, it draws tropical species that rarely appear elsewhere in North America (e.g., short-tailed hawk (*Buteo brachyurus*), and Everglades Snail Kite (*Rostrhamus sociabilis plumbeus*)). The South Florida ecosystem has an endemic race of the yellow warbler (*Dendroica petechia*) and contains the majority of the nesting locations for the reddish egret (*Egretta rufescens*), roseate spoonbill (*Ajaia ajaja*), swallow-tailed kite (*Elanoides forficatus*), and short-tailed hawk in the United States.

c. Swallow-tailed kite

Although not classed as threatened, the swallow-tailed kite is protected by the U.S. Migratory Bird Act. Swallow-tailed kites have suffered a precipitous decline in the United States over the last century (from draining of swamps, and shooting), resulting in its current distribution in seven states from Louisiana to South Carolina. Most of the known population is centered in the southern tip of Florida. In the winter swallow-tailed kites migrate to South America. The estimated population for the entire United States is 800 to 1,150 pairs (Cely and Sorrow 1990); about 60 to 65 percent of these birds reside in Florida (Meyer 1995). Based on telemetry research, swallow-tailed kites have a large home range that encompasses thousands of acres (Cely and Sorrow 1990). Southwest Florida has been identified as a core conservation area for the swallow-tailed kite (Meyer 1995).

Foraging birds use a variety of stand types and ages and will often commute long distances, up to 24 km (15 miles) from the nest site, to feed on various insects. Other swallow-tailed kites are attracted to “hot spots” of insect abundance; feeding aggregations sometimes consist of more than 50 birds. Swallow-tailed kites breed once per year with two or three eggs laid, usually in mid-March to mid-April. This species requires tall, accessible trees for nesting with open areas that provide sufficient small, easily subdued prey. Suitable habitat may be small stands or tree islands in prairie-like settings, low-density forests of uneven structure interrupted by open areas of shrub, swamp, or marsh vegetation, or

denser forest, frequently interspersed with various sorts of openings (Meyer 1995). Other kites are tolerated in the immediate area or even in the same tree, but do not participate in the nest activities. Other species of hawks are chased away.

A large, pre-migratory roost (280 birds in 1988) of swallow-tailed kites has been documented 23 km away in Corkscrew Swamp Sanctuary, Collier County (Meyer and Collopy 1990).

Conservation recommendations:

- Incorporate swallow-tailed kite nest locations into land management and protection efforts.

- Assist in studies of demographics, nesting habitat, effects of disturbance and habitat alteration in order to develop more specific swallow-tailed kite management guidelines.

- Assist with development of a feasible swallow-tailed kite monitoring method that would detect a population decrease in the state over a 10 to 15 year period.

d. <u>Short-tailed Hawks</u>

The short-tailed hawk (*Buteo brachyurus*) is a small hawk, only being about 17 inches long. It is rare in the North American Continent, and is only found in Florida and from central Mexico to Panama.

Short-tailed hawks prefer wooded swamps and wetlands. The hawks begin nest construction in February or March and lay eggs from mid-March to mid-April or early May. Most nests are located in or adjacent to forested wetlands, such as large cypress strand swamps, mature slash pines on the fringes of swamps, wet flatwoods, and loblolly bay swamps, and are made out of cypress twigs and dried moss. They may be spotted, but generally are not. Incubation periods and egg laying dates are not known. Clutches range from one to three (typically two) white or bluish-white occasionally marked with brown, eggs. Incubation lasts approximately 34 days. The fledging period and number of broods raised per season are not known.

Most foraging occurs from high-altitude soaring over adjacent open to scrubby dry prairies, oak scrub, marsh, and mangrove savannah. Prey is mainly small birds such as Eastern meadowlarks and red-winged blackbirds.

The Avian Research and Conservation Institute has been studying the Florida population of short-tailed hawks since 1998 and are currently conducting research on nesting and wintering ecology using radio-telemetry. The study seeks to identify critical nesting sites and concentrations of hawks to determine area and habitat needs as well as threats, causes of mortality and demographic features that

most influence population trends to develop a monitoring plan and recommend management and conservation action.

e. Bald Eagle

Bald eagles (*Haliaeetus leucocephalus*) are considered a water-dependent species typically found near estuaries, large lakes, reservoirs, major rivers, and some seacoast habitats (USFWS 1999). Their distribution is influenced by the availability of suitable nest and perch sites near large, open water bodies, typically with high amounts of water-to-land edge. The bald eagle is an opportunistic feeder, but in South Florida the bulk of its diet is fish. Bald eagle use varies in the OSSF but is primarily confined to foraging activities. Bald eagle nests in Collier County are located within 10 miles of coastal estuaries, although most are located within two miles of coastal estuaries. There are five (5) known Bald Eagle nests located in Hendry County. Bald eagles in Hendry and Collier County typically nest in pine trees, but are also known to nest in cypress.

Bald eagle nests are protected consistent with the National Bald Eagle Management Guidelines (USFWS 2007).

f. Everglade Snail Kite

The range of the endangered Everglade snail kite (*Rostrhamus sociabilis plumbeus*) is restricted to habitats in central and south Florida. Snail kites are nomadic in response to water depth, hydroperiod, food availability, and other habitat changes (Sykes 1978, 1983a; Beissinger and Takekawa 1983; Bennetts et al. 1994). The snail kite feeds almost exclusively on apple snails (*Pomacea paludosa*) in Florida. The abundance of apple snails is closely linked to water regime (Kushlan et al. 1975; Sykes 1979, 1983a). Drainage of Florida's interior wetlands has reduced the extent and quality of habitat for both the snail and the kite (Sykes 1983b). The kite nests over water, and nests become accessible to predators in the event of unseasonably dry conditions (Beissinger 1986, Sykes 1987). In dry years, the snail kite depends on water bodies which normally are suboptimal for feeding, such as canals, impoundments, or small marsh areas which are often removed from regularly used sites (Beissinger and Takekawa 1983, Bennetts et al. 1988, Kitchens et al. 2002). These secondary or refuge habitats are vital to the continued survival of this species in Florida. The principal threat to the snail kite is the loss or degradation of wetlands. Nearly half of the Everglades wetlands have been drained for agriculture and urban development (Davis and Ogden 1994).

g. Wading Birds

Wading bird populations in South Florida have undergone declines far greater than the declines of their nesting habitats. Fifteen species of herons, storks, and ibises nest in South Florida and are considered ecological indicators because of their wide foraging ranges, relatively narrow food requirements, and relatively specific habitat requirements.

According to current estimates, breeding populations of wading birds in South Florida have declined by more than 90 percent as their habitats have been reduced by 50 percent (Ogden 1994). Of the 15 species that breed in South Florida, the wood stork, great egret (*Ardea alba*), snowy egret *(Egretta thula),* tricolored heron *(Egretta tricolor),* and white ibis *(Eudocimus albus)* had declined by an estimated 75 to 80 percent between the 1930s and the late 1970s (Ogden 1994). The total number of wading birds nesting in the Big Cypress and Everglades basins has declined by more than 95 percent from peak estimates of nesting birds in the 1930s. Impacts of altered hydropatterns include: 1) reduced number of birds attempting to nest; 2) relocated colonies; 3) altered timing of nesting; and 4) fewer years of successful nesting.

h. <u>Wood Stork</u>

The wood stork (*Mycteria americana*) is known to forage within suitable wetland habitats throughout the OSSF. Suitable wood stork foraging habitat consists of shallow wetlands with water depths of 2 to 15 inches.

Three active wood stork nesting colonies are known to occur near the area. Two of these colonies are located at Audubon's Corkscrew Swamp Sanctuary (Corkscrew) within the Corkscrew Regional Ecosystem Watershed (CREW), west of the OSSF. Corkscrew contains the largest historic and current wood stork colony in the United States. The third wood stork nesting colony is located south of the OSSF just north of the FSPSP. Wetlands within 18.6 miles (30 km) of rookery sites have been described as core foraging areas for wood storks (Cox et al. 1994). However, they may forage as far as 46.6 miles (75 km) from rookery sites (Ogden, personal communication, August 1, 2000). However, the OSSF is located within 46.6 miles of the wood stork colony.

The most recent nesting data for the colony located north of the FSPSP indicate that 50 nests were observed during 1999 and 25 observed during 2000, and no data are available for 2001 or 2002. On average over the last 44 years (since 1958) in Corkscrew, 1,654 nests have been initiated yearly, producing an average of 2,161 fledged young, or 1.3 young fledged per nest. Before 1968, as many as 5,000 wood stork nests were annually initiated. Nesting activity peaked in 1961 when 6,000 nests produced a record 17,000 young fledged, or 2.8 fledged young per nest. The production of wood stork colonies varies considerably between years and locations, apparently in response to differences in food availability. Colonies that are limited by food resources may fledge an average of 0.5 to 1.0 young per active nest; whereas colonies that are not limited by food resources may fledge between 2.0 and 3.0 young per active nest (Ogden 1996). The 44-year average indicates that the two colonies at Corkscrew are generally limited by food resources. During the year 2002, these colonies were not limited by food resources.

