FLORIDA DEPARTMENT OF Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, FL 32399

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Shawn Hamilton
Secretary

February 13, 2024

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

RE: Lake Talquin State Forest – Lease No. 3971 and 4211

Dear Mr. Camposano:

On **February 9, 202**, the Acquisition and Restoration Council (ARC) recommended approval of the **Lake Talquin 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 **Lake Talquin State Forest** management plan. The next management plan update is due February 9, 2034.

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

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

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

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

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

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

Sincerely,

Deborah Burr Digitally signed by Deborah Burr Date: 2024.02.13 20:45:16 -05'00'

Deborah Burr
Office of Environmental Services
Division of State Lands

TEN-YEAR LAND MANAGEMENT PLAN

FOR THE

LAKE TALQUIN STATE FOREST

GADSDEN, LEON, LIBERTY, AND WAKULLA COUNTIES

PREPARED BY THE

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

FLORIDA FOREST SERVICE

APPROVED ON

FEBRUARY 13, 2024

TEN-YEAR LAND MANAGEMENT PLAN

FOR THE

LAKE TALQUIN STATE FOREST

Approved by:

Richard Dolan, Director
Florida Forest Service

2/19/2024
Date

James Roberts, Chief
Forest Management Bureau

2/15/24
Date

TEN-YEAR LAND MANAGEMENT PLAN
LAKE TALQUIN STATE FOREST
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LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

LEAD AGENCY: Florida Department of Agriculture and Consumer Services (FDACS), Florida Forest Service
COMMON NAME: Lake Talquin State Forest (LTSF)
LOCATION: Gadsden, Leon, Liberty, and Wakulla Counties
ACREAGE TOTAL: 19,174.59 acres

Historic Natural Communities	Approximate Acreage	Historic Natural Communities	Approximate Acreage
Upland pine	6,181	Alluvial forest	251
Upland hardwood forest	4,497	Baygall	181
Bottomland forest	3,136	Upland mixed woodland	120
Sandhill	1,977	Basin Swamp	91
Mesic flatwoods	1,495	Depression marsh	69
Floodplain swamp	1,124	Shrub bog	47
Wet flatwoods	427	Swamp lake	5

Note: Mapped acreage is slightly higher than official surveyed acres, which is an artifact of mapping boundary along open water (Lake Talquin).

TIITF LEASE AGREEMENT NUMBER: 3971 & 4211
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
Northwest Florida 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: Boy Scouts of America, Gadsden Parks and Recreation, Leon County Parks and Recreation
ENCUMBRANCES: None
TYPE OF ACQUISITION: Warranty Deed and Preservation 2000, Florida Forever, donations, and mitigation.
UNIQUE FEATURES: Deep ravines occur on nearly every tract and contain plants and animals not commonly found in Florida except in relatively cool, moist ravines. Steephead slopes on the forest are unique geological features uncommon to most of Florida.
ARCHAEOLOGICAL / HISTORICAL: Forty-three (43) known sites
MANAGEMENT NEEDS: Ecosystem restoration, boundary survey and maintenance of Recreation & educational opportunities
ACQUISITION NEEDS: 38,739 Acres of Optimal Management Boundary
SURPLUS ACREAGE: None
PUBLIC INVOLVEMENT: Gadsden, Leon, Liberty, and Wakulla Counties, Management Plan Advisory Group Public Hearing, State Forest Liaison Committee Acquisition and Restoration Council - - - - - - - - -
- -

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

ARC Approval Date: _____ TIITF Approval Date: _____

Comments:_____

_____

_____

_____

I. Introduction

Lake Talquin State Forest (LTSF) consists of 19,174.59 acres in Leon, Gadsden, Wakulla, and Liberty counties. LTSF has been in public conservation since the 1970's and provides a forested buffer along much of Lake Talquin. Shaped by the Ochlockonee River and other tributaries, LTSF contains outstanding examples of slope and ravine systems, which are home to flora not found in much of Florida. Natural communities in LTSF include upland pine and hardwood forests, sandhill, flatwoods, and bottomland forest. This mosaic of natural communities hosts a wealth of plant and animal biodiversity.

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 LTSF resources through a stewardship ethic to assure they are available for future generations."

Management strategies for LTSF center on the multiple-use concept, as defined in sections 589.04(3) and 253.034(2)(a) F.S. Implementation of this concept will utilize and conserve state forest resources in a harmonious and coordinated combination that will best serve the people of the state of Florida, and that is consistent with the purpose for which LTSF was acquired. Multiple-use management for LTSF 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 recreational 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 LTSF for the next ten-year period and outlines the major concepts that will guide management activities on LTSF.

B. Past Accomplishments

Records of past management activities and public use on LTSF have been compiled monthly and are available from the forest manager. A table has been prepared for this plan that summarizes the accomplishments for each of the past ten years. See Exhibit A. The table does not attempt to account for all activities on LTSF, but summarizes major activities. It does not list the multitude of daily activities and public interactions involved in managing LTSF. Since the approval of the previous management plan in 2011, there have been numerous events, developments, and accomplishments. Among the most notable have been the following:

- Forest Management

- Conducted forest inventory averaging greater than 10% of total forest acres annually (1,936 average acres)
- Planted 617,973 containerized longleaf pines on 850 acres
- Harvested 56,666 tons of timber from approximately 1,650 acres

- Fire Management
  - Conducted prescribed burns totaling 38,178 acres
  - Maintained 7.8 miles of firelines

- Road / Boundary Management
  - Improved or rebuilt 18 miles of forest roads
  - Graded 472 miles of roads
  - Maintained 168 miles of forest boundary

- Recreation Management
  - Conducted annual Operation Outdoor Freedom (OOF) events
  - Hosted more than 3,014,308 day use and camping visitors on the forest
  - Designed, updated and replaced four informational kiosks at primary recreation sites, and added informational kiosks to three other tract entrances
  - Reorganized High Bluff Campground to improve visitor experience
  - Rebuilt fishing pier at High Bluff Recreation Area
  - Installed water well at Ft. Braden Trailhead for watering horses or dogs

- Biological Management
  - Actively controlled more than 18 invasive plant species on 400 acres
  - Removed 571 feral hogs

- Education / Public Outreach
  - Hosted 335 forest-related program events (local school programs, clubs, and professional groups)
  - Produced 5 radio, television, and / or print articles featuring forest activities
  - Hosted 24 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 LTSF during this period must conserve, protect, utilize, and enhance the natural and historical resources and manage resource-based public outdoor recreation, which is compatible with the conservation and protection of this forest. Most of the management operations will be conducted by the FFS, although appropriate activities will be contracted to private sector vendors or completed with the cooperation of other agencies. All activities will enhance the property's natural resource or public Recreation value.

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

goals are goals that are achievable within a two-year planning period, and long-term goals are achievable within a ten-year planning period. Objectives are listed in priority order for each goal. Other activities will be completed with minimal overhead expense and existing staff.

- **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 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

- **GOAL 2: 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 LTSF, 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: Maintain cooperation with Florida Fish and Wildlife Conservation Commission (FWC) to develop specific hunting season quotas and bag limits, and to address hunting issues which are to be agreed upon at an annual cooperator meeting between FFS and FWC. (Ongoing objective)

Performance Measures:

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

Objective 5: Evaluate the potential for additional public access and Recreation areas on LTSF 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: Number of additional visitor opportunities evaluated

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

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

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

Objective 1: The LTSF currently contains approximately 9,600 acres of fire-dependent communities. LTSF 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 most fire-dependent communities, FFS will attempt to conduct prescribed burns on an average of approximately 2,500 to 3,800 acres per year. Currently, FFS staff estimates 9,569 acres at LTSF 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 LTSF 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 reestablishment of native groundcover. Restore native groundcover from historical land use where practical or heavily impacted from historical land use. (Long-term objective)
Performance Measure: Number of acres restored

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

  Objective 1: In cooperation with FWC, develop a Wildlife Management Strategy addressing wildlife species for LTSF, 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 LTSF

  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

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

  Objective 1: Continue to follow and annually update the Five-Year Ecological Plan for LTSF, to locate, identify, and control invasive species. (Ongoing objective)
  Performance Measures:
  - Total number of acres identified and successfully treated
  - Annual updates of the Five-Year Ecological Plan completed
  - Continue to maintain LTSF invasive database information annually

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

  Objective 1: Ensure all known cultural and historical sites are recorded in the 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 and send updates to the DHR Florida Master Site File as needed. (Ongoing objective)
  Performance Measure: Number of sites monitored. Reports submitted to DHR

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

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

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

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

Performance Measure: Assessment conducted

Objective 3: Close, rehabilitate, or restore roads, fire lines, 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: LTSF staff, along with help from volunteers and / or user groups, will continue maintenance of the Bear Creek Educational Center, picnic pavilions, 24 primitive camping sites, three (3) parking areas and trailheads, 32 miles of trails, and 40 miles of primary and secondary 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 Lake Talquin State Forest (LTSF).

2. Legal Description and Acreage

LTSF is located approximately 8 miles west of Tallahassee, Florida in western Leon County, southeastern Gadsden County, northeastern Liberty County, and northwestern Wakulla County, Florida. The forest's boundaries are identified in Exhibit B.

The total acreage of LTSF is 19,174.59 acres. The property is located in all or part of Sections 1, 2, 11-14, 17-24, 26-35 of Township 1 North, Range 2 West, Sections 2, 3, 10, 11, 13-16, 21-28, 31, 32, 34-36 of Township 1 North, Range 3 West, Sections 14, 18, 27, 28, 33-35 of Township 1 North, Range 4 West, Sections 5-8 of Township 1 South, Range 3 West, Sections 1-5, 9, 11- 13, 16, 20, 21 of Township 1 South, Range 4 West, Section

36 of Township 2 North, Range 2 West, Section 27 of Township 2 North, Range 5 West, and Lots 1-3, 6-13, 19, 40, 41, 49, 50, 76-78, 80, 81 of the Little River Survey. Acreage acquired by funding source is identified in Table 1.

Table 1. LTSF Acreage by Funding Source

Funding Source	Acres
Donation	66.25
Florida Forever	1,164.41
Mitigation	62.60
Preservation 2000	4,075.64
Other*	13,805.69

* Remaining acreage acquired through other sources

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

3. Proximity to Other Public Resources

Lands managed by state, federal, or local governments for conservation of natural or cultural resources that are located within approximately 18 miles of the LTSF are included in Table 2 and Exhibit F.

Table 2. Nearby Public Conservation Land and Easements

Tract	Agency	Distance
Joe Budd Wildlife Management Area	FWC	Adjacent N
Apalachicola National Forest	USFS	Adjacent S
Lake Talquin State Park	FDEP	Adjacent S
Elinor Klapp-Phipps Park	COT/NWFWMD	5 miles NE
Alfred B. Maclay Gardens State Park	FDEP	6 Miles NE
Lake Jackson Mounds Archaeological State Park	FDEP	6 miles NE
Tallahassee-St. Marks Historic Railroad State Trail	FDEP	9 Miles SE
Wakulla State Forest	FFS	12 Miles SE
Edward Ball Wakulla Springs State Park	FDEP	12 miles SE
L. Kirk Edwards Wildlife and Environmental Area	FWC	14 Miles SE
Torreya State Park	FDEP	15 Miles NW
Plank Road State Forest	FFS	17 Miles SE
Tate's Hell State Forest	FFS	17 Miles SW
St. Marks River Preserve State Park	FDEP	17 Miles SE
Apalachicola Bluffs and Ravines Preserve	TNC	18 Miles NW
Natural Bridge Battlefield Historic State Park	FDEP	18 Miles SE

COT – City of Tallahassee
FDEP – Florida Department of Environmental Protection
FFS – Florida Forest Service
NWFWMD – Northwest Florida Water Management Dist.
FWC- Florida Fish and Wildlife Conservation Commission
TNC- The Nature Conservancy
USFS – US Forest Service

4. Property Acquisition and Land Use Considerations

In the 1970s, the Florida Power Corporation donated 13,553 acres to the TIITF. Subsequent additions include 5,240 acres of land purchased with Preservation 2000 and Florida Forever funds. The 492-acre Bear Creek Tract was purchased via the Land Acquisition Trust Fund and the remaining acres were acquired through other sources such as mitigation and utility easement replacement acres. All parcel acquisitions are identified in Table 3. Major tracts are depicted in Exhibit E.

Table 3. Parcel Acquisition

Parcel Name	Lease Date	TIITF Lease No.	County	Acres
Joe Budd	6/28/1993	3971	Gadsden	4,381.21
Midway	6/28/1993	3971	Gadsden	1,273.77
Hammock Creek	6/28/1993	3971	Gadsden	342.71
Highway 20	6/28/1993	3971	Leon	3,510.33
Lower Ochlockonee	6/28/1993	3971	Liberty	46.50
Oklawaha	6/28/1993	3971	Gadsden	169.00
Van Landingham	6/28/1993	3971	Gadsden	370.31
North Ochlockonee	6/28/1993	3971	Leon	1,819.13
South Ochlockonee	6/28/1993	3971	Leon	1,011.79
Goat Island	6/28/1993	3971	Gadsden	11.97
Cape Talquin	6/28/1993	3971	Leon	471.88
Bloxham	6/28/1993	3971	Leon	68.93
Girl Scout	6/28/1993	3971	Leon	68.93
Bear Creek	1/24/1994	3971	Gadsden	491.74
Fort Braden	12/01/1994	3971	Leon	1,256.46
Lines, Willis & Beasley	7/8/1996	3971	Gadsden	229.00
Lamb	7/8/1996	3971	Gadsden	315.20
Revell & Whitfield	7/8/1996	3971	Gadsden	134.50
Powell	7/8/1996	3971	Gadsden	122.00
Wainwright	4/6/1999	3971	Leon	62.60
Rocky Comfort Tract*	9/1/2000	4211	Gadsden	2,018.48
St. Joe Timberlands / Little River	3/22/2004	3971	Gadsden	569.06
Searcy	10/27/2005	3971	Wakulla	595.35
FGT	6/4/2014	3971	Gadsden	40.00
Gulf Power	8/3/2021	3971	Leon	26.25
High Bluff Landing	6/3/2022	3971	Gadsden	9.83
Pond Road**	6/3/2022	3971	Gadsden	-5.00
Nekoosa / Barrow	TBD	3971	Gadsden / Leon	1.52
Williams Landing	TBD	3971	Leon	1.90

* Multiple agency lease held by TIITF, FFS, and FWC

** Partial release of lease #3971

B. Management Authority, Purpose, and Constraints

1. Purpose for Acquisition

The goals for the acquisition of this property include:

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

2. Degree of Title Interest Held by the Board

The TIITF holds fee simple title to 19,174.59 acres of LTSF (lease agreements 3971 and 4211). Parts of the property have been subleased to the Boy Scouts of America, Gadsden Parks and Recreation, and the Leon County Parks and Recreation. Utility easements are held by the Florida Gas Transmission Company, City of Tallahassee, Talquin Electric, City of Midway, Duke Energy, Gulf Power, and several non-industrial private landowners requiring access to their property.

