



Florida Department of Environmental Protection

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Tallahassee, Florida 32399-3000

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Governor

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April 28, 2010

Ms. Corinne Hermle
Division of Forestry
3125 Connor Blvd./C25
Tallahassee, Florida 32399-1560

RE: Pine Log State Forest, Lease # 3688

Dear Ms. Hermle:

The Division of State Lands (DSL), Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, approves the Pine Log State Forest management plan. The next management plan update is due April 28, 2020.

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,

Paula L. Allen
Office of Environmental Services
Division of State Lands
Department of Environmental Protection

TEN-YEAR RESOURCE MANAGEMENT PLAN

FOR THE

PINE LOG STATE FOREST

BAY AND WASHINGTON COUNTIES



PREPARED BY

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

DIVISION OF FORESTRY

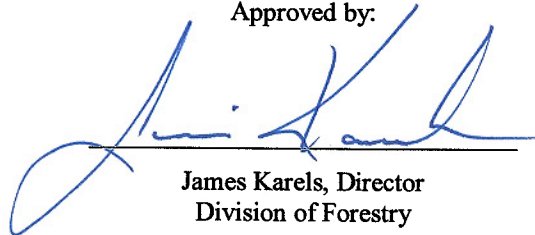
APPROVED ON

APRIL 28, 2010

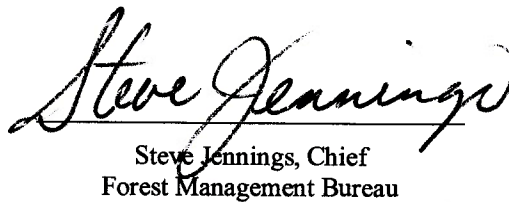
TEN-YEAR RESOURCE MANAGEMENT PLAN
FOR THE
PINE LOG STATE FOREST



Approved by:


James Karels, Director
Division of Forestry

1/14/16
Date


Steve Jennings, Chief
Forest Management Bureau

Jan 7, 2016
Date

PINE LOG STATE FOREST
TEN YEAR RESOURCE MANAGEMENT PLAN

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PINE LOG STATE FOREST
TEN YEAR RESOURCE MANAGEMENT PLAN

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LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

Lead Agency: Department of Agriculture and Consumer Services, Division of Forestry
Common Name of Property: Pine Log State Forest (PLSF)
Location: Bay and Washington Counties, Florida
Acreage Breakdown:

<u>Historical Natural Communities</u>	<u>Acreage</u>	<u>Historical Natural Communities</u>	<u>Acreage</u>
Sandhill	2,396	Basin Swamp	45
Mesic Flatwoods	1,728	Sandhill Upland Lake	23
Wet Flatwoods	1,522	Depression Marsh	1
Floodplain Swamp	1,213	Wet Prairie	*
Dome Swamp	46		
ACREAGE TOTAL:			6,974**

* Wet Prairie occurs as inclusions in other Natural Communities and was not separately mapped.

** These acreages are based on a Florida Natural Areas Inventory survey in 2006. The discrepancy in acreage from known current state ownership of 7,002.61 acres is due to mapping beyond the existing boundaries.

Lease/Management Agreement No.: 3688

Use: Single__ Multiple X

MANAGEMENT AGENCY

RESPONSIBILITY

Florida FDACS,

Division of Forestry

General Forest Resource Management

Division of Historical Resources

Historical and Archaeological Resource Management

Florida Fish and Wildlife

Conservation Commission

Wildlife Management

Designated Land Use: Multiple-Use State Forest

Sublease(s): None

Encumbrances: None

Type Acquisition: State Forest - Fee Simple

Unique Features: One of the oldest slash pine plantations in the panhandle.

Archaeological/Historical Sites: Two

Management Needs: Adequate funding for: recreation plan, reforestation, boundary surveying, road maintenance, listed species survey, and habitat restoration.

Acquisition Needs/Acreage: 30 acre inholding, 1 acre inholding, Optimal management boundary (Exhibit D)

Surplus Lands/Acreage: None

Public Involvement: Bay & Washington Counties, Public Hearing, Advisory Group and Liaison Committee

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

ARC Approval Date: _____ BTIITF Approval Date: _____

COMMENTS: _____

I. INTRODUCTION

The Pine Log State Forest is comprised of approximately 7,003 acres located in northwestern Bay and southwestern Washington Counties, approximately 13 miles north of Panama City Beach. In the mid-1930s, at the request of President Roosevelt, Florida Governor David Sholtz appointed a Conservation Committee which authorized the acquisition, development and management of a system of state forests and parks. Pine Log State Forest (PLSF) was the first state forest obtained through this program in 1936, and was initially comprised of 6,960 acres.

The PLSF is designated for multiple-use management and is managed by the Department of Agriculture and Consumer Services (FDACS), Division of Forestry (DOF) as part of the state forest system. Major community groups represented on the forest include sandhill, mesic and wet flatwoods, and floodplain swamp. The unique features of the tract include the Blueberry Slash Pine plantation planted in 1937, and the Pine Log Creek which runs through the northern portion of the forest.

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

The mission of the Florida 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. The mission of the DOF in managing is accomplished by implementing sound multiple-use and ecosystem management principles, as outlined in the following:

- 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 and quantity 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 restoration, 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 and 259.032, 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 management of PLSF for the next ten years and outlines the major concepts that will guide management activities on the forest.

B. Overview of State Forest Management Program

PLSF maintains 37.66 miles of forest roads, 31 miles of trails, and a recreation area. The timber management program at Pine Log is an important component of the overall

management of the forest. A 10% timber inventory program is done every year at PLSF, for a 10 year cycle. Currently, PLSF has been restoring off site slash (*Pinus elliottii*) and sand pine (*Pinus clausa*) back to longleaf pine (*Pinus palustris*).

C. Past Accomplishments

The table below has been prepared for this plan and summarizes past accomplishments since 2004.

Table 1. Accomplishment Summary, PLSF

PROGRAM	Activity	FY 2004-05	FY 2005-06	FY 2006-07	FY 2007-08	TOTALS
Silviculture	Site Prep	90 acres	223 acres	178 acres	380 acres	871 acres
	Planting	130,000 seedlings planted	140,000 seedlings planted	140,000 seedlings planted	115,000 seedlings planted	525,000 seedlings planted
		100 acres	223 acres	225 acres	184 acres	732 acres
	Timber Cruised	Unknown	Unknown	250 acres	165 acres	415 acres
Fire	Rx Fire	1,659 acres	955 acres	704 acres	748 acres	4,066 acres
Roads	Roads Graded	6 miles	5 miles	4.5 miles	18 miles	33.5 miles
	Roads Rebuilt	2.5 miles	1 ½ miles	½ mile	1 mile	5.5 miles
Recreation	Day Use	3,054	3,741	5,143	2,863	14,801
	Campsites Visitors	8,615	13,675	15,559	10,705	48,554
Other Activities	Herbicide	NA	184 acres	180 acres	117 acres	481 acres
	Exotic Species Control	1.3 acres cogon grass	0.3 acres cogon grass	0.6 acres cogon grass	NA	2.2 acres treated

D. Goals/Objectives for the Next Ten Year Period

The following goals and objectives provide direction and focus for management resources over the next 10-year planning period. Agency priorities and wildfires (or other natural disasters) will be influential in determining the degree to which these objectives are met. Short-term goals shall be achievable within a 2-year planning period, and long-term goals shall be achievable within a 10-year planning period. These short-term and long-term management goals shall be the basis for all subsequent land management activities.

GOAL 1: Ecosystem Restoration and Improvement

OBJECTIVE 1: Develop a team Fire Management Plan to address fire prevention, detection, suppression, and prescribed burning. (Short Term Goal)

PERFORMANCE MEASURE: Completion of the Fire Management Plan.

OBJECTIVE 2: Prescribe burn an average of 1,725 acres per year over the ten year period, resulting in a fire return interval of three years in sandhills and flatwoods.

PERFORMANCE MEASURE: Average of acres burned over the ten year period.

OBJECTIVE 3: Conduct ecosystem improvement on 3,500 acres. (Long Term Goal)

PERFORMANCE MEASURES: Number of acres with restoration underway.

OBJECTIVE 4: Conduct ecosystem restoration on 15 acres of historic wet prairies. (Short Term Goal)

PERFORMANCE MEASURES: Number of acres restored.

OBJECTIVE 5: 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: Maintain public access and recreational opportunities to allow for a recreational carrying capacity of 200 visitors per day. (Short Term Goal)

PERFORMANCE MEASURE: Number of visitor opportunities/day.

OBJECTIVE 2: Develop additional public access and recreational opportunities to allow for a carrying capacity of 300 visitors/day. (Long Term Goal)

PERFORMANCE MEASURE: Number of visitor opportunities/day.

OBJECTIVE 3: Continue updating the Outdoor Recreation Plan. (Short Term Goal)

PERFORMANCE MEASURE: Outdoor Recreation Plan completed every year.

OBJECTIVE 4: Rebuild Road 2 (Carbody Road) to provide fire protection, land management access, and public access for recreational use. (Short Term Goal)

PERFORMANCE MEASURE: Road 2 completed.

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 (BMP's) for public lands. (Long Term Goal)

PERFORMANCE MEASURE: Compliance with state lands BMP's.

OBJECTIVE 3: Reduce erosion along trails, roads and firelines through design or by planting and encouraging vegetation growth. (Long Term Goal)

PERFORMANCE MEASURE: Percentage of trails, roads, and firelines planted with native or non-invasive species along with waterbars and turnouts.

OBJECTIVE 4: Conduct annual road inspection to determine the need for installation or replacement of culverts and low water crossing. (Long Term Goal)

PERFORMANCE MEASURE: Annual inspection and appropriate improvement completed.

GOAL 4: Sustainable Forest Management

OBJECTIVE 1: Prepare a silviculture management plan including reforestation, harvesting, prescribed burning, restoration, and timber stand improvement activities and goals. (Short Term Goal)

PERFORMANCE MEASURE: Completion of silviculture management plan.

OBJECTIVE 2: Implementation of the silviculture management plan. (Long Term Goal)

PERFORMANCE MEASURE: Implementation of silviculture management plan and acres treated.

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

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 PLSF's timber resources.

GOAL 5: Cultural and Historical Resources

OBJECTIVE 1: Train personnel as archaeological monitors. (Short Term Goal)

PERFORMANCE MEASURE: Number of personnel trained as monitors.

OBJECTIVE 2: Ensure all known sites are recorded in the Florida Division of Historical Resources (DHR) Master Site file. (Long Term Goal)

PERFORMANCE MEASURE: Monitor recorded sites and send updates to DHR Master Site file as needed.

GOAL 6: Imperiled Species Habitat Maintenance, Enhancement, Restoration, or Population Restoration

OBJECTIVE 1: Develop baseline imperiled species occurrence inventory list. (Long Term Goal)

PERFORMANCE MEASURE: Completion of baseline imperiled species occurrence inventory list.

OBJECTIVE 2: Develop monitoring protocols for selected imperiled species. (Long Term Goal)

PERFORMANCE MEASURE: The number of imperiled species for which monitoring protocols are developed.

OBJECTIVE 3: Implement monitoring protocols for imperiled species. (Long Term Goal)

PERFORMANCE MEASURE: The number of species for which monitoring is ongoing.

GOAL 7: Capital Facilities and Infrastructure

OBJECTIVE 1: PLSF staff will maintain all existing facilities, roads, and trails. (Short & Long Term Goal).

PERFORMANCE MEASURE: The number of existing facilities, miles of roads, and miles of trails.

OBJECTIVE 2: PLSF staff plan to improve 25 miles of existing roads, and 15 miles of existing trails. (Short Term Goal)

PERFORMANCE MEASURE: The number of miles of improved roads and trails.