The ability of wood storks to forage successfully affects their decision to nest at historic rookeries and determines whether nest failure or fledgling survival will

occur. Survey data show that the Corkscrew colonies represent an average of 12 percent (510 out of 4,065 nests based on a four-year average) of the Florida population. On average, the South Florida sub-population represents 53 percent of the Florida population and 34 percent of the southeastern United States population. Storks nesting in the Big Cypress Basin, under pre-drainage conditions (1930s to 1940s), formed colonies between November and January (December in most years) regardless of annual rainfall and water level conditions (Ogden and Davis 1994). In response to deteriorating habitat conditions in South Florida, wood storks in this region delayed the initiation of nesting until February or March, or about two months**,** in most years since the 1970s. This shift in the timing of nesting is believed to be responsible for the increased frequencies of nest failures and colony abandonment in this region over the last 20 years. Colonies that start after January in South Florida risk having young in the nests when May to June rains flood marshes and disperse forage fish. Historic data on colony locations identify the Everglades basin and Corkscrew colonies as the primary nesting locations for wood storks in South Florida (Ogden and Nesbitt 1979). In the late 1950s and early 1960s, the Corkscrew colonies accounted for 51 percent of the Florida population.

The primary factors affecting wood stork habitat surrounding the OSSF are the loss and alteration of wetlands due to development and agriculture. Secondary factors such as weather (freezes and hurricanes), parasites, disease, and chemical contamination may affect wood storks but there is insufficient information available to discuss the effects of these factors on this species.

Wood storks forage most effectively in shallow-water areas with highly concentrated prey (Ogden *et al.* 1978, Browder 1984, Coulter 1987). In South Florida, low, dry-season water levels are often necessary to concentrate fish to densities suitable for effective foraging by wood storks (Kahl 1964, Kushlan *et al.* 1975). As a result, wood storks will forage in many different shallow wetland depressions where fish become concentrated, either due to local reproduction by fishes, or as a consequence of seasonal drying. It is critical that natural hydroperiods be established in post-restoration wetlands to support surface water connections (sheetflow) between wetlands to allow fish dispersal and establish dry-season or drought-resistant refugia, increase the extent and quality of wetlands, decrease competition between forage fish species, reduce predation on forage fishes, and reduce unwanted non-native fish species that compete with forage fishes. Canals that remain on the site will provide permanent habitat for predatory species of native and non-native fish. Predatory fish prey upon smaller fish species that provide an important forage base for wood storks. Wet season rainfall could allow predatory fish access to isolated wetlands and increase predation of small fishes on the site, reducing the small fish forage base used by wading birds, including wood storks.

During wet years, water management practices could prevent the formation of shallow pools that concentrate wood stork forage fishes. During dry years, water

management practices could over drain the freshwater sloughs, reduce freshwater flows into the downstream estuaries, and reduce wetland productivity of wood storks forage fishes. Variable water management practices could increase or decrease frequencies of wood stork nest failure in area rookeries.

i. Eastern Indigo Snake

The eastern indigo snake (*Drymarchon corais couperi*) is a large, black, non-venomous snake that is widely distributed throughout South Florida. Moler (1992) lists a broad number of suitable habitats ranging from mangrove swamps and wet prairies to xeric pinelands and scrub, but indigo snakes tend to be found most commonly in upland habitats or nearby wetlands. The indigo snake is wide ranging and may cover 50–100 ha (125–250 acres) during spring and summer. Because of these area requirements, Moler (1992) recommends that habitat protection efforts focus on large tracts of land, generally at least 1,000 ha (2,500 acres). The range during cooler winter months may be only 10% of the range during warmer periods. Dramatic population declines have been caused by over-collecting for the domestic and international pet trade, as well as mortality caused by rattlesnake collectors who gassed gopher tortoise burrows to collect snakes. Because of its relatively large home range, this snake is especially vulnerable to habitat loss, degradation, and fragmentation (Lawler 1977, Moler 1985). Habitat loss and fragmentation by residential and commercial expansion are more significant threats to the eastern indigo snake in southwest Florida. Lawler (1977) noted that eastern indigo snake habitat has been destroyed by residential and commercial construction, agriculture, and timbering. Extensive tracts of wildland are the most important refuge for large numbers of eastern indigo snakes (Diemer and Speake 1981, Moler 1985). Additional human population growth will increase the risk of direct mortality of the eastern indigo snake from property owners, domestic animals, and highway mortality.

The eastern indigo snake is present within OSSF and on adjacent private and public lands in the region. No specific survey data is available for the OSSF.

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. Inventories will be updated on a continual basis according to State Forest Handbook guidelines established by FFS's Forest Management Bureau.

E. Beaches and Dune Resources

OSSF is located in south peninsular Florida. No beaches or dunes occur on the OSSF.

F. Mineral Resources

Oil exploration was active on OSSF prior to state purchase and there are two abandoned oil pads with limestone road accesses located on the forest. There is currently no known interest in conducting oil exploration on the forest. The state has ownership of the mineral rights for the majority of the forest in Hendry County; however, a portion of the mineral interests remains outstanding and privately owned on 4,700 acres of the forest located in Collier County.

During this planning period the Florida Forest Service will evaluate potential opportunities to utilize subsurface resources. Though there are no known current oil interests, this may change and there may be other interests in subsurface resources not yet encountered. Examples of subsurface resources include, but are not limited to: oil, gas, and minerals including road material, etc.

G. Unique Natural Features and Outstanding Native Landscapes

The Okaloacoochee Slough, the forest's namesake, is a 15,400 acre slough marsh that runs north to south through the forest. According to USGS quadrangles, the elevation ranges only about 10 feet (between 25 feet to 35 feet above sea level) across the entire forest, providing a large area of contiguous, uniform habitat for a variety of species. The natural systems of the Fakahatchee Strand Preserve State Park and Big Cypress National Preserve depend on the water stored and moved by the slough.

The Okaloacoochee Slough is one of the few places in South Florida in which the native Florida landscape, north of the Everglades or Big Cypress National Preserve, can be observed. Due to its relatively undisturbed nature, the Okaloacoochee Slough is reasonably free of exotics and much of the natural vegetation persists.

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 the United States Forest Service (USFS), the University of Florida, the USFWS, National Marine Fisheries Service, Florida Gulf Coast University, Rookery Bay National Estuarine Research Reserve (Rookery Bay NERR), the Conservancy of Southwest Florida, FWC, non-profit organizations and other educational institutions and governmental agencies, 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 OSSF must be considered 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 OSSF staff. Other special conditions may be applicable and the authorization may be terminated at any point if the study is not in compliance.

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

- Exotic tick surveillance project - University of Georgia (2005 – present)
- Plant survey project - University of South Florida (2010-2011)
- Florida black bear research – University of Kentucky (2012)

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 OSSF include hunting, fishing, hiking, primitive camping, horseback riding, bicycle riding, birding, picnicking, nature study and sightseeing, and will be balanced with the hydrological restoration and other resource management priorities. Recreational activities on OSSF are limited to day-use only, with the exception of permitted primitive camping (Exhibit N).

The Outdoor Recreation Plan outlines the following projects listed in Table 6.

Table 6. Projects and Costs by Fiscal Year

Fiscal Year 2011-2012	
Maps and brochures	$1,000
Recreation Areas Maintenance and Improvement	$2,000
Camping Area Maintenance & Toilets	$3,000
Recreational Signage	$2,000
1 OPS position: Park Ranger	$20,000
Total:	**$28,000**

Fiscal Year 2012-2013

Maps and Brochures		$1,000
Recreational Trail Maintenance and Improvement		$2,000
Recreational Trail Development		$1,000
Camping Area Maintenance and Toilets		$3,000
Recreational Signage		$2,000
Birding Tower		$50,000
2 OPS Positions: Park Ranger		$45,000
OPS Position: Clerk Typist		$20,000
	Total:	**$124,000**

Fiscal Year 2013-2014

Maps and Brochures		$1,000
Recreational Trail Maintenance and Improvement		$2,000
Recreational Trail Development		$1,000
Camping Area Maintenance and Toilets		$3,000
Recreational Signage		$2,000
2 OPS Positions: Park Ranger		$45,000
OPS Position: Clerk Typist		$20,000
	Total:	**$74,000**

Fiscal Year 2014-2015

Maps and Brochures		$1,000
Recreational Trail Maintenance and Improvement		$2,000
Recreational Trail Development		$1,000
Camping Area Maintenance and Toilets		$3,000
Recreational Signage		$2,000
2 OPS Positions: Park Ranger		$45,000
OPS Position: Clerk Typist		$20,000
	Total:	**$74,000**

Fiscal Year 2015-2016

Maps and Brochures	$1,000
Recreational Trail Maintenance and Improvement	$2,000
Recreational Trail Development	$1,000
Camping Area Maintenance and Toilets	$3,000
Recreational Signage	$2,000
2 OPS Positions: Park Ranger	$45,000

OPS Position: Clerk Typist		$20,000
	Total:	**$74,000**

5-YEAR TOTAL: $374,000

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

1. Public Access and Parking

Access to OSSF is available to recreation users through honor fee pay stations located along CR-832. Seven informational kiosks have been erected and show the locations of all "iron rangers", gates and designated roads. Fee collection has been authorized by Florida Statute 589.011(3) and Section 5I-4.002(27) of the Florida Administrative Code.