3. Designated Single or Multiple-Use Management

LTSF 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 No. 3971, with the exception of co-management with FDACS and FWC of the 2,018-acre Rocky Comfort Tract under Management Lease No. 4211.

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 LTSF. 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 LTSF 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 LTSF. Current and potential revenue producing activities for the LTSF include, but are not limited to:

- *Timber Harvests* – Timber harvests on LTSF will be conducted to improve forest health, promote wildlife habitat, restore plant communities, and provide additional benefits.
- *Recreation Fees* – Fees are currently collected for day-use fee areas, campgrounds,

annual passes, and vendor / special use permits.

- *Apiary Leases* – There are 8 active apiary lease sites on LTSF.
- *Firewood* – Permits are sold for the cutting and collection of firewood in designated areas of LTSF.
- *Miscellaneous Forest Product Sales* – Other miscellaneous forest product sales, including but not limited to worm harvesting (grunting) and pine straw raking may be considered.

5. Conformation to State Lands Management Plan

Management of LTSF 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 known legislative or executive constraints specifically directed toward LTSF.

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

7. Aquatic Preserve / Area of Critical State Concern

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

C. Capital Facilities and Infrastructure

1. Property Boundaries Establishment and Preservation

LTSF boundaries, 170.29 miles in total, are managed by state forest personnel in accordance with the guidelines of the State Forest Handbook. There are 70 gates throughout LTSF that require periodic maintenance. State forest boundaries are maintained by periodic clearing, repainting and reposting, and placement of state forest boundary signs by FFS personnel.

2. Improvements

Major FFS facilities on LTSF include the Tallahassee Forestry Center and Lake Talquin State Forest Headquarters and equipment maintenance / storage shops. Major recreation facilities include the Bear Creek Educational Center and multiple picnic pavilions. See Exhibit D for a map of the buildings and improvements at LTSF.

Buildings / Recreation infrastructure present on the LTSF include:

- High Bluff Restroom, 192 sq. ft
- Lines Tract Restroom, 70 sq. ft
- Lines Tract Pavilion, 884 sq. ft

- Bloxham Lumbershed, 988 sq. ft
- Bloxham Pavilion, 560 sq. ft
- Bloxham Pumphouse, 120 sq. ft
- Bloxham Residence, 1921 sq. ft
- Bear Creek Education Center, 3,408 sq. ft
- Bear Creek Barn, 1,435 sq. ft
- Bear Creek Shed, 170 sq. ft
- Bear Creek Storage Building, 504 sq. ft
- Bear Creek Picnic Pavilion, 884 sq. ft
- Bear Creek Restroom, 910 sq. ft
- Bear Creek Info Building, 437 sq. ft
- Talquin Office, 622 sq. ft
- Talquin Site Storage, 101 sq. ft
- Ft. Braden Lakeside Pavilion, 918 sq. ft
- Ft. Braden Trail Head Pavilion, 918 sq. ft
- Ft. Braden Restroom, 70 sq. ft

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

There are six mobile home / camper spaces on LTSF.

FFS may establish additional on-site housing (mobile / manufactured home) on LTSF if deemed necessary to alleviate security and management issues. The need and feasibility for LTSF 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 Director.

4. <u>Operations Infrastructure</u>

a. Operations Budget

For Fiscal Year 2022-2023, the total annual budget for LTSF was $57,325.63. This amount includes expenses, contractual services, Other Personal Services Employment (OPS), etc. A summary budget for LTSF is contained in Exhibit V. Implementation of any of the activities within this management plan is contingent on availability of funding, other resources, and other statewide priorities.

b. Equipment

To carry out the mission of the FFS, equipment assigned to the LTSF includes: two pickup trucks, one dump truck, one all-terrain vehicle, one utility task vehicle, one farm tractor with various implements, one front-end loader, one motor grader, one backhoe, and one road tractor with lowboy trailer. Most of the equipment listed above is also used on two other state forests within the Tallahassee Forestry Center. Six medium dozers with transports and two Type VI engines are stationed at locations within LTSF, and although not directly assigned to LTSF, will be available for

resource management activities when not engaged in wildfire suppression or private landowner assistance.

c. Staffing

Two individuals are assigned to LTSF: one Forestry Supervisor II and one OPS Park Ranger. Other personnel from the Tallahassee Forestry Center (TFC) are used to assist with management activities at LTSF.

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, etc., are the responsibility of the Forestry Supervisor II under the direction of the Forestry Operations Administrator and Center Manager. Forest operations, such as road maintenance, operations / Recreation facility maintenance, prescribed burning, etc., are the responsibility of the Forest Area Supervisors under the direction of the Forestry Operations Administrator.

To supplement the staff assigned to LTSF, the Forestry Supervisor and TFC Recreation Coordinator are responsible for recruiting interested volunteers who can bring needed experience and skills to assist with the management of the forest recreation program, as well as resource management activities.

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

D. Additional Acquisitions and Land Use Considerations

1. Alternate Uses Considered

No alternate uses are being considered at this time. Alternate uses will be considered as requests are made and will be accommodated as appropriate if they are determined to be compatible with existing uses and with the management goals and objectives of LTSF. 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 and is not considered an appropriate use within or adjacent to the state forest boundaries.

2. Additional Land Needs

There are 38,739 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.

Purchasing of additional land within the optimal management boundary would facilitate restoration, protection, maintenance, and management of the natural resources on LTSF. 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 LTSF 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 LTSF 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 there is an increasing number of mining sites adjacent to or in proximity of the forest, which is a conflicting adjacent land use. Additionally, FFS staff have met with adjacent landowners and maintain liaison with those landowners to ensure that any conflicting future land uses may be readily identified and addressed.

Residential development of adjacent property and adjoining county highways may hinder prescribed burning due to smoke management concerns.

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 LTSF.

5. Compliance with Local Comprehensive Plans

This plan was submitted to the Gadsden County, Leon County, Liberty County and Wakulla County councils for review and compliance with their local comprehensive plans. See Exhibit T.

6. Utility Corridors and Easements

FFS does not favor the fragmentation of natural communities with linear facilities. Consequently, easements for such uses will be discouraged to the greatest extent practical. The FFS does not consider LTSF 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 and the NWFWMD. Requests for linear facility uses will be handled according to the Governor and the Cabinet's linear facilities policy.

Currently, gas and electric utility rights-of-way exist on the North and South Ochlockonee, Highway 20, Midway and Joe Budd Tracts of LTSF. The FFS does not consider LTSF suitable for any new linear facilities.

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 3971. The FWC is co-manager with FFS on the 2,018-acre Rocky Comfort Tract as stipulated in TIITF Management Lease number 4211. Pursuant to the management lease, the lead managing agency may enter into further agreements or to subleases on any part of LTSF.

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

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

2. Law Enforcement

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

The FDACS Office of Agricultural Law Enforcement (OALE) will assist with open burning and wildfire investigations as needed. The Gadsden, Leon, Liberty and Wakulla counties 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 LTSF.

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 (590.01, F.S.). The FFS also has the responsibility of authorizing prescribed burns (590.02 [1][i], F.S).

4. Public and Local Government Involvement

This plan has been prepared by FFS and will be carried out primarily by the FFS. FFS responds to public involvement through liaison committees, management plan advisory groups, public hearings, and through ongoing direct contact with user groups. Land Management Review Teams, as coordinated by the Division of State Lands, have conducted reviews of management plan implementation in 2014 and 2019. See Exhibit S. The review team's recommendations were addressed in this plan, as appropriate.

The plan was developed with input from the LTSF Management Plan Advisory Group and was reviewed at a public hearing on September 27, 2023. A summary of the advisory group's meetings and discussions, as well as written comments received on the plan, are included in Exhibit U. The Acquisition and Restoration Council (ARC) public hearing and meeting serve as an additional forum for public input and review of the plan.

5. Volunteers

Volunteers are important assets to LTSF. Volunteer activities may occur as one-time events or in association with long-term 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

Prior Native American habitation is apparent at recorded archaeological sites on LTSF, and early European settlers cleared the land for agriculture. From the 1950s to the early 1970s, much of LTSF was leased for timber or cattle operations. In the mid-1970s, Florida Power Corporation notified St. Joe that their lease on the timber rights would soon be terminated since they were conveying the property to the State. St. Joe subsequently removed most of the merchantable timber over the next several years. From the time timber and cattle leases were established to the initial transfer of the property to the State in 1977, natural fire regimes were disrupted. These prior uses of the property and lack of fire management have resulted in degradation of natural communities on LTSF groundcover.

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 37 recorded archaeological sites, 5 historical cemeteries, and 2 historical resource groups within the designated area for LTSF. Currently, none of the known sites on LTSF are listed in the National Register of Historic Places, though three are likely eligible. See Table 4 and Exhibit H for a Cultural Resource Roster.

Table 4. Historical Sites on LTSF

Site ID	Site Name	Site Type
GD00113	NN	AR
GD00114	NN	AR
GD00125	Suber	AR
GD00303	Richlander Creek	AR
GD00310	Gadsden Station 7	AR
GD00406	P81-1	AR
GD00407	P81-2	AR
GD00460	Ochlockonee River West	AR
GD00701	Little River Village	AR
GD00702	Rocky Comfort Scatter	AR
GD00703	Rocky Comfort Homestead	AR
GD00704	Francis	AR
GD00705	Animal Pen	AR
GD00706	Coral Bend	AR
GD00707	Lone Sherd	AR
GD00708	Bunting	AR
GD00710	Five Points	AR
GD00731	Antioch Church Cemetery	CM
GD00756	Green Parrot	AR
GD00865	Atw-406.58-01	AR
GD01006	Harden Cemetery	CM
GD02007	Hopkins-1	AR
LE00014	Unnamed	AR
LE00553	Ochlockonee River Recreation Area	AR
LE00566	Ranger	AR
LE00567	Wild Dog	AR
LE01673	Old House Point	AR
LE01674	Ochlockonee South	AR
LE01676	Rest Area South	AR
LE01677	Rest Area North	AR
LE01799	Northwest Point	AR
LE01807	Cape Talquin 2	AR
LE01808	Cape Talquin 3	AR
LE01896	Russell Cemetery	CM
LE02009	Lake Talquin Turpentine Camp	AR

Site ID	Site Name	Site Type
LE02010	Tenant House 1	AR
LE02103	P125-1	AR
LE02146	Muddy Jenn	AR
LE02300	Whatley Family	CM
LE05209	Pensacola and Georgia Railroad	RG
LE05681	FL-Leon-002-1AR-02	AR
LE05685	FL-Leon-002-1AR-03	AR
LE05693	Geddie Cemetery	CM
LE06754	Jackson Bluff Dam	RG

AR – Archaeological Site; CM – Historical Cemetery; RG – Historical Resource Group

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 I. Any significant ground disturbing activity proposal will be submitted to DHR's Compliance and Review office for review prior to undertakings and allow the Division a reasonable opportunity to comment. Ground disturbing activities not specifically covered by this plan will be conducted under the parameters of the "Interim Management Guidelines".

D. Survey and Monitoring

Currently, five local district FFS staff have been 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 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 may 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

A. Soils and Geologic Resources

1. Resources

Soil information for LTSF was obtained from the United States Department of Agriculture Natural Resources Conservation Service (NRCS). The major soils listed by the NRCS include: Albany complex, Blanton sand, Rutlege soil, Bibb soil, and Ridgewood sand. Detailed information on all soils present on LTSF may be found in Exhibit J.

2. Soil Protection

Currently, there are no significant soil erosion problems at LTSF. Management activities will be executed in a manner to minimize soil erosion. As problems arise, corrective action will be implemented by FFS staff under the direction of the FFS Forest Management Bureau in conjunction with recommendations as contained in the most current version of the Florida Silviculture Best Management Practices Manual.

B. Water Resources

1. Resources

Water resources on LTSF include the Ochlockonee River which runs through much of the state forest and eventually forms Lake Talquin, a reservoir which in large part is surrounded by LTSF. The Little River flows into Lake Talquin from the north and forms the western boundary of the Joe Budd Tract. Numerous creeks and tributaries flow through the forest into Lake Talquin, the Ochlockonee River, or the Little River. Many tributaries originate their flow on LTSF. See Exhibit K for map of the water resources on LTSF.

2. Water Classification

The FDEP Standards Development Section reports that all of the surface waters within, adjacent to, or within five (5) miles of LTSF are classified as Class III Waters according to Rule 62-302.400, F.A.C.

According to subsection 62-302.700(9), F.A.C., three FDEP-designated Outstanding Florida Waters (OFWs) are within or adjacent to LTSF. These are the Ochlockonee River Special Water OFW, the Bear Creek State Recreation Area, and the Lake Talquin State Recreation Area. Nearby OFWs include the Lake Jackson Aquatic Preserve and the St. San Luis Program Area. See Exhibit K.

3. Water Protection

The acquisition and management of this public land had among its objectives to optimize ecological restoration, protect and manage existing natural resources, and facilitate sensible public use. Concern 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 through the use of Best Management Practices (BMPs) as described in the most current version of Silviculture Best Management Practices manual.

4. **Swamps, Marshes, and Other Wetlands**

In addition to the waterways, approximately 4,854 acres in the following seven (7) hydric communities make up about 25% of the LTSF acreage: alluvial forest, basin swamp, baygall, bottomland forest, depression marsh, floodplain swamp, and shrub bog. Maintenance of naturally occurring wetland communities is a high priority and will be accomplished through appropriate management activities, including prescribed fire and adherence to Silviculture BMPs.

5. **Wetlands Restoration**

Wetlands on LTSF 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.

Wetlands restoration objectives on LTSF 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, re-vegetation with native wetland 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, LTSF, 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 NWFWMD. Any activities requiring permits from the water management district will be handled accordingly and will follow the latest edition of the FFS Silviculture Best Management Practices manual.

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

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

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

A vast portion of LTSF resides in the Ochlockonee-St. Marks BMAP. See Exhibit L.

C. Flora and Fauna Resources

1. Rare, Endangered, and Threatened Species

The intent of FFS is to manage LTSF in a manner that will minimize the potential for wildlife species to become imperiled. FFS employees continually monitor LTSF 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.

