

TEN-YEAR RESOURCE MANAGEMENT PLAN

FOR THE

WITHLACOCHEE STATE FOREST

CITRUS, HERNANDO, LAKE, PASCO, AND SUMTER COUNTIES



PREPARED BY

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

FLORIDA FOREST SERVICE

APPROVED ON

FEBRUARY 13, 2015

TEN-YEAR RESOURCE MANAGEMENT PLAN

FOR THE

WITHLACOOCHEE STATE FOREST



Approved by:

A handwritten signature in black ink, which appears to read "Jim Karels", is written over a horizontal line. The signature is fluid and cursive.

Jim Karels, Director
Florida Forest Service

September 29, 2014

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A handwritten signature in black ink that reads "Brad Ellis".

Brad Ellis, Chief
Forest Management Bureau

September 29, 2014

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**TEN-YEAR RESOURCE MANAGEMENT PLAN
WITHLACOOCHEE STATE FOREST**

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LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

LEAD AGENCY: Florida Department of Agriculture and Consumer Services, Florida Forest Service
 COMMON NAME: Withlacoochee State Forest
 LOCATION: Citrus, Hernando, Lake, Pasco, and Sumter Counties
 ACREAGE TOTAL: 164,073.18 acres, more or less

<i>Historical Natural Communities</i>	<i>Approximate Acreage</i>
Sandhill	72,800
Mesic Flatwoods	35,022
Basin Swamp	17,475
Mesic Hammock	8,704
Hydric Hammock	8,200
Basin Marsh	7,720
Dome Swamp	5,375
Floodplain Swamp	4,030

<i>Historical Natural Communities</i>	<i>Approximate Acreage</i>
Depression Marsh	1,748
Scrub	1,054
Wet Prairie	1,209
Scrubby Flatwoods	775
Estuarine Tidal Marsh	725
Upland Hardwood Forest	432
Blackwater Creek	**
Estuarine Tidal Creek	**

** Acreage combined with adjacent community.

LEASE/MANAGEMENT AGREEMENT NUMBERS: 3316, 3560, 4145, 10-100-131
 USE: Single Multiple X

MANAGEMENT AGENCY

Florida DACS, Florida Forest Service
 Florida Fish and Wildlife Conservation Commission
 Southwest Florida Water Management District
 Division of Historical Resources

RESPONSIBILITY

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

DESIGNATED LAND USE: Multiple-use State Forest
 SUBLEASES: Numerous (See *Section II, D. 6. Utility Corridors and Easements*)
 ENCUMBRANCES: Various easements (See *Section II, D. 6. Utility Corridors and Easements*)
 TYPE OF ACQUISITION: U.S. Forest Service lease-purchase agreement 1958; Environmentally Endangered Lands (EEL) Program; Conservation and Recreational Lands (CARL) Program; Donations
 UNIQUE FEATURES: Withlacoochee River; Chassahowitzka Riverine Swamp
 ARCHAEOLOGICAL/HISTORICAL: 205 known recorded historical or archaeological sites
 MANAGEMENT NEEDS: Longleaf pine restoration; Erosion and sedimentation control; Boundary resolution; Maintain current recreational opportunities; Hydrological restoration; Maintain sustainable forest management; Continue exotic/invasive plant control measures; Re-evaluate current road system and forest access; Develop strategies to combat illegal activities.
 ACQUISITION NEEDS: In-Holdings; Adjacent lands next to major tracts. See Exhibit C.
 SURPLUS LANDS / ACREAGE: None
 PUBLIC INVOLVEMENT: Management Plan Advisory Group and Public Hearing; State Forest Liaison Committee; Acquisition and Restoration Council Public Hearing.

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

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

I. Introduction

The Withlacoochee State Forest (WSF) comprises 164,073.18 acres extending across 45 linear miles of west central Florida and across five counties (Citrus, Hernando, Lake, Pasco and Sumter). The forest is made up of seven different major tracts of land or management units: Richloam; Citrus; Croom; Jumper Creek; Homosassa; Two Mile Prairie; and Headquarters. There are several smaller parcels that are part of the WSF, which are typically referred to by name: Little River Ranch; Marsh; PK Smith; World Woods; Cason; Sugarmill Woods; and Lecanto Sandhills.

A focal point of the forest is the Withlacoochee River which flows through 13 miles of the forest. Withlacoochee comes from an Indian word meaning “crooked river.” The river twists throughout its 70-mile northwesterly journey from the Green Swamp in northern Polk County to its mouth on the Gulf of Mexico, near Yankeetown.

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 WSF 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 WSF 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 Withlacoochee State Forest 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 WSF 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 (See Exhibit A). The table does not attempt to account for all activities on the forest, but summarizes major activities that are more readily quantifiable. It does not list the multitude of daily activities and public interactions involved in managing the forest.

Since the approval of the previous management plan on April 18, 2003, there have been many events, developments, and accomplishments. Among the most noteworthy have been the following:

- WSF declared as one of the “10 Coolest Places You’ve Never Been in North America” by the World Wildlife Fund.
- New and/or rebuilt recreational facilities include: five (5) bath houses, three (3) restrooms, and five (5) pavilions.
- Five (5) new Camp Host sites established.
- Recreational user trails updated and placed on GPS.
- Improvements at the Croom Motorcycle Area (CMA) include an instructional area for All-Terrain Vehicle (ATV) training with pavilion and track, amphitheatre, 3.3 miles of paved road, and intermediate riding area.
- Medical Emergency Response Vehicle built for EMS response on CMA.
- Implemented CMA Pilot Program for Single Day Riding Pass and CMA Tee Shirt Sales.
- Boat ramp built at Silver Lake Recreation Complex.
- Boat ramps renovated at Hog Island and River Junction Recreation Areas.
- Day-use parking area developed at Hog Island Recreation Area.
- Added new horse stable and re-roofed old stable at Tillis Hill Recreation Area.
- Entrance road and campground roads paved at Tillis Hill Recreation Area.
- Rebuilt all 34 camp sites at Cypress Glen Campground.
- WSF road crew re-built 177 miles of forest roads with 70 miles improved with road rock.
- Crooked River Campground roads re-designed to correct erosion problems and created a single point for entry and exit.
- Hiking and off-road bicycle connector trails established to the Withlacoochee State Trail.
- Partnerships developed with equestrian, bike rider, and hiker user groups.
- Hiking trail and primitive camp zone developed on the World Woods Unit, Citrus Tract.
- Upgraded campground electric from 30 amp to 50 amp on all campsites with electricity.
- Completed a forest wide timber inventory.
- In cooperation with FFS State Office, a resource data base was created that includes stand delineation, roads and other infrastructure located on the forest.
- Approximately 5,000 acres reforested on Richloam Tract due to 2001 pine beetle outbreak.
- Created a geo-database for “Ecology”, which includes exotic invasive species, listed species, and other important data.
- Finalized reclamation of Radar Hill Mine in Citrus Tract.

- Wetland surveys completed for Citrus, Croom, Headquarters, and Two-Mile Prairie Tracts.
- Red-cockaded woodpecker (RCW) population has improved on the Citrus Tract to become a donor population. WSF translocated 22 RCWs to 5 other populations in the period 2007-2010.
- In 2003, the Croom Tract had 14 active clusters and 12 potential breeding pairs of RCW's. By 2011, this had increased to 31 active clusters and 23 potential breeding pairs. In 2003, the Citrus Tract had 36 active clusters and 31 potential breeding groups. By 2011, there were 74 active clusters and 66 potential breeding groups.
- In 2003, the five-year average of total annual acres burned at WSF was 14,378. By 2010, this was increase to a running five-year average of 16,935 acres burned per year.
- Etna Turpentine Camp Archaeological Site (Citrus Tract) was listed in the *National Register of Historic Places* in 2009.
- Completed four phases of hydrological restoration on the Baird Unit (Richloam Tract).

C. Goals and 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 WSF during this management period must serve to conserve, protect and enhance the natural and historical resources and manage resource-based public outdoor recreation, which is compatible with the conservation and protection of this forest. The majority of the management operations will be conducted by the FFS, although appropriate activities will be contracted to private sector vendors. All activities will enhance the property's natural resource or public recreational value.

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 on-going 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. On-going goals are those that include those year-to-year goals / activities that are routine and re-occurring in nature. 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: Continue to update the annual silviculture management plan including reforestation, harvesting, prescribed burning, restoration, and timber stand improvement activities and goals. (Ongoing Goal)

Performance Measure: Completion of annual updates.

Objective 2: Implementation of the silviculture management plan. The costs are to be determined annually. (Long Term Goal)

Performance Measure: Implementation of plan (acres treated).

Objective 3: Conduct stand descriptions and forest inventory including a GIS database containing forest stands, roads & other attributes (including but not limited to: imperiled species, archaeological resources, exotic species locations, historical areas). (Ongoing Goal)

Performance Measures:

- Complete GIS database and re-inventory all attributes every 3-5 years or as needed.
- Number of acres inventoried.

Objective 4: Conduct all timber harvests in a manner that maintains appropriate stand densities, improves forest health, regenerates cutover stands with appropriate species, salvages wood following natural disasters, and minimizes ground disturbance. Estimated cost per year is \$50,000. (Ongoing Goal)

Performance Measure: Number of timber sales conducted in a satisfactory and sustainable manner and in BMP compliance.

Objective 5: Conduct Forest Inventory updates on up to 10% of forested acres each year, according to established criteria in the State Forest Handbook. Estimated cost per year is \$75,000. (Short Term Goal)

Performance Measure: Number of acres inventoried annually.

Objective 6: Conduct a site assessment to determine the operational needs and requirements for the Withlacoochee seed orchard. Estimated cost based on outcome of assessment. (Short Term Goal)

Performance Measure: Assessment completed.

➤ **GOAL 2: Public Access and Recreational Opportunities**

Objective 1: Maintain public access and recreational opportunities to allow for a recreational carrying capacity of 3,000 visitors per day. (Short Term Goal)

Performance Measure: Number of visitor opportunities per day.

Objective 2: Develop additional public access and recreational opportunities to allow for a carrying capacity of 3,100 visitors per day. Estimated costs are noted in other objectives. (Long Term Goal)

Performance Measure: Number of visitor opportunities per day.

Objective 3: In order to continue to safely integrate human use into WSF, develop and implement a Five-Year Outdoor Recreation Plan and update annually. (Ongoing Goal)

Performance Measure: Completion of the Five-Year Outdoor Recreation Plan and update annually.

Objective 4: Continue to work with Friends of the Florida State Forests. Assist in identifying revenue sources for Friends of the Florida State Forest sponsored projects in

addition to working with local volunteer groups to identify revenue resources that will directly benefit the WSF. (Ongoing Goal)

Performance Measures:

- Number of active members maintained.
- Number of activities completed.
- Number of meetings held.

Objective 5: Coordinate with Karst Conservancy and FWC to conduct a site assessment of Dames Cave Complex to determine future day-use opportunities. Implementation determined by available funding. Estimated cost based on outcome of assessment. (Long Term Goal)

Performance Measures:

- Assessment complete.
- Day-use activities implemented.

Objective 6: Conduct a site assessment to expand existing hunt camps and/or develop a hunt camp at the former site of the Short Term Offender Program (S.T.O.P.) Camp in the Richloam Tract. Estimated cost based on outcome of assessment. (Ongoing Goal)

Performance Measure: Assessment completed.

Objective 7: Conduct a site assessment of the Lacoochee Park area for future development / improvements. Coordinate with local community in planning phase. Estimated cost based on outcome of study. (Short Term Goal)

Performance Measure: Assessment completed.

Objective 8: Conduct or obtain a feasibility study to develop a technical riding area at Croom Motorcycle Area. Estimated cost based on outcome of study. (Long Term Goal)

Performance Measure: Feasibility study conducted.

Objective 9: Update the WSF brochures and state forest webpage. Estimated total cost for printing brochures is \$10,000. (Short Term Goal)

Performance Measure: Updated WSF brochures complete and webpage updated.

Objective 10: Continue to conduct environmental education programs. (Ongoing Goal)

Performance Measure: Number of educational programs conducted annually.

Objective 11: Maintain and continue the WSF Volunteer Program. Recruit additional volunteers as needed to assist with implementation of various forest programs. Coordinate with volunteer grounds to have fund raising events to directly benefit the WSF. (Ongoing Goal)

Performance Measures:

- Number of volunteers.
- Number of hours volunteered.
- Number of fund raising events.

Objective 12: Continue to work with Nature Coast Back Country Horsemen to close conflicting equestrian trail head at Twin Pond Hunt Camp and establish new trail head on northwest corner of Seed Orchard at intersection of Forest Road 7 and Soutl Road. (Long Term Goal)

Performance Measure: Closing of one trail head and opening of new trail head.

➤ **GOAL 3: Habitat Restoration and Improvement**

Objective 1: WSF has approximately 115,973 acres of historical burnable habitat. Perform prescribed burns on 30,000 acres annually at fire return intervals and season consistent with each plant community description. Estimated cost per year \$240,000. (Short-term/Long-term)

Performance Measures:

- Number of acres burned each year.
- Percent of burnable habitat maintained within desired fire return intervals.

Objective 2: Identify natural community restoration needs (i.e. off-site pine plantations, ground cover restoration, scrub restoration where supporting scrub-jays, RCW habitat enhancements, oak/planted pine control in scrubby flatwoods, woody vegetation control in depression marshes, etc.) and develop recommendations for restoration treatments on sites where warranted (i.e. mechanical operations, supplemental planting, herbicide applications, burning, etc.). Estimated costs based on outcome of recommendations. (Ongoing Goal)

Performance Measure: Number of acres identified and recommendations developed.

Objective 3: To contact each county and notify mosquito control agency that WSF, by approval of this management plan, has designated the state forest as environmentally sensitive and biologically highly productive and therefore any arthropod control measures on their part will require first their preparation and FDACS approval of an arthropod control plan prior to any treatments on WSF. (Ongoing Goal)

Performance Measures:

- Notification submitted to each county.
- Arthropod control plan(s) in place, if developed by county and approved by FDACS.

Objective 4: Develop a WSF Cave Management Plan, in cooperation with FWC, to address issues such as cave protection, hydrological, pollution, flora/fauna and restoration. (Short Term Goal)

Performance Measure: Completion of WSF Cave Management Plan.

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

Objective 1: Continue to implement the existing red-cockaded woodpecker management plan and update as needed. The cost is to be determined. (Ongoing Goal)

Performance Measures:

- Population goals met that were identified in plan
- Plan updated

Objective 2: Maintain and update baseline imperiled species occurrence inventory list. Develop specie management plans as necessary. (Ongoing Goal)

Performance Measures:

- Baseline imperiled species occurrence inventory list updated.
- The number of listed and rare species for which monitoring protocols are developed.
- The number of species for which monitoring is ongoing.

Objective 3: Continue to work with other state agencies, conservation organizations and landowners to maintain habitat connectivity within the WSF corridor. This may include identifying critical missing parcels, coordinating the use of prescribed fire, restoration and other land management activities, and identifying improvements needed to facilitate wildlife movement. Costs included in other Objectives. (Ongoing)

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

Objective 4: Evaluate depression marshes for potential of listed animal species and initiate site-specific surveys based on likelihood of occurrence. Surveys are to be done with in-house staff, volunteers, and support from Florida Fish and Wildlife Conservation Commission (FWC). (Long Term Goal)

Performance Measures:

- Assessment of marshes completed.
- Percent of targeted marshes surveyed.

Objective 5: FFS will develop an imperiled species management strategy in consultation with FWC. (Short-Term)

Performance Measure: Imperiled species management strategy completed.

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

Objective 1: Continue annual treatments and monitoring on known non-native invasive plant species. Estimated cost per year is \$84,000 (Ongoing Goal)

Performance Measure: Number of acres treated annually by species.

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

Objective 1: Maintain up to five WSF staff members as archaeological resource monitors. Estimated cost per year is \$1,000. (Long Term Goal)

Performance Measure: Number WSF staff trained.

Objective 2: GPS and map all undocumented sites and ensure they are recorded in the Division of Historical Resources (DHR) Florida Master Site File. Estimated cost is \$5,000. (Ongoing Goal)

Performance Measure: Number of new sites maintained in GIS database and recorded in the Florida Master Site File.

Objective 3: Maintain a GIS database of all known cultural sites. Utilize data base to indicate sites that are in most need of monitoring based on DHR prioritization recommendations. (Ongoing Goal)

Performance Measures:

- Site maps of cultural sites updated.
- Number of sites designated as priority monitoring sites.

Objective 4: Monitor high priority sites on an annual basis. Monitor all sites as time and staffing levels allow. Send updates to the DHR Master Site File as needed. Estimated cost is \$2,000 annually. (Short Term Goal)

Performance Measures:

- Number of sites monitored.
- Status updates submitted.

Objective 5: Coordinate with DHR and the professional archaeological community to conduct historical and cultural surveys on portions of the WSF where survey data is lacking. Implementation based on funding. (Long Term Goal)

Performance Measure: Completion of surveys and updated GIS-based database with identified cultural and historical sites.

Objective 6: Protect known cultural sites by coordinating with DHR in the planning phase of ground disturbing activities. (Ongoing Goal)

Performance Measure: Number of sites protected through use of environmental analysis process that identifies potential impacts from ground disturbing activities.

➤ **GOAL7: Hydrological Preservation and Restoration**

Objective 1: Coordinate with State Office in developing a hydrological restoration plan to identify, implement wetland and ecosystem restoration activities on the Homosassa Tract. (Short Term/Long Term Goal)

Performance Measures:

- Completion of restoration plan.
- Implementation and monitoring of restoration plan.

Objective 2: Protect water resources during management activities through the use of Silvicultural Best Management Practices (BMPs) for public lands. (Ongoing Goal)

Performance Measure: Compliance with public lands BMP's.

Objective 3: Close, rehabilitate, or relocate those roads and trails that have evidence of erosion into surrounding water bodies causing alterations to the hydrology. Estimated costs based on outcome of evaluations. Sites and costs to be determined. (Long Term Goal)

Performance Measures:

- Evaluation completed
- Total number of roads and trails identified.
- Number of miles of trails, roads, and firelines closed, rehabilitated, or relocated.

Objective 4: Reduce erosion along trails, roads and firelines by revegetation and mechanical methods. Sites and costs to be determined. (Long Term Goal)

Performance Measure: Number of miles of trails, roads, and firelines repaired.

Objective 5: Conduct annual road inspection to determine the need for installation or replacement of culverts and low water crossings. Estimated cost is \$5,000 annually. (Long Term Goal)

Performance Measures:

- Annual inspection completed.
- Number of culverts or low water crossings installed or repaired.

Objective 6: Coordinate with WSF Biologist, FFS Forest Hydrologist, Florida Department of Environmental Protection (FDEP), local water management district and/or local non-profit organizations to seek mitigation and/or grant funding to initiate hydrological restoration projects based on the forest-wide hydrological assessment. (Long Term Goal)

Performance Measures:

- Grant application(s) completed.
- Mitigation project proposal(s) completed and distributed.

Objective 7: Continue to conduct forest-wide assessment of all pre-suppression firelines currently in regular use and those no longer maintained to determine needs for rehabilitation and improvement of disturbed hydric communities and associated ecotones. Rehabilitate hydric communities or ecotones that are identified, as time / funding allows. Estimated cost is \$4,000. (Ongoing Goal)

Performance Measure:

- Number of miles of fireline assessed.
- Acres of ecotone / hydric community rehabilitated.

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

Objective 1: WSF has approximately 96 improved facilities under roof, 567 miles of maintained road and 458 miles of designated recreation trails. WSF staff will maintain all existing facilities, roads, and trails based on need and budget constraints. (Long Term Goal)

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

Objective 2: WSF has approximately 541 miles of maintainable state forest boundary. Where needed, replace boundary signs, reestablish firelines and repaint twenty percent of state forest boundary annually. Estimated cost is \$4,000 (Ongoing Goal)

Performance Measure: Miles of forest boundary maintained.

Objective 3: Implement a Five-Year Road Management Plan and update annually. Cost estimates will be determined based on annual update. (Ongoing Goal)

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

Objective 4: Increase dialog with user groups and law enforcement to decrease damage to roads, vandalism, illegal dumping, and illegal uses. (Ongoing Goal)

Performance Measure: Decrease in road issues. Decrease in illegal issues.

Objective 5: Increase quantity of law enforcement presence to address issues on WSF.

Performance Measure: Increase in law enforcement presence.

II. Administration Section

A. Descriptive Information

1. Common Name of Property

The common name of the property is the Withlacoochee State Forest (WSF).

2. Legal Description and Acreage

WSF is comprised of seven tracts, totaling 164,073.18 acres.

