TEN-YEAR RESOURCE MANAGEMENT PLAN

FOR THE

TATE'S HELL STATE FOREST

FRANKLIN and LIBERTY COUNTIES

PREPARED BY

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

DIVISION OF FORESTRY

APPROVED ON

June 15, 2007

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FOR THE

TATE'S HELL STATE FOREST

Approved by:

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Division of Forestry

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Forest Management Bureau

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TABLE OF CONTENTS

TEN-YEAR RESOURCE MANAGEMENT PLAN
TATE'S HELL STATE FOREST

EXHIBITS

TABLES

LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

Lead Agency: Florida Department of Agriculture and Consumer Services, Division of Forestry
Common Name: Tate's Hell State Forest
Location: Franklin and Liberty Counties
Acreage Total: 202,436.58 (as of 4/5/2005)
Acreage Breakdown:

Natural Communities	Acreage	Natural Communities	Acreage
Wet Flatwoods	86,220.68	Wet Prairie	42,664
Mesic Flatwoods	34,016	Bottomland Forest	7,620
Strand Swamp	7,583	Baygall	7,422
Sandhill	2,636	Scrubby Flatwoods	2,632
Floodplain Swamp	2,422	Depression Marsh	2,103
Marine/Estuary Tidal Marsh	1,850	Dome Swamp	1,670
Upland Mixed Forest	1,313	Blackwater Stream	950
Scrub	683	Freshwater Tidal Swamp	525
Seepage Slope	114	Bluff	12
Beach Dune	0.90		

Lease/Management Agreement No.: 4041 Use: Single___ Multiple _X

Management Agency	Responsibility
Florida DACS, Division of Forestry	General Management of Forest Resources, Recreation & Wildlife
Florida Fish and Wildlife Conservation Commission	Wildlife Resources & Laws
Division of Historical Resources	Historical and Archaeological Resource Management

Designated Land Use: Multiple-use State Forest
Sublease(s): None
Encumbrances: None
Type Acquisition: CARL, Preservation 2000, and Florida Forever
Unique Features: Dwarf Cypress Areas, Miles of River Frontage, Coastal Land, Large Freshwater Recharge Area.
Archaeological/Historical: Thirty-eight (38) Archaeological Sites
Management Needs: Comprehensive Hydrologic Restoration Plan, Major Ground Cover Restoration and Reforestation
Acquisition Needs: Various In-holdings
Surplus Lands/Acreage: None
Public Involvement: Board of County Commissioners of Franklin and Liberty Counties, Tate's Hell State Forest Liaison Group, Apalachee Regional Planning Council, Management Plan Advisory Group and a Public Hearing

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ARC Approval Date:______________________ BTIITF Approval Date:___________________________
Comments:____
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I. Introduction

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

The Division of Forestry's (DOF) mission 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. Multiple-use management is the overall concept used to perpetuate the sustainability of the forest's native ecosystems and biodiversity. This will be accomplished by implementing sound multiple-use management principles, the objectives of which will be to:

- To restore, maintain, and protect all native ecosystems;
- To ensure the long term viability of populations and species considered rare, endangered, threatened, or of special concern;
- To integrate human use through a total resource concept, not emphasizing any particular use over the others, or over restoration, maintenance and protection of native ecosystems;
- To protect known archeological and historical resources; and
- To practice sustainable forest management utilizing sound silvicultural techniques.

These goals are consistent with the goals for which the property was acquired.

This management plan provides the general direction for management of Tate's Hell State Forest (THSF). It is not an annual work plan or detailed operational plan, but provides general guidance for management of the THSF for the next ten years and outlines the major concepts that will guide management activities on the forest. The following information presented is consistent with the requirements of Section 253.034, Florida Statutes and was prepared using guidelines outlined in Chapter 18-2.021 of the Florida Administrative Code.

B. Overview of State Forest Management Program

THSF was purchased under the Conservation and Recreation Lands (CARL) and Florida Forever Programs, and is comprised of approximately 202,436.58 acres, located in Franklin County and the southern portion of Liberty County. Portions of the forest were also purchased with DOF Preservation 2000 and Florida Forever funds. The major ecosystems represented on the property include flatwoods, remnant savannahs and a variety of swamp and marsh habitats.

This forest is one of the most challenging tracts of land the DOF has to manage. It is a large expanse of land that has been altered by the placement of access roads and establishment of pine plantations. The roads and ditches have impacted historic hydrological functions to various degrees and the pine plantations have replaced or displaced historic vegetation in many areas. One of the major goals of the CARL purchase was to restore these altered areas and eliminate any adverse impacts these alterations might have upon the Apalachicola Bay system.

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

A compilation of management activities and public use on the THSF is completed monthly and an annual report completed at the end of each fiscal year. These reports are available from the forest manager. Table 1 summarizes in numerical format these accomplishments for the past five years.

Table 1. Five Year Accomplishment Summary, THSF

PROGRAM	ACTIVITIES		FY 2001/02	FY 2002/03	FY 2003/04	FY2004/05	FY2005/06	5 year TOTAL
Reforestation	Longleaf Pine	Acres	1,970	0	56	298.0	295.0	2,619
	Pondcypress	Acres	78	0	0	0	0	78
Ground Cover Restoration	Chopping/Mowing/Walkdown	Acres	6,835.0	3,190.0	5,852.6	2,848.0	3,868.0	22,593.6
Exotic Species Control	Cogongrass/Herbicide	Acres	2.0	4.1	1.0	1.0	0	8.1
	Japanese Climbing Fern/Herb.	Acres	0	10.0	14	85.0	5.0	114
	Exotic Trees/Cut & Stump Treat	Acres	0	5.0	1.0	0.5	0	6.5
	Torpedo grass/Herbicide	Acres	0	0	3.0	30.0	0	33
Forest Health	Timber Sales Sold	No.	2	4	0	0	0	6
	Acreage	Acres	394	9,686	0	0	0	10,080
	Revenue Generated	$	$98,011.85	$142,020.54	$442,922.00	$329,324.52	$991,807.33	$2,004,086.20
Misc. Revenue	Fuelwood	$	$50.00	$60.00	$95.00	$45.00	$90.00	$340.00
	Apiary Leases	$	$1,312.50	$1,312.50	$2,560.00	$1,664.06	$105.00	$6,954,06
	Camping Permits	$	$2,239.00	$1,968.00	$3,037.76	$2905.70	$2,366.00	$12,516.46
	Timber Lease Over-cut Fines	$	$0.00	$0.00	$0.00	$0.00	$4,160.00	$4,160.00
	Total Revenue	$	$101,613.35	$145,361.04	$448,614.76	$333,939.28	$998,528.33	$2,028,056.60
Fire	Wildfire	No.	3	3	1	0	14	21
	Wildfire	Acres	426	51	81	0	314.0	872.0
	Prescribed Burning	Acres	22,203	19,688	10,834.8	29,607.5	39,731	122,064.3
	Fireline Installation	Miles	5.3	0.5	0	0	0	5.8
	Fireline Maintenance	Miles	212.8	52.4	0	0	0	265.2
Recreation Projects	Boat Ramps Installed	No.	1	-	-	-	-	1
	Trails Built	Miles	0	4	0	0	0	4
	Primitive Campsites Improved	No.	-	5	-	-	-	5
	S. F. Use Permits	No.	82	64	382	238	490	1,256
	Boardwalk	No.	1	0	0	0	0	1
Roads & Bridges	Roads Graded	Miles	332	690	765	303.0	442.0	2,532.0
	Roads Constructed	Miles		1	0	0	0	1
	Roads Rebuilt	Miles		30	15.1	18.7	5.5	69.3
	Road Shoulder Maint.	Miles	48	174	15.1	0	400	637.1
	Bridges Built	No.	-	-	-	2	0	2
	Bridges Repaired	No.	-	5	15	-	0	20.0
	Culverts Installed	No.	1	29	36	9	19	94
	Low W. Cross. Inst.	No.			3	6	7	16
	Welcome Signs Installed	No.	1	18	0	0	0	19
	Road Signs Installed	No.	10	31	34	120	0	195
Boundary Maint.	Maintenance/Marking	Miles	7.5	0.8	9.0	73.0	5.5	95.8
I&E Activities	Programs/Tours	No.	7	4	4	1	0	16
	Radio - TV	No.				0	4	4
	Media Articles	No.	5	10	8	3	4	30
	Photo Plots	No.	151	304	187	187	187	1,016
	Ed./Research Projects	No.	2	0	1	0	1	4
Wildlife Projects	RCW Clusters Located	No.	2	0	0	0	0	2
	Track Count Surveys	Miles	20	20	----	----	----	40
	Duck Boxes Installed	No.	0	0	0	0	0	0
	RCW Recruit. Clusters	No.		2	0	0	1	3
	RCWs Inserts	No.	11	12	15	18	0	56
	RCWs Banded	# Birds	9	3	1	14	0	27
Hydrology Restoration	Ditch Plugs	No.	4	0	0	21	4	29
	Road Cut	No.	1	0	0	2	2	5
Clean-up	Landfill Deposits	Lbs.	28,780	10,980	4,200	0	8,920	52,880

The resource management plan approved on June 11, 1998 by the Land Management Advisory Council included several major goals and objectives. The following captures those goals/objectives as proposed in the plan, over five years ago, and includes a brief statement as to the status of completing these management objectives.