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

Common Name	Scientific Name	FNAI Global Rank*	FNAI State Rank*	Federal Status*	State Status *
Amphibians					
Apalachicola dusky salamander	*Desmognathus apalachicolae*	G4	S2S3	N	N
Four-toed salamander	*Hemidactylium scutatum*	G5	S2	N	N
One-toed amphiuma	*Amphiuma pholeter*	G3	S3	N	N
Arachnids					
Red-legged purse-web spider	*Sphodros rufipes*	G4	S3	N	N
Birds					
Yellow-crowned night-heron	*Nyctanassa violacea*	G5	S3	N	N
Fish					
Insects					
Gray petaltail	*Tachopteryx thoreyi*	G4	S3	N	N
Hirsute mayfly	*Attenella attenuata*		S1S2	N	N
Say's spiketail	*Cordulegaster sayi*	G3	S3	N	N
Seminole skipper	*Hesperia attalus slossonae*	G3G4T3	S3	N	N
Mollusks					
Purple bankclimber	*Elliptoideus sloatianus*	G2	S1S2	T	FT
Plants					
Florida flame azalea	*Rhododendron austrinum*	G3	S3	N	E
Florida merrybells	*Uvularia floridana*	G3	S1	N	E
Florida spiny-pod	*Matelea floridana*	G2	S2	N	E
Flyr's brickell-bush	*Brickellia cordifolia*	G3	S2	N	E
Little brown jug	*Asarum arifolium*	G5	S3	N	T

Mountain laurel	*Kalmia latifolia*	G5	S3	N	T
Piedmont water milfoil	*Myriophyllum laxum*	G3	S3	N	N
Pyramid magnolia	*Magnolia pyramidata*	G4	S3	N	E
Silky camellia	*Stewartia malacodendron*	G4	S3	N	E
Sweet-shrub	*Calycanthus floridus*	G5	S2	N	E
Sandhill sedge	*Carex tenax*	G5	S3	N	N
Turk's cap lily	*Lilium superbum*	G5	S1	N	E
Zigzag silkgrass	*Pityopsis flexuosa*	G3	S3	N	E
Reptiles					
American alligator	*Alligator mississippiensis*	G5	S4	SAT	FT(S/A)
Barbour's map turtle	*Graptemys barbouri*	G2	S2	N	ST
Eastern diamondback rattlesnake	*Crotalus adamanteus*	G4	S3	N	N
Gopher tortoise	*Gopherus polyphemus*	G3	S3	C	ST
Pine snake	*Pituophis melanoleucus*	G4	S3	N	ST
Mammals					
Florida black bear	*Ursus americanus floridanus*	G5T4	S4	N	N
Southeastern fox squirrel	*Sciurus 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, GH = Possibly Extinct, 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, SH = Possibly Extinct, S#?= Tentative Rank.

Federal Status (USFWS): LE= Listed Endangered, LT= Listed Threatened, N= Not currently listed, C= Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened. SAT, T(S/A) = threatened due to similarity of appearance. A species that is threatened due to similarity of appearance with another listed species and is listed for its protection. Species listed as T(S/A) are not biologically endangered or threatened and are not subject to Section 7 consultation

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

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

2. Florida Natural Areas Inventory

The Florida Natural Areas Inventory (FNAI) is the single most comprehensive source of information available on the locations of rare species and significant ecological resources. 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.

Documented habitat includes: alluvial forest, basin swamp, baygall, bottomland forest,

depression marsh, floodplain swamp, mesic flatwoods, pine plantation, sandhill, shrub bog, successional hardwood forest, successional hydric shrubland/forest, swamp lake, upland hardwood forest, upland mixed woodland, upland pine and wet flatwoods.

b. Likely and Potential Habitat for Rare Species

In addition to documented occurrences, other rare or threatened species may occur near LTSF. See Exhibit M.

c. Land Acquisition Projects

Hosford Chapman's Rhododendron Protection Zone

Portions of LTSF's Optimal Management Boundary are within the Hosford Chapman's Rhododendron Protection Zone. The project, sponsored by The Nature Conservancy and FNAI, is a proposal for a conservation easement to restore, maintain, and protect in perpetuity the native ecosystems for one of only two core populations of the rare Chapman's Rhododendron, a federally-listed plant that is only found in three Florida counties: Gulf, Gadsden and Liberty. On the western portion of the project, the easement would cover approximately 70 percent of the area where Chapman's Rhododendron is known to occur. The eastern portion has greater potential for diverse forms of resource-based recreation. See Exhibit G.

Little River Conservation Area

Purchase of the interest in the 2,085-acre Little River Conservation Area located approximately five (5) miles north of LTSF would protect a portion of the Little River watershed while maintaining a scenic and undeveloped rural area outside of an expanding urban area. A conservation easement would preserve habitat for wildlife, protect forested land, and provide support for ongoing efforts to restore the property to a natural longleaf pine community. Due to its proximity of LTSF and Joe Budd Wildlife Management Area, managed by FWC, acquiring a conservation easement in this area would also enhance the coordination and completion of other land acquisition projects. See Exhibit G.

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

3. Florida Fish and Wildlife Conservation Commission

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

Other findings by the FWC include:

a. The property is located within one mile of a Strategic Habitat Conservation Areas for swallow-tailed kite (*Elanoides forficatus*), Cooper's hawk (*Accipiter cooperii*), and Florida black bear (*Ursus americanus floridanus*).

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

c. LTSF is located within and in close proximity to multiple Priority Wetlands, which are wetlands significant to listed wetlands-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 N.

FWC recommends the review of management guidelines in the published FWC Gopher Tortoise Species Management Plan to guide management actions for the gopher tortoise (*Gopherus polyphemus*) on LTSF. The FWC Gopher Tortoise Species Management Plan provides beneficial resource guidelines for habitat management and monitoring of the gopher tortoise. For reference, the FWC Gopher Tortoise Species Management Plan can be accessed at www.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 LTSF. FWC provides cooperative technical assistance in managing the wildlife and fish populations, determining hunting seasons, establishing bag and season limits, and overall law enforcement on LTSF.

LTSF includes four Wildlife Management Areas (WMA) open for hunting: Joe Budd WMA, comprised of 11,173 acres in Gadsden County; Ochlockonee River WMA, comprised 2,790 of acres in Leon County; Talquin WMA with 3,053 acres in Leon County; and the Searcy Tract, which is included within the Apalachicola WMA and is located in Wakulla County. Management of these areas will be directed to the enhancement of biological diversity and species composition consistent with existing natural community types. Such communities will be restored and / or maintained through habitat management. All biological resources will be managed to maintain diversity.

Notable wildlife species inhabiting LTSF include red-shouldered hawk (*Buteo lineatus*), bald eagle (*Haliaeetus leucocephalus*), osprey (*Pandion haliaetus*), gopher tortoise (*Gopherus polyphemus*), bobcat (*Lynx rufus*), coyote (*Canis latrans*), white-tailed deer (*Odocoileus virginianus*), fox squirrel (*Sciurus niger*), and wild turkey (*Meleagris gallopavo*.

FFS and FWC cooperatively maintain approximately 159 acres of permanent wildlife openings and planted food plots on the LTSF. Wildlife openings and food plots are established and maintained in accordance with the FFS State Forest Handbook.

Non-game species will be managed and protected through the restoration and maintenance of native ecosystems found on LTSF. 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.

a. Gopher Tortoises

Surveys for gopher tortoise burrows have been conducted by FFS and FWC staff intermittently, as needed. 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.

b. 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.

c. Listed Plant Species

All known locations of listed or rare flora are GIS mapped and location data are shared with FNAI.

d. Other Rare Biota Surveys

Surveys are done as time and staffing allow. High quality plant communities continue to incur ad hoc surveys for both invasive plants and animals. 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 LTSF 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 FNAI annually.

6. Gopher Tortoise Recipient Site Feasibility Assessment

The FFS has assessed the feasibility of establishing a gopher tortoise recipient site on LTSF. As of 2018, FWC had their contractor conduct a pilot Line Transect Distance Sampling (LTDS) project on portions of LTSF and the adjacent Joe Budd WMA. At that time, the survey resulted in a very low encounter rate (no tortoises were observed)

despite identification of over 10,000 acres of potential habitat. Therefore, no full LTDS survey was ever scheduled for LTSF as the low population did not warrant a full survey.

In the fall of 2021, LTSF staff were approached by FWC staff inquiring about the potential of establishing recipient sites on the forest. Several different options were discussed, but ultimately FFS decided against moving forward to establish recipient site(s) due to logistical constraints of implementing and permitting the site(s) and some conflicts with primary management objectives (i.e., young pine plantations). Even though a site was not established back in 2021, staff on LTSF have identified three parcels on the Lines Tract totaling 197 acres and two parcels on the Bear Creek Tract totaling 65 acres, which contains suitable soils and could feasibly be established as a recipient site, though the baseline population density would need to be established first.

However, based on the operational budget and staff assigned to the forest, the FFS does not have the financial or technical capacity to install a gopher tortoise recipient area on LTSF. The FFS would require financial and technical assistance from FWC to establish a recipient site on LTSF. Should that assistance be available, the FFS would be amenable to partnering and establishing a gopher tortoise recipient site.

D. Sustainable Forest Resources

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

E. Beaches and Dune Resources

No beaches or dunes occur on the LTSF.

F. Mineral Resources

No mineral deposits of commercial value are known to exist on LTSF.

G. Unique Natural Features and Outstanding Native Landscapes

Deep ravines occur on nearly every tract and contain plants and animals not commonly found anywhere else in Florida. Steephead slopes on LTSF are unique geological features uncommon to most of Florida.

H. Research Projects / Specimen Collection

Research projects may be conducted on LTSF 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 research to be considered on LTSF 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 LTSF 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 and/or specimen collections that have been initiated on the property over the last 10 years include:

1. Bigelow – The Jones Center at Ichauway. 2020. Investigation of vulnerability of planted longleaf pines to windstorms on LTSF.
2. Anderson – Florida State University (FSU). 2018-2020. Collection of plant specimens not currently vouchered in a county for FSU's Robert K. Godfrey Arboretum, and collection of plant species for research material.
3. Conover/Martini – University of Florida (UF). 2018-2020. Investigation of ecological relationships and impacts between invasive ambrosia beetles and North Florida forest systems on LTSF; investigation of the ecological impacts of red bay ambrosia beetles and laurel wilt, management strategies for red bay ambrosia beetles, and ecological interactions between generalist and specialist ambrosia beetles.
4. Blackburn / Shuman / Orange – UF. 2016-2018. Research on the seroprevalence of epizootic hemorrhagic disease virus and blue tongue virus, as well as the movement patterns of wild Florida deer on LTSF proximate to an ongoing captive deer study.
5. Gott/Miller – UF. 2018-2020. Research on the biology and systematics of the Florida duskywings; solidify the known ranges of *Erynnis brizo* and *E. b. somnus*, and to determine if these taxa deserve to be elevated to specific rank based on morphological, genetic, and ecological factors.
6. Schoonover/Weakley – University of North Carolina / North Carolina Botanical Garden. 2017-2018. Collection of plant material for genetic and morphological analyses and to examine Trichostema (*bluecurl*) populations throughout the southeastern United States, to better understand species distribution and evolutionary trends.
7. Sloyer/Burkett-Cadena – UF. 2017. Ecological niche modeling the potential geographic distribution of four *Culicoides* species of veterinary significance in Florida.
8. Erram – University of Florida / Institute of Food and Agricultural Sciences. 2019. Identification and characterization of larval habitats of biting midges (a.k.a. "no-see-ums") in the genus *Culicoides* (Family *Ceratopotonidae*) that may transmit bluetongue virus and/or epizootic hemorrhagic disease virus.
9. Hokanson/Sherwood – Univ. of Minnesota. 2017. Collection of samples from oak leaf hydrangea (*Hydrangea quercifolia*) plants within LTSF to conduct range-wide genetic diversity analysis of the species to inform future conservation and breeding efforts.
10. Hoban – Morton Arboretum. 2017. Collection of pyramid magnolia (*Magnolia pyramidata*) leaves from LTSF for genetic analysis and to better understand the genetic diversity of this species, and to provide better understanding of the sample size needed to preserve the full wild, genetic diversity of rare plant species in ex situ collections, such as those in botanic gardens.

11. Peterson – Bok Tower Gardens. 2017. Collection of leaves from two *Warea* species (*Warea sessilifolia* and *W. cuneifolia*) for genetic research at LTSF to investigate genetic distances within the genus.
12. Duncan – UF. 2016. Research on the ecology, natural history, distribution, and population dynamics of the southeastern pocket gopher (*Geomys pinetis*) to provide specific management recommendations for restoring and maintaining highly functional habitat conditions, maintaining connectivity among populations, and reintroducing southeastern pocket gophers into appropriate habitat.
13. Ksepka/Fishbein – Oklahoma State University. 2016. Tissue sampling for genetic research on species within the genus Asclepias (milkweeds).
14. Klassen/Lee – University of Connecticut. 2016. Investigation of local adaptation between the fungus growing ant Trachymyrmex septentrionalis and its microbial symbioses.
15. Funderburk/Sprague – UF. 2015. Research on leaf litter thrips associated with *Magnolia grandiflora* on LTSF, including Bear Creek Educational Forest; determination of the seasonal abundance of Adraneothrips spp. and Elaphrothrips spp. in association with magnolia in northern Florida.
16. Molgo – UF. 2013. Collection of plant samples within the genus *Callisia* for genetic study and propagation.
17. Keppner/Keppner – Keppner Biological Service. 2015-2016. Research on the status assessment and range of dragonfly species Say's spiketail (*Cordulegaster sayi*) in Florida on LTSF to provide data for the USFWS as part of the Coordinated Candidate Species Status Assessment on imperiled or potentially listed species.
18. Scheick/McCown – FWC. 2014. Research estimating Florida black bear (*Ursus americanus floridanus*) abundance in Florida.

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 is to provide the public with passive outdoor Recreation activities that are dependent on the natural environment and to provide outdoor recreation opportunities to wounded veterans through Operation Outdoor Freedom (OOF). FFS will continue to promote and encourage public access and recreational use by the public while

protecting resources and practicing multiple-use management.

Periodic evaluations will be conducted by FFS staff to monitor Recreation 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

LTSF offers a variety of Recreation opportunities on its many diverse tracts of land. Hiking, camping, horseback riding, biking, picnicking, birding, and nature study can be enjoyed using existing service roads, historic road beds, and established trails. LTSF is part of the Great Florida Birding and Wildlife Trail as well as the Big Bend Scenic Byway which is a designated Florida Scenic Highway. Freshwater fishing can be pursued from the shore or by boat, and several public boat ramps are located on Lake Talquin. Canoes, kayaks, and power boats are permitted on the lake. See Exhibit D for a map of the Recreation, Facilities, and Improvements.

Bear Creek Tract

Hiking and nature trails on this 492-acre tract meander through many natural communities, including wetlands, sandhills, and steep ravines. Amenities include a picnic shelter, group campground, restrooms, drinking fountains, and four nature trails, including an audio-enhanced Living Forest Trail and arboretum.

Bloxham Recreation Area

The Bloxham Recreation Area is a 140-acre scenic high bluff located on the southwest side of Lake Talquin. Recreation opportunities at this day-use and reservation-only area include boating, canoeing, kayaking, fishing, and picnicking. Facilities include a boat ramp, fishing dock, restroom, and pavilion.

Fort Braden Tract

A range of different ecosystems and scenic views of Lake Talquin are found on the 1,242-acre Fort Braden Tract. Recreation opportunities include primitive camping, hiking, and horseback riding. Amenities include picnic pavilions, a trailhead restroom, and paddle-in or hike-in primitive campsites for individual and group camping.