Currently two unimproved parking areas exist along CR-832, with some parking at the end of Patterson Road, Oil Well Pad Road, the end of 4-Sections Road, and at the intersection of Mustang Grade and Mustang Loop. Additionally, along Wild Cow Grade and Sic Island Road there are parking areas of varying sizes. The first parking lot to the south of CR-832 on Sic Island Road, and the first parking lot to the south of the Wild Cow Mustang intersection are large, improved areas that remain above the high water mark, and are usable all year. All other parking areas can only accommodate 3 or 4 vehicles, and have just enough fill to create a semi-stable running surface. In most cases these parking areas are the locations of turn-around points for the dump trucks that were being used to improve the road.

2. Roads

Thirty seven (37) miles of state forest roads are open to public access and are classified as multiple-use. Eighteen and nine tenths (18.9) miles of these roads are graded lime rock roads with the remainder being improved forest roads. Those roads that are lime rock tend to remain open year-round, and the improved forest roads are open a majority of the year with closures occurring mainly after major storm events. All road closures are done in accordance with FFS Policy and Procedure.

The roads on OSSF that remain unimproved are narrow forest roads that are used for administrative purposes. Public and administrative roads will be maintained on an as-needed basis, and when administrative roads are no longer needed they have been converted into firebreaks to facilitate prescribed burning.

All open roads on OSSF also serve as multi-use trails allowing for hiking, biking, and horseback riding.

During this 10 year planning period a reroute of North Loop North will be pursued. The road currently passes through several wetland communities, including slough marsh and basin marsh. The reroute would occur further to the north, through a higher proportion of upland communities. The current road footprint would be allowed to settle and seed in naturally with restoration activities occurring where needed. Exhibit P shows the location of the road reroute.

All road planning, construction, drainage, maintenance, removal and all existing and proposed activities to improve, install or alter existing and proposed parking areas, and recreation sites; i.e. boardwalks, vistas, camping areas, etc., are performed in compliance with FFS's Silviculture BMPs, appropriate Water Management District rules and regulations and in accordance with Chapter 2.10 of the FFS State Forest Handbook.

3. Recreation Facilities

Facilities include picnic areas, three (3) campgrounds, and a boardwalk.

4. Recreation Trails

There are currently two (2) hiking trails on OSSF. The trail on the north side of the forest is called the Twin Mills Trail is a 2.3 mile loop trail that takes hikers past a historic sawdust pile started by Sears Co. when the land was logged in the earlier part of the 20th century.

The other hiking trail is call the Tram Loop Trail, and is a 3.9 mile loop trail located on the southern end of the forest. This trail follows the railroad bed for the Atlantic Railroad along the western boundary of the property, and connects back to the point of origin via Sic Island Road and Sic Island Loop.

There is a 17 mile horse trail beginning on Wildcow Grade that goes through much of the southeastern portion of the forest. The trail includes two picnic areas, 3 side trails, and a parking area. The location of the trail is shown in Exhibit N.

Finally, Okaloacoochee Slough State Forest is part of the Great Florida Birding Trail with a number of related activities taking place throughout the year.

5. Camping

Primitive camping areas and camp sites have been established at the OSSF. There are Seventeen (17) campsites at the Panther Pond Campground, one site on Wildcow Island and one at the Scout Campground. In addition, camping areas for overflow camping and larger trailers or RV's are located along Wildcow Grade and are general camping locations with no designated sites. Special Use Permits are required for all group camping and individuals who park overnight at FFS trailheads and walk into a campsite. Fees may be charged for overnight camping. Horse trailers may be parked at the overflow camping area located at the trailhead. Camping sites are shown in Exhibit N.

B. Planned

1. Public Access and Parking

Eventually the two parking areas along CR-832 will be improved to accommodate buses and/or horse trailers, and other areas will be examined on an as-needed basis. In general the nature of the forest is such that areas considered for an all-season improved parking lot will have to be carefully screened and monitored for a year in advance. This will allow the state forest staff to adequately engineer the road to stay above the high water mark, and ensure that the creation of such an area will have no adverse impact on the surrounding community. All new hiking and bicycle trails will utilize existing parking areas or parking lots as their trailheads (Exhibit N).

2. Recreation Facilities

The installation of an additional boardwalk will be pursued during this ten year planning period. The new boardwalk will extend from the current boardwalk into a nearby hammock. The other facility that will be pursued during this ten year planning period is a wildlife observation tower. The tower will be located near the end of Oil Well Pad Road. There are many sensitive areas that have boardwalks installed so that the general public may safely explore unique habitats.

3. Shooting Range

FFS will work with FWC to determine whether a location for a shooting range exists on OSSF and, if determined to be appropriate and feasible, FFS will work with FWC to identify suitable sites. Funding for establishing the shooting range will be sought through either a grant from FWC or other sources, if needed. Management of the shooting range will be coordinated with FWC and will be in accordance with shooting range BMPs as established by the DEP.

4. Dog Training

Exhibit O shows the location of the dog training area. This area will be used for the training of dogs, such as retrievers, bird dogs, and rabbit dogs to be used for small game hunting only. The use of the area for deer dog training will be prohibited. This area will not be available after sunset. In all dog training activities, access to the area will be on a first come, first serve basis and will be managed by forest use permit.

Other types of training that will be permitted include rescue dog, law enforcement K-9, and agility training.

5. Firefighter Training Area

A region of the forest has been indicated as a possible location for a proposed firefighting training area (Exhibit Q). During this 10 year planning period, FFS will determine a suitable size and location to conduct this training, with input from the FWC. These activities are critical to maintain the highest levels of preparedness by our firefighting crews. This area represents an excellent mix of conditions that represent real-world terrain and vegetation types that would be encountered during

fire suppression activities. Also in this area structures will be erected to simulate interface fires.

C. Hunter Access

Hunting season dates, limits, and methods are established annually by FWC, in consultation with FFS. Hunts are managed by FWC, consistent with the "Okaloacoochee Slough State Forest and Wildlife Management Area Regulations Summary and Area Map," which is modified annually. There is a series of short, primitive (archery and muzzle-loading) weapon, family hunting, general gun, and spring turkey hunts based on permit and quota system. A small game hunt is also conducted that does not require a quota, and allows for the hunting of feral hogs. A self-check and staffed check station is used to monitor hunter numbers and collect biological data on harvested species. The WMA brochure is on file at the OSSF office and can be accessed on-line at www.myfwc.com.

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 Caloosahatchee Forestry Center (CaFC). 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 OSSF 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 OSSF, 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 OSSF 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.

Historic, fire dependent natural communities on OSSF are estimated to have occupied approximately 30,000 acres, and to have burned at approximately 3 - 10 year intervals. Past land uses have left some of these historically fire dependent communities in a condition unable to carry prescribed fire. Based on current conditions and management

objectives, OSSF will plan for 5,000 - 11,000 acres to be prescribe burned annually at 5 year intervals. 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.

Non-native invasive plant occurrences and listed species will be assessed for each burn unit prior to the development of a burn prescription. Prescribed fire will be done so as not to promote invasive plants, especially melaleuca, Old World climbing fern and cogon grass.

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 OSSF:

- 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 OSSF 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 interface dictates prescribed fire is not suitable, mechanical vegetation control may be used. 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.

OSSF also has the ability to provide timber and woody vegetation for the production of biomass, and will explore any and all opportunities that may arise in the future.

OSSF has provided whole trees for sale to be used in the landscape industry. To date, only sabal palms have been harvested for this use; however, all future opportunities will be explored with all appropriate tree species. Priority will be placed on utilizing disturbed areas.

A seed orchard has been established in OSSF for the purpose of collecting south Florida slash pine seed. This source represents the FFS's southernmost collection point for south Florida slash pine. This seed is for use on the state forest as a measure to reduce the costs of reforestation, but, also as a commodity for any entity wishing to reforestation work. One of the primary ecological advantages of using seed that is harvested directly from the forest is that it preserves the local genetics and natural history of the trees growing in the area.

Fruit, mast, or seed harvesting opportunities will be explored and conducted as appropriate. Currently only palmetto drupes (berries) and native groundcover seed have been sold. Future sales may include such resources as acorns and cuttings for nursery stock. Before considering any sales a review of effects on wildlife will be conducted. None of these sales is forest-wide; all are confined to a few, small (less than 300 acres) designated areas that are rotated around the forest so that no area is over-collected. Designated areas also change from year to year.