WSF is located in Citrus, Hernando, Lake, Pasco, and Sumter Counties, Florida. It is approximately 40 miles northeast of Tampa and 34 miles west of Orlando. Major highways include Interstate 75; the Suncoast Parkway; US Highways 19, 98, 41, and 301; and State Roads 44 and 50. The boundaries and the major tracts are identified in Exhibit B. The legal description is found in lease agreements 3316, 3560, 3994, and 4145. The property is located in all or part of Sections:

Township 17 South, Range 19 East; Sections 14, 15, 22, 23, 25-27, 29, 34, 35
Township 19 South, Range 17 East; Sections 32-34
Township 19 South, Range 18 East; Sections 1-3, 7, 8, 10-15, 17, 20-27, 36
Township 19 South, Range 19 East; Sections 6, 7, 9-11, 14-16, 21-24, 25-28
Township 19 South, Range 20 East; Sections 7, 18
Township 19 South, Range 21 East; Sections 36
Township 20 South, Range 17 East; Sections 1-4, 8, 9, 11-14, 16, 17, 23, 24
Township 20 South, Range 18 East; Sections 13-15, 22-24, 26-27, 33-35
Township 20 South, Range 19 East; Sections 1-23, 26-35
Township 20 South, Range 21 East; Sections 1, 2, 11-16, 21-28, 33-35
Township 20 South, Range 22 East; Sections 6, 7, 18
Township 21 South, Range 18 East; Sections 1, 4, 12, 13
Township 21 South, Range 19 East; Sections 3-10, 36
Township 21 South, Range 20 East; Sections 17-21, 25, 28, 29, 33-36
Township 21 South, Range 21 East; Sections 30-32
Township 22 South, Range 19 East; Sections 1
Township 22 South, Range 20 East; Sections 1-4, 9-15, 22-26
Township 22 South, Range 21 East; Sections 4-10, 15-22, 26-31, 33, 34
Township 22 South, Range 22 East; Sections 16-21, 27-36
Township 22 South, Range 23 East; Sections 10-16, 20-36
Township 23 South, Range 22 East; Sections 1-31
Township 23 South, Range 23 East; Sections 1-36
Township 24 South, Range 23 East; Sections 1-6

WSF acreage by parcel can be found in Exhibit F.

A complete legal description of lands owned by the Board of Trustees of the Internal Improvement Trust Fund (BOT) and SWFWMD as part of WSF is on record at the Withlacoochee Forestry Center office, Florida Department of Environmental Protection (FDEP), and the FFS state office in Tallahassee.

3. Proximity to Other Public Resources

Significant lands managed by state, federal or local government for conservation of natural or cultural resources that are located within close proximity of the WSF are included in Exhibit G as well as the table below:

Table 1. Nearby Public Conservation Land and Easements

TRACT	AGENCY	DISTANCE
Annutteliga Hammock	SWFWMD	10 Miles Southeast of Homosassa
SubTropical Agricultural Research Station	USDA/IFAS	Adjacent to Croom
Dade Battlefield Historical SP	DRP	12 Miles East of Croom
Chinsegut Nature Center WEA	FWC	Adjacent to Headquarters
Ft. Cooper SP	DRP	4 Miles East of Citrus
Big Pine Tract WEA	FWC	4 Miles South of Headquarters
Chassahowitzka WMA	FWC	8 Miles West of Headquarters
Chassahowitzka NWR	USFWS	Adjacent to Homosassa Tract
Cross Florida Greenways Trail	DRP	8 Miles North of Citrus
Lake Townsend Regional Park	H. C.	4 Miles East of Headquarters
Seminole State Forest	FFS	50 Miles East of Headquarters
Cypress Lakes Preserve	H. C.	Adjacent to PK Smith Unit
Half Moon WMA	FWC	10 Miles East of Citrus
Chassahowitzka River and Coastal Swamp	SWFWMD	Adjacent to Homosassa
Flying Eagle Preserve	SWFWMD	Adjacent to Jumper Creek
Homosassa Springs Wildlife Park	DRP	6 Miles North of Homosassa Tract
Brooksville Plant Material Center	USDA/NRCS	Adjacent to Headquarters
Weekiwachee Preserve	SWFWMD/H.C.	18 Miles South of Homosassa Tract
Weeki Wachee Springs SP	DRP	16 Miles South of Homosassa Tract
St. Martins Marsh Aquatic Preserve	DRP	12 Miles North of Homosassa
Fickett Hammock Preserve	H.C.	8 Miles SW. of Headquarters
Janet Butterfield Brooks Preserve	N. C.	8 Miles SW of Headquarters
Perry Oldenburg Mitigation Park	FWC	Adjacent to Headquarters
Ahhochee Hill Sanctuary	A.S.	Adjacent to Headquarters
Linda Pederson Park/Jenkins Creek Park	H.C./SWFWMD	12 miles South of Homosassa Tract
Green Swamp Wilderness	SWFWMD	Adjacent to Richloam

Preserve		
Potts Preserve	SWFWMD	Adjacent to Two Mile Prairie
Withlacoochee State Trail SP	DRP	Adjacent to Croom
Lake Louisa SP	DRP	10 Miles East of Richloam
Hilochee WMA	FWC	12 Miles East of Richloam
Colt Creek SP	DRP	8 Miles South of Richloam
Little Gator Creek WEA	FWC	10 Miles South of Richloam
Van Fleet State Trail SP	DRP	Adjacent to Richloam

USFS	United States Forest Service	H. C.	Hernando County
USFWS	United States Fish and Wildlife Service	N. C.	The Nature Conservancy
USDA	United State Dept. of Agriculture		
FWC	Fish and Wildlife Commission	A.S.	Audubon Society
DRP	Division of Recreation and Parks(Dept. of Environmental Protection)	SWF WMD	SW Florida Water Management District
WEA	Wildlife Environmental Area	SP	State Park
IFAS	University of Florida, Institute of Food and Agricultural Services		
NRCS	Natural Resources Conservation Service	NWR	National Wildlife Refuge
FFS	Florida Forest Service	WMA	Wildlife Management Area

4. Property Acquisition and Land Use Considerations

The lands forming the original core of the Withlacoochee State Forest were acquired from private owners by the Federal Government under provisions of the U.S. Land Resettlement Administration, and designated as project FLA-LU-3. It was acquired during the period of 1936-1939.

Originally this project contained 114,165 acres in portions of Citrus, Hernando, Pasco, and Sumter counties. The lands were managed by the Soil Conservation Service from 1939-1954.

In 1954, the management responsibilities for the Withlacoochee Land Use Project were transferred to the U.S. Forest Service. Most of the local personnel that had been employed by the Soil Conservation Service on this project were transferred to the U.S. Forest Service.

The U.S. Forest Service managed the property until a lease-purchase agreement, executed on September 15, 1958, leased the property to the Florida Board of Forestry. At that time, the Florida Forest Service assumed management responsibilities and most of the local personnel working on the project were transferred again, this time to become State of Florida employees.

The lease-purchase agreement provided that the Florida Board of Forestry must complete the payment of the purchase price of \$6,163,328 (approximately \$54.00 per acre) to the Federal government over a twenty-five year period. There was an added stipulation that the initial ten years would be interest free, and that the interest rate for

the remaining fifteen years would be four percent per year on the unpaid balance. The final payment was made in October 1982. The title was transferred (113,172 acres) to the State of Florida in February, 1983.

WSF has continued to acquire new lands through State and FFS acquisition programs. The first major addition was 10,481 acres in Sumter County (Jumper Creek Tract) in 1981 through the Environmentally Endangered Lands (EEL) program. In April 1992, the Homosassa Tract (consisting of approximately 5,190 acres) was purchased through the Conservation and Recreation Lands Program (CARL). In March 1995, the Baird Unit (consisting of 11,567 acres) was purchased by the FFS using P2000 In-Holdings and Additions funds. Since 1996, several parcels of land have been purchased with CARL, FFS P2000, and Save Our Rivers (SOR) funds. The four largest to date have been the purchase of Sugarmill Woods (Annutteliga Hammock Unit) consisting of approximately 5,201 acres; Jordan Ranch (Two Mile Prairie) consisting of approximately 2,896 acres; PK Smith Ranch consisting of 1,656 acres; and the Lecanto Sandhill Parcel consisting of 1,800 acres. Since 1996, numerous smaller parcels, totaling 1,785 acres, have also been acquired, ranging in size from ½ acre to 930 acres

B. Management Authority, Purpose and Constraints

1. Purpose for Acquisition/Management Prospectus

The land that was to become the original portion of the WSF was acquired by the Federal Government to revegetate, resettle, and protect the area following extensive management by land and timber companies in the early 1900's. In the mid 1950's, the land was leased to the state for resource management. Additional lands continue to be acquired for the forest through the State and FFS acquisition programs.

Projected uses for the forest continue to be consistent with multiple-use management, which includes but is not limited to: timber management; recreation; water-resource protection; research; and forest-ecosystem protection. Multiple-use management is mandated under Chapter 589.04(3), Florida Statutes. Further authority for the FFS to manage using this method is found in Chapters 589.011, 589.07 and, 589.09, Florida Statutes.

Certain tracts of the WSF were purchased under the Conservation and Recreation Lands Program (CARL). Objectives for the acquisition of lands under the CARL program are:

- Protect, manage, and restore important ecosystems, landscapes and forests. Especially if the protection and conservation of such lands is necessary to enhance or protect significant surface water; ground water; coastal, recreational, timber, or fish and wildlife resources which cannot otherwise be accomplished through local and state regulatory programs.
- To provide areas, including recreational trails, for natural resource-based recreation.
- To conserve and protect native species habitat and / or endangered species habitat. FFS interprets this to include species of special concern.

- To conserve and protect environmentally unique and irreplaceable lands that contain native, relatively unaltered, flora and fauna representing a natural area unique to, or scarce within, a region of this state or a larger geographic area.
- To preserve archaeological or historic sites.

A management prospectus can be found in Exhibit S for the following acquisition projects; Annutteliga Hammock, Florida Springs Coastal Greenway, Jordan Ranch, and Withlacoochee State Forest Additions.

2. Degree of Title Interest Held by the Board

The Board of Trustees of the Internal Improvement Trust Fund (TIITF) holds fee simple title to the property known as the Withlacoochee State Forest (WSF). A copy of the lease agreement between the TIITF and the FFS providing authority for the FFS to manage the WSF can be found in the Tallahassee office. The TIITF and the Southwest Florida Water Management District each hold half-interest in the Two Mile Prairie Tract. FFS also manages timber (Lease Agreement #10-100-131) on an adjacent 4,448 acres of Southwest Florida Water Management District (SWFWMD) land in Lake County known as the Little Withlacoochee Reservoir Management Area. This parcel is managed as part of the Richloam Tract and is included as part of the total acreage of the Withlacoochee State Forest and the plans for its management over the next ten years are covered in this plan.

3. Designated Single or Multiple-Use Management

WSF 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 3316, 3560, and 4145.

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:

- *Recreation* - Honor fees are collected for day use activities and camping. Other recreation receipts include commercial vendor permits and annual family passes.

The average annual recreation receipts for the past three fiscal years were \$689,167 Gross or \$658,346 Net.

- *Timber Harvests* - Stands will be harvested to improve forest health. Forest management is optimized with other management responsibilities. Timber sales on WSF have generated an average of \$464,000 per year in the past three fiscal years.
- *Miscellaneous Forest Products* - WSF has increased revenue through sales of pine straw, palmetto drupes, firewood and cracker cattle. Miscellaneous forest products have generated an average of \$58,476 in the past three fiscal years.
- *Cattle Grazing* - WSF currently has six cattle grazing leases, for a total of 3,589 acres, providing an annual income of \$59,183 per year. There are additional tracts of land that have potential to become cattle grazing leases.
- *Apiaries* - WSF currently has two apiary leases providing an average annual income of \$3,820 per year. There are additional tracts of land that have potential to become apiary leases.
- *Withlacoochee Training Center* – The training center is utilized by many agencies for meetings and training. Revenue is generated through fees collected for tuition, lodging and meals. Average annual revenue is \$90,000 to \$95,000.

5. Conformation to State Lands Management Plan

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

6. Legislative or Executive Constraints

Portions of WSF that were originally deeded to the State of Florida from the United States Forest Service have some special conditions. One is referred to as the reverter clause which limits the ability of the State to sell this land.

7. Aquatic Preserve/Area of Critical State Concern

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

C. Capital Facilities and Infrastructure

1. Property Boundaries Establishment and Preservation

There are approximately 541 miles of boundary lines on WSF. The majority of these boundaries are posted and maintained by state forest personnel in accordance with the guidelines stated in the State Forest Handbook. Currently this standard requires 20 percent of forest boundaries to be visited and maintained each year.

2. Improvements

Major FFS facilities associated with the WSF Headquarters Tract include the Withlacoochee Forestry Center Office, WSF Recreation Visitor Center, Maintenance Shop and the Withlacoochee Training Center. Major recreation structures include

Rock Lake Lodge, Baird Lodge and Tillis Hill dining hall. A list of improvements can be found in Exhibit E.

3. On-Site Housing

Currently, thirteen occupied residences exist on the forest. Personnel include three park rangers, six forest rangers, one inmate work crew leader, two duty officers and one forester. Residences are located on Richloam, Croom, Citrus, Two Mile Prairie, Headquarters, and Jumper Creek Tracts.

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

4. Operations Infrastructure

The current annual budget for Fiscal Year 2013 – 2014 for WSF is \$2,641,893.00. Annual appropriations may change over time. This budget includes: salary, expenses, and contractual costs. A summary of the WSF budget is included in Exhibit V

Resource management is the responsibility of WSF's Resource Section. The current staffing levels include: an administrator, four forestry supervisor II, two senior foresters, five foresters, one forest biologist, two park rangers, and three forest technicians.

Prescribed burning is the responsibility of WFC's Operations Section and includes an administrator, four FASs and current fire control personnel (senior forest rangers and forest rangers).

Maintenance of WSF is the responsibility of WSF's Maintenance Section which includes roads, facilities, and infrastructure maintenance / repairs. Maintenance personnel includes an administrator, two equipment construction specialists, one property specialist, one automotive equipment maintenance superintendent, one grounds keeping supervisor III, one telecommunications specialist III, road maintenance personnel, inmate work crew leader personnel, facility maintenance personnel, and vehicle maintenance personnel.

Recreation management is the responsibility of WSF's Recreation Section and includes an administrator, one forest recreation coordinator, two forestry supervisor I and seven park rangers (one park ranger is funded at Jumper Creek, for a total of 8).

5. Inmate Program

The Inmate Program plays a large part in all of the Withlacoochee Forestry Center projects. This cooperative effort is in conjunction with the Florida Department of Corrections, Sumter Correctional Institution, Forestry Work Camp. The prison inmate program provides labor for the accomplishment of various tasks on the WSF and at the Withlacoochee Training Center. In fiscal year 2012-13, the program contributed approximately 47,393 inmate man-hours. These hours represent a saving of \$375,826.49 when computed at minimum wage of \$7.93 per hour. In the past year, due to budget cuts, the FFS's Inmate Work Crew Leader positions went from 5 positions to 4 positions reducing the inmate numbers by 320 man-hours per week. Further cuts in this program will result in a reduction of services in recreational areas as well as some core programs of the FFS.

D. Additional Acquisitions and Land Use Considerations

1. Alternate Uses Considered

Alternate uses will be considered as requests are made and will be accommodated 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 would facilitate restoration, protection, maintenance, and management of the resources on WSF. See Exhibit C.

3. Surplus Land Assessment

All of the property within WSF is suitable for and necessary for the management of WSF. 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 regularly meet with adjacent land owners and maintain 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 owners, prospective owners, or prospective developers to discuss methods to minimize negative impacts on management, resources, facilities, roads, recreation, etc., and discuss ways to minimize encroachment onto the forest.

Nearby developed areas and adjoining major highway systems, including US 19, US 41, I-75 and various local roads, limit the prescribed burning program on WSF due to smoke management concerns.

5. Compliance With Comprehensive Plan

This plan was submitted to the Board of County Commissioners in Citrus, Hernando, Lake, Pasco and Sumter Counties for review and compliance with their local comprehensive plans. See Exhibit H.

6. Utility Corridors and Easements

There are numerous leases, easements, and permits for a variety of uses on the WSF. A majority of them are small; some provide utility access to landowners, many are for road right-of-way. Several of the more substantial leases, easements, and special use permits are provided below. Copies of these documents are available upon request.

- a. There is a sublease on 296 acres within the Citrus Tract with the City of Inverness for the Whispering Pines Recreation Park. This sublease was executed January 15, 1991, for a twenty-five year term and renews the use provisions originally granted in an easement dated September 21, 1965.
- b. An easement for a 500 KV electric transmission line was granted to Florida Power Corporation on 236.64 acres in the Richloam Tract, all within Sumter County. It was executed on December 17, 1982, for a twenty-five year term. In 2007, the lease was extended for an additional twenty-five years.
- c. On February 6, 1986, a ten-year sublease for six acres was executed between the Department of Agriculture and Consumer Services and the Citrus County School Board for a law enforcement and fire-fighting training facility. Currently this facility is located in the closed section of the Citrus County landfill. Options to renew the lease for an additional five years were exercised in February 1996 and 2001. In 2006, the lease was extended for an additional twenty years. On March 2, 2006, 0.45 acres was released from lease to be assigned to FWC to expand a shooting range. On June 12, 2012, the same 0.45 acres was donated to the Board of Trustees of the Improvement Trust Fund.
- d. On June 23, 1965, the Florida Board of Forestry entered into a Special Use Permit with the Florida Game and Fresh Water Fish Commission, allowing the Commission to use 60 acres of the Richloam Tract for the purpose of constructing and operating a fish hatchery. On May 4, 1979, another Special Use Permit was executed for a 30-acre expansion. Again, on July 12, 1991, the Special Use Permit was amended to include an additional 86 acres.
- e. On July 6, 1967, a 19,000-acre easement within the Richloam Tract was granted to the Southwest Florida Water Management District (SWFWMD) for use as a water retention site for parts of the Four Rivers Basins (FRB) flood control project. The FFS retains the rights to manage timber on the easement. Additionally, the FFS gained the rights to manage the timber on an adjacent 4,448 acres of SWFWMD land known as the Little Withlacoochee Management Area. The FRB project has since been decommissioned but the agreements between the agencies remain in effect.
- f. On September 27, 1985, the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida executed a Deed transferring 400 acres of the Croom Tract to the United States of America for a Veteran's Administration National Cemetery. On October 26, 1999, the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida executed a Deed transferring an

additional 179 acres to the United State of America for an addition to the Veteran's Administration National Cemetery as well as an easement of .5 acres across WSF for access to the property transferred to the Veterans Administration.

- g.** Beginning October 1, 1975, the Florida Board of Forestry granted a ten year Special Use Permit to Citrus County to operate a 60-acre landfill in the north part of the Citrus Tract. This Special Use Permit was extended on May 12, 1983 to run through January 1, 1988, and again on April 21, 1987 to run through December 31, 1990. The Special Use Permit for landfill activities has expired.
- h.** On April 22, 1996, a twenty five-year sublease (3316-5) was executed between the Board of Trustees of the Internal Improvement Trust Fund and Board of County Commissioners of Citrus County to allow Citrus County the right of access for maintenance activities. On May 1, 2007, the sublease was extended to include 56 acres surrounding the closed and active landfills for the purpose of monitoring landfill gas and groundwater conditions.
- i.** On May 25, 1995, the Land Management Advisory Council approved a twenty-five year agreement between the FFS and Citrus County allowing Citrus County to move offices, recycling facilities, and other items onto the former landfill. In exchange, the FFS received road building materials, labor, and an exotic species survey on the Citrus Tract.
- j.** On August 31, 2001, the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida granted an easement to Florida Gas Transmission for the construction and maintenance of a natural gas pipeline through portions of the Citrus Tract.
- k.** An easement for a 500 KV electric transmission line was granted to Florida Power Corporation on 87.0 acres across the Two Mile Prairie Tract. It was executed on March 19, 1965.

A more comprehensive listing of leases, easements, and use permits found on the Withlacoochee State Forest can be obtained at the Withlacoochee Forestry Center Headquarters in Brooksville.

The Sabal Trail natural gas pipeline, which is currently being developed, will impact WSF on the Two Mile Prairie Tract. The proposed alignment is utilizing an existing power line corridor. More information is available from the WSF office or the FFS State Office.

Additional expansion of the Suncoast Parkway will impact WSF primarily on the Citrus Tract. More specifically, the Sugarmill Woods and Lecanto Sandhill parcels on the west side of the tract. In consultation with DOT, those impacts are being mitigated through the use of value exchanges, signage for prescribed fire activity, funding for a weather station, and purchase of additional conservation lands.

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 WSF suitable for any new linear facilities.

When such encroachments are unavoidable, previously disturbed sites will be the preferred location. The objectives, when identifying possible locations for new linear facilities, will be to minimize damage to sensitive resources (e.g., listed species and archaeological sites), to minimize habitat fragmentation, and to limit disruption of management activities and resource-based multiple use activities, such as recreation.

