FLORIDA DEPARTMENT OF Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, FL 32399

Ron DeSantis
Governor

Jay Collins
Lt. Governor

Alexis A. Lambert
Secretary

August 17, 2026

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

RE: Welaka State Forest – Lease No. 3979

Dear Mr. Camposano:

On **August 14, 2026**, the Acquisition and Restoration Council (ARC) recommended approval of the **Welaka State Forest** management plan. Therefore, Division of State Lands, Office of Environmental Services (OES), acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the **Welaka State Forest** management plan. The next management plan update is due August 14, 2036.

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

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

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

Pursuant to s. 259.032, F.S., and Chapter 18-2.021, F.A.C., management plans for areas less than 160 acres may be handled in accordance with the negative response process. This process requires small management plans and management plan amendments be submitted to OES for review, and ARC for public notification. OES will approve these plans or plan amendments submitted for review through delegated authority unless three or more ARC members request the division place the item on a future council meeting agenda for review. To create better efficiency, improve customer service, and assist

members of the ARC, OES will notice negative response items on Thursdays except for weeks that have State or Federal holidays that fall on Thursday or Friday. OES will contact you on the appropriate Friday to inform you if the item is approved via delegated authority or if it will be placed on a future ARC agenda by request of the ARC members.

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

Sincerely,

Digitally signed by Sine A Murray
Date: 2026.08.17 09:10:57 -04'00'

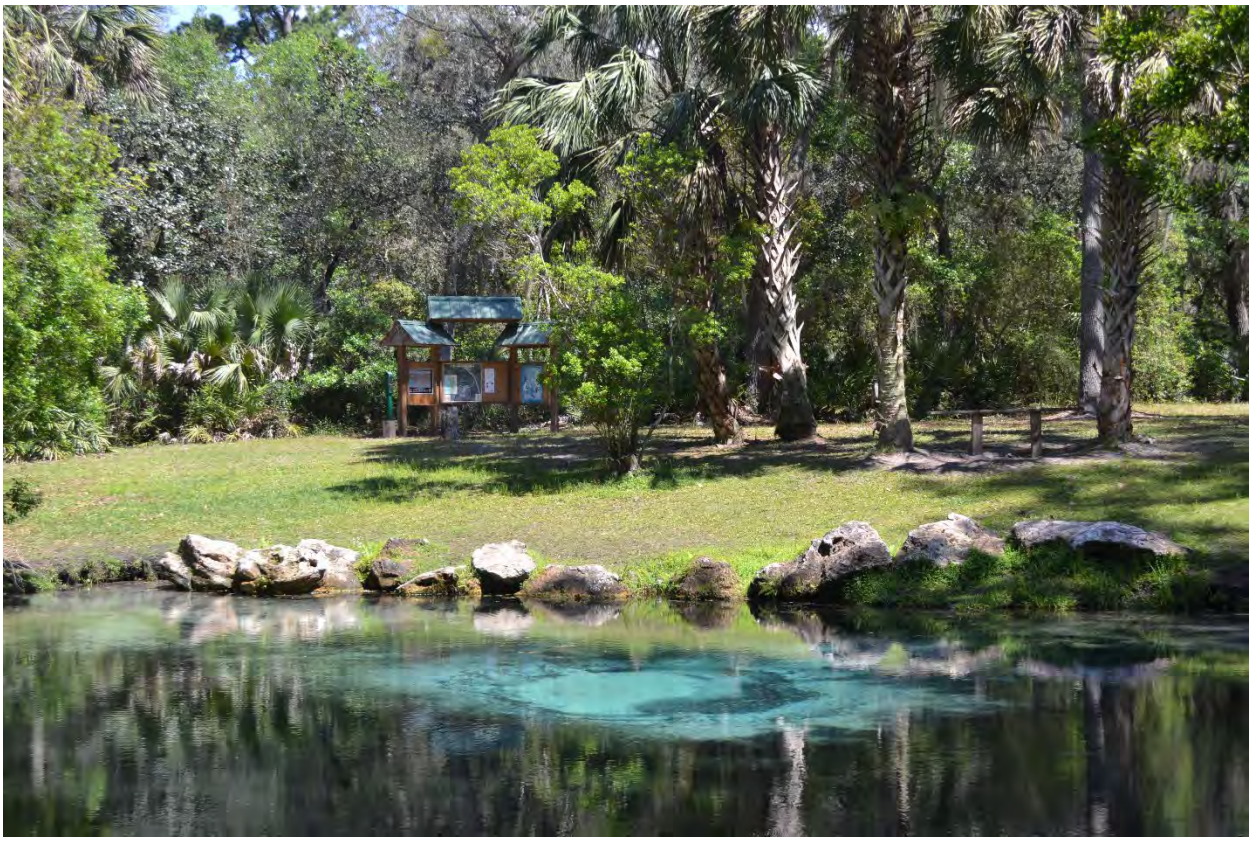
Sine Murray
Program Administrator
Office of Environmental Services
Division of State Lands

TEN-YEAR LAND MANAGEMENT PLAN

FOR THE

WELAKA STATE FOREST

PUTNAM COUNTY



Mud Spring at Welaka State Forest Photo courtesy of Terry Sheehan

PREPARED BY THE

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

FLORIDA FOREST SERVICE

APPROVED ON

AUGUST 17, 2026

TEN-YEAR LAND MANAGEMENT PLAN

FOR THE

WELAKA STATE FOREST

Approved by:

Richard Dolan, Director
Florida Forest Service

8/19/2026
Date

James Roberts, Chief
Forest Management Bureau

8/17/26
Date

TEN-YEAR LAND MANAGEMENT PLAN
WELAKA STATE FOREST

TABLE OF CONTENTS

TABLES

TEN-YEAR LAND MANAGEMENT PLAN
WELAKA STATE FOREST

EXHIBITS

LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

LEAD AGENCY: Florida Department of Agriculture and Consumer Services (FDACS), Florida Forest Service
COMMON NAME: Welaka State Forest (WeSF)
LOCATION: Putnam County
ACREAGE TOTAL: 2,287.11 acres

Historic Natural Communities	Approximate Acreage*		Historic Natural Communities	Approximate Acreage*
Baygall	167		Mesic hammock	54
Depression marsh	60		Sandhill	485
Flatwoods / Prairie lake	74		Scrubby flatwoods	190
Floodplain marsh	105		Wet flatwoods	173
Floodplain swamp	329		Wet prairie	1
Hydric hammock	22		Xeric hammock	21
Mesic flatwoods	573			

*Acreage discrepancies may occur based on FNAI polygons

TIITF LEASE AGREEMENT NUMBER: 3979
USE: Single ___ Multiple _X_

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

DESIGNATED LAND USE: Multiple-Use State Forest
SUBLEASES: Well Monitoring License Agreement (Upland Lease)
ENCUMBRANCES: Beecher Springs Road easement
TYPE OF ACQUISITION: Fee Simple Conveyance of Deeds from Federal Government.
UNIQUE FEATURES: Continuum of sandhills to flatwoods to floodplain swamps, along with depression ponds and marshes; two (2) springs and 2.5 miles of undeveloped river frontage; high degree of biological diversity.
ARCHAEOLOGICAL / HISTORICAL: Twenty-six (26) known sites
MANAGEMENT NEEDS: Restoration and maintenance of flatwoods, sandhill, and floodplain marsh native ecosystems through more frequent prescribed burning, hardwood control, and invasive species removal; minor recreation improvements to continually enhance the user experience; obtain new hydrological assessment and report for WeSF.
ACQUISITION NEEDS: 5,094 Acres of Optimal Management Boundary
SURPLUS ACREAGE: None

PUBLIC INVOLVEMENT:	Liaison Committee, Putnam County Council, Management Plan Advisory Group and Public Hearing, Acquisition and Restoration Council

I. Introduction

Welaka State Forest (WeSF) consists of one (1) tract of 2,287.11 acres located in the southeastern portion of Putnam County. WeSF is located along the eastern bank of the beautiful and historic St. Johns River. In 1992, the forest was assigned for management to the Department of Agriculture and Consumer Services through a transfer of lease from the Florida Board of Regents (previously named State Board of Education of Florida). Unique features of the forest include two (2) springs and 2.50 miles of undeveloped river frontage. Natural communities on the forest include depression marsh, floodplain marsh, floodplain swamp, mesic flatwoods, scrubby flatwoods, wet flatwoods, wet prairies, hydric hammocks, xeric hammocks, sandhills, and baygalls. A large variety of tress and plant life flourish along the river swamps of the St. Johns River. Mud Spring provides 13,750 gallons per hour of clear spring water into a half mile (0.50 miles) spring run that flows into the St. Johns River.

In addition to implementing sound ecosystem management principles in the natural communities of WeSF, FFS operates a training center at this location. FFS is the primary user of these training facilities, but other groups are also encouraged to use them on a space-available basis. This includes the Florida Department of Environmental Protection (DEP), Florida Fish and Wildlife Commission (FWC), US Fish and Wildlife Service (USFWS), Putnam County, the Town of Welaka, and the St. Johns River Water Management District.

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 WeSF 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 WeSF 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 WeSF will be accomplished with the following strategies:

- Practice sustainable forest management for the efficient generation of revenue and in support of state forest management objectives;
- Provide for resource-based outdoor recreation opportunities for multiple interests;
- Restore and manage healthy forests and native ecosystems ensuring the long-term viability of populations and species listed as endangered, threatened, or rare, and other components of biological diversity, including game and non-game wildlife, and plants;
- Protect known archaeological, historical, and cultural resources;
- Restore, maintain, and protect hydrological functions, related water resources, and the health of associated wetlands and aquatic communities; and
- Provide research and educational opportunities related to natural resource management.

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

B. Past Accomplishments

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

- Forest Management
  - Conducted forest inventory targeting 10% of total forest acres annually
  - Planted 25,410 bareroot slash pines on 35 acres
  - Planted 35,000 containerized longleaf pines on 50 acres
  - Harvested 1,191 tons of timber from approximately 25 acres
  - Single drum chopped 196 acres
  - Site prep and timber stand improvement of 153 acres.
  - Fuel reduction mowing / mulching eight (8) acres.

- Fire Management
  - Conducted prescribed burns totaling 6,091 acres

- Road / Boundary Management
  - Improved or rebuilt seven (7) miles of forest roads
  - Graded 10 miles of roads
  - Maintained 39 miles of forest boundary
  - Installed eight (8) culverts

- Recreation Management
  - Hosted more than 150,500-day use and camping visitors on the forest
  - Repaved the office / visitors center parking lot
  - Repaired trailhead pavilion
  - Updated dump station at Equestrian Campground
  - Rebuilt education trail boardwalk and dock
  - Installed a vault restroom at Mud Spring
  - Installed boardwalk and floating dock at Mud Spring Run

- Biological Management
  - Actively controlled 17 invasive plant species on 20.8 acres

- Initiated an ongoing research project with FWC for conducting quail count surveys annually

- Education / Public Outreach
  - Hosted 13 forest-related program / tours (local school programs, clubs, and professional groups)
  - Hosted one (1) paddler rendezvous on the St. Johns River
  - Hosted two (2) fall festivals
  - Hosted four (4) Operation Outdoor Freedom (OOF) hunts
  - Produced 38 radio, television, and / or print articles featuring forest activities
  - Hosted 13 research projects

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

The following goals and objectives provide direction and focus of management resources for the next ten-year planning period. Funding, agency program priorities, and the potential for wildfire or other natural disasters during the planning period will determine the degree to which these objectives can be met. Management activities on WeSF during this management period must serve to conserve, protect, utilize, and enhance the natural and historical resources and manage resource-based public outdoor recreation that is compatible with the conservation and protection of this forest. Most of the management operations will be conducted by the FFS, although appropriate activities will be contracted to private sector vendors or completed with the cooperation of other agencies. All activities will enhance the property's natural resource or public recreation value.

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

➢ GOAL 1: Sustainable Forest Management

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

Performance Measures:

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

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

Performance Measures:

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

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

  Objective 1: Maintain public access and recreation activities that are compatible with multiple-use management. (Ongoing objective)
  Performance Measure: Number of visitor opportunities per day

  Objective 2: Continue to safely integrate visitor use into WeSF, following the Five-Year Outdoor Recreation Plan, and update annually. (Ongoing objective)
  Performance Measures:
  - Continued implementation of the Five-Year Outdoor Recreation Plan
  - Annual updates of the Five-Year Outdoor Recreation Plan completed

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

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

  Objective 5: Recruit volunteers and volunteer organizations to assist with recreation and / or resource management. (Ongoing objective)
  Performance Measures:
  - Number of volunteers and organizations that assist with projects
  - Number of hours provided by volunteers

  Objective 6: Reroute and rename Johns Landing Trail near Little Lake George by installing a short loop (0.5 mi) from the terminus of the trail at Little Lake George back to the main trail which will help keep day-use hikers from walking through the John's Landing primitive campsite, which is separate from the trail. (Short-term objective)
  Performance Measures:
  - Trail connection from Deer Run Trail to loop in viewing area of Little Lake George
  - Construction of elevated overlook at Little Lake George viewing area
  - Update trailhead signage, trail names, and blazes

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

  Objective 1: WeSF currently contains approximately 1,588 acres of fire-dependent communities. WeSF staff will plan and conduct prescribed burns in a manner that benefits these fire-dependent natural communities within the forest. To achieve an average fire-return interval of two (2) to four (4) years for its fire-dependent communities, WeSF will plan and attempt to conduct prescribed burns on an average of approximately 400 to 800 acres per year. Currently, FFS staff estimates 1,485 acres at WeSF are within the desired fire-return interval. (Ongoing objective)

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

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

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

  Objective 3: Reduce the threat of wildfire within the wildland urban interface on WeSF and the surrounding community through a comprehensive mitigation strategy that includes evaluating vegetative fuels near residential areas and identifying potential fuel reduction projects. (Ongoing objective)

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

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

  Performance Measures:
  - Number of acres evaluated
  - Number of acres treated

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

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

  Performance Measures:
  - Imperiled species management strategy completed
  - Baseline listed and rare species list completed for WeSF

Objective 2: In consultation with FWC, implement survey and monitoring protocols, where feasible, for listed and rare species. (Ongoing objective)
Performance Measure: Number of species for which monitoring is ongoing

Objective 3: In cooperation with the FNAI, FWC, and the FFS Forest Management Bureau State Lands Section, develop and implement strategies for locating, identifying, mapping, preserving, and monitoring listed and rare species and / or associated plant community(ies). (Ongoing objective)
Performance Measures:

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

- **GOAL 5: Invasive Species Management and Control**

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

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

- **GOAL 6: Cultural and Historical Resource Management**

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

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

- Number of sites monitored
- Reports submitted to DHR

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

- **GOAL 7: Hydrological Preservation and Restoration**

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

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

Performance Measure: Assessment conducted

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

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

Objective 1: WeSF staff, along with help from volunteers and / or user groups, will continue maintenance of the visitor center, picnic pavilions, the Equestrian Campground (including five (5) tent-only campsites, five (5) tent or RV campsites, and 23 horse stalls), two (2) parking areas and one (1) trailhead on the eastern side of CR 309 along with two (2) hike-in primitive campsites, two (2) parking areas and two (2) trailheads on the western side of CR 309, and combined use areas that include 12 miles of trails and 35 miles of primary and service roads. (Ongoing objective)
Performance Measure: The number of existing facilities, miles of roads, and miles of trails maintained

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

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

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

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

II. Administration Section

A. Descriptive Information

1. Common Name of Property

The common name of the property is Welaka State Forest (WeSF).

2. Legal Description and Acreage

The WeSF is comprised of 2,287.11 acres.

The forest is located in Putnam County, Florida. County Road 309 bisects WeSF. The city of Palatka is approximately 13 miles north and the town of Welaka is approximately two (2) miles to the north. The boundaries and major parcels are identified in Exhibits B and D. The property is located in all or part of Sections 14, 15, 16, 21, 22, Land Grant 40, Township 12 South; Range 26 East. Acreage acquired by funding source is identified in Table 1.

Table 1. WeSF Acreage by Funding Source

Funding Source	Acres
Other	2,287.79
Ferry Landing Fish Camp Partial Release of Lease	-0.68

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

3. Proximity to Other Public Resources

Lands managed by State, Federal, Local government, or by private entity for conservation of natural or cultural resources that are located within approximately 15 miles of the forest are listed in Table 2 and illustrated in Exhibit F.