High Bluff Recreation Area

On the southern end of the Joe Budd Tract, this lakeside recreation area features camping, fishing, boating, canoeing, kayaking, and picnicking. Facilities include a boat ramp, fishing pier, restrooms, and tent- and RV-accessible primitive campsites.

Lines Tract

The 9.3-mile W.D. Lines Trail System is for hiking and off-road biking and has two loops: Talquin Loop and Longleaf Loop. The Lines Youth Group Camp is a primitive

group campsite accessible by a 2-mile trail (bike or hike) or by vehicle and service roads. A picnic pavilion and vaulted restroom are available at the trailhead.

B. Planned

FFS will continue to assess plans for additional Recreation opportunities based on demand, carrying capacity, demographics, and impact to the resources on LTSF. FFS encourages public participation and partnerships with recreational user groups in support of LTSF's recreational goals. 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 LTSF.

Trails: Suitable locations will be considered for additional Recreation trails throughout the planning period. The construction, maintenance, and improvement of all trails on LTSF will be on-going. Current plans are to assess the need and feasibility of transitioning the Line's Tract Biking Trails into a multi-use trail system that would encompass horseback riding, biking, and hiking. The project will use as much of the existing trails as possible to reduce the overall footprint, however, this change in trail use would result in the need for expanding the existing parking area to accommodate several horse trailers, create a need for new bridges or low water crossings, and update kiosk panels and signs to reflect the additional usership. See Exhibit X.

Information & Education: Environmental education activities on LTSF are displayed on kiosks and through self-guided tours at the Bear Creek Educational Forest. Kiosks will be installed, replaced, or repaired as needed During this planning period, the Bear Creek Educational Forests Information Building will be assessed to determine if its content needs to be updated, changed, or replaced if necessary.

Camping: During this ten-year planning period, FFS will assess the feasibility of additional campgrounds, campsites, or group campsites. The parking and access to the High Bluff Campground fishing pier will be evaluated, and the FFS will assess the feasibility of redesigning and constructing new access ramps to meet current ADA standards. A new campground at the Bloxham Tract is planned to include up to 14 new primitive campsites, a pavilion, a restroom and shower house, a canoe and kayak launch, and electrical hook up for the campground site plan. See Exhibit Y.

Operation Outdoor Freedom (OOF): Special events designed to provide nature based outdoor recreation activities for U.S. military veterans with service connected disabilities will continue to take place throughout the forest. Current events include guided game hunts, but other activities will be considered.

The Florida Forest Service will handle permitting requests for Recreation activities.

C. Hunter Access

Regulated hunting and fishing on LTSF are managed cooperatively with the FWC. Hunting season dates, limits, and methods are established annually by FWC, in cooperation with FFS. Joe Budd WMA, Ochlockonee River WMA, and Talquin WMA regulations are updated annually and are identified in the current WMA brochures provided by FWC at

www.MyFWC.com.

OOF may host multiple events on LTSF. These events will involve outdoor recreation activities including, but not limited to, hunting, fishing, hiking, camping, clay shooting, and any other activity that is developed as an outdoor activity for wounded veterans. The supporting personnel will include state and private volunteers and any support personnel necessary for the operation, support, or funding of such events. Events can be Recreation, fundraising, or planning in nature. The OOF program needs may include the upgrading of existing or construction of new facilities for lodging and recreation of participants, as well as logistical and operational needs of the program. On-site and offsite fundraising for the benefit of OOF may occur to assist in these efforts and will be performed under the coordination and consistent with the guidelines of the Friends of Florida State Forests.

Non-hunting recreation users are encouraged to check the WMA regulations and season dates before visiting LTSF.

D. Education

FFS may create partnerships with local K-12 schools and / or universities for the development and implementation of educational opportunities on LTSF. Once partnerships are developed, the Five-Year Information & Education Plan will provide more insight to management activities as they pertain to future educational opportunities LTSF may provide to the public.

VI. Forest Management Practices

A. Prescribed Fire

Forest management practices on LTSF are important in the restoration and maintenance of forest ecosystems and provide a variety of socio-economic benefits to Floridians. Management practices on LTSF include prescribed fire, which 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 Tallahassee Forestry Center 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 LTSF.

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

The prescribed burning program developed for LTSF produces multiple benefits. The objectives of prescribed burning on LTSF 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. FFS personnel are responsible for planning and implementing the annual prescribed burn program for LTSF, which will consist of dormant and growing season burns, with an emphasis on growing season burns as applicable. An update to the Five-Year Prescribed Burning Management Plan is developed each year by FFS staff. All burns

conducted on LTSF are executed by Florida Certified Prescribed Burn Managers in accordance with Chapters 590.125, F.S. and 5I-2 F.A.C.

According to FNAI, historic, fire-dependent natural communities on LTSF are estimated to have occupied 10,650 acres and most burned at approximately 2 to 4-year intervals. Currently, there are 9,440 acres suitable for prescribed burning. Some historically fire-dependent communities have been altered through past land use practices, which inhibits the ability to meet objectives with prescribed fire alone. Based on current conditions and management objectives, LTSF will plan for 2,500 to 3,800 acres to be prescribed burned annually. As restoration efforts progress, acreage suitable for prescribed burning will increase. 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 9,440 acres of LTSF 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 LTSF. 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 LTSF 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 (2017) 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 higher burn acreages. Consideration should be given to rotating burn units between dormant and growing season burns over time. Fire return intervals for a burn unit are recommended to fall within the natural, historic range for the dominant natural community or communities within a given burn unit.

Based upon available species survey data, burn prescriptions shall explicitly state the presence of listed wildlife species within the burn unit, 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 Tallahassee Forestry Center. Emphasis will be placed on consistent accomplishment of prescribed burning goals and community outreach to increase public understanding of wildfire prevention and the benefits of prescribed fire.

FFS has three paramount considerations regarding wildfires, and these are listed 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 LTSF Fire Management Plan.

1. Suppression Strategies

If a wildfire occurs on LTSF 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. **Fire Breaks and Firelines**

A system of permanent fire breaks will be developed and maintained around and within the boundaries of LTSF 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 BMPs implemented as soon as practical after the fire is suppressed.

4. **Sensitive Areas**

LTSF 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 LTSF. 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 LTSF. When possible, fire staff will avoid line construction in wetland ecotones throughout LTSF.

5. **Firewise Communities**

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

6. **Adjacent Neighbor Contacts**

The staff at LTSF 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 wildfire and prescribed burn on LTSF 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 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, and timber harvesting for the purposes of generating revenue, improving stand viability, forest health, wildlife, and ecological restoration and maintenance is critical to the silvicultural objectives on LTSF.

1. Strategies

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

- **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 LTSF will be directed toward improving forest health, wildlife habitat, ecological and economical sustainability, as well as toward recovery from past management practices prior to state acquisition that are not in accordance with the objectives of this plan. Stands of off-site species with merchantable volume will be scheduled for harvest, followed by 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.

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 of LTSF 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 loblolly, longleaf, slash, and small pockets of sand pine. In addition, there are mixed hardwoods and cypress found throughout LTSF.

4. Timber Sales

Timber sales are 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 LTSF for invasive species while conducting management activities. FFS 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 LTSF. Also see Exhibit P.

On-going 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 LTSF 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 will be approached to cooperate on control measures. 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.

FFS will enlist support from FWC in efforts to control invasive animals. Feral hogs (*Sus scrofa*) are present on LTSF and are currently being trapped on the Rocky Comfort and Joe Budd Tracts, through a contract between FWC and USDA Wildlife Services. FWC has issued a feral hog control permit to FFS for LTSF and FFS will allow for feral hog removal on LTSF 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 LTSF

Common Name	Scientific Name	Treatment Strategy	Acres Impacted	Increasing /Decreasing
Air potato	*Dioscorea bulbifera*	Spot Treatment with herbicide	<1	Stable
Camphor tree	*Cinnamomum camphora*	Hack and Squirt	1	Stable
Chinaberry	*Melia azedarach*	Hack and Squirt	1 – 2	Stable
Chinese privet	*Ligustrum sinense*	Hack and Squirt	1 – 2	Stable

Common Name	Scientific Name	Treatment Strategy	Acres Impacted	Increasing /Decreasing
Chinese tallow	*Sapium sebiferum*	Hack and Squirt	1 – 2	Stable
Chinese wisteria	*Wisteria sinensis*	Hack and Squirt	1 – 2	Stable
Cogongrass	*Imperata cylindrical*	Spot Treatment with herbicide	1 – 2	Stable
Coral ardisia	*Ardisia crenata*	Hack and Squirt	1 – 2	Stable
Golden bamboo	*Phyllostachys aurea*	Spot Treatment with herbicide	<1	Stable
Japanese climbing fern	*Lygodium japonicum*	Spot Treatment with herbicide	70	Increasing
Japanese honeysuckle	*Lonicera japonica*	Hack and Squirt	<1	Stable
Kudzu	*Pueraria labata*	Spot Treatment with herbicide	<1	Stable
Mimosa	*Albizia julibrissin*	Hack and Squirt	1 – 2	Stable
Nandina	*Nandina domestica*	Spot Treatment with herbicide	<1	Stable
Tree-of-Heaven	*Ailanthus altissima*	Hack and Squirt	<1	Stable
Tung oil tree	*Vernicia fordii*	Hack and Squirt	<1	Stable
Wild taro	*Colocasia esculenta*	Lakeshore*	<1	Unknown

* Non-accessible

E. Insects, Disease, and Forest Health

Currently there are no significant insect or disease problems on LTSF. In the event of a forest pest outbreak, LTSF resource managers will consult with the Forest Management Bureau's Forest Health Section to formulate an appropriate and effective 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 Gadsden, Leon, Liberty, and Wakulla counties will be notified of the approval of this plan documenting this designation.

As a result, prior to conducting any arthropod control activities on LTSF, 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 LTSF. In this regard, FFS will provide the local agency details on the management objectives for LTSF. This public lands control plan must comply with FDACS guidelines and use the appropriate FDACS form. The plan must then be approved and mutually adopted by the county, FFS, and FDACS, prior to initiation of any mosquito control work. Should the local mosquito control district not propose any mosquito control operations on the property, no arthropod control plan is required. See Exhibit W.

F. Use of Private Land Contractors

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

1. Herbicide applications
2. Restoration
3. Site preparation
4. Reforestation
5. Timber harvesting
6. Biological assessments and mapping
7. Contractors for fixed capital and infrastructure improvements

VII. Proposed Management Activities for Natural Communities

In 2017, FNAI completed an inventory and natural community mapping project on LTSF. Current and historic natural community cover types can be found in Exhibits Q and R, and Table 7. The inventory included managed and altered community 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*
Alluvial forest	251	251
Basin swamp	91	90
Baygall	181	182
Bottomland forest	3,136	3,106
Depression marsh	69	58
Floodplain swamp	1,124	1,120
Mesic flatwoods	1,495	1,271
Sandhill	1,977	1,561
Shrub bog	47	47
Swamp lake	5	5
Upland hardwood forest	4,497	4,286
Upland mixed woodland	120	113
Upland pine	6,181	5,359
Wet flatwoods	427	415
Managed and other landcover types	0	1,737
TOTAL**	**19,601**	**19,601**

* Note rounding errors exist.

** Mapped acreage is slightly higher than official surveyed acres, which is an artifact of mapping boundary along open water (Lake Talquin).

Table 8. Managed Community Types

Community Type*	Current Acres
Pine plantation	583
TOTAL	**583**

* 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**
Clearing/regeneration	158
Developed	39
Impoundment	15
Road	207
Successional hardwood forest	515
Successional hydric shrubland/forest	8
Utility corridor	96
Wildlife food plot	116
TOTAL	**1,154**

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

Habitat Type	Historic Fire Return Intervals**	LTSF Fire Frequency Goal (Local)	Comments
Alluvial forest	N/A	N/A	
Basin swamp	10-20 years	10-20 years	Ecotones burned per frequency of adjacent upland habitat type.
Baygall	N/A	N/A	
Bottomland forest	N/A	N/A	
Depression marsh	N/A	N/A	Ecotone burned at frequency of adjacent community type. .
Floodplain swamp	N/A	N/A	
Mesic flatwoods	2 – 4 years	2 – 4 years	
Sandhill	1 – 3 years	2 – 4 years	Conditions vary greatly, especially in planted pine. Frequent growing season burns.
Shrub bog	10 – 20 years	N/A	Ecotones burned per frequency of adjacent habitat type.
Swamp lake	N/A	N/A	
Upland hardwood forest	N/A	N/A	

Habitat Type	Historic Fire Return Intervals**	LTSF Fire Frequency Goal (Local)	Comments
Upland mixed woodland	2 – 20 years	2 – 4 years	
Upland pine	2 – 4 years	2 – 4 years	Conditions vary greatly, especially in planted pine. Frequent growing season burns.
Wet flatwoods	3 – 10 years	2 – 4 years	

* Includes restoration community acreage ** As determined by FNAI

The following community descriptions, existing condition descriptions, and management recommendations are taken from a 2017 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 LTSF.

To achieve the objectives outlined in this plan, the following management activities will be performed in the natural and managed communities at LTSF 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. Alluvial Forest

Description:

Alluvial forests are hardwood forests occurring on drier soils at slight elevations within floodplains, such as on levees, ridges, and terraces. They are usually flooded for a portion of the growing season and often subject to sedimentation of alluvial materials from rivers, however, they are drier than floodplain swamps. These forests may be formed by point bar aggradation where disturbance and flood tolerant trees become established after the sediments are initially colonized by herbs.

The alluvial forest community of LTSF is highly variable depending on its landscape position and flood regime. Two subtypes can be identified as occurring on LTSF. The first type occurs along the Ochlockonee River. This subtype experiences extreme flood events and scour from the river. The canopy includes ogeechee tupelo (*Nyssa ogeche*), swamp tupelo (*Nyssa sylvatica* var. *biflora*), overcup oak (*Quercus lyrata*), pond cypress (*Taxodium ascendens*), bald cypress (*Taxodium distichum*), and silver maple (*Acer saccharinum*). Shrubs species typically include dwarf palmetto (*Sabal minor*) and hawthorn (*Crataegus* sp.). Representatives from the shrub and herbaceous layers of bottomland forest may also be present, in minimal amounts, in the river subtype. The second subtype is a drier mixed pine oak forest, but floods irregularly. This community occurs as higher bluffs immediately adjacent to the river.

The floodplain forest signature is best identified on 1999 infrared photography. This signature can then be compared to the historical photography to determine the historical extent. This community has been altered very little, thus making use of the 1999 photography feasible. The signature on the 1999 catalog is typically a blue dominated color intermixed with black and small amounts of red/pink. This community has a similar signature as upland hardwood forest on the historical photography.