Collocation of new linear facilities within 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 and responsible for overall forest management and public recreation activities, as stated in BOT Management Lease Numbers 3316, 3560, 3994, and 4145. Pursuant to the management lease, the lead managing agency may enter into further agreements or to sub-leases on any part of the forest. 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 SWFWMD 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 FWC. FWC Law Enforcement Officers are responsible for enforcing the laws associated with hunting as well as enforcing the FFS 5I-4 Administrative Codes. FFS has begun and will continue to engage the local Sheriff's Office in assisting FWC with enforcing the laws or rules on WSF. FFS will work with all law enforcement cooperators by establishing a local law enforcement cooperators meeting, to be held annually, where all players can gather to discuss issues and formulate plans to curtail illegal activities.

Special rules under Chapter 5I-4 of the Florida Administrative Code were promulgated for Department of Agriculture and Consumer Services, Florida Forest Service, to manage the use of State Lands and better control traffic and camping in the State Forest. Copies of these rules, which were last revised in 2012, are available from the local WSF office or the State Office in Tallahassee.

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.

FFS responds to public involvement through its Withlacoochee Trail Council, Advisory Groups, public meetings, and through direct contact with user groups. The Withlacoochee Trail Council comprises of ten to twelve members representing various user groups utilizing WSF. Meetings are scheduled annually to discuss recreation related issues. A Land Management Review Team conducted reviews of management plan implementation in May 2005, May 2008, and June 2011 (Exhibit T). The review team's recommendations were incorporated into this plan as appropriate.

This final plan was developed with input from the WSF Management Plan Advisory Group and was reviewed at a public hearing on August 26, 2014. A summary of the advisory group's meetings and discussions, as well as written comments received on the plan, are included in Exhibit U. The Acquisition and Restoration Council public hearing and meeting serve as an additional forum for public input and review of the plan.

4. Volunteers

The services provided by volunteers on WSF are critical in maintaining the success of the various programs on WSF. In fiscal year 2012-2013, the program contributed approximately 25,237 volunteer man-hours. These hours represent a saving of approximately \$200,129. The Recreation Section is the most dependent on volunteers utilizing them for camp hosts, hunt camp hosts, day use area hosts, trail maintenance (including signage and trail marking), gathering geo-data for trails, assisting in the Visitor Center, and special events. Partnerships with organizations such as Florida Trail Association, Florida Forever Back Country Horsemen, S.W.A.M.P. (Mountain bike club), Nature Coast Back Country Horsemen, and numerous other smaller groups play a vital role in maintaining the recreational and educational opportunities on WSF.

Other Sections utilize volunteers but to a lesser extent. The Ecology Unit often utilizes volunteers for collecting data on various endangered species and for the control of exotic species.

5. Friends of Florida State Forests

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

The WSF has previously had a local Friends chapter with an active membership that served the local center with educational programs and financial support. The need for re-establishing a local chapter will be considered and evaluated.

III. Archaeological / Cultural Resources and Protection

A. Past Uses

Prior to purchase by the federal government in the 1930's, lands making up WSF were owned by private landowners who used the land for farming, cattle grazing, logging, naval stores, phosphate, limerock mining, and hunting. While under federal ownership, the land was primarily managed for forestry purposes. Multiple-use became very important after the FFS took over management in the mid 1950's.

In 1943, Zephyrhills Army Air Field was granted a special use permit (Richloam Tract) for an Air-to-Ground Gunnery Range (ATGGR) for the Army Air Forces School of Applied Tactics. In July, 1944 the special use permit was modified to allow a practice bombing range. The practice bombing range was to be used by heavy bombardment groups from MacDill Air Force Base and Drew Fields. The War Department declared that it no longer required use of the ATGGR in November, 1945. In November 1946, the ATGGR was declared surplus property and released back to the United State Department of Agriculture.

Past uses while under state management have consisted mainly of timber, recreation, and wildlife management. However, due to the size of this forest there have been a number of other uses. Past uses include rock, sand, and gravel mines; utility corridors; and research projects. Most mining operations were ended prior to state ownership. Since the 1960s, numerous projects have impacted the forest by removing natural areas from FFS management. Projects that have impacted the Richloam Tract include construction of the Florida Health and Human Resources Department's Short Term Offender Program (STOP) Camp, the FWC Richloam Fish Hatchery, and Highway 471. Projects in the Croom Tract include the construction of Interstate 75 and rest stop, the Florida National Cemetery, the Sumter Correctional Institution and the adjacent Sumter Forestry Work Camp. The Croom and Citrus Tracts have had a landfill constructed in each.

Early federal and state management objectives were for timber to provide a sustained yield of multiple forest products while following sound silvicultural practices. During the 1970's, increased attention was given to wildlife management, environmental activities, and recreation. Recent land acquisitions and additions to WSF have included tracts that historically have been managed for predominately cattle operations. Disturbances such as pasture conversion and hydrological changes were prevalent.

B. Archaeological and Historical Resources

A review of information contained in the DHR's Florida Master Site file has determined that there are 205 known recorded sites on WSF (See Exhibit I). Table 2 records sites listed on or eligible for the National Register of Historic Places.

Table 2. Archaeological and Historical Sites on WSF currently listed on or eligible for the National Register of Historic Places

SITE ID	SITE NAME	SITE TYPE
CIO0795	Etna Turpentine Camp	Agriculture/ Farm Structure
CIO1254	Small Quarry Doline	Prehistoric Quarry
CIO1262	SP 1896 Post Office Area	Historic Town
CIO1263	SP 1879 Post Office Area	Historic Town
CIO1264	SP Chimney Ruin	Historic Town
CIO1265	SP Turpentine Still	Turpentine Still
CIO1247	Etna resin and refuse I	Etna Turpentine Camp
CIO1248	Etna resin and refuse II	Etna Turpentine Camp
CIO1249	Etna Turpentine Still	Etna Turpentine Camp
CIO1250	Etna Well	Etna Well
CIO1251	Etna Barrel Bands	Historic Town
CIO1252	Etna Area of Large Structures	Historic Town
CIO1253	Etna Residential Ruin A	Historic Town
CIO1277	Etna Residential Ruin B	Historic Town
CIO1278	Etna Residential Ruin C	Historic Town
CIO1279	Etna Residential Ruin D	Historic Town
CIO1280	Etna Residential Ruin E	Historic Town
CIO1350	Girl Scout Cave	Cave
CIO1351	Taylor's Herty Cache	Herty Cup Cache
CIO1352	Bridgers	Historic Town
CIO1353	Whatever II	Prehistoric Artifact Scatter
LA01149	Cortes Island	Land-terrestrial
SM00017	Still Suwannee	Prehistoric Quarry
SM00020	Gator Hole Hammock	Midden
SM00021	Snake Skin	Prehistoric Quarry
SM00501	Barge Near Jumper Creek	Historic Shipwreck

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 J) 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 four local center FFS personnel trained by DHR as archaeological site monitors. FFS will pursue opportunities for getting additional personnel trained.

DHR archaeologists provided guidelines for prioritizing sites most in need of monitoring (2011 Land Management Review Recommendations). The following site types were recommended for annual monitoring: those with looting problems, sites with documented human remains, mounds, middens, sites that are on the National Register of Historic Places, and sites listed as likely eligible for the National Register of Historic Places.

GIS layers for WSF cultural resource sites were obtained from DHR. Data was added to the shapefile tables to indicate high priority sites. Specific maps identifying the high priority sites have been made for FFS staff and law enforcement. Monitoring field sheets will be completed to document the evaluation of the high priority sites and record erosion, damage or vandalism. FFS archaeological monitors will manage cultural resource GIS data and field evaluation data. FFS will consult with DHR when protection measures are needed.

FFS staff will strive to monitor the high priority sites on an annual basis. As time and staffing allows, FFS staff will visit low priority sites. FFS staff will GIS map new archaeological sites and send data to the Florida Master Site File.

Applicable surveys will be conducted by FFS staff or others during the process of planning and implementing multiple-use management activities. FFS personnel will remain alert for any environmentally significant resources and protective actions will be taken as necessary. In addition, FFS will seek the advice and recommendations of DHR regarding any additional archaeological survey needs. Trained monitors will oversee ground disturbing activities in which DHR recommends monitoring. The FFS will utilize the services of DHR Public Lands archaeologists, when available, to locate and evaluate unknown resources, and to make recommendations in the management of known resources.

E. Florida Cracker Cattle & Florida Cracker Horse

The FFS maintains a herd of Florida Cracker Cattle and Florida Cracker Horses on the Croom Tract. They are being maintained on a portion of the forest for historical purposes

and genetic preservation. The first herds of Spanish cattle on record were brought to Florida by Ponce de León on his second expedition in 1521. It is not known what became of these animals, but it is assumed that they were left to run free after the Spanish were driven back to their ships by the Calusa Indians. After 1521, Spanish conquistadores often brought cattle and horses, many of Andalusian ancestry, to Florida. The Cracker horses are direct descendants of the Spanish horses brought to Florida in the 1500s by Ponce De Leon. Popular folklore claims the Florida cowboys were known as “Cracker” because of the noise they made with their whips as they tended cattle. The Cracker horses are the offspring of the horses ridden by Florida Cattleman of the 1800s.

By the late 1960s, there were only a handful of pure cracker cattle left. Members of the Florida Cattlemen's Association discussed the threat of losing this breed with the Commissioner of Agriculture and decided to take action. In 1970, Mrs. Zona Bass and Mrs. Zetta Hunt, daughters of pioneer cattleman James Durrance, donated five heifers and a bull, descendants of their father's original herd, to the FDACS on behalf of the Florida Cattlemen's Association. The old cracker cattle of this ranch were regarded by many in the industry as the purest of the pure. With this small herd, FDACS was entrusted with the preservation of the breed. In 1984, the family of Mr. John Law Ayers, a former state representative, county commissioner and prominent Hernando County rancher, donated a small herd of cracker horses to FDACS. From this Ayers stock, horse herds were established at the Agricultural Complex in Tallahassee and on the WSF.

The FDACS Division of Animal Industry provides overall program direction. The University of Florida, Department of Animal Sciences, provides guidance and direction regarding breeding/genetics of the herd. Management strategies and overall herd maintenance is the responsibility of the Withlacoochee Forestry Center Maintenance Section. The herd is a registered herd through the Florida Cracker Cattle Breeders Association (FCCBA). In addition, the state forest hosts the annual meeting / cattle sale of this organization, the Florida Cracker Cattle Association (FCCA) Cracker Gatherin'. Selected registered stock is sold at this annual cracker cattle auction to ranchers interested in promoting or preserving this endangered minority breed. In addition, each year the herd is evaluated and culled of animals lacking genetic purity for this historic breed which are subsequently sold as surplus through local livestock auctions.

A Cracker Cattle Management Plan has been developed and implemented for long-term herd management. A copy of this plan can be found in the office of the Maintenance Administrator for the Withlacoochee Forestry Center.

IV. Natural Resources and Protection

A. Soils and Geologic Resources

1. Resources

Soils information for WSF was obtained from the Citrus, Hernando, Lake, Pasco and Sumter Counties Soil Surveys. For detailed information on soils, see Exhibit K.

In the Citrus Tract of WSF, several areas of caves and limestone outcrops exist that possess unique plants and animal species and require protection from public use and damage. Special efforts have been made by staff biologists to limit public access to some of these areas and to increase the level of monitoring necessary to protect these geologic and biological resources.

2. Soil Protection

Erosion issues have been identified associated with roads, firelines, riverbanks, caves, and old mining pits. Management activities continue to be executed in a manner to minimize soil erosion. Corrective action continues to be implemented by FFS staff under the direction of the FFS Forest Hydrology Section in conjunction with recommendations as contained in the most recent version of the Florida Silviculture Best Management Practices Manual.

B. Water Resources

The water resources on WSF perform essential roles in the protection of water quality, groundwater recharge, flood control and aquatic habitat preservation. In the interest of maintaining these valuable resource functions, state forest management personnel will work with the FFS's Hydrology Section to incorporate wetland restoration into the overall resource management program as opportunities arise, particularly where wetland systems have been impaired or negatively impacted by previous management activities or natural disasters. Major water bodies can be found in Exhibit L.

1. Resources

The Withlacoochee and Little Withlacoochee Rivers flow north through portions of the Richloam and Croom tracts before exiting into the Gulf of Mexico. The Withlacoochee River, the Little Withlacoochee River, and Jumper Creek are designated as Outstanding Florida Waters. There are several small lakes on the WSF including McKethan Lake on the Headquarters Tract and Boggy Pond in the south end of the Croom Tract. Silver Lake, a wide portion of the Withlacoochee River, is a recreational draw for many visitors to the state forest. All of these water bodies have a water quality classification of III, suitable for fish, wildlife, and recreation.

Significant depressional marshes are found on the Baird Unit in Sumter County. One of the largest depressional marshes found on the property is Giddon Lake. It is a large shallow bowl that during times of high water is a fairly sizeable lake. A hydrological restoration project is being developed in conjunction with FDEP and the Southwest Florida Water Management District, which will hopefully restore the lake and the overall hydrology of the Baird Unit.

The Homosassa Tract lies within the coastal region of Citrus County between the Homosassa River and the Chassahowitzka River. The sharp demarcation between the hydric swamp and more xeric vegetative communities immediately to the east is a result of the relatively abrupt elevation change along a relict shoreline. This change represents the boundary between two physiographic zones, the coastal swamp and the Gulf coastal lowlands. The swamp portion is part of the Chassahowitzka Swamp, the largest coastal hardwood swamp along the Gulf Coast of Florida, south of the Suwannee River.

The Homosassa Tract also encompasses portions of Mason and Otter Creeks. There are also seepage areas that become a part of the Hidden River, which flows for 1.0 mile on Southwest Florida Water Management District's (SWFWMD) Chassahowitzka Riverine Swamp land before disappearing underground. Old borrow pits created from limerock excavation during the 1960's are now artificial lakes.

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.

The Baird Tract Hydrologic Restoration Project is a multi-phased FDOT mitigation project that will result in the rehydration of approximately 2,000 plus acres of wetlands within the Baird Tract Unit of the Withlacoochee State Forest. In 2001, an MOA with FDOT and FDEP resulted in the award of \$1.3 million to implement this project. Prior to these funds, FDEP secured a total of \$150,000 and was able to install a total of 30 structures in the spring of 2002. These structures were primarily replacement structures in areas where old structures were failing or in some cases, not providing sufficient flow through regimes.

Natural conditions within the Baird Tract have been significantly altered due to the construction of roads, railway grades, canals and drainage ditches with insufficient culvert sizes and invert elevations. Due to these activities, the natural sheet flow that occurred historically has been disrupted and resulted in a more channelized flow that bypasses some natural systems and also alters the vegetation in these areas. Lake levels have also been drastically reduced as a result of these hydrological alterations. The purpose of this project is to restore hydroperiods and flow patterns in order to enhance and maintain the natural flow patterns once again.

SWFWMD has established 47 Data Collection Sites throughout WSF. Collection sites are determined by type of data collected as described below:

a. Surface Water Sites

At surface water sites, the SWFWMD collects water level and water quality data. Surface water level data provide critical support for watershed studies for proper drainage and water control, integrated surface water and groundwater modeling, biological monitoring, water use and environmental resource permitting and compliance, operations of the SWFWMD water conservation and control structures, Minimum Flows and Levels development, evaluation, and compliance, water shortage implementation and evaluation, and many resource evaluations and reports.

Water quality data provide support for studies in, nutrient enrichment, mineralization of surface waters, status and trend assessments, water resource modeling, and monitoring of restoration and resource management projects. SWFWMD springs and

surface-water quality data are also utilized by State and Federal agencies for use in Impaired Waters Rule assessments.

b. Atmospheric Sites

At atmospheric sites, the SWFWMD collects data including but not limited to rainfall, evapotranspiration, and temperature. Rainfall data provide critical support for watershed studies for drainage and water control, water use and environmental resource permitting and compliance, groundwater recharge modeling, Minimum Flows and Levels development, evaluation and compliance, water shortage implementation and evaluation, aquatic and exotic plant control, calibration of RADAR rainfall estimates, and many resource evaluations and reports. Evapotranspiration data support groundwater recharge models, water use and environmental resource permitting analysis, and agricultural regulation.

c. Wells

At well sites, the SWFWMD collects data including but not limited to, water level, water quality, aquifer parameters, and geophysical parameters. Groundwater level data provide critical support for integrated surface water and groundwater modeling; water use and environmental resource permitting and compliance; minimum flows and levels development, evaluation, and compliance; water shortage implementation and evaluation; and many resource evaluations and reports.

Groundwater quality data provide support for studies in saltwater intrusion, nutrient enrichment of groundwater, pesticides in groundwater, and mineralization of surface waters. One spring on the Homosassa Tract, the Otter Creek headspring, is currently being monitored. Water quality data are utilized for status and trend assessments, water resource modeling, and performance monitoring of restoration and resource management projects.

C. Wildlife Resources

1. Threatened and Endangered Species

The intent of the FFS is to manage WSF in a fashion that will minimize the potential for wildlife species to become imperiled. FFS employees continually monitor the forest for threatened or endangered species while conducting management activities. Specialized management techniques 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.

Presence of listed species is based on information compiled from FNAI database (Exhibit M) and FWC as well as field observations by SWFWMD and FFS.

Table 3. Endangered or Threatened Species on WSF

Common Name	Scientific Name	FNAI Global Rank*	FNAI State Rank*	Federal Status*	State Status*
Reptiles					
American Alligator	<i>Alligator mississippiensis</i>	G5	S4	SAT	FT(S/A)
Eastern Diamondback Rattlesnake	<i>Crotalus adamanteus</i>	G4	S3	N	N
Eastern Indigo Snake	<i>Drymarchon couperi</i>	G3	S3	LT	FT
Gopher Tortoise	<i>Gopherus polyphemus</i>	G3	S3	C	ST
Southern Hognose Snake	<i>Heterodon simus</i>	G2	S2	N	N
Short-tailed Snake	<i>Lampropeltis extenuata</i>	G3	S3	N	ST
Florida Pine Snake	<i>Pituophis melanoleucus mugitus</i>	G4 T3	S3	N	SSC
Birds					
Limpkin	<i>Aramus guarauna</i>	G5	S3	N	SSC
Great Egret	<i>Ardea alba</i>	G5	S4	N	N
Florida Burrowing Owl	<i>Athene cunicularia floridana</i>	G4 T3	S3	N	SSC
Little Blue Heron	<i>Egretta caerulea</i>	G5	S4	N	SSC
Snowy Egret	<i>Egretta thula</i>	G5	S3	N	SSC
Swallow-tailed Kite	<i>Elanoides forficatus</i>	G5	S2	N	N
White Ibis	<i>Eudocimus albus</i>	G5	S4	N	SSC
Southeastern American Kestrel	<i>Falco sparverius paulus</i>	G5 T4	S3	N	ST
Florida Sandhill Crane	<i>Grus canadensis pratensis</i>	G5 T2 T3	S2 S3	N	ST
Bald Eagle	<i>Haliaeetus leucocephalus</i>	G5	S3	N	N
Wood Stork	<i>Mycteria americana</i>	G4	S2	LE	FE
Yellow-crowned Night-heron	<i>Nyctanassa violacea</i>	G5	S3	N	N
Florida Scrub-Jay	<i>Aphelocoma coerulescens</i>	G2	S2	LT	FT
Bachman's Sparrow	<i>Peucaea aestivalis</i>	G3	S3	N	N
Red-cockaded Woodpecker	<i>Picoides borealis</i>	G3	S2	LE	FE
Hairy Woodpecker	<i>Picoides villosus</i>	G5	S3	N	N
Mammals					
Southeastern Bat	<i>Myotis austroriparius</i>	G3 G4	S3	N	N
Florida Mouse	<i>Podomys floridanus</i>	G3	S3	N	SSC
Sherman's Fox Squirrel	<i>Sciurus niger shermani</i>	G5 T3	S3	N	SSC

Common Name	Scientific Name	FNAI Global Rank*	FNAI State Rank*	Federal Status*	State Status*
Florida Black Bear	<i>Ursus americanus floridanus</i>	G5 T2	S2	N	N
<i>Invertebrates</i>					
Sand Pine Scrub Ataenius Beetle	<i>Haroldiataenius saramari</i>	G3 G4	S3 S4	N	N
Withlacoochee Melanoplus Grasshopper	<i>Melanoplus withlacoocheensis</i>	G1 G3	S1 S3	N	N
Elizoria June Beetle	<i>Phyllophaga elizoria</i>	G2	S2	N	N
Yellow-banded Typocerus Long-horned Beetle	<i>Typocerus fulvocinctus</i>	G2	S2	N	N
<i>Plants and Lichens</i>					
Brittle Maidenhair Fern	<i>Adiantum tenerum</i>	G5	S3	N	LE
Incised Groove-bur	<i>Agrimonia incisa</i>	G3	S2	N	LE
Auricled Spleenwort	<i>Asplenium erosum</i>	G5	S2	N	LE
Wagner's Spleenwort	<i>Asplenium heteroresiliens</i>	GNA	S1	N	N
Modest Spleenwort	<i>Asplenium verecundum</i>	G1	S1	N	LE
Curtiss' Spleenwort	<i>Asplenium x curtissii</i>	GNA	S1	N	N
Sand Butterfly Pea	<i>Centrosema arenicola</i>	G2Q	S2	N	LE
Cooley's Water-willow	<i>Justicia cooleyi</i>	G2	S2	LE	LE
Pygmy Pipes	<i>Monotropsis reynoldsiae</i>	G1Q	S1	N	LE
Britton's Beargrass	<i>Nolina brittoniana</i>	G3	S3	LE	LE
Widespread Polypody	<i>Pecluma dispersa</i>	G5	S2	N	LE
Plume Polypody	<i>Pecluma plumula</i>	G5	S2	N	LE
Swamp Plume Polypody	<i>Pecluma ptilodon</i>	G5?	S2	N	LE
Terrestrial Peperomia	<i>Peperomia humilis</i>	G5	S2	N	LE
Giant Orchid	<i>Pteroglossaspis ecristata</i>	G2 G3	S2	N	LT
Green Ladies'-tresses	<i>Spiranthes polyantha</i>	G4	S1 S2	N	LE
Scrub Stylisma	<i>Stylisma abdita</i>	G3	S3	N	LE
Peters' Bristle Fern	<i>Trichomanes petersii</i>	G4 G5	S1 S2	N	N
Florida Bristle Fern	<i>Trichomanes punctatum</i> ssp. <i>floridanum</i>	G4 G5 T1	S1	C	LE
Craighead's Nodding-caps	<i>Triphora craigheadii</i>	G1	S1	N	LE
Rickett's Nodding-caps	<i>Triphora rickettii</i>	G1?	S1	N	N

*** STATUS/RANK KEY**

FNAI Global Rank: G1= Critically Imperiled, G2 = Imperiled, G3= Very Rare, G4= Apparently Secure, G5= Demonstrably Secure, GNA = Ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species), G#? = Tentative rank, G#Q = Rank of questionable species-ranked as species but questionable whether it is species or subspecies, T# = Taxonomic Subgroup; numbers have same definition as G#'s.