Table 2. Nearby Public Conservation Land and Easements

Public Conservation Land	Managing Agency	Distance
Welaka National Fish Hatchery	USFWS	Adjacent – NW and SE
Ocala National Forest	USFS	0.25 miles W
Caravelle Ranch Wildlife Management Area	FWC	0.75 miles NW
Lake George Conservation Area	SJRWMD	3.5 miles ESE
Dunns Creek State Park	DRP	3.5 miles NE
Seven Sisters Conservation Area	SJRWMD	5 miles NNW
Rodman Bombing Range	USN	5 miles WNW
Marjorie Harris Carr Cross Florida Greenway State Recreation and Conservation Area	DRP	5.5 miles NW
Murphy Creek Conservation Area	SJRWMD	6.25 miles N
Dunns Creek Conservation Area	SJRWMD	7 miles NE
Horseshoe Point Conservation Area	SJRWMD	8.5 miles N
Shell Bluff Park	Flagler County	9.75 miles ENE
Crescent Lake Conservation Area	SJRWMD	10.25 miles SE
Ravine Gardens State Park	DRP	10.5 miles N
Lake George Forest and WMA	Volusia County	10.5 miles SE

Public Conservation Land	Managing Agency	Distance
Rice Creek Conservation Area	SJRWMD	11 miles NW
Palatka-to-St. Augustine State Trail	DRP	12.5 miles NE
Haw Creek Preserve State Park	DRP	12.5 miles SE
J.A. Ginn Jr. Parcel	SJRWMD	13 miles N
Carl Duval Moore State Forest and Park	FFS	13.5 miles NW
Palatka-to-Lake Buter State Trail	DRP	13.5 miles NW
Haw Creek Preserve	Flagler County	15 miles ESE

DRP – FDEP, Division of Recreation and Parks
FFS – FDACS, Florida Forest Service
FWC – Florida Fish and Wildlife Conservation Commission
NFLT – North Florida Land Trust
SJRWMD – St. Johns River Water Management District
USFS – US Forest Service
USFWS – US Fish and Wildlife Service
USN – US Dept. of Defense, Navy

4. Property Acquisition and Land Use Considerations

Ninety-six percent (96%) of the state forest acreage (2,287.11 acres) was obtained by the State of Florida from the federal government, at no cost, under the auspices of the Bankhead Jones Farm Tenant Act. Other federal laws allowed for the transfer of ownership of the remaining 97.76 acres from the federal government to the State of Florida.

The property was leased to the Florida Board of Regents by the Board of Trustees of the Internal Improvement Trust Fund (BOT) until the early 1990s, when it was released back to the BOT. The 2,190.03-acre and 20.5-acre parcels were then leased to the Florida Department of Agriculture and Consumer Services by the BOT under Lease Number 3979, dated March 8, 1994. Amendment Number 1 to Lease Number 3979, dated July 5, 1994, added the final 77.26 acres to the Department's Lease. In June 2002, 0.68 acres designated as the Ferry Landing Fish Camp was released from WeSF lease for assignment to Putnam County. The major parcel acquisitions are identified in Table 3.

Table 3. Parcel Acquisitions

Parcel Name	Lease Date	Acres* **
Welaka State Forest	3/8/1994	2,190.03
Welaka State Forest	3/8/1994	20.50
Welaka State Forest	7/5/1994	77.26
Ferry Landing Fish Camp	6/20/2002	-0.68

B. Management Authority, Purpose, and Constraints

1. Purpose for Acquisition / Management Prospectus

The main objectives for the original conveyance of the property from the federal government in 1954 were for forest research and education. Multiple-use management for the forest will be accomplished through the integration of 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 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 to water resources and the health of associated wetland and aquatic communities; and
- Provide research and educational opportunities related to natural resource management.

2. <u>Degree of Title Interest Held by the Board</u>

On March 11, 1954, 77.26 acres of the property was deeded by the federal government to the State Board of Education of Florida (later named Florida Board of Regents). This deed has a requirement that the land be used for educational purposes, primarily concerned with conservation of natural resources, land utilization, forestry, biology, botany, and natural history. On October 19, 1954, 2,190.03 acres of the property were deeded by the federal government to the State Board of Education of Florida. This deed has certain reservations, including that the land be used for public purposes, or it will revert to the federal government. On December 4, 1972, both these parcels were deeded by the State Board of Education to the State of Florida BOT, who then leased the lands back to the State Board of Education of Florida for management.

On September 23, 1975, the federal government deeded 20.5 acres to the BOT by way of a Quitclaim Deed, which also required the property to be used for educational purposes. This brought the total acreage of the forest to 2,287.79 acres. In June 2002, 0.68 acres designated as the Ferry Landing Fish Camp was released from the WeSF lease for assignment to Putnam County, resulting in the current acreage totaling 2,287.11 acres.

Copies of these deeds and the land management lease (Lease Number 3979) from the BOT are kept in the FFS state office and can be made available by contacting the forest manager.

3. <u>Designated Single or Multiple-Use Management</u>

WeSF is managed under a multiple-use concept by the FFS, under the authority of Chapters 253 and 589, F.S. The FFS is the lead managing agency as stated in Management Lease number 3979.

Multiple-use management is the harmonious and coordinated management of timber, recreation, conservation of fish and wildlife, forage, archaeological and historic sites, habitat and other biological resources, and water resources so they are utilized in the combination that will best serve the people of the state, making the most judicious use of the land for some or all these resources and considering the relative values of the various resources. Local demands, acquisition objectives, and other factors influence the array of uses that are compatible with and allowed on any specific area of the forest. This

management approach is believed to provide for the greatest public benefit, by allowing compatible uses while protecting overall forest health, native ecosystems, and the functions and values associated with them.

4. Revenue Producing Activities

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

- *Timber Harvests* – Timber harvests on WeSF will be conducted to improve forest health, promote wildlife habitat, restore plant communities, and provide additional benefits.
- *Recreation Fees* – Fees for camping and day use are currently collected through an online reservation system.
- *Apiary Leases* – There are currently no (0) apiary leases on WeSF. The feasibility of pursuing and establishing additional apiary leases on WeSF in areas where appropriate will be evaluated in accordance with guidelines stated in the State Forest Handbook.
- *Miscellaneous Forest Product Sales* – Other miscellaneous forest product sales, including but not limited to, palm fronds, crooked wood, pinecones, pine straw, and firewood, may be considered.
- *Palmetto Fronds* – A palm frond sale (primarily saw palmetto) may also be set up on a trial basis in designated areas of the forest within this planning period.
- *Palmetto Drupes* – A palmetto drupe sale may be set up on a trial basis.

5. Conformation to State Lands Management Plan

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

6. Legislative or Executive Constraints

There are no (0) known legislative or executive constraints specifically directed toward WeSF. The federal government deeded the property with a clause to the State Board of Education of Florida (later named Florida Board of Regents) in 1954, stating that a portion of the property must be used for educational purposes, which has become a part of the Parent Lease for WeSF.

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

WeSF boundaries, 12.8 miles in total, are managed by state forest personnel in accordance with the guidelines of the State Forest Handbook. There are 23 gates throughout WeSF that require periodic maintenance. There are 12.8 miles of boundary line that must be marked and posted on a 5-year recurring basis. State forest boundaries are maintained by periodic clearing, repainting, and reposting, and placement of state forest boundary signs by FFS personnel.

2. Improvements

Major improvements located on the forest include a visitor center, three (3) trailheads / day use areas, five (5) reservable tent or RV campsites, five (5) drive-up primitive tent-only campsites, two (2) reservable hike-in primitive campsites, five (5) pavilions, and three (3) vaulted restrooms. In addition, the forest houses the Welaka Training Center, consisting of two (2) dorm buildings with seven (7) dorms and 40 beds, a training room, and a limited-service dining hall. Other improvements consist of an equipment storage area and barn, two (2) staff residences, two (2) pole barns, and a workshop. See Exhibit E for a map of the buildings and improvements at WeSF.

Currently, the equipment storage area and barn are located along the route to the forest's busiest trailhead, and the infrastructure is beginning to show its age. Therefore, once we have been able to identify the funds, FFS plans to relocate and reconstruct the equipment storage area and barn to within the footprint of the training center and office area.

Buildings / Recreation infrastructure present on the WeSF include:

- Forest Office / Training Center, 3,290 sq. ft.
- Two (2) dormitories, 5,120 sq. ft.
- Kitchen / Dining Hall, 1,730 sq. ft.
- Pumphouse / Storage building, 1,025 sq. ft.
- Residence / Frame / Forest Ranger
- Residence / Frame / Senior Forest Ranger
- Pole Barn / Metal & Wood / 4,030 sq. ft.
- Maintenance / Equipment shop 3,940 sq. ft.
- Residential Apartment (Equestrian Campground), 820 sq. ft.
- Equestrian pavilion, 3,035 sq. ft.
- Storage building, 810 sq. ft.
- Fire tower 100 ft. tall
- Laundry building, 430 sq. ft.
- Two (2) horse barns, 12 stalls each, 4,800 sq. ft.
- Mud Spring boardwalk and dock 50 ft.
- Mud Spring Pavilion 380 sq. ft.
- Fire Tower Pavilion 342 sq. ft.
- Kitchen Pavilion 143 sq. ft.
- North Dorm Pavilion 1200 sq. ft.
- Recreation Pavilion in Equestrian Campground 2,360 sq. ft.

- Demonstration Barn Pavilion in Equestrian Campground 2,310 sq. ft.

3. <u>On-Site Housing</u>

There are currently two (2) residences on WeSF including two (2) that are occupied by a Senior Forest Ranger and Forest Ranger. These residences are constructed of cinderblock with stucco exterior. Housing is prioritized based on FFS policy.

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

4. <u>Operations Infrastructure</u>

a. Operations Budget

For Fiscal Year 2024-2025 the total annual budget for WeSF was $254,612.80 including funding earmarked for Welaka Training Center. This amount includes expenses, contractual services, Other Personal Services Employment (OPS), etc. A summary budget for WeSF is contained in Exhibit U. Implementation of any of the activities within this management plan is contingent on availability of funding, other resources, and other statewide priorities.

b. Equipment

To carry out the mission of the FFS, equipment assigned to the WeSF includes:

- 1999 Ford F-900 dump truck
- 2018 Kubota UTV
- 1984 Pettibone forklift
- 2001 John Deere 790 tractor
- 2013 Ford F250 pickup
- 2019 Ford F250 Super Duty pickup
- 2020 F250 pickup
- 2018 Ford F550 Medium duty truck
- 2015 John Deere 6110M tractor
- 1985 Kogen bulk fuel trailer

Utilities serving the public and forest staff are as follows:

- Two (2) 6” wells for potable water located 300 feet north of the office building
- 4” well for equestrian use 200 ft east of campground restrooms
- Twelve (12) septic tank / drain field systems which include the training center / office complex, south dorm / dining hall, north dorm, ranger room in shop, laundry room, two separate ranger residences, road crew office, camp host site in the

Equestrian Campground, dump station in campground, hill apartment / day-use restrooms / campground shower rooms, and the old house (PU1733)

- Four (4) telephone lines (3 lines for training center / administration: 1 internet access line) provided by Verizon
- Electric service provided by Florida Power and Light and Clay Electric

c. Staffing

Six (6) positions are assigned to WeSF: one (1) Forestry Supervisor II, two (2) Park Rangers, one (1) Senior Forest Ranger, and two (2) Forest Rangers.

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

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

D. Additional Acquisitions and Land Use Considerations

1. Alternate Uses Considered

No (0) alternate uses are being considered at this time. Alternate uses will be considered as requests are made and will be accommodated as appropriate if they are determined to be compatible with existing uses and with the management goals and objectives of the forest. Uses determined as incompatible include but are not limited to: water resource development projects, water supply projects, storm-water management projects, sewage treatment facilities, linear facilities, off highway vehicle use, dumping, mining, and oil well stimulation (e.g., hydraulic fracturing / fracking), or as determined by law, regulation, or other incompatible uses as described elsewhere in the management plan. Deadhead logging is not compatible with nor considered appropriate use within or adjacent to the forest boundaries.

2. Additional Land Needs

Purchasing of additional land within the optimal management boundary would facilitate restoration, protection, maintenance, and management of the natural resources on WeSF.

There are 59 parcels of land comprised of 5,094 acres adjacent to the property which should receive priority for acquisition because they would benefit the management of the property. The FFS will work with these property owners, on a willing seller basis, to acquire these parcels. See Exhibit C.

3. Surplus Land Assessment

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

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

4. Adjacent Conflicting Uses

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

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

A mobile home subdivision on the western side of WeSF could create challenges with prescribed burning, due to the proximity of some of these dwellings to the WeSF boundary. County Road 309 bisects the forest, creating smoke management concerns.

5. Compliance with Local Comprehensive Plan

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

6. Utility Corridors and Easements

There are two (2) linear facility easements on WeSF: a Clay Electric Cooperative power line that runs along the eastern boundary of the forest and bisects one small portion of the tract; and a right-of-way easement over Beecher Springs Road granted to the Putnam County Public Works Department. As a result, the small portion of Beecher Springs Road along the southeastern boundary of WeSF will be paved and maintained by the Putnam County Public Works Department. All existing easements are on file with FDEP's Division of State Lands and also are available at the FFS Tallahassee State Office.

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. FFS does not consider WeSF 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), minimize habitat fragmentation, limit disruption of management activities, including prescribed burns, and limit disruption of resource-based multiple use activities such as recreation.

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

E. Agency and Public Involvement

1. Responsibilities of Managing Agencies

FFS is the lead managing agency, responsible for overall forest management and public recreation activities, as stated in TIITF Management Lease number 3979. Pursuant to the management lease, the lead managing agency may enter into further agreements or to subleases on any part of the forest.

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

FDACS Office of Agricultural Law Enforcement (OALE) assumes law enforcement responsibilities, while FWC enforces hunting regulations, cooperatively sets hunting season dates with FFS, and conducts other wildlife management activities with input from FFS.

The St. Johns River Water Management District (SJRWMD) will be consulted and involved in matters relating to water resources as appropriate.

2. Law Enforcement

Primary law enforcement responsibilities will be handled by FDACS Office of Agricultural Law Enforcement (OALE). Rules governing the use of WeSF are stated in Chapter 5I-4, F.A.C. OALE will also assist with open burning and wildfire investigations as needed.

Officers from FWC will enforce fish and wildlife regulations and aid in enforcing state forest rules. The Putnam County Sheriff's Office provides additional assistance as needed.

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

3. Wildland Fire

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

4. Public and Local Government Involvement

This plan has been prepared by FFS and will be carried out primarily by the FFS. FFS responds to public involvement through liaison committees, management plan advisory groups, public hearings, and through ongoing direct contact with user groups. Land Management Review Teams, as coordinated by the Division of State Lands, have conducted reviews of management plan implementation in 2016 and 2021. See Exhibit R. The review team's recommendations were addressed in this plan, as appropriate.

This plan was developed with input from the WeSF Management Plan Advisory Group and was reviewed at a public hearing on April 2, 2026. A summary of the advisory group's meetings and discussions, as well as written comments received on the plan, are included in Exhibit T. The Acquisition and Restoration Council (ARC) public hearing and meeting serve as an additional forum for public input and review of the plan.

5. Volunteers

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

6. Friends of Florida State Forests

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

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

III. Archaeological / Cultural Resources and Protection

A. Past Uses

The local area, including WeSF, has been inhabited for thousands of years. Several groups of Native Americans have occupied the site (Ashley 2005). Spanish friars established a mission nearby in the 1500s which was last known to exist in 1699. Spanish and later English plantations were located in this area. William Bartram visited and described the area with his father in 1765 and again in 1774, while traveling up and down the St. Johns River.

Federal Resettlement Administration officials started the Welaka Forestry and Wildlife Conservation Project in 1935. In 1938, the fish hatchery portion of "The Project" was turned over to the U.S. Bureau of Fisheries. This area is still managed as a fish hatchery today. In 1939, the forestry and wildlife units of "The Project," including most of the administrative and housing facilities, were taken over by the University of Florida (Florida Board of Regents) through a 99-year lease, and the property was named the "University of Florida Conservation Reserve, Welaka." In 1954, the United Stated of America deeded the property to the Florida Board of Education. Subsequently, the property was assigned to the Institute of Food and Agricultural Sciences (IFAS) of the University of Gainesville, Florida, for management, and its name was changed to the Welaka Research and Education Center (WREC).

Under the management of the University of Florida, numerous studies and research projects were conducted on the WREC. In 1942, Albert M. Laessle began studying long-term succession in plant communities (Laessle 1942). The associated "inviolate areas" are no longer in existence. Other than Laessle's studies, there was little or no active research taking place at WREC during the late 1980s and early 1990s.

At one time, the University of Florida's School of Forest Resources and Conservation held forestry summer camps at WREC. However, this function has been moved to the Austin Cary Forest campus north of Gainesville. The WREC was available for instruction in the biological sciences by the University of Florida and other colleges and universities. It was also available to state agencies for conducting research and educational program but was little used by any of these groups. Public schools occasionally used the area for field trips.

The WREC was primarily designated for research and remained essentially closed to the public due to limited staffing. The primary user of the forest had been the state's 4-H program. Different 4-H groups visited the WREC for a one (1) week horsemanship class each summer. Approximately 50 individuals attended each week for a period of four to six (4 to 6) weeks. An adult horsemanship school was also sponsored by 4-H at WREC for extended weekends in April and October. Adults were trained at these sessions so that they could return home and properly instruct children. Other 4-H groups used the area for other purposes during the year, but this was minimal. High school students used WREC for a two-week period in the summer months through a program sponsored by Safari International.

