



Florida Department of Environmental Protection

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

Rick Scott
Governor

Jennifer Carroll
Lt. Governor

Herschel T. Vinyard, Jr.
Secretary

February 24, 2011

Mr. John Barrow
Division of Forestry
3125 Connor Blvd./C25
Tallahassee, Florida 32399-1560

RE: Lake Talquin State Forest Management Plan - Lease No. 3971

Dear Mr. *Barrow*:

The Division of State Lands, Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the Lake Talquin State Forest management plan. The next management plan update is due February 24, 2021.

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

Sincerely,

Marianne

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

MSG/bh

TEN-YEAR RESOURCE MANAGEMENT PLAN

FOR THE

LAKE TALQUIN STATE FOREST

LEON, GADSDEN, LIBERTY AND WAKULLA COUNTIES



PREPARED BY

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

DIVISION OF FORESTRY

APPROVED ON

FEBRUARY 24, 2011

TEN-YEAR RESOURCE MANAGEMENT PLAN
FOR THE
LAKE TALQUIN STATE FOREST



Approved by:

A handwritten signature in black ink, appearing to read "Jim Karels", written over a horizontal line.

Jim Karels, Director
Division of Forestry

11/2/10
Date

A handwritten signature in blue ink, appearing to read "David Core", written over a horizontal line.

David Core, Assistant Director
Division of Forestry

10-21-10
Date

A handwritten signature in black ink, appearing to read "Steve Jennings", written over a horizontal line.

Steve Jennings, Chief
Forest Management Bureau

10-19-10
Date

TEN-YEAR RESOURCE MANAGEMENT PLAN
LAKE TALQUIN STATE FOREST

TABLE OF CONTENTS

Land Management Plan Executive Summary.....	1
I. Introduction.....	2
A. General Mission, Goals for Florida State Forests, and Management Plan Direction	2
B. Overview of State Forest Management Program	2
C. Past Accomplishments and Status of Previous Plan's Goals/Objectives	3
D. Goals/Objectives for the Next Ten Year Period.....	4
E. Management Needs - Priority Schedule and Cost Estimates.....	7
II. Administration Section.....	10
A. Descriptive Information	10
1. Common Name of Property	10
2. Location, Boundaries and Improvements	10
3. Legal Description and Acreage.....	11
4. Degree of Title Interest Held by the Board.....	13
5. Proximity to Other Public Resources.....	13
6. Aquatic Preserve/Area of Critical State Concern	13
B. Acquisition Information	13
1. Land Acquisition Program.....	13
2. Legislative or Executive Constraints	14
3. Purpose for Acquisition	14
4. Designated Single or Multiple-Use Management.....	14
5. Alternate Uses Considered.....	14
6. Additional Land Needs	15
7. Adjacent Conflicting Uses	15
8. Surplus Land Assessment	15
C. Agency & Public Involvement	15
1. Responsibilities of Managing Agencies.....	15
2. Public and Local Government Involvement	16
3. Compliance with Comprehensive Plan.....	16
III. Resource Section	16
A. Past Uses	16
B. Renewable and Non-Renewable Resources.....	16
1. Soil Types	17
2. Archaeological and Historical Resources	17
3. Water Resources	19
4. Fish and Wildlife.....	19
5. Endangered or Threatened Species	20
6. Beaches and Dunes	20
7. Swamps, Marshes, or Other Wetlands.....	20
8. Mineral Resources	20

9. Unique Natural Features	20
10. Outstanding Native Landscapes.....	21
11. Timber Resources	21
IV. Management Concepts by Natural Communities and Proposed Management Activities ..	21
A. Existing and Planned Uses	21
1. Property Boundaries Establishment and Preservation	21
2. Soil and Water Protection	21
3. Roads.....	22
4. Recreation Management	22
5. Fire Management	24
6. Silvicultural Guidelines & Forest Resource Management Objectives	25
7. Research Projects/Specimen Collection	26
8. Law Enforcement.....	26
9. Wildlife and Fish Management.....	27
10. Non-Native Invasive Species.....	28
11. Insects, Disease and Forest Health.....	30
12. On-Site Housing.....	30
13. Utility Corridors and Easements	31
14. Ground Disturbing Activities.....	32
15. Apiaries	32
16. Cattle Grazing	32
17. Ground Cover.....	32
18. Restoration	32
B. Description of Natural Communities and Proposed Management Activities	33
1. Upland Pine Forest.....	34
2. Upland Hardwood Forest.....	36
3. Floodplain Forest	38
4. Mesic Flatwoods	40
5. Sandhill	41
6. Floodplain Swamp	43
7. Bottomland Forest.....	44
8. Baygall	45
9. Wet Flatwoods	46
10. Upland Mixed Forest	48
11. Basin Swamp	48
12. Depression Marsh	49
13. Swamp Lake.....	51
14. Seepage Stream.....	52
C. Impact of Planned Uses on Property Resources	52
V. Management Summary	53
A. Operations Infrastructure.....	53
B. Plans to Locate Fragile, Non-Renewable Natural and Cultural Resources	53
C. Conformation to State Lands Management Plan	54
D. Multiple-Use Potential – Income Producing Activities.....	54
E. Potential Use of Private Land Managers	55
VI. References.....	55

TEN-YEAR RESOURCE MANAGEMENT PLAN
LAKE TALQUIN STATE FOREST

EXHIBITS

Location Map	Exhibit A
Optimum Management Boundary Map	Exhibit B
Land Management Review	Exhibit C
State Forest Management Plan Advisory Group Summary	Exhibit D
Compliance with Local Comprehensive Plan	Exhibit E
Soil Types and Maps	Exhibit F
Management Procedures for Archaeological and Historical Sites and Properties on State Owned or Controlled Lands	Exhibit G
List of Wildlife Species Found on Lake Talquin State Forest	Exhibit H
Florida Natural Areas Inventory Managed Area Tracking Record	Exhibit I
Florida Natural Areas Inventory Species Habitat and Phenology Summary.....	Exhibit J
Recorded Occurrence of Rare Plants and Animals.....	Exhibit K
Existing Recreational Opportunities	Exhibit L
Historic Natural Communities	Exhibit M

TABLES

Table 1. Accomplishment Summary.....	Page 3
Table 2. Estimated Annual Expenditures Organized by Uniform Cost Accounting Council Categories	Page 10
Table 3. LTSF Acreage by Parcel.....	Page 11
Table 4. Non-Native Invasive Plant Species Occurring on LTSF	Page 28
Table 5. Vegetation Types Found on LTSF.....	Page 32

LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

LEAD AGENCY: Florida Department of Agriculture and Consumer Services, Division of Forestry
COMMON NAME: Lake Talquin State Forest
LOCATION: Leon, Gadsden, Liberty & Wakulla Counties
ACREAGE TOTAL: 19,347

<i>Historical Natural Communities</i>	<i>Acreage</i>	<i>Historical Natural Communities</i>	<i>Acreage</i>
Upland Pine Forest	6545.5	Baygall	175.6
Upland Hardwood Forest	4308.7	Wet Flatwoods	174.4
Floodplain Forest	2870.7	Upland Mixed Forest	171.0
Mesic Flatwoods	1851.8	Basin Swamp	104.4
Sandhill	1773.1	Depression Marsh	57.8
Floodplain Swamp	1156.6	Swamp Lake	5.1
Bottomland Forest	561.6		

LEASE/MANAGEMENT AGREEMENT NO.: 3971

Use: Single _____ Multiple X

MANAGEMENT AGENCY

Division of Forestry (Lead Agency)
Florida Fish and Wildlife Conservation
Commission
Division of Historical Resources
Northwest Florida Water Management District

RESPONSIBILITY

General Forest Resource Management
Wildlife Resources and Laws
Historical and Archaeological Resource
Management
Water Resources

DESIGNATED LAND USE: Multiple-use State Forest.

TYPE ACQUISITION: Warranty Deed and DOF P-2000 Funds, Florida Forever, donations, mitigation, in-holdings and additions.

ARCHAEOLOGICAL/HISTORICAL: At least 35 archaeological sites.

MANAGEMENT NEEDS: Ecosystem restoration, boundary survey and maintenance of recreational & educational opportunities.

ACQUISITION NEEDS: Acquisitions needed to provide & improve access and to acquire in-holdings (+/- 38,000 acres).

SURPLUS LANDS/ACREAGE: Acreage neither suitable nor necessary for the management of the forest to be declared surplus (TBD).

PUBLIC INVOLVEMENT: Leon, Gadsden, Liberty & Wakulla Counties, Management Plan Advisory Group, Public Hearing (August 31, 2010), and State Forest Liaison Group.

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

ARC Approval Date: _____ BTIITF Approval Date: _____

Comments: _____

I. INTRODUCTION

The Lake Talquin State Forest (LTSF) consists of fifteen tracts ranging from 14 to 4,800 acres totaling 19,347 acres in Leon, Gadsden, Liberty and Wakulla counties. The majority of the acreage is adjacent to Lake Talquin, 8 miles west of Tallahassee. The 595 acre Searcy Tract in Wakulla County is located 9 miles south of Bloxham on the Ochlockonee River. Approximately 70% of the current acreage was donated to the state by the Florida Power Corporation in 1977. The remainder was acquired with Preservation 2000 or Florida Forever funding or through mitigation funds. Major natural communities on the forest include upland pine forest, sandhill, upland hardwood forest, floodplain forest and swamp, and mesic flatwoods. The forest is a non-contiguous patchwork of tracts along Lake Talquin and the Ochlockonee River.

A. General Mission, Goals for Florida State Forests, and Management Plan Direction

The primary mission of the Division of Forestry (DOF) is to protect Florida and its people from the dangers of wildland fire and manage the forest resources through a stewardship ethic to assure they are available for future generations. This will be accomplished by implementing sound multiple-use management principles, the main objectives of which will be:

- To restore, maintain, and protect in perpetuity, all native ecosystems;
- To ensure long-term viability of populations and species considered rare, endangered, threatened, or of special concern;
- To restore, maintain, and protect hydrological functions related to the quality of water resources and the health of associated wetland and aquatic natural communities;
- To integrate human use through the multiple-use concept, not emphasizing any particular use over the others or over improvement, maintenance, and protection of native ecosystems;
- To protect known archaeological and historical resources; and,
- To practice sustainable forest management utilizing sound silvicultural techniques.

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

B. Overview of State Forest Management Program

Land uses prior to state acquisition have left the forest, especially the uplands, quite altered from their historic natural condition. Clearing for agriculture and fire exclusion have resulted in severe degradation of these natural communities. Native ground cover species and natural stands of longleaf pine in the upland pine and sandhill communities are largely absent. Restoration of these communities has been and will continue to be one of the focal points of management. The use of prescribed fire, primarily in the

growing season, will continue to be paramount. Uneven-aged management is the preferred silvicultural management system for longleaf pine stands on LTSF. Due to the current even-aged stand structure of the longleaf pine stands, it may take several planning cycles before this can be fully implemented when appropriate. The removal of off-site species and reforestation of native trees will be necessary in some areas. Thinning of established stands will be planned to remove stressed and diseased trees, as well as to stimulate ground cover, bio-diversity and move towards uneven-aged management.

C. Past Accomplishments and Status of Previous Plan's Goals/Objectives

The following is a summary of accomplishments for the past five years on LTSF. This does not include all activities, but highlights some major accomplishments.

Table 1. Accomplishment Summary

PROGRAM	Activity	FY 2004-05	FY 2005-06	FY 2006-07	FY 2007-08	FY 2008-09	TOTALS
Fire	Prescribed Fire (acres)	2,856	1,985	3,386	2,960	3,365	14,552
Restoration	Longleaf pine (acres planted)	91	116	155	121	308	791
	Wiregrass (acres planted)	90	---	---	---	---	90
Timber Thinning (acres)	Acres	186	226	115	89	135	751
Invasive Species Control/ (Herbicide)	Japanese Climbing Fern	4	2	5	7	7	25
	Cogongrass	2	2	2	2	7	15
	All other spp.	---	---	2	1	2	5
Boundary Maintenance	Miles	16	16	9	9	15	65
Educational Programs		9	42	116	127	48	342
Road Maintenance	Miles graded	39	25	39	33	19	155
Revenue	Timber	\$76,969.00	\$232,628.00	\$158,829.58	\$141,611.74	\$126,685.12	\$736,723.44
	Recreation	\$3,743.00	\$3,966.00	\$4,523.00	\$4,113.98	\$3,994.62	\$20,340.60
	Other	\$75.00	\$62.50	\$127.50	\$1,053.10	\$187.50	\$1,505.60

PROGRAM	Activity	FY 2004-05	FY 2005-06	FY 2006-07	FY 2007-08	FY 2008-09	TOTALS
	Total	\$80,787.00	\$236,656.50	\$163,480.08	\$146,778.82	\$130,867.24	\$758,569.64

D. Goals/Objectives for the Next Ten Year Period

The following goals and objectives provide direction and focus management resources for the next ten-year planning period. Funding, agency program priorities, and the wildfire situation during the planning period will determine the degree to which these objectives can be met. Short-term goals are goals that shall be achievable within a two year planning period, and long-term goals shall be achievable within a ten year planning period. Objectives are not listed in priority or chronological order.

Goal 1: Habitat Restoration and Improvement

OBJECTIVE 1: The objective of prescribed burning is to simulate, as much as possible, a natural fire regime where prescribe burning takes place during both the dormant and growing seasons. Prescribe burn 2,500-3,800 acres annually. (Short-term/Long-term Goal)

Performance Measures:

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

OBJECTIVE 2: Harvest off-site pine and hardwood species, prepare sites and commence longleaf/wiregrass restoration in upland pine forest and sandhill communities. (Long-term Goal)

Performance Measure: Total number of acres with restoration under way.

OBJECTIVE 3: Locate areas on the forest with quality intact ground cover to use as possible donor sites for re-seeding restoration sites. Determine the number of acres that may be restored with seed from these areas. (Long-term Goal)

Performance Measures:

- Completion of ground cover assessment.
- Number of acres determined.

OBJECTIVE 4: Restore ground cover where the native ground layer has been eliminated or heavily impacted from historical land use. (Long-term Goal)

Performance Measure: Number of acres restored.

GOAL 2: Public Access and Recreational Opportunities

OBJECTIVE 1: Update the 5-Year Outdoor Recreation Plan on an annual basis. (Short-term Goal)

Performance Measure: Completion of annual update of 5-Year Outdoor Recreation Plan.

OBJECTIVE 2: Maintain public access and recreational opportunities to allow for a recreational facility carrying capacity of 377 visitors per day. (Short-term Goal/Long-term Goal)

Performance Measure: Number of visitor opportunities per day.

GOAL 3: Hydrological Preservation and Restoration

OBJECTIVE 1: Conduct or obtain a site assessment/study to identify potential hydrology restoration needs. (Short-term Goal)

Performance Measure: Assessment conducted.

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

Performance Measure: Compliance with state lands BMPs.

OBJECTIVE 3: Close, rehabilitate, restore or reroute roads and trails that have evidence of erosion into surrounding water bodies, causing alterations to the hydrology. (Short-term Goal)

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

GOAL 4: Sustainable Forest Management

OBJECTIVE 1: Implement the 5-year silviculture management plan including reforestation, harvesting, prescribed burning, restoration, and timber stand improvement activities and goals. (Long-term Goal)

Performance Measure: Implementation of plan and acres treated.