OBJECTIVE 3: Maintain forest boundaries. (Long Term Goal)

PERFORMANCE MEASURE: Number of miles of boundary harrowed and repainted.

E. Management Needs, Priority Schedule and Cost Estimates

A priority schedule for conducting management activities, the time frame for these activities, and the average or estimated cost is listed below. The projects are listed in priority order. 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 PLSF 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

Prescribed burning is the primary management tool for the forest. Fire management will reduce fuel loading, thus increasing public safety, facilitate timber management, and restore, maintain, and protect in perpetuity all native ecosystems, natural communities, ecotones, and their ecological processes. Cost estimates are based on DOF's contract burning rate schedule. Manpower and equipment costs are included. (Annual)

Average Acreage Per Year: 1,725
Estimated Cost (DOF): \$31,050

2. Silviculture

The major silvicultural need is to remove slash pine plantations from the sandhills and reforest these sites with longleaf pine. In addition, prescribed burning in the winter and the growing season will help restore native grasses and herbs (especially wiregrass), reduce oak encroachment, reduce hazardous fuel buildup, improve access, and improve wildlife habitat. (Ongoing)

Estimated cost: \$42,600

3. Restoration

Plant sites that have been previously clear-cut and have not been reforested. There are roughly 10 stands totaling 550 acres that need to be planted. (Ongoing)

Estimated Cost: \$77,550

4. Forest Management

Continue to implement sound forest management in all pine stands. (Ongoing)

Estimated total cost per year: \$5,000

PRIORITY 2

1. Recreation

Complete implementation of the five year recreation plan, which would include renovation, repairs, trail maintenance and new construction in the Recreation Area. (Ongoing)

Approximate Cost: \$138,000

2. Roads

Continue work on improving the road system of the forest. This would include improvements to key access roads to recreational facilities and for administrative and management use of the forest. Road 19 is in need of repair. It is a single lane wide and continues to wash out. This will be the main focus point for road improvement.

Estimated cost of Repairing Road 19 (Ongoing): \$300,000

Estimated total cost per year: \$25,000

3. Forest Boundary

Survey the one-acre parcel in Section 6 and reestablish the boundaries of the 30-acre inholding located in Sections 8. Resurvey and establish the exterior boundary lines of the entire forest.

Estimated cost: \$250,000

PRIORITY 3

1. Bridge

Rebuild 40 foot bridge on Dutch Tieman trail. (Ongoing)

Estimated cost: \$2,000.

Table 2. Estimated Annual Expenditures Organized by Uniform Cost Accounting Council Categories

	PRIORITY 1	PRIORITY 2	PRIORITY 3	TOTAL
Resource Management:				
-Exotic Species Control				
-Prescribed burning	\$31,050			\$31,050
-Timber Management	\$125,150	\$254,000		\$379,150
-Hydrological Management				
-Biological monitoring				
Administration:				
-Units/Projects				

	PRIORITY 1	PRIORITY 2	PRIORITY 3	TOTAL
-Staff/Housing Needs				
Capital Improvements:				
-New Facility Construction		\$138,000		\$138,000
-Facility Maintenance			\$2,000	\$2,000
-Tools/Equipment				
Visitor Services/Recreation:				
-Information/Education Programs				
-Operations				
-Law Enforcement/Security				
TOTAL	\$156,200	\$392,000	\$2,000	\$550,200

II. ADMINISTRATION SECTION

A. Descriptive Information

1. Common Name of Property

The common name of the property is the Pine Log State Forest (PLSF).

2. Location, Boundaries and Improvements

PLSF is located in northwestern Bay and southwestern Washington Counties, approximately 13 miles north of Panama City Beach. See Exhibit A for a map indicating the location and boundaries of PLSF.

There are several improvements located on the property. Five structures, consisting of a residence, work shed, pavilion, bathhouse, and pump house are located at the Recreation Area, on the Washington County side of the forest, west of State Highway 79.

3. Legal Description and Acreage

A 30-acre inholding is located in Sections 8, Township 1 South, Range 16 West. A one-acre inholding is located in Section 6, Township 1 South, Range 16 West. The forest contains 7,002.61 acres and is located in portions of Sections 5, 6, 8, and 19, Township 1 South, Range 16 west, and all of Sections 4, 7, 9, 16, 17, 18, 20 and 21, Township 1 South, Range 16 West.

PARCEL	DEED DATE	CLOSING DATE	FUNDING SOURCE	COUNTY	ACRES
	11/22/1968 *	1936-1938	Other	Bay	5,199.14

PARCEL	DEED DATE	CLOSING DATE	FUNDING SOURCE	COUNTY	ACRES
**	11/22/1968 *	1936-1938	Other	Washington	1,711.74
***	3/6/2007		Exchange	Bay	4.4
DOT Donation		6/29/2009	Mitigation	Bay	38.9
48.43 ac. DOT Donation	9/9/2009	9/9/2009	Mitigation	Bay	24.68
				Washington	23.75
				TOTAL ACRES	7,002.61
				CARL MGT. ACRES	0

BOT DACS Contract No. = 10503

* Transfer from DOF to BOT

** Includes a 1.39 acre easement to the Town of Ebro, dated 4/25/01

*** 4.4 acre St. Joe Timberland exchange removed small sliver of land between Pine Log Road and St. Joe Timberland's existing boundary.

4. Degree of Title Interest Held by the Board

The Board of Trustees of the Internal Improvement Trust Fund (BOT) holds Fee Simple Title to all 7,002.61 acres of PLSF, with no reservations or encumbrances (Exhibit C). On March 17, 1972, the Board of Trustees dedicated 18.59 acres of PLSF to the Town of Ebro for a fire station, community building and outdoor recreational facilities.

5. Proximity to Other Public Resources

The Northwest Florida Water Management District (NFWFMD) owns two tracts near PLSF. The Choctawhatchee River Tract, which is 57,299 acres, is located along the Choctawhatchee River. This property extends from just east of Choctawhatchee Bay to just east of Westville, Florida in Holmes County. A portion of this tract is located approximately one mile northwest of PLSF. The second tract is the Econfina Creek Water Management Area. This 41,159-acre tract is located in Bay, Jackson, and Washington Counties, approximately 18 miles east of PLSF. North of the Choctawhatchee River Tract is the Nokuse Plantation Conservation Easements. The Point Washington State Forest (15,168.86 acres) and Deer Lake State Park is approximately 20 miles southwest of PLSF in Walton County (Exhibit B).

6. Aquatic Preserve/Area of Critical State Concern

This property 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 the mid-1930s, Florida Governor David Sholtz, at the request of President Roosevelt, appointed a Conservation Committee. This committee drafted legislation, which was passed by the 1935 Legislature, authorizing the acquisition, development and management of a system of state forests and parks, and appropriating funds for this purpose. PLSF was the first state forest obtained through this program. In 1936,

6,670 acres were purchased from Henderson-Waits Lumber Company at a cost of \$11,573.16 (\$1.73 per acre). In 1938, 240 acres were purchased from Mrs. Bessie Lee Kemp and Mr. Wiley Kemp at a cost of \$840.00 (\$3.50 per acre). In 1938, one acre was obtained from John Holmes through a quitclaim deed (Exhibit C). In 2009, 124 acres in the southwest section of the forest was donated to PLSF by the Department of Transportation (DOT) in exchange for land lost due to the widening of Hwy 79.

2. Legislative or Executive Constraints

There are no known legislative or executive constraints specifically directed toward PLSF.

3. Purpose for Acquisition

When Florida took steps in 1935 to establish a system of state parks, the primary impetus came from a desire to take advantage of a federal depression-era program, the Civilian Conservation Corps (CCC). In order to take full advantage of the program, Florida would have to make available public lands, such as state forests and parks, on which the work could be conducted.

Since Florida had neither state forests nor state parks, the 1933 Legislature quickly passed a law directing the Board of Forestry (precursor to the DOF) to "...conduct investigations and make surveys to determine the areas of land in the state which are available and suitable for reforestation projects, state forests and state parks." Lands identified through this process were authorized to be acquired by any appropriate agency and placed under the Board of Forestry for management. As no funds were appropriated for this purpose, land acquisitions were pursued largely through donation, and deferred payment purchase.

Responding to the initiative of newly elected Florida Governor David Scholtz, in 1935 the Legislature enacted a comprehensive package of seven laws dealing with forestry and parks. One of those authorized the Florida Board of Forestry "to establish the 'Florida Park Service' and to establish, develop and maintain a system of state parks". Another act provides for the Board of Forestry to undertake a broad land acquisition program for forest and park purposes "in order to cooperate for federal agencies and to enable the State of Florida to more fully qualify for the aid and assistance offered by presidential executive orders and federal legislation providing for the establishment and operation of CCC". The sum of \$25,000 for each year of the biennium was appropriated for state park purposes and a like amount for state forests.

4. Designated Single or Multiple-Use Management

The PLSF is managed under a multiple-use concept combining timber management, recreation, wildlife, water management, and environmental education. Authority for multiple-use management is given under Chapters 253 and 589, Florida Statutes. The purpose of this plan is to continue a balanced land use program. A balanced program does not necessarily result from an equal division of acreage to each use. Local

demand and geography influence the array of uses to be applied to each area of the forest. Only uses compatible to the forest ecosystems will be implemented.

The need for multiple-use activities increases in accordance with public use and as a result of Florida's steadily increasing population. Activities will include restoration, maintenance, and protection of all native communities; integration of appropriate human uses; insuring long-term viability of populations and species considered endangered, threatened, or of special concern. Integrated activities include timber management, recreation management, wildlife management, and watershed management.

5. Alternate Uses Considered

No alternate uses are being considered at this time. The following uses of this forest were considered and determined not compatible: water resource development projects, water supply development projects, storm-water management projects, and linear facilities, except as otherwise outlined in this plan. 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 management goals and objectives of the forest.

6. Additional Land Needs

Acquisition of a 30-acre tract in Sections 8, Township 1 South, Range 16 West, would make the forest a contiguous tract within its outer boundaries, except for a 1-acre parcel in Section 6. Several attempts have been made by the DOF to acquire this 30-acre tract over the last 20 years. Although no attempts have been made to purchase the 1-acre tract, it will be purchased if the owner ever becomes a willing seller.

The above mentioned parcels and other areas that would be advantageous for addition to PLSF are identified on the optimal management boundary map (Exhibit D). The optimal management boundary does not include the land north of Pine Log Creek because the private landowners will not sell to the State. Besides protecting Pine Log Creek, the lands west of PLSF recommended for purchase (if they become available) would form a greenway between PLSF and the NFWMD Choctawhatchee River Tract. If connected, this greenway would benefit wildlife and provide greater opportunity for ecotourism and outdoor recreation. The DOF will work with the Division of Environmental Protection's Greenways and Trails Council in promoting and developing greenways in this region of the state as well as statewide.

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.

We welcome 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. We also look 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.

Currently, there are no adjacent lands that conflict with the present or planned use of this property. However, the Airport Authority for the Panama City Airport is constructing the Bay County International Airport approximately two miles from the PLSF boundary. The impact of this move on PLSF prescribed burning program may be a major concern. Currently, DOF is active in prescribed burning around all areas that could be affected by the new airport to reduce fuel loads for ease of further burn programs.

The property to the North East of PLSF is going through a planning process to be developed. The DOF realizes development of this property can impact our ability to manage the forest. We welcome the opportunity to meet with the property owner/developer in the future to discuss methods to minimize negative impacts on management, resources, facilities, roads, recreation, etc. We also look forward to hearing/sharing ideas on how the property owner/developer might develop the property closest to the shared property line and perhaps provide buffers to keep encroachment from the forest and reduce management impacts. In the event that any of these parcels became available for purchase, the DOF will initiate contact to determine the potential for state acquisition. This does not guarantee that these parcels will be acquired since acquisition is dependent upon a variety of factors. The DOF will put forth a good faith effort to negotiate with landowners if they are willing and interested in selling to the state.