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. <u>Timber Inventory Control</u>

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 OSSF forest will be re-inventoried annually to provide an accurate estimation of the standing timber and to ensure that stands will be managed sustainably.

Based upon the 2009-2010 standing pine inventory, it is estimated that there is approximately 14,676 tons of merchantable pine timber in North Tract and 184,545 in South Tract. Much of this timber volume, however, exists in areas where harvesting is either not practical because of swampy conditions or is incompatible with multiple-use objectives for this forest. Inventories will be updated on a continual basis according to guidelines established by the Forest Management Bureau.

Except for some isolated areas of the forest, all timber on the OSSF is at least second growth, with a vast majority being third growth.

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 apply control measures with the intent to 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. The FFS will solicit support from the FWC in efforts to control non-native animals when deemed to have a negative effect on native species. An exotic control plan is maintained on OSSF and updated every two (2) years, and reflects the most recent developments in control strategies. 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. 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 areas of the OSSF and are considered a nuisance species. The FWC has issued a feral hog control trapping permit to FFS for all state forests and the FFS will encourage hog removal on OSSF through trapping and hunting.

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.

Numerous non-native invasive species, including Florida Exotic Pest Plant Council (FLEPPC) Category I and II invasive plants have been observed in the forest (Table 7).

Some of the most ecologically damaging species include Old World climbing fern (*Lygodium microphyllum*), melaleuca (*Melaleuca quinquenervia*), Brazilian pepper (*Schinus terebinthifolius*), cogon grass (*Imperata cylindrica*), West Indian marshgrass (*Hymenachne amplexicaulis*), torpedograss (*Panicum repens*), and air potato (*Dioscorea bulbifera*).

Non-native invasive plant management has been ongoing at OSSF since 2000.

The primary goals for non-native invasive plant treatment within OSSF are as follows:

i. Control/Eradicate outliers first. The top six priority plants for treatment and funding are: melaleuca, lygodium spp., torpedo grass, cogon grass, and Brazilian pepper.

ii. All species with five acres or less infested within each tract will have top priority for in-house treatment within the first two years of this planning period to reduce continued spread.

iii. Maximize burnable/manageable acreage, and use prescribed burns to restore groundcover.

iv. Maximize benefits through improved habitat quality to listed species that occur on OSSF.

v. Conduct maintenance treatments on a minimum of two compartments, or ≥1,000 acres, of infested areas per year.

vi. Use biocontrols, when possible, to limit seed production of melaleuca and other plants.

Table 7. Confirmed Exotic Vegetation

Scientific Name	Common Name	FLEPPC Category
Abrus precatorius	Rosary Pea	1
Dioscorea bulbifera	Air-potato	1
Eichhornia crassipes	Water-hyacinth	1
Ficus microcarpa	Laurel Fig; Indian Laurel	1
Hymenachne amplexicaulis	West Indian Marsh Grass; Tropetilla	1
Imperata cylindrica	Cogon Grass	1
Lantana camara	Lantana; Shrub Verbena	1

Scientific Name	Common Name	FLEPPC Category
Lygodium microphyllum	Old World Climbing Fern; Small Leaf Climbing Fern	1
Melaleuca quinquenervia	Melaleuca; Punktree; Paperbark	1
Panicum repens	Torpedo Grass	1
Pennisetum purpureum	Napier Grass; Elephant Grass	1
Pistia stratiotes	Water lettuce	1
Psidium guajava	Guava	1
Schinus terebinthifolius	Brazilian Pepper	1
Solanum viarum	Tropical Soda Apple	1
Syzygium cumini	Java Plum	1
Urocloa mutica	Para Grass	1
Panicum maximum	Guinea Grass	2
Pteris vittata	Chinese Brake Fern; Chinese Ladderfern; Chinese Ladder Brake	2
Rhynchelytrum repens	Natal Grass; Rose Natal Grass	2
Urena lobata	Ceasarweed	2
Abutilon theophrasti	Velvet Leaf; Butterprint	Not Listed
Achyranthes aspera var.	Devil's Horsewhip	Not Listed
Arundo donax	Giant Reed	Not Listed
Carica papaya	Papaya	Not Listed
Citrus aurantium	Sour Orange	Not Listed
Commelina caroliniana	Carolina Day-flower	Not Listed
Commelina gambiae	Gambian Day-flower	Not Listed
Crotalaria pallida var. obovata	Smooth Rattlebox	Not Listed

Scientific Name	Common Name	FLEPPC Category
Crotalaria spectabilis	Showy Rattlebox	Not Listed
Cuphea carthagenensis	Waxweed; Columbian Waxweed	Not Listed
Cynodon dactylon	Bermuda Grass	Not Listed
Dactyloctenium aegyptium	Crowfoot Grass	Not Listed
Desmodium incanum	Beggarweed; Zarzabacoa Comun	Not Listed
Desmodium triflorum	Threeflower Ticktrefoil	Not Listed
Echinochloa crus-galli var. frumentacea	Japanese millet	Not Listed
Emilia fosbergii	Florida Tasselflower	Not Listed
Eragrostis atrovirens	Thalia Lovegrass	Not Listed
Eucalyptus grandis	Eucalyptus	Not Listed
Fimbristylis schoenoides	Ditch Fimbry	Not Listed
Hyparrhenia rufa	Jaragua	Not Listed
Indigofera hirsuta	Hairy Indigo	Not Listed
Kyllinga brevifolia (Cyperus brevifolius)	Shortleaf Spikesdge	Not Listed
Lindernia crustacea	Malaysian Flase Pimpernel	Not Listed
Ludwigia peruviana	Peruvian Primrosewillow	Not Listed
Macroptilium lathyroides	Wild Bushbean	Not Listed
Melochia corchorifolia	Chocolateweed	Not Listed
Momordica charantia	Balsampear	Not Listed
Murdannia nudiflora	Nakedstem Dewflower	Not Listed
Oeceoclades maculata	African Spotted Orchid; Monk Orchid	Not Listed
Paspalum acuminatum	Brook Crowngrass; Brook Paspalum; Canoe Grass	Not Listed
Paspalum notatum var.	Bahia Grass	Not Listed

Scientific Name	Common Name	FLEPPC Category
Paspalum urvillei	Vaseygrass	Not Listed
Rottboellia cochinchinensis	Itchgrass	Not Listed
Sacciolepis indica	Glenwood Grass	Not Listed
Salvinia minima	Water Spangles	Not Listed
Scirpus cubensis	Bulrush	Not Listed
Scleria lacustris	Balwin's Nutrush, Wright's Nutrush	Not Listed
Setaria viridis	Green Foxtail	Not Listed
Sporobolus indicus	Smut Grass	Not Listed
Xyris jupicai	Richard's Yellow-eyed Grass	Not Listed
Zeuxine strateumatica	Lawn Orchid	Not Listed

1. **Non-indigenous amphibian, reptile, and mammals**

   Non-indigenous amphibian, reptile, and animals can change complex ecosystem relationships or reduce the food supply for native predators (DEP 1994). Feral hogs in the OSSF area degrade wildlife habitat, compete directly with native wildlife for food, and act as a reservoir for diseases communicable to man and domestic animals. Feral hog habitat includes the flatwoods, freshwater marshes, ponds, sloughs, and cabbage palm hammock plant communities. In general, most low and medium feral hog populations occur where habitat quality is limited. The detrimental effects of feral hogs are multi-faceted and result from their movements, habitat utilization, and food habits. Their rooting disrupts vegetative communities and successional patterns, as well as altering nutrient cycling. Therefore, they can have both direct and indirect effects on some fauna either through predation or alteration of the forest floor habitat (Tate 1983). It is hypothesized that the feral hog is a fairly significant competitor for food with a number of other wildlife species such as deer, turkey, squirrels, and even waterfowl (Thompson 1977). Trapping, sport hunting, and agricultural depredation control measures have been implemented to suppress populations in some areas of Florida where feral hogs are having detrimental effects. The FFS understands the relationship between the balance of a hog prey base for Florida panther and protection of the resources that benefit other listed species. There are currently no control measures within OSSF for exotic mammals, reptiles, and amphibians, as these animals are widespread and no effective measures have been found.

   Although not confirmed on OSSF, veiled chameleon has been identified on Sears Rd., along the northern boundary of Spirit-of-the-Wild Wildlife Management Area, which

is adjacent to the OSSF. Veiled chameleon is known to occur elsewhere in Hendry and Lee Counties (Bill Love-personal communication to Jean McCollom; Krysko et al 2004). Though not directly observed in the OSSF to date, there is a good chance that the chameleon is in the northwest portion of the forest now, given the rates of spread suggested in the Krysko et al 2004 paper. Krysko et al 2004. THE VEILED CHAMELEON, *CHAMAELEO CALYPTRATUS*: A NEW EXOTIC LIZARD SPECIES IN FLORIDA. Florida Scientist 67: 249-253.