OBJECTIVE 2: Update the 5-year Silviculture Management Plan annually. (Short-term Goal)

Performance Measure: Plan is updated annually.

OBJECTIVE 3: Implement the process, as outlined in the State Forest Handbook, for conducting forest inventory including a GIS database containing forest stands, roads & other attributes (including but not limited to: threatened & endangered species, archaeological resources, exotic species locations, historical areas). (Short & Long Term)

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

OBJECTIVE 4: Conduct Forest Inventory updates each year, according to established criteria. (Short-term Goal)

Performance Measure: Number of acres inventoried annually.

OBJECTIVE 5: Conduct timber sales at appropriate times to promote forest health and ensure sustainability of the resources. (Long-term Goal)

Performance Measure: Conduct timber sales sustainable to LTSF's timber resources.

GOAL 5: Exotic and Invasive Species Maintenance and Control

OBJECTIVE 1: Develop a plan to control non-native invasive plant and animal species. (Long Term Goal)

Performance Measure: Plan is developed.

OBJECTIVE 2: Implement plan to locate, identify, and control non-native invasive plant and animal species, and update the plan as needed. (Short-term/Long-term Goal)

Performance Measure: Total number of acres/points identified and successfully treated.

GOAL 6: Capital Facilities and Infrastructure

OBJECTIVE 1: Update the 5-Year Road & Bridge Operations Plan on an annual basis. (Short-term Goal)

Performance Measure: Annual update of the 5-Year Road & Bridge Operations Plan

OBJECTIVE 2: Increase visibility by all cooperating law enforcement agencies to reduce illegal hunting, fishing, off-road vehicle use, vandalism, and litter violations. (Short-term/Long-term Goal)

Performance Measures:

- A decrease or increase of litter, vandalism, signs of damage caused by off-road vehicle use, and signs of illegal hunting and fishing.

OBJECTIVE 3: Staff will maintain all existing facilities, roads, and trails. (Short-term/Long Term Goal)

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

OBJECTIVE 4: Continue annual maintenance of state forest boundary. (Short-term Goal)

Performance Measure: Percentage of forest boundary maintained.

OBJECTIVE 5: Complete survey and establishment of LTSF boundaries (Short-term Goal)

Performance Measure: Survey completed.

GOAL 7: Cultural and Historical Resources

OBJECTIVE 1: Conduct a historical and cultural survey with the Division of Historical Resources (DHR) during this planning period. (Long-term Goal)

Performance Measure: Completion of surveys and updated site maps to include identified cultural and historical sites.

OBJECTIVE 2: Ensure all known and future sites are recorded in the DHR Florida Master Site file. (Long-term Goal)

Performance Measure: Number of recorded sites.

OBJECTIVE 3: Monitor recorded sites and send updates to the DHR Florida Master Site File as needed. (Long-term Goal)

Performance Measure: Number of sites monitored.

OBJECTIVE 4: Train personnel as archaeological monitors. (Short-term Goal)

Performance Measure: Number of personnel trained as monitors.

GOAL 8: Imperiled Species Habitat Maintenance, Enhancement, Restoration, or Population Restoration

OBJECTIVE 1: Institute an on-going program (Florida Natural Area Inventory (FNAI) follow-up) of surveying and monitoring for listed species of plants and wildlife. (Long-term Goal)

Performance Measures:

- Re-survey scheduled with proposed dates and appropriate organizations identified to perform fieldwork.
- Map showing locations of listed species, their habitat, and breeding areas is updated.

OBJECTIVE 2: Monitor FNAI listed animals to determine population stability or recovery in conjunction with the Fish and Wildlife Conservation Commission (FWC). (Long-term Goal)

Performance Measure: Number of surveys for target species.

OBJECTIVE 3: Update the comprehensive rare animal species inventory. (Long-term Goal)

Performance Measure: Completion of updated inventory.

E. Management Needs, Priority Schedule and Cost Estimates

A priority schedule for conducting management activities and the average or estimated cost is listed below. The majority of the management operations will be conducted by the DOF, although appropriate activities will be contracted to private sector vendors. All activities will enhance the property's natural resource or public recreational value.

Management activities on LTSF during this management period must serve to conserve, protect and enhance the natural and historical resources and manage resource-based public outdoor recreation, which is compatible with the conservation and protection of this forest.

The management activities listed below will be addressed within the ten-year management period and are divided by priority levels:

Priority 1 - activities considered as paramount to carrying out DOF's mission.

Priority 2 - activities key to furthering the mission.

Priority 3 - activities considered significant to our mission, but less urgent.

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

PRIORITY 1

1. Prescribed burning is the primary management tool for the forest. Approximately 51% of the acreage (roughly 9,940 acres) supports vegetative communities that are fire dependent, most of which will be burned on an average rotation of every 2 to 4 years. The Fire Management Plan will be updated as necessary. The annual goal will be to prescribe burn 2,500 to 3,800 acres with the majority of the burning during the growing season. As restoration and reforestation progress, acreage in the prescribed burn plan will increase. Cost estimates are based on the DOF's contract burning rate. Manpower and equipment costs are included.

Estimated Average Annual Cost: \$52,500

2. Restoring a part of the natural longleaf pine-wiregrass ecosystem for this planning period consists of three main projects: 1) Restoring off-site loblolly and slash pine plantations to sandhill communities requires off-site pine removal and longleaf pine reforestation. Sandhills in poor condition from fire exclusion may need herbicide treatment to reduce oak density and release pine regeneration. 2) Restoring hardwood hammocks that were historically sandhill and upland pine forest communities requires removal of the hardwood and the reforestation of longleaf pine. 3) Herbicide applications are required on these sites to control oak re-sprouting and ensure successful establishment of longleaf pine and quality native ground cover. The restoration of these areas will be planned according to the hardwood timber market to avoid costly mechanical removal methods. The emerging biomass market should also be considered. Additional applications of herbicide may be needed in areas where oak populations are high due to fire exclusion. Appropriate application amounts will be applied for effectiveness, with careful attention to providing/leaving some mast trees for wildlife.

Estimated Average Annual Cost: \$30,000

3. The road system on LTSF has been established and must be maintained for administrative and public access. Forest roads are maintained for minimal impacts on the natural resources. Road improvement projects are scheduled to decrease annual grading and repair costs on primary 'problem' roads.

Estimated Average Annual Cost: \$20,000

4. Implementing the forest exotic species control plan.

Estimated Average Annual Cost: \$5,000.

5. The equestrian trail at Fort Braden must be rehabilitated and rerouted in places where overuse has caused adverse impacts to resources. Some sections may be stabilized without having to reroute the trail.

Estimated Cost: TBD

6. Continue to maintain appropriate basal areas for forest health through harvest operations.

No Cost/Net Positive Revenue

PRIORITY 2

1. Implement the Outdoor Recreations Plan, which includes maintenance and improvements to established recreational opportunities, repairs to existing infrastructure as needed and reprinting brochures. Cost estimate includes OPS Park Ranger salary and part of the Department of Corrections (DOC) inmate crew cost.

Estimated Average Annual Cost: \$40,000

2. The state forest boundary must be maintained. Boundaries will be patrolled on a routine basis and the entire boundary will be reworked approximately every five years or as needed.

Estimated cost for boundary maintenance: \$15,000

3. Request a comprehensive survey of historical and archaeological resources from the DHR.
4. Obtain approval to hire the vacant Forester position at the Bear Creek Education Center.

PRIORITY 3

1. A wiregrass re-vegetation project may need to be implemented after the removal of current off-site hardwood stands. Determination for this project will be conducted post-harvest.

Estimated Cost: TBD after harvest and subsequent series of prescribed fires.

2. Complete survey and establishment of LTSF boundaries.

Estimated Cost: TBD

3. Complete the FNAI Historic Natural Communities mapping of the Searcy Tract.

Estimated cost: \$4,000

Table 2. Estimated Ten-Year Expenditures Organized by Uniform Cost Accounting Council Categories

CATEGORY	PRIORITY 1	PRIORITY 2	PRIORITY 3	TOTAL
Resource Management:				
-Exotic Species Control	\$50,000			\$50,000
-Prescribed burning	\$525,000			\$525,000
-Timber Management	\$300,000			\$300,000
-Hydrological Management				
-Biological monitoring			\$4,000	\$4,000
Capital Improvements:				
-New Facility Construction				
-Facility Maintenance	\$200,000	\$30,000		\$230,000
-Tools/Equipment				
Visitor Services/Recreation:				
-Information/Education Programs		\$400,000		\$400,000
-Operations				
-Law Enforcement/Security				
TOTAL	\$1,075,000	\$430,000	\$4,000	\$1,509,000

II. ADMINISTRATION SECTION

A. Descriptive Information

1. Common Name of Property

The common name of the property is Lake Talquin State Forest (LTSF).

2. Location, Boundaries and Improvements

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. Forest boundaries are identified in Exhibit A. There are several structures located on LTSF which include:

Highway 20 Tract - Tallahassee Forestry Center & LTSF headquarters, Tallahassee Forestry Center equipment shop & pole barn, office (old LTSF headquarters), wildlife check station & kiosk, and four trailer resident sites.

Fort Braden Tract – hiking and equestrian trails, two picnic pavilions, information kiosk, honor fee collection station, three primitive campsites, and a vault toilet.

Bloxham Tract - resident house (used for day use), garage, two storage sheds, workshop, pump house, boat dock, boat ramp, picnic pavilion, and a trailer resident site.

Lines Tract – off-road bicycle trail, picnic pavilion, information kiosk, honor fee collection station, vault toilet, and a primitive campsite.

Bear Creek Tract - Bear Creek Education Center classroom/offices, bathrooms and storage building, information building, hiking trails, observation deck, picnic pavilion, primitive campsite, amphitheater, Gadsden Forestry Station offices and pole barn, honor fee collection station, and a trailer resident site.

Joe Budd Tract - wildlife check station, two information kiosks, honor fee collection station, two vault toilets, primitive campground, and a fishing pier.

3. **Legal Description and Acreage**

The total acreage of the forest is 19,347 acres, plus an undetermined amount of lake bottom. 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 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.

Table 3. LTSF Acreage by Parcel

UNIT	PARCEL NAME	DEED DATE	LEASE NO.	AMEND. NO.	FUNDING SOURCE	COUNTY	ACRES
FORT BRADEN	FORT BRADEN/TPL	6/30/1993	3971	2	DOF/P2000	LEON	1,256.46
LINES	LINES/ WILLIS & BEASLEY	3/29/1996	3971	3	DOF/P2000	GADSDEN	229.00
LINES	LAMB	3/29/1996	3971	3	DOF/P2000	GADSDEN	315.20
LINES	REVELL & WHITFIELD	3/29/1996	3971	3	DOF/P2000	GADSDEN	134.50

UNIT	PARCEL NAME	DEED DATE	LEASE NO.	AMEND. NO.	FUNDING SOURCE	COUNTY	ACRES
LINES	POWELL	3/29/1996	3971	3	DOF/P2000	GADSDEN	122.00
ROCKY COMFORT	FPC/TPL	9/29/1998	4211	0	DOF/P2000/ FWC	GADSDEN	2,018.48
HIGHWAY 20	WAINWRIGHT	6/24/1998	3971	4	MITIGATION	LEON	62.60
JOE BUDD	JOE BUDD	6/28/1993	3971		OTHER	GADSDEN	4,381.21
JOE BUDD	ST. JOE TIMBERLANDS/ LITTLE RIVER	5/13/2003	3971	5	DOF/FL FOREVER	GADSDEN	569.06
MIDWAY	MIDWAY	6/28/1993	3971		OTHER	GADSDEN	1,273.77
HAMMOCK CREEK	HAMMOCK CREEK	6/28/1993	3971		OTHER	GADSDEN	349.00
HIGHWAY 20	HIGHWAY 20	6/28/1993	3971		OTHER	LEON	3,510.33
LOWER OCHLOCKONEE	LOWER OCHLOCKONEE	6/28/1993	3971		OTHER	LIBERTY	46.50
OKLAWAHA	OKLAWAHA	6/28/1993	3971		OTHER	GADSDEN	169.00
VAN LANDINGHAM	VAN LANDINGHAM	6/28/1993	3971		OTHER	GADSDEN	370.31
NORTH OCHLOCKONEE	NORTH OCHLOCKONEE	6/28/1993	3971	0	OTHER	LEON	1,819.13
SOUTH OCHLOCKONEE	SOUTH OCHLOCKONEE	6/28/1993	3971	0	OTHER	LEON	1,011.79
GOAT ISLAND	GOAT ISLAND	6/28/1993	3971	0	OTHER	GADSDEN	11.97
CAPE TALQUIN	CAPE TALQUIN	6/28/1993	3971	0	OTHER	LEON	471.88
BLOXHAM	BLOXHAM	6/28/1993	3971	0	OTHER	LEON	68.93
GIRL SCOUT	GIRL SCOUT	6/28/1993	3971	0	OTHER	LEON	68.93
BEAR CREEK	BEAR CREEK	1/24/1994	3971	1	OTHER	GADSDEN	492.02
	SEARCY	8/26/2005	3971	6	FL FOREVER	WAKULLA	595.35

6/15/1998 - 0.138 acres released from lease for addition to Wetumpka VFD.
8/27/2001 - 0.142 acres released from lease for addition to Wetumpka VFD.
9/28/2007 - 0.38 acres released from lease for addition to Antioch Baptist Church.
BOT DACS Contract No. = 1526; BOT/FWC (4211 Rocky) DACS Contract No. = 5642

TOTAL ACRES	19,346.76
DOF P2000	4,075.64
DOF FL FOREVER	569.06
CARL MGT. ACRES	5,240.05

4. Degree of Title Interest Held by the Board

The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (BOT) holds fee simple title to 19,346.76 acres of LTSF (lease agreement #3971). Parts of the property have been subleased to the Boy Scouts of America, Girl Scouts of America, Talquin Electric and the Leon County Parks and Recreation Department. Utility easements are held by the Florida Gas Transmission Co., City of Tallahassee, Talquin Electric, City of Midway, and several non-industrial private landowners requiring access to their property.

5. Proximity to Other Public Resources

The following public resources are listed with the shortest straight line distance and direction.

TRACT	AGENCY	DISTANCE
Apalachicola National Forest	USFS	Adjacent south
Joe Budd Wildlife Management Area	FWC	Adjacent north
Lake Jackson Aquatic Preserve	DEP	7 miles northeast
Lake Jackson Mounds State Park	DEP	6 miles northeast
Elinor Klapp-Phipps Park	TLH	10 miles northeast
Alfred B. Maclay State Gardens	DEP	10 miles northeast
Woodville State Forest	DOF	13 miles southeast
Edward Ball Wakulla Springs State Park	DEP	16 miles southeast
Wakulla State Forest	DOF	16 miles southeast
Tate's Hell State Forest	DOF	32 miles southwest

DEP - Department of Environmental Protection

DOF - Division of Forestry

TLH - City of Tallahassee

USFS – US Forestry Service

6. 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.

B. Acquisition Information

1. Land Acquisition Program

In 1977, the Florida Power Corporation donated 13,553 acres to the BOT.