FNAI State Rank: S1= Critically Imperiled, S2= Imperiled, S3= Very Rare, S4= Apparently Secure, S5 = Demonstrably secure in Florida, S#? = Tentative Rank.

Federal Status (USFWS): LE= Listed Endangered, LT= Listed Threatened, N= Not currently listed, C = Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.

State Status (FWC): Animals: FE = Listed as Endangered Species at the Federal level by the USFWS, FT = Listed as Threatened Species at the Federal level by the USFWS, F(XN) = Federal listed as an experimental population in Florida, FT(S/A) = Federal Threatened due to similarity of appearance, ST = State population listed as Threatened by the FWC, SSC = Listed as Species of Special Concern by the FWC (SSC* for *Pandion haliaetus* (Osprey) indicates that this status applies in Monroe county only), N = Not currently listed, nor currently being considered for listing.

Plants: LE = Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act, LT = Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered, N = Not currently listed, nor currently being considered for listing.

2. Game Species and Other Wildlife

Wildlife management will play an important role in the management of resources on WSF. The state forest currently makes up all or part of the following Wildlife Management Areas: Baird Unit, Citrus, Croom, Homosassa, Jumper Creek, and Richloam WMA's. The FWC provides cooperative technical assistance in managing the wildlife and fish populations, setting seasons, establishing bag and season limits and overall fish and wildlife law enforcement.

The FFS and FWC cooperatively maintain 45 permanent wildlife openings and planted food plots on the WSF ranging in size from 1 to 6 acres, for a total of 95 acres. Wildlife openings and food plots will be established and maintained in accordance with Chapter 7 of the FFS State Forest Handbook.

Non-game species will be managed through the restoration and maintenance of native ecosystems found on the forest. The current State Forest Handbook gives additional details for such things as snag management and retention.

3. Survey and Monitoring

Species-specific management plans will be developed when necessary with assistance from FWC. Such plans will be consistent with rule and statute promulgated for the management of such species. Continued biological surveys will be conducted to determine locations of these species.

Deer and hog spotlight surveys are conducted by FWC on Baird Unit and Citrus Tract each summer to help determine doe harvest limits. Also on Citrus, covey call counts were initiated in November 2011 as part of the Upland Ecosystem Restoration Project (UERP) to increase populations of fire-dependent wildlife species on public lands. Spring turkey surveys were conducted on Citrus to establish that turkey hunting was an appropriate public use of the tract. At least seven surveys for wild turkey are

conducted annually on the Homosassa Tract because it features Special Opportunity turkey hunts.

Population information on management actions for specific listed species receiving special attention at WSF, include the following species:

a. Red-Cockaded Woodpecker (RCW)

Summary of Red-cockaded Woodpecker management is presented in document Withlacoochee State Forest History, Current Status, and Management Plan for Red-cockaded Woodpeckers (2007).

FFS and FWC staffs combine to conduct annual surveys of all RCW trees on the Croom and Citrus tracts each spring before nesting season. Cavity type, activity, and tree location information is collected and maintained in the FFS computer system. In spring all active RCW trees are monitored to detect nests, and age chicks for banding. With cooperation of Audubon volunteers additional monitoring is done to determine survival data and determine the sex of fledglings. Additional bird and tree data is collected throughout the year to assist with management activities such as prescribed burning, cavity cleaning, and new cavity placing. All data is updated, stored, and presented annually to the US Fish and Wildlife Service as required for the endangered species management permit.

In 2013, The Citrus Tract RCW population consisted of 64 potential breeding groups. The Croom Tract population consisted of 30 potential breeding groups. Due to the size of the population, FWC maintains a full time OPS biologist (housed at WSF).

b. Florida Scrub-Jay (FSJ):

WSF staff conducts annual surveys for presence of Florida Scrub-Jays in scrub and scrubby flatwoods habitat on the Citrus, Richloam and Two Mile Prairie Tracts. Audio surveys for detecting presence of FSJ's are done annually in the fall and spring. Additional surveys are conducted in July in locations where FSJ's were detected. FSJ's were found on the Citrus and Richloam Tracts during the 2012 fall surveys. Both populations are small consisting of one family group each. As of the 2013 spring survey, 4 FSJ's were found on the Citrus Tract and 0 birds were found on the Richloam Tract. Audio surveys are done annually on the Two Mile Prairie, however, no sightings have been documented since 1998. FFS and FWC staffs are cooperating to band and monitor FSJs. Additional information is located in the Florida Scrub-Jay Five Year Management Plan for Withlacoochee State Forest (Draft).

c. Southeastern Bat

There are three historic maternity caves for the Southeastern Bat on the Citrus Tract of the WSF. All known and suspected WSF maternity caves and winter roost caves are monitored by FFS, FWC, and volunteer groups annually for activity. This data suggests that all maternity caves have been abandoned since 2002; however, there may be sporadic activity during the winter in certain caves.

d. Southeastern American Kestrel

FWC, with FFS assistance, has placed several nesting boxes for the Southeastern American Kestrel on the Citrus Tract. These boxes are surveyed and maintained annually. There is the possibility that more boxes may be added in the Croom Tract. At this time all systematic information gathered about this species is related to this box placement. Additional southeastern American Kestrel information may be collected in the future perhaps related to RCW surveys but this work is not systematic at this time.

e. Gopher Tortoises

Surveys for gopher tortoise burrows have been done by FFS and FWC staff intermittently as needed. The surveys are done in cooperation with FWC. Surveys have been done in proposed translocation sites, pine-straw raking areas and in an area where large die-off has occurred. Burrow activity status and locations are maintained in a GIS data base. One member of the WSF Ecology Unit is undertaking required training for FWC Gopher Tortoise Certification.

FFS may explore the possibility of relocating gopher tortoises to the WSF in an effort to assist other state agencies in protecting the species.

f. Florida Black Bear

FFS will continue to cooperate with FWC to implement FWC's state-wide Florida Black Bear Management Plan, with an emphasis on establishing and maintaining connectivity between unoccupied habitat on WSF and the existing Big Bend Bear Management Unit Chassahowitzka black bear sub-population.

g. Listed Plant Species

All known locations of listed or rare flora are GIS mapped. GIS data is maintained in the WSF rare flora shape-file and shared with FNAI. An optical estimate of population numbers and nearby exotic species is recorded for each GIS location when the most imperiled species (Federal listed, FNAI, G1) are encountered. This information is maintained in the rare flora shape-file table data.

Species located on WSF that are federally listed or have a FNAI Global Rank of G1 include *Justicia cooleyi*, *Nolina brittonia*, *Trichomanes punctatum* and *Asplenium verecundum*. All known populations of these species are visited annually while conducting nearby invasive exotic plant eradication work. During these field visits, any obvious threats are noted that might result from illegal activities, erosion, invasive plants or natural disturbances.

h. Other Rare Biota Surveys

Surveys are done as time and staffing allow. Exemplary plant communities with high potential for rare flora are surveyed for both invasive weeds and listed plants. Thirty-two different species of rare flora in 256 locations have been documented.

Most of the isolated WSF wetlands have received a cursory biological survey, with rare and significant plant and animal species observed and documented. Additional dip netting and frog call surveys has been conducted at several wetlands on the state forest.

During routine management activities, incidental sightings of rare animals and plants are GIS mapped by FFS staff. All rare species data is collected and sent to FNAI twice annually.

Limpkins and other listed wading birds are surveyed annually by FWC along the Withlacoochee River, which abuts Jumper Creek. All other bird species are noted on these surveys.

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 guidelines established by FFS's Forest Management Bureau.

E. Beaches and Dune Resources

No beaches or dunes occur on the WSF.

F. Mineral Resources

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

G. Unique Natural Features and Outstanding Native Landscapes

There are many natural features that are unique to the WSF, such as Lizzie Hart Sink, Dames Cave, Bat Cave, and several other unnamed caves and limestone outcrops located in the Citrus Tract. FFS is developing a Withlacoochee State Forest Terrestrial Cave Ecosystem Plan to address future cave management on WSF.

The Withlacoochee River, parts of which are considered an Outstanding Florida Water, meanders through portions of the Richloam, Croom, Jumper Creek, and Two Mile Prairie Tracts, with approximately 18 miles of shoreline. The Jumper Creek Tract contains the majority of Jumper Creek along with several soapstone islands and natural hardwood hammocks on limestone outcroppings.

There are many outstanding native landscapes within the boundaries of the WSF:

Citrus Tract – The Citrus Tract contains one of the largest contiguous stands of longleaf pine sandhills left in Florida. This area provides habitat for many species that are

indigenous to the longleaf pine / turkey oak / wiregrass community, including the endangered red-cockaded woodpecker. Lizzie Hart Sink contains a unique mixed hardwood hammock reminiscent of more northern states. Hundreds of acres of mixed hardwood forests are found on limestone outcroppings throughout the forest. These beautiful forests are now quite rare because they have either been mined for limestone or converted to farmland. Four hundred acres of sand pine scrub, a rare and rapidly disappearing natural community, are found in the north end of the tract.

Croom Tract – The Croom Tract also contains a large contiguous longleaf pine sandhill stand, which provides habitat for many rare species that are native to sandhills. Six miles of the Withlacoochee River either flow through or border the Croom Tract.

Homosassa Tract – The Homosassa Tract contains a portion of the Chassahowitzka Swamp. This swamp is the largest floodplain swamp south of the Suwannee River. Also contained in this tract are areas of undisturbed coastal marsh.

Jumper Creek Tract – The Jumper Creek Tract contains large areas of sawgrass prairies and bottomland hardwood hammocks and hydric hammocks.

Richloam Tract – Richloam contains scattered hardwood hammocks on limestone outcroppings that contain federally endangered plants, such as in Indianhouse Hammock. It is also known for its tens of thousands of acres of high quality cypress / flatwoods landscape and several very significant depression marshes. The Richloam Tract is part of the vast Green Swamp, which contains the headwaters of four major rivers. The Little Withlacoochee River, which empties into the Withlacoochee River just east of Silver Lake, has its headwaters in Richloam. The Tract provides an unbroken expanse of protected forest over 30 miles long from north to south.

Baird Unit – The Baird Unit is ecologically similar to Richloam. Besides adding to the vast Green Swamp region, it contains very significant hardwood hammocks and two large marshes.

PK Smith Parcel – This piece of property is unique in nature as it traverses the Withlacoochee River along its eastern border. The PK Smith parcel possesses upland sandhills that quickly roll into river swamp and some natural bluffs along the river. In the center of the property is a seasonally wet lake known as Rock Lake. In the south end of the property is a large river swamp that holds a natural rookery for endangered wood storks.

Annutteliga Hammock Unit – The Annutteliga Hammock Unit is comprised of three parcels; Lecanto Sandhills, Sugarmill Woods, and World Woods, which are located on the Brooksville Ridge physiographic feature. Elevation of the land ranges from 180 feet above sea level in the western portion to 30 feet above sea level in the eastern portion. Unique features of the tract include limestone outcroppings, and one of the largest preserved upland hardwood hammocks in Hernando County, referred to in *Hernando*

County's Big Hammock Region – Ecological and Historical Overview (Henningson Durham Richardson (DHR), August 1987).

H. Research Projects / Specimen Collection

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

All research projects to be considered on WSF must be considered in accordance with the guidelines stated in the State Forest Handbook. Any requests for research projects should be submitted in writing to the appropriate field staff for review and forwarding 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 WSF 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 in the past include:

- Baird Tract Hydrologic Restoration Project. FDEP. 2001-ongoing
- Atmospheric, Surface and Ground Water Data Collection. SWFWMD. Ongoing
- WSF Plant list and Herbarium Project. Naples Botanical Gardens. Ongoing
- Citrus Tract Sinkhole Survey. John C. Miller, Professional Geologist. Ongoing
- Terrestrial Cave Survey and Mapping. The Karst Conservancy. Ongoing
- Hernando County Contracted Wetland Monitoring. EcoHydrologix. Ongoing
- Cave Survey and Mapping Project. Hoffman Environmental Research Institute. Western Kentucky University. Ongoing
- Old World Climbing Fern Sentinel Sites. TNC, Lygodium Strategy. Ongoing
- Nuthatch Genetic Survey. Tall Timbers Research Station. 2011
- Swallowtail-kite Nest Monitoring and Banding. Avian Research and Conservation Institute. 2011
- Croom Cogon Grass Research. University of Florida. 2011
- The Florida Geological Survey State Wide Mapping Project, Citrus and Two-Mile Prairie Geological Cores. FDEP, Florida Geological Society. 2011
- WSF FR11 Moth Survey. DOACS, DPI. 2011
- WSF Rare Orchid Survey. Joel Wilder. 2010 – 2011
- Cave Surface Electrical Resistivity Study. University of South Florida. 2010 – 2011
- Croom and Citrus Bat Acoustic Survey. University of Florida. 2008 – 2010

- Giddens Cemetery Ground Penetrating Radar Project, Florida Public Archaeology Network, University of South Florida. 2010
- Legend Cave Drip Water Study. University of South Florida. 2009 – 2010
- Big Mouth Cave Fungus Sampling. United States Geological Survey. 2009
- Landscape Plant Research - Common Native Plant Seed & Cutting Collection. University of Florida, Institute of Food and Agricultural Sciences. 2009
- Eastern Indigo Snake (*Drymarchon couperi*) Research. Project Orianna Ltd. The Indigo Snake Conservation Initiative. 2009
- Invertebrate Sampling in Sandhill and Scrub Habitats on the Citrus and Croom Tracts. FNAI. 2008
- GIS-Based Inventory of Terrestrial Caves in West-Central Florida. University of South Florida. 2007
- Inventory and Management Plan for *Mesadenus lucayanus* A State Endangered Orchid in the WSF. FFS Plant Conservation Program. 2007
- Invertebrate Sampling in Trail 10 Cave. Lewis & Associates Cave, Karst & Groundwater Biological Consulting. 2008
- Withlacoochee Cave Arthropod Sampling. Carleton University, Canada. 2008
- WSF Butterfly Survey. FWC/FNAI. 2008
- Terrestrial Ecology Study. University of South Florida. 2008
- WSF *Matelea pubiflora* Research. Portland State University. 2006
- Silver Lake Campground Emerald Ash Borer Traps. USDA. Ongoing
- FWC Bat Cave Climate Data-Loggers. FWC. Ongoing

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, karst features such as caves and sinkholes, 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. Ground disturbing activities in known invasive weed infestations will also be avoided, or contamination mitigation means will be employed, to prevent the spread of invasive non-native species on the state forest. 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.

J. Solid Waste Management

There is a continuing problem of solid waste dumping on the State Forest. Indiscriminate dumping of garbage, old cars, building materials, etc., has created many unsightly and dangerous areas. Efforts to correct this problem are concentrated in two major areas: education and stricter law enforcement.

Education of the public will be accomplished by news releases to radio and television stations, warning letters to offenders, signs and presentations to civic clubs. A fully educated public should be less likely to litter the landscape.

FWC officers, Sheriff's offices, and local law enforcement will direct enforcement of state litter laws. Any persons apprehended dumping on the WSF will be prosecuted.

There are two former landfills and one active landfill on the WSF. A closed 46.1-acre Hernando County landfill is in the Croom Tract and a closed 60-acre Citrus County landfill is in the Citrus Tract. Citrus County operates an active 80-acre landfill on land acquired from the FFS. Any requests for new landfills or the expansion of existing sites on the State Forest will be denied.

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. WSF provides an extensive road system to allow for dispersed outdoor recreation (See Exhibit D). The FFS will continue to promote and encourage public access and recreational use by the public while conserving resources and practicing multiple-use management. Recreation activities available on WSF include camping, picnicking, hiking, horseback riding, off-road bicycling, canoeing, kayaking, fishing, boating, hunting, observing birds and other wildlife, educational activities, and off-road motorcycle and ATV use. WSF contains many trails that are included in the FFS's Trailwalker and Trailtrotter programs.

In the last ten year period, day use has been by far the highest recreational use on WSF accounting for over twice as many users as the other uses combined. During this time frame the low total user days was estimated at 300,827 in FY 2002 – 2003 and the high in FY 2006 – 2007 of 682,234 visitor days. Since FY 2006 – 2007, the trend is a slight decrease in recreational use from year to year. This trend has been seen in all categories tracked and is being attributed to the poor economic conditions of the past several years.

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. Exhibit E provides a list of facilities and improvements broken down for each tract, and the location of recreational facilities can be found in Exhibit N.

A. Existing Facilities

The WSF has a fully developed recreational program that serves the metro areas of Tampa and Orlando and beyond ever since the 1930s.

The WSF has facilities in the following categories: Recreation Areas (including campgrounds featuring primitive to full service facilities), Day Use Areas (featuring trailheads for hikers, bikers and equestrians), and one of the largest OHV areas in the Southeastern United States.

1. CITRUS TRACT

The Citrus Tract is bordered by several major and local roadways including US 98, State Road (SR) 44, County Roads 480, 490, 491, and 581. Regional access is provided by US 19 and the Suncoast Parkway. There are three primary access roads: Forest Road 10 from the end of the county maintained paved portion to Holder Mine Recreation Area; Forest Road 16 from County Road (CR) 581 to the entrance of Mutual Mine Campground; and Forest Road 13 from Stagecoach Road (CR 480) to the paved portion of the Tillis Hill Recreation Area. The Citrus Tract has 14 designated entrances.

There are three recreation areas with camping available on the Citrus Tract: Tillis Hill, Holder Mine, and Mutual Mine Recreation Areas. User fees are collected for day use activities and camping through self-service pay stations and park rangers. Information kiosks provide recreational trail maps and brochures. Additional kiosks provide user specific information as needed.

The Holder Mine Recreation area has 27 campsites with electricity, water, picnic tables and fire rings. Restrooms with showers, picnic pavilion, and dump station are available at this location. Holder Mine Recreation Hunt Camp is open for camping during the archery, gun, and small game seasons. There are 25.9 miles of hiking and nature trails accessible from the Holder Mine Recreation Area.

The Mutual Mine Recreation Area has 13 non-electric campsites with water, picnic tables and fire rings. Restrooms without showers are available at this site. Campsites are located next to a former mine pit. A separate youth group area is located nearby. There are 36.3 miles of hiking and nature trails accessible from the Mutual Mine Recreation Area.

The Tillis Hill Recreation Area has 37 campsites with electricity, water, picnic tables and fire rings. Restrooms with showers and a dump station are available at this location. This location also has dining hall/pavilion/BBQ facility, 28 horse stalls, and a communal corral. Equestrian trailheads are located at Tillis Hill Recreation Area and Oak Park North on the Annutteliga Hammock Unit of the Citrus Tract.

The Florida Forever Back Country Horsemen (FFBCH), with assistance from forest staff, maintains 80+ miles of designated loop and connector equestrian trails on the Citrus Tract.

The Florida Trail Association (FTA), also with forest staff assistance, maintains over 46 miles of hiking trails. Four primitive camp zones are available along the hiking trails. WSF is included in The Great Florida Birding Trail. This program is a project of the FWC and sites are selected for their excellent bird watching or bird education opportunities. Citrus Tract provides a self-guided auto trail highlighting the red-cockaded woodpecker. All open named forest roads permit hiking.