Historically, other groups such as horseback riding clubs, Girl Scouts, and Boy Scouts had expressed an interest in using the area, but little or no use by these groups actually occurred.

Following the transfer of management responsibility from the University of Florida to FFS, public use, especially hiking and equestrian use, has increased dramatically. In addition, a more active program of natural resource management has been initiated including prescribed fire, trail construction, and habitat restoration.

B. Archaeological and Historical Resources

A review of information contained in the Florida Department of State, DHR, Florida Master Site File has determined there are 10 recorded archaeological sites, 13 standing structures, and three (3) historical resource groups found within the designated area for WeSF. See Table 4 and Exhibit G.

Table 4. Archaeological and Historical Sites on WeSF

Site ID	Site Name	Site Type
PU00035	Mount Royal Mound and Midden	AR
PU00068	Gateway	AR
PU00105	Orange Point Midden	AR
PU01616	Welaka State Forest Fish Hatchery Ponds	RG
PU01632	Deer Run Road Cistern	AR
PU01728	Mud Springs	AR
PU01729	Bottle Dump	AR
PU01730	Turpentine Stand	AR
PU01731	Johns Landing	AR
PU01732	Midpoint	AR
PU01733	793	SS
PU01734	794-1	SS
PU01735	794-2	SS
PU01736	794-3	SS
PU01737	794-4	SS
PU01738	794-6	SS
PU01739	794-6 Garage	SS
PU01740	794-7	SS
PU01741	9914	SS
PU01742	9918	SS
PU01743	West Aviary	SS
PU01744	East Aviary	SS
PU01745	Tower	SS
PU01746	WPA Airstrip	RG
PU01747	Welaka Tram Road	RG
PU01780	WeSF Orange Point	AR

AR – Archaeological Site; RG – Historical Resource Group; SS – Standing Structure

Two (2) of these recorded sites (PU00068 and PU00105) are small shell middens located along the shoreline of the St. Johns. River. The third is a significant cultural site, Mt. Royal (PU0035), which is located adjacent to the southern boundary of the forest.

A small portion of the site boundary lies on the forest. This is the only site located at WeSF listed on the National Register of Historic places. Built by the Timucuan Native Americans between 1200 and 1500 AD, this burial and temple mound is the largest sand mound in Florida. The mound itself occurs on a one (1) acre, fenced site owned by the State of Florida and leased to DHR and is currently 24 feet in height and 210 feet in diameter. The mound is also considered unique in that it is believed that the Native Americans built it over time by hauling sand, one (1) basket at a time, from an area one-half mile to the north, creating a small lake. This artificial lake is on the state forest. In the late 1700's, William Bartram visited the area twice and described the mound and the associated "causeway" which was purported to be 50 yards wide, running from the lake to the mound (Bartram 1791). At the time, a person on the mound could look south and west and have a clear view of the St. Johns River in two (2) different directions. At one time, DHR was attempting to acquire the lands that were once part of this causeway. Due to financial constraints, DHR is no longer pursuing buying any additional properties. This could change in the future.

C. Ground Disturbing Activities

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

D. Survey and Monitoring

Currently one (1) WeSF staff and three (3) Waccasassa Forestry Center staff are trained by DHR as Archaeological Resource Management (ARM) monitors. FFS will pursue opportunities for additional personnel to receive ARM Monitor training. FFS will consult with public lands archaeologists at DHR as necessary to determine an appropriate priority and frequency of monitoring at each of the listed sites, and any protection measures that might be required. Unless required on a more frequent basis, all archaeological and historical sites within the state forest will be monitored at least annually. FFS field staff will monitor the listed sites to note condition and any existing or potential threats.

Any known archaeological and historical sites will be identified on maps to aid state forest personnel and if necessary, law enforcement personnel in patrolling and protecting sites. Applicable surveys will be conducted by ARM monitors or contracted archaeologists during the process of planning and implementing multiple-use management activities. FFS personnel will remain alert for any environmentally significant resources discoveries, and protective

actions will be taken as necessary. In addition, FFS will seek the advice and recommendations of DHR regarding any additional archaeological survey needs. Trained monitors will oversee limited types of ground disturbing activities in which DHR recommends monitoring. FFS will utilize the services of DHR Public Lands archaeologists, when available, to locate and evaluate unknown resources, and to make recommendations in the management of known resources.

IV. Natural Resources and Protection

The primary purpose for FFS management of WeSF is protection of upland and wetland and natural communities through a stewardship ethic to assure these resources will be available for future generations. Management activities will be executed in a manner to minimize soil erosion and maintain and protect / enhance the hydrological resources on WeSF. If problems arise, corrective action will be implemented by FFS staff under the direction of FFS's Forest Hydrology Section. Efforts will be made to monitor and protect WeSF waterbodies and their associated water quality and native plants and animals.

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

A. Soils and Geologic Resources

1. Resources

Soil information for WeSF was obtained from the United States Department of Agriculture Natural Resources Conservation Service (NRCS). The major soils listed by the NRCS include: Myakka-Myakka wet sand, Pomona fine sand, Tavares fine sand, Terra Ceia muck, Samsula muck, and Placid-Pompano association. Detailed information on all soils present on the forest may be found in Exhibit I.

2. Soil Protection

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

B. Water Resources

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

1. **Resources**

There are approximately 543 acres of FNAI-classified marsh and swamp that are connected to, or drain into, the St. Johns River. WeSF borders the eastern shore of the St. Johns River for a distance of approximately 2.5 miles. WeSF has one 3rd magnitude spring (Mud Spring) and one 4th magnitude spring (Sulphur Spring). Mud Spring has an oval shaped pool which measures 84 feet (25.6 m) long and 66 feet (20.1 m) wide, with an average depth of 3.5 feet (1.1 m). There is a retaining wall and drain on the southwestern side of the spring which impounds the natural flow. The spring run has an average width of 3 feet (0.9 m) and depth of 0.6 feet (0.2 m) as it travels 1 mile (1.6 km) southwest into the St. Johns River. A grass bank around the spring gives way to a dense, mixed forest. This spring is along a designated hiking trail and is a popular swimming and picnic area within the WeSF. Between 1995 and 2000, the average discharge was 1.22 ft^3/s (6). [FGS Bulletin No. 66].

Sulfur Spring, also known as Forest Springs, has an elongated spring pool which measures 35 feet (10.7 m) by 7 feet (2.1 m). There are at least two vents. One of the vents is 2.5 feet (0.9 m) in diameter and is on the northeastern side of the pool. The spring depth is 1.9 feet (0.6 m). The pool bottom is mud with tree debris and white film covering some of the debris. The water is clear with a very notable hydrogen sulfide odor, and a slight boil is visible. The spring run meanders 2.5 miles (4.0 km) west and flows into the St. Johns River. The run is 1 foot (0.3 m) deep and 3 feet (0.9 m) wide and has a mud bottom with tree debris, green algae, and a similar white film coating. The spring is located on state land amid a mixed forested wetland. The average discharge between 1972 and 2000 measured 0.29 ft^3/s (6). [FGS Bulletin No. 66].

2. **Water Classification**

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

According to subsection 62-302.700(9), F.A.C., there are no Outstanding Florida Waters (OFWs) within WeSF. The closest OFW, Caravelle Ranch, is less than one (1) mile away from WeSF. Adjacent managed areas include: Ocala National Forest, Caravelle Ranch Management Area, and Ocala Wildlife Management Area; some state parks are also present. See Exhibit J.

3. **Water Protection**

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

A Wetland Assessment was conducted on WeSF in 2009 by the FFS Forest Hydrology Section. One hundred sixty-seven (167) sites were evaluated during the assessment. Included in the assessment was a baseline assessment of drainage under CR 309 which involved 40 points.

Most points were established in or at the edge of those waterways and wetland communities that were considered likely to have been altered or impacted by previous or current land management activities such as road installation, fireline establishment, recreation facility development, or timber production. Over half of the sites involved firelines (old and new) and / or road ditches which appeared to accelerate drainage of wetland areas or inhibit subsurface flow into isolated wetland systems.

Of the 167 sites evaluated, 46 were found to be potentially suitable for enhancement or restoration efforts (Priority 1 or 2). Many of the sites simply need to be monitored by state forest staff for changes. None of the priority sites were considered to be in need of immediate attention. While there are no significant wetlands restoration needs at this time, some observations made during the 2009 Welaka assessment were:

- In general, the surface flow is toward the St. Johns River, west of WeSF. Forest roads, firelines and County Road 309, running through the forest north-to-south, are major impediments to the natural drainage.

- Some road ditches such as those associated with Eagles Nest Row Road and others trap and divert wetland drainage from its natural flow pattern in many parts of WeSF. The St. Johns River Water Management District ceased water sampling of Mud and Sulfur Springs in September 2011.

Over the next 10-year period, WeSF staff will continue to monitor sites from the 2009 assessment and request funding for an updated hydrological assessment, especially if monitoring determines the action is warranted.

4. <u>Swamps, Marshes, and Other Wetlands</u>

In addition to the waterways, WeSF currently contains approximately 755 acres in seven (7) hydric communities: baygall, depression marsh, flatwoods / prairie lake, floodplain marsh, floodplain swamp, hydric hammock, and wet prairie.

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

5. <u>Wetlands Restoration</u>

Wetland restoration objectives on the WeSF include erosion control, restoration of hydrology and / or hydroperiod, and restoration of wetland plant and animal communities. To achieve these objectives, restoration activities may involve road and soil stabilization, water level control structure removal or installation, invasive species control, site preparation and re-vegetation with native wetlands species, and project

monitoring. These activities may be conducted individually or concurrently; implemented by FFS personnel or by non-FFS personnel under mitigation or grant contractual agreements. Wetland restoration projects should be conducted in conjunction with other restoration activities indicated elsewhere in this plan.

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

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

6. Florida Department of Environmental Protection Basin Management Action Plan (BMAP)

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

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

Currently, WeSF is adjacent to the Lower St. Johns River Basin Main Stem BMAP Area. See Exhibit K.

C. Flora and Fauna Resources

1. Rare, Threatened, and Endangered Species

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

Table 5. Rare, Threatened, or Endangered Species Documented on WeSF

Common Name	Scientific Name	FNAI Global Rank*	FNAI State Rank*	Federal Status*	State Status*
Plants					
Chaffseed	*Schwalbea americana*	G2	S1	E	E
Mollusks					
Creek siltsnail	*Floridobia fraterna*	G2	S2	N	N
Insects					
Scrub tiger beetle	*Cicindela scabrosa*	G3	S3	N	N
Seminole skipper	*Hesperia attalus slossonae*	G3G4T3	S3	N	N
Florida hypotrichia scarab beetle	*Hypotrichia spissipes*	G3G4	S3S4	N	N
Three spotted pleasing fungus beetle	*Ischyrus dunedinensis*	G2G3	S2S3	N	N
Red widow spider	*Latrodectus bishopi*	G3	S3	N	N
Tavares white miller caddisfly	*Nectopsyche tavara*	G3	S3	N	N
Little oecetis longhorned caddisfly	*Oecetis parva*	G2	S2	UR	N
Round-necked Romulus long-horned beetle	*Romulus globosus*	G1G2	S1S2	N	N
Florida cebrionid beetle	*Selonodon floridensis*	G2G4	S2S4	N	N
Floridian triaenode caddisfly	*Triaenodes florida*	G3	S2	N	N
Scrub palmetto flower scarab beetle	*Trigonopeltastes floridana*	G3	S3	N	N
Fish					
Snail bullhead	*Ameiurus brunneus*	G4	S4?	N	N
River goby	*Awaous banana*	G5	S1S2	N	N
Bluenose shiner	*Pteronotropis welaka*	G3G4	S3S4	N	ST
Amphibians					
Gopher frog	*Lithobates capito*	G2G3	S3	UR	N
Reptiles					
Gopher tortoise	*Gopherus polyphemus*	G3	S3	N	ST
Birds					
Southeastern American kestrel	*Falco sparverius paulus*	G5T4	S3	N	ST
Bald eagle	*Haliaeetus leucocephalus*	G5	S3	N	N
Mammals					
Southeastern weasel	*Neogale frenata olivacea*	G5T4	S3?	N	N
Round-tailed Muskrat	*Neofiber alleni*	G2	S2	N	N
Florida mouse	*Podomys floridanus*	G3	S3	N	N
Southeastern fox squirrel	*Sciurus niger niger*	G5T5	S3	N	N

* STATUS / RANK KEY

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

FNAI State Rank: S1= Critically Imperiled, S2= Imperiled, S3= Very Rare, S4= Apparently Secure, S5 = Demonstrably

secure in Florida, S#?= Tentative Rank, Federal Status (USFWS): E= Listed Endangered, T= Listed Threatened, N= Not currently listed, C = Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened. SAT, T(S/A) = threatened due to similarity of appearance. A species that is threatened due to similarity of appearance with another listed species and is listed for its protection. Species listed as T(S/A) are not biologically endangered or threatened and are not subject to Section 7 consultation, UR = Under Review.
State Status (FWC): Animals: FE = Listed as Endangered Species at the Federal level by the USFWS, FT = Listed as Threatened Species at the Federal level by the USFWS, F(XN) = Federal listed as an experimental population in Florida, FT(S/A) = Federal Threatened due to similarity of appearance, SE = State population listed as Endangered by the FWC, ST = State population listed as Threatened by the FWC, C = Candidate species, N = Not currently listed, nor currently being considered for listing.
Plants: E = Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act; T = Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered; CE = Commercially Exploited; N = Not currently listed, nor currently being considered for listing.

2. <u>Florida Natural Areas Inventory</u>

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

a. Element Occurrences

FNAI element occurrences data layer includes occurrences of rare species and natural communities. For animals and plants, element occurrences usually indicate a viable population of the species. The FNAI Florida Natural Heritage Database has documented Element Occurrences on WeSF of several species listed in Table 5, above. In addition, there are also Element Occurrences of three (3) rare or vulnerable natural communities: sandhill (G3/S2), scrub (G2/S2), and spring-run stream (G2/S2).

b. Likely and Potential Habitat for Rare Species

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

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

3. <u>Florida Fish and Wildlife Conservation Commission</u>

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

Other findings by the FWC include:

a. The property is located within and adjacent to a Strategic Habitat Conservation Area for American alligator (*Alligator mississippiensis*), bald eagle (*Haliaeetus leucocephalus*), eastern indigo snake (*Drymarchon couperi*), Florida black bear (*Ursus americanus floridanus*), Florida pine snake (*Pituophis melanoleucus mugitus*), Florida sandhill crane (*Antigone canadensis pratensis*), Florida scrub-jay (*Aphelocoma coerulescens*), little blue heron (*Egretta caerulea*), gopher tortoise

(*Gopherus polyphemus*), red-cockaded woodpecker (*Leuconotopicus borealis*), sand skink (*Neoseps reynoldsi*), southeastern American kestrel (*Falco sparverius paulus*), striped newt, and wood stork (*Mycteria americana*).

b. WeSF is located within an area of moderate Species Richness which indicates the total number of species within potential habitat identified in a specific location.

c. WeSF is located within and adjacent to Priority Wetlands, which are wetlands significant to listed wetland-dependent vertebrates.

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

The FWC recommends the review of management guidelines in the published FWC Gopher Tortoise Management Plan to guide management actions for the gopher tortoise (*Gopherus polyphemus*) on the area. The FWC Gopher Tortoise Management Plan provides beneficial resource guidelines for habitat management and monitoring of the gopher tortoise. For reference, the FWC Gopher Tortoise Management Plan can be accessed at MyFWC.com.

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

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

Wildlife management plays an important role in the management of resources on the WeSF. The state forest currently is not within a Wildlife Management Area (WMA). FWC provides cooperative technical assistance in managing the wildlife and fish populations and assists with law enforcement on the forest.

Notable species inhabiting the forest include Florida black bears, bobcats, white-tailed deer, wild turkey, and smaller species such as gray squirrel, rabbit, raccoon, coyote, quail, and migratory birds. Florida panther is also believed to occasionally pass through the state forest.

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

5. Survey and Monitoring

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

These practices will aim to protect and, when possible, increase imperiled plants and animal species occurring on the forest. Continued efforts will be made to identify and implement biological surveys, as appropriate, including those species associated with the habitats adjacent to the St. Johns River.

a. Eagle Nesting Trees

Presently, actions taken to mitigate around eagle nesting trees in the various burn units consist of mowing an approximately 50-foot diameter circle around each tree prior to initiation of a burn. This effectively reduces fuel loads around eagle nesting trees, so as not to cause harm to these trees. Habitat and nesting tree guidelines for bald eagles have been created by FWC, and they are implemented on WeSF in consultation with FWC.

b. Gopher Tortoises

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

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

c. Florida Black Bear

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

d. Listed Plant Species

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

e. Other Rare Biota Surveys

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

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

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

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

6. Gopher Tortoise Recipient Site Feasibility Assessment

The FFS has assessed the feasibility of establishing a gopher tortoise recipient site on WeSF. Despite the small size of the forest, WeSF has several natural communities and soil types that already support small gopher tortoise populations, maintained by the appropriate use of prescribed fire and other resource management techniques. However, there is only about 373 acres of intact sandhill present on the property, with the vast majority forming the eastern boundary of WeSF in a relatively long (~2 miles) but narrow (~1400 foot) shape. Further, this portion of the property is bounded by high-density new construction to the north and five-acre ranchettes to the east. There is a small acreage of sandhill on the western side of County Road 309, as well as pockets of scrubby flatwoods (~163 acres). These parcels are mostly non-contiguous and also have resident tortoises on site. Therefore, the FFS has assessed that WeSF is not appropriate for the establishment of a new gopher tortoise recipient site.