Subsequent additions include 5,240 acres of land purchased with Preservation 2000 & Florida Forever funds. The 492 acre Bear Creek Tract which was purchased via the Land Acquisition Trust Fund and the 62 acre Wainwright Tract which was acquired through mitigation.

2. Legislative or Executive Constraints

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

3. Purpose for Acquisition

The goals for the acquisition of this property include:

- i. 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, recreational, timber, or fish and wildlife resources which cannot otherwise be accomplished through local and state regulatory programs.
- ii. To provide areas, including recreational trails, for natural-resource-based recreation.
- iii. To conserve and protect native species habitat and/or endangered or threatened species. The DOF interprets this to include species of special concern.

4. Designated Single or Multiple-Use Management

The LTSF is designated for multiple-use management by the DOF under the authority of Chapters 253 and 589, Florida Statutes. The DOF is the lead managing agency as stated in Management Lease No. 3971, with the exception of co-management with the FWC on the 2,018 acre Rocky Comfort Tract under Management Lease No. 4211.

Sustainable multiple-use management is the overall goal for the property. Multiple-use management includes, but is not limited to, the following activities: silvicultural management, recreation, wildlife management, archaeological and cultural resource management, ecosystem restoration, environmental education, and watershed management. The goals of the DOF are to protect and manage ecosystems, restore and maintain biological diversity, and integrate public use through multiple-use of the forest resources. Multiple-use resource management, the practice of sustainable forestry and the management of ecosystems will provide for the greatest public benefit in perpetuity, while at the same time protecting all the values and resources of the land. Local demands and geographic factors influence the array of uses to be applied to any area of the forest. Only uses compatible with the forest and its ecosystems will be implemented. Forest management practices should ensure that all resources of the forest are sustained for the future. Sustainable forest management will be practiced to ensure long-term forest health.

5. Alternate Uses Considered

During this management period, alternative uses have been considered and ruled out due to potential negative impact on restoration efforts and recreational activities. The following uses were considered and determined not compatible: water resource development projects, water supply development projects, storm-water management projects, linear facilities and cell towers. Other uses will be considered as requests are made and will be accommodated as appropriate if they are determined to be

compatible with existing uses and with the management goals and objectives of the forest.

6. Additional Land Needs

The DOF may attempt to acquire property within the optimum boundary (Exhibit B) whenever it is available. This will help to facilitate management operations such as prescribed burning and improve access to some of the tracts that are currently inaccessible due to adjacent private ownership. Additions to the property will also provide more space for outdoor, nature-based recreation and will reduce possible negative impacts from urban development such as habitat fragmentation and wildland-urban interface hazards.

7. Adjacent Conflicting Uses

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

DOF welcomes the opportunity to meet with any adjacent property owner(s), prospective owner(s), or prospective developer(s) to discuss methods to minimize negative impacts on management, resources, facilities, roads, recreation, etc. DOF also looks forward to hearing/sharing ideas on how the property owner(s)/developer(s) may develop the property adjacent to the shared property line, and perhaps provide buffers to minimize encroachment into the forest and to reduce any management impacts.

8. Surplus Land Assessment

Several parcels of the Forest which lie between residential developments and the lake have little or no access and are difficult to manage. In some cases, less than fifty feet of state forest separate the adjacent homeowners and the lake, leading to numerous encroachment issues. Time spent dealing with these issues interferes with overall management of the forest. These parcels are not suitable or necessary for the management of LTSF and will be assessed for surplus back to the Florida Department of Environmental Protection's Division of State Lands (Exhibit B).

C. Agency & Public Involvement

1. Responsibilities of Managing Agencies

The DOF is the lead management agency in cooperation with the FWC, and is co-manager on the 2,018 acre Rocky Comfort Tract with the FWC. The DOF is responsible for the overall management of Lake Talquin State Forest. According to Article 4, Section 9 of the Florida Constitution, the FWC is responsible for execution of all regulations and executive powers of the state with respect to wild animal life and aquatic marine life. The FWC will assist the DOF in providing technical advice

on the management of wildlife populations (game and non-game), setting hunting seasons, establishing bag limits, and enforcement of rules and regulations related to the management of the wildlife resources. The DHR is responsible for any historical structures and archeological sites on this tract as stated in Section 267.061(2)(d), Florida Statutes. They will be notified prior to the initiation of any ground disturbing activity by the DOF or any other agency involved with the LTSF.

2. Public and Local Government Involvement

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

The DOF responds to public involvement through its Liaison Committees, Advisory Groups, public hearings, and through direct contact with user groups. A Land Management Review Team conducted a review of management plan implementation in September 2005 and in January 2010 (Exhibit C). The review team's recommendations were incorporated into 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 August 31, 2010. A summary of the advisory group's meetings and discussions, as well as written comments received on the plan, are included in Exhibit D. The Acquisition and Restoration Council (ARC) public hearing and meeting serve as an additional forum for public input and review of the plan.

3. Compliance With Comprehensive Plan

This plan was submitted to the Board of County Commissioners in Leon, Gadsden, Wakulla and Liberty Counties for review and compliance with their local comprehensive plans (Exhibit E).

III. RESOURCE SECTION

A. Past Uses

Native American inhabitation is apparent with the recorded archeological sites, and early European settlers cleared the land for agriculture. From the 1950s to the early 1970s, much of the forest was leased for timber or cattle operations. In the mid-1970s FPC notified St. Joe that the 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 of the timber and cattle leases 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. Native ground cover species and natural stands of longleaf pine in the sandhill community are largely absent.

B. Renewable and Non-Renewable Resources

1. Soil Types

The forest has soils of two orders; Ultisols and Spodosols. Ultisols have a horizon in which clay has accumulated to a significant extent (argillic horizon). Ultisols, however, are more developed and more leached than Alfisols. The soil properties associated with Ultisols are an argillic horizon, enough moisture for crops in most years, and a low supply of bases. They exist in relatively warm and moist climates, like northwest Florida, and therefore can be highly productive if managed properly. Spodosols are characterized by having undergone soil processes that translocate organic matter and aluminum, or organic matter, aluminum, and iron, as amorphous materials. The most striking property Spodosols have is a horizon (spodic horizon) that has resulted from accumulation of black or reddish amorphous materials having a high cation-exchange capacity. In some Spodosols a leached horizon, which can range from white to gray, overlies the spodic horizon. Many Spodosols in Florida are poorly to very poorly drained, and all Spodosols in Florida have developed in sandy, acid parent materials.

Specific soil types for LTSF are mapped in Exhibit F with information contained in the associated legends.

2. Archaeological and Historical Resources

Information on the archaeological and historical resources of the area has been supplied by DHR. A search of the records indicates there are at least thirty-five (35) archaeological sites.

Site File #	Site Name	Description
GD00113	UNNAMED	Prehistoric lithics only, but not quarry
GD00114	UNNAMED	Prehistoric campsite with pottery
GD00125	SUBER	Low density artifact scatter from the Middle Archaic and Weeden Island period
GD00303	RICHLANDER CREEK	Nineteenth and twentieth century building remains and a prehistoric campsite
GD00310	GADSDEN STATION 7	Prehistoric campsite from the Archaic period and Late Woodland period with low density scatter
GD00406	P81-1	Prehistoric terrestrial site with pottery
GD00407	P81-2	Prehistoric terrestrial site lacking pottery
GD00701	LITTLE RIVER VILLAGE	Prehistoric campsite and historic town
GD00702	ROCKY COMFORT SCATTER	Prehistoric site lacking pottery with low density artifact scatter
GD00703	ROCKY COMFORT HOMESTEAD	Prehistoric site lacking pottery with low density artifact scatter
GD00704	FRANCIS	Prehistoric site lacking pottery with low density artifact scatter

Site File #	Site Name	Description
GD00705	ANIMAL PEN	Site with low density artifact scatter
GD00706	CORAL BEND	Prehistoric site lacking pottery with low density artifact scatter
GD00707	LONE SHERD	Prehistoric site with pottery with low density artifact scatter
GD00708	BUNTING	Nineteenth and twentieth century site with low density artifact scatter
GD00710	FIVE POINTS	Prehistoric site lacking pottery with low density artifact scatter
GD00756	Green Parrot	Prehistoric terrestrial site
GD00865	ATW-406.58-01	Prehistoric terrestrial site with pottery
LE00014	UNNAMED	Low density artifact scatter from the Ft. Walton period
LE00553	OCHLOCKNEE RIVER RECREATION AREA	Prehistoric lithic scatter/quarry
LE00566	RANGER	Prehistoric lithic scatter/quarry
LE00567	WILD DOG	Prehistoric lithic scatter/quarry
LE01673	OLD HOUSE POINT	Prehistoric campsite from the Archaic period with low density scatter
LE01674	OCHLOCKONEE SOUTH	Prehistoric campsite from the Weeden Island period with low density scatter
LE01676	REST AREA SOUTH	Prehistoric campsite from the Archaic period with low density scatter
LE01677	REST AREA NORTH	Prehistoric campsite from the Archaic period with low density scatter
LE01799	NORTHWEST POINT	Specialized site for procurement of raw materials and prehistoric campsite
LE01807	CAPE TALQUIN 2	Prehistoric campsite from the Weeden Island period with variable density scatter
LE01808	CAPE TALQUIN 3	Specialized site for procurement of raw materials and prehistoric campsite
LE02009	LAKE TALQUIN TURPENTINE CAMP	Turpentine camp
LE02010	TENANT HOUSE 1	Homestead
LE02103	P125-1	Prehistoric terrestrial site from the Late Archaic period with low density scatter
LE02146	MUDDY JENN	No details available
LE05681	FL-Leon-002-1AR-02	Prehistoric terristraial site lacking pottery

Site File #	Site Name	Description
LE05685	FL-Leon-002-1AR-03	Nineteenth and twentieth century American homestead

This DHR data is not considered a true representation of all the archaeological sites and a more thorough search will be needed to find other locations which may be present. It is the opinion of DHR that there is a reasonable probability of historic properties potentially eligible for listing in the National Register of Historic Places, or otherwise of historical or archaeological value. Prior to any significant ground disturbing activity, DHR will be contacted for review and comment. The DOF will follow the “Management Procedures for Archaeological and Historical Sites and Properties on State Owned or Controlled Lands” (Exhibit G) and will comply with all appropriate provisions of Section 267.061(2) Florida Statutes. The 2010 Land Management Review Team (Exhibit C) recommended a comprehensive survey of historical and archaeological resources be completed on the forest. The DOF will request this survey from DHR within the next year.

3. Water 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 on the north side 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 the state forest. These water bodies are classed as Class III Waters – Recreation, Propagation, and Maintenance of a Healthy, Well-Balance Population of Fish and Wildlife (Rule 17-302.400, Florida Administrative Code). Lake Talquin is classified as an Outstanding Florida Water (OFW). There are also several beaver ponds on this property.

The DOF will cooperate with the Northwest Florida Water Management District (NFWFMD), Department of Environmental Protection (DEP), counties and municipalities to develop and implement a water quality monitoring plan for Lake Talquin. Water resource protection measures, at a minimum, will be accomplished through the use of Best Management Practices (BMPs) as described in the DOF publication most current version of Silviculture Best Management Practices Manual.

4. Fish and Wildlife

The state forest currently makes up all or part of the following Wildlife Management Areas: Joe Budd, Talquin, Ochlockonee, and Apalachicola. Management of these and all other areas of LTSF will be directed to the production 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. A list of wildlife species that have been found or may be found on the forest has been provided by the FWC and is attached as Exhibit H.

5. Endangered or Threatened Species

Species of management concern known to be on LTSF, or that may reasonably be expected to return to the forest as restoration progresses, are addressed in the FNAI element summary and FNAI species habitat and phenology summary (Exhibits I & J). A map of documented rare plant and animal observations is included in Exhibit K.

6. Beaches and Dunes

No beaches or dunes occur on the LTSF.

7. Swamps, Marshes, or Other Wetlands

Basin and floodplain swamps, depression marshes, wet flatwoods, baygalls, floodplain and bottomland forests make up about 26% of the LTSF acreage. The water resources 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 DOF's Hydrology Section to incorporate wetland restoration into the overall resource management program as opportunities arise, particularly where wetland systems have been impaired or negatively impacted by previous management activities or natural disasters.

Wetland restoration objectives on the state forest include erosion control, restoration of hydrology and/or hydro-period, 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, exotic species control, site preparation and re-vegetation with native wetland species, and project monitoring. These activities may be conducted individually or concurrently, implemented by DOF personnel or by non-DOF personnel under mitigation or grant contractual agreements. Wetland restoration projects should be conducted in conjunction with other restoration activities indicated elsewhere in this plan.

To the extent possible, LTSF, with assistance from the DOF's Hydrology Section, will pursue funding to develop and implement wetland restoration projects. In addition, cooperative research among the DOF, other state agencies, and the federal government will provide valuable information in determining future management objectives of wetland restoration.

8. Mineral Resources

No known mineral deposits exist on LTSF.

9. Unique Natural 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 LTSF are unique geological features uncommon to most of Florida.

10. Outstanding Native Landscapes

There are outstanding examples of upland hardwood/slope forest located primarily on the north side of the Talquin Tract, the northeast portion of the Rocky Comfort Tract, the north side of the Joe Budd Tract, and throughout the Fort Braden and Bear Creek Tracts. Although altered, the LTSF contains large areas of sandhill & upland pine communities.

11. Timber Resource

The DOF will implement silvicultural practices, including timber harvesting, prescribed burning and reforestation, in an attempt to establish a healthy forest with an age distribution that best duplicates old growth conditions. Well timed and executed timber harvests play an integral role in the health of forest ecosystems. Thinning dense forest stands helps improve understory composition, improves forest health and allows for less damaging prescribed burns. Timber harvesting is also used in reestablishing native species by removing off-site species.

Within the State Forest System, the annual harvest volume on each forest will be determined by the health of the forest. Good stewardship and resource sustainability are essential goals for any proposed silvicultural activity.

The DOF practices sustainable timber management in the state forest system. This is accomplished by maintaining and updating accurate estimates of standing timber in order to assure that the timber resources retain their sustainability.

IV. MANAGEMENT CONCEPTS BY NATURAL COMMUNITIES AND PROPOSED MANAGEMENT ACTIVITIES

A. Existing and Planned Uses

The LTSF is managed under the multiple-use concept. Primary emphasis is placed on restoration and maintenance of native ecosystems.

1. Property Boundaries Establishment and Preservation

The LTSF boundary lines are maintained by state forest personnel. State forest boundary signs, along with white banded trees and wire fence, are the primary boundary marks. White banded survey trees are repainted every three years and boundaries with encroachment issues are visited annually.

2. Soil and Water Protection

In accordance with the mission of the DOF, maintenance and restoration of native ecosystems is a high management priority. Properly managing the soil, water, and watershed resources are an integral part of accomplishing this objective. All silvicultural activities (including timber harvesting and reforestation) will meet or exceed the standards in the DOF's Silviculture Best Management Practices (BMPs).

3. Roads

There are no paved roads located on the property; however, approximately 160 miles of forest roads exist. Roads not needed for management and recreational purposes will be abandoned and/or rehabilitated. Roads not authorized for public use will be designated as firelines.