8. Surplus Land Assessment

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

C. Agency & Public Involvement

1. Responsibilities of Managing Agencies

The DOF is the lead-managing agency as stated in Management Lease Number 3688 (Exhibit C). The Florida Fish and Wildlife Conservation Commission (FWC), a cooperating agency, is responsible for enforcing hunting regulations, setting hunting season dates, and conducting other wildlife management activities with input from DOF. The DHR cooperates with the DOF regarding appropriate management practices on historic or archaeological and historical sites on the forest as stated in Section 267.061(2)(d), Florida Statutes. Other agencies, e.g., United States Fish and Wildlife Service (USFWS) and NFWFMD, are consulted as cooperators when the need arises.

2. Public and Local Government Involvement

This plan has been prepared by the DOF and will be carried out primarily by that agency. 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 June 2009 (Exhibit E). The review team's recommendations were incorporated into this plan as appropriate.

The plan was developed with input from the PLSF Management Plan Advisory Group (MPAG) through a process of review and comment. The MPAG conducted a public hearing on December 8, 2009 to receive input from the general public. A summary of the advisory group's meetings and discussions, as well as written comments received on the plan, are included in Exhibit F. The Acquisition and Restoration Council (ARC) review of the plan also serves as an additional forum for public review of the plan.

3. Compliance With Comprehensive Plan

This plan was submitted to the Board of County Commissioners in Bay and Washington Counties for review and compliance with their local comprehensive plan (Exhibit G).

III. RESOURCE SECTION

A. Past Uses

Past uses of the forest were primarily logging activity with some hunting. At the time of acquisition (1936-1938), the area was largely cut over and had been subjected to annual fires. The first management activities were the planting of several small slash pine plantations and fire protection. The wildfire suppression record has been good over the years. Management activities were sporadic in past years. Considerable tree planting occurred during 1943-1950 and again during 1958-1961. During these periods most of the plantable land on the tract was reforested. Unfortunately, the big push of 1958-1961 resulted in much "off-site" planting of slash pine, a common practice shared by many land managers during that period. Some of the "off-site" areas have been restored (primarily to longleaf pine) and plans call for additional restoration. Sand pine was also planted on some longleaf pine sites. Currently there are two areas totaling fifty acres of sand pine. These areas are under contract to be harvested. Afterwards, the only sand pine in PLSF will be a narrow strand along a drain that will not be cut.

During the 1970s, more attention was given to wildlife management, environmental activities, and recreation. In an effort to encourage these uses, the PLSF Environmental Center and Campground was constructed in 1977. The creation of the Environmental Center was accompanied by the appointment of a full time Park Ranger. This position was lost in 1992 due to budgetary cutbacks. However, a Senior Forest Ranger position was transferred to PLSF in 1993. This position is funded through the Chipola River

District and is responsible for conducting management activities on the entire forest, including the recreation area. In February 2009, the West Bay Tower Site has been closed and two Forest Rangers have been relocated to PLSF office. This now gives a total of four DOF personnel assigned out of the PLSF office.

B. Renewable and Non-Renewable Resources

1. Soil Types

Soils information for PLSF was obtained from the Bay County and Washington County Soil Surveys. For detailed information on soils see Exhibit H.

Soils found in the sandhill community, flatwoods communities and wetland areas are the primary soils found on PLSF. Lakeland, Bonifay, and Troup soils are some of the soils found in the sandhill community. These soils are excessively drained and sandy. Hurricane, Chipley, Albany and Lynchburg soils are some of the soils found in the flatwoods communities. These soils are somewhat poorly drained. Pamlico, Pantego and Rutlege soils are some of the soils found in the wetland areas. These soils are very poorly drained.

2. Archaeological and Historical Resources

There were two known archaeological sites on the forest. Site 8BY823 (Susan's Flake) is no longer there. The site was lost due to the widening of Hwy 79. Site 8BY899 (Pine Log Landing #1) cannot be located and is believed to be lost due to flooding of Pine Log Creek.

The DHR will be consulted before any ground disturbing activities are conducted. The DOF will comply with all appropriate provisions of Section 267.061, Florida Statutes, and will follow the "Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties" (Exhibit I).

3. Water Resources

The PLSF has three streams within its boundaries (Pine Log Creek, Little Crooked Creek, and Ditch Branch). Little Crooked Creek and Ditch Branch flow into Pine Log Creek. Also, one small sandhill pond and three natural cypress lakes are located in close proximity to the Pine Log Recreation Area. All surface waters are classified as Class III Surface Waters – Recreation, Propagation, and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife in accordance with Rule 62-302.400 F.A.C. The nearest existing Outstanding Florida Water (OFW) is the Choctawhatchee River, with an effective date of March 1, 1979 (one of the original OFWs). Pine Log Creek is a tributary of the Choctawhatchee River. OFW designation does not include tributaries to the river, although they receive indirect water quality protection in that use permits cannot be issued upstream of an OFW if the proposed use would cause "significant degradation" in the downstream OFW.

4. **Fish and Wildlife**

The PLSF was first included in the Point Washington Wildlife Management Area (WMA) in 1960. The area was opened to public hunting in 1965. With changes in size and boundary of Point Washington WMA, in July 2002, PLSF was established as an independent WMA. Today, PLSF and Pine Log WMA are synonymous. The forest supports a diversity of wildlife species. Those species present are listed in Exhibit J, which was obtained from the FWC.

5. **Endangered or Threatened Species**

According to the "Element Occurrence Records" of the Florida Natural Areas Inventory (FNAI) (Exhibit J), as well as documented sightings by FWC staff, there are several listed threatened/endangered plants and animals on PLSF including:

Flatwoods salamander	<i>Ambystoma bishopi</i>
Gopher tortoise	<i>Gopherus polyphemus</i>
Eastern indigo snake	<i>Drymarchon corais couperi</i>
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>
One-toed amphiuma	<i>Amphiuma pholeter</i>
Southern milkweed	<i>Asclepias viridula</i>
Giant water-dropwort	<i>Oxypolis greenmanii</i>
Chapman's butterwort	<i>Pinguicula planifolia</i>
White-top pitcher-plant	<i>Sarracenia leucophylla</i>
Chapman's crownbeard	<i>Verbesina chapmanii</i>
Spoon-leaved sundew	<i>Drosera intermedia</i>
Panhandle meadowbeauty	<i>Rhexia salicifolia</i>

Since 2002, the FWC has been involved in annual flatwoods salamander survey and monitoring efforts. As a result, one adult flatwoods salamander was documented (trapped via drift fence protocol) on April 19, 2002, and a larva dipnetted on April 21, 2005. Prior to these more recent document occurrences, one larval flatwoods salamander was located in 1992. Using characteristics such as water depth, vegetation types, grass and canopy cover, ecotones and surrounding habitats, 44 ponds have been ranked (confirmed, highly likely, potential and unlikely) according to the perceived suitability of the pond as a flatwoods salamander breeding site.

The flatwoods salamander populations on PLSF were recently taxonomically reclassified to the reticulated flatwoods salamander, *Ambystoma bishopi*. The population range of this reclassified species has been constricted significantly, rendering extant populations more vulnerable than previously thought. Ponds in which flatwoods salamanders are located, along with the surrounding flatwoods community, will be managed to insure appropriate guidelines are being followed (Exhibit K).

Since 2004, local FWC staff have been annually surveying, monitoring, and assessing the status of the PLSF gopher tortoise population. The gopher tortoise is of special interest because, as a keystone species in Southeastern coastal plant habitat, it reflects

the health of xeric ecosystems in Florida. Therefore, monitoring this species is critical so that the efficacy of management efforts prescribed for xeric natural habitat on PLSF can be properly assessed. Ecosystem restoration and management will continue to be emphasized to insure listed species are protected and given the opportunity to maintain viable populations.

In 2008, during annual FWC gopher tortoise survey and monitoring, an indigo snake was documented on PLSF forest, crossing through one of the delineated gopher tortoise clusters. Although indigos are very general in the types of habitats they will use, their home ranges must include suitable den sites. In places where indigos share their habitat with gopher tortoises, burrows are often used for shelter. Other den sites include root mounds at the base of trees and shrubs, piles of sticks and/or dirt, and man-made debris piles. Indigos use dens not only as protection from seasonal temperature extremes, but also from daily temperature fluctuations, fire, inclement weather, and predators just before and during shedding, when they are particularly vulnerable. The management of PLSF is also conducive to Red-Cockaded Woodpeckers (RCW) habitat, although there are none on the property at the current time. The value of PLSF and its land management strategies cannot be underestimated in regards to rare and imperiled Florida wildlife.

6. Beaches and Dunes

There are no beaches or dunes on the property.

7. Swamps, Marshes, or Other Wetlands

Areas of the forest that could be considered in the swamp category of wetlands are small in size and scattered throughout the forest and areas adjacent to Pine Log Creek. A Wet Prairie can be found on the south side of Road 19. This community contains white top pitcher plants and other delicate flora. It will be maintained through prescribed fire.

8. Mineral Resources

No known mineral deposits exist on this forest.

9. Unique Natural Features

PLSF has one of the oldest slash pine plantations in the panhandle. Although it is technically not a natural feature, it should be considered unique because of the age. Forty acres were planted to slash pines in 1937, the year after PLSF became Florida's first State Forest. This area is called the Blueberry Plantation because it was planted in an old blueberry field that was part of a large blueberry farm in the 1920s. The current understory still has a large component of blueberry bushes and is a favorite local blueberry picking spot. This stand has been thinned several times. It is a good example of old growth planted slash pine on a slash pine site.

10. Outstanding Native Landscapes

N/A

11. Timber Resource

The DOF will implement the silvicultural practices, including, but not limited to: harvesting, thinning, prescribe burning and reforestation on PLSF. To maintain a vigorous forest, natural communities will be promoted through sound forest management. Thinning and well executed clear-cuts maintain the health of the forest. Clearcut harvesting is used to restore the native longleaf pine ecosystem by removal of off-site species.

The DOF will implement silvicultural practices, including harvesting, thinning, prescribe burning, and reforestation, in an attempt to establish a healthy forest with an age distribution that best duplicates natural conditions. Well-timed and executed timber harvests play an integral role in the health of forest ecosystems. Thinning dense forest stands improves understory habitat and allows for better quality prescribed burn. Timber harvesting is also used in reestablishing native species by removing off-site trees.

All on-going timber management practices will follow the recommendations for water quality protection and erosion control contained in the current version Silviculture Best Management Practices Manual.

The management of timber resources on PLSF will not seek to maximize short-term economic revenue but rather to achieve a wide array of long-term public benefits - many of which are intrinsic and not easily quantified. Good stewardship and resource sustainability are essential goals for any proposed silvicultural activity. The health of the forest ecosystem is paramount in importance.

The DOF practices sustainable timber management in the state forest system, which means annual harvest volume on each state forest will not exceed the annual growth rate. This is accomplished by periodically obtaining accurate estimates of standing timber volumes in order to ensure that the timber resource will not be depleted.

IV. MANAGEMENT CONCEPTS BY NATURAL COMMUNITIES AND PROPOSED MANAGEMENT ACTIVITIES

A. Existing and Planned Uses

The PLSF is managed under a multiple-use concept combining timber management, recreation, wildlife, water management, and environmental education (Exhibit L). The purpose of this plan is to continue a balanced land use program. A balanced program does not necessarily result from an equal division of acreage to each use. Local demand and geography influence the array of uses to be applied to each area of the forest. Only uses compatible to the forest ecosystems will be implemented.

1. Property Boundaries Establishment and Preservation

Forest boundary lines are maintained where they have been established. As rapidly as time and funds permit, boundaries not easily recognized will be more clearly marked

and portions of the forest that have not been surveyed (and lines in conflict) will be properly surveyed and corners set. Boundary surveying and marking around interior private holdings will receive first priority in this area.