Goal 1: **Protect, restore and maintain native ecosystems.**

Objective 1 *Define soils, hydrology, vegetation and natural community characteristics that existed prior to alterations.*

Status: Vegetation and natural community mapping has been completed through various FNAI contracts, except for part of the East Bay Buffer tract. The Northwest Florida Water Management District (NWFWMD) is working cooperatively with state and federal agencies to collect detailed elevation data utilizing commercial Light Detection and Ranging (LIDAR) technology to develop a digital terrain model for all of THSF. Detailed digital orthophotography (1 foot pixel size) is planned for 2007. These tools will greatly further the understanding of THSF hydrology, drainage, and vegetation types. Several sets of historic aerial photographs have been converted into a digital format that can be used with GIS for determination of historic vegetation and hydrology patterns. **90% completed.**

Objective 2 *Develop fire management plan.*

Status: A fire management plan was developed in 1999. This plan included identification of prescribed burning needs, sensitive areas, wildfire hazards, and recommendations for safer, more efficient, and more effective prescribed burning. **100% completed.**

Objective 3 *Implement prescription burn plans to decrease fuel loads, promote restoration, and maintain native community structure.*

Status: Prescribed burning in THSF began in 1994. From July 2001 to June 2006, over 122,000 acres have been burned. Some areas of the forest are on their third and fourth burn rotation which dramatically decreases fuel loads, promotes restoration efforts, and maintains forest health. A variety of mechanical means were used in order to help decrease fuel loads prior to prescribe burning. These methods include mechanical walkdown in areas of thick understory, every other row mowing in young pine plantations, and chopping in clear-cuts. **80% completed**.

Objective 4 *Develop an annual prescribed burn plan.*

Status: A five year burn plan was developed for THSF. Areas are burned based on a series of factors/priorities including: Red-cockaded woodpeckers (RCW) sites/listed species, chopped sites; restoration/reforestation, longleaf pine release burns, areas that have been burned (2-5 years), areas with relatively intact groundcover, past timber sales, fire tolerant young slash pine or areas of previous burns (6-10 years), timber marking stands, and un-burned areas (heavy fuels 11+ years). **100% completed.**

Objective 5 *<u>Coordinate and develop plan for land acquisition.</u>*

Status: A Land Acquisition Plan was developed in 1999, identifying lands important to the management of THSF. This plan included landowner contact information, property acreage, and reasons their property is important to state management. Additional properties and updates about existing properties have been added to this plan as information comes available. Since 1998, five parcels totaling more than 104,517 acres have been acquired. **100% completed.**

Objective 6 *<u>Develop hydrologic restoration needs assessment/inventory.</u>*

Status: Surveys have been conducted in an effort to locate all water flow structures throughout the forest. Condition, size and flow direction is recorded in GIS. Additionally, all major natural flow patterns were mapped out as best as possible. A comprehensive survey of ditch flow patterns in all ditches is 50 percent complete, except for the three newest acquisitions, the Profundus, Crooked River, and New River tracts. An overall cooperative hydrological plan is currently being developed with DOF and Northwest Florida Water Management District (NWFWMD). This plan will develop specific restoration needs for THSF on a watershed basis. **50% completed**.

Objective 7 *<u>Conduct prescribed fires utilizing existing roads, natural fire breaks, and neighboring roads on the Apalachicola National Forest.</u>*

Status: The majority of burns completed use existing fire breaks such as roads, rivers, drains and boundary lines. This past year, no new fire lines were created in order to conduct a prescribed burn. When a prescribed burn is conducted along a boundary with an adjoining agency, THSF personnel attempt to burn in conjunction with that agency so that existing fire breaks can be used. **100% completed.**

Objective 8 *<u>Provide detection and suppression from destructive wildfires.</u>*

Status: From 1998 to 2003 the fire detection and suppression efforts were provided by two Forest Rangers and one OPS Tower Lookout stationed at St. James Forestry Site; two Forest Area Supervisors, three Senior Forest Rangers, and seven Forest Rangers stationed at Carrabelle Forestry Station/Tate's Hell State Forest Headquarters; and two Forest Rangers and one OPS Tower Lookout stationed at Eastbay Forestry Site. The Tallahassee District aircraft was also used extensively for fire detection and directing suppression efforts. During this period there were twenty (20) wildfires that affected 4,020 acres of the state forest. Eighteen (18) wildfires were suppressed relatively quickly, minimizing burn acreage. Two fires became fairly large due to the severe drought conditions at the time they started. Both were escaped authorized burns. There were also some lighting and incendiary fires that were kept relatively small. **100% completed.**

Objective 9 *<u>Complete the Big Slough Branch Road Restoration Project and monitor the results to determine the effect of restoration efforts on the water quality and flow rates of the water being discharged. The intent is to reconnect wetlands and drainage ways resulting in increased sheetflow, with increased retention (time and volume) of surface and ground water.</u>*

Status: This project was completed in the summer of 1998. Seven hardened low water crossings, three road removals and more than a dozen ditch plugs were installed. The area has been prescribed burned, and hydrological restoration in adjacent areas is in the planning stage. **100% completed.**

Objective 10 *Complete the Historic Vegetation Mapping Project and use information as a tool to make management prescription.*

Status: In March of 2000, Florida Natural Areas Inventory (FNAI) completed a comprehensive historic vegetation mapping project for THSF. Vegetation mapping for the newly acquired East Bay Buffer tract, has not been completed yet. Using this information and information about the current status of the state forest, a set of guidelines for restoration were developed and finalized in April, 2001. These guidelines have been used since this time to determine reforestation, prescribed burning, and timber management on the forest. Vegetative mapping of the other newly acquired Crooked River tract was completed in June 2005. **95% completed.**

Objective 11 *Conduct some experimental plantings of pond cypress and Atlantic white cedar during the next five year period.*

Status: Pond cypress was planted on 83 acres over the past five years. Initial survival rates had averaged 86%. However, long term survival was a concern where competing vegetation could not be controlled with fire or mechanical means without impact to the pond cypress plantings. In recent years, it has been determined that natural pond cypress sprouts are all that is necessary to replenish the natural densities of this species in communities such as the pond cypress savannas. Several bushels of Atlantic-white cedar cones where collected in the fall of 1998. Germination tests of the seed collected showed a 90% germination rate. A field test or even a need for one has yet to be discovered on this forest. **75% completed.**

Objective 12 *Efforts will be taken to restore the natural hydrology and fire regime in the dwarf cypress stands, while trying to reduce the invasive species.*

Status: The natural drainage of this area was restored during the summer of 1999. Seven new culverts and 10 ditch plugs were installed. Additionally, ½ mile of road through the center of the dwarf cypress was removed. Since the restoration, a boardwalk/observation tower was built in the old road bed. To date, the invasive pine and hardwoods have shown limited response to the restoration. A test project is planned to see if physical removal of these species is required, or if they will eventually die out from the flooding. There are some pine plantations that will need to be harvested to restore these areas. In order to harvest these areas, a flow control structure will be installed that keeps the water at its natural level most of the time, but allows drainage prior to management, and reflooding after the work is completed.

The main dwarf cypress area has not yet been burned, although smaller isolated areas have been successfully burned several times with good results. An attempt was made to burn the main dwarf cypress area the year after hydrologic restoration. This burn was not successful due to high water levels and a lack of fine fuels. Future burns will need to be coordinated with the management of water levels using the structure mentioned above. **90% completed.**

Objective 13 *Locate, identify, and control non-native invasive plants. When these plants are discovered, a control plan will be developed and implemented based on the severity of the infestation and the availability of manpower and funding.*

Status: In the past five years the following invasive non-native plants have been located on THSF. *Albizia julibrissin* (mimosa), *Imperata cylindrica* (cogongrass), *Melia azedarach* (China berry), *Lygodium japonicum* (Japanese climbing fern), *Cinnamomum camphora* (camphor tree), *Lantana camara* (lantana), *Sapium sebiferum* (Chinese tallow), *Dioscorea bulbifera* (air potato) and *Panicum repens* (torpedo grass). The majority of these plants have been treated; however some are requiring a follow up treatment. As new locations are found they are added into the treatment plan for eradication. The treatments will decrease as the major infested areas are brought under control. The strategy for controlling the non-native invasive plants will become a maintenance type plan once an initial treatment has been implemented. **70% completed.**

Objective 14 *Explore the options of using THSF as a mitigation bank for local developments adjacent to the forest. This funding source can offset the cost of wetland restoration projects.*

Status: The THSF has been used as a mitigation site for one restoration project (Langwood Industries), and three other projects (3 Bridges, Carrabelle Rock and Highway 65) are in various stages of development. This type of project will continue to be an important source of funding for restoration of THSF; however, there will not be an attempt to turn the forest into an official Mitigation Bank. The requirements of this designation are not always consistent with the management of a multiple use public land. **75% completed.**