No new roads are planned for the next ten years. All roads and firelines will be maintained by the DOF. Plans for the establishment of any new roads will be reviewed by the Forest Management Bureau of the DOF, NFWFMD, FNAI, and DHR, as appropriate.

Upgrading and maintaining existing roads along with restoration of hydrological functions is a concern. The LTSF personnel will work with the DOF Forest Hydrologist and NFWFMD staff to address maintenance and improvements to the road system and restoration of hydrological functions that might be impacted by the roads.

4. Recreation Management

The demand for resource-based outdoor recreation on LTSF will continue to increase as the result of population growth from the nearby cities of Tallahassee, Midway and Quincy. The primary outdoor recreational objective at LTSF is to provide the public with dispersed outdoor recreational opportunities that are dependent on the natural environment. These activities include hiking, horseback riding, off-road bicycling, nature study, hunting, fishing, bird watching, and primitive camping.

a. Existing Facilities, Infrastructure and Activities

A map of existing recreational opportunities is included in Exhibit L. There is adequate road access to all tracts of the LTSF. The Ft. Braden hiking and horseback riding trails and Highway 20 Tract can be accessed by State Road 20. The Bear Creek and Lines Tracts can be accessed by State Road 267. The Joe Budd, Midway and Rocky Comfort Tracts can be accessed by State Road 268 and CR 65B. The South Ochlockonee and the North Ochlockonee Tracts can be accessed by U.S. Highway 90 and State Road 263, respectively. The Searcy Tract can be accessed by CR 375.

Recreation on the Highway 20 tract consists primarily of hunting. This Tract makes up the entire Talquin Wildlife Management Area. In addition to hunting, there are two places with parking and easy access to the Ochlockonee River for bank fishing.

The Fort Braden Tract has 9 miles of hiking and 10.5 miles of horse trails. There is a picnic pavilion, two barbeque grills, information kiosk, and vault toilet at the trailhead. The parking area can accommodate 15-25 horse trailers. There are three primitive campsites along the trails, one of which is for group camping. There is also a day use area with fire ring, barbeque grill, and picnic pavilion on

the lake that can be accessed by hiking or horseback. Day use fees are collected via honor pay station located at the entrance.

The Bloxham Tract is a day use area by reservation only. There is a resident house with running water and bathrooms, a picnic pavilion, barbeque pit, boat dock, and boat ramp. This site is often used for wedding receptions, reunions, and other large group activities. Reservation fees are based on group size and are obtained at the LTSF headquarters.

The Lines Tract has 9.5 miles of trails designed for off-road bicycle use, but is often used by hikers as well. The trailhead has a picnic pavilion, information kiosk, barbeque grill, and vault toilet. There is a primitive campsite along the trail with a fire ring and picnic table. Day use fees are collected via honor pay station located at the entrance.

The Bear Creek Tract is also referred to as the Bear Creek Educational Forest. There are four miles of interpretive trails, including the half mile 'living forest trail'. The Living Forest Trail is a paved trail, with 8 audio kiosks (talking trees) that help identify trees, plants, and which animals use them. There is a primitive campsite accessible by trail, and an observation deck that overlooks the pond. At the trailhead there is an information building (super kiosk), a picnic pavilion, two barbeque grills, and bathrooms with running water and flush toilets. This is also the location of the Education Center, which contains offices and a classroom capable of seating about 60 students. The DOF staff utilizes this building to provide forestry and environmental education programs to schools in the surrounding counties for no fee. Fees for other recreation users are collected via honor pay station located at the entrance.

The Rocky Comfort, Joe Budd, and Midway Tracts are all part of the Joe Budd WMA. The High Bluff campground on the Joe Budd Tract has 30 primitive campsites with a fire ring, picnic table and parking for each. One campsite, the restrooms, parking space and fishing pier meet the standards for the ADA (American Disabilities Act). There is also an information kiosk, fishing pier, boat ramp, and a two stall vault toilet.

The North & South Ochlockonee Tracts make up the Ochlockonee WMA. The North Ochlockonee Tract has a five acre swamp lake that is visited for fishing, bird watching, and nature viewing. This tract also has a short foot path that accesses the Ochlockonee River for bank fishing.

The Searcy Tract in Wakulla County is bordered by the Apalachicola National Forest (ANF) on two sides and is part of the Apalachicola WMA.

b. Planned Recreational Activities

Recreational facilities, infrastructure, and activities on the LTSF are primarily in a maintenance phase. However, the Southern Trail Riders Association has

proposed an expansion to the Fort Braden Recreation Area. The proposal includes construction of an equestrian camping facility with stables. The project would require the installation of additional multiple use trails to the adjacent Highway 20 Tract and a connection to proposed trails in the adjacent ANF. Funding for this project would be appropriated by the Southern Trail Riders and through the Friends of Florida State Forests. This proposal is under review and more details will be addressed during this planning period, prior to acceptance and implementation.

Planned improvements to the Bear Creek Educational Forest include the installation of a fire tower, re-installation of the suspension bridge over Beaver Pond, and a second observation deck overlooking a sandhill community. These improvements are dependent on future economic conditions and may not be completed in this plan period.

c. Volunteers

Volunteers are important assets to LTSF. As available, they assist LTSF staff with improving public information/access, education, trail maintenance, trash cleanup, rare plant and animal monitoring. They also provide information from the field including criminal activity and impacts on natural resources and facilities. Additional volunteer recruitment will be encouraged to assist with other activities that help carry out the DOF's mission.

5. Fire Management

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

Prescribed fire is the primary management tool used to restore, maintain, and protect in perpetuity all native ecosystems, ecotones, and their ecological processes. Fire dependent historic natural communities on LTSF totaled approximately 10,650 acres and historically burned at 2-4 year intervals. However, current existing conditions allow for only 9,940 acres to burn. Fire exclusion in the past has allowed 'weedy' oak species to encroach on sites that were historically upland pine forests. These sites are now hardwood hammocks that are extremely difficult to burn. Restoration of these areas by removal of the off-site species and reforestation will increase prescribed burn acreage goals over time.

Since fires are prescribed for every 2-4 years, prescribed burn plans are done for a three year period and included in the forest's five year operations plan, which is updated annually. The annual prescribed burning goals for LTSF range from 2,500 to

3,800 acres, with 75% of these burns prescribed for the growing season. The goal is to simulate, as closely as possible, a natural fire regime in which the majority of acres are burned during the spring and summer. Such fires are needed to reduce the height and cover of woody shrubs, stimulate the recovery of native herbaceous and grassy ground cover, promote the regeneration of native pines, and maintain and enhance populations of fire-adapted species. All prescribed burns are evaluated two weeks after the burn, and follow-up evaluations are completed 6-9 months subsequently.

Natural fire breaks are used whenever possible and fires are allowed to burn into adjacent non-fire dependent communities. If firelines are necessary, they will meet state BMPs and every effort will be made to avoid disturbing areas with intact ground cover. New pre-suppression lines will not be created in wetlands or transition areas.

6. Silvicultural Guidelines & Forest Resource Management Objectives

a. Objectives

The objectives of these timber management guidelines are:

- To restore health and vigor to the forest ecosystem through thinning, prescribed burning, and reforestation, both naturally and artificially with species native to the site, including longleaf, slash, and loblolly pine.
- To maintain the forest over the long-term through natural regeneration, uneven-aged, and even-aged management.
- To create a naturally regenerating forest with old growth characteristics that yields sustainable economic, ecological, and social benefits.

b. Silvicultural Operations

The forest will be directed towards recovery from past management practices including: clear-cutting without regeneration, off-site species, and fire exclusion. Stands of off-site slash (*Pinus elliottii*) or off-site loblolly pine (*Pinus taeda*) with merchantable volume will be scheduled for harvest, followed by a subsequent reforestation with longleaf pine (*Pinus palustris*) or other appropriate species. Hardwood hammocks that occur on sites determined to historically be upland pine or sandhill will also be scheduled for harvest with consideration to hardwood market fluctuations. Sandhill and upland pine forest communities will be reforested with longleaf pine. Herbicide applications may be necessary to control woody competition and to re-establish desired natural species of both overstory and ground cover. Prescribed fire and herbicide applications will be the primary methods of site preparation prior to tree planting.

Single tree selection, group selection, shelterwood, and clear-cutting will all be necessary for maintenance and restoration of timber stands and communities.

c. Timber Inventory Control

Within the State Forest System, the annual harvest volume will not exceed the annual growth. An accurate estimation of the standing timber will ensure that stands will not be depleted. Ten percent of the forest is re-inventoried annually, and an inventory of all stands that had not been cruised in the last ten years was completed in November 2009. Data for the 383 stands delineated on the LTSF is managed in a GIS database with information such as volume estimations by product, average basal area & trees per acre, age, ground cover types, the FNAI historic natural community type and other information useful for land management. Harvest and fire histories are also kept in the database.

d. Timber Sales

Timber sales will follow the guidelines stated in Chapter 6.4 of the most currently approved State Forest Handbook.

7. Research Projects/Specimen Collection

Research projects may be performed on certain areas of the forest on a temporary or permanent basis for the purpose of obtaining information that furthers the knowledge of forestry and related fields. The DOF cooperates with the U.S. Forest Service and the University of Florida, along with other educational institutions and governing agencies, in the accumulation of this information. The DOF will consider assisting with research projects when funds and manpower are available.

All research projects to be considered on LTSF must be approved by the Forest Ecologist of the DOF. Any requests for research projects should be submitted to the Forestry Supervisor II, who will then forward it to the DOF Forest Ecologist for final approval. Requests must include: a letter outlining the purpose, scope, methodology, and location of the proposed research project. Requests are subject to review by the DOF managing field unit, Entomologist/ Pathologist, and the Forest Hydrology Section as appropriate. Authorization to conduct research will require that the investigator provide copies of any reports or studies generated from research projects to the LTSF staff. Other special conditions may be applicable and the authorization may be terminated at any point if the study is not in compliance.

8. Law Enforcement

Primary law enforcement responsibilities will be handled by law enforcement officers from the Florida Department of Agriculture and Consumer Services, Office of Agriculture Law Enforcement (OALE) and FWC wildlife officers. Additional assistance is provided by deputies of the Leon, Gadsden, Liberty, and Wakulla County Sheriff's Offices.

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

9. Wildlife and Fish Management

Wildlife management will play an important role in the management of resources on LTSF. The state forest currently makes up all or part of the following Wildlife Management Areas: Joe Budd, Talquin, Ochlockonee, and Apalachicola. The FWC provides cooperative technical assistance in managing the wildlife and fish populations, setting seasons, establishing bag and season limits and overall wildlife and fish law enforcement. Hunting is prohibited on the approximately 4,300 acres that are not part of these four WMAs which includes the Fort Braden, Lines, Bear Creek, and Bloxham recreation areas.

The DOF recognizes the importance of snags for their wildlife value. As a general rule, hardwood and pine snags will be left alone in their natural environment, unless they are deemed to be a potential hazard. Areas with significant pine mortality will be salvaged as required to protect the surrounding resources.

In order to enhance the wildlife habitat, the following general forest management guidelines are observed to best meet the needs of both the wildlife and forest resource:

a. Prescribed Burning

Prescribed burning provides numerous benefits to the forest. Many plant and wildlife species are adapted to frequent fires. Wiregrass in particular is dependent on fire. Burning improves wildlife habitat by promoting the growth of tender new vegetation. This new vegetation is utilized by deer, rabbits, and many other animals, while quail and other birds prefer the seeds produced by recently burned plants. Burning opens up the forest and helps control competing vegetation. Prescribed burning also reduces the chances of harmful wildfires by reducing the buildup of fuels.

b. Timber Harvesting

Timber harvesting will be conducted on the forest for forest health, multiple-use management and restoration purposes. Timber harvesting on land adjacent to wetlands, ponds, rivers, and/or streams will be carried out in compliance with BMPs for public lands.

c. Managing Non-Game Wildlife Species

Non-game wildlife species will be managed and protected through the maintenance and restoration of the native ecosystems. Research by other state agencies, institutions and/or the federal government will provide valuable information in determining future management objectives for non-game wildlife species.

d. Listed Species

Specialized forest management techniques will be used, as necessary, to protect or increase endangered and threatened species and species of special concern, as applicable for both plants and animals. Species-specific management plans will

be developed when necessary. Biological surveys will be conducted as needed to determine locations of these species. The management goals that are outlined in IV.B.1-14, “Management Actions to Attain Desired Future Condition”, will benefit sensitive species by improving, restoring or maintaining native communities that provide critical habitat.

The following management practices are recommended to protect listed species that are present on the forest:

- i. Locate and map cover, food, critical resources, and breeding places for all listed species;
- ii. Protect and properly manage habitat important to rare and endangered species;
- iii. Implement other specialized management practices for listed species as deemed necessary. This includes designation of buffers for aquatic and wetland resources, and;
- iv. Establish a monitoring plan to ensure species populations are being maintained and to measure success of management practices.

e. Wildlife Openings/Foraging Plots

The FWC and DOF maintain approximately 121 acres of permanent wildlife openings and planted foraging plots on the LTSF ranging in size from 0.1 to 8.5 acres. (This does not include utility corridors or wiregrass donor sites.) When available, the DOF will use grant money from organizations such as the National Wild Turkey Federation to obtain funding for the seeding of appropriate vegetative food sources in some of these openings. The FWC provides expertise, funding, and labor to intensively manage the openings on the Joe Budd WMA. Wildlife openings and foraging plots will be established in accordance with the DOF State Forest Handbook.

10. Non-Native Invasive Species

DOF employees continually monitor the forest for non-native invasive species while conducting management activities. The practice of the DOF is to locate, identify and eradicate or control non-native invasive species. When these species are discovered, an eradication plan will be developed with the assistance of the DOF’s Forest Health Section. The plan will be implemented based upon the severity of the infestation and the availability of personnel and funding. A comprehensive survey of invasive plants along all roads and trails was completed by the DOF’s Forest Health Section in 2006. Currently all known invasive plant occurrences are treated and revisited annually by LTSF staff. These occurrences are recorded in the GIS database and updated as new plants are discovered. When large infestations of Japanese climbing fern (*Lygodium japonica*) are discovered, assistance from the FWC Invasive Plant Management Section’s Lygodium Strike Team will be utilized. Adjacent landowners who are known to have these species on their property will be approached in an effort to cooperate on control measures. The DOF will enlist support from the FWC in the effort to control non-native invasive animals. Feral hogs (*Sus scrofa*) are present on some tracts of the LTSF. The FWC has issued a feral hog control trapping permit to

DOF for all state forests and the DOF will encourage hog removal on LTSE. Hogs are legal to take during small game season on the Wildlife Management Areas and a wild hog management hunt season has been added for the North Ochlockonee tract and portions of the Rocky Comfort tract.

Training in the identification and control of invasive species will be scheduled for personnel as time and resources permit. Training concerning non-native invasive plants will be coordinated with the DOF's Pest Plant Specialist. Control of exotics will be target specific and use a variety of methods including herbicide.