2. Soil and Water Protection

Currently there are no known soil or erosion problems present on PLSF.

Management activities will be executed in a manner to minimize soil erosion. If problems arise, corrective action will be implemented by DOF staff under the direction of the DOF Forest Hydrology section.

Concern over a continuous, usable source of fresh water requires emphasis on protecting this vital resource. The three main streams on the forest are Pine Log Creek, Little Crooked Creek, and Ditch Branch. Most of the watershed that feeds these streams originates and flows continuously through forested lands. These streams are, for the most part, unpolluted and are extremely important to wildlife and recreation. Several natural small ponds exist on the forest with major management aimed at recreation, wildlife and maintaining these ponds in their natural state. These ponds are managed in cooperation with the FWC, with FWC primarily providing assistance with regulation enforcement. Watershed management relating to timber harvesting practices will be tailored to comply with the 2008 DOF publication "Silviculture Best Management Practices". Copies of this publication are available at DOF offices.

3. Roads

State Road (SR) 79 runs for approximately 3.5 miles in a North/South direction through the forest. State Road 79 is currently being widened. Part of the agreement with DOT was to install permanent smoke signs and establish a multiple-use trail along the eastern edge of SR 79 the entire length of PLSF. The paved portion of Pine Log Road (County Road 2293) runs along the southern boundary of the forest, west of SR 79 for approximately 1.3 miles. Approximately two miles of county graded roads run through PLSF near the Environmental Center and are maintained by Washington County. Forty-seven miles of graded, state forest roads are maintained by the DOF. These roads are also used for firebreaks. In time, some of these roads will be closed to the public. Some of the closed roads will continue to be used for maintenance or administrative purposes. Some will eventually be restored back (or as closely as possible) to the native habitat. No new roads will be established without review by the Forest Management Bureau of the DOF, the DHR, FNAI, and the Acquisition and Restoration Council (ARC).

4. Recreation Management

Recreation management is a major consideration on PLSF. As the population of the surrounding area has increased, so has the demand for recreation, making the forest an important recreational site. Major recreational activities on the forest include fishing, hunting, swimming, picnicking, hiking, off-road bicycling, boating, camping, bird watching, and nature study (Exhibit M).

a) Existing Facilities/Infrastructure/Recreational Activities

The PLSF Recreation Area was established in 1977 utilizing a federal recreation/environmental education grant. This grant provided the funding for building a covered pavilion, restroom building, well and pump house, sanitary dump station, group camping area, and the 20 site campground. These sites are all equipped with both electric and water hook-ups. Additionally, the DOF built an employee residence and pole barn across the lake from the campground. Later, the picnic area, primitive campsites, and nature trails were added. These facilities are located in the northwest quadrant of the forest in an area that is closed to all hunting activities.

The PLSF has two trails that begin in the Recreation Area. They are the Campground Loop and Dutch Tiemann Loop Trails. The Campground Loop Trail is approximately two miles in length and circles the camping area and two ponds. Its use is limited to only foot traffic. The Dutch Tiemann Loop Trail is 5.9 miles in length and runs from the Recreation Area to Pine Log Creek and back. This is a multi-use trail that accommodates both foot and bicycle traffic. These two trails are included in the DOF's new Trailwalker Program.

The Florida National Scenic Trail enters PLSF in the northwest corner and comes through the recreation area. The trail then crosses Pine Log Creek under the Highway 79 bridge, heads through the eastern portion of the forest, and exits in the northeast corner. The total one-way mileage of this hiking trail is eight miles. It is maintained by the local chapter of the Florida Trail Association.

The Crooked Creek Trail, located one mile south of the Recreation Area off Highway 79, was developed as an off-road bicycle trail. Hikers are welcome to use this trail. The trail consists of two single-track loop trails of 4.5 miles and 10 miles.

A boat ramp and parking lot were constructed by the Bay County Park and Recreation Department on Pine Log Creek in Section 18. This area is maintained cooperatively by the County Parks and Recreation Department and the DOF. A canoe trail begins at the intersection of Highway 79 and Pine Log Creek and runs approximately 12 miles to the west, ending on the Choctawhatchee River.

b) Planned Recreational Activities

The five-year recreation plan for PLSF will continue to provide the activities presently available. However, because of the age of existing facilities and a limited budget, most of the present facilities are outdated and in need of repair or replacement. Therefore, the major focus of this plan will be to repair, replace, or upgrade the current recreation facilities.

Pine Log Recreation Area - Following is a list of projects that are needed to improve the Pine Log Recreation Area:

- Construct a new restroom at the existing campground
- Rebuild old fishing pier on cypress pond
- Repair fireplace at pavilion
- Improve swimming area by adding sand to four areas of the pond
- Drill and construct new water well to maintain water level in sand pond for better water recreation

5. **Fire Management**

The DOF utilizes a total fire management program on state forests that includes wildfire prevention, detection, suppression, and prescribed burning. Primary detection and suppression of all forest fires will be the responsibility of the DOF's Chipola Forestry Center (D-2), particularly the Forest Rangers assigned to the forest and other crews in Bay County. Bay County has four tractor plow units and one heavy tractor. Emphasis will be placed on prescribed burning, fire prevention, and education to help reduce wildfire occurrence on the forest. The Incident Commander responding to wildfires on PLSF has three paramount considerations, listed in order of priority: protection of human lives, both the firefighters and the public; protection of improvements; and protection of natural resources. See Exhibit N for the PLSF Burn Unit Map.

The annual forest prescribed burning program produces multiple benefits. The purpose of prescribed burning on PLSF is to restore, maintain, and protect all native ecosystems, ecotones, and their ecological processes. Additionally, prescribed burning facilitates timber management operations, enhances wildlife habitat, and decreases fuel loading, consequently enhancing public safety.

6. **Silvicultural Guidelines & Forest Resource Management Objectives**

a) **Objectives**

Timber management is an important component of the overall management of PLSF. Timber management is balanced with wildlife management, recreation, and water resources to give an overall multiple-use concept to the management at PLSF. The timber resource will be managed on a sustained yield basis. Another key aspect of timber management will be the favoring of natural regeneration wherever possible. There will be no targeted rotation age. A major old growth component in both even-aged and uneven-aged stands is the desired outcome on PLSF. Management will focus on ecosystems rather than individual stands. Specific management actions to obtain desired future condition are outlined in the natural community management section (IV.B.) of this plan.

i. **Thinnings**

Sandhill Community - The long range goal for sandhills will be to produce a multiple-aged, naturally regenerating forest, while continuing to produce harvestable quality forest products such as pulpwood and sawtimber. Those sandhill areas where slash pine plantations exist will be managed through thinning by improvement cuts until such time that the slash pine can be

removed and the area restored to longleaf pine. About one slash pine plantation is restored to longleaf pine each year. Sandhills that contain sand pine plantations have been sold to be clear-cut. Once these stands have been harvested, the tract will be replanted in longleaf pine seedlings.

Longleaf Pine Stands - The long range goal for longleaf stands will be to produce a multiple-aged, naturally regenerating forest, while continuing to produce harvestable quality forest products such as pulpwood and sawtimber. There is roughly 900 acres of natural longleaf pine in PLSF. A portion of it is at the size and density where an uneven-aged harvest may take place.

Flatwoods - For the purposes of thinnings, the mesic and hydric flatwoods are grouped together. Some of the mesic and hydric flatwoods on PLSF are natural slash pine sites; however, the vast majority of these sites are slash pine plantations. The first thinnings on these plantations will involve row thinning with selection cutting in between removed rows. The basal area, after these cuts, will range from 50 to 70 square feet per acre. Subsequent thinnings will leave 50 to 60 square feet per acre. All thinnings will be conducted as improvement cuts. The badly diseased, forked, overcrowded, and suppressed trees will be removed, leaving the best to continue to grow. Natural regeneration methods will be used on areas where slash pine is the naturally occurring tree.

Timber harvesting activities will not occur in these communities: Bottomland Forest, Blackwater Stream, Basin Swamp, Dome Swamp, and Sandhill Upland Lake.

ii. Reforestation

The major reforestation effort will be to restore longleaf pine to the sandhill ecosystem. Tree planting will be completed using improved seedlings wherever possible. Trees will be planted in rows, but thinning operations will assist in producing a more natural stand in future years.

All activities associated with silvicultural operations will have the ultimate goal of restoring the uplands to a more natural, uneven-aged, forest. Artificial regeneration, through mechanical or hand planting, will be used to restore longleaf pine to the sandhill ecosystem. Reforestation practices will follow the guidelines stated in Chapter 6 of the most currently approved State Forest Handbook.

b) Timber Inventory Control

Timber inventory and stand descriptions completed as of July 2007 provide the following forest summary: forest volume was approximately 117,540 tons (43,533 cords) of pine sawtimber, 109,570 tons (40,884 cords) of pine pulpwood, and 147,162 tons (54,940 cords) of pine chip-n-saw on 6,915 acres. Average merchantable pine basal area is approximately 65 square feet per acre.

Within the State Forest System, the annual harvest volume on each forest will not exceed the annual growth for that forest. This is accomplished by obtaining an accurate estimate of the standing timber, and it assures that the timber will not be depleted.

The stand description and inventory completed by the DOF during July 2007 will provide sufficient timber inventory control parameters for the present. Portions of the forest will be re-inventoried each year according to the DOF's State Lands inventory procedures, which will keep the inventory information current.

c) 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, the University of Florida, and other educational institutions and governing agencies in the accumulation of this information. The DOF will consider assisting in research projects when funds and personnel are available. All research projects to be considered on PLSF must be approved by the Chief of Forest Management of the DOF. Research Projects and Specimen Collection must follow the guidelines established in the most current version of the State Forest Handbook.

8. Law Enforcement

Increased public usage of PLSF has amplified the need for enforcement of federal, state, and county laws, and state forest rules and regulations. Forest investigators from the Department of Agriculture, Office of Agricultural Law Enforcement have primary law enforcement responsibilities. Enforcement officers from the FWC and the Bay and Washington County Sheriff's Offices provide additional law enforcement support. Special rules of the Department of Agriculture and Consumer Services, DOF have been promulgated to provide information regarding the utilization of lands and facilities managed or controlled by the Department. These rules are under Chapter 5I-4 of the Florida Administrative Code.

9. Wildlife and Fish Management

Wildlife continues to be an important component in the overall resources of PLSF. The forest is open to the public throughout the year and hunting is allowed on a limited basis as outlined in the PLSF and Wildlife Management Area Regulations. Wildlife management is regulated by the FWC. Copies of the PLSF and Wildlife Management Area regulations are available from the DOF and FWC.

Due to the recent phylogenetic alteration in flatwood salamander species, it can be assumed that affirmative action toward PLSF' flatwoods salamander population is

even more critical to this species' long-term survival. Recognizing the need to protect flatwoods salamanders on PLSF, DOF in cooperation with FWC developed the first state-lands protocol for management of this species. A Management Plan for the Flatwoods Salamander on PLSF was completed in 2002 and continues to guide cooperative efforts in managing for this species (Exhibit K).

Briefly, management for the flatwoods salamander, *Ambystoma bishopi*, covers hydric flatwoods, mesic flatwoods, dome swamp, and basin swamp natural communities and cover types. Management for this species includes maintaining groundcover flora with prescribed growing-season fire and by thinning pine plantations. Fire will be allowed to burn into ponds when dry to prevent complete closure of the overstory and to stimulate growth of herbaceous emergents.

a. Timber Management

The DOF recognizes the importance of snags for their wildlife value. As a general rule, snags will be left in their natural environment unless they are deemed to be a potential hazard. Dead pine trees will be left as snags unless it is determined that they can be removed without negatively affecting the availability of snags for wildlife or if they are deemed a potential hazard. Areas with significant pine timber mortality will be harvested as directed by the severity of the situation.