Goal 2: **Ensure long-term viability of populations and species considered rare, endangered, threatened or of special concern.**

Objective 1 *Inventory and monitor species and communities.*

Status: Biologists from DOF, Florida Fish and Wildlife Conservation Commission (FWC) and Florida Natural Areas Inventory (FNAI) have surveyed and monitored both flora and fauna listed species over the last five years. All records of listed species and special communities have been entered into FNAI data base and DOF has compiled a shape file for internal agency use. **100% completed.**

Objective 2 *Identify special protection areas and management strategies for listed species and communities.*

Status: In cooperation with FNAI, DOF biologists have identified areas known as special natural areas and are in the process of incorporating them into the management plan to maintain and strengthen their characteristics. The special natural areas include areas that contain both flora and fauna. **100% completed.**

Objective 3 *Special efforts will be taken to leave clusters of natural trees when thinning operations occur in the slash pine plantations. Volunteer longleaf pines will be protected, if feasible, as well as any older flat-topped pines in plantations.*

Status: Longleaf pines (*Pinus palustris*) and older slash pines (*Pinus elliottii*) have been marked both with paint and have had their locations mapped using a hand held GPS in an effort to protect the seed genetics for regeneration. **100% completed.**

Objective 4 *Locate cover, food, and breeding areas used by listed species and include locations on a habitat/vegetation map.*

Status: Habitats, foraging areas, and/or breeding grounds have been identified for the following species: Florida black bear, bald eagle, red-cockaded woodpecker, alligator snapping turtles, flatwoods salamander, gopher tortoise, and rare and threatened plants. These areas are monitored and updated periodically. Future surveys are planned to collect data on the remaining species and update the database annually. **75% completed.**

Objective 5 *Protect cover, food, and breeding places for listed species.*

Status: Known areas are compiled on shape files and noted as sensitive areas for protection during timber harvests, prescribe burns, and other anthropogenic disturbances. **70% completed.**

Objective 6 *Other specialized management practices for listed species may be implemented if deemed necessary. This includes designation of buffers for aquatic and wetland resources.*

Status: In progress and needs further input from DOF, FWC, FNAI, and other outside agency sources. **25% completed.**

Objective 7 *Establish a monitoring plan for all species that are threatened, endangered, and of special concern.*

Status: Monitoring plans have been established for RCW's and threatened and endangered plants within THSF. A monitoring plan for gopher tortoises was started in 2003 with field work ongoing. The value of the gopher tortoise as a keystone species in upland habitat is recognized for THSF ecosystem management. RCW monitoring plan **50% completed.**

Goal 3: Integrate human use through a total resource concept, not emphasizing any particular use over the others, or over restoration, maintenance and protection of native ecosystems.

Objective 1 *Continue developing an efficient and effective method for road shoulder maintenance.*

Status: DOF staff has experimented with many different methods over the years. Just in the past three years it has been determined that the tandem roller drum chop is the most efficient and effective method given the heavy vegetative build-up. A second visit with the chopper is often needed followed by harrowing and then grading. The long term goal is to maintain all primary and secondary road shoulders with a farm tractor powered mower. **100% completed.**

Objective 2 *Acquire the specialized equipment to perform the road maintenance necessary for safe travel throughout the forest.*

Status: Equipment, including two graders, two dump trucks, four farm tractors with implements, two choppers, and a backhoe have been acquired for the road program. **80% completed.**

Objective 3 *Develop a comprehensive road plan.*

Status: A comprehensive road plan was developed in 2002 and is updated annually as part of the five year operational plan. **100% completed.**

Objective 4 *FWC, in cooperation with DOF, will complete game surveys, determine types and dates of hunting, determine public information, safety and enforcement measures for each hunt.*

Status: *These tasks are completed on an annual basis*. 100% completed.

Objective 5 *Continue developing other recreational opportunities, such as hiking, camping, horseback riding, canoeing, fishing, bird watching, and boating.*

Status: Four miles of hiking trails have been established. Improvements were made to all primitive camp sites. A canoe brochure was developed and launch areas were designated on the New River. Three fishing piers were installed, while two boat launches were improved. A 400' cypress boardwalk was built and the Womack Creek Group Recreation Area was completed in 2004. **100% completed.**

Objective 6 *Conduct quarterly liaison meetings as a means of direct outreach to the local community, cooperating agencies, and user groups.*

Status: From 1998 to 2003, THSF has held 18 liaison group meetings. The idea behind the Liaison Group was to provide a direct outreach to our user groups, local communities, and cooperating agencies. Presentations by staff members and cooperating agencies provided updates on forest projects or shared information on planned activities. Since 2003 THSF has scaled down the frequency of the meetings to biennially. **100% completed.**

Objective 7 *Maintain property boundaries according to DOF standards so as not to alter natural communities while protecting public property from encroachment.*

Status: Over twenty miles of boundaries have been established during this planning period. Equipment that would be the least damaging to natural communities was used wherever possible. A D-6 crawler tractor has been custom fitted with a v-blade to specially address boundaries. This blade could be placed just above ground level while pushing, so as to create the least amount of ground disturbance. In the past few years, a gyro-trac machine has proven to be more effective and less destructive when treating the boundary lines. **90% completed.**

Objective 8 *Administer the historic apiary leases on the forest, while establishing stationary bee yards that do not hinder other management activities, natural systems, or listed species.*

Status: The apiary leases have been renewed every year since state acquisition. The leases generate about $1,500 in revenue and are an important resource for this local industry. THSF staff is currently in the process of finalizing the locations for permanent apiary sites. These sites are all located off roads, primarily in old logging decks. The sites will be established by DOF, with the lessees being responsible for routine maintenance. **90% completed.**

Objective 9 *Continue efforts in securing funds and overseeing the eventual development of a THSF Headquarters. This facility will need adequate office space, a shop, equipment sheds, power and water connections, and storage buildings.*

Status: In March 1999, ground was broken to clear the new site, approximately five acres. In February 2000, a contract was signed with a building construction company and on January 19, 2001, personnel moved into the new administration building (3,375 sq. ft. with 11 offices, 2 restrooms, and 1 conference room). In August 2001, personnel moved into the new maintenance shop (6,400 sq. ft. with 3 bays, 1 office, 1 restroom, 1 ranger room, and an upper and lower level warehouse). Personnel also moved into the new storage shed/pole barn area, (50'x 50' closed storage and 50'x 75' open storage) at that time. In November 2002, staff moved into the renovated old office, (approximately 1,100 sq. ft., 11 offices, 1 break room, and 1 restroom). Finally, on January 23, 2003 the official open house for the THSF Headquarters was held. Total budget was $935,000 of fixed capital outlay funds plus some additional funds from THSF operating budgets for lime rock, hoist, lifts, and miscellaneous furnishings for all buildings. **100% completed.**

Objective 10 *Explore the possibilities of using old borrow pits on the forest as an efficient source of road material needed to upgrade the forest roads.*

Status: It was determined early in this planning period that it would be best to purchase needed material from an adjacent lime rock pit. However with the eventual closing of the local private pit and the escalating price fuel, the idea of extracting materials from existing state forest pits is being explored once again. **50% completed.**

Goal 4: **Protect known archeological and historical resources.**

Objective 1 *Research and investigate proposed sites.*

Status: A file of all known sites within ¼ mile of the state forest boundaries has been created, and is updated as new sites are found, or new land is acquired. These sites are included on the state forest sensitive areas map, and equipment operators are advised of what precautions are needed when working near these sites. There are currently two employees at THSF certified to act as monitors for ground disturbing activities. Nineteen new sites, reported by state forest staff, have been added to the DHR Master Site file. **100% completed.**

Goal 5: Practice sustainable forest management utilizing sound silviculture techniques.