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

Scientific Name	Common Name	Management Effects
<u>Trees</u>		
<i>Albizia julibrissin</i>	mimosa, silktree	Decreasing
<i>Cinnamomum camphora</i>	camphor tree	Decreasing
<i>Melia azedarach</i>	Chinaberry	Stable
<i>Sapium sebiferum</i>	Chinese tallow tree	Decreasing
<i>Ailanthus altissima</i>	Tree of Heaven	Decreasing
<u>Shrubs</u>		
<i>Ardisia crenata</i>	coral ardisia	Stable
<i>Lantana camara</i>	Lantana	Decreasing
<i>Ligustrum sinense</i>	chinese privet	Decreasing
<i>Nandina domestica</i>	nandina, heavenly bamboo	Decreasing
<u>Vines</u>		
<i>Lonicera japonica</i>	Japanese honeysuckle	Stable
<i>Paederia foetida</i>	skunk vine	Stable
<i>Pueraria lobata</i>	kudzu	Decreasing
<i>Wisteria sinensis</i>	Chinese wisteria	Stable
<u>Grasses</u>		
<i>Imperata cylindrica</i>	cogon grass	Decreasing
<i>Panicum repens</i>	torpedo grass	Stable
<i>Phyllostachys aurea</i>	golden bamboo	Decreasing
<u>Ferns</u>		
<i>Lygodium japonicum</i>	Japanese climbing fern	Stable (Increasing on the Rocky Comfort Tract)

Scientific Name	Common Name	Management Effects
<u>Forbs & Aquatics</u>		
<i>Colocasia esculenta</i>	wild taro	Increasing (along lake shore)
<i>Eichhornia crassipes</i>	water-hyacinth	Stable
<i>Pistia stratiotes</i>	water-lettuce	Stable
<i>Solanum viarum</i>	tropical soda apple	Decreasing

11. Insects, Disease and Forest Health

Currently, there are no insect or disease problems on LTSF. Insect activity in pines is primarily limited to small localized ‘spots’ of *Dendroctonus terebrans* or *Ips* spp. These usually only affect 1 to 5 trees in small pockets and are a natural part of the forest ecosystem. *Dendroctonus frontalis* or southern pine beetle (SPB) may cause more widespread damage but rarely occur on LTSF. Timber thinning greatly reduces the risk of such outbreaks. Early detection surveys are flown annually by the DOF to identify any SPB activity and forest health monitoring occurs year round. Should unexpected insect/disease outbreaks occur, State Forest management staff will consult with the Forest Health Section to develop scientifically sound responses and/or management prescriptions.

In compliance with section 388.4111, Florida Statutes and in Sec. 5E-13.042, F.A.C., all lands have been evaluated and subsequently designated as environmentally sensitive and biologically highly productive. Such designation is appropriate and consistent with the previously documented natural resources and ecosystem values and affords the appropriate protection for these resources from arthropod control practices that would impose a potential hazard to fish, wildlife and other natural resources existing on this property. With the approval of this plan documenting this designation, the local arthropod control agency will be notified of 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 DOF may have for protecting the natural resources and ecosystem values on the state forest. In this regard DOF will provide the local agency details on the management objectives for LTSF. This public lands control plan must be in compliance with DACS guidelines and using the appropriate DACS form. The plan must then be approved and mutually adopted by the county, DOF and DACS, prior to initiation of any mosquito control work. Should the local mosquito control district not propose any mosquito control operations on the property, no arthropod control plan is required.

12. On-Site Housing

DOF may establish on-site housing (mobile/manufactured home) on LTSF if deemed necessary to alleviate security and management issues. The need and feasibility specific for the state forest will be evaluated and established if considered appropriate by the Center/District Manager and approved by the DOF Director. On-site housing will only be available to individuals approved by the Director. 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/District Manager and approved by the Director.

Prior to the occurrence of any ground disturbing activity for the purpose of establishing on-site housing, a notification will be sent to the Division of State Lands as well as packages to the DHR and FNAI for review and recommendations. The package will contain a description of the project (location, number of units, type and amount of ground disturbance, affected natural community type and nearby known archaeological or historical sites), maps (topographic and aerial) and photographs of the area.

13. Utility Corridors and Easements

The DOF does not favor the fragmentation of natural communities with utility lines; consequently, easements for such uses will be discouraged to the greatest extent practical. 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 DOF does not consider LTSF suitable for any new linear facilities. The Florida Gas Transmission Company is currently expanding (adding a new 36" pipeline) the existing right-of-way, which runs through the Highway 20, Midway, and Joe Budd Tracts.

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 cause no damage to sensitive resources (e.g., listed species and archaeological sites), to avoid habitat fragmentation, and to limit disruption of management activities and resource-based multiple use activities, such as recreation.

Collocation with existing corridors will be considered but will be used only where expansion of existing corridors does not increase the level of habitat fragmentation and disruption of management and multiple use activities. The DOF will further encourage the use of underground cable where scenic considerations are desirable. Easements for such utilities are subject to the review and approval of the BOT. Requests for linear facility uses will be handled according to the Governor and the Cabinet's linear facilities policy.

In most cases, the DOF is not authorized to issue easements that formally assign use of State Forest lands to any other party. Uses that require formal instruments of assignment must be approved and processed by the actual titleholder and not the DOF. For lands owned by the Trustees, requests for easements over one-quarter acre are reviewed by the ARC and, if approved, the instruments are processed by the Division of State Lands, Department of Environmental Protection. Currently, subleases are held by the Girl Scouts of America, Boy Scouts of America, and Leon County. A proposal has been made to enter into another sublease with Liberty County on the Lower Ochlockonee parcel of the Bloxham Tract for installation of a parking and picnic area, and possibly a boat ramp or canoe launch. The objective

would be to create new recreational opportunities for that county without increasing the work load to DOF staff created by such a development.

14. Ground Disturbing Activities

Although the DOF's approach to handling ground disturbing activities is identified in various sections of this plan, the DOF's overall approach to this issue is summarized here. The DOF recognizes the importance of managing and protecting sensitive resources and will take all necessary steps to insure that ground disturbing activities will not adversely impact sensitive resources. This includes areas such as known archaeological and historical sites, ecotones, wetlands, and sensitive species.

The construction of new pre-suppression fire lines will be limited when practicable. When new pre-suppression firelines, recreational trails, or other low-impact recreational site enhancements are necessary, their placement will be reviewed by state forest field staff and they will be developed so as to avoid sensitive areas. For other ground disturbing activities such as construction of buildings, parking lots and new roads the DOF will consult with the FNAI,DHR, and when necessary, the ARC.

15. Apiaries

There are currently two apiary sites that are used all or part of the year, and two other potential sites that will be leased upon request. Apiary leases on LTSF are established in accordance with the guidelines stated in Chapter 9.1 of the State Forest Handbook (DOF 2008).

16. Cattle Grazing

There are currently no cattle leases on LTSF. Cattle grazing can be a useful tool in fuel reduction planning and will be evaluated where appropriate.

17. Ground Cover

Management activities will be designed and conducted to protect and enhance the condition and integrity of the native ground cover. Management techniques, such as prescribed fire in the growing season, will be used to restore, recover and maintain a diversity of native ground cover to the when practical.

18. Restoration

Like many other areas in the Southeastern Coastal Plain, fire and hydrology represent the key ecosystem processes. This has produced three classes of restoration goals: restoring fire, restoring hydrology, and restoring species composition and structure. These goals often interact and build upon each other. Specific actions to accomplish these goals are spelled out in the management by natural community type section IV-B of this plan.

a. Fire

Prior to settlement, fires in Florida generally burned on a landscape scale until stopped by rain, a body of water, or other natural fire barrier. There were two primary sources of ignition for these fires. Most were started by lightning strikes

in the spring and early summer, but Native Americans also used fire as a means of clearing their cropland and opening up forests for improved hunting. The combination of strong wet/dry seasonality and nutrient poor soils produced a pyrogenic flora rich in one-hour and waxy fuels.

Management techniques to mirror ancient fire processes include prescribing growing season burns at frequent intervals, burning across transition zones, and restoring fuels that carry fire where the understory has been eliminated.

b. Hydrology

A marked wet and dry season coupled with permeable soils and karst topography results in great extremes of flooding and drought in Florida. Topographic conditions in this part of Florida present challenges to land management where activities have the potential to create erosion and sedimentation into special management zones.

c. Species Composition

Ensuring that species vital to ecosystem processes are in place on LTSF is a restoration priority. A continuous, pyrogenic ground cover in fire dependent communities is important, as is the presence of longleaf pine. As restoration proceeds, monitoring the response of remnant ground cover will determine ground cover species restoration needs. Juvenile longleaf pine tolerates fire earlier than other woody vegetation, allowing a shorter fire return interval to coexist with silviculture. Restoration also includes the control of invasive exotic species. Aggressive herbicide control will minimize and eventually kill these infestations. Long-term monitoring and control is vital and will be conducted as staffing and funding allow.

d. Adaptive Management Monitoring Area

This ten-year resource management plan represents the best knowledge of the DOF at this time. Since restoration, a key management goal, is inherently experimental, it is important to periodically monitor and re-evaluate land management's results to ensure they are in line with our mission statement. Re-evaluation practices will both highlight unsatisfactory management practices and practices that have succeeded enough to be deemphasized or discontinued.

B. Description of Natural Communities and Proposed Management Activities

Historic natural communities were mapped by the FNAI in 2006. See Exhibit M for the FNAI Historic Natural Communities Map.

Table 5. Vegetation Types found on LTSF

Vegetation Type	Acres Mapped (Historic)	Burn Interval (Years)
Upland Pine Forest	6,546	2-4
Upland Hardwood Forest	4,309	NA

Vegetation Type	Acres Mapped (Historic)	Burn Interval (Years)
Floodplain Forest	2,871	NA
Mesic Flatwoods	1,852	2-4
Sandhill	1,773	1-3
Floodplain Swamp	1,157	NA
Bottomland Forest	562	NA
Baygall	176	50-100
Wet Flatwoods	174	1-3
Upland Mixed Forest	171	NA
Basin Swamp	104	5-100
Depression Marsh	58	1-8
Swamp Lake	5	NA
Seepage Stream	*	NA

* This community was not mapped separately and is included within the baygall, floodplain forest and upland hardwood communities.

1. **Upland Pine Forest**

Desired Future Conditions

Upland pine forest is characterized as a rolling forest of native pines with few understory shrubs and a dense ground cover of grasses and herbs. Typical plants include southern red oak, runner oak, bluejack oak, blackjack oak, post oak, sassafras, black cherry, gallberry, persimmon, mockernut hickory, twinflower, huckleberry, dangleberry, goldenrod, Indian grass, partridge pea, goats rue, winged sumac, blueberry, dog fennel, snakeroot, golden-aster, yellow jessamine, broomsedge, asters, pencil flower, bracken fern, greenbrier, fox grape, flowering dogwood, sweetgum, and blackgum. The canopy is dominated by a mixed age class of longleaf and slash pine with a basal area range of 60-80 ft² per acre with no subcanopy. Shrubs are sparse and low enough to allow ample light to penetrate the forest floor and thus support a dense herbaceous ground cover. The ground cover should be very diverse and dominated by wiregrass. Vines should be small and trailing, not climbing. Epiphytes are not found in this community. Weedy cover should be less than 5 percent. The main weedy species are broomsedges, dogfennels, and blackberries.

Existing Conditions

All of the former upland pine forest on the LTSF has been extensively altered from its original condition. A long history of agriculture practices have disturbed the soil and removed many of the native plants. 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 forests, as well as

succession of these pine forests into upland mixed forests. Upland pine forest of LTSF is often found intermixed with sandhill and the separation of these two communities is often arbitrarily based on the absence of turkey oak (*Quercus laevis*) in the upland pine community. Silver plumegrass (*Saccharum alopecuroides*) was found to be a strong indicator of upland pine forest since it is not found in the sandhill community.

Two forms of upland pine of 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 (*Diospyros virginiana*) and hickory (*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 (*Trichostema dichotomum*), Florida greeneyes (*Berlandiera subacaulis*), pinkscale gayfeather (*Liatris elegans*), coastalplain balm (*Dicerandra linearifolia*). This subtype of upland pine forest 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 is almost always cleared in the 1930s and 1940s. Both forms of this community are generally dominated by shrub cover.

The canopy layer for the upland pine community includes slash pine, longleaf pine, loblolly pine, pignut hickory (*Carya glabra*), southern red oak (*Quercus falcata*), swamp laurel oak (*Quercus laurifolia*), water oak (*Quercus nigra*), and live oak (*Quercus virginiana*). The subcanopy includes flowering dogwood (*Cornus florida*), sweetgum (*Liquidambar styraciflua*), and younger species of the canopy community. The shrub layer for the upland pine community include slimleaf pawpaw (*Asimina angustifolia*), American beautyberry (*Callicarpa americana*), common persimmon, gopher apple (*Licania michauxii*), wax myrtle (*Myrica cerifera*), turkey oak, winged sumac (*Rhus copallinum*), sassafras (*Sassafras albidum*), sparkleberry (*Vaccinium arboreum*), shiny blueberry (*Vaccinium myrsinites*), and deerberry (*Vaccinium stamineum*). Vines include yellow Jessamine (*Gelsemium sempervirens*), Virginia creeper (*Parthenocissus quinquefolia*), earleaf greenbrier (*Smilax auriculata*), eastern poison ivy (*Toxicodendron radicans*), and muscadine (*Vitis rotundifolia*). The herbaceous layer includes silver plumegrass, false foxglove (*Agalinis fasciculata*), broomsedge bluestem (*Andropogon virginicus*), wiregrass (*Aristida stricta* var. *beyrichiana*), pinewoods milkweed (*Asclepias humistrata*), tread softly (*Cnidoscolus stimulosus*), coastalplain balm, witchgrass (*Dichanthelium* sp.), dogfennel (*Eupatorium capillifolium*), yankeeweed (*Eupatorium compositifolium*), narrowleaf silkgrass (*Pityopsis graminifolia*), bracken fern (*Pteridium aquilinum*), whip nutrush (*Scleria triglomerata*), and queensdelight (*Stillingia sylvatica*).

Fire regimes

Upland pine forest depends on frequent, low-intensity fires to maintain a diverse herbaceous layer. Upland pine forest should be on a 2 to 4 year prescribed fire interval with burns conducted during late spring and early summer (April - June). Fire is a dominant factor in the ecology of this community because it reduces hardwood encroachment and facilitates pine and wiregrass reproduction. Without relatively frequent fires, upland pine forest succeeds to upland mixed forest and eventually to upland hardwood forest. Growing season fires are more effective at controlling shrubs and hardwood encroachment. Much like natural communities have evolved according to seasonal rainfalls and hydrology, they too have evolved according to seasonal fire timing and occurrence. This pattern needs to be restored as well.