Timber management will follow guidelines located within the Flatwoods Salamander Management Plan (Exhibit K) to protect this species where applicable.

All cutting on lands adjacent to flowing or intermittently flowing streams, or lakes greater than three acres, will be carried out in compliance with the DOF's 2008 publication, "Silviculture Best Management Practices", which are designed to minimize impact on the aquatic ecosystem.

b. Supplemental Planting/Wildlife Openings

Cooperative efforts between DOF and the FWC continue in creating and maintaining permanent openings and supplemental plantings for wildlife. Agronomic forages are cultivated in linear strips that were previously forest roads (now closed roads), openings, and logging decks, totaling 40 acres and ranging in size from a tenth of an acre up to 5 acres. In the fall, cultivars of winter wheat, rye, and clover are planted to supplement seed production of native grasses and legumes. In the spring, cultivars of the following annuals are planted: Egyptian wheat, WGF sorghum, pearl millet, brown-top millet, proso millet, and iron clay peas. To optimize seed production and plant vigor, forages are "top-dressed" with fertilizer once they begin to mature. Moreover, annually 10 miles of roads and road shoulders are mowed. This periodic mowing along secondary roads extends seed production and vigor of existing grasses and encourages use of openings by wildlife, particularly wild turkey and quail broods.

c. Prescribed Burning

The DOF has an aggressive prescribed burning program utilizing both growing and dormant season burns. The DOF utilizes prescription burns to decrease fuel loads, promote restoration, and maintain native community structure. Burns are planned by the Operations Administrator, Forest Area Supervisor, Forester, Senior Forest Ranger and/or Forest Rangers with input from the FWC biologist. Frequency of burn rotations varies from one to four years. The long-term objective of prescribed burning is to simulate, as much as possible, a natural fire regime in which the majority of acres are burned during the lightning season. The majority of stands have been burned over the past couple of decades and can now start to have spring burns conducted. Areas already in longleaf pine or reforested with longleaf pine will also be suitable for growing season fires after dormant season fuel reduction prescribed fire prepares them. Along with the pine stands, other fire dependent communities will be prescribed burned as their needs dictate. The goal is to prescribe burn approximately 1,725 acres annually, which translates into a three year burn rotation. Firebreaks make maximum use of existing features such as woods roads and wetlands. Whenever possible, alternatives to traditional plowed fire lines, such as foam lines or natural breaks, are used. Burn units are spread over the forest in a random or mosaic fashion. Plowed firelines will be harrowed and allowed to regenerate naturally. See Burn Unit Map (Exhibit N) for further information.

d. Hunter Access

As previously mentioned, the PLSF is synonymous with Pine Log WMA. In cooperation with the FWC, year-round vehicular access to the PLSF portion of the WMA is being reduced by blocking and cabling secondary roads. This practice has been carried out since 1984 to restrict illegal hunting and wildlife harassment during the breeding season. This practice of gate-controlled access has proven favorable in sustaining hunter satisfaction and providing a high quality hunting experience. A mandatory hunter check station has been established and used to monitor hunter pressure and collect biological data from harvested game. All hunters are required to check in and out when entering and exiting the area and to report all game taken.

10. Non-Native Invasive Species

The policy of the DOF is to locate, identify, and eradicate invasive exotic species. State Forest employees continually monitor the forest for invasive exotics while conducting management activities. When invasive exotic species are discovered, an eradication plan will be developed and implemented based upon the severity of the infestation and the availability of personnel and funding. There are currently two small patches of cogon grass (*Imperata cylindrica*) located on the forest. These plants will be sprayed with a selective herbicide until eradication is achieved. The DOF will enlist support from the FWC in efforts to control non-native invasive plants and animals.

Feral hog populations have gradually increased over the last five years. Population trends will be monitored and control efforts implemented where necessary working closely with the FWC.

11. Insects, Disease and Forest Health

The PLSF has no history of epidemic and/or managerially important outbreaks of damaging insects or diseases. Given the forest's current and/or expected biodiversity, structure, and management plans, no such outbreak is anticipated. In the event of new and/or undesirable pest activity, the State forest management staff will coordinate with the DOF's Forest Health Section to develop and implement appropriate scientifically sound responses and/or management prescriptions.

In compliance with Florida Statute 388.4111, all lands contained within this lease 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. After approval of this plan, the local arthropod control agency will be contacted and will be provided a description of the management objectives for PLSF. The local arthropod control agency must then prepare a public lands control plan that is subsequently approved by the DOF, prior to conducting any arthropod control activities on PLSF.

12. On-Site Housing

DOF may establish on-site housing (mobile/manufactured home) on PLSF 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 linear facilities; consequently, easements for such uses will be discouraged to the greatest

extent possible. The DOF does not consider PLSF suitable for any new linear facilities.

When such encroachments are unavoidable, previously disturbed sites will be the preferred location. The objectives, when identifying possible locations for new linear facilities will be to 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 significantly 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 utilities and other right of ways are subject to the review and approval of the BOT.

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 archaeological and historical sites, ecotones, wetlands, and sensitive species.

The construction of new pre-suppression fire lines will be limited to the greatest extent practicable. When new pre-suppression firelines, recreational trails, or other low-impact recreational site enhancements are necessary their placement will be carefully 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 and the DHR.

15. Apiaries

There is an apiary lease on the forest. The current apiarist is only at Pine Log for a short time while the tupelo and titi trees are blooming.

There was an apiary lease on the forest for over 15 years. However, issues with the vendor's non-compliance with the agreement forced a termination of the lease agreement in January of 1999. The feasibility of pursuing and establishing apiary leases on PLSF in areas where appropriate will be evaluated in accordance with guidelines stated in Chapter 9.1 of the State Forest Handbook (DOF, 2004).

16. Cattle Grazing

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 native ground cover to the greatest extent practical.

18. Restoration

The pre-Columbian natural world serves as the standard for the integrity of communities and ecological interactions on PLSF. The PLSF restoration vision focuses on mimicking pre-Columbian fire and hydrological patterns. This restoration philosophy 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.

PLSF has numerous areas of off-site slash pine plantations. These plantations are on soils that are more suited for longleaf pine. These plantations are gradually being clear-cut and all of them will eventually be restored to a natural longleaf pine ecosystem. These clear-cuts will be done in such a manner as to create irregular shaped areas, preferably following a natural stand or topographic boundaries, in order to create edge effect.

B. Description of Natural Communities and Proposed Management Activities

A set of community descriptions and desired future conditions was developed by PLSF staff in 2005-06 based on timber stand mapping of current conditions. Subsequently in 2006, historical natural communities at PLSF were mapped under a contract with the FNAI. The FNAI delineations were based on the oldest available aerial photography (1949) (Exhibit P) and interpretations of field evidence from an ecological perspective. Due to differences in intent between these two efforts, in areas of expertise and in the focus of those obtaining data, these efforts disagree as to the labeling of natural community polygons and in the acreages determined for each type. Furthermore, PLSF occurs in an area where the landscape matrix shifts from sandhills to mesic flatwoods with the elevation drop from inland southward toward the coast. This shift is not abrupt and is complicated by drainage features. Because of this, developing precise acreages for sandhill and mesic flatwoods is not possible without quantitative data.

The following is a brief description of the desired condition for each cover type, the current condition, and the management techniques that will be applied to reach the desired condition. A map of the FNAI Historic Natural Communities is in Exhibit O.

Table 3. Vegetation Types found on PLSF

Vegetation Type	Acres Mapped (Historic)	Acres Mapped (Existing)	Silviculturally Productive (Y/N)	Burn Interval (Years)
Sandhill	2,396	3,438	Y	1-3

Vegetation Type	Acres Mapped (Historic)	Acres Mapped (Existing)	Silviculturally Productive (Y/N)	Burn Interval (Years)
Mesic Flatwoods	1,728	988	Y	2-3
Wet Flatwoods	1,522	702	Y	3-10
Floodplain Swamp	1,213	0	N	N/A
Basin Swamp	45	1,338	N	5-150
Dome Swamp	46	57	N	2-10
Sandhill Upland Lake	23	4	N	N/A
Depression Marsh	1	0	N	1-8
Wet Prairie	0**	295***	N	2-5
Blackwater Stream	0	20	N	N/A
Bottomland Forest	0	176	N	N/A
Disturbed	0*	47	N	N/A

* Not historical

** Recognized, not mapped

*** Estimated, not mapped

Through an adaptive management process, the results of these initial restoration efforts will be monitored and more refined and detailed restoration plans will be made. Fire return intervals are included as a guide and may vary depending upon specific conditions. The intention is to use fire in a manner and frequency that will attain the desired habitat goals. Fire frequency is generally increased or decreased depending upon the conditions of the specific area.

1. Sandhills

Desired Future Condition

Sandhills are characterized as forest of native pine trees with a sparse midstory of deciduous oaks and a fairly dense ground cover of grasses and herbaceous vegetation on rolling hills of sand. The most typical associations are dominated by longleaf pine, turkey oak (*Quercus laevis*), and wiregrass (*Aristida* spp). These nutrient-poor sites are maintained by fire and have a very pyrogenic understory. Natural fire frequency is approximately one to three years. Longleaf pine will be the major overstory species and will consist of individuals ranging from grass stage to over 200 years old in uneven-aged stands. Density of the overstory component is in the range of 100-300 stems per acre. The mid story component is in the range of 25-50 stems per acre.

Sandhills support many reptile and amphibian species that are adapted to the habitat's dry, sandy conditions. The gopher tortoise, which is a state-listed threatened species, digs underground burrows in sandhills. The burrows are typically 20 to 30 feet long and from 6 to 8 feet deep. Gopher tortoises eat sandhill grasses and berries, and may even help distribute such vegetation throughout sandhills by spreading plant seeds in their feces. Also, gopher tortoises are keystone species, other animals and plants in the habitat

are affected by tortoise activities. Other animals, such as gopher frogs (*Rana areolata*), several species of snakes and several small mammals, use tortoise burrows on a regular basis.

Existing Conditions

Some of the Sandhills on PLSF are comprised of off-site slash and sand pine plantations, which further complicates the ability to distinguish between historical flatwoods and sandhills. These areas range in age from 20 to 48 years old. The understory species vary in composition and density. Turkey oak densities vary widely as well. The productivity of the sandhills is generally poor, with site indexes ranging from 40 to 65 for slash pine. The poorer sites with a history of disturbance tend to have less vegetative cover in the understory. The richer and less disturbed sites tend to have a denser wiregrass population.

Restoration

The Sandhills at PLSF that are planted with off-site species will be clear cut and restored to longleaf pine. Once longleaf pines have been reestablished the long term goal will be to manage the stands with uneven aged management schemes. This will be accomplished through harvesting techniques to provide either gap or small openings for natural regeneration. Prescribed burning will be a major management tool used to enhance and maintain the ground cover species. Burns will be planned to mimic natural fire, with a return interval of one to three years with an emphasis on lightning season burns. Herbicides may play a role in controlling the mid story competition of oaks species, depending on densities and ages of oak trees present on each stand.

Groundcover

Many stands at PLSF have had major disturbances to the native ground cover. Stands vary greatly in the composition and diversity of species present. Prescribed burning at the stated fire frequency interval will be the main method of restoration. Wiregrass tubelings may be planted in areas that are deemed necessary. Ground disturbing active will be kept to a minimum during all restoration work. Site preparation for planting of trees will be "light on the land type" with emphasis on prescribe burning. Mechanical site preparation will be limited to only areas where it is necessary to establish longleaf pine planting.

Hydrology

There are currently no major hydrological issues associated with these areas. Silvicultural BMP's will be followed throughout all processes of management to avoid hydrology problems.