Current Conditions:
The canopy and subcanopy for alluvial forests include ogeechee tupelo, swamp tupelo, overcup oak, river birch (*Betula nigra*), pond cypress, bald cypress, sweetgum (*Liquidambar styraciflua*), swamp laurel oak (*Quercus laurifolia*), water oak (*Quercus nigra*), spruce pine (*Pinus glabra*), loblolly pine (*Pinus taeda*), and silver maple. Shrub species include dwarf palmetto, titi (*Cyrilla racemiflora*), highbush sparkleberry (*Vaccinium arboreum*), highbush blueberry (*Vaccinium corymbosum*), deerberry (*Vaccinium stamineum*), swamp holly (*Ilex decidua*), American holly (*Ilex opaca*), horse sugar (*Symplocos tinctoria*), and hawthorn. The herbaceous layer includes threeawn (*Aristida* sp.), switchcane (*Arundinaria gigantea*), sedges (*Carex* spp.), slender woodoats (*Chasmanthium laxum*), and bracken fern (*Pteridium aquilinum*). Vines include crossvine (*Bignonia capreolata*) and muscadine (*Vitis rotundifolia*).

Fire Regimes:
Alluvial forests are not maintained by fire.

Management Needs:
Alluvial forest must be managed as part of the whole of a riverine system. These communities provide important wildlife habitat and contribute to the overall water quality of streams and rivers. The maintenance of natural hydrologic regimes is critical to the health of forested floodplains and to the downstream systems with which they are connected. Since these forests often immediately border the river, impacts from recreational use of the river should be minimized. Management activities for the alluvial forest will be focused on removing invasive plant species, controlling feral hog populations, and limiting ground disturbing activities.

B. <u>Basin Swamp</u>
Description:
Basin swamp is a variably sized, irregularly shaped basin wetland that is vegetated with hydrophytic trees and shrubs that can withstand an extended hydroperiod. Basin swamps on LTSF form a closed to semi-closed canopy primarily dominated by pond cypress and swamp tupelo. Depending on the hydrology and fire history, shrubs may be found throughout a basin swamp or they may be concentrated around the perimeter. Typical shrubs include common buttonbush (*Cephalanthus occidentalis*), sweet pepperbush (*Clethra alnifolia*), Virginia willow (*Itea virginica*), coastal doghobble (*Leucothoe axillaris*), fetterbush (*Lyonia lucida*), wax myrtle (*Myrica cerifera*), and highbush blueberry. Herbs are typically sparse due to the closed overstory and long hydroperiod. However, herbaceous cover and species richness should be quite high where the basin swamp is adjacent to a pyrogenic community. Herbs may include sedges, spike rushes (*Eleocharis* spp.), maidencane (*Panicum hemitomon*), and bulrushes (*Scirpus* spp.). The fires from these surrounding communities help maintain an herbaceous ecotone that is often associated with many species of rare plants. Woody vines are typically infrequent to occasional.

Most basin swamps at LTSF occur on the North Ochlockonee and South Ochlockonee tracts and are embedded in upland pine and/or upland hardwood forest communities.

The basin swamp signature is best identified on 1999 infrared photography. This signature

can then be compared to the historical photography to determine the historical extent. This community has been altered very little, thus making use of the 1999 photography feasible. The signature on the 1999 aerial imagery typically looks coarse and blue with black flecks representing open water. The historical aerials are only useful to compare with the more current images, not to identify this type of habitat.

Current Conditions:
The canopy of the basin swamp community is closed and composed of younger mature trees of pond cypress, red maple (*Acer rubrum*), Carolina ash (*Fraxinus caroliniana*), sweetgum, swamp tupelo, and water oak. No true subcanopy is distinguishable within the basin swamp community of LTSF. The tall and short shrub layers for the basin swamp community include common buttonbush, coastal sweetpepperbush (*Clethra alnifolia*), Virginia willow, titi, coastal doghobble, sweetbay (*Magnolia virginiana*), fetterbush, wax myrtle, highbush blueberry, wild olive (*Osmanthus americanus*), and coastalplain willow (*Salix caroliniana*). Vines include laurel greenbrier (*Smilax laurifolia*) and muscadine and are found around the community's edge. The herbaceous layer of the basin swamp community includes broomsedge bluestem (*Andropogon virginicus*), sedges, spikerush (*Eleocharis* sp.), soft rush (*Juncus effusus* subsp. *solutus*), primrosewillow (*Ludwigia* sp.), maidencane, water spangles (*Salvinia minima*), and woolgrass (*Scirpus cyperinus*). Herbaceous species are commonly found in hummocks or around the bases of trees.

Fire Regimes:
Fire return intervals in basin swamps are highly variable. The lowest portions of basin swamps rarely, if ever, burn. Fire is more frequent in cypress dominated swamps, and may be absent or rare in hardwood swamps. Slash pine (*Pinus elliottii*), pond pine (*Pinus serotina*), and cypress can establish in these areas immediately after a fire, benefiting from ample sunlight and available bare mineral soils; they are also tolerant of moderate fires once past a certain size, thus systems dominated by these species may have been subjected to fires every 10 to 20 years.

Often there is a successional interplay between shrub bogs, baygall, and basin swamp dependent on fire patterns; shrub wetlands may, if the hydrology is wet enough, succeed into basin swamps if unburned for long periods of time.

Management Needs:
Little active management should be required for this community type. Burning adjacent fire-adapted communities and allowing fire to burn into the basin swamps is desirable. Hydrologic disturbances such as ditches, fire breaks, and roads should be minimized, if not avoided altogether in this community.

C. <u>Baygall</u>
Description:
Baygall is a closed canopy evergreen forested wetland often at the base of slopes or in a depression. The canopy is composed of tall, densely packed, generally straight-growing evergreen hardwoods dominated by sweetbay, swamp red bay (*Persea palustris*), and loblolly bay (*Gordonia lasianthus*). A more or less open understory of shrubs includes coastal sweet pepperbush, large gallberry (*Ilex coriacea*), Virginia willow, Florida anise (*Illicium*

floridanum), and fetterbush. Herbs are absent or few, and typically consist of ferns such as cinnamon fern (*Osmunda cinnamomea*), netted chain fern (*Woodwardia areolata*), and Virginia chain fern (*Woodwardia virginica*). Sphagnum mats are often present with sparse herbaceous groundcover.

The baygall community of LTSF can be divided into two subtypes based on landscape position. Baygall is identified as occurring in both seepage areas of ravines and in depression situations located in a flat matrix community. Both subtypes have the same species composition.

The baygall signature is best identified on 1999 infrared photography. This signature can then be compared to the historical photography to determine the historical extent. This community has been altered very little, thus making use of the 1999 photography feasible. The signature on the 1999 aerial imagery is typically deep red representing the dense evergreen canopy of this community. On the historical aerials this type of habitat appears darker than other surrounding communities and is often found immediately down slope from the sandhill/upland pine signature.

Current Conditions:
The canopy for the baygall community includes loblolly bay, sweetbay, red maple, swamp tupelo, swamp bay, slash pine, loblolly pine, and water oak. A subcanopy may or may not be present with canopy species as well as sweetgum and sourwood (*Oxydendrum arboretum*). The shrub strata for the baygall community includes Florida anise, large gallberry, Virginia willow, fetterbush, coastal sweet pepperbush, titi, wax myrtle, and highbush blueberry. The herbaceous strata for the baygall community includes switchcane, flattened pipewort (*Eriocaulon compressum*), netted chain fern, Virginia chain fern, tall yelloweyed grass (*Xyris platylepis*), and sphagnum moss (*Sphagnum* sp.). Vines are common and include muscadine and laurel greenbrier.

Fire Regimes:
Baygall burns infrequently, perhaps only a few times each century in the deepest baygalls. Although the saturated soils and humid conditions within baygalls typically inhibit fire, droughts may create conditions that allow them to burn catastrophically. These fires not only destroy the canopy, but also may ignite the deep peat layers that can smolder for weeks, or even months. The drier edges of these communities must be maintained by growing season fires that are allowed to burn into the baygall. Generally, a lack of these hot fires has contributed to the gradual expansion of the baygall community into the neighboring communities.

Management Needs:
Currently, baygalls on LTSF are more extensive than they were historically because of encroachment into what were once predominantly wet flatwoods, seepage slope, and/or depression marsh areas. Baygalls would have been found historically occurring in ravines that were isolated from fire. Baygalls would not have been found in shallow wet floodplains or depressions surrounded by a pyrogenic community. The frequency and timing of fire would not have allowed this community to persist in this landscape position.

Management activities for baygall on LTSF should focus on proper management and fire regime for the surrounding communities. Prescribed fires in adjacent communities should be allowed to burn into this community and extinguish naturally. No active management needs to occur within baygall communities of LTSF. Any hydrological disturbances, such as ditches, firebreaks, and roads, should be avoided.

D. Bottomland Forest

Description:

Bottomland forest is a relatively low-lying community found on terraces associated with large alluvial rivers and in shallow depressions. The complex topography formed by alluvial rivers creates a mixture of bottomland forest and more frequently flooded alluvial forest and floodplain swamp. Bottomland forests are rarely inundated and dry out during the early growing season. This community has a closed canopy of tall, mature, and straight trees, including sweetgum, spruce pine, loblolly pine, loblolly bay, ogeechee tupelo, swamp tupelo, southern magnolia (*Magnolia grandiflora*), sweetbay, white oak (*Quercus alba*), swamp laurel oak, water oak, swamp chestnut oak (*Quercus michauxii*), and tuliptree (*Liriodendron tulipifera*). In addition to canopy species, the subcanopy may include Florida maple (*Acer saccharum* ssp. *floridanum*), hazel alder (*Alnus serrulata*), American beech (*Fagus grandifolia*), sourwood, and Carolina laurelcherry (*Prunus caroliniana*). Shrubs are typically sparse and include dwarf palmetto, American holly, wax myrtle, sparkleberry, highbush blueberry, and southern arrowwood (*Viburnum dentatum*). Groundcover is also variable in composition and abundance, often with species overlap between herbs suited to either mesic or hydric conditions. Typical herbs include false nettle (*Boehmeria cylindrica*), witchgrasses (*Dichanthelium* spp.), slender woodoats, sedges, cinnamon fern, royal fern (*Osmunda regalis* var. *spectabilis*), panic grasses (*Panicum* spp.), Christmas fern (*Polystichum acrostichoides*), netted chain fern, and Virginia chain fern.

Bottomland forests at LTSF are often associated with small seepage streams and may contain inclusions of upland hardwood forest, floodplain swamp, basin swamp, and baygall.

On the 1953 geo-rectified photographs, bottomland forest appears as a dark, rough grained signature, virtually indistinguishable from the surrounding communities. All other surrounding communities, such as swamps, alluvial forests, and upland hardwood forests were delineated first using the 1999 infrared photography. Contour lines were used to further separate bottomland forest. Polygons were ground-truthed in the field to confirm boundaries. Bottomland forest on LTSF has been minimally altered from its historic conditions and the 1999 aerials accurately reflect what the historic conditions were.

Current Conditions:

The canopy for the bottomland hardwood forest community includes red maple, pignut hickory (*Carya glabra*), loblolly bay, sweetgum, tuliptree, southern magnolia, sweetbay, ogeechee tupelo, swamp tupelo, loblolly pine, white oak, swamp laurel oak, swamp chestnut oak, and water oak. The subcanopy layer includes Florida maple, hazel alder, beech, dahoon (*Ilex cassine*), sourwood, swamp bay (*Persea palustris*), Carolina laurelcherry, and American elm (*Ulmus americana*). The shrub layer is sparse to moderate and includes devil's walkingstick (*Aralia spinosa*), American beautyberry (*Callicarpa americana*), common buttonbush, sweet pepperbush, swamp dogwood (*Cornus foemina*), titi, large gallberry,

American holly, Virginia willow, coastal doghobble, fetterbush, wax myrtle, dwarf palmetto, horse sugar, sparkleberry, highbush blueberry, and southern arrowwood.

The herbaceous layer is dominated by slender woodoats. Other herbaceous associates include jack-in-the-pulpit (*Arisaema triphyllum*), switchcane, false nettle, sedges, slender witchgrasses, fireweed (*Erechtites hieraciifolius*), rushes (*Juncus* spp.), partridgeberry (*Mitchella repens*), cinnamon fern, royal fern, panic grasses, Christmas fern, bracken fern, millet beaksedge (*Rhynchospora miliacea*), wild petunia (*Ruellia* sp.), coastal rosegentian (*Sabatia calycina*), lizard's tail (*Saururus cernuus*), maiden fern (*Thelypteris* sp.), violet (*Viola* sp.), netted chain fern, and Virginia chain fern.

Vines are diverse and include peppervine (*Ampelopsis arborea*), rattan vine (*Berchemia scandens*), crossvine, trumpet creeper (*Campsis radicans*), climbing hydrangea (*Decumaria barbara*), yellow jessamine (*Gelsemium sempervirens*), Virginia creeper (*Parthenocissus quinquefolia*), earleaf greenbrier (*Smilax auriculata*), saw greenbrier (*Smilax bona-nox*), cat greenbrier (*Smilax glauca*), laurel greenbrier, sarsaparilla vine (*Smilax pumila*), eastern poison ivy (*Toxicodendron radicans*), summer grape (*Vitis aestivalis*), and muscadine.

Fire Regimes:
The dense canopy of bottomland forests maintains relatively high humidity levels; thus fires are rare, occurring only during times of extreme drought. This community should be considered as a natural fire break that may experience limited burning at its margins.

Management Needs:
Management activities should focus on maintaining natural hydrologic patterns and allowing prescribed fires from adjacent communities to extinguish themselves at the edges of the community. This will create a variable and desirable ecotone that is not clearly defined.

E. Depression Marsh

Description:
Depression marshes are isolated, non-forested wetland basins that are embedded in a pyrogenic matrix community such as pine flatwoods or sandhill. These marshes typically have concentric zones of vegetation related to the length of hydroperiod and depth of flooding. Depression marshes are distinguished from basin marshes principally by their landscape position which subjects them to more frequent fires.

Depression marshes at LTSF may include a canopy of red maple, swamp tupelo, loblolly pine, or sweetbay. Herbaceous cover may be sparse to moderate and includes Carolina redroot (*Lachnanthes caroliana*), broomsedge bluestem, maidencane, spike rushes, hairy smartweed (*Polygonum hirsutum*), Virginia chain fern, rushes, and sedges. Open water may make up a large part of this community due to the depth of water.

Depression marshes occur throughout LTSF in association with sandhill, upland pine, mesic flatwoods, or wet flatwoods. Many small depressions can be found throughout the forest, but fall below the minimum mapping unit of this project. Historic acreage of this community would have been higher than what is reported here.

The depression marsh signature on the historic imagery varies from being black, which indicates open water, to a very light gray with a smooth look indicative of an herbaceous dominated situation. A medium gray and grainy/rough texture is typical of a depression that contains shrubs and/or trees. Often depression marshes were identified on the 1999 infrared aerials where they appear as a blue or black signature surrounded by a red/pink matrix of mesic flatwoods, sandhill, or upland pine.