Management Actions to Attain Desired Condition

The upland pine forest on the LTSF was so altered prior to ownership by the State that restoring the community will require a considerable effort. Nearly all the historic ground cover has been lost. Management activities for upland pine forest should focus on groundcover restoration, especially the establishment of wiregrass. This type of restoration will be performed after canopy thinning occurs. Currently the fine fuel of this community is predominately needle drop. As restoration efforts move forward the loss of needle drop should be replaced with wiregrass restoration. This can be achieved through the use of prescribed burns during the growing season, which will be most effective in encouraging effective flowering of wiregrass. Prescribed fire alone will not be sufficient to restore this community. Since upland pine forest of LTSF contains little or no remaining wiregrass, seeding and/or plugging may be implemented in order to carry fires across the community. Presently efforts are underway to determine the most cost effective methods to utilize in augmenting wiregrass restoration. Extensive efforts towards restoring ground cover are currently ongoing in both the North and South Ochlocknee Tracts, among others. This type of severe alteration needs to happen in order to effectively restore this habitat. In some areas where the pine overstory is non-existent or was planted in off-site species, complete removal is necessary, followed by site preparation and replanting of appropriate pine species. The restoration process is well on its way in these areas and appears to be heading in a positive direction. During all management activities, every effort should be made to minimize any detrimental effects to the gopher tortoise population (and its burrows) within this community, as this species is considered a keystone ecosystem component.

2. Upland Hardwood Forest

Desired Future Condition

Upland hardwood forest is found on slopes that are excluded from fire due to their landscape position and moisture retaining characteristics. Typical plants include gum bumelia, hackberry, persimmon, red cedar, red mulberry, wild olive, redbay, laurel cherry, black cherry, bluff oak, water oak, cabbage palm, basswood, winged elm, Florida elm, sparkleberry, Hercules' club, slippery elm, beautyberry, partridgeberry, sarsaparilla vine, greenbrier, trilliums, beech drops, passion flower, bedstraw,

strawberry bush, silverbell, caric sedges, fringe tree, horse sugar, white oak, and blackgum. A closed canopy of mixed mesophytic trees with a subcanopy of younger canopy species and small stature trees characterizes the upland hardwood forest community. This community also contains a minimal shrub layer with a relatively sparse groundcover of herbs, ferns, and grasses. The upland hardwood forest can already be considered to meet the desired future condition for this community type. Ecotones of this community develop based on topographic relief and are commonly considered upland mixed forests to some extent before developing richer characteristics further down slope.

Existing Conditions

Upland hardwood forest of LTSF remains relatively intact. Canopy species are often very diverse, with no one species dominant and include mostly deciduous hardwoods such as white oak (*Quercus alba*), American beech (*Fagus grandifolia*), swamp chestnut oak (*Quercus michauxii*), red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), pignut hickory, Florida maple (*Acer saccharum* subsp. *floridanum*), sweetgum, hophornbeam (*Ostrya virginiana*), southern magnolia (*Magnolia grandiflora*), spruce pine (*Pinus glabra*), tuliptree (*Liriodendron tulipifera*), longleaf pine, loblolly pine, black cherry (*Prunus serotina*), swamp laurel oak, water oak, Shumard's oak (*Quercus shumardii*), sweetbay (*Magnolia virginiana*), and slash pine. The subcanopy includes young individuals of the canopy layer plus other smaller trees such as flowering dogwood, American hornbeam (*Carpinus caroliniana*), American holly (*Ilex opaca*), Florida anisetree (*Illicium floridanum*), eastern sourwood (*Oxydendrum arboreum*), swamp bay (*Persea palustris*), and basswood (*Tilia americana*). The shrub layer includes needle palm (*Rhapidophyllum hystrix*), river birch (*Betula nigra*), American beautyberry, red buckeye (*Aesculus pavia*), eastern redbud (*Cercis canadensis*), coastal sweetpepperbush (*Clethra alnifolia*), American witchhazel (*Hamamelis virginiana*), oakleaf hydrangea (*Hydrangea quercifolia*), large gallberry (*Ilex coriacea*), coastal doghobble (*Leucothoe axillaris*), wax myrtle, Virginia willow (*Itea virginica*), wild olive (*Osmanthus americanus*), mountain azalea (*Rhododendron canescens*), dwarf palmetto (*Sabal minor*), black willow (*Salix nigra*), elderberry (*Sambucus nigra* subsp. *canadensis*), saw palmetto (*Serenoa repens*), common sweetleaf (*Symplocos tinctoria*), sparkleberry, highbush blueberry (*Vaccinium corymbosum*), deerberry, common pawpaw (*Asimina triloba*), and St. Andrew's cross (*Hypericum hypericoides*). The vine components for this community included rattan vine (*Berchemia scandens*), crossvine (*Bignonia capreolata*), muscadine, bristly greenbrier (*Smilax tamnoides*), eastern poison ivy, sarsaparilla vine (*Smilax pumila*), 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 (*Arundinaria gigantea*), trillium (*Trillium underwoodii*), rain lily (*Zephyranthes atamasco*), Christmas fern (*Polystichum acrostichoides*), broomsedge bluestem, slender woodoats (*Chasmanthium laxum*), witchgrass, partridgeberry (*Mitchella repens*), netted chain fern (*Woodwardia areolata*), ebony spleenwort (*Asplenium platyneuron*), greater bladder sedge (*Carex intumescens*), woodsgrass

(*Oplismenus hirtellus*), cinnamon fern (*Osmunda cinnamomea*), blackseed needlegrass (*Piptochaetium avenaceum*), early blue violet (*Viola palmata*), primroseleaf violet (*Viola primulifolia*), and Virginia chain fern (*Woodwardia virginica*). The invasive exotic 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 Flyer's Nemesis (*Brickellia cordifolia*), Carolina allspice (*Calycanthus floridus*), wild ginger (*Hexastylis arifolia*), pyramid magnolia (*Magnolia pyramidata*), and Florida bellwort (*Uvularia floridana*).

Fire regimes

Upland hardwood forest is not a fire-adapted natural community. Light fires that creep into this community from surrounding fire adapted communities and help create upland mixed forest areas. This dynamic allows for a slightly different species composition.

Management Actions to Attain Desired Condition

This community will require little active management. Monitoring and control of exotic plants will be the primary management requirement.

3. Floodplain Forest

Desired Future Condition

Floodplain forests are hardwood forests with a closed canopy of mixed tree species that occur on low-lying, seasonally flooded and/or saturated soils of a riverine or lacustrine floodplain. Floodplain forests are inundated for a portion of the wet season, but can dry out during the late spring. This variability may account for the mixed species composition found within the floodplain forest. Fires occur infrequently. The dominant trees are generally mixed mesophytic hardwoods, such as overcup oak, water hickory, diamond-leaf oak and swamp chestnut oak. Other typical plants include bluestem palmetto, willow oak, green ash, Florida elm, sweetgum, hackberry, water oak, American hornbeam, tulip poplar, coastal plain willow, black willow, eastern cottonwood, swamp cottonwood, river birch, red maple, silver maple, box elder, American sycamore, catalpa, sweetbay magnolia, hawthorn, swamp azalea, pink azalea, gulf sebastiana, lanceleaf greenbrier, poison ivy, peppervine, rattanvine, indigo bush, white grass, plume grass, redtop panicum, caric sedges, silverbells, crossvine, American wisteria and wood grass.

Existing Conditions

At LTSF, areas dominated by Florida anisetree were classified as baygall, but were mapped as inclusions within the floodplain forest community. This plant association was difficult to delineate from other classic floodplain forests. The floodplain forest community of LTSF is highly variable depending on its landscape position and flood regime.

Three subtypes can be identified as occurring on LTSF. The first is associated with small seepage streams and often contains inclusions of upland hardwood forest. This

community subtype is best represented by a canopy of water oak, sweetbay, swamp bay, loblolly pine, sweetgum, swamp tupelo (*Nyssa sylvatica* var. *biflora*), hackberry (*Celtis laevigata*), green ash (*Fraxinus pennsylvanica*), loblolly bay (*Gordonia lasianthus*), southern magnolia, swamp laurel oak, tuliptree, and red maple. A subcanopy was not always present, but when present included river birch, American hornbeam, American witchhazel, American holly, Florida anisetree, sourwood, and younger individuals found in the canopy layer. The shrub layer for the floodplain forest community was highly variable and included coastalplain willow (*Salix caroliniana*), hazel alder (*Alnus serrulata*), coastal sweetpepperbush, stiff dogwood (*Cornus foemina*), titi (*Cyrilla racemiflora*), St John's wort (*Hypericum tetrapetalum*), large gallberry, Virginia willow, fetterbush (*Lyonia lucida*), wax myrtle, mountain azalea, elderberry, saw palmetto, common sweetleaf, sparkleberry, highbush blueberry, southern arrowwood (*Viburnum dentatum*), rusty blackhaw (*Viburnum rufidulum*), and coastal doghobble. The vine layer for the floodplain forest community included peppervine (*Ampelopsis arborea*), rattan vine, Japanese honeysuckle, trumpet creeper (*Campsis radicans*), climbing hydrangea (*Decumaria barbara*), yellow jessamine, eastern poison ivy, muscadine, and laurel greenbrier (*Smilax laurifolia*). The herbaceous layer included switchcane, false nettle (*Boehmeria cylindrica*), soft rush (*Juncus effusus* subsp. *solutus*), mock bishopsweed (*Ptilimnium capillaceum*), sugarcane plumegrass (*Saccharum giganteum*), lizard's tail (*Saururus cernuus*), woolgrass (*Scirpus cyperinus*), southern cattail (*Typha domingensis*), Georgia indian plantain (*Arnoglossum sulcatum*), sedge (*Carex* sp.), slender woodoats, witchgrass, soapwort gentian (*Gentiana saponaria*), manyflower marshpennywort (*Hydrocotyle umbellata*), leathery rush (*Juncus coriaceus*), cinnamon fern, royal fern (*Osmunda regalis* var. *spectabilis*), panicgrass (*Panicum* sp.), camphorweed (*Pluchea* sp.), beaked sedge (*Rhynchospora* sp.), sphagnum moss (*Sphagnum* sp.), maiden fern (*Thelypteris* sp.), spiderwort (*Tradescantia* sp.), marsh St. John's wort (*Triadenum* sp.), Virginia bunchflower (*Veratrum virginicum*), and netted chain fern, Japanese climbing fern (*Lygodium japonicum*), common yellow stargrass (*Hypoxis curtissii*), creeping primrosewillow (*Ludwigia repens*), climbing hempvine (*Mikania scandens*), and, primroseleaf violet. Two rare plant species were documented in this subtype of the floodplain forest community, mountain laurel (*Kalmia latifolia*) and Florida bellwort.

The second subtype of flood plain forest occurred along the Ochlocknee River. This subtype experiences extreme flood events and scour from the river. The canopy for this floodplain forest community subtype included ogeechee tupelo (*Nyssa ogeche*), swamp tupelo, overcup oak (*Quercus lyrata*), pond cypress (*Taxodium ascendens*), bald cypress (*Taxodium distichum*), and silver maple. Shrubs species typically included dwarf palmetto and hawthorn (*Crataegus* sp.). Represents from the shrub and herbaceous layers of the seepage stream subtype of floodplain forest were also present, in minimal amounts, in the river subtype.

The third floodplain forest subtype is very similar to the upland mixed forest description, but floods irregularly. This community occurs as higher bluffs immediately adjacent to the river.

Fire regimes

Floodplain forest is not a fire-adapted natural community type.

Management Actions to Attain Desired Condition

The floodplain forest can already be considered to meet the desired future condition for this community type, with the exception of the exotic species presence. This community will require little active management. Monitoring and control of exotic plants, such as Japanese climbing fern and Japanese honeysuckle, will be the primary management requirement. Both of these species can become especially problematic in floodplain forest habitats. The Japanese honeysuckle was documented growing in association with the rare Florida bellwort. Great care should be taken in treating the honeysuckle to avoid negatively affecting the Florida bellwort.

4. Mesic Flatwoods

Desired Future Condition

Mesic flatwoods occurs on flat to gently sloping topography and often forms a mosaic intermixed with wet flatwoods and upland pine. This community has an open canopy of longleaf pine, slash pine, loblolly pine, and pond pines covering a sparse to absent tall shrub cover. The short shrub layer is maintained with fire and has between a 35 to 65 percent shrub cover typically dominated by saw palmetto. The moderate shrub layer combined with an open canopy allows ample light for herbaceous species, especially wiregrass. Weedy cover, often the result of ground disturbance from heavy equipment, should be less than 5 percent. Typical plants include: St. Johns-wort, dwarf huckleberry, fetterbush, dwarf wax myrtle, stagger bush, blueberry, gopher apple, tar flower, bog buttons, blackroot, false foxglove, white-topped aster, yellow-eyed grass, and cutthroat grass. Well managed mesic flatwoods have a very open character with no subcanopy or tall shrubs and a diverse herbaceous ground cover.

Existing Conditions

Mesic flatwoods of LTSF is 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 is found in association with wet flatwoods in lower, poorly drained areas and upland pine forest in higher, well drained locations. The canopy layer for the mesic flatwoods community included slash pine, loblolly pine, sweetgum, swamp laurel oak, water oak, and live oak. No true subcanopy was identified for this community. The shrub layer for the mesic flatwoods community included slimleaf pawpaw, coastal sweet pepperbush, titi, common persimmon, dwarf huckleberry (*Gaylussacia dumosa*), St. Andrew's cross, fourpetal St. John's wort, large gallberry, gallberry (*Ilex glabra*), coastalplain staggerbush (*Lyonia fruticosa*), wax myrtle, bluejack oak (*Quercus incana*), swamp azalea (*Rhododendron viscosum*), mountain azalea, swamp bay, winged sumac, saw palmetto, sparkleberry, highbush blueberry, shiny blueberry, and deerberry. Vines layer observed in the mesic flatwoods community included yellow jessamine, earleaf

greenbrier, saw greenbrier (*Smilax bona-nox*), muscadine, and eastern poison ivy. The herbaceous layer for the mesic flatwoods community included broomsedge bluestem, wiregrass, witchgrass, whitehead bogbutton (*Lachnocaulon anceps*), pinkscale gayfeather, partridgeberry, orange milkwort (*Polygala lutea*), bracken fern, savannah meadowbeauty (*Rhexia alifanus*), fascicled beaksedge (*Rhynchospora fascicularis*), and Virginia chain fern.

Fire regimes

Mesic flatwoods depend on frequent, low-intensity fires to maintain an open structure and diverse herbaceous layer. Many plant species in mesic flatwoods rely on these fires for reproduction. Mesic flatwoods should be on a 2 to 4 year prescribed fire interval with burns conducted during late spring and early summer (April- June). Growing season fires are more effective than winter burns at controlling shrubs and hardwood encroachment. Much as natural communities have evolved in response to seasonal rainfalls and hydrology, so too they have evolved according to seasonal fire timing and occurrence. Without relatively frequent fires, mesic flatwoods succeed into hardwood-dominated forests whose closed canopy can essentially eliminate the ground cover herbs and shrubs. Additionally, the dense layer of litter that accumulates on unburned sites can eliminate the reproduction of pines which require a mineral soil substrate for proper germination. Thus, the integrity of the mesic flatwoods community is dependent on periodic fires.