D. Sustainable Forest Resources

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

E. Beaches and Dune Resources

No (0) beaches or dunes occur on the WeSF.

F. Mineral Resources

There are no (0) known significant mineral deposits of commercial value on WeSF.

G. Unique Natural Features and Outstanding Native Landscapes

Unique natural features of WeSF include one (1) 3rd magnitude spring, and one (1) 4th magnitude spring, and 2.5 miles of undeveloped frontage on the St. Johns River.

H. Research Projects / Specimen Collection

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

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

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

- Florida Fish and Wildlife Conservation Commission (Doonan, Oxenrider, and Teets) and University of Florida (Austin and Marx). 2014 – 2017. Conduct research assessing the genetic structure of the statewide Florida mouse population for more effective conservation management.
- Florida Fish and Wildlife Conservation Commission (Farmer, Enge, Castellon, Mays, Hill, Barichivich, Brown, and Walls). January 13, 2015. Conduct research to determine the status and distribution of the ornate chorus frog (*Pseudacris ornata*)
- University of Oxford, United Kingdom (Schulting and Snoeck). 2017. Conduct research on strontium isotope analysis to source ancient canoes of Florida's wetlands on eight state forests.
- University of North Carolina (Weakley and Schoonover). 2017. Collect plant material for genetic and morphological analyses and to examine *Trichostema* populations throughout the southeastern United States, with the goal to better understand species distribution and evolutionary trends.
- University of Florida (Flory). 2017. Conduct research as part of a comprehensive field survey to generate robust relationships between abiotic and biotic environmental factors and cogongrass (*Imperata cylindrica*) distribution and abundance.
- University of Florida (Mallinger). 2020. Conduct research to investigate the behavior and ecology of a native pollinator, the Southeastern blueberry bee (*Habropoda laboriosa*), along with its host plants (*Vaccinium spp*.).
- Florida Fish and Wildlife Conservation Commission (Gore, McCleery, and Hassler). 2020 – 2021. Investigate long-tailed weasel distribution and its habitat requirements in Florida.

- University of Florida (Daniels and Kimmel). 2021 – 2022. Investigate the distribution and floral hosts of the scrub plasterer bee (*Caupolicana floridana*) and closely related *C. electa* in Florida.
- Boise State University (Rosentreter). 2021 and 2023. Collect specimens of lichens not currently vouchered in a county, or to collect lichen species where additional research material is needed.
- University of Florida (Reisinger, Kabalan, and Barrett). 2022. Conduct studies regarding the effects of land use and management practices on native slough crayfish (*Procambarus fallax*).
- University of New Hampshire (Reynolds and Varner). 2023. Conduct research regarding methane isotopes in ponds.
- Adventure Scientists (Eggers). 2023. Collect tuliptree samples for genetic research on all forests from District 1 through District 12.
- University of Florida (Smith). 2024. Collect samples of Relampago fungus to learn more about the biology of a relatively new disease affecting a wide variety of host plants.

I. Ground Disturbing Activities

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

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

V. Public Access and Recreation

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

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

A. Existing Recreation Opportunities

A variety of recreation opportunities are available on WeSF. Recreation activities include hiking, camping, horseback riding, wildlife viewing, picnicking, bicycling, and paddling. WeSF is part of the Great Florida Birding Trail, the FFS Trailwalker Program, and the FFS Trailtrotter Program. Leashed pets are also allowed on the forest. See Exhibit E for a map of the Recreation, Facilities, and Improvements.

FFS is willing to work in partnership with appropriate ecotourism / local interest groups and local government agencies to further develop projects that lead to increased public recreational use and access.

1. Public Access & Parking

Almost all access onto WeSF comes off County Road 309. County Road 309 divides the forest into eastern and western sections. Boat access to WeSF is allowed from the St. Johns River; however, no means currently exist to monitor or assess the amount of boat traffic and for the general public to pay the required user fee when accessing the forest from boat at the time of arrival.

Vehicle access to the forest is allowed on Indian Pond Run; a forest road that was open to public vehicular access in 2009. This one (1) mile road is located on the western side of the forest between CR 309 and Fort Gates Ferry Road. It is approximately one (1) mile south of the forest office.

Parking is allowed at the Mud Springs trailhead, the Johns Landing / Environmental Education trailhead and Sandhill Equestrian trailhead. The Johns Landing / Environmental Education trailhead is also the trailhead for the Orange Point primitive camping site.

The forest headquarters is located at the intersection of CR 309 and Arabian Road. The main building at this site is an administrative office with an adjacent training room. This building serves as the main point of contact for the public and provides restrooms. General forest information and special use permits may be obtained at this location.

2. Hiking Trails

WeSF is also part of the Great Florida Birding and Wildlife Trail. The St. Johns River adjacent to WeSF and Mud Springs Run is part of the Putnam County Blueways designation through the Office of Greenways and Trails; a paddling trail. WeSF is part of the Bartram Trail, an educational project highlighting the Travels of William Bartram including his stop at Mt. Royal (Bartram 1791).

The Mud Spring Trailhead and trail system is located on the western side of County Road 309 across from the forest headquarters. The parking area has a kiosk, garbage can, and parking for 20 vehicles. The hiking trail leads visitors on a 1.7-mile walk to Mud Spring picnic area and back. The picnic area at the site of the spring has a covered pavilion with picnic table and trash receptacles. Additionally, there is a 50-foot boardwalk following the spring run out towards the St. Johns River.

The Environmental Education Trailhead is one (1) mile south of the forest headquarters on the western side of County Road 309. From this trailhead you can hike the half mile (0.50 mile) environmental education trail with interpretive signage along the route. This trailhead is also the access point for the Johns Landing Trail, which leads to the Johns Landing and Orange Point primitive campsites.

The Johns Landing Trail provides visitors with the option to hike the 4.5-mile loop trail or the shorter 3-mile trail.

3. Equestrian Trails

The equestrian area is located on Arabian Road, 500 yards past the forest headquarters on the eastern side of County 309. This site has a designated trailhead for day use visitors, Sandhill Equestrian Trail provides five (5) miles of trail riding, one (1) show horse arena, and a covered pavilion with restrooms. Reservations and fees in this area are collected through an online reservation system. Horses are only permitted on the east side of County Road 309.

4. Bicycling

Off-road bicycles are permitted on all forest roads. Access to the service road system is closed to public vehicle traffic but is provided by walk-through openings located at closed gates for cyclists. The service roads system contains areas of packed and sandy roads. The service roads can be accessed from the designated trailhead parking areas.

5. Fishing and Boating

There is a floating dock and connected boardwalk from Mud Spring Run to Mud Spring. Small watercraft can access the dock from the St. Johns River via Mud Cove to Mud Spring Run, where the public can moor to the floating dock to access Mud Spring. Currently, there are not any designated canoe / kayak launches on WeSF.

6. Camping

The Equestrian Campground is located at the end of Arabian Road, which passes the visitor center and forest headquarters / training facility. The campground has two (2) stables that offer 23 individual horse stalls. There are five (5) tent or RV sites with concrete pads conveniently located near the horse stable and surrounded by natural ground cover, suitable for horses. Each site has dedicated electric / water hook ups and access to a centrally located dump station. There are also five (5) tent-only primitive campsites, and a pavilion located in the Equestrian Campground. Additional primitive camping is available on the western side of CR 309 near the Environmental Education trailhead. There are two (2) primitive campsites that are hike-in only. Campsites are located along the shoreline of Little Lake George and are accessed from the John's Landing Trail. These primitive campsites are designated for small groups of trail users with less than 10 people. Each campsite has a picnic table, grill, fire ring, lantern post, and bear-proof trash can. Parking is located on the west side of CR 309. The trailhead has two (2) restrooms, a covered pavilion with picnic tables, interpretive signs, trash receptacles, and a kiosk. Reservations and fees are managed through an online reservation system.

B. Planned Recreation Opportunities

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

FFS will continue to assess the site and encourage further research as to appropriate restoration and/or public use. No significant recreation changes are planned at this time. With the current quantity and quality of recreational opportunities available on WeSF, the focus will be the improvement and upgrades to current facilities.

1. Public Access and Parking

Current parking areas and forest access points will continually be evaluated for improvements. Existing parking areas are for all recreational users on WeSF and FFS staff use. New designated parking areas and public access may be established and installed as the need warrants. If additions or improvements are needed, listed plant and animal species and known archeological sites will be avoided. The size of parking areas will be determined by location and specific needs for public access uses. Additional signage for WeSF will be updated as needed.

Due to ongoing road erosion at the Equestrian Campground, FFS plans to make road improvements including and up to paving as needed. These improvements will fall within the footprint of the existing "Arabian" forest road.

2. Recreational Trails

Within this ten-year planning cycle, suitable locations will be explored for additional recreation trails. The construction, maintenance, and improvements of multi-use, equestrian, cycling, nature, and hiking trails will be ongoing. FFS will install and replace trail directional signs or re-paint blazes along all existing trails on WeSF to help with trail signage and hiking access as needed. During this ten-year planning period, further evaluation will be conducted regarding recent equestrian user group interest to provide shortcuts to the existing longer loop trails and create new loops using existing service roads. This evaluation will be focused on the Equestrian Campground and potential improvement may include equestrian trails and hiking trails.

Additional potential upgrades include improving the existing pavilion and bathrooms at the Sandhill Equestrian Trailhead. These improvements are still under investigation but may include a significant renovation or a complete rebuild of the existing structures.

FFS plans to reroute existing trails leading to John's Landing and to create a separate designated day-use trail away from campsites on the western side of WeSF. This new design will lead to a new day-use landing on Little Lake George. Additional trails for day-use recreation areas, and construction of elevated overlook for the Little Lake George viewing area will be evaluated further, planned, and installed if funding becomes available.

3. Environmental Education

Environmental information regarding WeSF is displayed on kiosks and interpretive signs. Guided tours and hands-on events are provided by request. Other opportunities for interpretive / educational programs will be considered. Targeted groups include the general public, school and youth groups, and various user groups. One interpretive self-guided trail is available. Each kiosk is used for display and information for all recreational activities on WeSF. Each will be installed, replaced, or repaired as needed. Additional kiosks or educational materials or displays may be installed in the future as needed. Forest staff will investigate the feasibility of an interpretive museum display case in the front office, for the purpose of displaying cultural artifacts.

4. River Access

An assessment to determine the feasibility of installing a designated canoe / kayak site will be conducted during this ten-year planning cycle.

5. Amenities

During this ten-year planning period, FFS will assess the need and feasibility to restore a 25-acre fish hatchery pond area, just northwest of the office, into recreational fishing ponds. If feasibility, funding, and regulatory agencies permit, these ponds could be improved for additional opportunities for fishing and other water-based recreation on the state forest. This is an excellent opportunity to partner with the neighboring USFWS Welaka National Fish Hatchery for expertise, guidance, and stocking of the ponds. Permitting and expertise from the St. Johns River Water Management District will be vital to the success of this potential project.

6. Camping

Currently, no (0) additional camping facilities are planned for this next ten-year period.

C. Hunter Access

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

Even though WeSF is not open to hunting nor designated as a WMA, limited hunting has occurred in the past through Operation Outdoor Freedom (OOF) hunts in collaboration with FWC, Florida Veterans Foundation, and other partners. Supported by the Florida Department of Agriculture and Consumer Services and led by the Florida Forest Service, Operation Outdoor Freedom provides recreational and rehabilitative opportunities to wounded veterans on state forests, agricultural lands, and private lands throughout Florida at no cost. Since its inception in 2009, Operation Outdoor Freedom has hosted more than 900 events and served approximately 6,400 wounded veterans. Although no OOF hunts are planned in the near-term, WeSF is open to having OOF hunts in the future if there is a demand.

D. Education

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

VI. Forest Management Practices

A. Prescribed Fire

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

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

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

FFS has one (1) fire tower, two (2) brush trucks, one (1) heavy dozer, and five (5) tractor-plow units located in Putnam County. Additional support is available from neighboring counties. Personnel and equipment are stationed at WeSF, Etoniah Creek State Forest, and Hollister Forestry Station. These resources will be used for pre-suppression practices, establishment of firebreaks, rehabilitation of existing firelines, construction of new firelines, maintenance of perimeter firebreaks, and prescribed burning.

According to FNAI, historic, fire-dependent natural communities on WeSF are estimated to have occupied 1,661 acres and to have burned at approximately two (2) to four (4) year intervals. All of these fire-dependent communities have been burned at least once, with most having been burned multiple times during the last ten years. Based on current conditions and management objectives, WeSF will plan to burn an average of 400-800 acres annually.

Priority ranking of burn units is used to keep fire-return intervals maintained while slowly adding additional acreage. Meeting prescribed fire goals will be largely dependent on weather conditions, available personnel, and statewide emergency situations such as wildfires, hurricanes, and other natural disaster response and relief.

Currently it is estimated that approximately 1,485 acres or about 89% of WeSF are within the desired fire-return interval.

1. <u>Fire Management</u>

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

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

a. Prescribed Fire: Prescribed fire is the most important land management tool, both ecologically and economically, for managing vegetation and natural communities and perpetuating existing wildlife populations in Florida. Forest operation records and staff experience should be combined with the FNAI inventory and assessment (2022) to identify areas that may require mechanical or chemical treatments in conjunction with prescribed fire to restore a more natural vegetative structure.

b. Burn Unit Plans: Each prescribed fire will be conducted in accordance with FFS regulations and state law (Chapter 5I-2 F.A.C., Chapter 590, F.S.) and have a burn unit plan (or prescription). Each prescription will contain, at a minimum, the information, as required by Section 590.125(3), F.S., needed to complete the FFS Prescribed Burn Plan Form FDACS 11461.

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

Based upon available species survey data, burn units within a prescription that have listed wildlife species shall explicitly state their presence and any restrictions or requirements relative to prescribed burning in proximity to these species or habitats.

These may include time of year, pre-burn preparation, fire return intervals, and other burn parameters.

B. Wildfire Prevention and Mitigation Strategies

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

FFS has three (3) paramount considerations regarding wildfires and are established in priority order:

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

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

1. Suppression Strategies

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

a. Contain and Control is defined as a suppression strategy where a fire is restricted to a certain area by using existing natural or constructed barriers that stop the fire's spread under the prevailing and forecasted weather until it is out. This strategy allows the use of environmentally sensitive tactics based on fuels, fire behavior, and weather conditions that keep a wildfire from burning a large area or for a long duration.

b. Direct Suppression is defined as a suppression strategy where aggressive suppression tactics are used to establish firelines around a fire to halt its spread and to extinguish all hotspots. This alternative is used whenever there is a threat to human life, property, private lands, and / or critical natural or cultural resources. This strategy should also be used when the total district fire load dictates that crews not be involved with individual fires for any longer than necessary.

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

2. Smoke Management

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

hazard, then direct, immediate suppression action will be taken.

3. **Firebreaks and Firelines**

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

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

4. **Sensitive Areas**

WeSF retains on file in the state forest headquarters an Environmentally Sensitive Area Map that identifies protected sites such as critical wetlands and archaeological and historical sites known to occur on the state forest. FFS personnel are aware of these areas in the event of a wildfire. Special precautions will be followed when prescribed burning in sensitive areas on WeSF. When possible, fire staff will avoid line construction in wetland ecotones and other areas sensitive areas throughout the forest.

5. **Firewise Communities**

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

6. **Adjacent Neighbor Contacts**

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

7. **Post-Burn Evaluations**

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

C. Sustainable Forestry and Silviculture

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

1. Strategies

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

a. To restore and maintain forest health and vigor through timber harvesting, prescribed burning, and reforestation, both naturally and artificially, with species native to the site.

b. To create, through natural or artificial regeneration, uneven-aged, and even-aged management, a forest with both young and old growth components that yields sustainable economic, ecological, and social benefits.

2. Silvicultural Operations

Silvicultural operations on WeSF will be directed toward improving forest health, wildlife habitat, ecological and economical sustainability, as well as toward recovery from past private management. Stands of off-site species with merchantable volume will be scheduled for harvest, followed by reforestation with the appropriate tree species. Herbicide applications may be necessary to control woody competition and to re-establish desired native species of both overstory and groundcover. Site preparation methods may include prescribed fire, mechanical vegetation control, and / or herbicide applications. Herbicides used will be registered for forestry use by the U.S. Environmental Protection Agency (EPA) and will not adversely affect water resources.