Current Conditions:
Many depression marshes of LTSF are commonly quite deep and lack the subtle gradient from edge to center that is typically associated with this community. This type of situation is commonly found in areas where upland pine forest or mesic flatwoods is the surrounding community. The abrupt drop to deeper water prevents a dominant herbaceous layer from forming. More classical, shallow and historically herbaceous species dominated examples of this community can be found within the sandhill matrix adjacent to SR 20. Depression marshes at LTSF suffer from lack of fire or from fire ineffectively controlling woody components of the community.

Depression marshes are typically surrounded by young trees including red maple, swamp tupelo, loblolly pine, and sweetbay. These tree species can also be found as invaders throughout the entire community in some cases. Shrub cover dominates this community and includes buttonbush, coastalplain willow, saw palmetto (*Serenoa repens*), titi, coastal sweet pepperbush, fetterbush, peelbark St. John's wort (*Hypericum fasciculatum*), fourpetal St. John's wort (*Hypericum tetrapetalum*), myrtle dahoon (*Ilex cassine* var. *myrtifolia*), and elderberry (*Sambucus canadensis*). Herbaceous cover is typically low due to water depth and fire suppression. The herbaceous species observed include Carolina redroot, broomsedge bluestem, primrosewillow, maidencane, spikerush, hairy smartweed, sphagnum moss, Virginia chain fern, rushes, and sedges.

Historical photography was helpful in determining several depression marshes that have been invaded by hardwoods and mapped as successional hydric shrubland/forests currently. Most small depressional wetlands that are located within a pyrogenic community can be assumed to have been depression marshes historically, despite the sometimes shrubby signatures in the historic photography. The extent of historic herbaceous cover in this community is not known.

Fire Regimes:
Frequency of fire in depression marshes is dependent on the fire return interval of the surrounding community. Fire is important in limiting hardwood encroachment and peat buildup, while encouraging herbaceous growth in depression marshes.

Management Needs:
Management activities should focus on allowing prescribed fires from surrounding uplands to burn through the depression marsh community. When feasible, fire should be prescribed in the surrounding community at a time when water in the marshes is low or absent (April-June).

Marshes with substantial shrub cover (either within the marsh or on the surrounding edges) should be burned on a shorter return interval than herbaceous subtypes, in order to allow conversion to an herb dominated situation.

F. Floodplain Swamp

Description:

Floodplain swamp is a closed-canopy forest of hydrophytic trees occurring on frequently or permanently flooded hydric soils adjacent to stream and river channels and in depressions and oxbows within floodplains.

Floodplain swamps on LTSF have a closed canopy dominated by pond cypress with occasional red maple, Carolina ash, sweetbay, ogeechee tupelo, swamp tupelo, and bald cypress. Shrubs may be present, including hazel alder, common buttonbush, fetterbush, wax myrtle, swamp azalea (*Rhododendron viscosum*), elderberry (*Sambucus nigra* subsp. *canadensis*), highbush blueberry, and southern arrowwood. A groundcover of flood tolerant ferns and herbs may be present, including sensitive fern (*Onoclea sensibilis*), goldenclub (*Orontium aquaticum*), royal fern, sedges, slender woodoats, cinnamon fern, maidencane, dotted smartweed (*Polygonum punctatum*), lizard's tail, and netted chain fern. Floodplain swamp occurs on LTSF along Lake Talquin, the Ochlockonee River, the Little River, and other small tributaries of Lake Talquin.

The floodplain swamp signature is best identified on 1999 infrared photography. This signature can then be compared to the historical photography to determine historical extent. This community has been logged very little, thus making use of the 1999 photography acceptable. The signature on the 1999 images is typically a gray/blue dominated color intermixed with white. This community is very dynamic and continues to mature since the original damming of Lake Talquin.

Current Conditions:

Many of the floodplain swamps on LTSF have included floodplain marshes. These marshes lack a canopy and are dominated by herbaceous and shrub vegetation. This community is currently in maintenance condition, with the exception of scattered invasive species occurring along its margins.

The canopy layer of the floodplain swamp community includes red maple, Carolina ash, sweetgum, ogeechee tupelo, swamp tupelo, sweetbay, swamp bay, loblolly pine, water oak, pond cypress, and bald cypress. In addition to canopy species, the subcanopy includes river birch, sweetgum, and swamp laurel oak. The shrub layer includes hazel alder, common buttonbush, titi, roundpod St. John's wort (*Hypericum cistifolium*), Virginia willow, fetterbush, wax myrtle, swamp azalea, elderberry, horse sugar, highbush blueberry, and southern arrowwood.

The herbaceous layer includes false nettle, manyflower marshpennywort (*Hydrocotyle umbellata*), duckweed (*Lemna* sp.), royal fern, sensitive fern, goldenclub, false hop sedge (*Carex lupuliformis*), owlfruit sedge (*Carex stipata*), slender woodoats, cinnamon fern, maidencane, dotted smartweed, water spangles, narrowfruit horned beaksedge (*Rhynchospora inundata*), lizard's tail, sphagnum moss, Virginia marsh St. John's wort (*Triadenum*

virginicum), broadleaf cattail (*Typha latifolia*), and netted chain fern. Vines include crossvine, peppervine, trumpet creeper, eastern poison ivy, and laurel greenbrier.

Invasive wild taro (*Colocasia esculenta*) was occasionally observed in floodplain swamps, usually in transitional areas between swamp and open water.

Fire Regimes:
Floodplain swamp is not a fire adapted community and rarely burns because of flooding and/or saturated soils.

Management Needs:
Management activities for floodplain swamp on LTSF should focus on maintaining natural hydroperiods and the control of invasive exotic species.

G. Mesic Flatwoods

Description:
Mesic flatwoods are forests of southern pine species, including longleaf pine (*Pinus palustris*) and slash pine (*Pinus elliottii*). There is little or no subcanopy and very few tall shrubs, but a dense groundcover of herbs and short shrubs is typically present. Mesic flatwoods occur on flat to gently sloping topography and often form a mosaic intermixed with wet flatwoods and upland pine. The short shrub layer is maintained with fire and typically dominated by saw palmetto. The moderate shrub layer combined with an open canopy allows ample light for herbaceous species, especially wiregrass (*Aristida stricta*).

Mesic flatwoods of LTSF are found scattered throughout the forest. This community is usually found in a broad seepage situation. It occurs on low gradient slopes where the relief and under-lying soils create conditions where subsurface water is more readily available. The relief is often extremely gradual where deep ravines and seepage streams have not formed. Mesic flatwoods are found in association with wet flatwoods in lower, poorly drained areas and upland pine in higher, well drained locations. Most of the larger stands of mesic flatwoods occur north of Lake Talquin on the Joe Budd Tract with lesser amounts on the Midway, Highway 20, and Lines Tract among others. The signature of mesic flatwoods appears as light gray (relative to surrounding hardwood and wetland communities) with a smooth texture intermixed with scattered darker textures representing trees and/or shrub inclusions. The signature generally does not contain any white color. This character can generally be used to separate mesic flatwoods from surrounding upland pine and sandhill.

Current Conditions:
Currently, mesic flatwoods at Lake Talquin are in variable condition ranging from good to fair condition. Several historic mesic flatwoods at LTSF have been planted with slash pine and managed as pine plantations with varying degrees of disturbance from site preparation (bedding, herbicides, etc.); these are mapped as pine plantations. Stands that have received some thinning and fire, but that remain highly disturbed, are classified as “restoration mesic flatwoods” in the current map to indicate that management is moving the community towards a more natural structure.

The mesic flatwoods canopy includes slash pine, longleaf pine, loblolly pine, sweetgum, swamp laurel oak, water oak, and live oak (*Quercus virginiana*). No true subcanopy was identified for this community. The shrub layer is characterized by saw palmetto but also includes slimleaf pawpaw (*Asimina angustifolia*), coastal sweet pepperbush, titi, common persimmon (*Diospyros virginiana*), dwarf huckleberry (*Gaylussacia dumosa*), St. Andrew's cross (*Hypericum hypericoides*), fourpetal St. John's wort, large gallberry, gallberry (*Ilex glabra*), coastalplain staggerbush (*Lyonia fruticosa*), wax myrtle, bluejack oak (*Quercus incana*), swamp azalea, mountain azalea (*Rhododendron canescens*), swamp bay, winged sumac (*Rhus copallinum*), sparkleberry, highbush blueberry, shiny blueberry (*Vaccinium myrsinites*), and deerberry. Vines layer observed in the mesic flatwoods community included yellow jessamine, earleaf greenbrier, saw greenbrier, muscadine, and eastern poison ivy. The herbaceous layer is comprised of broomsedge bluestem, wiregrass, witchgrass (*Dichanthelium* sp.), whitehead bogbutton (*Lachnocaulon anceps*), pinkscale gayfeather (*Liatris elegans*), partridgeberry, orange milkwort (*Polygala lutea*), bracken fern, savannah meadowbeauty (*Rhexia alifanus*), fascicled beaksedge (*Rhynchospora fascicularis*), and Virginia chain fern.

Fire Regimes:
Mesic flatwoods require repeated applications of prescribed fires on a two to four-year cycle.

Management Needs:
A prescribed fire return interval of every two to four years is recommended. It may be necessary to apply fire more frequently in flatwoods where fuel levels are high due to a history of fire exclusion. Thinning of pine plantations as needed, and mid-rotation mechanical or chemical treatments may be applied. Offsite tree species may be removed, and the site reforested with appropriate species.

H. Sandhill

Description:
Sandhills occur on crests and slopes of rolling hills and ridges with steep or gentle topography. Soils are deep, marine-deposited, often yellowish sands that are well-drained and relatively infertile. Sandhill is important for aquifer recharge because the porous sands allow water to percolate rapidly with little runoff and minimal evaporation. The deep, sandy soils and a lack of near surface hardpan or water table contribute to a xeric environment.

Sandhills are relatively open forests consisting of longleaf pine trees, typically with a sparse subcanopy of turkey oak (*Quercus laevis*), bluejack oak and / or sand post oak (*Quercus margaretta*). The shrub layer has a variable aspect with the overall shrub cover below 50% cover with a moderate percentage of bare sand. The herbaceous layer should be highly diverse and dominated by wiregrass. This is the key component to the community. Dominant grasses, in addition to wiregrass, include other threeawns (*Aristida* spp.), pineywoods dropseed (*Sporobolus junceus*), lopsided indiangrass (*Sorghastrum secundum*), several species of bluestems (*Andropogon* spp.), and little bluestem (*Schizachyrium scoparium*).

On LTSF, sandhill occurs in association with upland pine and upland hardwood forest occurring on the highest land within the dissected landscape of uplands and lowlands

containing upland hardwood forest and bottomland forest. The largest expanses of sandhill are along the southern boundary of the Highway 20 and Fort Braden Tracts.

The sandhill signature appears as a smooth 50/50 white and light gray matrix in which scattered trees show up as dark grey flecks. The sandhill signature on the historic photography can also appear solid white due to clearing. Sandhill doesn't differ from the upland pine signatures in the historical photographs. Field ground-truthing is necessary in order to tease these two communities apart.

Current Conditions:
Stands mapped as current sandhill either appear to be natural stands or have been significantly thinned, retain a mostly natural understory composition, and are managed with frequent prescribed fire. These are in fair to good condition and on track to meeting desired future conditions. Within this community, an open, uneven aged longleaf pine canopy is present, with a subcanopy of scattered turkey oak. The understory is a diverse mixture of shrubs and herbs, and wiregrass is present. Areas of good quality, frequently burned sandhill occur scattered across the larger tracts on the property.

Other areas of sandhill in LTSF were either planted as pine plantation, have recently been clearcut or thinned, or are invaded by hardwoods or sand pine due to past fire exclusion. Historic sandhill currently under silvicultural activities are typically planted in a dense canopy of slash pine with a depauperate understory caused by the dense canopy and are mapped as pine plantation. Stands that have received some thinning and fire, but that remain highly disturbed, are mapped as "restoration" sandhills to indicate that management is moving the community towards a more natural structure.

Sandhill on LTSF is often found intermixed with upland pine and the separation of these two communities was often based on the presence of turkey oak in the sandhill community. The open canopy includes slash pine, longleaf pine, loblolly pine, sand pine (*Pinus clausa*), swamp laurel oak, water oak, post oak (*Quercus stellata*), Sand post oak (*Quercus margerette*), butterfly milkweed (*Asclepias tuberosa*), redring milkweed (*Asclepias variegata*) and live oak. The subcanopy includes turkey oak, southern red oak (*Quercus falcata*), sand live oak (*Quercus geminata*), and immature members of the canopy. The shrub layer for the sandhill community includes slimleaf pawpaw, American beautyberry, chinquapin (*Castanea pumila*), flowering dogwood (*Cornus florida*), common persimmon, wax myrtle, pricklypear (*Opuntia humifusa*), wild olive, red bay (*Persea borbonia*), St. Andrew's cross, gallberry, gopher apple (*Licania michauxii*), bluejack oak, dwarf live oak (*Quercus minima*), winged sumac, saw palmetto, sparkleberry, highbush blueberry, shiny blueberry, and deerberry. Herbs are diverse and variable depending on fire history. They consist of broomsedge bluestem, wiregrass, coastalplain balm (*Dicerandra linearifolia*), witchgrass, dogfennel (*Eupatorium capillifolium*), yankeeweed (*Eupatorium compositifolium*), Carolina frostweed (*Helianthemum carolinianum*), false foxglove (*Agalinis* sp.), clasping milkweed (*Asclepias amplexicaulis*), pinewoods milkweed (*Asclepias humistrata*), Florida greeneyes (*Berlandiera subacaulis*), vanillaleaf (*Carphephorus odoratissimus*), tread softly (*Cnidoscolus stimulosus*), rabbitbells (*Crotalaria rotundifolia*), tall elephantsfoot (*Elephantopus elatus*), lovegrass (*Eragrostis* sp.), dogtongue wild buckwheat (*Eriogonum tomentosum*), lateflowering thoroughwort (*Eupatorium serotinum*), dwarf dandelion (*Krigia* sp.), pinkscale gayfeather,

piedmont gayfeather (*Liatris secunda*), lady lupine (*Lupinus villosus*), narrowleaf silkgrass (*Pityopsis graminifolia*), bracken fern, royal snoutbean (*Rhynchosia cytisoides*), sand blackberry (*Rubus cuneifolius*), southern dewberry (*Rubus trivialis*), nutrush (*Scleria* sp.), goldenrod (*Solidago* sp.), lopsided indiangrass, and forked bluecurls (*Trichostema dichotomum*). Vines include yellow jessamine, earleaf greenbrier, and muscadine. The main weedy species observed are broomsedges (*Andropogon* spp.), dogfennels (*Eupatorium* spp.), and blackberries (*Rubus* spp.).

Fire Regimes:
Sandhill requires frequent fires to maintain its natural structure and desired species composition, reduce hardwood competition, and perpetuate pines and grasses. Fire should be applied to this community every one to three years. Variability in the season, frequency, and intensity of fire is important for preserving species diversity, since different species in the community flourish under different fire regimes.