Also, the Cuban brown anole is a well-studied invasive species, and may have compressed the habitat available to the native green anole (Losos 1994, Roughgarden 1995).

Finally, the Burmese python has been confirmed on OSSF. This snake is known to compete with native snakes for prey. These snakes, as they reach maturity, can pose a threat to larger animals that would normally not fall victim to this type of predation. In extreme circumstances these snakes have caused harm to humans. FFS will follow FWC guidelines to reduce its numbers and the threat to the OSSF ecosystem.

2. <u>Non-native fish species</u>

Shafland and Pestrak (1982) and others recognize that non-native fish can easily disperse through the numerous unobstructed waterways of Florida, and report that "unless limited by some other environmental factors, these fishes will eventually extend their ranges throughout Florida." It remains difficult to assess the threat from non-native fish and measure ecological impacts due to variability in occurrence, density, and biomass within different habitats and geographic areas over time (Trexler et al. 2002). Canals, canal sections, or deeper ditches that remain on the OSSF site will provide permanent habitat for predatory species of native and non-native fish. Predatory fish prey upon smaller fish species that provide an important forage base for wood storks. Wet season rainfall could disperse predatory fish to isolated wetlands where increased predation on small fishes could reduce the forage base for wading birds, such as wood storks.

In 1982, Shafland and Pestrak reported that 15 non-native fishes were established in Florida, and many other species had been documented within Florida waters by this time. In 1996, 75 non-native species had been collected in Florida, 23 were reproducing, and 18 were reported as "established" (Shafland 1996). There are now at least 32 species of non-native fish known to be reproducing within freshwater systems in Florida, and 22 of these are considered to be established (Shafland, personal communication, 2001; Shafland, personal communication 2003). Some reports indicate that over 120 non-native fish species have been documented in Florida waters (Benson *et al.* 2001), though information is lacking on the current status of most of these.

The following non-native fish species have been identified on OSSF: walking catfish (*Clarias batrachus*), black acara (*Cichlasoma bimaculatum*), Mayan cichlid (*Cichlasoma urophthalamus*), and spotted tilapia (*Tilapia mariae*). Walking catfish

are considered predators on native aquatic animals, are highly drought-tolerant, and use solution holes as refuges. The Mayan cichlid is a predator on native aquatic animals and competes for nest sites with native sunfishes. All non-indigenous fish species identified thus far have the potential for ecosystem damage via predation, local nesting competition, habitat disturbance, and/or spread of non-native parasites (Ceilley D., personal communication, 2004). However, because of the potential current and future threat resulting from non-native fishes and the broad policy-level support for action against invasive species, monitoring plans should identify non-native fishes and the extent to which these fishes invade adjacent restored habitats to determine if control measures are necessary.

Table 8. Confirmed Exotic Fauna

Scientific Name	Common Name
Canis latrans	Coyote
Dasypus novemcinctus	Nine-banded Armadillo
Mus musculus	House Mouse
Anolis sagrei	Brown Anole
Eleutherodactylus planirostris	Greenhouse Frog
Osteopilus septentrionalis	Cuban Treefrog
Cichlasoma bimaculatum	Black Acara
Clarias bartachus	Walking Catfish
Cyprinus carpio	Carp
Tilapia mariae	Spotted Tilapia
Metamasius callizona	Mexican Bromeliad Weevil
Zenaida asiatica	White-winged Dove

D. Insects, Disease and Forest Health

OSSF does not have any history of epidemic disease or insect outbreaks. This is not to imply that the possibility does not exist. The primary insects that will pose a threat to timber will be black turpentine beetles and Ips engraver beetles. Those that will impede regeneration are pales weevil and pitch-eating weevil. Another pest, the Mexican bromeliad weevil, has been identified and persists in significant numbers on OSSF. In the event of an outbreak, 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 Hendry and Collier Counties will be notified of this designation.

As a result, prior to conducting any arthropod control activities on OSSF, 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 OSSF. This public lands control plan must be in compliance with FDACS guidelines and using the appropriate FDACS form. The plan must then be approved and mutually adopted by the county, FFS and FDACS, prior to initiation of any mosquito control work. Should the local mosquito control district not propose any mosquito control operations on the property, no arthropod control plan is required.

E. Use of Private Land Contractors

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

- *Tree planting* – Private equipment/forestry operations companies have been hired to hand plant acres with south Florida slash pine tubelings for the years between 2001 and 2009. This is expected to continue into the 2010-2011 planting season.

- *Non-native invasive species control* – During the previous ten year planning period the FFS has provided over $600,000 in grant funding to private contractors.

- *Boundary Location and Marking* – During the previous ten year planning period the FFS employed private contractor to locate and conduct an initial marking of the boundary of OSSF.

VII. Proposed Management Activities for Natural Communities

In 2005, FNAI completed an inventory and natural community mapping project on 32,039 acres of OSSF and a historic natural community type map (Exhibit R) was created. Historic cover types were determined using 1950s aerial photography and the ground-truthed by FNAI staff. This information was then compared to more recent aerial photography and verified by state lands staff. Current natural communities and cover types can be found in Exhibit S. The following desired future conditions, existing condition descriptions, and management recommendations 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 OSSF.

For the purposes of this management plan, restoration is defined as the process of returning ecosystems or habitats to the appropriate structure and species composition, based on soil type. Management 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 9. Natural Communities Found on OSSF

Natural Community	Acres Mapped (Historic)	Acres Mapped (Existing)	Burn Interval (Years)
Slough Marsh	15,746	15,746	3-5
Mesic Flatwoods	10,029	10,029	3 – 5
Basin Marsh	1,835	1,835	3 – 5
Depression Marsh	1,533	1,533	3 – 5
Wet Prairie	1,689	1,689	2 – 4
Mesic Hammock	991	991	N/A*
Wet Flatwoods	356	356	3 – 10
Dome Swamp	98	98	100 - 150

* = This community is not fire dependant or adapted so fires are not encouraged to burn through this community.

A. Slough Marsh

The following, utilizing OSSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Slough marsh is a primarily herbaceous community growing in a narrow to broad shallow channel with intermittently flowing water in flat sandy landscapes. They are situated on sand or a layer of accumulated peat over sand and are inundated at least during the late summer and early fall. Grasses, sedges, and emergent herbs dominate the mainly treeless landscape. Typical plants include sawgrass (*Cladium jamaicense*), willow *(Salix caroliniana.),* and pickerelweed (*Pontederia cordata*). Vegetation is found in zones based on length of hydroperiod and depth of flooding. The natural hydrology consists of sheetflow that may be maintained up to 250 days per year. Inclusions within the slough marsh community type include mesic flatwoods and mesic hammocks, which are normally manifested as islands within the slough marsh or along the edges of these communities.

The frequency of fire in slough marshes is a function of the fire frequency in the surrounding matrix community, as well as the fire-carrying characteristics of the marsh vegetation itself.

Fires from surrounding communities burned into slough marshes and extinguished naturally or burned through them. The ecotones of the slough marsh are subjected to more frequent fires; however, the interior of the community burns far less frequently due to the long periods of inundation. The frequency of fire in slough marshes is every 3 to 5 years.

Current Condition
Most of the midstory and groundcover associated with the slough marsh communities exists in its desired future condition; however, the frequency of willow islands is greater than that which would occur naturally.

The slough marsh bisecting OSSF is disturbed by artificial canals, ditches, roadways, and exotic species. In spite of these disturbances, the slough marsh (also known as Okaloacoochee Slough) retains most of its natural appearance and function.
A large portion of the community has not burned in at least 20 years. Proper equipment to achieve this task has been recently achieved so that this condition can be remedied. Additionally, OSSF is attempting to hire additional personnel so that burning can be accomplished during the driest periods.

Other than two major canals on the property, the hydrology of the state forest and this community type is in relatively good shape.

Since the proper equipment to safely and effectively conduct prescribed burns have been recent acquisitions the slough remains largely unburned, save the areas that have had wildfires in both 2001 and 2007.

Management Actions
To achieve the objectives outlined in this plan, the following management activities will be performed during the next ten year planning period. Goals, desired future conditions, standards, and guidelines provide management area direction. These goals and desired future conditions may take many planning cycles to attain. The vast majority of the community type is in a desirable condition. More burning and exotic vegetation management is required in order to keep the community in its current state. Burning on a five to ten year rotation will be pursued.

Restoration efforts in the slough marsh will focus on the two following activities, listed in order of priority: monitoring/maintenance, and chemical reduction of excess willow heads. Those willow heads not observed as roosts or rookeries will be chemically treated to reduced their size, and/or eradicate their existence. Exotic vegetation will be monitored and treated as appropriate. Currently the highest threat to the slough marsh community from exotics comes from Wright's Nutrush (Category II), and Old World Climbing Fern (Category I). Ideally, the two major canals on the property should be removed; however, this is most likely not possible due to the location function of these canals to the existence of County Road 832, as these canals allow the existence of the road.