Objective 1 *Prepare, review and implement a Silviculture Management Plan.*

Status: A Silviculture Management Plan was created and incorporates several different five year plans. These plans are the Inventory Plan, the Harvest Plan, the Reforestation Plan, and the Fire Management Plan. The Silviculture Management Plan is reviewed and updated annually to reflect work completed. Refer to Florida's Silviculture Best Management Practices Manual, 2004 Edition (FDACS 2004) for applicable BMP's where timber harvesting and reforestation activities occur. **100% completed.**

Objective 2 *Conduct timber thinnings in order to maintain appropriate stand densities, to maintain and improve forest health, to regenerate stands, and to salvage wood following natural disasters. There will be an attempt to thin all pine plantations over the age of 20 (approximately 10,000 acres) that are approaching crown closure.*

Status: Between 1998 and 2003, approximately 2,800 acres on THSF were thinned. The majority of these stands were third row thinned. Several stands located along the New River were marked and selectively cut. Two salvage sales, totaling 200 acres, were conducted on THSF due to hotspots during prescribed burns. In fall 2002, the Apalachicola Bay 2002 sale began and approximately 9,400 acres of timber will be thinned over the next three years. **60% completed.**

Objective 3 *Priority will be given to identifying the higher ridge sites and some of the mesic flatwoods and restore them by using prescribed fire and planting of longleaf pine at a rate of approximately 2,500 acres per year.*

Status: Over 6,000 acres of longleaf pine have been planted in THSF. The planted areas are identified using the FNAI Guidelines for Restoration of Historic Vegetation. It is difficult to conduct a longleaf pine release burn in planted areas due to insufficient fuels to carry the fire. In 2001, a new idea was adopted in hopes of increasing available fine fuels in planting areas. An area will be chopped in the spring, and burned within 2-4 weeks. Two years later, a growing season burn will be conducted. The forester-in-charge will then determine the higher ridge longleaf pine sites. In the fall the higher ridge sites will be planted. **75% completed.**

Objective 4 *Maintain an ongoing timber inventory updating the intensive 1997 inventory, so that this inventory can be used as a tool for management decisions.*

Status: An inventory of merchantable pine stands was conducted in the fall of 2000, 2001 and 2002. It was determined from the pine inventory, that there are approximately 829,584 tons of pulpwood, 435,125 tons of chip-n-saw, and 145,514 tons of saw timber. In November of 1999 a comprehensive hardwood inventory was completed. All inventories were completed following the DOF procedure. Recent acquisitions have additional pine and hardwood stands. Cruise data from these stands have been obtained and inventories will be updated according to state forest guidelines. **100% completed.**

D. Goals/Objectives for the Next Ten Year Period

The following goals and objectives provide direction and focus for management resources over the next ten-year planning period. Funding, agency priorities, and wildfires (or other natural disasters) will be influential in determining the degree to which these objectives are met.

GOAL 1: Restore, maintain, and protect all native ecosystems, insuring long-term viability of populations and species considered rare, threatened, endangered, or of special concern.

Objectives:

1. Increase the proportion of prescribed burn acreage that is conducted during the growing (lightning) season, as opposed to the dormant season.
   Performance Measure: Change in percentage of acreage burned in each season.

2. Update the fire management plan as needed.
Performance Measure: Fire Management Plan updated annually.

3. Develop and implement a Non-native Invasive Species Plan including guidelines for detection, monitoring, prevention, and treatment of such species identified on the state forest.
Performance Measure: Plan Developed; implementation begun.

4. Maintain state forest boundaries, including boundary signs and blazes, as well as harrowed perimeter lines in uplands to clearly define property boundaries and assist in fire management.
Performance Measure: Maintain or improve one third of boundary line per year or approximately 55 miles along the boundary following the THSF Boundary Maintenance Plan and State Lands Handbook, Section 11.2. Boundary Maintenance is divided evenly between Forest Area Supervisors and their crews. Nine of the ten tracts on THSF have some perimeter edge with maintained boundary line.

5. In conjunction with FWC and FNAI, conduct faunal and floral inventories to identify presence and distribution of species that are threatened, endangered, or of special concern.
Performance Measure: Inventory conducted and incorporated into GIS coverage.

6. Establish and update a series of photo plots that will be used to monitor sensitive areas and define management needs for these areas.
Performance Measure: Photo plots established and updated at least once a year.

7. Research and map environmentally sensitive communities and ecotones in order to protect them when establishing firelines and carrying out management work.
Performance Measure: Research and map sensitive areas and include in the Fire Management Plan. Train staff to protect sensitive sites.

8. Sustain and improve monitoring programs for RCWs, gopher tortoise, and rare plants.
Performance Measure: Yearly field work to assess robustness of respective populations.

GOAL 2: Encourage and enhance multiple-use management, including human use, in a manner that is agreeable with other long-term goals, especially protection of native ecosystems.

Objectives:

1. Update annually the Outdoor Recreation Plan.
Performance Measure: Outdoor Recreation Plan updated.

2. Develop a Road Management Plan for the entire forest, including a GIS road layer with attributes. Prioritize areas for treatment and initiate these treatments to the extent that resources are available. Update the GIS road layer as improvements are made. Include in mapping any roads modified or removed for hydrologic restoration. Pay particular attention to upgrading all public use roads.
Performance Measure: Road Management Plan prepared and kept updated.

3. Continue to hold semi-annual liaison committee meetings to receive concerns and feedback from various user groups of the state forest.

Performance Measure: Liaison meetings held on schedule.

4. Conduct annually an organized activity or media promotion for State Forest Awareness Month.
Performance Measure: State Forest Awareness Month activity or article completed.

5. Pursue additional revenue-generating possibilities through miscellaneous forest product sales (palmetto fronds, crooked wood, etc.), recreation fees, and/or leases (cattle, apiary, worm grunting, etc.).
Performance Measure: Increased fees earned through sales.

GOAL 3: Practice sustainable forest management utilizing sound silvicultural techniques.

Objectives:

1. Conduct forest inventory updates every year, according to established criteria.
Performance Measure: Acres of forest inventories conducted annually.

2. Review, update and implement the Silviculture Management Plan which consists of the following plans; reforestation, inventory, harvest and prescribed burning. Complete reforestation of all cut-over acres with appropriate species at densities suitable for the site. Apply Silviculture BMPs where applicable.
Performance measure: Percentage of the Silviculture Management Plan implemented. Silviculture Management Plan update annually.

3. Conduct all timber harvests in a manner that maintains appropriate stand densities, improves forest health, regenerates cutover stands with appropriate species, salvages wood following natural disasters, and minimizes ground disturbance.
Performance Measure: Timber sales conducted in a satisfactory and sustainable manner and in BMP compliance.

4. Evaluate the effectiveness of previous reforestation/restoration projects, and develop recommendations for additional treatments on sites where warranted (i.e. supplemental planting, herbicide applications, burning, etc.).
Performance Measure: Sites evaluated and plans implemented.

5. Implement the prescribed burn plan to decrease fuel loads, promote restoration, and maintain native community structure.
Performance Measure: Percentage of planned burned acres completed.

GOAL 4: Protect known archaeological and historical resources.

Objectives:

1. Train additional personnel as archaeological monitors, and have them on site during management activities where needed.
Performance Measure: Number of personnel trained as monitors.

2. Update "Environmentally Sensitive Areas" map in Fire Management Plan and inform THSF crews of archaeological sites where heavy equipment use should be avoided.
Performance Measure: Update "Environmentally Sensitive Areas" map.

GOAL 5: Restore, maintain, and protect hydrologic functions related to the quality and quantity of water resources and the health of associated wetland and aquatic natural communities.

Objectives:

1. Conduct road inspections to determine the need for installation or replacement of culverts and hard water crossings.
Performance Measure: Conduct annual inspection.

2. Rehabilitate firelines to reduce channeling of water.
Performance Measure: Percent of fire lines rehabilitated.

3. Develop and implement hydrological restoration plans for watersheds that have been damaged by past management activities.
Performance Measure: Number of restoration projects developed and implemented.

4. Investigate and recruit sources of funding and cooperative projects with other agencies for restoration of hydrology.
Performance Measure: Value of work completed using mitigation projects and grants.

II. ADMINISTRATIVE SECTION

A. Descriptive Information

1. Common Name of Property

Tate’s Hell State Forest (THSF)

2. Location, Boundaries and Improvements

Approximately ninety percent of Tate’s Hell State Forest is located in Franklin County, between the Apalachicola and the Ochlockonee Rivers, and ten percent is located in the southeast corner of Liberty County (Exhibit A). The forest has been divided into ten different management units using property lines, natural features, major roads, and land use designations as clear divisions from one tract to the next.

There are several structures on the state forest located at four different locations. At one location there is a pavilion just off of Gully Branch Road at the New River. At the Womack Creek Group Recreation Area there is a bathhouse facility just recently constructed on the slab of an old hunting lodge. This recreation area is located off Jeff Sanders Road adjacent to the Ochlockonee River in Section 33, Township 5 South, Range 3 West. A boardwalk is located ¼ mile south of Dry Bridge Road at the dead end of Hat Rack Road. At the state forest headquarters site there are four structures built to house management staff and repair and secure equipment. These include a main administrative building, a renovated block house that provides additional office space, a three-bay equipment maintenance shop and a storage building with equipment storage bays. There are approximately 900 miles of woods roads and 33 bridges on THSF.