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

Maintenance and restoration of timber stands and natural communities through timber harvesting will include thinning for maintenance, regeneration harvests applicable to the species present, and clear-cutting to remove off-site species, and improve wildlife and plant habitat. In timber stands with intact, native groundcover, great care must be taken to minimize disturbance to the soil and native plant assemblages when conducting timber harvesting operations or other mechanical treatments.

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

3. Forest Inventory

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

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

4. Timber Sales

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

D. Invasive Species Control

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

Ongoing maintenance and monitoring strategies are outlined in the Five-Year Ecological Management Plan which is developed to locate, identify, and control invasive plant species. Occurrences of invasive species are recorded in the WeSF GIS database and are monitored and treated annually as funding permits. The GIS database is updated as new infestations are discovered.

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

Although feral hogs are not currently an issue, possible management actions may include contracted nuisance trapping, or special permitted control efforts, as needed to help to control this population. FFS will enlist support from FWC in efforts to control invasive animal species. FWC has issued a feral hog control permit to FFS for all state forests and FFS will allow for feral hog removal on WeSF through trapping and hunting as necessary.

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

Table 6. Invasive Plant Species Occurring on WeSF

Common Name	Scientific Name	Treatment Strategy	Acres Impacted	Increasing / Decreasing
Mimosa	*Albizia julibrissin*	Hack and squirt	1	Decrease
Coral ardisia	*Ardisia crenata*	Hand pull, spot herbiciding	1	Stable
Camphortree	*Cinnamomum camphora*	Hack and squirt	10	Stable
Air potato	*Dioscorea bulbifera*	Release beetles	2	Stable
Cogongrass	*Imperata cylindrica*	Repeated foliar herbicide treatments	2	Increase
Japanese climbing fern	*Lygodium japonicum*	Spot herbiciding	0.1	Stable
Natalgrass	*Melinis repens*	Hand pull, spot herbiciding	1	Increase
Sacred bamboo	*Nandina domestica*	Spot herbiciding	0.1	Stable
Asian swordfern	*Nephrolepis brownii*	Spot herbiciding	1	Increase
Golden bamboo	*Phyllostachys aurea*	Spot herbiciding	0.1	Stable
Castorbean	*Ricinus communis*	Spot herbiciding	0.1	Stable
Tropical soda apple	*Solanum viarum*	Spot herbiciding	0.1	Stable
Wedelia	*Sphagneticola trilobata*	Spot herbiciding	1	Increase
Chinese tallow	*Triadica sebifera*	Hack and squirt	1	Increase
Caesarweed	*Urena lobata*	Hand pull, spot herbiciding	1	Increase
Chinese wisteria	*Wisteria sinensis*	Poodle cut and herbicide	0.1	Decrease
Arrowleaf elephant's ear	*Xanthosoma sagittifolium*	Spot herbiciding	0.1	Stable

Notes: Wild taro (*Colocasia esculenta*), water lettuce (*Pistia stratiotes*), and water hyacinth *(Eichornia crassipes)* are reported to be present in the Mud Springs Run of WeSF. FFS will investigate as to their existence and coordinate appropriate control and eradication actions with SJRWMD if necessary.

E. Insects, Disease and Forest Health

Currently, there are no (0) significant insect or disease problems on WeSF. In the event of a forest pest outbreak, WeSF resource managers will consult with the Forest Management Bureau's Forest Health Section to formulate an appropriate response.

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

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

F. Use of Private Land Contractors

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

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

VII. Proposed Management Activities for Natural Communities

In 2022, FNAI completed an inventory and natural community mapping project on WeSF. Current and historic natural community cover types can be found in Exhibits P and Q, and Table 7. The inventory included managed and altered landcover types which are habitats that have been impacted by humans and do not fit into FNAI's Natural Community Classification. See Tables 8 and 9.

Table 7. Natural Community Types

Community Type	Historic Acres*	Current Acres*
Baygall	167	180
Depression marsh	60	47
Flatwoods / Prairie lake	74	74
Floodplain marsh	105	0
Floodplain swamp	329	431
Hydric hammock	22	22
Mesic flatwoods**	573	511
Mesic hammock	54	53
Sandhill**	485	373
Scrubby flatwoods**	190	163
Wet flatwoods**	173	156
Wet prairie	1	1
Xeric Hammock	21	85
Managed and Other Altered Landcover Types	N/A	154
TOTAL	**2,254**	**2,250**

* Rounding errors exist.
**Includes restoration areas

Table 8. Managed Landcover Types

Landcover Type*	Current Acres
Pine plantation	43
TOTAL	**43**

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

Table 9. Other Altered Landcover Types

Landcover Type*	Current Acres**
Artificial pond	25
Developed	42
Road	37
Successional hardwood forest	7
TOTAL	**111**

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

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

Table 10. Prescribed Fire Interval Guide on WeSF

Habitat Type	Historic Fire Return Intervals**	WeSF Fire Frequency Goal (Local)	Comments
Baygall	50 to 100 years	(see comments)	Allow entry of fire when burning adjacent uplands
Depression marsh	1 to 8 years	1 to 3 years	Burn when adjacent uplands are burned
Flatwoods / prairie lake	2 to 8 years	3 to 5 years	Burn when adjacent uplands are burned
Floodplain marsh	3 to 100 years	(see comments)	Burn when adjacent uplands are burned
Floodplain swamp	100+ years	(see comments)	Allow entry of fire when burning adjacent uplands
Hydric hammock	N/A	(see comments)	Allow entry of fire when burning adjacent uplands
Mesic flatwoods*	2 to 4 years	2 to 4 years	Fire interval may be extended in areas of recent reforestation to aid seedling survival, increase use of appropriate growing season prescribed fire
Mesic hammock	N/A	N/A	N/A
Pine plantation	N/A	(see comments)	Match or exceed frequency for original natural community
Sandhill*	1 to 3 years	1 to 2 years	Fire frequency goal to help eliminate sand pine and scrub oaks, introduce pyric diversity to meet a variety of burn objectives
Scrubby flatwoods*	5 to 8 years	8 to 12 years	Identify ideal weather conditions for assisting with hardwood control and prioritize these areas
Wet flatwoods*	3 to 10 years	2 to 6 years	Burn separately or with other adjacent mesic flatwoods) or xeric (scrubby flatwoods) habitats
Wet prairie	2 to 4 years	2 to 3 years	Burn with adjacent uplands
Xeric Hammock	N/A	N/A	N/A

* Includes restoration community acreage
** As determined by FNAI

The following community descriptions, existing condition descriptions, and management recommendations are taken from a 2022 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 WeSF. To achieve the objectives outlined in this plan, the following management activities will be performed in the natural and managed communities at WeSF during the next ten-year planning period. Goals, desired conditions, standards, and guidelines provide management area direction. These goals and desired conditions may take many planning cycles to attain.

A. Baygall

Description:

Baygalls occur naturally throughout WeSF in lower areas within mesic and wet flatwoods communities, along creeks and drains, and at the base of the large sandhill found on the eastern side of the forest. Baygalls develop where seepage from surrounding uplands or high-water tables maintain a saturated soil. Soils are generally composed of peat and are acidic. Characteristic trees of baygalls on WeSF include loblolly bay (*Gordonia iasianthus*), sweetbay (*Magnolia virginiana*), swamp bay (*Persea palustris*), pond pine (*Pinus serotina*), and slash pine (*Pinus ellottii*). Red maple (*Acer rubrum*), cabbage palm (*Sabal palmetto*), and swamp tupelo (*Nyssa biflora*) may also be found in baygalls that are grade into basin swamps. Common shrubs and small trees include fetterbush (*Lyonia lucida*), southern bayberry (*Morella cerifera*), dahoon (*Ilex cassine*), large gallberry (*Ilex coriacea*), saw palmetto (*Serenoa repens*), highbush blueberry (*Vaccinium corymbosum*), Piedmont staggerbush (*Lyonia mariana*), and dwarf huckleberry (*Gaylussacia dumosa*). Baygalls typically have little to no herbaceous cover as a result of low light levels under the dense overstory. However, herbs such as Virginia chain fern (*Woodwardia virginica*), beaksedges (*Rhynchospora spp.*), sedges (*Carex spp.*), sphagnum moss (*Sphagnum spp.*), Carolina redroot (*Lachnanthes caroliniana*), and cinnamon fern (*Osmunda cinnamomea*) may be present. Baygalls associated with creeks may have lizard's tail (*Saururus cernuus*) and bandana-of-the-Everglades (*Canna flaccida*). Epiphytes are absent. Vines are found occasionally and may include laurel greenbrier (*Smilax laurifolia*) and muscadine (*Vitis rotundifolia*).

On the 1943 geo-rectified photographs, baygalls appeared as a nearly black, grainy signature. Other areas of the forest appeared to have this same signature but were characterized as a different community, mostly wet flatwoods, based on information obtained during ground-truthing and Laessle (1942).

Current Conditions:

Currently, baygalls on WeSF are more extensive than they were historically because they have encroached into what once was predominantly wet flatwoods. Several historic marshes have also become dominated by baygall species. Characteristic trees of baygalls on WeSF include loblolly bay, sweetbay, swamp bay, pond pine, and slash pine. Red maple, cabbage palm, persimmon (*Diospyros virginiana*), live oak (*Quercus virginiana*), water oak (*Quercus nigra*), and swamp tupelo are also found. Fetterbush is typically the dominant shrub, sometimes forming a dense thicket. Other common shrubs and small trees include southern bayberry, dahoon, saw palmetto, highbush blueberry, Piedmont staggerbush, and dwarf huckleberry. Herbs are scarce and include Virginia chain fern, beaksedges, sphagnum moss, Carolina redroot, and cinnamon fern. Baygalls associated with creeks often contain lizard's tail and bandana-of-the-Everglades. Vines are occasional and include laurel greenbrier and muscadine. The latter often forms thickets around the edges of baygalls.

Fire Regimes:

Baygalls burn infrequently (every 50 to 100 years). Fires from adjacent pyrogenic communities will be allowed to burn into the baygall to maintain ecotones.

Management Needs:
Management activities for baygalls on WeSF will focus on maintaining the historically occurring baygalls. Hydrologic alterations in baygalls, such as ditches and roads, should be restored to return natural hydrology where practical. Any further hydrological disturbances should be avoided. Flatwoods prescribed burn units with embedded baygalls will not be divided and prescribed fire will not be omitted from baygalls in these prescriptions.

B. Depression Marsh

Description:
Depression marshes on WeSF are small, generally circular depressions situated mostly within flatwoods communities. Herbs, mostly grasses and sedges, dominate depression marshes; these often form concentric rings of species assemblages reflecting the gradual increase in water depth from the edge to the center. Herbaceous species inhabiting the shallower waters include southern umbrellasedge (*Fuirena scirpoidea*), beaksedges (*Rhynchospora spp*.), yellow-eyed grasses (*Xyris spp*.), meadowbeauties (*Rhexia spp*.), panic grasses (*Panicum spp*.), pink sundew (*Drosera capillaris*), rosy camphorweed (*Pluchea baccharis*) flattened pipewort (*Eriocaulon compressum*), sand cordgrass (*Spartina bakeri*), nutrushes (*Scleria spp*.), blue maidencane (*Amphicarum muhlenbergianum*), Piedmont jointgrass (*Coelorachis tuberculosa*), pineland rayless goldenrod (*Bigelowia nudata*), lemon bacopa (*Bacopa caroliniana*), rosegentians (*Sabatia app*.), bladderworts (*Utricularia spp*.), milkworts (*Polygala spp*.), primrosewillows (*Ludwigia spp*.), and others. Shrubs that may occasionally be found in the shallower waters include myrtleleaf St. John's wort (*Hypericum myrtifolium*) and peelbark St. John's wort (*Hypericum fasciculatum*). Herbaceous species inhabiting deeper waters include maidencane (*Panicum hemitomon*), pickerelweed (*Pontederia cordata*), bulltongue arrowhead (*Sagittaria lancifolia*), sawgrass (*Cladium jamaicense*), white waterlily (*Nymphaea odorata*), and big floatingheart (*Nymphoides aquatica*). Shrubs that are infrequently found in the deeper water areas include common buttonbush (*Cephalanthus occidentalis*) and coastalplain willow (*Salix caroliniana*). Epiphytes and vines are infrequent to absent.

Depression marshes of high quality usually have a wet prairie ecotone along the boundary with the surrounding upland. Depression marshes with a steep boundary with the surrounding upland may not develop a wet prairie ecotone and will instead develop a thick edge of saw palmetto (*Serenoa repens*). Groundwater seepage in wet flatwoods areas of WeSF also promotes the development of small baygall communities in association with depression marshes.

Depression marshes are dotted across landscape in the historic photographs. They typically appear circular, smooth, and darker than the surrounding flatwoods; some, however, possibly dry when photographed, are lighter. There was no discrete set of characteristics that differentiated depression marshes from flatwoods / prairie lakes. In fact, Laessle (1942) recognized only "flatwoods ponds." Size and presumed depth (based on presence of open water) were chiefly used in labeling the two communities in this survey.

Current Conditions:
Currently, the depression marshes on WeSF predominantly support herbaceous vegetation, though woody species have encroached along the edges of many marshes, and a few have developed a swamp or baygall community or a stand of coastalplain willow in place of the historic marsh. This is likely a result of lack of fire but may also be an effect of drought during 2000-2002. This encroachment of woody species along the edges has reduced diversity by limiting / inhibiting recruitment of the shallower water species mentioned above. Typical trees species found are swamp tupelo (*Nyssa biflora*), slash pine (*Pinus elliottii*), pond pine (*Pinus serotina*), swamp bay (*Persea palustris*), and loblolly bay (*Gordonia lasianthus*). Common buttonbush (*Cephalanthus occidentalis*) is occasionally found around the edge of the marsh or in the deeper center. Maidencane, white waterlily, pickerelweed, and bulltongue arrowhead are the current dominant species. Yellow-eyes grasses (*Xyris spp*.), Virginia chain fern (*Woodwardia virginica*), Carolina redroot (*Lachnanthes caroliniana*), and sawgrass can also be found infrequently. Epiphytes and vines are infrequent to absent.

Fire Regimes:
Depression marshes depend on fire to maintain the herbaceous layer and prevent shrub encroachment. Historically, depression marshes likely burned with the surrounding pyrogenic uplands, depending on water levels at the time of fires. Fires generally occurred early (April-June) in the lightning season when water was low and surrounding communities were dry. Prescribed fire in surrounding flatwoods should be allowed to burn through depression marshes. The marshes will burn more completely during dry periods, and those marshes with more shrub cover should be burned more often during spring and early summer.

Management Needs:
Management activities for depression marshes on WeSF will focus on avoiding or eliminating the placement of firebreaks and roads around depression marshes and allowing prescribed fires from surrounding uplands to burn through the depression marshes. Much of the uplands adjacent to marshes on WeSF have been successfully burned in dormant season and have met frequency requirements. In this ten-year planning period, a focus on adding more growing season fire into these upland units will benefit the associated marshes.

C. <u>Flatwoods / Prairie Lake</u>

Description:
Flatwoods / Prairie lakes are similar to depression marshes but are typically larger, deeper basins that support a greater expanse of open water and a longer hydroperiod. The flatwoods / prairie lakes of WeSF, like the depression marshes, are associated with flatwoods communities, though they are often found near the base of a sandhill. Distinctions between a flatwoods lake and depression marshes are subtle; size and depth of the basin are the principal differences. Some depression marshes may have smaller permanent ponds within them. The outer zone of a flatwoods / prairie lake may support either a sparse, herbaceous, wet prairie-like zone, or a dense ring of saw palmetto and other shrubs depending on the degree of slope from surrounding uplands. On WeSF, flatwoods / prairie lakes primarily support maidencane (*Panicum hemitomon*), white waterlily (*Nymphaea odorata*), jointed spikerush (*Eleocharis equisetoides*), and big floatingheart (*Nymphoides aquatica*). Open water occupies much of the basin. For lakes that have a gentle slope from the surrounding uplands, an outer ring comprised of species typically found in the shallower waters of depression marshes is present.

These species include southern umbrellasedge (*Fuirena scirpoidea*), beaksedges (*Rhynchospora* spp.), yellow-eyed grasses (*Xyris* spp.), meadowbeauties (*Rhexia* spp.), panic grasses (*Panicum* spp.), pink sundew (*Drosera capillaris*), rosy camphorweed (*Pluchea Baccharis*), flattened pipewort (*Eriocaulon compressum*), sand cordgrass (*Spartina bakeri*), nutrushes (*Scleria spp*.), blue maidencane *(Amphicarpum muhlenbergianum*), Piedmont jointgrass (*Coelorachis tuberculosa*), pineland rayless goldenrod (*Bigelowia nudata*), spadeleaf (*Centella asiatica*), lemon bacopa (*Bacopa caroliniana*), rosegentians (*Sabatia* spp.), bladderworts (*Utricularia* spp.), milkworts (*Polygala* spp.), primrosewillows (*Ludwigia* spp.), Thorne's beaksedge (*Rhynchospora thornei*), and others. Shrubs that are occasionally found in this shallow water ring include myrtleleaf St. John's wort (*Hypericum myrtifolium*) and peelbark St. John's wort (*Hypericum fasciculatum*). For lakes with a steep slope from surrounding uplands, a thick ring of saw palmetto (*Serenoa repens*), gallbery (*Ilex glabra*), and fetterbush (*Lyonia lucida*) will likely develop. Epiphytes and vines are absent to infrequent. Flatwoods / prairie lakes appear as black, smooth signature, larger than depression marshes, on the 1943 geo-rectified historic photographs.