Dispersed recreation is encouraged from the Cowpen, Oak Park North, Oak Park South, and Annutteliga Hammock Trailhead parking areas. Annutteliga Hammock Trailhead provides a 4 mile hiking trail. The trailheads provide access to hunting, hiking, bicycling and equestrian trails. Information kiosks provide recreational trail maps and brochures.

a. Whispering Pines Park

Whispering Pines Park was created in 1965 through a sublease to the City of Inverness, to use for the development of recreational opportunities (Exhibit N). The management of the entire complex is accomplished by the City of Inverness Department of Parks & Recreation. City of Inverness is responsible for establishment and operation of recreational activities, facilities and interpretive/educational programs. Florida Forest Service, WFS is responsible for cultural, invasive species, silvicultural, and wildlife activities. A ten year resource management plan was approved in December, 2012.

2. CROOM TRACT

The Croom Tract is bordered by several major and local roadways including I-75, SR 50, County Roads 476, 673, and 656. The paved Withlacoochee State Trail, which runs more or less north-south through the eastern portion of the tract, includes a trailhead for forest access. Although access is available to recreational users through 11 designated entrances, primary access is offered on Nobleton Road, Croom Road and Croom-Rital Road. All open named forest roads permit equestrian, hiking and bicycle use.

The Withlacoochee River reaches its widest expanse on the western portion of the Croom Tract and forms Silver Lake, a prime recreation spot. The Silver Lake Recreation Complex is located on the northern end of Silver Lake. The Silver Lake Recreation Complex has a picnic day-use area, pavilion, and a recently renovated boat ramp. The Complex has three separate overnight campgrounds: Silver Lake Campground, Cypress Glen Campground, and the Crooked River Campground. The Silver Lake Campground has 23 campsites with electricity, water, a picnic table, and a fire ring. Restrooms and showers are available, and a dump station is located in the campground. A canoe and small boat launch is available at this site. The Cypress Glen Campground has 34 campsites with electricity, water, a picnic table, and a fire ring, plus restrooms and showers. The Crooked River Campground has 26 non-electric campsites (tent camping only) with a picnic table and fire ring, a canoe / kayak launch, as well as restrooms and showers.

Primitive camp zones are located along the hiking and bicycle trails. The River Junction Campground is located at the southern end of Silver Lake in Sumter County, near the confluence with the Little Withlacoochee River. The River Junction Campground has 20 non-electric campsites, bathhouse, dump station and boat ramp. Private vendors rent canoes and sell fishing tackle. FFS sells commercial vendor permits to the canoe and kayak vendors who use the forest to gain access to the river.

Additional recreation activities are available along the Withlacoochee River at the Iron Bridge Day Use Area and further downriver at the Hog Island Campground. The

Iron Bridge Day Use Area features a picnic area, canoe launch and hiking trail. Hog Island Campground has a canoe and boat launch, and a campsite with water is available near the river for campers arriving by canoe. Amenities include 20 non-electric campsites with water, bathhouse, dump station, picnic table and fire ring. A Youth Group Area is available by reservation. Hiking and equestrian trails are available. The Hog Island Nature Trail is part of the Trailwalker Program and is officially certified as part of the Florida National Scenic Trail (FNST).

Tucker Hill Trailhead provides the primary access for equestrian, hiking and off-road bicycle use. Information kiosks provide recreational trail maps and brochures for bicycle, equestrian and hiking trails. Picnic areas and restrooms are available at the trailhead. Potable water is provided at the parking area of the Tucker Hill Trailhead. User fees are collected for day use activities through self-service pay stations and park rangers.

Dispersed recreation is encouraged from the Twin Pond Hunt Camp, East Croom Hunt Camp Trailhead and Smith Prairie Trailhead parking areas. The trailheads provide access to hunting, hiking, biking, and equestrian trails. Information kiosks provide recreational trail maps and brochures for bicycle, equestrian, and hiking trails.

Located off of Croom Rital Road is the PK Smith Ranch Unit. The River Trail meanders along the edge of the Ranch. This hiking trail is accessible at the parking area for the Withlacoochee State Trail at SR 50 and Croom Rital Road. The 4.8 mile trail follows the river to the Crooked River Campground at the Silver Lake Recreation Complex. The Windmill Loop trail adds approximately one (1) more mile to this hike along the main trail. The Crooked River Loop adds approximately two (2) more miles in the Silver Lake Boardwalk system, for a total of approximately 7.8 miles. Portions of five hiking trails are designated as a Great Florida Birding Trail. The Florida Trail Association (FTA) maintains, with forest staff assistance, over 24 miles of hiking trails. Hiking trails are accessed at Tucker Hill Trailhead and Silver Lake Recreation Area (30 miles). Trails consist of loops, high water and low water side trails.

Along with forest staff assistance, the Nature Coast Back Country Horsemen (NCBCH) provides maintenance of 44+ miles of designated loop and connector equestrian trails. Equestrian trailheads are located at Tucker Hill Day Use Area and Twin Pond Hunt Camp. WSF is presently evaluating the closure of the trailhead at Twin Pond and relocating it to the northwest corner of the present Seed Orchard located at the corner of Sault Road and Forest Road 7.

Off-road bicycle trails are allowed on 45 miles of designated loop and connector trails. Primary trailhead is located at Tucker Hill Day Use Area with two additional trailheads located along Croom Road at the intersection with Forest Road 7 and at the intersection with the Withlacoochee State Trail.

Twin Pond Hunt Camp and East Croom Hunt Camp are open for camping during the archery, gun, and small game seasons.

a. Rock Lake Lodge

This facility originally owned by P.K. Smith was a rustic lodge used on his private hunt preserve. People traveled from all over the country to hunt upland game birds on the premises. It is believed other game animals such as deer, hog and turkey were also taken. The property and buildings were acquired by the FFS, wherein the main building was converted into office space shared by FFS staff and FWC employees. The main room is used for training and meetings.

b. Croom Motorcycle Area

In 1973, the Florida Department of Agriculture dedicated the Croom Motorcycle Area, one of the first public areas in the United States designated expressly for the use of off-road vehicles. This area is recognized as one of the finest off-road facilities in the state for forest riding. Portion of its 2,600 acres are located on the old Buttgenbach mine, a phosphate mine from the 1890s named after the Belgian engineer who staked it out, and includes a large borrow pit.

With its growth in popularity, the Croom Motorcycle Area (CMA) has high maintenance needs. During the past ten years, most of the 3.5 mile entrance road has been paved. Entrance fees for one day or annual permits are sold at a gatehouse located near the I-75 / SR 50 interchange. The area is currently the highest recreational revenue generator and sustains the highest density of use and total visits.

Once a year, the Croom Enduro Trail attracts 200 motorcyclists to run a 60 mile course through the forest. Environmental impacts from this event are reviewed annually, with steps taken to ensure compatibility with resource protection and other trail users.

3. HEADQUARTERS TRACT

The Headquarters Tract is accessed from US 41 and CR 476. The tract includes the historic McKethan Lake Day Use Area, Colonel Robins Recreation Area, WSF Visitor Center, the Withlacoochee Forestry Center Administrative Complex and the Withlacoochee Training Center (WTC).

McKethan Lake Day Use Area, including its oldest pavilion, was built by the Works Progress Administration (WPA) in the late 1930s as part of the Withlacoochee Land Use Project. Of special interest are the remains near the entrance of a stone fireplace / chimney from one of the WPA-era buildings. The current site offers three pavilions, picnic tables, non-motorized boating and a restroom facility. User fees are collected for day use activities through self-service pay stations and by park rangers. Information kiosks provide recreational trail maps and brochures. Additional kiosks provide user specific information as needed. The McKethan Lake Nature Trail is 1.9 miles and is included in the Trailwalker program. A section of the Great Florida Birding Trail is also located at McKethan Lake.

The Colonel Robins Recreation Area is a 110 acre tract that is located by US 41 and CR 481. Colonel Robins Recreation Area offers a nature trail and picnic tables. This area is presently closed and being evaluated for recreational improvements as funds are available.

a. Administrative Complex

The Forestry Center Administrative Complex is used for the day-to-day management of the state forest as well as housing FFS emergency operations center for the five-county forestry center. Of great historical interest are the WPA-constructed late 1930s structures, including the office quadrangle building, the original steel water tower, a shop building and two original staff residences – one of which now serves as the WSF Visitor Center.

b. Withlacoochee Training Center

The Withlacoochee Training Center is also located on the Headquarters Tract of the Withlacoochee Forestry Center. Built originally in the 1970s to provide environmental education opportunities for school children, this is now a full time professional development/training center, offering classes in wildland firefighting, prescribed burning, incident management, and natural resource management. This training is available to other agency personnel and members of the public.

4. HOMOSASSA TRACT

The Homosassa Tract is bordered by US Highway 19 and the Chassahowitzka Riverine Swamp. There are no recreation fixed facilities on the Homosassa Tract; therefore trailheads provide parking for dispersed recreational activities. Information kiosks provide recreational trail maps and brochures. All forest roads are open for hiking and off-road bicycles. Forest road signage guides recreation users throughout the tract.

Burnt Bridge Trailhead is accessible from W. Burnt Bridge Road. Burnt Bridge Trailhead provides pedestrian and bicycle rider access to Rooks Trail and the adjacent SWFWMD property. Rooks Trail (2.7 miles) is a designated Great Florida Birding Trail. Hog Pond Trailhead is accessible from a small parking / trailhead area off US 19.

5. JUMPER CREEK TRACT

The Jumper Creek Tract is bordered by CR 416 and the Withlacoochee River. Jumper Creek runs through the center of the tract and flows north into the Withlacoochee River. Jumper Creek's main recreation uses are hunting and hiking. There are no recreation fixed facilities on the Jumper Creek Tract therefore trailheads provide parking for dispersed recreational activities. Information kiosks provide recreational trail maps and brochures.

There is one road into the tract, Kettle Island Road, with a parking and day use area at its terminus. Hiking and off-road bicycle trails are accessible from Kettle Island Trailhead. Otter Slough Trailhead, located on CR 416, was recently developed to provide additional access onto the tract. Hiking and birding trails are accessible from Otter Slough Trailhead.

Primitive camping is allowed year round at Shell Island which is accessible from the Withlacoochee River by boat only.

6. RICHLOAM TRACT

The Richloam Tract is accessed from SR 50, SR 471, CR 575, and the James A. Van Fleet Trail. All open forest roads permit hiking. Information kiosks provide recreational trail maps and brochures. Additional kiosks provide user specific information as needed.

The Richloam Tract offers miles of multi-use trails for hikers and off-road bicyclists. Little River Ranch Trailhead provides an 8+ miles of multi-use trails including equestrian use which is included in the Trailtrotter Program. Hiking trails are accessed at Richloam Fire Tower Trailhead (34.3 miles) and Revels Pond Day Use Area and Ridge Manor Trailhead (5.2 miles).

The Florida Trail Association (FTA) maintains, with forest staff assistance, over 31 miles of hiking trails. The FTA has developed 34.3 miles of trail on the west side of SR 471, including three primitive camping zones. The Richloam Fire Tower Trailhead gives access to all loops, including the FFS Trailwalker featured South Loop. The North Loop makes a connection through to the Little River Ranch Trailhead's multi-use trail system. The Florida Trail Riders hold the yearly Spring Enduro on this tract.

Revels Pond Day Use Area located off SR 471 provides picnicking and fishing. The Cedar Hammock Lodge, accessible from SR 50, is available for meetings and special events. Ladoochee Park Area provides a canoe and kayak launch for the Withlacoochee River. This day use area, while traditionally catering to the local residents of this rural community associated with the historic Cummer Sawmill, includes the remnants of a WPA-era pavilion and fireplace dating to the 1930s.

There are 10 popular hunt camps in Richloam, which include Bay Lake, Cow Camp, East Tower, Flag Ford, Meg's Hole, McKinney Sink, Pless Place, Powder House, Raulerson House, and South Loop. Hunt camps are primitive sites; however FFS leases port-o-lets during hunting season. Hunt camps require a reservation and fee. Three primitive camp zones are available for hikers along the designated hiking trails.

7. TWO MILE PRAIRIE TRACT

The Two Mile Prairie Tract is bordered by several local roadways including SR 200, CR 491, and CR 39. Hiking is allowed on forest roads and fire lines. Dispersed recreation is encouraged from the Johnson Pond and Ox-bow Trailhead parking areas.

A primitive camp zone is available by permit for paddlers and hikers visiting the tract via the Withlacoochee River or Ox Bow Trail. The 0.5 mile Ox-bow trail allows access to the Withlacoochee River. Johnson Pond Trailhead provides access to picnicking, hiking, birding and fishing. An observation deck and small pavilion are located at Johnson Pond. The Johnson Pond Trail (2.6 miles) is included in the Great Florida Birding Trail Program. Ox-bow Trailhead provides access to primitive camping, fishing and hiking. The hiking trail accesses two day use areas on the bank of the Withlacoochee River.

In addition to these walk-in trailheads, Bear Head Hammock Trailhead provides a restroom, camping, hiking and picnicking. Equestrian trails are accessed from Bear Head Hammock. Horseback riding is allowed on 8.3 miles of designated loop trails. Two wet-weather by-pass connector trails were recently added to avoid areas of seasonal high water. Three water troughs are located along the trail. Three campsites are available by reservation. Each of these campsites is equipped with a fire ring, picnic table, trash receptacle and covered horse stall. User fees are collected for Bear Head Hammock camping through a self-service pay station. Information kiosks provide recreational trail maps and brochures. Additional kiosks provide user specific information as needed.

B. Planned Facilities

Facilities have been improved over the past ten years in all recreational program areas. The 5-year recreation plan recommends that these improvements continue to be carried out as time, staffing and funding allows. Several improvements / additions to WSF recreation facilities and trails are being considered for the next ten-year period. While such changes would benefit current recreation users and/or serve to increase opportunities for increasing the recreation use of the forest (increased carrying capacity), it should be noted that each of the following planned changes require some level of increased staff time, operational expense, and/or fixed capital budget authority.

1. Dames Cave Complex

A site assessment of Dames Cave Complex to determine future day-use opportunities will be conducted by WSF staff. The Karst Conservancy and FWC will be asked to participate in the assessment process and plan development.

2. Recreation Areas

There continue to be opportunities to identify improvements necessary to maintaining the existing infrastructure, achieve greater user satisfaction, and/or enhance revenue collections.

a. Croom Motorcycle Area

Improvements can be made in the Croom Motorcycle Area to increase rider satisfaction and generate more revenue in this very popular facility. Some ideas under consideration are technical riding areas. These areas could be developed for the more accomplished rider and require an additional fee for use.

b. Richloam Tract

The Lacochee Park area near the community of Lacochee will be a focus for improvement/development during this planning period. Community involvement will be utilized in the planning process. Parking, picnicking, trailhead and grills will be considered.

Expansion of existing hunt camps and/or adding a hunt camp on the old STOP Camp site will be considered and evaluated. This new site would provide a hunt camp in the southwest corner of Richloam.

c. Good Neighbor Trail on Croom Tract

Currently Hernando County is in the process of applying for a sublease agreement for the right-of-way the Good Neighbor Trail will travel on, which is an old rail bed located parallel to Trail 10 in the Croom Tract. They are also in the process of surveying and designing the project through the forest. Issues to be worked out are forest trail and road crossings, location of parking area and relocation of gopher tortoises. Their sub-lease agreement will be for a width of 120 feet for a length of 4.17 miles for an approximate acreage of 60.6 acres. The trail will be paved.

C. Hunter Access

Hunting and fishing is regulated by FWC. Hunting season dates, limits, and methods are established annually by FWC, in consultation with FFS. Currently hunting is allowed on the Baird Unit Wildlife Management Area (WMA), Citrus WMA, Croom WMA, Homosassa WMA, Jumper Creek WMA, and Richloam WMA; a total of 155,852 acres. Participation in game hunts is regulated by FWC. Check stations are located on each WMA and staffed during some hunts. The check station site has electric and water, information kiosks, and a skinning rack.

VI. Habitat Restoration & Management Practices

A. Prescribed Fire

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

The annual forest prescribed burning program produces multiple benefits. The purposes of prescribed burning on WSF are to facilitate timber management operations and enhance wildlife and listed species habitat, to decrease fuel loading, consequently enhancing public safety, 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 WSF, 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 WSF 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 WSF are estimated to have occupied approximately 115,973 acres, and to have burned at approximately 1 - 20 year intervals. Refer to Table 5 (“Vegetation Types Found on WSF”) for information on the desired fire return intervals for each natural community type occurring on WSF. Past land uses have left some of these historically fire dependent communities in a condition unable to carry prescribed fire. Information on the fire history over the past ten years, including burning goals and accomplishments is summarized in the WSF Fire History graph found in Exhibit O. Based on weather, current conditions, and management objectives, WSF will plan to prescribe burn a minimum of 30,000 acres annually. Restoration of these areas by removal of the off-site species and reforestation will increase prescribed burn acreage goals over time. Meeting prescribed fire goals will be largely dependent on weather conditions, personnel, and statewide emergency situations such as wildfires, hurricanes and other natural disaster response and relief.

Pre-suppression 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. Timber harvesting for the purposes of generating revenue, improving stand viability, 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 WSF:

- 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 old growth characteristics that yields sustainable economic, ecological, and social benefits.

2. Silvicultural Operations

Silvicultural operations on WSF 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 the prescribed fire is not suitable, mechanical or chemical 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.

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

3. Timber Inventory Control

The purpose of a forest inventory is to provide FFS resource managers with information and tools for short and long range resource management and planning. Within the State Forest System, the annual harvest volume will not exceed the annual growth. Ten percent of WSF forest will be re-inventoried annually to provide an accurate estimation of the standing timber and to ensure that stands will be managed sustainably.

4. Timber Sales

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

5. Withlacoochee Seed Orchard

The main seed orchard was established in the early 1960's and currently has 254 of 320 acres in seed production. Historically, the intent of the tree improvement program has been to select superior pine trees throughout the range of each species and grow them on state and private lands to produce superior quality seed for tree seedling nurseries. Currently, the Cooperative Forest Genetics Research Program at the University of Florida coordinates this program in partnership with the Florida Forest Service.

To maintain a viable seed-producing orchard the Florida Forest Service has established progeny test plots with seedlings from each clone in the orchards and monitored the growth and insect / disease resistance. From these tests selections for a

second-generation orchard could be chosen. Plans are now in the works to begin making selections for a new orchard to be established within the next five years. Any new seed orchard planted would be within the boundary of the existing seed orchard.

The current longleaf pine seedling orchard is not from local seed sources, but a progeny test from seed collected all over Florida. The Florida Forest Service is collecting seed from trees on local sites.

Sand Pine seed continues to be needed. The Florida Forest Service has both Choctawhatchee and Ocala varieties available.

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 FFS’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. Surveys are ongoing during the course of field work by FFS staff, and detection of populations of non-native invasive species are noted and prioritized for appropriate control action. Known occurrences of non-native invasive species are prioritized and treated as funding and personnel allow, with the intention of ultimately eradicating such pests from State Forest property. These occurrences are recorded in the GIS database and updated as new plants are discovered (See Exhibit P). WSF staff members send the invasive species GIS data to FNAI biannually. FNAI records this data on the Florida Exotic Pest Plant Council’s Early Detection & Distribution (EDD) mapping program. Table 4 below provides a summary of a wide range of invasive species occurring on WSF for which efforts are being made to treat and monitor as time and funding allow.