B. Mesic Flatwoods

The following, utilizing OSSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. The mesic flatwoods are comprised of pure south Florida slash pine, and a dense, low ground layer of low shrubs, grasses, and forbs. Characteristic shrubs include saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), coastalplain staggerbush (*Lyonia fruticosa*), and fetterbush (*Lyonia lucida*). The herbaceous layer is predominantly grasses, including wiregrass (*Aristida stricta* var. *beyrichiana*), dropseeds (*Sporobolus curtissii, S. floridanus*), panicgrasses (*Dichanthelium* spp.), and broomsedges (*Andropogon* spp.), plus a large number of showy forbs. Soils are acidic, nutrient-poor fine sands with upper layers darkened by organic matter. Drainage in this flat terrain can be impeded by a loosely cemented spodic horizon formed within several feet of the soil surface. Functional hydroperiods, healthy wetland inclusions, and sporadic drought and flooding are all present within the mesic flatwoods. Inclusions that are present in the mesic flatwoods are normally a wetland type, and usually a basin or depressional marsh. The fire return interval is three to five years.

Current Condition

This community, as a whole in terms of species composition, is considered to be at approximately 91% of what would be desired future conditions (100%), with primarily monitoring, maintenance treatment of exotics, and roughly 500 acres left in-need of reforestation. The herbaceous and woody components of the understory have excellent diversity, and generally minimal exotic invasion. Since a vast majority of this community type was clearcut in the recent past most of the south Florida slash pine is still quite young.

The current rotation on prescribed burning in the mesic flatwoods is three to five years and that has only been within the last ten years. Prior to state acquisition the burn frequency ranged from yearly burns to an occurrence of once every eight years. Since the new burn regime has been implemented shrubby vegetation and heavy fuels have been reduced, and the amount of biodiversity across the community type has been on the rise.

Many of the roads that occurred on the forest were barely improved, and exhibited only a limited impact on the community as a whole. There are areas where borrow pits and cow wells exist, and need to be filled in. Currently roads are built at grade everywhere on the forest, and firebreaks are rotor tilled or disked for pre-burn preparation.

Herbicides have been used extensively in this community for the purposes of exotic treatment, as site preparation has been achieved sole by mechanical chopping and/or mowing and fire.

Management Actions

To achieve the objectives outlined in this plan, the following management activities will be performed during the next ten year planning period. Goals, desired future conditions, standards, and guidelines provide management area direction. These goals and desired future conditions may take many planning cycles to attain. Restoration efforts in the mesic flatwoods, listed in order of priority, will focus on the following activities: exotic vegetation eradication and control, hydrologic restoration, prescribed burning, and reforestation.

South Florida slash stands will be thinned to 60 ft^2 if basal areas exceed 80 ft^2 of basal area per acre. Exact stocking per stand will be dependent on management objectives, type of treatment, species, stand age and whether natural or planted. Artificially and naturally regenerated stands will be stocked to allow for development of quality, healthy timber while simultaneously maintaining groundcover and wildlife habitat. Site preparation methods prior to tree planting will be selected based on site assessment of native groundcover, soils, hydrology, amount of logging debris and type of vegetative competition present. Small islands of undisturbed areas in the thickest rough will be left behind as a means to provide cover for the Florida panther, and other mammals. Roller chopping, mowing, and prescribed burning will be a primary site preparation method. Exotic vegetation will be monitored and treated as appropriate. During the next planning period it is estimated that an additional 1,000 acres will be reforested. Typical areas chosen for reforestation are those areas that have had a complete overstory removal from previous harvests and are lacking in sufficient stocking to maintain a sustainable stand. Other areas are those that have been treated, and maintained free of exotic vegetation. Areas that are reforested without prior restoration activities create larger obstacles to future restoration activities, and are avoided.

Currently silviculture efforts are focused on site preparation and reforestation. All areas that exhibit limited exotic invasion, a higher degree of accessibility, and limited success over the past five years in burning have been single drum, single pass roller chopped, and then burned. Some of these areas have been replanted with south Florida slash pine, while others have been left unplanted. All areas that have been chopped and burned are exhibiting an exponential increase in species diversity, both faunal and floral, with minimal invasion by exotics or alterations to the hydrology or hydroperiods. This seems to be a more expedient way of restoring some of the native communities. Additionally, those areas that are left unplanted will be used as a seed source for reclamation projects both on and off the state forest.

To date approximately 2,200 acres have been reforested within this community at a stocking of 622 trees/ac.

C. Basin Marsh

The following, utilizing OSSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. 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. They have dense herbaceous species cover, variable density of shrubs, and little to no to trees. Typical plants include common reed *(Phragmites australis)*, panicums *(Panicum sp.)*, pennywort *(Centella asiatica)*, Spanish needle *(Bidens alba var. radiate)*, soft rush *(Juncus effuses)*, and dog fennel *(Eupatorium capillifolium)*. Coastalplain willow (*Salix caroliniana*), common buttonbush (*Cephalanthus occidentalis*), elderberry (*Sambucus nigra* ssp. *canadensis*), and wax myrtle (*Myrica cerifera*) are common shrubby components. Basin marshes are inundated with water for more than 8 months during the year, and are completely dry only in drought years.

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

A majority of the basin marshes on OSSF are in their desired future condition. In some cases there have been encroachments by pine and hardwoods where burning has been suppressed. A few basin marshes have been greatly altered through hydrological changes or road construction. Some of the larger basin marshes have willow heads beginning to form in their centers. The midstory of many of the basin marshes on OSSF has a large component of wax myrtle along the ecotone. This is beginning to impact the ground cover in these areas because of the reduction in potential for burning. The wax myrtles themselves burn only during the driest times of the year, and begin to shade out many of the grasses that would constitute the fuels to carry a fire through the community. In a majority of the cases the diversity of plants still exists, with decreasing numbers and frequency.

The normal interval between fires is one to ten years, with strictly herbaceous marshes burning about every one to three years, and those with substantial willow and buttonbush burning every three to ten years. The basin marshes on the OSSF are representative of the entire spectrum, and for the sake of simplicity are burned with the upland communities on a three to five year rotation. Depending on the time of year, moisture conditions at the time of the upland community burn, water table levels, humidity, etc., it is necessary, in some cases, to attempt to burn the basin marsh after the surrounding upland community has already burned.

Management Actions

To achieve the objectives outlined in this plan, the following management activities will be performed during the next ten year planning period. Goals, desired future conditions, standards, and guidelines provide management area direction. These goals and desired future conditions may take many planning cycles to attain. Restoration efforts in the basin marshes, listed in order of priority, will focus on the following activities: exotic vegetation eradication and control, prescribed burning, mechanical and chemical control and hydrologic restoration.

Basin marshes will be prescribed burned on a three to five year rotation to coincide with the burning of the remainder of the forest. Fires will be set in the community with the hope of achieving a balanced mosaic. In the particular basin marshes found on OSSF peat fires are not an issue. Prescribed burns will be implemented more often for basin marshes with encroachment by woody species. Areas with extremely heavy fuel loads may require mechanical vegetation removal in tandem with frequent fire intervals for initial restoration. As road building activities occur, low water crossings are replacing culverts wherever possible. All areas will be monitored and treated for Category I and II exotics. In the event that infestations are extreme, groundcover restoration activities will be conducted.

In those areas where wax myrtle invasion is becoming a problem, mowing will be conducted immediately prior to the onset of the rainy season. In trials this seems to retard the growth

and re-establishment of the wax myrtles, and presents an opportunity for a good burn the following spring. If the marsh is greater than 20 acres in size, the willow will be contained to an area no greater than 20% of the entire community. This will be accomplished through an increased fire return interval, starting with a three to five year rotation. The initial treatment of reducing the area to 20% of the entire community may require mechanically or chemically treating the willows if fire does not begin to reduce the size of the willow head within two rotations. Should the willow head in the center of the marsh already be less than 20% of the entire acreage, it will be closely monitored for an increase in size. Monitoring will be conducted to determine if the fire return interval needs to be increased.

D. Depression Marsh

The following, utilizing OSSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Depression marshes are found throughout the forest, but primarily in the mesic flatwoods. These communities are characterized as a shallow, usually rounded depression in sand substrate with herbaceous vegetation often in concentric bands. The concentric zones or bands of vegetation are related to length of the hydroperiod and depth of flooding. Typical plants include grasses, St. John's wort, chain fern *(Woodwardia virginica),* yellow-eyed grass, spikerush *(Eleocharis baldwinii),* willow and maidencane. Depending on depth and configuration, depression marshes can have varying combinations of these zones and species within each zone. Depression marshes often burned 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 Condition

A majority of the depression marshes on OSSF are in their desired future condition. In some cases there have been encroachments by pine and hardwoods where burning has been suppressed. The midstory of many of the depression marshes on OSSF has a large component of wax myrtle along the ecotone. This is beginning to impact the ground cover in these areas because of the reduction in potential for burning. The wax myrtles themselves burn only during the driest times of the year, and are beginning to shade out many of the grasses that would constitute the fuels to carry a fire through the community. In a majority of the cases the diversity of plants still exists, with decreasing numbers and frequency.