3. Legal Description and Acreage

Tate's Hell State Forest is made up of one contiguous tract totaling 202,436.58 acres located in Franklin and Liberty Counties, Florida (Exhibit B). The property is in all or part of:

Township 5 South, Range 3 West; Sections 19, 20, and 28-34,
Township 5 South, Range 4 West; Sections 13-15, and 19-36,

Township 5 South, Range 5 West; Sections 19-36,
Township 5 South, Range 6 West; Sections 19-36,
Township 5 South, Range 7 West; Sections 22-27, and Sections 34-36,
Township 6 South, Range 3 West; Sections 3-9, 14-23, and 27-31,
Township 6 South, Range 4 West; Sections 1-36
Township 6 South, Range 5 West; Sections 1-36,
Township 6 South, Range 6 West; Sections 1-36,
Township 6 South, Range 7 West; Sections 1-3, 10-15, 22-27, and 34-36,
Township 7 South, Range 4 West; Sections 1-10, and 17 & 18,
Township 7 South, Range 5 West; Sections 1-34,
Township 7 South, Range 6 West; Sections 1-30, and 32-36,
Township 7 South, Range 7 West; Sections 1-18, and 23-26 & 35,
Township 8 South, Range 5 West; Sections 3-9, and 18,
Township 8 South, Range 6 West; Sections 1-5, 7-18 and 20 & 21

A complete legal description of lands owned by The Board of Trustees of the Internal Improvement Trust Fund (Trustees) as part of THSF is on record at the THSF Headquarters, and the Department of Environmental Protection (DEP) and the DOF state office in Tallahassee.

4. Degree of Title Interest Held by the Board

The Trustees holds fee simple title to THSF. Lease agreement number 4041 between the Trustees and the Florida Department of Agriculture and Consumer Services, DOF, provides authority for the DOF to manage THSF as the "lead agency" and the FWC to act as a "cooperating agency."

Oil, gas and mineral rights are reserved on approximately 17,783 acres of the forest. Since these are royalty reservations only and do not include access rights, these reservations do not appear to be a problem from a management perspective.

5. Proximity to Other Public Resources

THSF is in close proximity to several other public lands (Exhibit C). It shares approximately 33 miles of boundaries with the Apalachicola National Forest. The Apalachicola River Wildlife and Environmental Area is located just west of THSF on the west side of State Road (SR) 65. FWC also manages land (known as the Quinn Tract) as part of the Tate’s Hell Wildlife Management Area. This land is adjacent to THSF. The forest also adjoins portions of the Apalachicola Bay Aquatic Preserve and the Apalachicola National Estuarine Research Reserve. The following public resources are listed with the shortest straight line distance and direction:

TRACT	AGENCY	DISTANCE
Apalachicola Bay Aquatic Preserve	DEP	adjacent SW
Apalachicola National Estuarine Research Reserve	NOAA	adjacent S
Apalachicola National Forest	USFS	adjacent N
Apalachicola River Wildlife and Environmental Area	NWFWMD	adjacent W
Tate’s Hell Wildlife Management Area	FWC	adjacent W
St. Marks National Wildlife Refuge	USFWS	1 mile E
Ochlockonee River State Park	DRP	2 miles E
Dog Island	TNC	4 miles SE
St. George Island State Park	DRP	4 miles S
Alligator Harbor Aquatic Preserve	DEP	4 miles SE
Jeff Lewis Wilderness Preserve	TNC	5 miles SE
Apalachicola River Water Management Area	NWFWMD	5 miles W

TRACT	AGENCY	DISTANCE
John S. Phipps Preserve	TNC	8 miles SE
Bald Point State Park	DRP	12 miles SE
Cape St. George State Reserve	DRP	12 miles SW
St. Vincent National Wildlife Refuge	USFWS	15 miles SW
Dead Lakes State Recreation Area	DRP	19 miles NW
Edward Ball Wakulla Springs State Park	DRP	21 miles NE
Wakulla State Forest	DOF	22 miles NE
Tallahassee-St. Marks Historic Railroad State Trail	DRP	22 miles NE
Lake Talquin State Forest	DOF	24 miles N
Lake Talquin State Recreation Area	DRP	26 miles N
Joe Budd Wildlife Management Area	FWC	28 miles N

DEP- Florida Department of Environmental Protection
DOF- Florida Department of Agriculture and Consumer Services, Division of Forestry
DRP- Florida Department of Environmental Protection, Division of Recreation and Parks
FWC- Florida Fish and Wildlife Conservation Commission
NOAA- National Oceanic and Atmospheric Administration
NWFWMD-Northwest Florida Water Management District
TNC- The Nature Conservancy
USFS- United States Forest Service
USFWS- United States Fish and Wildlife Service

6. Aquatic Preserve/Area of Critical State Concern

The majority (90%) of THSF is located in Franklin County, with a smaller percentage (10%) located in Liberty County. Franklin County was designated an Area of Critical State Concern from 1985-1994 and continues to be monitored by the Department of Community Affairs for post designation implementation. Apalachicola Bay, including East Bay, is designated as a State Aquatic Preserve. Water from within the current THSF boundary drains into East Bay, St. George Sound, and the Apalachicola River, with the majority of the discharge into East Bay, the primary nursery area of Apalachicola Bay.

B. Acquisition Information

1. Land Acquisition Program

The majority of the property was purchased under the Conservation and Recreation Lands Program (CARL), beginning with the first purchase on February 8, 1994, and continuing to the present. The NWFWMD through the Surface Water Improvement and Management (SWIM) Program initiated interest in the Tate’s Hell property. Protection and improvement of the water quality and aquatic habitat of East Bay drove the decision to include THSF as a priority project under the Save Our Rivers Land Acquisition Program. Ultimately, the DEP led the acquisition effort under the CARL Program, utilizing some funds transferred from the NWFWMD for acquisition of approximately 24,706 acres. Subsequent to that purchase, the DEP acquired an additional 165,822.08 acres, under the CARL and Florida Forever Programs. DOF purchased an additional 11,908.50 acres with its Preservation 2000 and Florida Forever in-holdings and addition funds. Efforts to acquire additional lands in the area continue. Total potential state acquisition for Tate's Hell State Forest (as defined by the CARL Project boundaries) may reach 205,000 acres. Table 2 summarizes the acquisition history of the present state forest boundaries.

TABLE 2.
TATE'S HELL STATE FOREST ACREAGE BY PARCEL

#	MANAGEMENT TRACT	PARCEL NAME	DEED DATE	LEASE DATE	LEASE NO.	AMD. NO.	FUNDING SOURCE	COUNTY	ACRES
1	MULTI	GLAWSON	2/8/1994	3/13/1995	4041	---	CARL	FRANKLIN	24,706.00
2	MULTI	MacDONALD	6/14/1995	11/20/1995	4041	1	CARL	FRANKLIN	42,727.28
3	WHISKEY GEORGE	TPL/GLAWSON	1/27/1995	6/4/1996	4041	2	CARL	FRANKLIN	1,308.90
4	MULTI	COASTAL TIMBER	6/13/1996	8/8/1997	4041	3	CARL	FRANKLIN	17,972.60
5	JUNIPER CREEK	SOUTHERN PINE PLANTATION OF GEORGIA	7/2/1996	8/8/1997	4041	3	CARL	FRANKLIN	7,358.50
6	JUNIPER CREEK	SOUTHERN PINE PLANTATION OF GEORGIA	7/2/1996	8/8/1997	4041	3	CARL	LIBERTY	7,598.10
7	TROUT CREEK	CHRISTIAN/ WOOTEN	9/12/1996	8/8/1997	4041	3	CARL	FRANKLIN	1,316.10
8	TROUT CREEK	CHRISTIAN/ WOOTEN	9/12/1996	8/8/1997	4041	3	CARL	FRANKLIN	213.50
9	MULTI	NEW RIVER (TNC/DENNIS)	10/25/1996	8/8/1997	4041	4	DOF/P2000	FRANKLIN	2,089.00
10	JUNIPER CREEK	NEW RIVER (TNC/DENNIS)	10/25/1996	8/8/1997	4041	4	DOF/P2000	LIBERTY	540.00
11	MULTI	REX LUMBER	10/28/1996	8/8/1997	4041	4	CARL	FRANKLIN	20,691.00
12	WOMACK CREEK	REX LUMBER	10/28/1996	8/8/1997	4041	4	CARL	LIBERTY	3,229.00
13	HIGH BLUFF	H.K. JOHNSON	12/30/1996	8/8/1997	4041	4	CARL	FRANKLIN	112.60
14	HIGH BLUFF	J.E. CORRY/UF	12/30/1996	8/8/1997	4041	4	CARL	FRANKLIN	1,030.10
15	HIGH BLUFF	YENT BAYOU	2/14/1997	8/8/1997	4041	4	CARL	FRANKLIN	363.00
16	SUMATRA	ST. JOE	7/19/1999	1/21/2000	4041	5	CARL	FRANKLIN	3,742.47
17	SUMATRA	ST. JOE	7/19/1999	1/21/2000	4041	5	DOF/P2000	FRANKLIN	2,971.68
18	SUMATRA	ST. JOE	7/19/1999	1/21/2000	4041	5	DOF/P2000	LIBERTY	2,893.85
19	SUMATRA	ST. JOE	7/19/1999	1/21/2000	4041	5	CARL	LIBERTY	3,644.45
20	HIGH BLUFF	ST. JOE	9/25/2001	3/11/2003	4041	6	DOF/P2000	FRANKLIN	3,413.97
21	MULTI	PROFUNDUS HOLDINGS INC.	6/16/2003	11/17/2003	4041	7	FLORIDA FOREVER	LIBERTY	503.00
22	MULTI	PROFUNDUS HOLDINGS INC.	6/16/2003	11/17/2003	4041	7	FLORIDA FOREVER	FRANKLIN	36,750.70
23	CROOKED RIVER	ST. JOE – CROOKED RIVER	12/24/2003	4/20/2004	4041	8	FLORIDA FOREVER	FRANKLIN	13,260.10
24	NEW RIVER	NEW RIVER			4041		FLORIDA FOREVER	FRANKLIN & LIBERTY	4,000.68