Table 4. Non-Native Invasive Plant Species Occurring on WSF

Scientific Name	Common Name	Management Effect	
		Acres	Status
<i>Citrus aurantium</i>	Sour Orange*	4.5	Increasing
<i>Cortaderia selloana</i>	Pampas Grass*	0.3	Decreasing
<i>Crotolaria spectabilis</i>	Showy Rattlebox*	4.1	Decreasing
<i>Ficus pumila</i>	Creeping Fig*	0.68	Decreasing
<i>Morus alba</i>	White Mulberry*	0.1	Decreasing
FLEPPC Category I			
<i>Abrus precatorius</i>	Rosary Pea	0.7	Increasing
<i>Albizia julibrissin</i>	Mimosa	26.09	Decreasing

Scientific Name	Common Name	Management Effect	
		Acres	Status
<i>Ardisia crenata</i>	Coral Ardisia	306.08	Decreasing
<i>Asparagus aethiopicus</i>	Asparagus Fern	0.1	Decreasing
<i>Cinnamomum camphora</i>	Camphor	287	Unknown
<i>Colocasia esculenta</i>	Wild Taro	3.2	Decreasing
<i>Dioscorea alata</i>	Winged Yam, Wild Yam	2.15	Unknown
<i>Dioscorea bulbifera</i>	Air Potato	30.43	Decreasing
<i>Eichhornia crassipes</i>	Water Hyacinth	0.6	Stable
<i>Hymenachne amplexicaulis</i>	West Indian Marsh Grass	0.2	Increasing
<i>Imperata cylindrica</i>	Cogon Grass	690.14	Decreasing
<i>Lantana camara</i>	Lantana	0.5	Stable
<i>Lygodium japonicum</i>	Japanese Climbing Fern	41.23	Unknown
<i>Lygodium microphyllum</i>	Old World Climbing Fern	3.6	Unknown
<i>Nandina domestica</i>	Heavenly Bamboo	0.3	Unknown
<i>Nephrolepis cordifolia</i>	Sword Fern	19.77	Decreasing
<i>Paederia foetida</i>	Skunk Vine	12.7	Increasing
<i>Panicum repens</i>	Torpedo Grass	0.9	Increasing
<i>Pueraria montana</i>	Kudzu	0.3	Decreasing
<i>Rhynchelytrum repens</i>	Natal Grass	0.4	Increasing
<i>Sapium sebiferum</i>	Chinese Tallow	60.39	Decreasing
<i>Schinus terebinthifolius</i>	Brazilian Pepper	0.1	Unknown
<i>Solanum viarum</i>	Tropical Soda apple	123.68	Decreasing
<i>Tradescantia fluminensis</i>	Small-leaf spiderwort	15.00	Increasing
FLEPPC Category II			
<i>Broussonetia papyrifera</i>	Paper Mulberry	0.3	Decreasing
<i>Melia azederach</i>	Chinaberry	4.6	Decreasing
<i>Panicum maximum</i>	Guinea Grass	0.1	Unknown
<i>Phyllostachys spp.</i>	Bamboo	0.1	Decreasing
<i>Pteris vittata</i>	Chinese Brake Fern	1.1	Unknown
<i>Sphagneticola trilobata</i>	Wedelia, Creeping Oxeye	0.9	Stable

Scientific Name	Common Name	Management Effect	
		Acres	Status
<i>Xanthosoma sagittifolium</i>	Elephant Ear	0.5	Decreasing

FLEPPC = Florida Exotic Pest Plant Council

* Non-native, invasive species invading natural areas and displacing native species on WSF. Defined under the same criteria used by the Florida Pest Plant Council to define Category 1 and Category 2 invasive plants, but these plants have not yet been added to the lists. WSF will aggressively treat them mechanically and with herbicides.

The most problematic of the non-native invasive plant species on WSF, representing the highest level of concern due to the threat to natural communities and / or the difficulty of control, include the following invasive plants: Old World climbing fern, cogon grass, and coral ardisia. A brief summary of population status and management needs is provided below.

Old World Climbing Fern (*Lygodium microphyllum*) is a highly aggressive non-native invasive species that is quickly working its way north from south Florida with WSF located approximately in the apex of the expansion. Infestations of Old World Climbing Fern (OWCF) have been found on the Richloam Tract. All OWCF infestations will be given priority for chemical treatment. OWCF locations (and treatment data) are reported to the Central Florida Lygodium Strategy (CFLS) which was developed by The Nature Conservancy to partner with public and private land agencies to prevent the northern spread of OWCF.

Cogon Grass (*Imperata cylindrical*) is a highly aggressive non-native perennial grass that has become established throughout Florida and much of the Southeastern U.S. It is a rhizomatous grass and established stands can produce over 3 tons of rhizomes per acre. Infestations have been GIS mapped on all WSF tracts with over 690 acres documented. Treatment of cogon grass is the main focus of the WSF weed control program. Eradication of established infestations requires multiple herbicide treatments due to the persistent and extensive rhizomes that can penetrate 4 feet into the soil. FWC and Withlacoochee Regional Invasive Plant working group (WRIP) grants have been obtained on an almost annual basis for re-treatments of infestations that have received prior herbicide applications. The vast majority of control work is done in-house due to the amount of acreage infested and the need for multiple herbicide treatments. Cogon grass infestations can occupy large areas in the middle of blocks creating challenging situations where access is difficult and large quantities of herbicide are needed. The WSF exotic control team utilizes a Southwest Florida Water Management District surplused Polaris 6-wheeler and a grant purchased E-Z Go to treat the large cogon grass patches that occur far from roads. Many infestations have become established by windblown seed, but the main mode of spread is by movement of rhizomes. Painted borders are used in timber sales to prevent the spread of cogon grass. The WSF Environmental Analysis Process is used to alert staff of cogon grass locations to prevent soil disturbance in infested areas or to direct staff to clean equipment when soil disturbance cannot be avoided.

Coral Ardisia (*Ardisia crenata*) is a Category I non-native invasive species that has invaded the WSF mesic hammocks where it has become a major threat to rare flora such as the federally endangered *Justicia cooleyi*. Over 300 acres of coral ardisia have been GIS-mapped on WSF. In-house control methods occur annually during the winter months when it would not be effective to treat other non-native invasive species. This allows the WSF weed control staff to continue invasive plant eradication work year round.

WSF annually seeks and consistently obtains funding from FWC Invasive Plant Management Section for contracted herbicide treatments of non-native invasive plants and for herbicides needed for in-house treatments. The FFS Forest Health Section has also provided grant funding for one OPS position for invasive weed eradication.

Adjacent landowners who are known to have these species on their property will be approached in an effort to cooperate on control measures as time and staffing allow. The FFS Hold Harmless Agreement document will be signed by private land owners when the FFS conducts non-native invasive control measures on private lands. To further address invasive species issues near state forests boundaries the WSF participates in two Cooperative Invasive Species Management Areas (CISMAs) identified as Green Swamp and Nature Coast. CISMAs are an alliance of stakeholders addressing invasive species management in defined geographic regions. Florida Invasive Species Partnership developed the concept of CISMAs in Florida. There are 18 CISMA's in the state with the common goal of developing local partnerships among public land management agencies, private individuals, tribes, and various interested groups to manage invasive species in a defined area.

FFS will enlist support from FWC in the effort to control non-native, invasive animals. If species of non-native, invasive animals are observed on WSF the sighting will be reported to FNAI and FWC will be notified.

An animal species of concern on WSF is the feral hog (*Sus scrofa*). These animals have high reproductive rates, and when populations reach high densities, feral hogs can significantly degrade natural communities through foraging activity (rooting). The FFS will consult with other regional natural resource managing agencies and private landowners to coordinate feral hog control measures as necessary. Hog populations are controlled by hunts during the wild hog-dog hunt season, archery, small game, general gun, muzzle-loading gun, and archery / muzzle-loading gun seasons. FFS uses trapping as another measure on the forest to augment ongoing feral hog control efforts and to further reduce the natural community damage and degradation caused by this species. FWC has issued an administrative feral hog control trapping permit to FFS for all state forests. Through this administrative permit FFS can issue trapping permits to individuals for the removal of feral hogs on tracts or specific areas being impacted.

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 FFS'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.

Many invasive species such as cogon grass, Japanese climbing fern, and air-potato can be inadvertently spread by ground disturbing activities. FFS review of routine forest management activities and ground disturbance activities will consider the known locations of non-native invasive plants. When possible, efforts will be made to prevent the spread of invasive species by promoting activities such as cleaning of contaminated equipment and establishing buffers around cogon grass infestations in timber harvests.

D. Insects, Disease and Forest Health

Currently, there are no insect problems on WSF, as related to pine species, although the WSF has a history of southern pine and Ips beetle. During 2001, all counties experienced its first recorded outbreak of southern pine beetle. Approximately 5,000 acres of timber were clearcut or salvaged on WSF. Southern pine beetle surveys will continue to be conducted annually. In the event of an outbreak of southern pine beetle, consultation with the Forest Management Bureau's Forest Health Section will be sought to formulate an appropriate and effective response.

Red Bay trees are being impacted by Laurel Wilt.

Laurel Wilt (formerly known as Redbay Wilt), is caused by a fungus (*Raffaelea lauricola*) that is introduced into host trees by a non-native insect, the red bay ambrosia beetle (*Xyleborus glabratus*). This disease primarily affects red bay (*Persea borbonia*). Other trees in the laurel family (*Lauraceae*) are also susceptible, including sassafras (*Sassafras albidum*), pondspice, and avocado (*Persea americana*). Laurel Wilt has been observed on the Citrus, Croom, Headquarters, and Homosassa Tracts and is expected to appear shortly in the other WSF Tracts (Jumper Creek and Richloam). At this time, there are no applicable control methods for the forest setting, however, forest staff has inoculated 25 trees on the Headquarters Tract and will continue to assess results. An informational campaign has begun utilizing brochures at the kiosks to aid in limiting the spread of red bay firewood.

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 Citrus, Hernando, Lake, Pasco, and Sumter Counties will be notified of this designation.

As a result, prior to conducting any arthropod control activities on WSF, 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 WSF. 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 on this state forest. The opportunities for outsourcing land management work include or are anticipated to include:

- *Site Preparation* – Private equipment/forestry operation companies are hired routinely to site-prepare lands slated for restoration / reforestation needs.
- *Reforestation* – Private equipment/forestry operation companies have been hired to machine and hand plant, bare root and tubeling seedlings on land managed by the FFS.
- *Road Repair* – Road improvement materials delivery and road improvement work has been and will continue to be contracted as needed for upgrade and road repair projects.
- *Non-native Invasive Plant Control* –The use of contractors has been very effective in the treatment of non-native invasive plant species. Contractors will be considered for future treatment needs.
- *Boundary Maintenance* – Contractors have been used to establish permanent perimeter lines, construct boundary fencing, and mark boundaries. Due to the vast number of miles of perimeter boundary to maintain, future contractor assistance may be needed.
- *Restoration* – Contractors have been used for roller chopping in various habitats for timber stand improvement. There is plenty of potential for additional contractor assistance for future restoration projects.

VII. Proposed Management Activities for Natural Communities

In 2006, FNAI completed an inventory and natural community mapping project on 108,000 acres of WSF. Citrus Tract acreage was not included in the FNAI inventory. WSF staff has created a historic natural community type map utilizing staff knowledge, past field data and assistance from FNAI (Exhibit R). Current community type maps have been created utilizing WSF Forest Inventory data and FNAI's "Guide to the Natural Communities of Florida" 2010 Edition (Exhibit Q). 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 utilize a continuous forest wide assessment of the forest structure and vegetative composition, including fuel loading, timber densities and groundcover to determine the need for pre-burn treatments and subsequent burn prescriptions necessary for effective prescribe fire treatments. Strategies may include thinning of overly dense pine stands, mowing or chopping in areas of heavy fuel buildup and/or application of cool dormant season fires. The

results of these efforts will be monitored and more refined and detailed restoration plans will be made. Fire return intervals are included here 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. **Historical and Current mapped acreage is calculated from GIS data.**

Table 5. Vegetation Types Found on WSF

Vegetation Types	Acres Mapped (Historical)	Acres Mapped (Current)	Acres Mapped (Current Pine Plantation)	Historical Burn Interval (Years)
Sandhill	72,800	67,227	7,644	1 - 3
Mesic Flatwoods	35,022	32,774	16,356	2 - 4
Basin Swamp	17,475	19,817	0	2 - 4
Mesic Hammock	8,704	3,971	30	varies
Hydric Hammock	8,200	4,388	0	N/A
Basin Marsh	7,720	7,010	0	1 - 10
Dome Swamp	5,375	5,901	0	2 - 4
Floodplain Swamp	4,030	7,783	0	100 - 150
Depression Marsh	1,748	412	0	1 - 8
Wet Prairie	1,209	88	0	2 - 3
Scrub	1,054	482	19	5 - 20
Scrubby Flatwoods	775	450	103	8 - 15
Estuarine Tidal Marsh	725	N/A	0	N/A
Upland Hardwood Forest	432	3,204	0	varies
Wet Flatwoods	0	153	0	2 - 5
Xeric Hammock	0	151	0	varies
Sandhill Upland Lake	0	113	0	N/A
Salt Marsh	N/A	914	0	varies
Blackwater Stream	**	**	0	N/A
Estuarine Tidal Creek	**	**	0	N/A
Terrestrial Cave	**	**	0	N/A
Sandhill*			1,684.08	
Scrubby Flatwoods*			73.75	

Mesic Flatwoods*			738.78	
Other (See Table 6, Altered Landcover Type)	N/A	10,431		

* Pine plantation that lacks the structure, plant composition, or function of the historic natural community type.

** Acreage combined with adjacent community.

Table 6. Altered Landcover Types Found on WSF

Altered Landcover Type*	Current Acres Mapped
Roads	4,127
Developed	1,620
Pasture – semi-improved	1,012
Pasture - improved	881
Clearing	151
Utility Corridor	129
Impoundment/Artificial Pond	14

* Protocol as described in Exhibit 2 of FNAI’s “Guide to the Natural Communities of Florida”, 2010 Edition.

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 WSF:

A. Sandhill

The following, utilizing WSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Sandhill is composed of an uneven-aged stand of longleaf pines with a sparse midstory of deciduous oaks and a moderate to dense groundcover of grasses, herbs, and low shrubs. Hardwoods include turkey oak (*Quercus laevis*), blue jack oak (*Quercus incana*), sand post oak (*Quercus stellata*), sand live oak, and persimmon (*Diospyros virginiana*). Maintenance stocking of longleaf pine is 50 to 80 square feet per acre with at least three age classes and some large trees greater than 16 inches in diameter at breast height. In extremely well-drained sites, basal area can be as low as 20 square feet per acre or less.

The groundcover is a grassy and herbaceous layer that is capable of carrying fire throughout the sandhill under a wide variety of burning conditions. Abundant grass species include wiregrass, pinewoods dropseed (*Sporobolus junceus*), and lopsided Indian grass. Midstory hardwood trees and low shrubs should be sparse with little or no stocking of trees, not considered sandhill; species such as laurel oak, Chapman’s oak,

sand pine, or non-native invasives. Healthy and sustainable populations of indicator animal species such as gopher tortoise, gopher frog, Sherman's fox squirrel, Bachman's sparrow, and red-cockaded woodpecker (*Picoides borealis*) should be found on the large contiguous tracts of the Citrus and Croom. If these species are not present, habitat conditions are not the cause of their absence. Fire is a dominant environmental factor in sandhill with a frequency of occurrence every 1-3 years.

Current Condition

Sandhill on the Withlacoochee State forest occurs mostly on the Croom, Citrus and Headquarters tracts and exists in several current conditions. Some sandhill exists already near the desired future condition. Other areas exist in plantations of slash or sand pine. Some sandhill has succeeded to a more climax condition where hardwoods are more dominant than desired. In such cases, the community has scrub, mesic hammock, or xeric hammock characteristics. In addition sandhill exists where off-site trees have been harvested but there is still low stocking of sandhill groundcover plants and longleaf pine. Some sandhill is in the process of restoration from pasture or tree plantation. Finally, there is a portion of sandhill that is currently occupied by non-native, invasive plants.

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 long-term goals and desired future conditions may take multiple planning cycles to attain.

There will be a strong effort to maintain burning on a 1-3 year basis. Burning may be timed in certain instances to promote pine regeneration, growth, and release. Prescribed burning is the preferred method to decrease hardwood dominance and stimulate groundcover for sandhills that have succeeded to a hardwood-dominated seral stage. Growing season burning will be given preference over dormant season burning - but efforts towards this seasonality is secondary in importance to maintaining the desired frequency, regardless of time of year.

Sandhill has the ability to produce commercially valuable timber. Pines may be thinned to achieve desired stocking when basal area exceeds 80 square feet per acre. The long-term goal for sand pine and slash pine plantations in sandhill is to convert them to longleaf pine management that over many years results in at least three age classes of pine. Target longleaf pine basal area will generally be 40 - 80 square feet per acre. If oaks dominate and cause exclusion of fire, herbicide application will be considered. Hardwood harvesting may be considered only if there is a component of longleaf pine and the treatment will be followed up with herbicide and / or prescribed burning. In areas with unavoidable obstacles to burning, consideration will be given changing the desired future condition to upland hardwood forest or xeric hammock. Aggressive herbicide treatment of exotic species will also be undertaken to reduce negative impacts and seek eradication.

B. Mesic Flatwoods

The following, utilizing WSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Mesic flatwoods are characterized by pine, and a dense, low ground layer of low shrubs such as saw palmetto and gallberry, grasses such as wiregrass and lopsided Indian grass, and forbs such as blackroot and pine lily. Large diameter trees are well represented in the stands. Maintenance stocking is 60-80 square feet to the acre. There is some stocking of larger pines above 16 inches in diameter. There is little or no stocking of species that are not considered flatwoods species, such as water oak (*Quercus nigra*), sweetgum (*Liquidambar styraciflua*), laurel oak (*Quercus laurifolia*), and non-native species. The groundcover is continuous, species rich, and composed of fine herbaceous plants that will facilitate low intensity fires under a wide range of burning conditions. The condition of the flatwoods is process driven with the primary processes being fire, and hydrological conditions of the soil that are alternatively droughty and inundated. Fire return interval is 2-4 years.

Current Condition

The mesic flatwoods plant community is a primary component of the Richloam Tract of the WSF. The primary overstory is planted and natural slash pine. Of the total acreage, approximately 21,000 acres or sixty percent of the flatwoods are planted. Of this, 90% is planted in slash pine and 10% in longleaf pine. The remaining 40% are slash and longleaf pine mixtures of natural origin. In addition to the pines, most stands also contain variable densities of overstory, and midstory trees that are of mesic hammock origin. Midstory species such as gallberry, wax myrtle, palmetto, smilax, and fetterbush are generally over represented and are several feet tall, making many of the stands difficult for a person to penetrate. The groundcover condition is also variable.

Some sites have converted to characteristics more consistent with that of mesic hammock, containing an overstory of water oak, laurel oak, and diminishing midstory of gallberry, with little or no remaining flatwoods groundcover.

Hydrological conditions in some areas, particularly in the Baird Unit, have been altered and in some cases restored. This has brought about unknown changes in plant communities as water levels have been manipulated.

There are scattered patches of invasive exotic plants including cogon grass, Japanese climbing fern, air potato, and others, particularly along certain roads. Old world climbing fern has been detected in a number of areas of mesic flatwoods particularly in ecotones with wet flatwoods or wetlands.

Management Actions to Attain Desired Future Condition

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 multiple planning cycles to attain.

Management activities to be used in mesic flatwoods will include stand mapping, applying prescribed fire, applying site preparation for reforestation, planting, timber harvesting, treating invasive exotic plants.

Prescribed fire will be the preferred tool for maintenance of the flatwoods plant community. The goal will be to achieve a two to four-year fire return interval to all flatwood plant community areas. Maintaining fire frequency will be the primary goal of the burn program but there will be a goal to transition some burning into the growing season.

Hardwood harvests may be used in areas where non-flatwoods tree species have invaded into flatwoods (e.g. laurel oak, loblolly bay) due to the lack of routine fire. Herbicides may be used in reforestation or restoration efforts when other alternatives are unavailable. In areas where historic flatwoods have been altered to a state that more resembles mesic hammock, there may be an effort to site prep and replant pines.

Stand mapping will be a continuing effort in the flatwoods. These maps will help to refine timber management and prescribed burning.

Mesic flatwoods are vulnerable to infestation of non-native invasive plants especially cogon grass, Japanese climbing fern (*Lygodium japonicum*), Old World climbing fern (*Lygodium microphyllum*) sword fern, skunk vine (*Paederia foetida*) and air potato. Re-establishing a regular fire regime of burning every 2 to 4 years should help to control some invasive species, or at least allow crews to locate and treat them. Aggressive herbicide treatment of exotic species will also be undertaken to reduce negative impacts and seek eradication.

Mesic flatwoods have the ability to produce commercially valuable timber better than any other plant community in the state forest. Areas determined to be understocked will be planted with slash or longleaf pines to achieve the target density.

Pines will be thinned to achieve desired stocking when basal area exceeds 80 square feet per acre. Even-aged and uneven-aged management silvicultural systems utilizing natural regeneration will be employed to regenerate these stands. Burning intervals may be interrupted to allow the establishment of natural regeneration after a seed catch, following regeneration harvest.

If the current condition is pasture, management practices such as grazing, pine straw raking, or reforestation will be considered.

In areas with fire suppressed condition, such as excessive oak stocking, duff, and excessive midstory stocking, prescribed fire will be introduced carefully. If an area cannot be restored using fire alone, other restoration techniques may be used.