The normal interval between fires is one to eight years, those with higher herbaceous components burn more frequently, while those with more shrubs less frequently. The depression marshes on the OSSF are typically have high herbaceous components, and for the sake of simplicity are burned with the upland communities on a three to five year rotation. Depending on the time of year, moisture conditions at the time of the upland community burn, water table levels, humidity, etc. it is necessary, in some cases, to attempt to burn the depression marshes after the surrounding upland community has already burned.

Other than two major canals on the property, the hydrology of the state forest is in relatively good shape. Currently roads are built at grade everywhere on the forest. Plow lines that are created during fire suppression activities are rehabilitated to the fullest extent possible.

Management Actions

To achieve the objectives outlined in this plan, the following management activities will be performed during the next ten year planning period. Goals, desired future conditions, standards, and guidelines provide management area direction. These goals and desired future conditions may take many planning cycles to attain. Restoration efforts in the depression marshes, listed in order of priority, will focus on the following activities: exotic vegetation eradication and control, prescribed burning, mechanical and chemical control and hydrologic restoration.

There are no silvicultural operations conducted within depression marshes. In those areas where marketable timber species have encroached, merchantable timber will be removed and sold. In a vast majority of the cases, however, the marketable timber species persist as stressed, stunted specimens, with no market value. In these areas the trees will be killed by fire, or by mechanical means such as mowing or chopping. In those areas where wax myrtle invasion is becoming a problem, mowing will be conducted immediately prior to the onset of the rainy season. In trials this seems to retard the growth and re-establishment of the wax myrtles, and presents an opportunity for a good burn the following spring.

Depression marshes require frequent, light intensity fires to maintain a high herbaceous species component and reduce woody encroachment. Prescribed fire will be used to decrease woody species abundance and hydrologic and soil disturbances will be minimized. Frequent prescribed burns will aid in decreasing woody species abundance. Strictly herbaceous portions of the community will be burned on a 3 to 5 year rotation, and the community will be monitored for changes. In the event that species diversity is decreasing the burn interval will be increased, and if myrtles or hardwoods begin to appear the interval between fires will be shortened. Exotic vegetation will be monitored and treated as appropriate.

Ideally, the two major canals on the property should be removed; however, this is most likely not possible due to the location function of these canals to the existence of County Road 832. These canals allow the existence of the road. There are areas where borrow pits and cow wells exist, and need to be filled in. As road building activities occur, low water crossings are replacing culverts wherever possible.

E. Wet Prairie

The following, utilizing OSSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. The wet prairies on OSSF are located around basin and depression marshes. Wet prairie is characterized as a nearly treeless plain that may contain scattered bald cypress (*Taxodium distichum*) or south Florida slash pine with less than 30% canopy coverage, and a sparse to dense ground cover of grasses, sedges, and forbs. Wet Prairies occur as scattered, shallow depressions within dry prairie and flatwoods habitat and on marl prairie areas in south Florida. This community is associated closely with and often grades into wet flatwoods,

depression marsh, basin marsh, seepage slope, mesic flatwoods, or dry prairie. Wet prairies on OSSF have variable wet season water depths of 6 to 15 inches above ground, with a hydroperiod of 2 to 6 months. They are found on mineral soils, with a substantial organic component. Fire plays an important role in this community by restricting the invasion of shrubs such as wax myrtle. Fire is frequent, every 2-4 years. Spring and summer burns promote flowering of grasses (Main and Barry 2002) and increase diversity and forage values for fauna. This community is considered extremely important in providing breeding and foraging habitat for a variety of herpetofauna and wading birds.

Current Condition

Approximately 90% of the wet prairies that existed on the forest in the 1940s still persist today, in relatively good health. The exceptions are those isolated areas that the previous landowners had converted to either pasture or agricultural fields. Wet prairies are found throughout the forest, primarily around the peripheries of basin and depression marshes. There are areas where wax myrtles dominate the edges of the prairies, and this is mainly due to fire exclusion.

The vegetation is similar to the desired future condition description, although some of the areas have exotic encroachment, usually from the edge of a trail or road that is nearby. As a whole, the levels of exotic infestation in the wet prairie community type are low to moderate. Prevalent Category I and II invasives within the wet prairie community include torpedo grass (*Panicum repens*), hydrilla (*Hydrilla verticilata*), water hyacinth (*Eichhornia crassipes*), and West Indian marsh grass (*Hymenachne amplexicaulis*).

A growing season burn regime has been established. Prescribed fire will continue to be used to control the buildup of peat, which controls the expansion of hardwood perennials, trees, and tree islands.

Management Actions

To achieve the objectives outlined in this plan, the following management activities will be performed during the next ten year planning period. Goals, desired future conditions, standards, and guidelines provide management area direction. These goals and desired future conditions may take many planning cycles to attain. The major factors regulating wet prairie dynamics are hydroperiod, freezes, fire regimes, exotic pest species, and water management and flood control practices (DeAngelis and White 1994, Duever *et al*. 1994, Wanless *et al.*1994). Restoration efforts of wet prairie, listed in order of priority, will focus on the following activities: exotic vegetation eradication and control, prescribed burning, mechanical and chemical control and hydrological restoration (with seasonally variable hydropatterns to maximize vegetative diversity).

The majority of the wet prairie acreage is in the desired future condition, and most activities will focus on maintenance. The main goal for such areas will be to monitor and encourage a diverse herbaceous understory and continue to minimize shrub and tree occurrence. When soil moisture permits, moderately intense prescribed fire from the adjacent communities will be allowed to burn into the marshes. The fire interval is expected to be three to five years. The ultimate goal of this community is to maintain an open stand of herbaceous vegetation

with very few shrubs and trees. All wet prairies and their ecotones will be afforded protection from adjacent silvicultural and pre-suppression fire operations. Mechanical and chemical treatments may be used to reduce exotic plant competition.

In those areas where wet prairies have been altered for agriculture, the main focus will be to remove any levees, and/or fill canals so that the natural hydrology can be restored. Additionally, where possible, culverts are will be removed in favor of low water crossings and any road work is will be conducted at grade. In those areas that have experienced where some level of conversion has occurred extensive groundcover restoration will be necessary.

F. Mesic Hammock

The following, utilizing OSSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Mesic hammocks are found scattered as isolated pockets usually either completely surrounded by cypress or on the edges of mesic flatwoods as an ecotone to cypress where the change in elevation is relatively quick. They also occur along the edges of the Okaloacoochee Slough, and its major branches. Mesic hammock is a well-developed evergreen hardwood and/or palm forest on soils that are rarely inundated. The canopy is typically closed and dominated by live oak (*Quercus virginiana*), with cabbage palm (*Sabal palmetto*) generally common in the canopy and subcanopy. This community often has a fairly open and diverse shrub layer dominated by palms and a sparse, species-poor groundcover. Shrubby understory may be dense or open, tall or short and is composed of saw palmetto (*Serenoa repens*), beautyberry (*Callicarpa americana*), myrsine (*Myrsine floridana*), poison ivy (*Toxicodendron radicans*), and wax myrtle (*Myrica cerifera*), with the addition of tropical shrubs, such as twinberry (*Myrcianthes fragrans*), and wild coffee (*Psychotria nervosa*). The herb layer is often sparse or patchy and consists of various grasses, including witchgrasses (*Dichanthelium* spp.) and basket grass (*Oplismenus hirtellus*), and sedges. Epiphyte diversity is usually greater than groundcover diversity, and includes orchids, ferns, and bromeliads. The closed canopy of mesic hammocks provides food, cover, roosting, and nesting sites to a wide variety of wildlife species. Because mesic hammocks are usually surrounded by wetlands, these communities are naturally protected and rarely burn. The composition and fuel load results in very long fire intervals.

Current Condition

Most mesic hammocks have changed little, except where drainage has occurred. Those areas that have been impacted by drainage are isolated, and are the exception. Although exotic plants are not as severe an obstacle in this community, native ground and shrub species are reduced due to shading and/or non-native plants. Within this community, the prevalent Category I invasives include Brazilian pepper (*Schinus terebinthifolius*), and Old World climbing fern (*Lygodium microphyllum*). Category II species that have the potential to be in these hammocks include Caesar's weed (*Urena lobata*) and woman's tongue (*Albizia lebbeck*). The presence of feral hogs in this system also creates conditions that encourage exotic plant invasion (e.g., soil structure disturbance, interrupted regeneration of trees and shrubs). The main concern related to the loss of native groundcover within these communities is that by definition there is very little, scattered, native vegetation to begin with.