DOF P2000	11,908.50
CARL/P2000	136,013.60
FLORIDA FOREVER	54,514.48
CARL MGT. ACRES	202,436.58
TOTAL ACRES	202,436.58

2. Legislative or Executive Constraints

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

3. Purpose for Acquisition

The goals and objectives from CARL include:

1) Conservation of lands supporting native, relatively unaltered flora or fauna representing a natural area unique to, or scarce within, a region of Florida or larger geographical area,
2) Conservation of lands supporting habitat critical to providing significant protection for an endangered or threatened species of plant or animal,
3) Prevention of future degradation of the waters of the Apalachicola Bay Aquatic Preserve by preventing future commercial, agricultural, silvicultural, and residential development that might degrade water quality in the streams emptying into Apalachicola Bay,
4) Provision of opportunities for recreational activities that are compatible with the protection of the rare and sensitive resources, and
5) Restoration of altered ecosystems to correct environmental damage that has already occurred.

4. Designated Single or Multiple-Use Management

The THSF is designated for multiple-use management. Authority for multiple-use management is given under Florida Statutes, Chapters 253 and 589. Multiple-use management includes, but is not limited to, silvicultural management, recreation management, wildlife management, archeological and cultural resource management, ecosystem restoration, environmental education and watershed management. The goal of DOF is to restore, protect and manage ecosystems and to maintain biological diversity and ecosystem functions, while integrating public use through the multiple-use concept. A balanced multiple-use program does not necessarily result from an equal division of acreage to each use. Local demands and geographic features influence the array of uses to be applied to each area of the forest. Only uses compatible with the conservation of THSF and its ecosystems will be implemented.

5. Alternate Uses Considered

The following uses were considered and determined not compatible with the management goals of this state forest: water resource development projects, water supply development projects, storm-water management projects, linear facilities, communication towers and antennas, except as otherwise outlined in this plan. The Northwest Florida Water Management District (NWFWMD) does maintain a set of deep water table monitoring wells on THSF. There are currently 4 wells, two in the Juniper Creek Tract and two in the Womack Creek Tract.

6. Additional Land Needs (Exhibit D)

The current CARL Project boundaries for Tate's Hell State Forest include approximately 205,000 acres. The existing THSF lands encompass approximately 202,436.58 acres. Acquisition of the remaining acreage is necessary to help insure the protection of Apalachicola Bay from non-point source pollution and provide adequate habitat for the threatened Florida black bear.

There are several small tracts adjacent to THSF that should also be purchased to protect important areas, consolidate boundaries or to make management of the existing property easier. Acquisition of private in-holdings on a willing seller basis is encouraged to make the forest more continuous and improve overall management capabilities.

7. Adjacent Conflicting Uses

THSF is fortunate in that the property has few in-holdings or boundaries with private property. Most of the private property is on the south end of the forest between Carrabelle and Eastpoint. Much of this private property is being developed, primarily for residences and vacation homes. In some areas, this may cause some problems with encroachment and smoke management, but this is expected to be minimal.

There are two out-parcels on the eastern side of the state forest that are intended to be used as limerock mines. These mines are large, open pit mines. Potential conflicts include the effects of mining operations on the water and wetlands adjacent to the state forest.

The smaller of the two parcels is operated by Gulf Coast Aggregates Inc. Gulf Coast Aggregates Inc. owns the mineral rights, but not the land outright. There is an agreement that this land will be transferred to the State after mining operations are completed, or in 2015, whichever comes first. The company began mining operations in 1994. The mine primarily produces a road base type material. Some additional products are occasionally produced including fossilized shell, overburden, and large rock. This mine has been a source of road building materials for the state forest operation. Additionally, the mine has been a source of wetland restoration funding through mitigation of wetlands damaged by mining operations. In the past, THSF has been able to work with this company to allow them to prescribe burn state forest property adjacent to the mine.

The larger mine (650 acres) is owned outright by Carrabelle Rock Inc. The owners are currently in the process of getting permits to begin operating. This mine is expected to produce similar products to what is produced by the Gulf Coast Aggregates Inc. mine. Most of the boundaries with this mine are along roads, except for the north and south boundaries. Firelines have been installed along these boundaries. It is expected that we will be able to work with the owners for fire and smoke management in this area. The presence of this out-parcel may be an obstacle in the restoration of natural hydrology in this area. In addition, some wetlands that flow from the property onto State lands may be impacted. These impacts are still being discussed as part of the mine permitting process. It would be beneficial to THSF to purchase all or part of this property to provide additional hydrologic function and possible recreational use in this part of the forest.

8. Surplus Land Assessment

This state forest has been reviewed and evaluated to determine if there are any lands that are surplus from a management standpoint. All of the land within the forest is suitable and necessary for state forest management and none is considered or will be declared surplus.

C. Agency & Public Involvement

1. Responsibilities of Managing Agencies

The DOF is the lead agency responsible for the overall management of THSF. The FWC, a cooperating agency, is responsible for enforcing hunting regulations, setting hunting season dates, and conducting other wildlife management activities.

The Department of State, Division of Historical Resources (DHR) provides expertise concerning the archaeological and historical resources on the forest. The DOF cooperates with the DHR regarding appropriate management practices on historical or archaeological sites on the forest as stated in Section 267.061(2)(d), Florida Statutes. Ground disturbing activities not specifically covered by this plan will be conducted following the parameters of the most current List of ARC/Division of State Lands Approved Interim Management Activities.

2. Public and Local Government Involvement

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

The plan was developed with input from the THSF Management Plan Advisory Group through a process of review and comment. The advisory group also conducted a public hearing on December 12, 2006 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 E. 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 Franklin and Liberty Counties and to the Carrabelle Municipality for review of compliance with their local comprehensive plan (Exhibit F).

III. RESOURCE SECTION

A. Past Uses

Little commercial development occurred in the Tate's Hell area in the early 1800's with selective timber cutting and cattle grazing important to homesteaders. The present day city of Carrabelle was essentially a hunting and fishing camp. By 1877, the town of Carrabelle was founded and catering to the growing timber industry which by the 1890s included turpentine extraction. Early 1900's onward to the 1950's cattle grazing, turpentining, and lumbering continued as major drivers of the local economy. In the 1920s, Harbeson City, north of Carrabelle, was the site of the county's largest sawmill with a peak capacity at 40,000 board feet per day. Tram lines reached out to blocks of old growth longleaf but included cypress and Atlantic white cedar to keep the mill supplied. Across the area, there were six other small mills but by 1939 the mills were operating at half capacity due to far fewer and more widely scattered blocks of old growth trees. Cattlemen continued to use pine savannahs for grazing, setting spring fires in the grassy understory to improve forage. About this time, the seafood industry developed commercial importance following improvements to refrigeration and transport.

In the early 1940's Camp Gordon Johnson was established in the locale as a sprawling U.S. Amphibious Training Center and became an important source of revenue and jobs during WWII. From the mid 1950's until state acquisition, forest industry owned and managed this land for timber production. During the 1960's and 1970's, the hydrology was substantially altered in an attempt to establish extensive tracts of pine plantations and to enhance the production of pine timber. These alterations involved the construction of roads and associated ditches, followed by planting of large dense stands of slash pine that were fertilized with phosphorus and nitrogen. Aerial photos from 1953 through 1999 (Exhibit G) illustrate the land alterations. Historic documents, aerial photographs, maps, and testimonies depict the Tate's Hell landscape prior to the 1950's as more open and grassy than at present. The network of roads established by forest industry has done much to increase public access to the area, making it a popular location for local residents to hunt and fish (FNAI, 1997).

B. <u>Renewable and Non-Renewable Resources</u>

1. <u>Soil Types</u>

The THSF has 37 different soil types identified (Exhibit H). The majority of the forest lies within the boundaries of Franklin County, which was surveyed by the United States Department of Agriculture, Natural Resource Conservation Service (USDA 1994). The remaining land is located in Liberty County, where the soil survey has not yet been completed and therefore is not shown in Exhibit H. Liberty County soil information is obtained from the county extension office as needed.

The FNAI has classified approximately 44,000 acres of THSF as 'basin swamp/shrub wetland/mixed forested wetland.' The majority of this community type is found in the Juniper Creek and Pickett's Bay Tracts. The Juniper Creek Tract is mainly composed of Harbeson Mucky Loamy Sand. Natural vegetation found on this soil type includes Atlantic white-cedar, cypress, sweetbay, sweetgum, slash pine, red maple, and Carolina water ash and an understory of St. John's wort, sedges, greenbrier, and pitcher plant. The Picket's Bay Tract is located south of the Juniper Creek Tract and is comprised mostly of the Pickney-Pamlico Complex. The natural vegetation located in this area consists of sweetbay, swamp tupelo, black titi, swamp cyrilla, and scattered slash pine. Scattered throughout these depressional areas are small pockets of flatwoods and savanna areas composed of Meadowbrook, Scranton, and Leon Sands.