C. Basin Swamp

The following, utilizing WSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Basin swamps at WSF are characterized by large irregularly shaped forested depressions that are dominated by trees and shrubs that can withstand an extended periods of flooding. The shrub layers are variable with sparse to dense herbaceous species cover. Basin swamps are “still water” swamps that have standing water during part of year, but can develop flow during high water, rainfall events. The canopy is dominated by pond cypress (*Taxodium ascendens*), swamp tupelo (*Nyssa sylvatica* var. *biflora*), and may contain slash pine, red maple, dahoon, loblolly bay, swamp bay, sweetbay (*Magnolia virginiana*), and laurel oak. In most cases, shrubs do not form a dense layer below the canopy or in the ecotones of the swamps but are scattered throughout the swamp, although there may be some areas with heavier concentrations. Subcanopy tree and shrub species composition are similar to the species currently inhabiting the swamps, primarily myrtle dahoon (*Ilex cassine* var. *myrtifolia*), fetterbush (*Lyonia lucida*), and highbush blueberry (*Vaccinium corymbosum*). In the densely forested portions of basin swamps, herbs are sparse and consist mostly of netted chain fern (*Woodwardia areolata*), Virginia chain fern (*Woodwardia virginica*), cinnamon fern (*Osmunda cinnamomea*), and lizard’s tail (*Saururus cernuus*). The grass/herbaceous ecotones of basin swamps are wet prairies dominated by wiregrass and include species of beaksedges, yellow-eyed grasses (*Xyris* spp.), Carolina redroot (*Lachnanthes caroliana*), tenangle pipewort (*Eriocaulon decangulare*), netted and Virginia chain fern, peelbark St. John’s wort (*Hypericum fasciculatum*), and hooded pitcher plants. As this community is often imbedded with the fire-prone mesic flatwoods, evidence of regular fire is apparent along and within its outer edges on a 2-4 year frequency.

Current Condition

Basin swamps occur mostly in the Richloam Tract, Jumper Creek Tract and portions of the Homosassa Tract. They are generally in good condition and resemble the desired condition stated above. This community is not well suited to timber management under a system of multiple resource management. High moisture levels, low soil stability and water quality considerations make harvesting impractical.

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.

When possible, by maintaining a 2-4 year fire interval with prescribed fires within the adjacent upland communities, low intensity fires will be allowed to burn into basin swamps and extinguish naturally. This practice will assist the recovery to the grass-dominated ecotones while also reducing fuel loads that might facilitate muck fires. Entry of occasional fires into the basin swamps will be allowed to maintain cypress and pine components.

With the assistance of the FFS Hydrology Section, and potentially other management agencies, WSF staff will evaluate and perform hydrologic management where needed. This could include restoration or reconfiguring of roads, ditches and fire lines.

D. Mesic Hammock

The following, utilizing WSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. 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*), Southern magnolia (*Magnolia grandiflora*) and pignut hickory (*Carya glabra*). In some cases water oak (*Q. nigra*) and laurel oak (*Q. hemisphaerica*), sweetgum (*Liquidambar styraciflua*) sugarberry (*Celtis laevigata*) and loblolly pine (*P. taeda*) may also be frequent in this community.

The shrubby understory may be dense or open, tall or short, and is typically composed of a mix of saw palmetto (*Serenoa repens*), American beautyberry (*Callicarpa americana*), American holly (*Ilex opaca*), gallberry (*I. glabra*), sparkleberry (*Vaccinium arboreum*), hog plum (*Ximenia americana*), common persimmon (*Diospyros virginiana*), highbush blueberry (*Vaccinium corymbosum*), Carolina laurel cherry (*Prunus caroliniana*), yaupon (*I. vomitoria*), wild olive (*Osmanthus americanus*), and/or wax myrtle (*Myrica cerifera*). Tropical shrubs such as Simpson's stopper (*Myrcianthes fragrans*), myrsine (*Rapanea punctata*), and wild coffee (*Psychotria nervosa*) are common in more southern mesic hammock. The herb layer is often sparse or patchy and consists of various graminoids, including low panic grasses (*Panicum* spp.), witchgrasses (*Dichanthelium* spp.), woods grass (*Oplismenus hirtellus*), longleaf woodoats (*Chasmanthium laxum* var. *sessiliflorum*), sedges (Cyperaceae), and whip nutrush (*Scleria triglomerata*), as well as various ferns and forbs such as bracken fern (*Pteridium aquilinum*) and partridgeberry (*Mitchella repens*). Toothpetal false rein orchid (*Habenaria floribunda*) and other ground orchids are occasional.

Mesic hammock may occur as "islands" on high ground within basin marshes or hydric hammocks, or as patches in flatwoods, or sandhill communities, on river levees, or in ecotones between wetlands and upland communities. Historically, mesic hammocks were likely restricted to naturally fire-protected areas ("fire shadows") where wetlands or rocky soils limited spread of fire.

Current Condition

Mesic hammocks exist in generally good condition on WSF. A challenge in this plant community continues to be the occurrence of populations of invasive exotic species such as skunk vine, sword fern, coral ardisia, air potato, and Japanese climbing fern.

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.

Mesic hammocks, whether of natural or anthropogenic origin, result from years of fire exclusion or lengthened fire return intervals. Oak cover produces a relatively incombustible oak litter and increased shading decreases growth of fine herbaceous fuels. Surrounding fire maintained systems will be burned around them with no additional attempt to introduce fire into the mesic hammock. Fires will be allowed to define the outline of mesic hammocks so the distribution may be a dynamic process.

In some areas where the occurrence of mesic hammocks is a result of infrequent fire intervals then it is possible that additional management methods may be used to restore them to the historic condition. These methods could include prescribed burning, herbicides, or even hardwood cutting/ removal to accelerate the restoration process.

Systematic surveys and treatments of exotics will be undertaken.

E. Hydric Hammock

The following, utilizing WSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Hydric hammock is an evergreen hardwood and/or palm forest with a variable understory typically dominated by palms and ferns occurring on moist soils, often with limestone very near the surface. While species composition varies, the community generally has a closed canopy of hardwoods and palms, an open understory, and a sparse to a moderate groundcover of grasses and ferns. The canopy is dominated by swamp laurel oak (*Quercus laurifolia*) with varying amounts of cabbage palm (*Sabal palmetto*), American elm (*Ulmus americana*), sweetbay (*Magnolia virginiana*), red maple (*Acer rubrum*), sugarberry (*Celtis laevigata*), sweetgum (*Liquidambar styraciflua*), and water oak (*Q. nigra*). The understory may contain a number of small trees and shrubs such as American hornbeam (*Carpinus caroliniana*), swamp dogwood (*Cornus foemina*), small-leaf viburnum (*Viburnum obovatum*), common persimmon (*Diospyros virginiana*), swamp bay (*Persea palustris*), wax myrtle (*Myrica cerifera*), dwarf palmetto (*Sabal minor*), American beautyberry (*Callicarpa americana*), and needle palm (*Rhaphidophyllum hystrix*). Vines may be frequent and diverse; common species are eastern poison ivy (*Toxicodendron radicans*), peppervine (*Ampelopsis arborea*), rattan vine (*Berchemia scandens*), trumpet creeper (*Campsis radicans*), yellow jessamine (*Gelsemium sempervirens*), greenbriers (*Smilax* spp.), and grape (*Vitis* sp.). Herb cover, when present includes mostly graminoids and ferns with the following species commonly encountered: sedges (*Carex* spp.), woodoats (*Chasmanthium* spp.), smooth elephants foot (*Elephantopus nudatus*), Carolina scalystem (*Elytraria caroliniensis*), woodsgrass (*Oplismenus hirtellus*), maiden ferns (*Thelypteris* spp.), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis* var. *spectabilis*), toothed midsorus fern (*Blechnum serrulatum*), netted chain fern (*Woodwardia areolata*), and Virginia chain fern (*Woodwardia virginica*). Epiphytes such as golden polypody (*Phlebodium aureum*), air-plants (*Tillandsia* spp.), and shoestring fern (*Vittaria lineata*) are also present.

Hydric hammock occurs on low, flat, wet sites where limestone may be near the surface and soil moisture is kept high mainly by rainfall accumulation on poorly drained soils.

Periodic flooding from rivers, seepage, and spring discharge may also contribute to hydric conditions. The normal hydroperiod is seldom over 60 days per year. Fire may be rare or occasional depending on several factors including how often the surrounding community burns and hammock size.

Current Condition

This plant community is generally in good condition on the forest. There are several occurrences of invasive exotic plant species that will require ongoing treatment and monitoring. Some of these species are Chinese tallow tree, sword fern, skunk vine, old world climbing fern, Japanese climbing fern and several aquatic species.

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.

Management will seek to maintain natural hydrological processes and conditions. Because of their generally saturated soils and the sparseness of herbaceous groundcover, hydric hammocks rarely burn. If conditions are appropriate, prescribed fires on adjacent communities will be allowed to burn up to the edge of the hydric hammock. This plant community is susceptible to invasion by certain exotics including air potato, sword fern, and Chinese tallow. Invasive exotic plants will be mapped and aggressively treated.

F. Basin Marsh

The following, utilizing WSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Basin marshes at WSF are large, irregularly shaped depressions that could occur in a variety of matrixes. They are dominated by a dense herbaceous cover of grasses, sedges, and broadleaf herbs accompanied by a diverse mixture of forbs. Indicator plants include white water lily, maidencane, sawgrass, bulltongue arrowhead, pickerelweed, and sand cordgrass. Variable densities of shrubs and trees (buttonbush, willows, and loblolly pine) may exist but occupy only a small percentage of the area usually on the edge or the deepest portions. Basin marshes may contain significant wildlife species such as gopher frogs, spadefoot toads, northern harrier, and sandhill cranes.

Fire return interval depends on the surrounding matrix but occurs often enough, and with sufficient intensity to control woody species. Fire frequencies then can range from 1-10 years. Generally there can be a range of soil conditions from sandy bottom to a very thick accumulation of organic peat. The soil condition is dictated by fire return interval and length of periods of inundation.

Current Condition

Basin marshes in WSF occur in a variety of conditions from sandy bottoms and herbaceous plants, to being covered by trees and accumulation of organic soils. The

majority of the basin marsh acreage on WSF occurs on the Richloam and Jumper Creek tracts.

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 multiple planning cycles to attain.

Management will focus on restoring historic fire regimes dictated by the return interval of adjacent uplands. Prescribed fires will be encouraged to burn into the basin marshes and extinguish naturally at a frequency of 1-10 years. Large basin marshes on the Jumper Creek tract have no upland fire-maintained communities. Burning them will require more precise environmental conditions. These practices will improve the health of herbaceous species while reducing heavy fuel loads that might facilitate muck fires. If the surrounding upland is not burned, it still may be desirable to burn the basin marsh by itself if fire can be contained without undue disturbance to the ecotone or the adjoining upland

G. Dome Swamp

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

Current Condition

Dome swamps on WSF are primarily found on the Richloam Tract and appear to be in relatively good condition with the following issues. Historic management practices have established shallow ditches connecting some dome swamps to other wetland areas allowing unnatural water flow characteristics. The edge ecotones of many dome swamps appear overgrown with shrubs and trees and no longer have the grassy (marshy) appearance.

Management Actions to Attain Desired Future Condition

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 multiple planning cycles to attain.

Hydrologic restorations may be implemented to portions of this community where the natural hydrology has been impacted. This rehabilitation work may take on various levels of complexity from repairing old fire lines to restoration work requiring engineering.

This community is not well suited to timber management under a system of multiple resource management. High moisture levels, low soil stability and water quality considerations make harvesting impractical. Prescribed fire will be allowed or encouraged to burn into dome swamps from adjoining uplands, if conditions are appropriate, in order to enhance the desired grassy vegetation characteristics of the ecotone/transitional zones on the outer edges of the dome swamps. The non-native invasive exotics will be monitored and treated as appropriate.

H. Floodplain Swamp

The following, utilizing WSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Floodplain swamps are forested wetlands associated with rivers or streams that are frequently or permanently inundated. Floodplain swamp is a closed canopy dominated by bald cypress with a mixed occurrence of swamp tupelo, water tupelo, laurel oak, sweetgum, swamp bay, red maple, myrtle dahoon, Carolina ash, pond cypress, and water hickory. Less flood tolerant species of trees can be found on the higher areas within the swamp, or in areas more isolated from flooding. The understory of flood tolerant shrubs, herbs and ferns such as poison ivy, willow, false nettle, and royal fern may occur. In stagnant areas floating aquatic species such as duckweed may be present. There is a broad variety of animals associated with floodplain swamps including herps (American alligator, cottonmouth, brown water snakes and numerous sirens and salamanders) and birds (yellow-bellied sap sucker, limpkin, great blue heron, wood duck, pileated woodpecker, white-eyed vireo etc). Migratory song birds use these areas seasonally.

Current Condition

The floodplain swamps currently found on WSF occur in association with the Withlacoochee River, Little Withlacoochee River and Jumper Creek. While most areas are at, or close to, desired future condition, some others need further maturation. There is some degree of infestation by invasive exotic species such as Chinese tallow, and feral hogs.

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 multiple planning cycles to attain.

Management of this community will include maintenance of natural hydrology and allowing prescribed fires from surrounding uplands to burn into the swamp edges according to the fire return interval of the adjoining upland. Natural hydrology is crucial for maintaining species diversity and water quality. Hydrologic alterations associated with roads, ditches, berms, and firelines will be minimized, and corrected when they occur. Opportunities to improve or restore hydrology by installing culverts and low water crossings, plugging ditches/canals and restoring stream banks and channels will be utilized. Best Management Practices will be utilized during all timber operations. Future land management projects will be carefully considered to minimize alterations to water flow. Systematic surveys and treatments of Chinese tallow along the Withlacoochee and Little Withlacoochee will be undertaken.

I. Depression Marsh

The following, utilizing WSF 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 generally circular, shallow, herb-dominated wetlands found in slumps in sand substrate. Depression marshes typically occur in landscapes occupied by fire-maintained matrix communities such as sandhill, mesic flatwoods or wet flatwoods. Frequently there are concentric zones of vegetation that respond to the hydroperiod and edaphic conditions. Depending on depth and configuration, depression marshes can have varying combinations of aquatic and terrestrial plants including longleaf three-awn (*Aristida palustris*), beaksedges (*Rhynchospora spp.*) or sand cordgrass (*Spartina bakeri*). Depression marshes often burned with the surrounding landscape and can be seasonally or periodically inundated. Depression marshes are often encircled by a narrow band of trees and plants including loblolly pine, slash pine, live oak, wax myrtle, sparkleberry, and saw palmetto. 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.

Animal species include leopard frog, gopher frog, eastern spadefoot toad, southern toad, oak toad, cricket frog, tiger salamander, white ibis, and wood stork.

Current Condition

The condition of depression marshes in the sandhills is generally in close proximity to desired future condition. Prescribed fires have carried across them and in most cases they still have grassy groundcover and do not have an excessive hardwood overstory. In areas that have received fewer burns, they have attained a brushy appearance with excessive dominance of shrubs, vines and trees. In some cases the perimeter of trees has become thicker and more dominated with laurel oak, resembling a xeric hammock instead of a thin line of trees.

Condition of depression marshes in the flatwoods is generally not as good as the sandhills. In general, burning in the flatwoods has occurred when wetlands (rivers, swamps, dunes, marshes) are wet or inundated with water. Therefore, frequency of burns that have actually carried across marshes has been below maintenance level for many years. This has caused a shift in vegetation from open grassy marshes, to a condition where trees have become more dominant. Many depression marshes in the flatwoods are so overgrown by trees such as cypress, pines and hardwoods that they now appear more similar to swamps. Soils of flatwoods marshes also contain a deeper accumulation of organic material than what would be considered desirable. This organic soil supports the trees, including large pines that seem particularly vulnerable to being killed by prescribed burning.

Some depression marshes in the flatwoods, particularly in the TG Lee Unit of the Richloam Tract have been drained with a series of trenches. Some of these have also been planted in improved pasture grasses and even trees.

Depression marshes often contain evidence of rooting behavior of feral hogs.

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 multiple planning cycles to attain.

Prescribed fire may be introduced into depression marshes while surrounding uplands are burned. Fire may be allowed to enter the wetland naturally or be encouraged if necessary. On some occasions if burning the wetland is possible and time doesn't permit entire surrounding upland to be burnt, these wetlands may be burned individually on a case by case basis. Prescribed burns will be implemented on a 1-8 year return interval depending on the fire frequency of the surrounding community. For instance, the fire frequency in flatwoods marshes would be expected to be every 2-4 years, whereas those occurring in the sandhills would average every 1-3 years. Given the heavy growth of woody species invading the marshes in the flatwoods, special efforts will be made to burn these areas when fire can have some greater killing effect on this undesired vegetation.

Surveying of isolated wetlands for the occurrence of significant species will be carried out as time and water conditions allow. This way the most important wetlands from the standpoint of rare species can be identified and receive additional management.

Depression marshes areas are susceptible to wetland weeds such as West Indian marsh grass, water hyacinth, torpedo grass, water lettuce, and Chinese tallow. They are also susceptible to damage inflicted by feral hogs. Management will focus on surveying depression marshes for invasive exotic species to determine what control measures are necessary. Exotic species will be treated in this plant community.

J. Wet Prairie

The following, utilizing WSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. These are treeless areas typically dominated by dense wiregrass (*Aristida stricta* var. *beyrichiana*) in the drier portions, along with foxtail club-moss (*Lycopodiella alopecuroides*), cutover muhly (*Muhlenbergia expansa*), yellow butterwort (*Pinguicula lutea*), and savannah meadow-beauty (*Rhexia alifanus*). In the wetter portions, wiregrass may occur with, or be replaced by, species in the sedge family, such as plumed beaksedge (*Rhynchospora plumosa*), featherbristle beaksedge (*R. oligantha*), Baldwin's nutrush (*Scleria baldwinii*), or slenderfruit nutrush (*S. georgiana*), and long leaved three-awn (*Aristida palustris*).

Current Condition

Most wet prairies on WSF occur on the Richloam Tract with a few on other tracts. Most have been planted with pines or have naturally overgrown with trees including slash pine and cypress.

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 multiple planning cycles to attain.

Natural fire interval of 2-3 years will be returned to this plant community. Wet prairies forested with pines may have pines harvested returning it to prairie conditions.

K. Scrub

The following, utilizing WSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. The scrub community composed of evergreen shrubs, with or without an overstory of sand pine. Characteristic species include sand live oak, Chapman's oak, myrtle oak, rosemary, *Lyonia*, saw palmetto, hog plum, milk peas, red bay, *Garberia*, *Palafoxia*, *Dalea*, *vaccinium*, and *Calamentha*. Typically no more than 1-3 mature sand pine or sand live oak per acre would be present. Typical scrub consists of dominant shrub species in non-contiguous to semi-contiguous clumps, averaging zero to ten feet in height. Together these species cover approximately 80% of the ground area. The ground between the oak clumps is mostly open sand with some leaf litter, but with occasional lower shrubs, herbs, forbs and grasses. Most common of these are blueberry (*Vaccinium spp.*) and huckleberry (*Gaylussacia spp.*), *Liatris* and eastern prickly pear cactus (*Opuntia spp.*). Typical avian fauna in such scrub includes the Florida scrub-jay, eastern towhee (*Pipilo erythrophthalmus*), brown thrasher (*Toxostoma rufum*), and blue-gray gnatcatcher (*Polioptila caerulea*); Other vertebrates include the gopher tortoise (*Gopherus polyphemus*), eastern indigo snake (*Drymarchon couperi*), dusky pigmy rattlesnake (*Sistrurus miliarius barbouri*), six-lined racerunner (*Cnemidophorus sexlineatus*), gopher frog, pine woods tree frog (*Hyla femoralis*), oak toad (*Bufo*

quercicus), and Florida mouse. Historically these isolated scrubs in the western coast of Florida would have burned every 5-20 years.

Current Condition

Scrub is uncommon in WSF and the ecological conditions of the scrubs are variable. In the Citrus Tract there are four small islands in the sandhill protected from sandhill fires by a sandy ecotone and steep terrain. The three smaller scrubs have not seen complete stand replacement fires in a long time and through succession have attained characteristics of xeric hammocks. The 400 acre scrub on the Citrus Tract along State Road 44 has been managed so that approximately half is suitable for scrub jays at any one time. At this time, the eastern half of the scrub is overgrown with a 15 year rough. The western half was last treated in 2003 and is beginning to succeed past desired scrub jay habitat. Small scrubs along the Withlacoochee River in Croom and Richloam remain in need of burning, still awaiting mapping and further evaluation. The 35 acre scrub in the Two-Mile Prairie Tract was mechanically treated and burned a few years ago so it is approaching desired future condition.

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 multiple planning cycles to attain.

Prescribed fire will be the primary management tool in this ecosystem. The optimal fire return interval should be ~5 to 20 years, depending on how fast the scrub re-grows from prior treatments. Nearly all of the scrub had been fire excluded for decades resulting in closed canopies of scrub oaks and varying densities of sand pine.

In areas with overgrown scrub (taller than 9'), the surrounding upland area will be burned in advance and the scrub will be prescribed burned intensely to reduce overall shrub height. If burning is not conducted and listed species are present (Florida scrub-jay, Curtis' milk weed or *Nolina brittoniana*) then mechanical means will be used to reduce scrub height. Methods to remove biomass will be explored and used if possible. Root raking in defined areas to create sandy openings may also be used.

In scrub areas where listed species do not occur, prescribed fire will be the preferred method of maintenance.