Management Actions to Attain Desired Condition

Management should focus on maintaining an open pine canopy of longleaf or slash pine, and keep prescribed burns on a 2 to 4 year schedule primarily April through June. Even aged management will be necessary to establish an overstory that may then be moved toward uneven aged management. Longleaf pine should be used in any new plantings in mesic flatwoods to enable fires to be applied soon after planting. Prescribed burns during the growing season will be most effective in encouraging wiregrass to flower. On sites with little or no remaining wiregrass, seeding and/or plugging may be considered. Although roller chopping may reduce shrub cover in problem areas, it also reduces wiregrass cover and increases weedy species that are less likely to carry a fire. The use of plowed firebreaks and other practices that disturb the soil should be minimized. Existing roads, wetlands, and other non-pyrogenic communities should be used for firebreaks whenever possible. During all management activities, every effort should be made to minimize any detrimental effects to the gopher tortoise population (and its burrows) within this community, as this species is considered a keystone ecosystem component.

5. Sandhill

Desired Future Condition

Sandhills are characterized as a forest of native pine trees with a sparse understory of deciduous oaks and a fairly dense ground cover of grasses and herbs on rolling hills of sand. Sandhill should have an open canopy of longleaf pine with an open subcanopy of turkey oak. The shrub layer should have 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. If the amount of wiregrass within the community is an appropriate level, all other strata layers are at acceptable levels. This single species is a barometer for canopy cover, shrub cover, fuel loads, among others. Weedy cover should be less than 5 percent. Typical plants include bluejack oak, sand post oak, sparkleberry, persimmon, winged sumac, pinewoods dropseed, Indian grass, wild buckwheat, queen's delight, yellow foxglove, bracken fern, runner oak, goats rue, partridge pea, milk pea, dollarweeds, wild indigo, gopher apple, and golden-aster. The main weedy species are broomsedges (*Andropogon* spp.), dogfennels (*Eupatorium* spp.), and blackberries (*Rubus* spp.).

Existing Conditions

Sandhill of LTSF is often found intermixed with upland pine and the separation of these two communities is often arbitrarily based on the presence of turkey oak in the sandhill community. The canopy layer for the sandhill community included slash pine, longleaf pine, loblolly pine, sand pine (*Pinus clausa*), swamp laurel oak, water oak, post oak (*Quercus stellata*), and live oak. The subcanopy for the sandhill community included turkey oak, southern red oak, sand live oak (*Quercus geminata*), and immature members of the canopy. The shrub layer for the sandhill community included slimleaf pawpaw, American beautyberry, chinquapin (*Castanea pumila*), flowering dogwood, common persimmon, wax myrtle, pricklypear (*Opuntia humifusa*), wild olive, red bay (*Persea borbonia*), St. Andrew's cross, gallberry, gopher apple, bluejack oak, dwarf live oak (*Quercus minima*), winged sumac, saw palmetto, sparkleberry, highbush blueberry, shiny blueberry, and deerberry. Vines included yellow Jessamine, earleaf greenbrier, and muscadine. The herbaceous layer for the sandhill community included broomsedge bluestem, wiregrass, coastalplain balm, witchgrass, dogfennel, yankeeweed, Carolina frostweed (*Helianthemum carolinianum*), false foxglove (*Agalinis* sp.), clasping milkweed (*Asclepias amplexicaulis*), pinewoods milkweed, Florida greeneyes, vanillaleaf (*Carphephorus odoratissimus*), tread softly, 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 (*Liatis secunda*), lady lupine (*Lupinus villosus*), narrowleaf silkgrass, bracken fern, royal snoutbean (*Rhynchosia cytisoides*), sand blackberry (*Rubus cuneifolius*), southern dewberry (*Rubus trivialis*), nutrush (*Scleria* sp.), goldenrod (*Solidago* sp.), lopsided indiagrass (*Sorghastrum secundum*), and forked bluecurls.

Fire regimes

Sandhill is considered to be a fire-climax community. Frequent ground fires reduce hardwood competition and perpetuate pines and grasses. The natural fire frequency is every 1 to 3 years. Naturally, fires would ignite principally during the early summer (April-June) when lightning strikes are frequent and fuels are still dry, prior to summer rains. Much as natural communities have evolved in response to seasonal rainfalls and hydrology, so too they have evolved according to seasonal fire timing and occurrence. Thus the pattern of fire needs to be restored as well the frequency.

Management Actions to Attain Desired Condition

Management activities in the sandhill communities of LTSF should focus on regular prescribed burning while minimizing practices that create soil disturbance.

Minimizing soil disturbances paired with regular prescribed fires should increase desired herbaceous species abundance, especially wiregrass. Woody encroachment should be reduced by application of prescribed fire at recommended intervals (1-3 years). Prescribed fires should be implemented within this natural burn cycle season. These fires should be prescribed during the late spring and early summer to increase herbaceous species diversity and reduce hardwood encroachment. Non-growing season burns may be used to initially reduce fuel loads in areas that have had long histories of fire suppression. Without frequent fires, sandhills may eventually succeed to low diversity upland mixed forests.

Ground cover restoration may be needed in areas that have insufficient native ground cover to facilitate effective prescribed burns. Longleaf pine and wiregrass recovery should be the main focus of restoration efforts. If longleaf and wiregrass are restored to the desired future conditions and is paired with frequent fire, all other components of this community should fall into place. Many areas of upland pine continued downhill beyond their current limits according to historical photography. Extensive efforts towards restoring ground cover can be observed in both the North and South Ochlocknee Tracts, among others. The restoration process is well on its way in these areas and appears to be heading in a positive direction.

During all management activities, every effort should be made to minimize any detrimental effects to the gopher tortoise population within this community, as this species is considered a keystone component.

6. Floodplain Swamp

Desired Future Condition

Floodplain Swamps occur on flooded soils along stream channels and in low spots and oxbows within river floodplains. Dominant trees are usually buttressed hydrophytic trees such as cypress and tupelo; the understory and ground cover are generally very sparse. Other typical plants include ogeechee tupelo, water tupelo, swamp titi, wax myrtle, dahoon holly, myrtle-leaved holly, large gallberry, possumhaw, hurrah-bush, white alder, lizard's tail, leather fern, royal fern, marsh fern, soft rush, laurel greenbrier, hazel alder, hawthorn, and swamp privet. Canopy coverage is generally high, but can be sparse as the community grades into open water areas. Shrub and herbaceous layers are usually sparse and concentrated in open areas of the community and on included hummocks and stumps. 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 currently meets the desired future conditions, with the exception of scattered exotic species occurring along its margins.

Existing Conditions

This community has been logged very little and continues to mature since the original damming of Lake Talquin. The canopy layer of the floodplain swamp community included red maple, Carolina ash (*Fraxinus caroliniana*), sweetgum, ogeechee tupelo, swamp tupelo, sweetbay, swamp bay, loblolly pine, water oak, pond cypress, and bald cypress. The shrub layer included hazel alder, titi, Virginia willow, fetterbush, wax myrtle, swamp azalea, elderberry, highbush blueberry, and southern arrowwood. Vines found in the floodplain swamp community included peppervine, trumpet creeper, eastern poison ivy, and laurel greenbrier. The herbaceous layer included manyflower marshpennywort, sensitive fern (*Onoclea sensibilis*), goldenclub (*Orontium aquaticum*), burreed (*Sparganium* sp.), false hop sedge (*Carex lupuliformis*), sedge, owlfruit sedge (*Carex stipata*), slender woodoats, climbing hempvine, cinnamon fern, maidencane (*Panicum hemitomon*), dotted smartweed (*Polygonum punctatum*), water spangles (*Salvinia minima*), lizard's tail, sphagnum moss, Virginia marsh St John's wort, and netted chain fern.

Fire regimes

Floodplain swamps are not a fire adapted community and rarely burn because of flooding and/or saturated soils.

Management Actions to Attain Desired Condition

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

7. Bottomland Forest

Desired Future Condition

Bottomland forest is a relatively low-lying community found on terraces associated with large alluvial rivers. These terraces rarely flood, but were once floodplain forests hundreds or thousands of years ago. 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 both pines and hardwoods, with a subcanopy of younger canopy species. Typical plants include water oak, live oak, red maple, sweetgum, loblolly pine, white cedar, cabbage palm, diamond-leaf oak, southern magnolia, loblolly bay, swamp tupelo, spruce pine, American beech, dahoon holly, wax myrtle, swamp dogwood, Florida elm, stiffcornel dogwood, and American hornbeam.

The dense canopy maintains relatively high humidity levels, thus fires are rare. The open understory is characterized by a wide array of shrub species that are relatively sparse with a ground cover of ferns, herbs, and grasses. Within the bottomland forest community are floodplain swamp and floodplain forest inclusions. Bottomland forest is highly variable in species composition and can be considered to currently meet the desired future conditions.

Existing Conditions

The canopy for the bottomland hardwood forest community included red maple, loblolly pine, water oak, swamp tupelo, pignut hickory, sweetgum, tuliptree, ogeechee tupelo, swamp laurel oak, and live oak. A large area of bottomland forest was dominated by natural loblolly pine in the Upper Ochlocknee Tract. The subcanopy layer for the bottomland hardwood forest community included American holly, sweetbay, swamp bay, and immature species of the canopy layer. The shrub was typically sparse and included American beautyberry, titi, St John's wort (*Hypericum* sp.), large gallberry, fetterbush, wax myrtle, dwarf palmetto, and highbush blueberry. The herbaceous layer for the bottomland hardwood forest community was dominated by slender woodoats. Other herbaceous associates included cinnamon fern, sphagnum moss, netted chain fern, Virginia chain fern, and switchcane. Vines were infrequent and included peppervine, rattan vine, trumpet creeper, eastern poison ivy, and muscadine.

Fire regimes

Fire is infrequent to nonexistent in bottomland forests, occurring only during times of extreme drought. This community may be considered as a natural fire-break that may experience limited burning at its margins.

Management Actions to Attain Desired Condition

Management activities in bottomland forest on LTSF 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. Bottomland Forests have unique soils, hydrology and landscape position. This is not a fire adapted community, and should not be managed as a pyrogenic community.

8. Baygall

Desired Future Condition

Baygalls are generally characterized as densely forested, peat-filled seepage depressions often at the base of sandy slopes. The canopy is composed of tall, densely packed, generally straight-growing evergreen hardwoods dominated by sweetbay, swamp red bay, and loblolly bay. A more or less open understory of shrubs and ferns commonly occurs, while sphagnum mats are often present with sparse herbaceous ground cover. Other typical plants include dahoon holly, Atlantic white cedar, fetterbush, male-berry, myrtle-leaved holly, large gallberry, wax myrtle, odorless wax myrtle, hurrah-bush, dog-hobble, white alder, possumhaw, red chokeberry, Virginia willow, laurel greenbrier, poison ivy, cinnamon fern, chain fern, wild grape, netted chain fern, sweetgum, cypress, lizard's tail, and needle palm. Baygalls should not be found within flat, pyrogenic communities.

Existing Conditions

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

subtypes had the same species composition. The canopy for the baygall community included loblolly bay, sweetbay, red maple, swamp tupelo, swamp bay, slash pine, loblolly pine, and water oak. No true subcanopy layer was differentiated. The shrub strata for the baygall community included large gallberry, Virginia willow, fetterbush, coastal sweet pepperbush, titi, wax myrtle, and highbush blueberry. The herbaceous strata for the baygall community included switchcane, flattened pipewort (*Eriocaulon compressum*), netted chain fern, Virginia chain fern, tall yelloweyed grass (*Xyris platylepis*), and sphagnum moss. Vines were common and included muscadine and laurel greenbrier.

Fire regimes

The baygall community will burn completely (every 50-100 years), depending on the size of the community and moisture conditions. Fire will typically burn into the edges of the baygall community and extinguish naturally. Baygalls do burn along with the adjacent communities during the growing season and do not need isolated protection from fire.

Management Actions to Attain Desired Condition

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. Fire suppression has allowed this community to overtake these areas. Continual winter burns do not effectively remove shrub cover from the landscape. No active management needs to occur within baygall communities of LTSF. Any hydrological disturbances, such as ditches, firebreaks, and roads, should be avoided.

9. Wet Flatwoods

Desired Future Condition

Wet flatwoods are flat, poorly drained woodlands of pine trees with a diverse understory of hydrophytic herbs and shrubs. On LTSF wet flatwoods communities occurs in lower areas within a larger mesic flatwoods matrix and along the upper reaches of drains leading into the upland hardwood and floodplain forests. Wet flatwoods is characterized by a dense ground cover of wiregrass and a wide variety of other herbaceous species. Shrub cover is minimal, low and controlled by prescribed burns. Longleaf pine, slash pine, pond pine, and loblolly pine constitute the canopy species and should be spaced to a basal area range of 60-80 ft² per acre. The canopy should have a mixed age class of trees. The subcanopy is non-existent with the exception of a few pine individuals being promoted to the canopy. Vines are found infrequently and are trailing due to frequent ground fires. This community would contain no epiphytes. The ground cover should receive ample amounts of light through the open canopy and sparse shrub cover. This allows for many rare plants to prosper and spread. A well managed wet flatwoods would also contain areas defined

as seepage slopes. Seepage slopes are boggy areas at the base of a slope where moisture is maintained by downslope seepage through adjacent uplands. These inclusions would typically harbor pitcher plants and other unique herbaceous species.

Existing Conditions

Currently much of the historically occurring wet flatwoods has been invaded by baygall vegetation due to lack of frequent fire. Wet flatwoods is under represented in the historic acreage due to it being included into the mesic flatwoods community. These two classifications often occur in a mosaic that cannot be differentiated on aerial photography. The canopy layer for the wet flatwoods community includes sweetgum, tuliptree, sweetbay, slash pine, pond pine (*Pinus serotina*), loblolly pine, and water oak. This community lacks a true subcanopy. 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 community included muscadine, cat greenbrier (*Smilax glauca*), and laurel greenbrier. The herbaceous layer for the wet flatwoods community includes broomsedge bluestem, switchcane, false nettle, cinnamon fern (*Osmunda cinnamomea*), maidencane (*Panicum hemitomon*), Virginia chain fern, and tall yelloweyed grass (*Xyris platylepis*). One location for the state rare hooded pitcherplant (*Sarracenia minor*) was recorded within the wet flatwoods community.

Fire regimes

Wet flatwoods naturally burned every 2 to 5 years, ignited by lightning storms during the late spring and early summer. For restoration and management purposes, a prescribed fire interval of 2 to 4 years is recommended. Prescribed fires should be conducted during the natural fire season (April through June) to effectively reduce hardwood abundance and encourage herbaceous species growth. Much as natural communities have evolved in response to seasonal rainfalls and hydrology, so too they have evolved according to seasonal fire timing and occurrence. Thus the pattern of fire needs to be restored as well the frequency.

Management Actions to Attain Desired Condition

Wet flatwoods require frequent, low intensity fires to maintain an herb dominated understory. In the absence of fire, hardwoods, especially titi and black titi, encroach upon and eventually dominate the area converting the wet flatwoods to a baygall community. These areas are difficult to restore to wet flatwoods due to the general incombustibility and moisture content of the current fuels. 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. Ground cover restoration should be the focus of wet flatwoods management. After the ground cover is replaced and fire has returned to historic timing and frequencies, tree species should be allowed to volunteer into this community. Soil disturbance can alter the highly sensitive hydrology patterns of wet flatwoods areas.