Current Conditions:
Currently, flatwoods / prairie lakes on WeSF are occupied primarily by open water with maidencane, white waterlily, pickerelweed, bulltongue arrowhead, jointed spikerush, and big floatingheart in varying proportions of the lake basin. The edges of a few of the lakes (such as that along the forest's northern boundary) have been encroached by woody species such as swamp tupelo (*Nyssa biflora*), slash pine (*Pinus elliottii*), pond pine (*Pinus serotina*), swamp bay (*Persea palustris*), and loblolly bay (*Gordonia lasianthus*). Most of the lakes meet desired future conditions except in the frequent absence of the shallow water ring of herbaceous vegetation. As with depression marshes, this likely reflects lack of fires burning into the edges of basins.

Fire Regimes:
Flatwoods / prairie lakes rarely burn entirely, though the edges may burn when surrounding uplands burn; depending on water levels and fuels. Fire frequency should coincide with that of the surrounding uplands; typically, 2 to 8 years. If prescribed fires in the surrounding flatwoods are conducted during the early growing season (April to June), the flatwoods / prairie lake edges have a greater chance of burning. This is desirable to reverse or retard hardwood shrubby encroachment.

Management Needs:
Management activities for flatwoods / prairie lakes on WeSF will focus on minimizing disturbances and restoring any past disturbances to hydrology. This may entail closure and restoration of ditches and roads. Because movement of upland fires into the lake basin is desirable, it is important that the upland-wetland ecotone be maintained naturally with fire. Firebreaks should not surround the lake basin.

D. Floodplain Marsh

Description:

Floodplain marshes are wetlands of herbaceous vegetation and low shrubs that occur in river floodplains on sandy alluvial soils with considerable peat accumulation. At WeSF, floodplain marsh historically occurred along the St. Johns River floodplain in association with floodplain swamp. According to Laessle (1942), floodplain marsh on WeSF consisted mostly of herbaceous species, especially sawgrass (*Cladium jamaicense*) and sand cordgrass (*Spartina bakeri*), with maidencane (*Panicum hermitomon*), green arrow arum (*Peltandra virginica*), shortbristle horned beaksedge (*Rhynchospora corniculate*), scarlet rosemallow (*Hibiscus coccineus*), dotted smartweed (*Persicaria punctata*), arrowheads (*Sagittaria* spp.), spikerushes (*Eleocharis* spp.), bulrushes (*Scirpus* spp.), primrosewillows (*Ludwigia* spp.), and lizard's tail (*Saurus Cernuus*) present in lesser amounts. Shrubs were found infrequently and included common buttonbush (*Cephalanthus occidentalis*), Carolina ash (*Fraxinus caroliniana*), coastalplain willow (*Salix caroliniana*), southern bayberry (*Morella cerifera*), and red maple (*Acer rubrum*).

The signature of floodplain marsh on the 1943 geo-rectified historic photographs is much lighter and of a finer grain than that of adjacent floodplain swamp community.

Current Conditions:

There is a relatively short, open in some areas, canopy of red maple, Carolina ash, coastalplain willow, bald cypress (*Taxodium distichum*), American elm (*Ulmus americana*), cabbage palm (*Sabal palmetto*), dahoon (*Ilex cassine*), swamp bay (*Persea palustris*), southern bayberry, and common buttonbush. Herbaceous species are throughout, but only dense along open water where sawgrass is dominant. Other species include green arrow arum and water spangles (*Salvinia minima*), with shortbristle horned beasedge, scarlet rosemallow, lizard's tail, sand cordgrass, and pickerelweed (*Pontederia cordata*) found in less abundance. The transition of this community to a forested wetland may be a cyclical pattern caused by fluctuating water levels (currently in swamp cycle). Another potential explanation is that these areas may be artifacts created by the logging of historical swamps.

Fire Regimes:

The characteristic herbaceous species of floodplain marshes re-sprout vigorously following burns, and there is evidence that frequent fire helps to limit shrub invasion. Because non-pyrogenic communities surround the marshes at WeSF, it is unclear how often they would have naturally burned.

Management Needs:

Management activities for historic floodplain marsh on WeSF will focus on minimizing disturbances and maintaining natural hydrologic regimes.

E. Floodplain Swamp

Description:

Floodplain swamps are forested wetlands associated with rivers and streams. On WeSF, this community occurs in large stands along the St. Johns River. Floodplain swamps on WeSF have a closed canopy consisting predominantly of bald cypress (Taxodium distichum), pond cypress (Taxodium ascendens), and swamp tupelo (Nyssa biflora), with other trees such as red maple (Acer rubrum), American elm (Ulmus americana), green ash (Fraxinus pennsylvanica), water hickory (Carya aquatica), dahoon (Ilex cassine), swamp bay (Persea palustris), water locust (Gleditsia aquatica), and cabbage palm (Sabal palmetto) present in lesser numbers. Shrubs are present in varying abundances and include southern bayberry (Morella cerifera), common buttonbush (Cephalanthus occidentalis), coastalplain willow (Salix caroliniana), false indigobush (Amorpha fruticose) and bluestem palmetto (Sabal minor). Herba are found infrequently as a result of low light levels beneath the dense overstory. Herbaceous species include shortbristle horned beaksedge (Rhynchospora corniculate), scarlet rosemallow (Hibiscuc coccineus), green arrow arum (Peltandra virginica), royal fern (Osmunda regalis var. spectabilis), marsh fern (Thelypteris sp.), climbing hempvine (Mikania scandens), lizard's tail (Saururus cernuus), duckweed (Lemna spp.), sawgrass (Cladium jamaicense), and sand cordgrass (Spartina bakeri). Epiphytes such as southern needleleaf (Tillandsia setacea) and Spanish moss (Tillandsia usneoides) are found occasionally. Vines are found infrequently to occasionally and include poison ivy (Toxicodendron radicans) and pepper vine (Ampelopsis arborea).

In the 1943 geo-rectified historic aerial photographs, floodplain swamps appear as extensive wooded areas with a gray, grainy signature.

Current Conditions:

Currently on WeSF, floodplain swamps are of good quality despite past disturbance from logging. The canopy and subcanopy in areas of historic swamp are well developed and comprised of pond cypress, swamp tupelo, American elm, red maple, green ash, water hickory, dahoon, swamp bay, sweetgum (*Liquidambar styraciflua*), laurel oak (*Quercus laurifolia*), slash pine (*Pinus elliottii*), and cabbage palm. Shrubs include southern bayberry, common buttonbush, coastal plain willow and false indigobush. Herbs found in low abundance and are comprised of green arrow arum, water spangles (*Salvinia minima*), duckweed, shortbristle horned beaksedge, scarlet rosemallow, royal fern, marsh fern, climbing hempvine, lizard's tail, duckweed, sawgrass, and sand cordgrass. Floodplain swamps that have developed from historic floodplain marsh communities have a similar composition, but the canopy is shorter and more open with patches of marsh grasses throughout.

Fire Regimes:

Floodplain swamps rarely burn because of flooding and / or saturated soils most of the year, especially during the natural lighting season.

Management Needs:

Management activities for floodplain swamp on WeSF will focus on maintaining natural hydroperiods.

F. Hydric Hammock

Description:

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. With the species composition varies, the community generally has a closed canopy of oaks and palms, and open understory, and a sparse to a moderate groundcover of grasses and ferns. Cabbage palm (*Sabal palmetto*) is a common to dominant component of hydric hammock. The understory may contain a number of small trees and shrubs. Vines may be frequent and diverse in hydric hammock. Herb species in this community, when present, includes mostly graminoids and ferns.

At WeSF, hydric hammocks occupy the transition between the floodplain communities associated with the St. Johns River and the uplands to the east and south. Desired future conditions for the hydric hammock resemble existing conditions. An emergent pine canopy of scattered, mature loblolly pine (*Pinus taeda)*, slash pine (*Pinus elliottii*), and pond pine (*Pinus serotina*) reaching 30 meters of higher may be present. Most of the canopy is composed of a mix of swamp laurel oak (*Quercus laurifolia*), live oak (*Quercus virginiana*), sweetbay (*Magnolia virginiana*), sweetgum (*Liquidambar styraciflua*), cabbage palm, and red maple (*Acer rubrum*). Bald cypress (*Taxodium distichum*) and swamp tupelo (*Nyssa biflora*) are canopy components in transition areas to floodplain swamp. A subcanopy of younger canopy species is present. Understory species composition is also variable, with shrubs being the dominant component. Shrubs include common buttonbush (*Cephalanthus occidentalis*), Piedmont staggerbush (*Lyonia mariana)*, and highbush blueberry (*Vaccinium corymbosum*), among others. Herbs are generally sparse due to the closed canopy and dense shrub layer. Species include woodsgrass *(Oplismenus setarius*), Virginia chain fern (*Woodwardia virginica*), and lizard's tail (*Saururus cernuus*). Epiphytes are infrequent to occasional and include Spanish moss (*Tillandsia usneoides*), resurrection fern (*Pleopeltis michauxiana*) shoestring fern (*Vittaria lineata*), and ball moss (*Tillandsia recurvata*). Vines are infrequent to common and include muscadine (*Vitis rotundifolia*) and poison ivy (*Toxicodendron radicans*).

On the 1943 geo-rectified photographs, hardwood-dominated areas appear as a dark, rough grained signature. Laessle (1942) characterized these areas as mesic and hydric hammocks; however, their mixed species composition and often close association with baygall communities makes them somewhat difficult to delineate. In general, the hydric hammock is restricted to a fairly narrow strip along the edge of the floodplain swamp and spring runs, while the mesic hammock occupies most of the slope from the adjacent uplands.

Current Conditions:

Hydric hammocks currently found on WeSF show little evidence of disturbance, with the exception of the small, developed area around Mud Springs. An emergent pine canopy of loblolly pine, slash pine, and pond pine reaching >30 meters exists in some areas, while other areas have a canopy of live oak, swamp laurel oak, sweetbay, swamp tupelo, sweetgum, cabbage palm, and / or red maple. A subcanopy of younger canopy species is often present in variable densities, with cabbage palm being the most common. Shrubs are the dominant understory component and include young cabbage palms, common buttonbush, Piedmont

staggerbush, and highbush blueberry. Herbs are generally sparse due to the closed canopy and dense shrub layer. Herbs present include woodsgrass, Virginia chain fern, and lizard's tail. Epiphytes are infrequent to occasional and include Spanish moss, resurrection fern, shoestring fern and ball moss. Vines are infrequent to common and include muscadine and poison ivy.

Fire Regimes:
Fire is infrequent in hydric hammock, although most of the dominant species can withstand occasional burns. Prescribed fires from surrounding communities should be allowed to spread and extinguish themselves in the hammock.

Management Needs:
Management activities in hydric hammock on WeSF will focus on maintaining natural hydrologic patterns and allowing prescribed fires from adjacent communities to burn into the community. The variability of water levels and fire return intervals allows this community to support a diverse assemblage of species.

G. Mesic Flatwoods (Including Restoration Areas)

Description:
Mesic flatwoods are flat, poorly to well-drained pine forests with a diverse understory of shrubs and herbs. Frequent, low intensity fires maintain species composition and diversity in mesic flatwoods. On WeSF, mesic flatwoods are found scattered between the sandhill ridge on the eastern boundary and the floodplain communities along the western boundary. The mesic flatwoods of WeSF consist of an open canopy dominated by longleaf pine (*Pinus palustris*), with slash pine (*Pinus elliottii*) and pond pine (*Pinus serotina*) more common in wetter areas. A subcanopy of younger canopy species, along with other hardwood species such as live oak (*Quercus virginiana*), cabbage palm (*Sabal palmetto*), southern magnolia (*Magnolia grandiflora*), swamp bay (*Persea palustris*), and laurel oak (*Quercus hemisphaerica*) are found in low densities. The shrub layer comprises 50%-60% of the understory and reaches a height of no more than 1 meter. Saw palmetto (*Serenoa repens*) is the dominant species, with species such as gallberry (*Ilex glabra*), coastalplain staggerbush (*Lyonia fruticosa*), dwarf live oak (*Quercus minima*), sand live oak (*Quercus geminata*), shiny blueberry (*Vaccinium myrsinites*), southern bayberry (*Morella cerifera*), tarflower (*Bejaria racemosa*), gopher apple (*Geobalanus oblongifolius*), hairy wicky (*Kalmia hirsuta*), huckleberry (*Gaylussacia* spp.), winged sumac (*Rhus copallinum*), woolly pawpaw (*Asimina incana*), wild pennyroyal (*Piloblephis rigida*), and fourpetal St. John's wort (*Hypericum tetrapetalum*) also present. The herb layer comprises 40%-50% of the understory, with wiregrass (*Aristida stricta*) as the dominant herbaceous species. Other herbs include narrowleaf silkgrass (*Pityopsis graminifolia*), lopsided Indian grass (*Sorghastrum secundum*), blazing stars (*Liatris* spp.), coastalplain chaffhead (*Carphephorus corymbosus*), whitetop aster (*Sericocarpus tortifolius*), Walter's aster (*Symphyotrichum walteri*), shortleaf rosegentian (*Sabatia brevifolia*), fringed yellow stargrass (*Hypoxis juncea*), rabbitbells (*Crotalaria rotundifolia*), orange milkwort (*Polygala lutea*), candyroot (*Polygala nana*), false foxglove (*Agalinis* spp.), blackroot (*Pterocaulon pycnostachyum*), witchgrasses (*Dichanthelium* spp.), fascicled beaksedge (*Rhynchospora fascicularis*), roundleaf thoroughwort (*Eupatorium rotundifolium*), pineland scurfpea (*Orbexilum virgatum*),

chaffseed (*Schwalbea americana*), variable-leaf crownbeard (*Verbesina heterophylla*), and meadowbeauties (*Rhexia* spp.), among others. Epiphytes are infrequent and consist predominantly of Spanish moss (*Tillandsia usneoides*). Vines are infrequent to occasional and consist of earleaf greenbrier (*Smilax auriculata*), muscadine (*Vitis rotundifolia*), eastern poison ivy (*Toxicodendron radicans*), and Carolina jessamine (*Gelsemium sempervirens*).

Historic aerial photographs taken in 1943 show very few trees and a uniform ground cover, most likely of saw palmetto, in some of the mesic flatwoods at WeSF. Although logging and the development of pastures probably impacted these areas before these photographs were taken, it is still likely that the visible open canopy is largely an accurate reflection of natural conditions. Some areas with higher pine densities were identified separately by Laessle (1942) but are here included within mesic flatwoods.

Current Conditions:
Although much of the forest seems to be in a desired condition structurally, there is a general lack of herbaceous species diversity. This may be attributable to a lack of fire or ground-disturbing activities. Currently, the canopy is of the desired density in most areas, although the dominant pine is slash pine, which likely was planted following harvest of longleaf pine. Nonetheless, longleaf pine is found sporadically, and pond pine is found in wetter areas, sometimes as the dominant canopy species. The understory is dominated by shrubs, typically saw palmetto, gallberry, and shiny lyonia, with some areas supporting a more diverse array of species such as coastalplain staggerbush, dwarf live oak, sand live oak, shiny blueberry, southern bayberry, tarflower, gopher apple, hairy wicky, huckleberry, winged sumac, and wild pennyroyal. The herbaceous component of the understory is quite sparse in most areas and absent in some. The most common herbaceous species are broomsedges (*Andropogon* spp.), bottlebrush threeawn (*Aristida spiciformis*), yankeeweed (*Eupatorium compositifolium*), fascicled beaksedge, and witchgrasses. Some areas support a more diverse array of species such as narrowleaf silkgrass, blazing stars, coastalplain chaffhead, whitetop aster, Walter's aster, shortleaf rosegentian, rabbitbells, orange milkwort, candyroot, blackroot, roundleaf thoroughwort, and meadowbeauties. Epiphytes, mostly Spanish moss, are infrequent to absent. Vines are infrequent to occasional, and include muscadine, Carolina Jessamine, and earleaf greenbrier.

Baygall vegetation has encroached into adjacent flatwoods where fire has been excluded, particularly by vehicle trails. These areas are overgrown with tall shrubs of loblolly bay (*Gordonia lasianthus*), sweetbay (*Magnolia virginiana*), swamp bay, and laurel oak (*Quercus hemisphaerica*), often with dense muscadine vines (*Vitis rotundifolia*). A similar process of hardwood encroachment is also occurring along the hammock interface, and one area of former flatwoods near Mud Springs is currently a successional hardwood forest.