Management Needs:
Thinning of pine plantations as needed, and mid-rotation mechanical or chemical treatments may be applied. Offsite tree species may be removed, and the site reforested with appropriate species. Groundcover restoration projects should focus on practices that will increase wiregrass abundance. Seasonally appropriate prescribed burns at a one to three-year interval will be the most effective at accomplishing this and decreasing weedy species such as laurel oak (*Quercus hemisphaerica*). In areas with high densities of laurel oak, evaluate the merchantability for a timber sale, followed by a herbicide treatment to control resprouting oak. FFS may consider seeding or transplanting of wiregrass to facilitate burns through these areas if feasible.

I. <u>Shrub Bog</u>

Description:
Shrub bogs are dense stands of broadleaved evergreen shrubs, vines, and short trees, one to five meters tall depending on time since fire, with or without an overstory of scattered pine or bay trees, growing in mucky soil where water is usually less than a foot deep. Characteristic shrubs include titi, black titi (*Cliftonia monophylla*), fetterbush, large gallberry, gallberry (*I. glabra*), wax myrtle, and sweet pepperbush, often laced together with laurel greenbrier. Taller pines, either pond, slash, or loblolly, may be present and in some cases of long unburned stands, form dense clumps. Other occasional trees that may extend above the shrub layer are loblolly bay, sweetbay, swamp bay, pond cypress, and stunted red maple. Herbs are sparse and patchy, confined to sunny openings, and often include tenangle pipewort (*Eriocaulon decangulare*), and Virginia chain fern. Soils of shrub bogs frequently have an organic muck layer of varying depth at the surface underlain by sand or loamy sands. Sphagnum moss (*Sphagnum* spp.) is common on the ground surface.

Shrub bog was found only on the Searcy Tract. Basin wetlands with a smooth grey signature were assumed to be historic shrub bogs. Some are rounded to irregularly shaped communities while others are linear features along narrow drainages.

Current Conditions:
The shrub bogs at LTSF have a canopy of slash pine and sweetbay with a dense shrub layer dominated by black titi and titi. No herbs were observed. The State-threatened fevertree (*Pinckneya bracteata*) was observed growing on the edge of a linear shrub bog on the Searcy Tract.

Fire Regimes:
Fires starting in the surrounding pinelands burn to the edges of shrub bogs, but burn through them only during drought periods, probably on the order of every 10 to 20 years. The shrubs and bay trees respond to fire by re-sprouting, either from root crowns or rhizomes. During droughts the peat may become dry enough to burn completely.

Management Needs:
Management should focus on hydrology restoration. If possible, fires should be allowed to burn into shrub bog edges to limit titi encroachment into surrounding communities.

J. Swamp Lake

Description:
Swamp lakes are generally characterized as shallow open water zones, with or without floating and submerged aquatic plants, that are surrounded by swamp. They are generally permanent water bodies, although water levels often fluctuate substantially, and they may become completely dry during extreme droughts. They are typically lentic water bodies occurring in confined basins or depressions. However, during floods or following heavy rains, they may exhibit decidedly lotic characteristics, flowing with the flood water or overflowing their banks into lower topographic areas. Some may even exhibit a slow perennial sheet flow, but water movement is generally so slow that lentic conditions prevail. Shrubs are occasional in the fringe of this community. Herbaceous components should be aquatic bed plants with minimal emergent species found around the littoral zone of the community. The swamp lake of LTSF currently meets the desired future condition for this community.

This community appears black on the 1999 infrared photography. The historical aerials were used to confirm the extents of this community.

Current Conditions:
The single swamp lake community located in the North Ochlocknee tract has a pond cypress dominated basin swamp edge with scattered shrubs including common buttonbush, titi, and coastalplain willow.

Fire Regimes:
Fire is not required to maintain this community.

Management Needs:
Management of the swamp community consists of monitoring for presence of aquatic invasive species at regular intervals. Invasive species should be treated immediately before they're allowed to reach unmanageable levels. Currently, no invasive species were identified within the single swamp lake of LTSF.

The surrounding communities should be taken into consideration when evaluating effects on this community. Management should focus on restricting hydrological manipulations and avoiding land clearing within the surrounding swamp.

K. Upland Hardwood Forest

Description:

Upland hardwood forest is a well-developed, closed-canopy forest dominated by deciduous hardwood trees on mesic soils in areas sheltered from fire. It typically has a diverse assemblage of deciduous and evergreen tree species in the canopy and midstory, shade-tolerant shrubs, and a sparse groundcover. Upland hardwood forest occurs on rolling mesic hills, slopes above river floodplains, in smaller areas on the sides of sinkholes, and occasionally on rises within floodplains. Limestone or phosphatic rock may be near the surface. Soils are generally sandy clays or clayey sands with substantial organic and sometimes calcareous components. These soils have higher nutrient levels than the sandy soils prevalent in most of Florida. The moisture retention properties of clays and layers of leaf mulch conserve soil moisture and create decidedly mesic conditions. The dense canopy and multiple layers of midstory vegetation restrict air movement and light penetration, which maintains high relative humidity within the community.

Characteristic canopy trees include southern magnolia, American beech, white oak, and spruce pine, pignut hickory, sweetgum, Florida maple, live oak, laurel oak (*Quercus hemisphaerica*), swamp chestnut oak, southern hackberry (*Celtis occidentalis*), white ash (*Fraxinus americana*), and loblolly pine. The midstory layer is composed of younger canopy species as well as small trees, and tall shrubs, such as American holly, American hornbeam (*Carpinus caroliniana*), devil's walkingstick, eastern hophornbeam (Ostrya virginiana), flowering dogwood, eastern redbud (*Cercis canadensis*), horse sugar, silverbells (*Halesia* spp.), black cherry (*Prunus serotina*), and basswood (*Tilia americana*). The groundcover is composed of shade-tolerant herbs, graminoids, and vines, such as partridgeberry, Virginia creeper, violets (*Viola* spp.), sedges, sarsaparilla vine, ebony spleenwort (*Asplenium platyneuron*), woodsgrass (*Oplismenus hirtellus*), and longleaf woodoats (*Chasmanthium laxum* var. *sessiliflorum*). Spring ephemerals such as trilliums (*Trillium* spp.) can be found in the groundcover.

Ecotones between upland hardwood forest and the neighboring upland pine in some cases develop a somewhat intermediate community: upland mixed woodland. This community type is often difficult to distinguish from the surrounding upland hardwood forest and is included more often than delineated in the map. The upland hardwood forest can be identified on the historical photography by first delineating the surrounding bottomland forests and adjacent uplands. The signature for this community appears as a coarse textured light gray, dark gray, and black composite that is much darker than surrounding sandhill and upland pine. The 1999 infrared photography was used to separate this from floodplain swamp and bottomland forest.

Current Conditions:

The upland hardwood forest at LTSF is generally in maintenance condition and is relatively similar in extent compared to the historic serials. Canopy species are often very diverse, with no one species dominant and include mostly deciduous hardwoods such as white oak, American beech, swamp chestnut oak, red maple, silver maple, pignut hickory, Florida maple,

sweetgum, hophornbeam, southern magnolia, spruce pine, tuliptree, longleaf pine, loblolly pine, black cherry, swamp laurel oak, water oak, Shumard's oak (*Quercus shumardii*), sweetbay, and slash pine. The subcanopy includes young individuals of the canopy layer plus other smaller trees such as flowering dogwood, American hornbeam, American holly, Florida anisetree (*Illicium floridanum*), sourwood, swamp bay, and basswood. The shrub layer includes needle palm (*Rhapidophyllum hystrix*), river birch, American beautyberry, red buckeye (*Aesculus pavia*), eastern redbud, coastal sweetpepperbush, American witchhazel (*Hamamelis virginiana*), oakleaf hydrangea (*Hydrangea quercifolia*), large gallberry, coastal doghobble, wax myrtle, Virginia willow, wild olive, mountain azalea, dwarf palmetto, black willow (*Salix nigra*), elderberry, saw palmetto, common sweetleaf (*Symplocos tinctoria*), sparkleberry, highbush blueberry, deerberry, common pawpaw (*Asimina triloba*), and St. Andrew's cross. The vine components for this community included rattan vine, crossvine, muscadine, bristly greenbrier (*Smilax tamnoides*), eastern poison ivy, sarsaparilla vine, yellow jessamine, trumpet honeysuckle (*Lonicera sempervirens*), milkvine (*Matelea* sp.), and Virginia creeper. Epiphytes observed in the upland hardwood forest community included greenfly orchid (*Epidendrum conopseum*) and resurrection fern (*Pleopeltis polypodioides*). The herbaceous layer includes switchcane, trillium (*Trillium underwoodii*), rain lily (*Zephyranthes atamasco*), Christmas fern, broomsedge bluestem, slender woodoats, witchgrass, partridgeberry, netted chain fern, ebony spleenwort, greater bladder sedge (*Carex intumescens*), woodsgrass, cinnamon fern, blackseed needlegrass (*Piptochaetium avenaceum*), early blue violet (*Viola palmata*), primroseleaf violet (*Viola primulifolia*), and Virginia chain fern.

The invasive Japanese honeysuckle (*Lonicera japonica*) was also documented in the upland hardwood community typically where the community meets the floodplain forest. This community also harbors a high number of rare plants including Flyr's nemesis *(Brickellia cordifolia),* Carolina allspice *(Calycanthus floridus),* wild ginger *(Hexastylis arifolia),* pyramid magnolia *(Magnolia pyramidata),* silky camellia (*Stewartia malacodendron*), and Florida bellwort *(Uvularia floridana).*

Fire Regimes:
Upland hardwood forest is not a fire-adapted natural community. However, low intensity, naturally occurring fires that creep into the edges from surrounding pyrogenic upland communities (e.g., upland pine, sandhill) appears to be a natural part of the forest dynamics of upland hardwood forest. These fires rarely burn completely through the understory, and even less frequently lead to devastating crown fires.

Management Needs:
This community requires little active management. Monitoring and control of exotic plants will be the primary management requirement. Efforts need to be made to allow upland hardwood forests to act as natural fire breaks in place of plowed fire breaks.

L. <u>Upland Mixed Woodland</u>

Description:
Upland mixed woodland has an open to partially closed hardwood canopy composed primarily of southern red oak and mockernut hickory (*Carya alba*) and intermixed with shortleaf and/or longleaf pines. This community has a dense ground layer of short shrubs and

herbs. Unlike upland pine and sandhill, wiregrass is typically lacking in upland mixed woodland. Soils in this community are generally richer and contain more clay than the sandy soils found across most of Florida. This community transitions to bottomland forest, upland hardwood forest, sandhill, and upland pine.

Primary species in the canopy layer include southern red oak, longleaf pine, mockernut hickory, sand post oak, shortleaf pine (*Pinus echinata*), loblolly pine, and post oak. Within the subcanopy are mockernut hickory, flowering dogwood, longleaf pine, black cherry, southern red oak, swamp laurel oak, sand post oak, post oak, live oak, and fringe tree (*Chionanthus virginicus*). Many of the same species occur as shrubs, including American beautyberry, littlehip hawthorn (*Crataegus spathulata*), common persimmon, wax myrtle, winged sumac, sassafras (*Sassafras albidum*), sparkleberry, and Elliott's blueberry (*Vaccinium elliottii*). The diverse herb layer includes Elliott's bluestem (*Andropogon gyrans*), splitbeard bluestem (*Andropogon ternarius*), broomsedge bluestem, chalky bluestem (*Andropogon virginicus* var. *glaucus*), tread softly, oblongleaf twinflower (*Dyschoriste oblongifolia*), dogtongue wild buckwheat, sensitive briar (*Mimosa quadrivalvis*), narrowleaf silkgrass, bracken fern, sweet goldenrod (*Solidago odora*), lopsided indiangrass, squarehead (*Tetragonotheca helianthoides*), and some wiregrass (*Aristida stricta* var. *beyrichiana*).

At LTSF, upland mixed woodland typically occurs on the upper slopes of ravines, between a pyrogenic upland community and the richer upland hardwood forest found further down slope.

Upland mixed woodland appears lighter than upland hardwood forests on the historical imagery, but not consistently enough to accurately delineate it across the forest. This community type was often adjacent to upland pine or upland hardwood forest because of the difficulty in delineating it based on aerial signatures. Several ground-truthed points were collected and included in the NC Point shapefile.

Current Conditions:
Typical canopy species for upland mixed woodland include southern red oak, slash pine, loblolly pine, laurel oak, swamp laurel oak, and live oak. The subcanopy includes young individuals of the canopy species and flowering dogwood, American holly, sweetgum, southern magnolia, loblolly pine, white oak, sand post oak, blackjack oak (*Quercus marilandica*), swamp chestnut oak, water oak, and sassafras. Shrubs include American beautyberry, flowering dogwood, common persimmon, gallberry, sweetgum, southern magnolia, southern crabapple (*Malus angustifolia*), Carolina laurelcherry, blackjack oak, swamp chestnut oak, water oak, horse sugar, and sparkleberry. Herbs are variable and include bluestem (*Andropogon* sp.), witchgrass, lovegrass, panic grass (*Panicum* sp.), sugarcane plumegrass (*Saccharum giganteum*), and goldenrod. Vines are a diverse and common component of the ground layer. Vine species include yellow jessamine, partridgeberry, Virginia creeper, earleaf greenbrier, cat greenbrier, eastern poison ivy, and muscadine.

Fire Regimes:
Historic fire regimes for upland mixed woodland are difficult to determine. Most research indicates that this community should burn less frequently than upland pine and sandhill communities, perhaps only every 10 years, but management of this habitat at Tall Timbers

Research Station and Apalachee Wildlife Management Area indicate that upland mixed woodland can be burned every 2 years and maintain a co-dominant hardwood canopy.

Management Needs:
Allow prescribed fires to burn into upland mixed woodland from adjacent uplands. Monitoring and control of invasive plants are an important management requirement. Restoration projects should focus on growing season and winter burns to try to create a mosaic of open and forested areas and to open up the understory. During restoration, more frequent fires may be necessary to remove weedy oaks and vines, and to prevent their establishment in recent clearcuts. Where fire-sensitive hardwoods, such as laurel oak, sweetgum, and water oak, have invaded upland mixed woodland in the absence of fire and grown to (fire-proof) tree size, mechanical removal of these invading species may be necessary to open up the canopy and allow light to reach the ground layer. Planted pine stands should be further thinned to encourage desirable hardwoods and a more herbaceous groundcover. However, maintaining a pine canopy will help to provide fuel for prescribed burns and preserve the necessary structure of this community. Planting of longleaf pines may be needed to re-establish this species.