According to FNAI, the 'mesic flatwoods/swamp mosaic' (MF/SM) vegetation type encompasses just over 40,000 acres of THSF. Large areas of MF/SM can be found in the northern portions of the Womack Creek and Juniper Creek Tracts, along with the eastern parts of the Sumatra and Whiskey George Tracts. Classified as North Florida flatwoods, this group contains several different types of sands, fine sands, and sloughs. The xeric flatwoods ridges contain Leon and Tooles Sands, along with Albany, Mandarin, and Sapelo Fine Sands. Natural vegetation for these areas consists of longleaf and slash pines, saw palmetto, gallberry, wiregrass, turkey oak, and wax myrtle. The mesic flatwoods sites, which may include transitional savannas, are made up of Leefield, Lynn Haven and Meadowbrook Sands, in addition to Pelham, Plummer, and Scranton Fine Sands. Natural vegetation found on these areas includes slash and longleaf pines, sweetbay, blackgum, and a few widely scattered cypress and an understory of scattered saw palmetto, gallberry, wax myrtle, pitcher plant, black titi, water-tolerant grasses, St. John's wort, and fetterbush lyonia. The hydric areas make up the 'swamp mosaic' part of the description, and include primarily titi heads and cypress strands. They are associated with the Meadowbrook Sand-Slough, Scranton Sand-Slough, and Rutledge Fine Sand soil types.

The THSF has an estimated 50,000 acres that historically fall into the ‘wet savanna’ class as their natural condition. Large areas of wet savanna are located in the Whiskey George, Deep Creek, and Trout Creek Tracts. Some of these areas are pure wet savannas. Others contain patches of drier flatwoods containing longleaf and slash pines, and others still contain a higher density of cypress and pines along with the savanna vegetation-possibly due to less frequent fires. For the most part these areas share the same basic wet savanna soil types including Plummer and Scranton Fine Sands. Higher ridges contain a variety of flatwoods soils as mentioned earlier. The ‘wet savanna-cypress flats’ areas contain Rutledge and Surrency Fine Sands, as well as Dorovan-Pamlico and Scranton-Slough Soils.

2. <u>Archaeological and Historical Resources</u>

The DHR performed a preliminary survey of the THSF in 1997. This survey concentrated on areas of high probability, and did result in the discovery of several new sites. Additionally, as new sites have been discovered during other management activities, they have been recorded in the master site file. The Bureau of Archaeological Research has conducted an assessment of cultural resources on THSF. Thirty-six (38) archaeological sites have been recorded shown below in Table 3. Most of these sites were from the early settlement and the turpentine era. These include old home sites, historic bridge ruins, and cattle dipping vats. There are several aboriginal sites, mostly along the coast. Information on the archaeological and historical resources of the area has been supplied by the DHR. An update of all known cultural sites was obtained from the DHR in May of 2003. GIS coverage of cultural sites and a database with the corresponding site file information was provided. Utilizing ArcView GIS software, staff members responsible for cultural sites can view the locations on aerial photos and access a table showing specific site details. This information was provided to allow for the protection of sites during land management activities.

TABLE 3. Archaeological and Historical Sites on THSF

SITE ID	SITE NAME	SITE TYPE
FR00885	PILE OF CUPS	Naval stores-related
FR00886	NORTH BEVERLY	Naval stores-related
FR00887	BURNT BRIDGE DIPPING VAT	Other
FR00007	TOPSAIL BLUFF	Prehistoric shell midden
FR00751	PITCHER PLANT	Lithic scatter/quarry
FR00753	WHISKEY GEORGE CREEK	Campsite (prehistoric)
FR00785	DOT’S LANDING	Prehistoric midden(s)
FR00827	USFS 90-3 APA/BUZZING WIRES	Artifact scatter-low density
FR00862	HIGH BLUFF HOMESTEAD	Homestead
FR00865	OXBOX BLUFF	Prehistoric lithics only
FR00866	OYSTER CAMP	Campsite (prehistoric)
FR00869	TURTLE KILL	Ceramic scatter
FR00870	JOHN ALLEN RIDGE	Ceramic scatter
FR00871	POWERLINE RIDGE	Prehistoric lithics only
FR00872	CINDER PALACE	Artifact scatter-low density
FR00874	APIARY POINT	Lithic scatter/quarry
FR00875	LAURA’S CATTLE DIP	Other
FR00879	HARBESON CITY BRIDGE	Bridge
FR00880	AIRSTRIP	Prehistoric lithics only
FR00920	GATOR CREEK BRIDGE	Bridge

SITE ID	SITE NAME	SITE TYPE
FR00921	SPARKY'S GRAVE	Other
FR00923	BUCK SIDING	Land-terrestrial
FR00924	POPE PLACE	Land-terrestrial
FR00925	PARKER PLACE	Land-terrestrial
FR00926	DEEP CREEK STILL	Land-terrestrial
FR00927	LEWIS BLUFF BRIDGE REMAINS	Land-terrestrial
FR00929	NERO CREEK HOMESITE	Historical scatter
FR00930	OLD SCHOOL	Land-terrestrial
FR00931	GULLY BRANCH	Land-terrestrial
FR00932	ROCK LANDING	Land-terrestrial
FR00933	SQUIRREL ROAD DIPPING VAT	Land-terrestrial
FR00934	DEW DROP INN	Land-terrestrial
FR00935	MORGAN STILL	Land-terrestrial
LI00433	HIGH POINT HOMESTEAD	Land-terrestrial
LI00434	LOBLOLLY LANDING	Land-terrestrial
LI00435	COACHMAN LANDING	Land-terrestrial
LI00454	USFS #98-05 APA	Land-terrestrial
LI00456	HENRY J. BROWN GRAVE SITE 1902	Historical cemetery plot

The DOF will comply with guidelines outlined in Management Procedures for Archaeological and Historical Sites and Properties on State Owned or Controlled Lands (Exhibit I)**,** will protect known archaeological and historical sites, and will also utilize the expertise of the DHR CARL archaeologists, when available, for detecting unknown resources, and to make recommendations in the management of known resources.

Additional formal archaeological surveys are not planned, but areas that have a high probability to contain sites will be monitored during and after ground disturbing activities to see if sites are present. Land management activities within the forest that potentially impact known historical or archaeological sites are covered by the THSF environmental assessment process that requires all proposed ground disturbing activities be reviewed by a DHR-certified monitor. The DOF will consult representatives of the DHR and the FNAI prior to the initiation of any proposed significant ground disturbing activity. The DOF will make every effort to protect known archaeological and historical resources. Ground disturbing activities not specifically covered by this plan will be conducted under the parameters of the List of ARC/Division of State Lands Approved Interim Management Activities (on file at the THSF Office). The DOF will comply with all appropriate provisions of Section 267.061(2), Florida Statutes.

Discovery of additional cultural sites can still be expected, especially along any ridges or interior uplands near water sources. Shell middens would be expected along coastal and riverine zones. If previously unknown or unrecorded historic or archaeological sites are discovered, the local DHR-trained monitoring staff will fill out the appropriate forms, and send them to the master site file to be recorded. Digging and collection of artifacts will not occur without DHR personnel present unless the artifacts are in danger of being disturbed or stolen. Additional sites found will be submitted to the DHR and included in the THSF Sensitive Areas Map to be protected from disturbance.

The DOF will arrange for state forest personnel to attend a DHR Archaeological Monitor Training in order to maintain two trained monitors on the THSF staff. Trained monitors will oversee ground disturbing activities in which DHR recommends monitoring. Known archaeological and historical sites will be identified on maps to aid state forest and law enforcement personnel in patrolling and protecting sites.

3. **Water Resources**

The predominant hydrologic feature within the state forest is Tate's Hell Swamp, which drains into Apalachicola River and Bay. The River and Bay are designated as Outstanding Florida Waters (OFW's), and are the highest priority water bodies under the NWFWMD's SWIM Program. The Apalachicola River is classified as Class-III waterway with designated uses for recreation and propagation and maintenance of a healthy, well balanced population of fish and wildlife. Apalachicola Bay is a State Aquatic Preserve and Class II water with designated uses such as shellfish propagation and harvesting.

The tributaries to East Bay are designated as Class II waters. These include Cash Creek, High Bluff Creek, Rake Creek, Whiskey George Creek, Juniper Creek and Doyle Creek. All the other waters of the forest are designated as Class III waters. The main tributaries carrying water from the Tate's Hell Swamp to Apalachicola River include Bay Cash Creek, Whiskey George Creek, Deep Creek, and Fort Gadsden Creek.