Silviculture

Areas that have been planted in off-site slash and sand pine will be clear cut and restored to longleaf pine. When harvesting operations occur, any natural longleaf pines that are found within the plantations, will be retained to give the area an old growth specimen and provide seed source. Once longleaf pines have been established on the site harvesting techniques to create gaps and small openings will be implemented. The goal of

silvicultural operation will be to produce high quality saw timber products. Individual tree selection or small group cutting will be the preferred method.

2. Mesic Flatwoods

Desired Future Condition

Mesic flatwoods are flat, poorly to well-drained woodlands of native pine trees with a diverse understory of low shrubs and herbs. Frequent, low intensity fires maintain species composition and diversity in mesic flatwoods. These occur as prescribed burns every two to four years in each stand. On PLSF mesic flatwoods occur in association with sandhill and wet flatwoods, often as a transition between these two communities. Desired future conditions for mesic flatwoods on PLSF include an open canopy of longleaf pine with a variable mix of slash pine. Transitional areas near wetlands may contain pond pine (*Pinus serotina*) or slash pine in the canopy. The subcanopy is typically sparse and patchy, and consists of young pine saplings. In drier mesic flatwoods bordering sandhills, post oak (*Quercus stellata*) and turkey oak may be found. The understory harbors a diverse assemblage of shrubs and herbs with shrubs not exceeding 75% cover.

Other species present include palmetto (*Sabal minor*), runner oak (*Quercus pumila*) and fetterbush (*Lyonia lucida*). Tree species consist of slash and longleaf pine in pure or mixed stands. Stands are generally uneven aged and fairly open with stocking levels ranging from 20 to 80 Basal Area/acre.

Existing Conditions

The mesic flatwoods on PLSF are primarily even-aged stands dominated by slash pine. Growth rates for planted slash range from good to unacceptable. Past timber management practices included clear-cutting, single pass chopping, winter burning, and row planting slash pine seedlings. These plantations are scattered throughout the forest.

Restoration

Properly coordinated, prescribed burning and silvicultural practices will help restore these areas. Restoring plantations to naturally regenerating stands with the appropriate composition of longleaf and slash pine requires selective thinning and reforestation or natural regeneration treatments. Experimenting with fire frequency interval, size, and timing will increase restoration effectiveness.

Groundcover

Early spring fires at a 2-3 year interval will be the most effective way of restoring the native groundcover in this vegetation type. Also, reducing overstory stand density to a desirable stocking level will promote healthy groundcover.

Hydrology

There are currently no major hydrological issues associated with these areas. Silvicultural BMP's will be followed throughout all processes of management to avoid hydrology problems.

Silviculture

This vegetation type will be a primary area for silvicultural activities in the future. Selective harvests will be used to begin natural regeneration efforts when stand vigor or growth rates make them feasible. Existing longleaf pines will be retained to allow for natural regeneration of that species. Artificial and natural regeneration stocking densities will be managed to produce stands that resemble naturally occurring conditions.

Existing Conditions	Prescription for restoration
Natural longleaf saw timber Uneven-aged Gallberry groundcover	These areas will be managed using uneven-aged longleaf pine management schemes. This will be accomplished through harvesting techniques to provide either gap or small openings for natural regeneration. Prescribe burning will be a major management tool used to enhance and maintain the ground cover species. When fuel levels are sufficiently reduced, growing season burns from late April to July will be emphasized.
Natural longleaf saw timber Even-aged Wiregrass groundcover	These stands will be managed through thinning and prescribed fire. The stand will be maintained with a basal area of 40 to 80 with prescribed burning occurring on a 2-3 year interval. These stands will be converted to uneven-aged management. When fuel levels are sufficiently reduced, growing season burns from late April to July will be emphasized.
Planted longleaf/slash pine Saw timber Even-aged Gallberry groundcover	This area will be managed by selectively harvesting the slash pine while leaving the longleaf pine for seed sources. A prescribed fire will be conducted every 2-3 years to promote native ground cover. Once the slash pine component has been reduced, the stand will be converted to uneven-aged management. When fuel levels are sufficiently reduced, growing season burns from late April to July will be emphasized.
Planted Slash Saw timber Even-aged Mixed/wiregrass groundcover	This stand of slash pine will be managed as the current condition. Thinnings will take place to keep a basal area of 50-80. Prescribed fire will occur in these stands every 3-4 years to reduce fuel loads while promoting native ground cover. In future, consideration will be given to adding longleaf pine to this stand. If feasible methods can be developed, this stand will be converted to uneven-aged management. When fuel levels are sufficiently reduced, growing season burns from late April to July will be emphasized.

3. Wet Flatwoods

Desired Future Condition

Wet flatwoods are flat, poorly drained woodlands of native pine trees with a diverse understory of hydrophytic herbs and shrubs. Wet flatwoods cover a broad area along Pine Log Creek and along many of the floodplain swamps throughout the property. The characterization of these areas as wet flatwoods versus wet prairie is based on the presence of mature longleaf pine and pond pine as well as original survey notes from 1833. Many of the areas mapped as wet flatwoods include small areas of seepage slope that are difficult to delineate on current and/or historic aerial photographs. Seepage slopes are boggy areas at the base of a slope where moisture is maintained via downslope seepage through adjacent uplands.

The desired future condition for wet flatwoods on PLSF consists of an open canopy of longleaf pine, pond pine, and/or slash pine. The sub-canopy is sparse, and consists of younger canopy trees. The understory is herb dominated, with scattered shrubs throughout.

Typical midstory species include sweetbay (*Magnolia virginiana*), titi (*Cyrilla racemiflora*), gallberry (*Ilex glabra*), palmetto, fetterbush, stagger bush (*Lyonia* spp), deer tongue (*Carphephorus odoratissimus*), greenbrair (*Smilax* spp), pitcher plants (*Sarracenia* spp), and wiregrass. Natural fire regime for this type is 3-10 years.

Existing Condition

Although there are a few wet flatwoods in PLSF that meet or are near the desired future condition, most are in planted pine or have been invaded by bay species such as titi, black titi (*Cliftonia monophylla*), sweetbay, myrtle dahoon (*Ilex cassine* var. *myrtifolia*) and swamp tupelo (*Nyssa sylvatica* var. *biflora*). The upper canopy is moderately open and consists of slash pine, pond pine or longleaf pine. The midstory is often dense and dominated by titi, gallberry and the other bay species. The ground layer is sparse where midstory or ground layer of gallberry have developed. The wet flatwoods on PLSF are moderately open-canopied slash pine/bay forests with a dense shrub layer of gallberry, green briars, fetterbush, and stagger bush. Most of these areas have been planted with slash pine trees. Currently slash pine densities are greater than expected for this system. Years of dormant season prescribe burning has left these communities dominated by understory made up of titi and gallberry.

Restoration

The two primary restoration techniques used in this vegetation type will focus on the reduction of the pine overstory and the return of growing season prescribed fires. Silvicultural activities to thin the overstocked canopy will greatly enhance the native groundcover. Restoring plantations to naturally regenerating stands with the appropriate composition of longleaf and slash pine requires selective thinning and reforestation or natural regeneration treatments. Because wet flatwoods are very susceptible to hydrological alterations, logging will occur during the dry season to avoid rutting the soil. Prescribe burns will be planned along with adjacent communities. The key to restoration will be to time the burns during the growing season to help reduce the dominance of titi and gallberry and to enhance grasses.

Groundcover

Some of these areas have intact native vegetation in spite of the fact that slash pine has become the dominate species. Once the slash pine densities have been reduced and growing season burns are implemented, it appears that the native species present will occupy the site. Prescribed burning at the stated fire frequency interval will be the main method of restoration.

Hydrology

There are currently no major hydrological issues associated with these areas. However, timber harvesting activities should be conducted to reduce disturbance and minimize alteration of future site hydrology. Heavy equipment use in these areas will be avoided and no ground disturbing fire line construction will be permitted. Silvicultural BMP's will be followed throughout all processes of management to avoid hydrology problems.

Silviculture

Some thinning operations will be conducted in this vegetation type. These operations will probably be associated with a harvest in adjacent mesic flatwoods areas. Selective thinning techniques will be used to encourage natural regeneration where appropriate species, stand vigor and growth rates occur. Timber harvesting and seedbed preparation will be conducted in a way that minimizes disturbance to the ground cover vegetation, native fauna, and ecosystem values. Existing longleaf pines will be retained to allow for natural regeneration of that species. Artificial and natural regeneration will be used; stocking densities will be managed to produce stands that resemble naturally occurring conditions. Following Silvicultural BMP's will be crucial to timber management in these systems.

Existing Conditions	Restoration Prescription
Natural mixed longleaf & slash pine areas	These areas will be managed using uneven aged longleaf pine management schemes. This will be accomplished through harvesting techniques to provide either gap or small openings for natural regeneration. Prescribe burning will be a major management tool used to enhance and maintain the ground cover species. When fuel levels are sufficiently reduced, growing season burns from late April to July will be emphasized.
Slash Pine Plantations	Thinning operations will be conducted in this community type to reduce the slash pine component of the overstory. Any existing longleaf pines will be retained during thinning to provide an added seed source and provide some old growth trees. Then this area will be managed using even aged management schemes. Prescribe burning will be a major management tool used to enhance and maintain the ground cover species. When fuel levels are sufficiently reduced, growing season burns from late April to July will be emphasized. The use of mechanical control or herbicides may be necessary to reduce dense a dense ground layer of gallberry or a dense midstory of shrubs and vines in stands where these have developed.

4. Floodplain Swamp

Desired Future Condition

Floodplain swamps are forested wetlands associated with rivers or streams, which are inundated for much of the year. A higher ridge/levee, often found along the riverbank, may be included within the swamp, although these ridges can harbor species that are more typical of drier communities. Floodplain swamps are extensive on PLSF and are associated with Pine Log Creek, Little Crooked Creek, and Ditch Branch, along with many small, unnamed streams that flow through the property. Desired future condition for floodplain swamps is a semi-closed to closed canopy dominated by pond cypress (*Taxodium ascendens*) and/or bald cypress (*Taxodium distichum*). Swamp tupelo, laurel oak (*Quercus laurifolia*), sweetgum (*Liquidambar styraciflua*), swamp bay (*Persea palustris*), red maple (*Acer rubrum*), myrtle dahoon, Carolina ash (*Fraxinus caroliniana*), southern magnolia (*Magnolia grandiflora*), tulip poplar (*Liriodendron tulipifera*), and pond pine form a semi-closed subcanopy and may also be found in the canopy. Laurel oak, southern magnolia, and pond pine are found on the higher levees within the swamp, usually along the banks. The understory is comprised mostly of shrubs with herbs sparse in most areas but frequent to abundant in light gaps. Understory shrubs include dwarf palmetto, American witch-hazel (*Hamamelis virginiana*),

bastard indigobush (*Amorpha fruticosa*), titi, black titi, wild olive (*Osmanthus americanus*), azalea (*Rhododendron* spp.), eastern sweetshrub (*Calycanthus floridus*), coastal sweet pepperbush (*Clethra alnifolia*), bayberry (*Myrica* spp.), buttonbush (*Cephalanthus occidentalis*), hawthorn (*Crataegus* spp.), and highbush blueberry (*Vaccinium corymbosum*). Herbs include wood oats (*Chasmanthium* spp.), partridgeberry (*Mitchella repens*), sedge (*Carex* spp.), green arrow arum (*Peltandra virginica*), tall nutgrass (*Scleria triglomerata*), switchcane (*Arundinaria gigantea*), lobelia (*Lobelia* sp.), Georgia Indian plantain (*Arnoglossum sulcatum*), white Indian plantain (*Arnoglossum album*), nodding nixie (*Apteria aphylla*), swamp leather flower (*Clematis crispa*), witchgrass (*Dichanthelium* spp.), panic grass (*Panicum* spp.), twoleaf watermill foil (*Myriophyllum heterophyllum*), cinnamon fern (*Osmunda cinnamomea*), shortbristle horned beaksedge (*Rhynchospora corniculata*), sandbog deathcamas (*Zigadenus glaberrimus*). Epiphytes are infrequent to occasional and consist of Spanish moss (*Tillandsia usneoides*). Vines are found frequently and include laurel greenbrier (*Smilax laurifolia*), Carolina jessamine (*Gelsemium sempervirens*), and climbing hydrangea (*Decumaria barbara*).