Management Actions

To achieve the objectives outlined in this plan, the following management activities will be performed during the next ten year planning period. Goals, desired future conditions, standards, and guidelines provide management area direction. These goals and desired future conditions may take many planning cycles to attain. Restoration efforts of mesic hammock, listed in order of priority, will focus on the following activities: exotic vegetation eradication and control, prescribed burning, mechanical and chemical control and hydrological restoration (including reduction of sabal palm density).

Although these hammocks have exceptionally long fire return intervals, prescribed fires from adjacent communities will be allowed to burn into the community to reduce fuel loads and help minimize exotic plant invasions. The natural communities surrounding mesic hammocks have a fire return interval of three to ten years. In areas with too many shrubby or non indicative species within the hammocks, prescribe fire will be used to reduce the shrub component, or in extreme cases basal bark chemical treatments will be utilized. In areas where the period of saturation is too short then opportunities to improve or restore hydrology will be considered. Exotic vegetation will be monitored and treated as appropriate.

G. Wet Flatwoods

The following, utilizing OSSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Wet flatwoods are characterized as relatively open canopy (10-20% coverage in unlogged stands) forests of scattered South Florida slash pine trees or cabbage palms (*Sabal palmetto*). Wet flatwoods exist on relatively flat, poorly drained land and can be inundated for one or more months per year. Wet flatwoods have either a thick, shrubby understory with very sparse ground cover, or a sparse understory with a dense ground cover of hydrophytic herbs. Midstory plants include cypress (*Taxodium* spp.), cabbage palm, wax myrtle (*Myrica cerifera*), dahoon holly (*Ilex cassine*), red bay (*Persea palustris*), and red maple (*Acer rubrum)*. The ground cover is continuous, species rich, and composed of fine herbaceous plants that will facilitate low intensity fires under a wide range of burning conditions. Hydric pine flatwoods are likely to be dominated by a dense and diverse herbaceous ground cover of grasses, sedges, and forbs. The most dominant grasses include Gulf-dune paspalum (*Paspalum monostachyum*), little blue maidencane (*Amphicarpum muhlenbergianum*), and muhly grass (*Muhlenbergia capillaris*). During the wet season, periphyton green and blue-green algal mats are also a major component of the understory vegetation, and precipitates significant amounts of calcium carbonate to form the typical marl soil type of hydric flatwoods. Hydric pine flatwoods are a fire-climax, hydroperiod-mediated community with a fire frequency of three to ten years. Nearly all plants and animals in this habitat are adapted to periodic fires.

Current Condition

The overstory of much of the wet flatwoods remains intact, due to the isolated and hydric nature of the community. The trees present are typically very healthy and large, unless there were cutting operations conducted. In a majority of this community, existing trees should provide enough seed coverage to perpetuate the stand provided that natural fire regimes are

maintained. In some cases the midstory of these communities has a large component of exotic plants, generally torpedo grass and Brazilian pepper. The natives that persist in both the areas with and without exotic encroachment are healthy, and exhibit a fair amount of diversity. Future goals of the stand will be to eradicate all exotics, and if need be, reseed with native groundcover. Removal or control of invasive and non-invasive exotic plant species is achievable by direct mechanical and chemical control, restoration of hydroperiod and natural fire regimes, and the immediate re-introduction of natives to aggressively treated areas. Hydric flatwoods on OSSF currently have wet season water depths of 2-6 inches above ground and a hydroperiod of 1-2 months.

Management Actions

To achieve the objectives outlined in this plan, the following management activities will be performed during the next ten year planning period. Goals, desired future conditions, standards, and guidelines provide management area direction. These goals and desired future conditions may take many planning cycles to attain. Restoration efforts of wet flatwoods, listed in order of priority, will focus on the following activities: exotic vegetation eradication and control, prescribed burning, mechanical and chemical fuel reduction (where appropriate) reforestation, and hydrologic restoration. Natural regeneration will be used where possible.

The ultimate goal of this community is to maintain an open stand of trees representing at least three evenly-distributed age classes. Restoration of native species, even-age and uneven age management of pine stands, selective thinning, removal of off-site species, and prescribed fire are all actions used to promote healthy forest stands. Artificially and naturally regenerated stands will be stocked to allow for development of a quality, healthy timber stand while simultaneously maintaining groundcover and wildlife habitat. Dormant season burns will be used to initially reduce fuel loads in stands with long fire exclusion histories. Mechanical and herbicide treatments will be used for reforestation or restoration efforts if applicable. Protection of native groundcover will be emphasized during all silvicultural operations. Exotic vegetation will be monitored and treated as appropriate.

Stands that exceed 80 ft^2 of basal area per acre will be thinned to 60 ft^2. Burning will be conducted at an interval of three to ten years. Inadequately stocked stands will undergo supplemental plantings to increase the stem density to 400 or more trees per acre, surviving after one year.

The hydrology in and around the areas of wet flatwoods remain in-tact, and any future roads or trails will be constructed at-grade.

H. Dome Swamp

The following, utilizing OSSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Dome swamp is an isolated, forested, depression wetland occurring as inclusions inside of wet prairies or basin marshes. These swamps are generally small, but may also be large and shallow. The characteristic dome shape is created by smaller trees that grow in the shallower waters of the outer edge, while taller trees grow in the deeper water in the interior of the swamp. Pond cypress (*Taxodium ascendens*) is the dominant species. Shrubs are typically

sparse to moderate, but often are absent in dome swamps with a high fire frequency or dense in swamps where fire has long been absent. Herbaceous species can be dense or absent and include a wide variety of ferns, graminoids, and herbs. The frequency of prescribed fires within dome swamps varies from the edges towards the center. Along the peripheries of the dome swamp the natural fire regime is between three and five years, while the center of the dome may be as high as every 100 – 150 years.

Current Condition

The majority of dome swamps on OSSF are in their desired future conditions, save the frequent infestations of Old World climbing fern, West Indian marshgrass, Wright's nutsedge and torpedograss. Currently, fires are allowed to burn into dome swamps as much as possible, the only exception to this during drought periods. In those cases, the soil moisture inside of the dome is assessed so as to not start a mulch fire. There are isolated instances where some exotic infestations have occurred, and are being treated. There are some specific domes that are located in or near a canal or in an abandoned agricultural field. In both of these instances, the internal portions of the communities are intact; however the ecotones are not desirable. Restoration of the impacted community will be required to restore the ecotone.

Management Actions

To achieve the objectives outlined in this plan, the following management activities will be performed during the next ten year planning period. Goals, desired future conditions, standards, and guidelines provide management area direction. These goals and desired future conditions may take many planning cycles to attain. Restoration efforts in the dome swamp, listed in order of priority, will focus on the following activities: exotic vegetation treatment, restoration of surrounding communities, prescribed burning, mechanical and chemical vegetation control, reforestation, and hydrologic restoration.

The vast majority of the dome swamp community is in a desirable condition. In order to keep the community in its current state, more burning and exotic vegetation management is required. Burning on a three to five year rotation will be continued. Dormant season burns will be used to initially reduce fuel loads in stands with long fire exclusion histories. Burning across ecotones will be implemented to the greatest extent possible. Exotic vegetation will be monitored and treated as appropriate. Currently the highest threat to the dome swamp community from exotics comes from Wright's Nutrush (Category II), and Old World Climbing Fern (Category I).

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IX. Glossary of Abbreviations

ALICO .....Atlantic Land and Improvement Company, Inc.
ARC .....Acquisition and Restoration Council
BIA.....United States Department of the Interior, Bureau of Indian Affairs
BMP .....Best Management Practice
BOT.....Board of Trustees of the Internal Improvement Trust Fund
CaFC .....Caloosahatchee Forestry Center
CARL.....Conservation and Recreation Lands
CREW.....Corkscrew Regional Ecosystem Watershed
FDACS.....Florida Department of Agriculture and Consumer Services
DEP.....Florida Department of Environmental Protection
DHR.....Florida Department of State, Division of Historical Resources
DSL.....DEP, Division of State Lands
FNAI .....Florida Natural Areas Inventory
FFS.....Florida Forest Service
FLEPPC .....Florida Exotic Pest Plant Council
FSPSP .....Fakahatchee Strand Preserve State Park
FWC.....Florida Fish and Wildlife Conservation Commission
GIS .....Geographic Information System
NERR.....National Estuarine Research Reserve
NPS .....National Park Service
OFW.....Outstanding Florida Waters
OSSF .....Okaloacoochee Slough State Forest
OSWMA .....Okaloacoochee Slough Wildlife Management Area
P2000 .....Preservation 2000
PSSF.....Picayune Strand State Forest
SFWMD.....South Florida Water Management District
SOR.....Save Our Rivers
UF .....University of Florida
USFWS .....United States Fish and Wildlife Service
WMA .....Wildlife Management Area