Laessle (1942) identified at least two areas on the forest that had been developed by that time. An area marked as a former nursery in the Laessle map continues to be open and weedy and is currently mapped as restoration mesic flatwoods. Dense stands of planted pines or areas recently cleared with goal of managing pines as a single aged stand are delineated as current pine plantation.

Fire Regimes:
Fires likely swept across mesic flatwoods every 2-4 years in early summer, when thunderstorms generate numerous lightning strikes. Such fires are essential for maintaining the structure of the flatwoods, preventing hardwood encroachment from bordering hammock or baygall, and reducing weedy competition. At WeSF, because most of the mesic flatwoods already have the desired structural conditions, a 2-4-year burn schedule will be implemented or maintained.

Management Needs:
Management activities for mesic flatwoods on WeSF should focus on groundcover diversity, especially establishment of native herbaceous species. Prescribed burn prescriptions for frequently burned flatwoods that meet desired conditions structurally will be transitioned into growing season prescribed burns. Growing season burns will also reduce shrub levels as well as encourage the growth of native herbaceous species. Flatwoods located on the western side of County Road 309 still need additional fuels management to conduct safe growing season prescribed fire and will be evaluated for growing season fire later in the planning cycle.

H. Mesic Hammock

Description:
Mesic hammocks are closed canopy forests, dominated by hardwood species, often occurring along wetlands or as islands within wetlands. Mesic hammocks burn infrequently due to their positioning along wetlands, which provide protection from fire. At WeSF, mesic hammocks occupy the transition between the floodplain communities associated with the St. Johns River and the uplands to the east and south. Desired future conditions for the mesic hammocks resemble existing conditions. The closed canopy consists of primarily live oak (*Quercus virginiana*) and cabbage palm (*Sabal palmetto*), with a mix of other mesophytic species that usually includes southern magnolia (*Magnolia grandiflora*) in central and northern Florida. An emergent pine canopy of scattered, mature pines (*Pinus* spp.) may present. A subcanopy of younger canopy species is present. The shrubby understory may be dense or open, tall or short, and is typically composed of a mix of saw palmetto, smallflower pawpaw (*Asimina parviflora*), American beautyberry (*Callicarpa americana*), deerberry (*Vaccinium stamineum*), and/or rusty staggerbush (*Lyonia ferruginea*). The herb layer is often sparse or patchy and may consist of various graminoids, particularly witchgrasses (*Dichanthelium* spp.). Common to abundant epiphytes on live oaks and cabbage palms are a characteristic feature of mesic hammocks. These include Spanish moss (*Tillandsia usneoides*) and other air-plants (*Tillandsia* spp.), epiphytic ferns such as resurrection fern (*Pleopeltis polypodioides* var. *michauxiana*), and shoestring fern (*Vittaria lineata*). Vines are infrequent to common and include sarsaparilla vine (*Smilax pumila*), muscadine (*Vitis rotundifolia*) and poison ivy (*Toxicodendron radicans*).

The area mapped as historically occurring mesic hammock includes the shell mound at Orange Point. On the 1943 geo-rectified photographs, hardwood-dominated areas appear as a dark, rough grained signature. Laessle (1942) characterized these areas as mesic and hydric hammocks; however, their mixed species composition and often close association with baygall communities makes them somewhat difficult to delineate. In general, the hydric hammock is restricted to a fairly narrow strip along the edge of the floodplain swamp and spring runs, while the mesic hammock occupies most of the slope from the adjacent uplands.

Current Conditions:
Mesic hammocks currently found on WeSF show little evidence of disturbance, except for a small, developed area around Mud Springs. An emergent pine canopy is found in some areas, but the dominant canopy is live oak, laurel oak (*Quercus hemisphaerica*), sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), cabbage palm, and southern magnolia. A subcanopy of younger canopy species is often present in variable densities, with cabbage palm often the most common. Understory species composition is just as variable as the canopy, with shrubs being the dominant component. Shrubs include saw palmetto, smallflower pawpaw, American beautyberry, deerberry, and rusty staggerbush. Herbs are generally sparse due to the closed canopy and dense shrub layer. Herbs present include woodsgrass (*Chasmanthium* spp.) and bracken fern (*Pteridium aquilinum*). Epiphytes are occasional and include Spanish moss, resurrection fern, shoestring fern, and ball moss (*Tillandsia recurvata*). Vines are infrequent to common and include muscadine and poison ivy.

The shell mound at Orange Point has a closed canopy of live oak with a subcanopy of water oak and cabbage palm. The understory is dominated by younger cabbage palm, with smallflower pawpaw and American beautyberry also present. Herbs are sparse and consist of woodsgrass. Epiphytes are common and consist of Spanish moss, resurrection fern, shoestring fern, and ball moss. Vines are occasional and include muscadine.

Fire Regimes:
Mesic hammocks burn infrequently due to their landscape position along wetlands, which provide protection from fire. The adjacent flatwoods uplands likely burned every 2-4 years, with fires only occasionally spreading into the mature hammock.

Management Needs:
Management activities in mesic hammock on WeSF will focus on maintaining natural hydrologic patterns and allowing prescribed fires from adjacent communities to burn into the community. The variability of water levels and fire return intervals allows this community to support a diverse assemblage of species.

I. Sandhill (Including Restoration Areas)

Description:
Sandhills are rolling pine forests, typically with a subcanopy of turkey oak (*Quercus laevis*), and a sparse understory of deciduous oaks with a fairly dense ground cover of herbs. Sandhills are fire-maintained communities that occur on relatively well-drained, deep sands. On WeSF, sandhill principally occupies the ridge on the eastern third of the property, with some smaller areas near the southern boundary. Desired future conditions for sandhill somewhat resemble the sandhill present along the eastern boundary; however, this area lacks sufficient herbaceous cover to describe as the desired future condition. Sandhill consists of an open canopy (6%-35% cover) dominated by longleaf pine (*Pinus palustris*). The subcanopy may be slightly more closed than the canopy (16%-45%) and consist of young longleaf pine and turkey oak. The understory is composed of a mixture of shrubs, herbs, and bare sand. Shrubs are mostly scattered in the understory and include saw palmetto (*Serenoa repens*), woolly pawpaw (*Asimina incana*), bigflower pawpaw (*Asimina obovata*), deerberry (*Vaccinium stamineum*), shiny blueberry (*Vaccinium myrsinites*), Chapman's oak (*Quercus chapmanii*), gopher apple

(*Geobalanus oblongifolius*), garberia (*Garberia heterophylla*), littleleaf buckbrush (*Ceanothus microphyllus*), southern bayberry (*Morella cerifera*), Adam's needle (*Yucca filamentosa*), and dwarf huckleberry (*Gaylussacia dumosa*). Herbs make up 50%-60% of the understory, with wiregrass (*Aristida stricta*) being the dominant species. Other herbs typically found include lopsided Indian grass (*Sorghastrum secundum*), pineywoods dropseed (*Sporobolus junceus*), shortleaf gayfeather (*Liatris tenuifolia*), fragrant eryngo (*Eryngium aromaticum*), whitetop aster (*Sericocarpus tortifolius*), blackroot (*Pterocaulon pycnostachyum*), witchgrasses (*Dichanthelium* spp.), summer farewell (*Dalea pinnata* var. *pinnata*), queen's delight (*Stillingia sylvatica*), tall jointweed (*Polygonella gracilis*), narrowleaf silkgrass (*Pityopsis graminifolia*), Elliott's milkpea (*Galactia elliottii*), coastalplain chaffhead (*Carphephorus corymbosus*), pinewoods milkweed (*Asclepias humistrata*), whorled milkweed (*Asclepias verticillata*), rabbitbells (*Crotalaria rotundifolia*), sensitive briar (*Mimosa quadrivalvis*), coastalplain goldenaster (*Chrysopsis scabrella*), coastalplain dawnflower (*Stylisma patens*), coastalplain honeycombhead (*Balduina angustifolia*), dogtongue wild buckwheat (*Eriogonum tomentosum*), Florida Indian plantain (*Arnoglossum floridanum*), and Florida mountain-mint (*Pycnanthemum floridanum*), among others. Bare sand may occupy 5-10% of the groundcover. Epiphytes are infrequent and include Spanish moss (*Tillandsia usneoides*), ball moss (*Tillandsia recurvata*), and Bartram's airplant (*Tillandsia bartramii*). Vines are found infrequently and may include muscadine (*Vitis rotundifolia*) and earleaf greenbrier (*Smilax auriculata*).

On the 1943 geo-rectified photographs, sandhills appear as a grainy, light, peppered signature that is difficult to distinguish from that of scrubby flatwoods. Delineation was aided by Laessle's (1942) observations, as well as ground-truthing in the field. After visiting the site, the three areas characterized as xeric hammock by Laessle (1942) on the south side of the forest are believed to represent sandhills that have succeeded to hammock in the absence of frequent fire.

Current Conditions:
Currently, approximately two-thirds of the sandhill mapped as historically occurring on WeSF is on track to meeting desired future conditions. The other one-third is either developed and/or cleared or has succeeded to xeric hammock because of infrequent fires. The area that is on track, mainly along the eastern boundary, supports an open canopy of longleaf pine with a slightly denser subcanopy of turkey oak. The understory consists of a sparse shrub cover and a high herb cover, with high litter cover and little to no bare sand. Shrubs present include saw palmetto, woolly pawpaw, and gopher apple. Herbs are dominated by wiregrass, with lopsided Indian grass, shortleaf gayfeather, fragrant eryngo, whitetop aster, blackroot, witchgrasses, summer farewell, queen's delight, tall jointweed, narrowleaf silkgrass, coastalplain chaffhead, coastalplain goldenaster, Elliott's milkpea, and coastalplain honeycombhead. Epiphytes are absent. Vines are infrequent and consist of earleaf greenbrier.

In areas that are developed and/or cleared, mature longleaf pine, live oak (*Quercus virginiana*), and turkey oak are scattered, with the understory dominated by bahiagrass (*Paspalum notatum*) and other weedy species. This is primarily the area around the main office plus an equestrian area. To the west of the office compound is a series of artificial ponds developed for a fish hatchery, while just north of the office, there are approximately 21 acres of former pine plantation that is now thinned or cleared, mapped as restoration sandhill.

While there are still slash pines (*Pinus elliottii*) remaining from the former plantation and most of the understory is composed of weedy dogfennel (*Eupatorium capillifolium*), Michaux's croton (*Croton michauxii*), and cottonweed (*Froelichia floridana*), the area retains certain sandhill species such as bigflower pawpaw (*Asimina obovata*) and sweet goldenrod (*Solidago odora*).

In areas that have succeeded to xeric hammock, a sparse canopy of longleaf pine is found above a dense, often well-developed subcanopy of live oak, laurel oak (*Quercus laurifolia*), turkey oak, southern magnolia (*Magnolia grandiflora*), and cabbage palm (*Sabal palmetto*). Shrubs dominate the understory and include saw palmetto, Chapman's oak, deerberry, shiny blueberry, southern bayberry, and young subcanopy species. Herbs are sparse and consist mainly of wiregrass. Epiphytes, such as Spanish moss and ball moss, and vines, such as muscadine, are found occasionally, but may be abundant in some areas.

Fire Regimes:
Sandhill is considered to be a fire-climax community. Frequent ground fires reduce hardwood competition and perpetuate pines and grasses. The natural fire frequency is every 1 to 3 years. Naturally, fires would ignite principally during the early summer (April-June) when lightning strikes are frequent, and fuels are not yet saturated by afternoon rains. Without frequent fires, sandhills may eventually succeed to xeric hammock.

Management Needs:
Management activities in sandhill on WeSF will focus on regular prescribed burning and minimizing practices that disturb the soil. As much as possible, prescribed burning will be the preferred method to reduce woody species abundance in the understory. When fuel and weather conditions allow, prescribed burns will be conducted during early summer and should provide the greatest benefit in reducing woody species abundance. Restoration of areas that have succeeded to xeric hammock will be achieved by removal of the hardwood subcanopy through mechanical / chemical treatments that minimize soil disturbance, followed by prescribed burning, and supplementation of native species where necessary. During all management activities, efforts should be made to minimize any detrimental effects to the gopher tortoise population within this community.

J. Scrubby Flatwoods (Including Restoration Areas)

Description:
Scrubby flatwoods are characterized as open canopy forests of pine trees with a xerophytic understory and numerous areas of bare sand. Scrubby flatwoods can occur along slightly elevated relict sandbars and dunes, along creeks and streams, or downslope from a more xeric community such as sandhill. Because the sandy soil can be more than a meter deep and drains rapidly, scrubby flatwoods normally do not flood even under extremely wet conditions. On WeSF, scrubby flatwoods are found throughout the property, typically downslope from sandhill, or as minor ridges within mesic flatwoods communities. Scrubby flatwoods on WeSF consist of an open canopy (6%-25% cover) of longleaf pine (*Pinus palustris*), with a sparse (1%-15% cover) subcanopy of younger longleaf pine. The understory is a mosaic of moderately dense, scrubby, shrub patches and open areas of herbs and bare sand. Typical shrubs are saw palmetto (*Serenoa repens*), Chapman's oak (*Quercus chapmanii*), myrtle oak (*Quercus myrtifolia*), sand live oak (*Quercus geminata*), dwarf live oak (*Quercus minima*),

sand holly (*Ilex ambigua*), rusty staggerbush (*Lyonia ferruginea*), coastalplain staggerbush (*Lyonia fruticosa*), shiny blueberry (*Vaccinium myrsinites*), deerberry (*Vaccinium stamineum*), woolly pawpaw (*Asimina incana*), winged sumac (*Rhus copallinum*), pricklypear (*Opuntia humifusa*), wild olive (*Cartrema americanum*), garberia (*Garberia heterophylla*), tarflower (*Bejaria racemosa*), and huckleberry (*Gaylussacia* spp.). The herbaceous layer consists primarily of wiregrass (*Aristida stricta*), along with sandyfield beaksedge (*Rhynchospora megalocarpa*), blazing stars (*Liatris* spp.), bracken fern (*Pteridium aquilinum*), sweet goldenrod (*Solidago odora*), Florida Indian plantain (*Arnoglossum floridanum*), tall elephants foot (*Elephantopus elatus*), showy milkwort (*Asemeia violacea*), candyroot (*Polygala nana*), pinweeds (*Lechea* spp.), clusterspike false indigobush (*Amorpha herbacea*), rabbitbells (*Crotalaria rotundifolia*), and Elliott's milkpea (*Galactia elliottii*). Epiphytes are infrequent and may include Spanish moss (*Tillandsia usneoides*) and ball moss (*Tillandsia recurvata*). Vines are scattered and include such species as earleaf greenbrier (*Smilax auriculata*), Carolina jessamine (*Gelsemium sempervirens*), and muscadine (*Vitis rotundifolia*).

On the 1943 geo-rectified photographs, scrubby flatwoods can be discerned as a grayer, rougher grained signature compared to mesic flatwoods; this may be due to scrubby shrub growth in the former community.

Current Conditions:
Currently at WeSF, logging and turpentining, as well as fire suppression, have disturbed much of the historically occurring scrubby flatwoods. Many of the scrubby flatwoods areas have a sparse canopy of longleaf pine or slash pine (*Pinus elliottii*), or the canopy is absent. A subcanopy of live oak (*Quercus virginiana*) and southern magnolia (*Magnolia grandiflora*) is occasionally found. The understory is generally dense and dominated by scrubby oaks (Chapman's oak, myrtle oak, and sand live oak), saw palmetto, and rusty staggerbush. However, more frequent fire in recent years appears to be having a beneficial effect by reducing overall shrub cover and height. Other shrubs present include coastalplain staggerbush, shiny blueberry, deerberry, woolly pawpaw, winged sumac, pricklypear, wild olive, American beautyberry (*Callicarpa americana*), and huckleberry. Herbs are sparse and include wiregrass, sandyfield beaksedge, blazing star, bracken fern, sweet goldenrod, Florida Indian plantain, tall elephants foot, showy milkwort, pinweeds, clusterspike false indigo bush, rabbitbells, and Elliott's milkpea. Bare sand patches are infrequent due to high shrub densities and litter cover. Epiphytes are absent. Vines are occasional and consist of earleaf greenbrier, Carolina jessamine, and muscadine.

Some acres of historic scrubby flatwoods have been converted to developed areas or road, particularly around the main office compound and fish hatchery. Small areas have been converted to pine plantation and / or succeeded to xeric hammock.

In addition, a small area along the boundary north of Beecher Spring and west of the sandhill was characterized as scrub by Laessle (1942) and FNAI (1999). Field observations in 2007 revealed that the area had been roller-chopped, however, and characterization as scrub seemed inappropriate. Therefore, this area is mapped as scrubby flatwoods based on the surrounding habitat and the species remaining, which include longleaf pine, sand pine (*Pinus clausa*), live oak, turkey oak (*Quercus laevis*), cabbage palm (*Sabal palmetto*), rusty staggerbush, saw

palmetto, sand holly, and woolly pawpaw. Based on the 1943 aerial photography, a large scrub area existed just west of Beecher Spring and extended north to the present forest boundary. Aerial photographs from 1995, 1999, and 2004 do not clearly show the presence of scrub, a result of the overgrown, fire-suppressed conditions.