The small, linear streams that connect many of the larger swamps do not contain a diversity of large trees but instead consist of a shrub-dominated edge. Titi, black titi, and sweetbay form a thicket along the edge, where fire is extinguished by the saturated soils along the stream. Fires may occasionally burn across these streams and create an open stream amidst the surrounding upland community.

Existing Conditions

The floodplain swamps currently found on PLSF have been affected by past logging activities (evidenced by old stumps) and are dominated by baygall type vegetation, likely caused by lack of fire along the periphery of the swamps and past cypress harvest.

A thicket of titi, black titi, fetterbush, and sweetbay, with some wood oats, switchcane, witchgrass, and Georgia Indian plantain borders the small linear seepage streams.

Restoration

The primary management goal for this community type is to maintain it in its present condition. This community does not require fire to maintain it, however occasionally fires from adjacent upland communities will be allowed to burn into these areas.

Hydrology

There are currently no major hydrological issues associated with these areas. Silvicultural BMP's will be followed throughout all processes of management to avoid hydrology problems. Natural hydrology is crucial for maintaining species diversity and water quality. Hydrologic alterations associated with roads, especially SR 20 and SR 79 will be minimized as much as possible.

Silviculture

No silvicultural activities will take place directly in these areas. However, any silvicultural operations in adjacent communities will certainly follow BMP's and provide the proper buffers associated with these areas to avoid any hydrological problems.

5. Basin Swamp

Desired Future Condition

Basin swamps are irregularly shaped, forested wetlands not associated with rivers or streams. In PLSF two basin swamps occur near the northwest corner of the property. Both basin swamps contain an open water center characterized as sandhill upland lake. Although they are not associated with the seepage streams that drain into Pine Log Creek, some flow may be exchanged between the two swamps and the neighboring sandhill upland lake and/or the seepage stream south of the swamps during extreme high water events. The desired future condition for basin swamps on PLSF is a closed to semi-closed canopy dominated by pond cypress. Swamp tupelo, red maple, Carolina ash (*Fraxinus caroliniana*), myrtle dahoon, swamp dogwood (*Cornus foemina*), and Carolina willow (*Salix caroliniana*) may be found in varying amounts and form a semi-open subcanopy. Shrubs dominate the understory vegetation and consist of coastal sweet pepperbush, fetterbush, titi, black titi, and hawthorns, among others. Herbs are sparse due to the closed overstory and long hydroperiod. Woody vines are infrequent to occasional and primarily consist of laurel greenbrier (*Smilax laurifolia*) and climbing hydrangea. The edges of the basin swamps will have a shrubby understory which will periodically be controlled with prescribed fires that originate in the surrounding upland communities. Basin swamps rarely experience fire due to the extended hydroperiod. The natural fire return interval may be from 5 to 150 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.

Existing Conditions

Most of the basin swamps on PLSF (Exhibit Q) have not been severely disturbed and remain in relatively good condition.

Restoration

The primary management goals for basin swamps at PLSF include prescribed burning and rehabilitation of old firelines. Areas with heavy fuel loads will be scheduled for hazard reduction burns during the winter months. These burns will be conducted in conjunction with prescribed burns in the adjacent upland communities.

Hydrology

There are currently no major hydrological issues associated with these areas. However, firelines that have been established near some basin swamps will be rehabilitated and natural water flows will be reestablished. Silvicultural BMP's will be followed throughout all processes of management to avoid any further hydrology problems.

Silviculture

No silvicultural activities will take place directly in these areas. However, any silvicultural operations in adjacent communities will certainly follow BMP's and provide the proper buffers associated with these areas to avoid any hydrological problems.

6. Dome Swamp

Desired Future Condition

Dome swamps are forested, isolated wetlands typically dominated by pond cypress. Dome swamps are generally circular in outline and the trees growing in the deeper center grow taller than the trees around the periphery creating a dome like appearance. Dome swamps are scattered throughout PLSF, typically associated with mesic or wet flatwoods. Seepage from surrounding higher ground provides most of their water source. Dome swamps may have a concentric marshy fringe around their outside edge or may have a depression marsh in their center. The desired future condition for dome swamps on PLSF is a closed to semi-closed canopy dominated by pond cypress. Swamp tupelo, red maple, and myrtle dahoon comprise an open subcanopy and may be present in the canopy as well. The understory consists primarily of shrubs, due to the closed canopy and subcanopy, but a diverse herb layer is present. Understory shrubs include coastal sweet pepperbush, titi, black titi, fetterbush, Apalachicola St. John's Wort (*Hypericum chapmanii*), and highbush blueberry (*Vaccinium corymbosum*). Herbs include sawgrass (*Cladium jamaicense*), shortbristle horned beaksedge (*Rhynchospora corniculata*), spreading beaksedge (*Rhynchospora divergens*), Carolina redroot (*Lachnanthes caroliniana*), Virginia chain fern (*Woodwardia virginica*), wrinkled joint tail grass (*Coelorachis rugosa*), tenangle pipewort (*Eriocaulon decangulare*), eastern purple bladderwort (*Utricularia purpurea*), false nettle (*Boehmeria cylindrica*), sedges (*Carex* spp.), flatsedges (*Cyperus* spp.), false daisy (*Eclipta prostrata*), marsh pennywort (*Hydrocotyle* spp.), combleaf mermaidweed (*Proserpinaca pectinata*), yellow eyed grasses (*Xyris* spp.), and rose gentians (*Sabatia* spp.). Epiphytes are occasional and consist of Spanish moss (*Tillandsia usneoides*). Vines are occasional and consist of laurel greenbrier and climbing hydrangea. The size, position, and hydro-period of marshy fringes affect the habitat quality of the dome for amphibians.

Existing Conditions

Currently, the dome swamps and their grassy fringes within PLSF are in good condition and on track to meet future desired conditions. Evidence of past logging is present in the dome swamps in the form of large, cut stumps and, in some cases, the absence of pond cypress. Some dome swamps in heavily timbered areas and on the forest boundaries generally have suffered considerable hydrological alteration and prolonged fire exclusion, resulting in a degraded fringe understory with a closed canopy. In a few instances hydrologic disturbances, such as roads, are present (Exhibit Q).

Restoration

The primary management goals for dome swamps at PLSF include the continued use of prescribed growing season burns at a two to five year return interval. Reintroducing growing season fire has been very successful with dome swamps, especially in these fringe areas. Fire is important to prevent hardwood invasion and peat accumulation. Rehabilitation of old fire lines in dome swamps will need to be completed to return the areas to natural water flows.

Groundcover

Most areas have intact native vegetation. Prescribed burning at the stated fire frequency interval will assist in keeping the fringe area free of overstory species that shade out the native grasses.

Hydrology

There are currently no major hydrological issues associated with these areas. However, fire lines that have been established in some dome swamps will be rehabilitated and natural water flows will be reestablished. Silvicultural BMP's will be followed throughout all processes of management to avoid any further hydrology problems.

Silviculture

No silvicultural activities will take place directly in these areas. However, any silvicultural operations in adjacent communities will certainly follow BMP's and provide the proper buffers associated with these areas to avoid any hydrological problems.

7. Sandhill Upland Lake

Desired Future Condition

Sandhill upland lakes are shallow, rounded, solution depressions occurring in sandy upland communities. They are typically permanent water bodies without significant inflows or outflows. On PLSF, four sandhill upland lakes are found in the northwestern part of the forest within sandhill and mesic flatwoods. The two northernmost lakes, as well as the one west of the road that leads to the campground, have a fringe of basin swamp surrounding them, and the lake east of the road leading to the campgrounds has a narrow band of wet flatwoods surrounding it, representing the sloping ecotone from the surrounding sandhill. Desired future conditions for the lake east of the road leading to the campgrounds is an open water dominated lake with an outer fringe of vegetation dominated by herbaceous species. Shrubs are infrequent to occasional in this fringe, and consist of Apalachicola St. John's Wort and wax myrtle (*Myrica cerifera*). Herbaceous species include yellow-eyed grass (*Xyris* spp.), maidencane (*Panicum hemitomon*), rushes (*Juncus* spp.), bladderwort (*Utricularia* spp.), beaksedge (*Rhynchospora* spp.), spikerush (*Eleocharis* spp.), meadow beauty (*Rhexia* spp.), arrowhead (*Sagittaria* spp.), and pickerelweed (*Pontederia cordata*), among others. As for the lakes that are surrounded by basin swamp, the desired future conditions is an open water lake surrounded by a band of basin swamp dominated by pond cypress.

Existing Conditions

Currently, the sandhill upland lakes surrounded by basin swamp meet desired future conditions (Exhibit Q). However, the lake east of the road leading to the campgrounds has the exotic invasive species, torpedo grass (*Panicum repens*), in the herbaceous fringe surrounding it. This fringe is also encroached with woody species such as red maple and pond cypress. Other species present in the herbaceous fringe around this lake include Apalachicola St. John's wort, wax myrtle and fascicled beaksedge (*Rhynchospora fascicularis*).

Restoration

The primary management of this sandhill upland lake will be to maintain it in its present condition. The fringe of the lake will be burned with adjoining communities. For the lake east of the road leading to the campgrounds, torpedo grass should be treated as soon as possible in an effort to control its spread to the other lakes. Because of the recreational activities on the north shore and the ranger offices on the south shore, burning the herbaceous fringe of this lake is only possible along the eastern shore. A prescribed fire on this eastern side will help control woody encroachment of the herbaceous fringe.

Groundcover

This area has intact native vegetation, and does not require any further management other than prescribed fire.

Hydrology

There are currently no major hydrological issues associated with this area. Silvicultural BMP's will be followed throughout all processes of management to avoid hydrology problems.

Silviculture

No silvicultural activities will take place directly in these areas. However, any silvicultural operations in adjacent communities will certainly follow BMP's and provide the proper buffers associated with these areas to avoid any hydrological problems.

8. Depression Marsh

Desired Future Conditions

Depression marshes are generally circular, shallow, herb-dominated wetlands found in slumps in sand substrate. At PLSF, depression marshes occur in association with mesic or wet flatwoods. While only one depression marsh was mapped, at least four others were observed but comprise less than half an acre, the minimum-mapping unit. Depression marshes on PLSF are dominated by herbaceous species such as maidencane, shortbristle horned beaksedge (*Rhynchospora corniculata*), yellow-eyed grass (*Xyris* spp.), velvet witchgrass (*Dichanthelium scoparium*), combleaf mermaidweed (*Proserpinaca pectinata*), eastern purple bladderwort (*Utricularia purpurea*), Baldwin's nutrush (*Scleria baldwinii*), rosy camphorweed (*Pluchea rosea*), Virginia chain fern (*Woodwardia virginica*), Chapman's arrowhead (*Sagittaria graminea* var. *chapmannii*), wrinkled jointtail grass (*Coelorachis rugosa*), false foxglove (*Agalinis* spp.), threeawn (*Aristida* spp.), tickseed (*Coreopsis* spp.), buttonweed (*Diodia* spp.), sundew (*Drosera* spp.), spikerush (*Eleocharis* spp.), lovegrass (*Eragrostis* spp.), pipewort (*Eriocaulon* spp.), flattop goldenrod (*Euthamia caroliniana*), fimbry (*Fimbristylis* spp.), southern umbrellasedge (*Fuirena scirpoides*), meadowbeauty (*Rhexia* spp.), and rosegentian (*Sabatia* spp.), among others. Shrub species are found in low densities and consist of St. John's wort and wax myrtle. Epiphytes and vines are absent.