10. Upland Mixed Forest

Desired Future Condition

Upland mixed forests are characterized as well-developed, closed canopy forests of upland hardwoods on rolling hills. This community also contains moderate amounts of various pines such as loblolly pine and spruce pine. The primary difference between upland mixed forests and upland hardwood forests is a general richness of the soils and the suite of species they support. Typical plants include gum bumelia, hackberry, persimmon, red cedar, red mulberry, wild olive, redbay, laurel cherry, black cherry, bluff oak, water oak, cabbage palm, basswood, winged elm, Florida elm, sparkleberry, Hercules' club, slippery elm, beautyberry, partridgeberry, sarsaparilla vine, greenbrier, trilliums, beech drops, passion flower, bedstraw, strawberry bush, silverbell, caric sedges, fringe tree, horse sugar, white oak, and blackgum.

Upland mixed forest typically contains tree and shrub species that can tolerate very infrequent and low intensity ground fires. This community would contain components of both a pyrogenic and a nonfire adapted hardwood community. Upland hardwood forest supports species that require a complete absence of fire such as American beech, swamp chestnut oak, white oak, among others. These species are typically not associates of the upland mixed forest community. This community generally meets the desired future conditions, with the exception of the younger age structure.

Existing Conditions

All of the former upland mixed forest has been planted in loblolly pine. Several hardwood volunteer species are also regularly found in the canopy with slash pine, these are sweetgum, black cherry, red maple, water oak, pignut hickory, and live oak (*Q. virginiana*). Subcanopy species include crabapple (*Malus angustifolia*) and flowering dogwood. Shrubs are relatively few; beautyberry is a common one. The groundcover is varied and may include blackseed needlegrass (*Piptochaetium avenaceum*), hammock grass (*Chasmanthium* sp.), panic grasses, and poison ivy. Wet pockets in the upland mixed forest may also include nutrushes (*Scleria* sp.) and common spiderwort (*Tradescantia ohiensis*).

Management Actions to Attain Desired Condition

Upland mixed forest of LTSF will require little active management. Monitoring and control of exotic plants will be the primary management requirement.

11. Basin Swamp

Desired Future Condition

Basin swamp is generally characterized as a relatively large and irregularly shaped basin that is not associated with rivers, but is vegetated with hydrophytic trees and shrubs that can withstand an extended hydroperiod. The desired future condition for basin swamps on LTSF is a closed to semi-closed canopy primarily dominated by pond cypress and swamp tupelo. Other typical plants include red maple, swamp

redbay, sweetbay magnolia, loblolly bay, Virginia willow, fetterbush, laurel greenbrier, Spanish moss, wax myrtle, titi, sphagnum moss, and buttonbush. Shrubs dominate the understory vegetation around the periphery of the community and will decrease in abundance as the canopy increases in density. Herbs are 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. The fires from these surrounding communities help maintain an herbaceous ecotone that is often associated with many species of rare plants. Woody vines are infrequent to occasional and do not dominate in any area of the community.

Existing Conditions

The canopy of the basin swamp community was closed and composed of younger mature trees of pond cypress, red maple, Carolina ash (*Fraxinus caroliniana*), sweetgum, swamp tupelo, and water oak. No true subcanopy was distinguishable within the basin community of LTSF. The tall and short shrub layers for the basin swamp community included common buttonbush (*Cephalanthus occidentalis*), coastal sweetpepperbush, Virginia willow, titi, coastal doghobble, sweetbay, fetterbush, wax myrtle, highbush blueberry, wild olive, and coastalplain willow. Vines included laurel reenbrier and muscadine and were found around the community's edge. The herbaceous layer of the basin swamp community included broomsedge bluestem, sedges, spikerush (*Eleocharis* sp.), soft rush, primrosewillow (*Ludwigia* sp.), maidencane (*Panicum hemitomom*), water spangles (*Salvinia minima*), and woolgrass. Herbaceous species were commonly found in hummocks or around the bases of trees.

Fire regimes

Basin swamps rarely experience fire due to the extended hydroperiod. The natural fire return interval may be from 5 to over 100 years. While light ground fires maintain a cypress-dominated swamp by reducing hardwood invasion and peat accumulation, large fires may burn away the peat, lowering the ground surface and thus creating a lake. Hardwoods dominate areas that burn less often. Fires historically burned into the edge of basin swamps from adjacent uplands, creating a marsh or wet flatwoods edge. Interiors of large basin swamps burn infrequently due to moderate fuels and sustained hydroperiods.

Management Actions to Attain Desired Condition

Little active management should be required for this community type.

12. Depression Marsh

Desired Future Condition

Depression marshes are generally circular, shallow, herb-dominated wetlands found in depressions on a sand substrate. At LTSF, depression marshes occur in association with sandhill, mesic flatwoods, or wet flatwoods. The desired future condition for depression marshes on LTSF is an herb dominated community, in all but the deepest areas of the marsh. Zones of vegetation in concentric rings in this community are based on water levels and combustible fuels. Shrub cover is less than 5 percent and

contains lower densities of the currently existing suite of shrub species. Trees, epiphytes and vines are all absent. Weedy cover (e.g. *Andropogon* sp., *Eupatorium* sp., *Euthamia* sp., and *Typha* sp) should also make up less than 5 percent of the community. Typical plants include St. John's wort, spikerush, yelloweyed grass, chain fern, willows, maidencane, wax myrtle, swamp primrose, bloodroot, buttonbush, fire flag, pickerelweed, arrowheads, and bladderwort. Open water may make up a large part of this community due to the depth of water.

Existing 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 Route 20.

All 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 (*Cephalanthus occidentalis*), shiny lyonia (*Lyonia lucida*), coastalplain willow, saw palmetto, titi, coastal sweet pepperbush, fetterbush, peelbark St. John's wort (*Hypericum fasciculatum*), fourpetal St. John's wort, 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 (*Lachnanthes caroliana*), broomsedge bluestem, primrosewillow (*Ludwigia* sp.), maidencane (*Panicum hemitomon*), spikerush (*Eleocharis* sp.), hairy smartweed (*Polygonum hirsutum*), sphagnum moss, Virginia chain fern, rushes (*Juncus* spp.), and sedges. Fire suppression has led to severe shrub encroachment of many depression marshes and an unnatural succession toward a dome swamp community.

Historical photography was helpful in determining several depression marshes that have become dome swamps or baygalls currently. Most small depressional wetlands that are located within a pyrogenic community can be assumed to have been depression marshes historically, despite the shrub dominated signatures in the 1930s photography. The extent of herbaceous cover in this community is not known. Much of the herbaceous element of this community was probably already lost by the time of the historic imagery. Many small depressions can be found throughout the forest, but fall below the minimum mapping unit (0.5 acres) of this project. Historic acreage of this community would have higher than what is reported here.

Fire regimes

Depression marshes depend on fire to maintain the herbaceous layer and prevent shrub growth. Depression marshes burn regularly every 1 to 5 years depending on the surrounding community. Fires generally occurred early (April-June) in the lightning season when water was low and surrounding fuels were dry.

Management Actions to Attain Desired Condition

Management activities for depression marshes on LTSF should focus on allowing prescribed fires from surrounding uplands to burn through the depression marsh community. Fire should be prescribed in the surrounding community at a time when water in the marshes is low or absent (April-June). Application of prescribed burns during only winter months, when the depressions hold water, allows establishment of shrubs and/or pines. A high percentage of woody species may eventually reduce the hydroperiod and lead to succession to a baygall or dome swamp community. 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.

13. Swamp Lake

Desired Future Condition

The desired future condition is an open water lake surrounded by a band of basin swamp dominated by pond cypress. Swamp lakes are open water depressions occurring within basin swamp communities. They are typically permanent water bodies without significant inflows or outflows. 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. When present, typical plants include fragrant water lily, banana lily, American lotus, spatterdock, duckweed, water meal, bog mat, water fern, dollar bonnet, frog's bit, water hyssop, water pennywort, coontail, milfoil, bladderwort, bog moss, and fanworts. The swamp lake of LTSF already meets the desired future condition for this community.

Existing Conditions

The single swamp lake community located in the North Ochlocknee tract was dominated by a pond cypress dominated basin swamp edge with scattered shrubs including common buttonbush (*Cephalanthus occidentalis*), titi, and coastalplain willow.

Fire regimes

Swamp lake is not a fire adapted natural community type.

Management Actions to Attain Desired Condition

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 exotic species were identified within the single swamp lake of LTSF. The surrounding communities

should be taken into consideration when evaluating effects on this community. Erosion was a concern that has recently and effectively been addressed.

14. Seepage Stream

Desired Future Condition

Seepage streams typically form as a result of shallow ground water percolating through sandy upland soils and eventually eroding into a stream channel. On LTSF, seepage streams occur as included communities within upland hardwood, baygall, and floodplain forests. Seepage streams grade into blackwater streams as sediment and tannins are accumulated downstream.

Existing Conditions

Canopy and subcanopy species bordering these seepage streams include sweet bay, red maple, sweet gum, water oak, and diamond-leaf oak. Tall and short shrub layers along the banks of these streams are generally sparse and include black titi (*Cliftonia monophylla*), titi, shiny lyonia, sweet pepperbush, American holly, and occasionally saw palmetto. Herbaceous vegetation along these seepage streams is mainly dominated by graminoids, such as giant cane and wild oats (*Chasmanthium sessilifolium*), cinnamon fern, dotted smartweed (*Polygonum punctatum*), sugarcane plumegrass, woolgrass, slender woodoats, fall panicgrass (*Panicum dichotomiflorum*), and sensitive fern (*Onoclea sensibilis*). One seepage stream found at the Bear creek area has been dammed since the 1930's. The impoundment is dominated by aquatic bed and emergent herbaceous species including watershield (*Brasenia schreberi*), soft rush, frog's bit (*Limnobium spongia*), primrosewillow (*Ludwigia* sp.), American white waterlily (*Nymphaea odorata*), and bur reed (*Sparganium* sp.). Seepage streams were obscured in all aerial photography by the surrounding community, thus making delineation not possible.

Fire regimes

Seepage stream is not a fire adapted natural community type.

Management Actions to Attain Desired Condition

Minimize situations where erosion negatively affects water quality. Manage invasive exotic species in surrounding communities containing seepage streams.

C. Impact of Planned Uses on Property Resources

1. Timber

The DOF will follow guidelines outlined under Forest Resource Management Objectives in the Resource Section (III. B. 11.) to ensure a continuing renewable timber resource and diverse ecological resources for an indefinite period.

2. Wildlife

The DOF and FWC, as a cooperator, will protect this resource through multiple-use management techniques, hunting and fishing laws, timber harvesting and regeneration techniques, and prescribed burning. Non-game species will be managed and

protected through management of native ecosystems. Species with special status will be managed as appropriate. Details have been outlined in the Forest Resource Management Objectives portion of the Resource Section (III. B. 4.)

3. Water

Guidelines and activities that the DOF will follow to maintain water quality are outlined in Renewable and Non-renewable Resources (III. B. 3.) of the Resource Section.

4. Historical/Archaeological

The DOF will protect historical and archaeological resources in cooperation with the DHR as outlined in Archeological Resources (III. B. 2.) of the Resource Section.

5. Recreation

Ecosystem health will be emphasized in all recreation considerations and decisions. Periodic evaluations will be conducted by DOF staff to monitor recreational impacts on the natural system. Modifications to recreational uses will be implemented, should significant negative impacts be identified as outlined in Existing and Planned Uses (IV.A.4).

V. MANAGEMENT SUMMARY

A. Operations Infrastructure

The annual budget (2009/10 FY) for LTSF is \$480,706; however, annual appropriations change. This amount includes salaries, expenses, and operating capital outlay, and is broken down as follows:

Operating Budget (general costs for fuel, supplies, etc.).....	\$64,270
Salary and Benefits	\$351,512
Contractual (limerock & DOC inmate crew).....	\$39,000
Operating Capital Outlay (computers and a replacement vehicle) ..	\$0
Other Personal Services	\$15,000

DOF employees assigned to the forest are the Forestry Supervisor II, a Forester, a Park Ranger, and an OPS Park Ranger. DOF employees currently being paid through the LTSF budget, but who are assigned to the Tallahassee Forestry Center (district wide) are the Recreation Coordinator, a Staff Assistant, and an Operations Administrator.

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

B. Plans to Locate Fragile, Non-renewable Natural and Cultural Resources

Representatives of DHR and FNAI will be consulted prior to the initiation of any proposed significant ground disturbing activity, not listed in this plan, by DOF or any other public agency. The DOF will make every effort to protect known archaeological and historical resources. Ground disturbing activities not specifically covered by this

plan will be conducted under the parameters of the “List of ARC/Division of State Lands Approved Interim Management Activities”.

Trained monitors will oversee ground disturbing activities in which DHR recommends monitoring. The DOF 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. As information becomes available, and as staffing allows, any known archaeological and historical sites will be identified on maps to aid state forest and law enforcement personnel in patrolling and protecting sites.

As mentioned above, all significant ground disturbing projects that are not specifically identified in an approved management plan will be sent to the DHR for review. Recommendations outlined in “Management Procedures for Archaeological and Historical Sites and Properties on State Owned or Controlled Lands” (Exhibit G) will be followed whenever and wherever appropriate.

Applicable surveys will be conducted by DOF staff or others during the process of planning and implementing multiple-use management activities. DOF personnel will remain alert for any environmentally significant resources and protective actions will be taken as necessary.

C. Conformation to State Lands Management Plan

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

D. Multiple-Use Potential – Income Producing Activities

Numerous activities on the state forest provide for multiple-use as well as generate income to offset management costs. The potential for income producing activities is quite varied and are listed below.

Timber sales - Amounts received from timber sales will vary due to product class, tract size, and market conditions. Thinning on the LTSF over the next ten years will generate revenue as well as restoration harvests of off-site pine and hardwood species. Timber sales generate an average of \$80,000-\$250,000 per year.

Recreation and Camping Fees - Monies are collected from the four honor pay stations, camping permits, Bloxham Site day use rental, and State Forest Annual Passes and generate an average of \$4,000 per year.

Firewood - Permits are sold for the cutting and collection of firewood in designated areas of the forest where past fire suppression has lead to severe oak encroachment.

Apiaries - There are two active and two potential apiary lease sites on LTSF.

E. Potential Use of Private Land Managers

The forest manager makes ongoing evaluations of the use of private land managers, consultants, and contractors to facilitate the total resource management activities of this state forest. Potential resource management activities for LTSF include:

Restoration Activities - herbicide site preparation and ground cover seeding/plugging will be considered when budget conditions allow.

Tree Planting - Restoration plans will require the utilization of tree planting contracts when budgets conditions allow.

VI. REFERENCES

Collins, M.E. Key to Soil Orders in Florida, Publication #SL43

<http://ufdc.ufl.edu/IR00003421/00001>

Division of Historical Resources. Revised 2007. Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Lands. Florida Department of the State, Division of Historical Resources.

Florida Division of Forestry. Revised 2008. "Florida's Silviculture Best Management Practices Manual." Florida Department of Agriculture and Consumer Services, Division of Forestry. Tallahassee, Florida.

Florida Division of Forestry. December 2004. State Forest Handbook. Florida Department of Agriculture and Consumer Services, Division of Forestry. Tallahassee, Florida.

Florida Natural Areas Inventory. 2006. Natural Community Descriptions to Accompany a Natural Community Map of Lake Talquin State Forest. Florida Natural Areas Inventory, Tallahassee, FL.