Fire Regimes:
Scrubby flatwoods burn less frequently than the surrounding mesic flatwoods. This results from the general incombustibility of the oak litter, as well as the many bare sand patches that inhibit the spread of fire. Natural fire frequency is likely every 5 to 8 years, with most burns occurring during late spring and early summer (April through June).

Management Needs:
Management activities for scrubby flatwoods on WeSF will focus on implementing the prescribed burn schedule. Some areas of scrubby flatwoods have significant hardwood encroachment and likely will require mechanical and / or chemical treatments to remove these off-site species.

K. Wet Flatwoods (Including Restoration Areas)

Description:
Wet flatwoods are hydric communities that typically have a canopy of pine trees and an understory of hydrophytic shrubs and herbs. Wet flatwoods are pyrogenic communities, and consequently the understory is typically dominated by herbaceous species. On WeSF, wet flatwoods communities occur in lower areas within a larger mesic flatwoods matrix, often as connectors between closely spaced baygalls, and can form small inclusions within mesic flatwoods. Wet flatwoods consist of an open (6%-25%) canopy of slash pine (*Pinus elliottii*) and/or pond pine (*Pinus serotina*), with an even more open subcanopy of younger canopy trees. Longleaf pine (*Pinus palustris*) may be infrequent in wet flatwoods. The understory may be low and shrubby or open and herbaceous. Shrubs include gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), Piedmont staggerbush (*Lyonia mariana*), hairy wicky (*Kalmia hirsuta*), myrtleleaf St. John's-wort (*Hypericum myrtifolium*), swamp bay (*Persea palustris*), blue huckleberry (*Gaylussacia frondosa* var. *tomentosa*), and southern bayberry (*Morella cerifera*). saw palmetto (*Serenoa repens*), coastalplain staggerbush (*Lyonia fruticosa*), shiny blueberry (*Vaccinium myrsinites*), and dwarf huckleberry (*Gaylussacia dumosa*) may be found infrequently. Herbs may dominate the understory, with wiregrass (*Aristida stricta*) typically found, although Virginia chain fern (*Woodwardia virginica*), beaksedges (*Rhynchospora* spp.), or blue maidencane (*Amphicarpum muhlenbergianum*) may instead form the herbaceous cover.

Laessle (1942) characterized most of the wet flatwoods areas on WeSF as being dominated by shrubs instead of herbs. What Laessle observed may have been fire-suppressed for some time, but shrub-dominated flatwoods are common in this area. He suggests that the hardened, acidic, organic soil surface layer associated with these flatwoods inhibits herbaceous growth, although he notes that bottlebrush threeawn (*Aristida spiciformis*) is a notable exception.

On the 1943 geo-rectified photographs, wet flatwoods appear similar in texture to mesic flatwoods but with a slightly darker color. In some areas on the 1943 photographs, baygall succession can be seen in the wet flatwoods near the northwestern corner of the property.

Current Conditions:
Currently on WeSF, much of the historically occurring wet flatwoods has been invaded by baygall vegetation due to lack of frequent fire. The canopy is generally open, though in some areas it is missing because of recent timber harvest. A large area of historic wet flatwoods was recently cleared with the intention of planting slash pine for timber production over the next several decades. The most common canopy tree is slash pine, with pond pine being frequent, and in some areas dominant. Loblolly bay (*Gordonia lasianthus*) is also found in the canopy in areas where baygall vegetation has invaded. The subcanopy is sparse and consists of younger canopy trees and swamp bay (*Persea palustris*). The understory is shrub-dominated, with fetterbush being the most abundant species. Other shrubs present include gallberry, saw palmetto, dwarf huckleberry, coastalplain staggerbush, Piedmont staggerbush, loblolly bay, and shiny blueberry. Herbs are sparse and include bottlebrush threeawn (*Aristida spiciformis*), shortspike bluestem (*Andropogon brachystachyus*), broomsedge bluestem (*Andropogon virginicus*), Virginia chain fern (*Woodwardia virginica*), Carolina redroot (*Lachnanthes caroliniana*), fascicled beaksedge (*Rhynchospora fascicularis*), maidencane (*Panicum hemitomon*), meadowbeauty (*Rhexia* sp.), climbing hempvine (*Mikania scandens*), and yankeeweed (*Eupatorium compositifolium*). Epiphytes and vines are absent.

A high-quality example of shrubby wet flatwoods occurs near the southern boundary of the property where a scrubby flatwoods ridge drops immediately into an open expanse of pond pine and low, well-burned shrubs. This area matches the description given by Laessle (1942) quite closely.

Fire Regimes:
Historically, fires in wet flatwoods probably occurred less often than in mesic flatwoods as a result of the longer hydroperiod. Fires likely occurred every 3 to 10 years and were ignited by lightning storms during the late spring and early summer. Fire management in wet flatwoods is similar to that of mesic flatwoods and is vital for decreasing fuel loads, reducing woody encroachment, and sustaining a rich diversity of herbaceous species.

Management Needs:
Management activities for wet flatwoods on WeSF will focus on implementing a prescribed burn schedule to reduce baygall invasion and increase herbaceous species diversity. In areas where baygall vegetation is abundant, mechanical and / or chemical treatments may be needed to assist with the reduction of these species which have invaded.

L. Wet Prairie

Description:
Wet prairies are hydric communities of low flatlands that typically have little to no canopy, are dominated by hydrophytic herbs, and are maintained by frequent fires. On WeSF, wet prairies occurred as small inclusions within low areas of a larger mesic flatwoods matrix. Wet prairies have little to no tree cover (less than 5%). Tree species that may be found in wet prairies include slash pine (*Pinus elliottii*), pond pine (*Pinus serotina*), and longleaf pine (*Pinus palustris*). Shrubs are a minor component of the ground layer (16%-35%) and include species such as gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), Piedmont staggerbush (*Lyonia mariana*), hairy wicky (*Kalmia hirsuta*), myrtleleaf St. John's-wort (*Hypericum*

myrtifolium), and southern bayberry (*Morella cerifera*). Saw palmetto (*Serenoa repens*), coastalplain staggerbush (*Lyonia fruticosa*), shiny blueberry (*Vaccinium myrsinites*), and dwarf huckleberry (*Gaylussacia dumosa*) may be found infrequently; the saw palmetto will likely be dwarfed as a result of soil saturation. Herbs comprise the majority of the ground layer, with wiregrass (*Aristida stricta*) being the most abundant. Other species include yellow-eyed grasses (*Xyris* spp.), witchgrasses (*Dichanthelium* spp.), yellow hatpins (*Syngonanthus flavidulus*), Virginia chain fern (*Woodwardia virginica*), and beaksedges (*Rhynchospora* spp.). Epiphytes are absent. Vines are absent to infrequent and consist of sawtooth greenbrier (*Smilax bona-nox*) and poison ivy (*Toxicodendron radicans*).

Laessle (1942) did not specifically mention wet prairie but did describe a grassy community that he attributed mostly to pond margins; however, he does show some examples in areas without ponds. On the 1943 geo-rectified photos, wet prairies appear as having a smooth texture and a lighter color than the surrounding flatwoods. This difference in color is likely due to the absence of shrubs, such as saw palmetto (*Serenoa repens*). For this project, potential small wet prairies were not mapped and may simply represent more open wet flatwoods on the 1943 aerial photographs. One wet prairie was delineated, although this community now resembles an open, disturbed wet flatwoods or marsh, with little remaining of a natural wet prairie. In general, such communities are absent from northeast Florida, and their historic extent, if any, is difficult to estimate.

Current Conditions:
Currently on WeSF, much of the potentially historic wet prairie has been planted through with slash pine. Other wetter sites, where planting may have been precluded, have been disturbed by heavy machinery (tracks and ruts). Many of the planted sites have a canopy of slash pine or pond pine with a subcanopy of loblolly bay (*Gordonia lasianthus*) and swamp bay (*Persea palustris*). The understory is dominated by shrub species such as gallberry, fetterbush, and highbush blueberry (*Vaccinium corymbosum*). Herbs are generally sparse but may share dominance with shrubs in some areas. Herbs present include Virginia chain fern, Carolina redroot, fascicled beaksedge (*Rhynchospora fascicularis*), cinnamon fern (*Osmunda cinnamomea*), yellow-eyed grasses, and meadow beauties. Epiphytes are absent. Vines are occasional but are common in some areas and consist mainly of muscadine (*Vitis rotundifolia*).

Fire Regimes:
Historically, fires in wet prairies probably occurred more often than in wet flatwoods. This is likely a factor in creating canopy-free, herb-dominated conditions. Fires likely occurred every 2 to 4 years and were ignited by lightning storms during the late spring and early summer. Fire management in wet prairies is vital for sustaining a rich diversity of herbaceous species.

Management Needs:
Management activities for wet prairies on WeSF should focus on thinning the planted pines, creating buffers (but not firebreaks) around them to prevent heavy machinery disturbance, and implementing a prescribed burning schedule to increase herbaceous species diversity.

M. Xeric Hammock

Description:

Xeric hammocks are closed canopy forests, typically oak-dominated, that occur on excessively drained soils that originate from old dune systems. Xeric hammocks are often considered an advanced successional stage of sandy upland communities such as sandhill, scrub, and scrubby flatwoods. Xeric hammocks may develop naturally through fire protection afforded to them by a wetland or other natural barrier such as a downward slope. On WeSF, historically occurring xeric hammock is restricted to several areas, all located downhill from a xeric upland and abutting the floodplain associated with the St. Johns River. These areas are believed to be naturally occurring, rather than resulting from fire exclusion. These areas consist of a low (less than 10 m), closed (> 66% cover) canopy of sand live oak (*Quercus geminata*) and/or live oak (*Quercus virginiana*), pignut hickory (*Carya glabra*), and occasionally southern magnolia (*Magnolia grandiflora*). The subcanopy is sparse to absent because of the low, closed canopy, and consists of younger canopy species, as well as American holly (*Ilex opaca*). Shrubs dominate the understory. Typical species are rusty staggerbush (*Lyonia ferruginea*), Chapman's oak (*Quercus chapmanii*), saw palmetto (*Serenoa repens*), sparkleberry (*Vaccinium arboreum*), deerberry (*Vaccinium stamineum*), wild olive (*Cartrema americanum*), and American beautyberry (*Callicarpa americana*). Herbs are sparse due to the closed canopy and high litter cover. Species include witchgrasses (*Dichanthelium* spp.), sandyfield beaksedge (*Rhynchospora megalocarpa*), and an occasional threeawn (*Aristida* spp.). Epiphytes are common and consist of Spanish moss (*Tillandsia usneoides*), ball moss (*Tillandsia recurvata*), and giant airplant (*Tillandsia utriculata*). Vines are occasional and include muscadine (*Vitis rotundifolia*) and earleaf greenbrier (*Smilax auriculata*).

On the 1943 geo-rectified photographs, xeric hammock appears as a grainy, dark gray signature that is similar in color to scrubby flatwoods, but with a texture more like that of mesic hammock due to the closed canopy. Laessle (1942) also identified these hammocks in his vegetation map.

Current Conditions:

Currently, the historically occurring xeric hammocks on WeSF approximate desired future conditions. They have a low, closed canopy of live and sand live oaks, with a sparse subcanopy of pignut hickory. Xerophytic shrubs such as rusty staggerbush, Chapman's oak, saw palmetto, sparkleberry, and deerberry dominate the understory. A few small slash pine (*Pinus elliottii*) and sand pine (*Pinus clausa*) are present in canopy gaps. Herbs are sparse and include sandyfield beaksedge. Epiphytes are occasional and include Spanish moss and ball moss. Vines are occasional and include muscadine.

A few areas of well-drained upland communities appear to have succeeded to xeric hammock, likely due to insufficient fire. This includes an area on the south site of WeSF, west of CR 309, that Laessle (1942) identified as xeric hammock. However, the area is more open than other hammocks on the property and retains many characteristics of a sandhill community, including scattered longleaf pines (*Pinus palustris*) and turkey oaks (*Quercus laevis*).

Fire Regimes:
Xeric hammocks rarely burn and typically develop after 30 or more years of fire protection. Fires in xeric hammocks are usually catastrophic and may lead to reversion of the xeric hammock to another community type.

Management Needs:
Management activities for xeric hammock on WeSF will focus on maintaining current conditions by avoiding disturbances such as firebreaks and off-road vehicle trails through the community. In the large hammock derived from sandhill on the south side of the forest, increased fire frequency will be used to promote more herbaceous cover and move the community closer to its historic condition. In areas where fire has been insufficient in achieving desired future condition, mechanical and / or chemical treatments may be used to assist in the restoration of these areas.

N. Managed Landcover Types

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

1. Pine Plantation

Description:
Pine plantations are areas altered by silvicultural activities. These can include lands where either 1) planted pines are having or will have an ongoing negative effect on native groundcover, 2) the history of planted pines has impacted ground cover to the point where further restoration beyond thinning and burning is required, and / or 3) the method of planting (e.g., bedding) has negatively impacted groundcover.

Current Conditions:
Most of the pine communities on WeSF have been impacted by silviculture, but most stands are thinned and functioning as the historic natural community. Areas mapped as pine plantations on WeSF include dense stands of planted slash pine (*Pinus elliottii*). These have remnant understory vegetation with species such as gallberry (*Ilex glabra*) and saw palmetto (*Serenoa repens*) but are generally species-depauperate due to shading. There is also a large, recently cleared area currently being site-prepped for planting. The future pine stand will be managed as a single aged canopy for the next several decades. Currently, the groundcover is highly disturbed from clearing with weedy species such as purple bluestem (*Andropogon glomeratus* var. *glaucopsis*), cypress witchgrass (*Dichanthelium ensifolium*), and dogfennel (*Eupatorium capillifolium*), but still retains native species such as gallberry, saw palmetto, and orange milkwort (*Polygala lutea*).

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

Management Needs:
Prescribed burning will be the main tool to manage pine plantations on WeSF, and long-term management of the stand(s) will yield a mature overstory for restoration back to the historic natural community. Where appropriate, a timber harvest may be implemented to continue the restoration back to the desired future condition.

O. Other Altered Landcover Types

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

Current Conditions:
Altered landcover types on WeSF comprise artificial pond, developed, road, and successional hardwood forest.
Artificial pond (25 acres) – Artificial pond is a created habitat meant for water retention, cattle ponds, etc. WeSF has a large area of ponds created for a fish hatchery on the northern boundary of the forest.

Developed (42 acres) – Check stations, OHV use areas, parking lots, buildings, maintained lawns (as part of recreational, business, or residential areas), botanical or ornamental gardens, campgrounds, recreational, industrial, and residential areas. Most of the developed areas on WeSF are in former sandhills located in the northeast corner of the forest. These include the office and equipment storage compound as well as an equestrian area.

Road (37 acres) – Roads are areas that are used for vehicular traffic. Two-tracks used regularly by area staff to access and manage the state forest are generally small. However, County Road 309 and its associated right of way is included within the state forest boundary.

Successional Hardwood Forest (7 acres) – Successional hardwood forests are closed-canopied forests, typically dominated by fast growing hardwoods such as laurel oak (*Quercus hemisphaerica*), water oak (*Quercus nigra*), and / or sweetgum (*Liquidambar styraciflua*), often with remnant pines. On WeSF, successional hardwood forests are somewhat similar in appearance to mesic hammocks, due to live oak (*Quercus virginiana*) and/or cabbage palm (*Sabal palmetto*) being important canopy species. This hardwood forest has developed in an area of historic mesic flatwoods between an old nursery site and the hardwood hammock around Mud Springs. This block has undergone extensive fire exclusion and has lost its historic flatwoods structure, although remnant species still occur.

There is a canopy of live oak, sweetgum, and water oak, with an overstory of loblolly pine (*Pinus taeda*) or longleaf pine (*Pinus palustris*). Smaller trees and shrubs of sweetgum, water oak, loblolly bay (*Gordonia lasianthus*), rusty staggerbush (*Lyonia ferruginea*), and swamp bay (*Persea palustris*) form a relatively thick understory that also resembles flatwoods with shorter shrubs of saw palmetto (*Serenoa repens*) and blue huckleberry (*Gaylussacia frondosa*

var. *tomentosa*). Vines are a moderate to dense cover of yellow jessamine (*Gelsemium sempervirens*) and muscadine (*Vitis rotundifolia*).

Fire Regimes:
N / A

Management Needs:
During this planning period, the 25 acres of historical fisheries ponds will be considered for recreation improvements. These improvements may include opportunities for fishing, kayaking, and other water-based activities. Successional hardwood forest will be targeted for restoration back into mesic flatwoods.

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IX. Glossary of Abbreviations

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