Existing Conditions

Currently, many of the depression marshes on PLSF are encroached by woody species due to lack of frequent fire. The species found encroaching the depression marshes include swamp tupelo, myrtle dahoon, common persimmon (*Diospyros virginiana*), and slash pine (*Pinus elliotii*). The herbaceous species component contains many of the species mentioned in the

desired future conditions section, such as maidencane, shortbristle horned beaksedge, yellow-eyed grass, velvet witchgrass, combleaf mermaidweed, eastern purple bladderwort, Baldwin's nutrush, rosy camphorweed, Virginia chain fern, Chapman's arrowhead, and wrinkled jointtail grass. Epiphytes and vines are absent.

Restoration

Depression marshes require frequent, light intensity fires to maintain a high herbaceous species component and reduce woody encroachment. The natural fire return interval for depression marshes is every 1-8 years, primarily during the early lightning season (April-June) when water levels are low and fuels in surrounding uplands are dry. Woody species abundance should be decreased with prescribed fire and hydrologic and soil disturbances should be minimized. Frequent prescribed burns during the early lightning season should aid in decreasing woody species abundance.

Hydrology

Managers should survey areas prior to logging to identify and mark depression marsh boundaries so that heavy equipment does not pass through the marsh. This will aid in minimizing hydrologic and soil disturbances. No silvicultural activities will take place directly in these areas. However, any silvicultural operations in adjacent communities will certainly follow BMP's and provide the proper buffers associated with these areas to avoid any hydrological problems.

9. Wet Prairie

Desired Future Condition

Many of the areas mapped as mesic or wet flatwoods include small areas of wet prairies or seepage slopes that are difficult to delineate on current and/or historic aerial photographs. Seepage slopes are boggy areas at the base of a slope where moisture is maintained via downslope seepage through adjacent uplands. Wet prairies are treeless wet flats dominated by wiregrass and pitcher plants. Only scattered slash or longleaf pine will be present, usually only five to ten trees per acre. Typical plants include wiregrass, toothache grass, maidencane, sundews, yellow eyed grass, pitcher plants, St. John's wort and titi.

Existing Conditions

These natural communities were delineated because of their small size and poor condition. Many wet prairies at PLSF have been planted to slash pines. These slash pines are very dense and have shaded out the native grasses that occur in the wet prairie. Many native understory species do still exist, but are in reduced numbers due to this dense canopy of pine trees that has shaded them out (Exhibit Q).

Restoration

The restoration of the wet prairie community will rely on two phases: 1) removal of the slash pine overstory and 2) return of the areas to growing season prescribed burns on a 2-5 year cycle. It is also important not to alter the hydrology of these areas during either of these restoration techniques. Removal of the slash pine timber will be completed during the dry season when logging equipment will not cause ruts in the sensitive soils. Other

heavy equipment use in these areas will be avoided and no ground disturbing fire line construction will be permitted.

Groundcover

The groundcover generally is in good condition. Prescribed burning at the stated fire frequency interval will be the main method of restoration. There is recent evidence that the ground cover will recover once the slash pine densities have been reduced. Several areas that were recently prescribe burned in the growing season are showing signs of ground cover recovery.

Hydrology

There are currently no major hydrological issues associated with this area. Heavy equipment use in these areas will be avoided and no ground disturbing fire line construction will be permitted. Silvicultural BMP's will be followed throughout all processes of management to avoid hydrology problems.

Silviculture

The only silvicultural activities that will take place directly in these areas will be to reduce the slash pine component of the overstory. Once these areas have been reduced to >10 Basal Area/acre, silvicultural activities will not take place. Any silvicultural operations will certainly follow BMP's and avoidance of any hydrological problems will be given high priority. Any Silvicultural activities will occur during dry periods.

10. Blackwater Stream

Desired Future Condition

Blackwater streams can be either perennial or seasonal watercourses with headwaters in sandy lowlands where extensive wetlands with organic soils act as water reservoirs. The water these wetlands discharge is rich in tannins and generally acidic. These streams have sandy bottoms covered by organic layers, and underneath are limestone deposits that sometimes form outcroppings. Blackwater streams differ from alluvial streams, which have continuous flood plains. Instead, they have high, steep banks alternating with flood plain swamps. The high banks confine water movement except during major floods.

Existing Conditions

At PLSF, Pine Log Creek and its tributaries are excellent examples of blackwater streams. These forest streams are currently in an undisturbed state and are exhibiting the future desired conditions (Exhibit Q).

Restoration

Management activities that maintain or enhance water quality are the primary means to preserve the excellent state of these systems. These activities include: closing unnecessary roads and improving open roads to maintain water flows and minimize run-off, minimizing the number of firelines maintained, establishing water-bars where

needed, careful attention to BMP's during silvicultural operations, and minimal site prep for planting operations.

Hydrology

There are currently no major hydrological issues associated with these areas. Silvicultural BMP's will be followed throughout all processes of management to avoid hydrology problems.

Silviculture

No silvicultural activities will take place directly in these blackwater stream areas. However, any silvicultural operations in adjacent communities will certainly follow BMP's and provide the proper buffers associated with these streams to avoid any hydrological problems.

C. Impact of Planned Uses on Property Resources

The renewable resources that need protection include:

1. Timber

Guidelines outlined in Sections III-B-11 of this plan will insure a continuing timber resource and diverse ecological resources for an indefinite time period.

2. Wildlife

The DOF and the FWC protect and perpetuate this resource through ecosystem management techniques, enforcement of hunting and fishing laws, timber harvesting, forest regeneration techniques, prescribed burning, and herbicide applications. Wildlife will be managed and protected through the maintenance of native ecosystems.

3. Water

Guidelines outlined in Section III-B-3 of this plan will insure and protect a continuing renewable water resource.

4. Historical/Archaeological

In the event of any significant ground disturbing activity, DHR will be contacted for review and comment. The DOF will then follow the management procedures outlined in the Management Procedures for Archaeological and Historical Sites and Properties on State Owned or Controlled Lands (Exhibit I) and will comply with all appropriate provisions of Section 267.061 (2) Florida Statutes.

V. MANAGEMENT SUMMARY

A. Operations Infrastructure

The annual management expense budget for PLSF is \$17,972.00. There is no operating capital outlay budget for PLSF. The two Forest Rangers and Senior Forest Ranger that are stationed at PLSF are not paid out of Pine Log's budget, but they are funded through the Chipola River District. The Operations Administrator assigned to the Bay and

Walton Counties is the coordinator of all management activities on PLSF. Additional support is provided by the DOF's Bay County Forest Area Supervisor and other Chipola River District personnel.

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

1. Archaeological and Historical Resources

Representatives of the DHR and the FNAI will be consulted prior to the initiation of any ground disturbing activity by the DOF or other state agency. The DOF will make every effort to protect known archaeological and historical resources. The DOF has State forest personnel trained as Archaeological Monitors. Trained monitors will oversee ground disturbing activities in which the DHR recommends monitoring. The DOF will utilize the services of the DHR Public Lands archaeologists to locate and evaluate unknown resources and to make recommendations in the management of known resources. As information becomes available and as staffing allows, 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 the Management Procedures for Archaeological and Historical Sites and Properties on State Owned or Controlled Lands (Exhibit I) will be followed whenever and wherever appropriate.

2. Soil and Water Resources

Most of the natural communities are intact; however, some communities have moderate to heavy disturbance caused by uncontrolled vehicle access. Creek access areas have the highest restoration priority. Planned projects will restore ecological integrity while allowing controlled recreational access. Management activities will be executed in a manner to minimize the potential for soil erosion. All activities planned for the forest will be conducted in accordance with Florida's Silviculture Best Management Practices and/or other appropriate measures as deemed necessary by the DOF's Forest Hydrologist and/or Watershed Specialist, and will meet or exceed standards for BMPs for public lands. In addition, if future soil and water resource problems should arise, they will be immediately assessed and the appropriate action will be proposed and implemented under the direction of the DOF's Forest Hydrologist and/or Watershed Specialist. As previously stated the DOF, through its Forest Hydrology Section, will cooperate with the NFWFMD to monitor levels and quality of ground and surface water resources.

3. Other Resources

Applicable surveys will be conducted by DOF staff or others during the process of planning and implementing ecosystem 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

Timber Sales – Amounts received from timber sales will vary due to product class, tract size, and market conditions. Several stands are reaching the level of second thinning, which will produce income for PLSF over the next ten years.

Apiaries – There is currently one apiary lease on PLSF. The feasibility of pursuing and establishing apiary leases on PLSF in areas where appropriate will be evaluated.

E. Potential Use of Private Land Managers

The forest manager makes ongoing evaluations of use of private land managers, consultants, and/or contractors to facilitate the restoration or management of the forest.

The opportunity for outsourcing land management work includes or is anticipated to include:

Site Preparation – Private equipment/forestry operations company hired to conduct activities such as drum chopping.

Seedling Planting – Private equipment/forestry operations company hired to hand plant longleaf pine seedlings through future planting seasons.

Herbicide – Private equipment/forestry operations company hired to aerial herbicide scrub oak between and in existing pine plantations.

VI. REFERENCES

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 2004). *Florida's Silviculture Best Management Practices Manual*. Tallahassee, Florida: Florida Department of Agriculture and Consumer Services, Division of Forestry.

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

Florida Natural Areas Inventory. (February 1990). *Guide to the Natural Communities of Florida*. Florida Natural Areas Inventory and Florida Department of Natural Resources.

GLOSSARY

Basal Area - A tree-volume measurement determined by estimating the total cross-sectional area of a tree at breast height (4.5 ft). Basal area is most commonly applied to forest areas and expressed in square feet per acre. It is an integrated expression of the number of trees and their size in area.

Dormant Season Prescribed Fire - A fire during a time when plants are physiologically dormant and burn prescription conditions can be met. Dormant season runs from the beginning of October to the end of March on Pine Log State Forest.

Even-aged Stand - All the trees are the same age or within 10 years of each other. A stand is considered even-aged if the difference in age between the oldest and the youngest trees does not exceed 20 percent of the length of the rotation.

Invasive Exotic - A naturalized non-native plant or animal species introduced to the area that presents a special threat to the ecosystem.

Fee Simple - An estate in land of which the inheritor has unqualified ownership and power of disposition.

Growing Season Prescribed Fire - A fire during a time when plants are physiologically active and burn prescription conditions can be met. Growing season runs from April to the end of September on Pine Log State Forest.

Horizontal Fuel Continuity - How patchy or full the understory is. A continuous understory will carry a backing fire.

Hydro-period - The length of time that soils are saturated during a year.

One Hour Fuels - Fine fuels consisting mainly of dead herbaceous plants, roundwood less than about 1/4-inch in diameter, and the uppermost litter layer.

Pyrogenic - Flammable; easily ignited

Selection - The selective removal of trees, individually or in small groups, from an uneven-aged forest in order to achieve and maintain the desired composition.

Shelterwood - Even-aged silvicultural systems in which, in order to provide a source of seed and/or protection for regeneration, the older trees are removed in two or more successive cuttings. The first cut opens the stand to allow regeneration and the second cut or harvest removes the seed trees.

Silviculture - The art and science of producing and tending a forest; the application of knowledge of silvics in the treatment of a forest; the theory and practice of controlling forest establishment, composition, structure, and growth.

Stocking - The number of trees in a stand or an indication of stand density. It is often expressed as the number of trees per acre, the basal area per acre, or the percent of crown density.

Stumpage - Price for standing trees.

Uneven-aged Stand - Contains at least three age classes, at least 10 years apart, intermingled intimately on the same area.