L. Scrubby Flatwoods

The following, utilizing WSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Scrubby flatwoods have an open canopy of widely spaced pines. The basal area is 5-10 square feet of basal area per acre. The groundcover contains elements of scrub and mesic flatwoods vegetation. It is composed of flatwoods endemics such as wiregrass, saw palmetto, gopher apple, *Pityopsis*, blazing star, *Carphephorous*, etc. It is distinguished from flatwoods by the presence of sand live oak, Chapman's oak, and/or

Myrtle oak. There are some bare sandy patches breaking up the continuity of the groundcover.

Animal species will include the FSJ, northern cardinal (*Cardinalis cardinalis*), northern mockingbird (*Mimus polyglotus*), Carolina wren (*Thryothorus ludovicianus*), common yellowthroat (*Geothlypis trichas*), southeastern pocket gopher, eastern diamondback rattlesnake (*Crotalus adamanteus*), yellow rat snake (*Elaphe obsoleta quadrevittata*), the Florida pine snake, several treefrogs (*Hyla sp.*), and the Florida gopher frog. Natural fire frequencies can range from five to fifteen years.

Current Condition

Known scrubby flatwoods on the Withlacoochee State Forest exists in various conditions and are located on the west side of the Richloam tract and are in close proximity to some scrub areas. In some cases it has been treated as mesic flatwoods and planted in high densities of slash pines. Some of these areas have remained heavily stocked. This situation has led to shading out of most of the groundcover, and presence of large sand live oaks and a high density of pines.

In some cases the pine plantations were clearcut, and the scrubby species reappeared. Reestablishment of pines was attempted before the area was determined to be scrubby flatwoods and as such now have higher than desired density of pine.

Another condition is characterized by large sand live oaks and light stocking of pine trees. The groundcover is nearly absent due to heavy shade and leaf litter caused by the overstory. This condition is associated with several small pockets of scrubby flatwoods in the Richloam tract.

The final condition is that of improved pasture. This condition is present mostly as islands of scrubby flatwoods within a mosaic of wetland communities in the Homosassa Tract.

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 multiple planning cycles to attain.

FFS will accurately map scrubby flatwoods and maintain naturally low tree densities in these areas to maintain important plant and animal species, particularly the FSJ. Scrubby flatwoods will be maintained with prescribe burns on a 5 to 15 year rotation. If burning alone is not effective, mechanical means of brush height reduction will be used in conjunction with burning.

In portions of scrubby flatwoods that are overgrown or succeeding into xeric hammocks, reduction of oaks may be done by mechanical means or herbicide if burning alone is not practical or effective. Scrubby flatwoods are susceptible to upland non-native invasives

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

M. Upland Hardwood Forest

The following, utilizing WSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Upland hardwood forest is a well-developed, closed-canopy forest dominated by deciduous hardwood trees on mesic soils in areas sheltered from fire, or where fire didn't carry due to moist soils or rock features. It typically has a diverse assemblage of deciduous and evergreen tree species in the canopy, a midstory of shade-tolerant shrubs, and a sparse groundcover. Characteristic canopy trees include southern magnolia (*Magnolia grandiflora*), pignut hickory (*Carya glabra*), sweetgum (*Liquidambar styraciflua*), Florida maple (*Acer saccharum* ssp. *floridanum*), live oak (*Quercus virginiana*), laurel oak (*Q. hemisphaerica*), swamp chestnut oak (*Q. michauxii*), southern hackberry (*Celtis occidentalis*), white ash (*Fraxinus americana*), and loblolly pine (*Pinus taeda*). There is a shorter second overstory consisting of hornbeam, and hophornbeam. The midstory layer is composed of small trees, and tall shrubs, such as American holly (*Ilex opaca*), red bay (*Persea borbonia*), gum bully (*Sideroxylon lanuginosum*), devil's walking stick (*Aralia spinosa*), flowering dogwood (*Cornus florida*), eastern redbud (*Cercis canadensis*), horse sugar (*Symplocos tinctoria*), American strawberry-bush (*Euonymus americanus*), silver bells (*Halesia* spp.). The groundcover is composed of shade-tolerant herbs, graminoids, and vines, such as partridgeberry (*Mitchella repens*), Virginia creeper (*Parthenocissus quinquefolia*), violets (*Viola* spp.), sedges (*Carex* spp.), sarsaparilla vine (*Smilax pumila*), ebony spleenwort (*Asplenium platyneuron*), woods grass (*Oplismenus hirtellus*), and longleaf woodoats (*Chasmanthium laxum* var. *sessiliflorum*), and wild coffee.

Current Condition

This plant community is not common in WSF and only occurs in a few spots. Generally it is in good condition but most of this acreage has significant problems with infestations of invasive exotic plant species such as wandering jew, coral ardisia, skunk vine, sword fern, and air potato. Laurel Wilt (*Raffaelea lauricola*), an exotic disease, threatens to kill all adult members of the *Persea* genus in the near future. As of this writing, Laurel Wilt has been observed on the Citrus, Croom, Headquarters, and Homosassa tracts only, but is expected to appear shortly in the other WSF Tracts (Jumper Creek and Richloam).

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.

Upland hardwood forest rarely burn. Prescribed fires conducted in adjacent plant communities will be allowed to burn into the upland hardwood forest. Exotic plants will be mapped and treated. Twenty five adult red bay trees were initially treated in 2012 with fungicide and will continue to be treated biennially to allow them to survive the

impending arrival of Laurel Wilt. These mapped and tagged trees are located in the Headquarters Tract and may be used for scientific purposes. Some red bays in isolated areas will be monitored to determine if any adult trees can survive without treatment of fungicide.

N. Wet Flatwoods

The following, utilizing WSF 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 by stands of pine with occasional sweet bay, loblolly bay, and swamp bay in the overstory. Shrubs such as gallberry, *Lyonia spp.*, and saw palmetto may be present but become much less abundant and restricted to patches. Groundcover contains less wiregrass and more sedges (*Cyperaceae*), beakrush sedges (*Rhynchospora spp.*), nut sedges (*Cyperus esculentus*), meadow-beauty (*Rhexia spp.*), toothache grass (*Ctenium panzer*), St. Johnswort (*Hypericum spp.*), bushy bluestem (*Andropogon glomeratus*), and white top aster (*Aster paternus*). Ferns also appear in the groundcover. The condition of wet flatwoods is process driven with the primary processes being fire, flooding, and drought. Fire return interval is probably more variable than mesic flatwoods due to increased periods of flooding, and different vegetation. Wet flatwoods grade into hydric hammocks, mesic flatwoods and basin marshes. Fire return interval may be slightly longer than that of mesic flatwoods. Currently, WSF wet flatwoods, are mapped as mesic flatwoods or wet prairie.

Current Condition

Predominately located on the Richloam Tract, wet flatwoods are embedded within other communities, particularly in mesic flatwoods and wet prairie. Wet flatwoods grade into hydric hammocks, mesic flatwoods and basin marshes. Slash pine is common with at least two age classes present. Portions of the wet flatwoods have been prescribed burned at various time intervals. Groundcover is usually sparse.

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 multiple planning cycles to attain.

Management will utilize prescribed fire and natural regeneration of pines to eventually make these stands more recognizable. Once this is accomplished, WSF Staff will be able to begin mapping this community type. A continued effort to maintain a two to four-year fire return interval for all flatwoods and wet prairie plant communities should assist in delineating wet flatwoods. Hydrological restoration will be undertaken in some areas and may help improve wet flatwoods to historic condition.

O. Xeric Hammock

The following, utilizing WSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Xeric hammock is an hardwood forest on well-drained sandy soils. The low canopy is more or less closed and dominated by sand live oak (*Quercus geminata*), although Chapman's oak (*Q. chapmanii*), turkey oak (*Q. laevis*), bluejack oak (*Q. incana*), sand post oak (*Q. margaretta*), and laurel oak (*Q. hemisphaerica*), red bay (*Persea borbonia*), wild olive (*Osmanthus megacarpa*) may also occur.

The understory is usually open and consists of shrubs characteristic of either sandhill or scrub, depending on the origin of the hammock. Common understory plants include saw palmetto (*Serenoa repens*), myrtle oak (*Q. myrtifolia*), rusty staggerbush (*Lyonia ferruginea*), fetterbush (*L. lucida*), sparkleberry (*Vaccinium arboreum*), deerberry (*V. stamineum*), black cherry (*Prunus serotina*), American beautyberry (*Callicarpa americana*), common persimmon (*Diospyros virginiana*), scrub palmetto (*Sabal etonia*), Hercules' club (*Zanthoxylum clava-herculis*), wild olive (*Osmanthus americanus*) or scrub wild olive (*O. megacarpus*), garberia (*Garberia heterophylla*), Florida rosemary (*Ceratiola ericoides*), and yaupon (*Ilex vomitoria*). The herb layer is generally very sparse or absent consisting of sandyfield beaksedge (*Rhynchospora megalocarpa*), witchgrass (*Dichanthelium* spp.), or forbs such as sweet goldenrod (*Solidago odora*). Muscadine (*Vitis rotundifolia*) and earleaf greenbrier (*Smilax auriculata*) are common vines. The epiphytes Spanish moss (*Tillandsia usneoides*) and ballmoss (*T. recurvata*) are often abundant.

Xeric hammock typically develops on well-drained sands where fire-exclusion allows for the establishment of an oak canopy. This may occur naturally, when the area has significant barriers to fire, or more commonly, as the result of human intervention. In these areas, xeric hammock can form extensive stands or can occur as small patches within or near sandhill or scrub. Xeric hammock can also occur on high islands within flatwoods or even on a high, well-drained ridge within a floodplain.

Current Condition

Xeric hammocks at WSF are generally in good condition. They are uplands that were once sandhills or scrubs that have attained the characteristics of xeric hammocks due to long fire return intervals.

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.

Xeric hammocks, whether of natural or anthropogenic origin, result from years of fire exclusion or lengthened fire return intervals. Hardwood species produce a relatively incombustible leaf litter. Shading decreases growth of fine herbaceous fuels. If evidence exists that an area was historically a xeric hammock, then practically no management of the area is necessary except for the surveying and treatment of invasive exotic plants. If a

larger burn unit contains a xeric hammock, the unit will be burned without any attempt to light the xeric hammock, but fire from the adjacent community will be allowed to burn into it if conditions allow. This burn strategy will restore natural communities over time.

P. Sandhill Upland Lake

The following, utilizing WSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Sandhill upland lakes are shallow rounded solution depressions occurring in sandy upland communities. They are generally permanent water bodies, although water levels may fluctuate substantially, sometimes becoming completely dry during extreme droughts. These lakes typically are without significant surface inflow or outflow except for lateral ground water seepage and/or from artesian sources. Sandhill upland lakes are important breeding areas for terrestrial amphibians, including gopher frogs, as well as many endemic insects. They also serve as important water holes for many mammals and birds inhabiting the surrounding xeric communities. These natural communities frequently function as aquifer recharge areas.

Current Condition

There are few, if any, “defined” sandhill upland lakes on WSF. Currently, FNAI has all potential candidates mapped as basin marshes. Stage Pond, Mansfield Pond, and one unnamed wetland in the Citrus Tract, may be considered sandhill lakes. Other possibilities are Boggy Pond in the Croom tract, McKethan Lake in the Headquarters tract, and a small series of wetlands in the Little River Unit of Richloam.

All of these wetlands are in different condition but share the commonality that the habitat around them has been altered and burned infrequently. There has been an attempt to burn them individually with four getting recent burns. Other areas are starting to fill with trees, organic soils, and exotic grasses, mostly West Indian marsh grass and torpedo grass.

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 multiple planning cycles to attain.

The primary management to sustain and restore these wetlands will be to introduce fire or continue to burn adjacent uplands. If the surrounding area is not burned then special attention will be given to burning the wetlands in isolation.

Non-native invasive plants occurring in this community, such as Chinese tallow will be mapped and treated aggressively. Treatments of torpedo grass and West Indian marsh grass will not be undertaken until resources are available to maintain a sustained attack.

Q. Salt Marsh

The following, utilizing WSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Salt marsh is a largely herbaceous community that occurs in the portion of the coastal zone affected by tides and seawater and protected from large waves, either by the broad, gently sloping topography of the shore, by a barrier island, or by location along a bay or estuary. The width of the intertidal zone depends on the slope of the shore and the tidal range. Salt marsh may have distinct zones of vegetation, each dominated by a single species of grass or rush. Salt marsh cordgrass (*Spartina alterniflora*) dominates the seaward edge and borders of tidal creeks, areas most frequently inundated by the tides. Needle rush (*Juncus roemerianus*) dominates higher, less frequently flooded areas. Other characteristic species include Carolina sea lavender (*Limonium carolinianum*), perennial salt marsh aster (*Symphyotrichum tenuifolium*), wand loosestrife (*Lythrum lineare*), marsh fimbry (*Fimbristylis spadicea*), and shoreline sea purslane (*Sesuvium portulacastrum*). The landward edge of the marsh is influenced by freshwater influx from the uplands and may be colonized by a mixture of high marsh and inland species, including needle rush, sawgrass (*Cladium jamaicense*), salt meadow cordgrass (*Spartina patens*), Gulf cordgrass (*Spartina spartinae*), and sand cordgrass (*Spartina bakeri*), among others. A border of salt-tolerant shrubs [such as groundsel tree (*Baccharis halimifolia*), saltwater falsewillow (*Baccharis angustifolia*), marshelder (*Iva frutescens*), and Christmas berry (*Lycium carolinianum*)] often marks the transition to upland vegetation or low berms along the seaward marsh edge. Also mapped within this community are the more frequently inundated saltwater creeks that make up a network of channels within this community. These were called a separate plant community called estuarine tidal creeks but are now lumped into salt marsh.

Current Condition

The current condition varies little from the desired future condition. This plant community probably had a sporadic fire history that is probably not properly mimicked in modern times.

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.

The salt marsh is associated with the Gulf of Mexico coast located on the Homosassa Tract. Chassahowitzka National Wildlife Refuge (US Fish & Wildlife) is the adjacent landowner to the north, south, and west. With assistance from US Fish & Wildlife, WSF staff will evaluate, plan, and implement prescribe burning, if needed. In addition, staff will continue to monitor for any invasive exotic plants, such as Brazilian pepper, which has been observed on neighboring properties in the Homosassa area, but has not yet been discovered on WSF.

R. Blackwater Streams

The following, utilizing WSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Blackwater streams are characterized as perennial or intermittent seasonal watercourses originating deep in sandy lowlands where extensive wetlands with organic soils function as reservoirs, collecting rainfall and discharging it slowly to the stream. Emergent and floating aquatic vegetation may occur along shallower and slower moving sections, but their presence is often reduced because of typically steep banks and considerable seasonal fluctuations in water level.

Current Condition

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

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.

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

S. Terrestrial Caves

The following, utilizing WSF staff knowledge and the 2010 FNAI Guide to the Natural Communities of Florida, describes the desired future condition for this natural community. Terrestrial cave are any naturally occurring void, cavity or system of subterranean passageways that occurs beneath the surface of the earth. Terrestrial caves have at least some subterranean portion that is not continuously flooded. Terrestrial caves are quite varied making it impossible to describe one desired condition. Size and nature of the opening, overall cave volume and location all combine to make each and every cave unique and individual.

Entrance Zone

The cave entrance is usually the main conduit for organic material to wash in. Detritus inputs from the surface are vital to decomposers and cave fauna, especially for caves without bat guano acting as an energy input. Air circulation patterns are heavily affected by the nature of the cave's entrance and alterations to these entrances can have severe impacts on the microclimate within a cave as well as organic inputs and may affect bat

occupancy. The entrance can also be the main conduit for water in dry caves that lack aquifer connections or major drips.

Cave entrances can provide microclimates that differ markedly from the surrounding vegetation. Distinct vegetative communities with various combinations of flowering plant, ferns, mosses, liverworts and algae can be found growing on limestone directly at or within a cave entrance. Common plants at cave entrances include hairy maiden fern (*Thelypteris hispidula*), ebony spleenwort (*Asplenium platyneuron*), varicolored spleenwort (*Asplenium heterochroum*), (partridgeberry (*Mitchella repens*), basket grass (*Oplismenus setarius*), and the state endangered modest spleenwort (*Asplenium verecundum*). Other WSF rare plants associated with rock outcrops and cave areas are brittle maidenhair fern (*Adiantum tenerum*), Cooley's water-willow (*Justicia cooleyi*) and widespread polypody (*Pecluma dispersa*).

Twilight Zone

A cave's twilight zone is the area inside the cave that still has enough light to allow for human vision. Temperature and humidity are more fluctuating than the cave's interior. Each cave is unique and depending upon the nature of the cave's entrance, plant species that prefer moist conditions and can tolerate low levels of light can be found in this zone. Species of mosses, green algae and liverworts are likely to be encountered in the twilight zone. If enough light is available, ferns can be present and perhaps a few flowering plants. Animals found in the twilight zone can be species that specialize in this zone near the cave entrance or may be opportunist who can also be found in other habitats. Some species that prefer cool damp places and that utilize the twilight zone of caves include camel crickets, slimy salamanders and cricket frogs.

Dark Zone

The cave's interior where there is a complete absence of light is referred to as the dark zone. The food chain in the dark zone is completely dependent upon detritus and fecal matter from animals such as rodents or bats. Plants will be completely lacking except for fungi that may be growing on washed-in organic debris, bat guano or other organic material.

Temperature and humidity within the dark zone will be much more stable than that of the twilight zone. However, cave interior climate is more variable than often assumed. Some caves may be cold air sinks, warm air sinks or have areas of each within a large system. Some of the factors that affect a cave's internal temperature and humidity include the shape of the cave, the physical nature of the entrance, overall cave volume, amount and seasonal timing of surface water entering a cave and etc. Small changes in this microclimate can be detrimental to cave fauna such as bats that require specific temperatures for hibernation and maternity roosts.

Caves with hydrological features such as aquifer connections or drips may be habitat for aquatic invertebrates that may be new to science or endemic to a single cave system. The caves are also habitat for terrestrial invertebrates some of which may be rare or cave dependent.

Current Condition

There are 37 known caves on WSF. All of the WSF caves are considered terrestrial but most have both dry and aquatic components. The caves of WSF range from almost pristine to highly degraded. A few of the caves have confirmed aquifer connections; some caves have ephemeral streams or pools. Invertebrates that have been documented include an undescribed species of blind albino crayfish, camel crickets, a rare undescribed beetle of the *Derolathrus* genus, and a cave spider identified as *Ctenus captiosus*. Two species of bats have been documented to use or to have used the WSF caves in the past. The Southeastern Bat (*Myotis austroriparius*) is a rare, cave dependent species that requires a specific type of cave climate for maternity roosts. Currently, the three documented maternity caves have been abandoned by the bats. The Eastern Pipistrelle (*Pipistrellus subflavus*) is a more common species that utilizes multiple types of roosts such as caves, hollow trees and buildings.

An area on the Citrus Tract referred to as the Dames Cave Complex has high visitation rates and vandalism issues. Three caves throughout WSF are protected from recreational caving by the use of steel enclosures and three are fenced with chain link. The cave enclosures have been successful except for one particularly “attractive” cave, known colloquially as the Peace cave. The chain link fences have all been repeatedly cut.

Management Actions

A Cave Management Plan will be developed in cooperation with FWC to address the multiple issues and complexities associated with the caves on WSF. To accomplish this, much more will need to be learned and very specialized inventories will need to be taken.

VIII. References

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IX. Glossary of Abbreviations

ATV	All-Terrain Vehicles
BMP	Best Management Practices
BOT.....	Board of Trustees of the Internal Improvement Trust Fund
CARL.....	Conservation and Recreation Lands
CFLS.....	Central Florida Lygodium Strategy
CISMA.....	Cooperative Invasive Species Management Plan
CMA.....	Croom Motorcycle Area
CR	County Road
DHR.....	Department of State, Division of Historical Resources
DSO.....	Direct Support Organization
EEL.....	Environmentally Endangered Lands
FFS	Florida Forest Service
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FNAI.....	Florida Natural Areas Inventory
FNST.....	Florida National Scenic Trail
FRB.....	Four Rivers Basin
FTA	Florida Trail Association
FCWF & RMT.....	Florida Center for Wildfire & Forest Resources Management Center
FWC	Florida Fish and Wildlife Conservation Commission
GIS.....	Geographic Information System
HRS STOP Camp....	Health & Rehabilitative Services, Short Term Offender Program
IFAS.....	Institute of Food and Agriculture Science
MOA.....	Memorandum of Supervision
NRCS	Natural Resources Conservation Service
OWCF.....	Old World Climbing Fern
P2000.....	Preservation 2000
RCW.....	Red-cockaded Woodpecker
SOR	Save Our Rivers
SR	State Road
SWAMP.....	Southwest Association of Mountain Bike Peddlers
SWFWMD.....	Southwest Florida Water Management District
UERP.....	Upland Ecosystem Restoration Project
USDA.....	United States Department of Agriculture
USFS	United States Forest Service
USFWS.....	United States Fish and Wildlife Service
WMA	Wildlife Management Area
WFC.....	Withlacoochee Forestry Center
WSF.....	Withlacoochee State Forest