M. Upland Pine

Description:
Upland pine is a woodland of southern pines with a sparse to moderate shrub layer and a dense, species-rich groundcover of grasses and herbs, occurring on gently rolling terrain. The canopy is dominated by a mixed age class of longleaf pine. There is an intermittent subcanopy layer of smaller pines, and hardwoods including southern red oak, blackjack oak, flowering dogwood, post oak, sassafras, laurel oak, common persimmon, sand post oak, mockernut hickory, and blackgum (*Nyssa sylvatica*). Though typically present as low shrubs and occasional midstory trees, these species can form a dense midstory (subcanopy and tall shrubs layers) in areas that have experienced a lack of fire for many years. Shrub cover can vary from sparse to dense, and includes low-growing species such as dwarf huckleberry, running oak (*Quercus elliottii*), gallberry, and Darrow's blueberry (*Vaccinium darrowii*). Herbaceous cover varies, from sparse to abundant, dependent upon the density and shading effects of the shrubs. Wiregrass is often dominant, but a high diversity of grasses and forbs may be present. Woody vines such as greenbrier (*Smilax* spp.) and summer grape are occasionally present.

Upland pine is a dominant upland community type at LTSF, occurring on most tracts. The upland pine signature on historic photographs often appears white due to clearing. In areas where this community wasn't cleared, the signature appears as a smooth 50/50 white and light gray matrix with scattered trees showing up as dark grey flecks. Sandhill has a very similar signature. Field ground-truthing is necessary in order to tease these two communities apart.

Current Conditions:
All of the former upland pine on the LTSF has been extensively altered from its original condition. A long history of agriculture and silvicultural practices have disturbed the soil and removed many of the native plant species. Some of the native vegetation has returned, but the community no longer comprises the diverse plant assemblage one would expect. Fire suppression has also led to the fragmentation of upland pine, as well as succession of these pine forests to successional hardwood forests. Upland pine on LTSF is often found intermixed

with sandhill and the separation of these two communities is often arbitrarily based on the absence of turkey oak in the upland pine community. Silver plumegrass (*Saccharum alopecuroides*) was found to be a strong indicator of upland pine since it is not found in the sandhill community. Some historic upland pine at LTSF has been planted with slash pine or loblolly pine and managed as pine plantation with varying degrees of disturbance from site preparation (bedding, herbicides, etc.). Dense, unthinned planted pine stands on historic upland pine areas are mapped as pine plantations. Stands that have received some thinning and fire, but that remain highly disturbed, are classified as "restoration upland pine" in the current map to indicate that management is moving the community towards a more natural structure.

Two forms of upland pine on LTSF were identified during this project. The classic example of this community is found covering the entire Rocky Comfort Tract. This area contains a thin layer (8-12 inches) of loamy sand covering dense clay-based subsoils. This soil allows typical hardwood species to remain present where one would not expect to find them in a sandhill situation. Common persimmon and hickories (*Carya* sp.) constitute the majority of the shrub/subcanopy component. The second variation occurs on sand-based soils that have a slight loam element to them. These areas do not support turkey oaks, but can support herbaceous species typically associated with sandhills predominantly forked bluecurls, Florida greeneyes, pinkscale gayfeather, and coastalplain balm. This subtype of upland pine may be better labeled as a low-grade sandhill community. This variant's signature is identical to the sandhill signature of the historical photography and was often cleared in the 1930s and 1940s. Both forms of this community are generally dominated by shrub cover.

Currently the canopy in upland pine at LTSF is dominated by slash pine, longleaf pine, loblolly pine, pignut hickory, southern red oak, swamp laurel oak, water oak, and live oak. The subcanopy includes flowering dogwood, sweetgum, and younger species of the canopy layer. Shrub species include slimleaf pawpaw, American beautyberry, common persimmon, gopher apple, wax myrtle, turkey oak, winged sumac, sassafras, sparkleberry, shiny blueberry, and deerberry. Vines include yellow jessamine, Virginia creeper, earleaf greenbrier, eastern poison ivy, and muscadine. The herb layer includes silver plumegrass, false foxglove (*Agalinis fasciculata*), broomsedge bluestem, wiregrass, pinewoods milkweed (*Asclepias humistrata*), tread softly, coastalplain balm, witchgrass, dogfennel, yankeeweed, narrowleaf silkgrass, bracken fern, whip nutrush (*Scleria triglomerata*), and queensdelight (*Stillingia sylvatica*).

Fire Regimes:
Upland pine depends on frequent, low-intensity fires to maintain a diverse herbaceous layer. Upland pine should burn on a one to three-year prescribed fire interval.

Management Needs:
Prescribed fire should be applied at a one to three-year interval. Since upland pine of LTSF contains little or no remaining wiregrass, reintroduction of this species (seeding or plugging) may be needed.

Extensive efforts towards restoring groundcover can be observed in both the North and South Ochlockonee Tracts, among others. The restoration process is well on its way in these areas and appears to be heading in a positive direction.

N. Wet Flatwoods

Description:

Wet flatwoods are flat, poorly drained woodlands of scattered, well-spaced pine trees with a diverse understory of hydrophytic herbs and shrubs. On LTSF, wet flatwoods communities occur in lower areas within a larger mesic flatwoods matrix and along the upper reaches of drains leading into the upland hardwood and bottomland forests. Wet flatwoods are characterized by a dense groundcover of wiregrass and a wide variety of other herbaceous species. Shrub cover is minimal, low and controlled by prescribed burns. Longleaf pine, pond pine, and slash pine, constitute the mixed-age canopy. The subcanopy is minimal with the only scattered young pine individuals being promoted to the canopy. Vines are found infrequently and are trailing due to frequent ground fires. The groundcover receives ample amounts of light through the open canopy and sparse shrub cover, allowing for many rare plants to prosper. Shrubby wet flatwoods may have a more continuous cover of hydrophytic shrubs and may be very similar to shrub bogs. However, the slightly drier conditions and more frequent fire regime should limit the height of these shrubs.

The signature of wet flatwoods appears as light gray (relative to surrounding hardwood and wetland communities) with a smooth texture intermixed with darker texture representing trees and/or large shrub inclusions. The signature does not contain any white, generally distinguishing it from surrounding upland pine, sandhill, or dry runner oak mesic flatwoods. This community typically appears slightly darker than mesic flatwoods when found side by side. However, field ground-truthing is necessary in order to accurately separate these two communities because signatures often vary across the landscape. Wet flatwoods are likely underrepresented in the historic acreage due to them being included in the adjacent mesic flatwoods stands because these two classifications often occur in a mosaic that cannot easily be differentiated on aerial photography.

Current Conditions:

Currently much of the historically occurring wet flatwoods has been invaded by woody encroachment, particularly by black titi and titi or baygall vegetation due to lack of frequent fire. Some historic wet flatwoods in LTSF have been planted with slash pine and managed as pine plantations with varying degrees of disturbance from site preparation (bedding, herbicides, etc.). Dense, unthinned planted pine stands on historic wet flatwoods are mapped as pine plantations.

The canopy layer for the wet flatwoods community is typically dominated by slash pine and/or pond pine, and also includes sweetgum, tuliptree, sweetbay, loblolly pine, and water oak. Traditional subcanopy species have been combined in the shrub layer for the wet flatwoods community and includes mountain azalea, coastal sweetpepperbush, titi, gallberry, fetterbush, Piedmont staggerbush (*Lyonia mariana*), wax myrtle, fourpetal St. John's wort, sparkleberry, and highbush blueberry. Vines found in the wet flatwoods include muscadine, cat greenbrier, and laurel greenbrier. The herbaceous layer includes broomsedge bluestem, switchcane, false nettle, cinnamon fern, maidencane, Virginia chain fern, and tall yelloweyed grass. One

location for the state-threatened hooded pitcherplant *(Sarracenia minor)* was recorded within the wet flatwoods community.

Fire Regimes:
Historically, the fire return interval in wet flatwoods is three to 10 years. However, in areas of heavy fire exclusion and/or densely planted slash pine, mechanical vegetation removal and/or a more frequent fire return interval of two to four years may need to be applied for initial restoration.

Management Needs:
Restore hardwood-invaded areas, minimize soil-disturbing practices, and use prescribed fire at the recommended intervals. Restoration of bay-invaded areas may be achieved by either burning these areas or by mechanical removal of bays and titi prior to burning. However, care should be taken not to disrupt the soil surface severely, which is crucial for ensuring recovery of the herbaceous layer, especially wiregrass. Fire management in wet flatwoods is similar to that of mesic flatwoods and is vital for sustaining a rich diversity of herbaceous species. Wet flatwoods should be allowed to burn along with surrounding mesic flatwoods communities.

O. Managed Community Types

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

1. Pine Plantation

Description:
Pine plantations mapped on LTSF are located within historic sandhill, mesic flatwoods, wet flatwoods, and upland pine and have desired future condition (DFC) matching those communities.

Current Conditions:
Pine plantations are areas altered by silvicultural activities, and if left unmanaged, can lead to a loss of biodiversity in groundcover and other desirable understory species. Some historic pine flatwoods, sandhill, and upland pine on LTSF that were converted to pine plantation in the past have since been thinned to a more natural basal area and frequently burned to restore a natural groundcover structure and composition. These were mapped as the natural community or restoration areas.

Pine plantations occur across LTSF and have a dense canopy of planted slash pine, loblolly pine, and longleaf pine. A subcanopy includes smaller canopy species and red maple, common persimmon, sweetgum, southern magnolia, sweetbay, wax myrtle, Carolina laurelcherry, southern red oak, laurel oak, bluejack oak, turkey oak, swamp laurel oak, blackjack oak, and water oak. Shrubs are variable and can include groundsel tree (*Baccharis halimifolia*), American beautyberry, common persimmon, peelbark St. John's wort, large gallberry, sweetgum, sweetbay, wax myrtle, laurel oak, bluejack oak, swamp

laurel oak, water oak, winged sumac, Japanese privet (*Ligustrum japonicum*), sawtooth blackberry (*Rubus pennsylvanicus*), sparkleberry, and highbush blueberry.

The herbaceous layer may be sparse to moderate, depending on the history of thinning, burning and/or herbicide treatments. Herbaceous species may be extremely diverse as they contain elements of the various historic communities they once were. Bedded pine plantations with a dense pine canopy often have a thick layer of pine needles and contain very little herbs. Herbaceous species found in pine plantations include purple bluestem (*Andropogon glomeratus* var. *glaucopsis*), bluestem, broomsedge bluestem, wiregrass, switchcane, tread softly, rabbitbells, silver croton (*Croton argyranthemus*), Michaux's croton (*Croton michauxii*), witchgrass, fireweed, early whitetop fleabane (*Erigeron vernus*), dogfennel, slender flattop goldenrod (*Euthamia caroliniana*), cinnamon fern, panic grass, purple passion-flower (*Passiflora incarnata*), pitted stripeseed (*Piriqueta cistoides* ssp. *caroliniana*), narrowleaf silkgrass, orange milkwort, bracken fern, savannah meadowbeauty, beaksedge (*Rhynchospora* sp.), nutrush, whip nutrush, sweet goldenrod, goldenrod, coastalplain dawnflower (*Stylisma patens*), hoary-pea (*Tephrosia* sp.), Ohio spiderwort (*Tradescantia ohiensis*), wavyleaf noseburn (*Tragia urens*), forked bluecurls, and netted chain fern. Vines included peppervine, yellow jessamine, Virginia creeper, earleaf greenbrier, cat greenbrier, eastern poison ivy, and muscadine.

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:
Thinning of pines in historically pyrogenic sites would promote restoration to desired future conditions, but planting of native species such as longleaf pine and wiregrass, as well as frequent prescribed burns, would provide the greatest benefit. In areas with good quality groundcover, especially where wiregrass is present, avoid using herbicides to reduce shrub and grass competition when planting longleaf pines. Priority should be given to burning areas of higher quality groundcover, using frequent growing-season fires to encourage herbaceous species, especially wiregrass, to reproduce naturally.

P. Other Altered Landcover Types

Description:
Altered landcover types are areas where the natural community has been overwhelmingly altered as a result of human activity. Pine plantation, successional hardwood forest, successional hydric shrubland/forest and restoration natural communities are described in separate sections of this report.

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 ruderal habitat is dependent on the historic community. Please refer to the appropriate community type for a more specific explanation of the desired future condition.

Current Conditions:
Altered landcover types at LTSF comprise abandoned field/abandoned pasture, artificial ponds, clearing, developed, impoundment, roads, and utility corridor.

Clearing – (158 acres) – Recent or historic clearings that have significantly altered the groundcover and/or overstory of the original natural community (old home sites, etc.), clearings of unknown origin.

Developed (39 acres) – Check stations, parking lots, buildings, maintained lawns (as part of Recreation, business, or residential areas), botanical or ornamental gardens, campgrounds, Recreation, industrial, and residential areas.

Impoundment (15 acres) - Stream or watershed impoundment.

Road (207 acres) – Paved or unpaved.

Successional Hardwood Forest (515 acres) – Successional hardwood forests are defined as closed-canopied forests dominated by fast growing hardwoods such as laurel oak, water oak, and/or sweetgum, often with remnant pines. The majority of successional hardwood forest on LTSF is historic upland pine, sandhill, and mesic flatwoods.

Successional Hydric Shrubland/Forest (8 acres) - Successional hydric shrubland / forests at LTSF are dense stands of shrubs that have invaded herbaceous depression marshes due to lengthy fire-suppression and/or hydrological alterations. Successional hydric shrubland/forests mapped on LTSF are historic depression marshes.

Utility Corridor (96 acres) - Electric, gas, telephone right-of-ways.

Wildlife Food Plot (116 acres) - Planted or unplanted areas to benefit wildlife or game species; includes dove fields; if not maintained these areas are often dominated by weedy native and non-native species.

Fire Regimes:
N/A

Management Needs:
It may not be practical or desirable to restore some of the altered landcover types (e.g., developed land, roads, etc.) to the historic natural community. However, long term hydrology restoration that includes the removal of certain road beds and ditches would be highly beneficial to the natural communities on the site.

VIII. References

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IX. Glossary of Abbreviations

ARC .....Acquisition and Restoration Council
ARM .....Archaeological Resource Management
BMAP .....Basin Management Action Plan
BMP .....Best Management Practices
CARL.....Conservation and Recreation Lands Acquisition Program
DEP.....Department of Environmental Protection
DFC.....Desired Future Condition
DHR .....Division of Historical Resources
DSO.....Direct Support Organization
F.A.C.....Florida Administrative Code
FDACS.....Florida Department of Agriculture and Consumer Services
FFS.....Florida Forest Service
FNAI .....Florida Natural Areas Inventory
F.S. .....Florida Statutes
FWC.....Florida Fish and Wildlife Conservation Commission
LTSF .....Lake Talquin State Forest
NRCS .....Natural Resources Conservation Service
NWFWMD .....Northwest Florida Water Management District
OALE.....Office of Agricultural Law Enforcement, FDACS
OFW.....Outstanding Florida Waters
OPS .....Other Personal Services Employment
TFC .....Tallahassee Forestry Center

TIITF.....Board of Trustees of the Internal Improvement Trust Fund
USDA.....United States Department of Agriculture
USFWS .....United States Fish and Wildlife Service
WMA .....Wildlife Management Area