The New, Ochlockonee and Crooked Rivers are the remaining major rivers that adjoin THSF. Numerous other creeks and drainages exist throughout the forest including such named creeks as: Alligator, Bear, Cow, Deep, Fish, Gully Branch, Graham, Sunday Rollaway, Pine Log, Roberts, Sanborn, Sandbank, Trout, Womack, and two Juniper Creeks.

There is only one natural lake on THSF, and the state property is actually only part of the bottom and a small piece of shoreline. Lake McKissack is located in Section 25, Township 7 South, Range 5 West. This is ½ mile east of the THSF Headquarters just north of Airport Road. There is no reasonable way to manage this property, and the only thing to do here is to minimize encroachment from the adjacent residential lots. At one time, two of the adjacent lots were being considered for State purchase, but negotiations failed. In addition, a large parcel (300+ acres) owned by Black Bear Industries was being considered, but again, the negotiations did not work out. State acquisition of either of these properties would connect the lake to the rest of THSF, and allow for the development of a small recreation area. Therefore these lots may be reconsidered at a later time.

Several ponds are scattered throughout the forest. Large shallow ponds are found on the High Bluff Tract just inland from the old dunes. These ponds dry up completely during dry periods. Other smaller, but similar, ponds are found throughout the forest. Some of these ponds have potential as flatwoods salamander breeding ponds. There are a few old borrow pits on the forest. These pits are no longer in use, and have filled with water. Some of these pits could potentially be stocked with native fish species to provide recreational fishing opportunities. Surveys would be needed to determine if the edges of the pits would need to be re-contoured to provide better fish habitat.

4. **Fish and Wildlife**

The native wildlife resources of the THSF are of major importance, not only to the maintenance of healthy, functioning ecosystems, but also to the general public. Management of the resources of the forest must accommodate game and non-game species, and protect rare biota. Maintaining the overall health of the natural communities of the forest through multiple-use management provides the best management strategy to incorporate many different aspects of the forest and its uses, without compromising the health and viability of its natural systems and native species. The DOF, in cooperation with FWC, manages the wildlife resources on the THSF. The staff of THSF annually meets with local FWC biologists and law enforcement personnel to review current regulations and proposed changes, coordination of wildlife surveys, and recreation and law enforcement issues. The THSF is open to the public throughout the year. Fishing is allowed year-round in the rivers and ditches, and hunting is allowed during the established hunting seasons.

Most of the state forest is part of the Tate's Hell Wildlife Management Area (THWMA), with the Womack Creek Tract a separate unit within the THWMA. This WMA also contains some FWC lands. About 3,900 acres of THSF lies within the Apalachicola Wildlife and Environmental Area. Hunting regulation summaries for the THSF can be found at the following website: www.myfwc.com/hunting. Each Wildlife Management Area has certain special stipulations.

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

5. Endangered or Threatened Species

There are twenty-one animals and twenty-three plant species with listed status that occur on this forest. Note that an additional twelve species are included that currently are unlisted by state and federal protocol. However, these species reflect concern given their current status as an isolated population of an imperiled and/or endemic species with very rare occurrences, either currently or historically present within THSF. Presence of species is based on historic data and information compiled from FNAI tracking records as well as field observations by Audubon Society, NWFWMD, FWC and DOF. Asterisk (*) denotes historical presence but not sighted in following years. The following listed/non-listed species were identified:

Table 4- Listed and Other Rare Species.

				FNAI	**FNAI**
Scientific Name	**Common Name**	**Federal Status**	**State Status**	**Global Rank**	**State Rank**
AMPHIBIANS					
Ambystoma cingulatum	Flatwoods salamander	LT	LS	G2G3	S2S3
Ambystoa tigrinum	Tiger salamander *	N	N	G5	S3
Desmognathus auriculatus	Southern dusky salamander *	N	N	G5	S3
Rana capito	Gopher frog *	N	LS	G3	S3
REPTILES					
Alligator mississippiensis	American alligator	LT S/A	LS	G5	S4
Crotalus adamanteus	Eastern diamondback rattlesnake	N	N	G4	S3
Drymarchon corais couperi	Eastern indigo snake	LT	LT	G4T3	S3
Eumeces anthracinus pluvialis	Southern coal skink	N	N	G5	S3
Gopherus polyphemus	Gopher tortoise	N	LS	G3	S3
Lampropeltis getula goini	Apalachicola kingsnake	N	N	G5T2Q	S2
Macroclemys temminckii	Alligator snapping turtle	N	LS	G3G4	S3

Scientific Name	Common Name	Federal Status	State Status	FNAI Global Rank	FNAI State Rank
MAMMALS					
Corynorhinus rafinesquii	Southeastern big-eared bat *	N	N	G3G4	S2
Mustela vison halilimnetes	Gulf salt marsh mink *	N	N	G5T3	S3
Myotis austroriparius	Southeastern bat	N	N	G4	S3
Podomys floridanus	Florida mouse *	N	LS	G3	S3
Ursus americanus floridanus	Florida black bear	N	LT**	G5T2	S2
Sciurus niger shermani	Sherman’s fox squirrel	N	LS	G5T3	S3
BIRDS					
Aimophila aestivalis	Bachman’s sparrow *	N	N	G3	S3
Ammodramus maritimus peninsulae	Scott's seaside sparrow *	N	LS	G4T2	S3
Aramus guarauna	Limpkin *	N	LS	G5	S3
Cistothorus palustris marianae	Marian's marsh wren *	N	LS	G5T3	S3
Egretta caerulea	Little blue heron	N	LS	G5	S4
Egretta rufescens	Reddish egret *	N	LS	G4	S2
Egretta thula	Snowy egret	N	LS	G5	S3
Egretta tricolor	Tricolored heron	N	LS	G5	S4
Elanoides forficatus	Swallow-tailed kite	N	N	G5	S2
Eudocimus albus	White ibis	N	LS	G5	S4
Falco sparverius paulus	Southeastern American kestrel	N	LT	G5T4	S3
Haliaeetus leucocephalus	Bald eagle	LT	LT	G4	S3
Mycteria americana	Wood stork	LE	LE	G4	S2
Pandion haliaetus	Osprey	N	LS**	G5	S3S4
Picoides borealis	Red-cockaded woodpecker	LE	LS	G3	S2
FISH					
Acipenser oxyrinchus desotoi	Gulf sturgeon	LT	LS	G3T2	S2
Micropterus cataractae	Shoal bass	N	LS	G3	S1
PLANTS					
Andropogon arctatus	Narrow-leaved bluestem	N	LT	G3	S3
Asclepias virdula	Southern milkweed	N	LT	G2	S2
Baptisia simplicifolia	Scare weed	N	LT	G3	S3
Gentian pennelliana	Wiregrass gentian	N	LE	G3	S3
Hymenocallis henryae	Henry’s spider lily	N	LE	G2	S2
Justicia crassifolia	Water willow	N	LE	G3	S3
Liatris provincialis	Godfrey’s blazing star	N	LE	G2	S2
Linum westii	West’s flax	N	LE	G3	S3
Lupinus westianus	Gulf coast lupine	N	LT	G2	S2
Lythrum curtissii	Curtiss loosestrife	N	LE	G1	S1
Macbridea alba	White birds-in-a-nest	LT	LE	G2	S2
Macranthera flammea	Hummingbird flower	N	LE	G3	S2
Nolina autocarpa	Florida beargrass	N	LT	G3	S3
Nyssa ursine	Bog tupelo	N	N	G2	S2
Parnassiia caroliniana	Carolina grass-of-parnassus	N	LE	G3	S2
Pheobanthus tenuifolia	Pinewood false sunflower	N	LT	G3	S3

Physsotegia godfreyi	Apalachicola dragon-head	N	LT	G3	S3
Pinguicula ionantha	Godfrey's butterwort	LT	LE	G2	S2
Polygonella macrophylla	Large-leaved jointweed	N	LT	G3	S3
Rhexia parviflora	Small flowered meadow beauty	N	LE	G2	S2
Rhynchospora stenophylla	Narrow-leaved beakrush	N	LT	G4	S2S3
Ruellia noctiflora	Night flowering petunia	N	LE	G2	S2
Sarracenia leucophylla	White-top pitcher plant	N	LE	G3	S3
Scutellaria floridana	Florida skullcap	LT	LE	G2	S2

STATUS/RANK KEY

Federal Status (USFWS): LE= Listed Endangered, LT= Listed Threatened, LT(S/A) = Listed Threatened due to similarity of appearance, N = not listed.

State Status (FWC): LE= Listed Endangered, LT=Listed Threatened, LS= Listed Species of Special Concern, CE = Commercially Exploited, N = Not Listed.
** *Pandion haliaetus*- State listed as LS in Monroe County only.
***Ursus americanus floridanus*- State listed as LT but not applicable in Baker and Columbia counties or the Apalachicola National Forest.

FNAI Global Rank: G1= Critically Imperiled, G2 = Imperiled, G3= Very Rare, G4= Apparently Secure, G5= Demonstrably Secure, GH= of historical occurrence throughout its range, may be rediscovered, T#= Taxonomic Subgroup; numbers have same definition as G#s, Q= Questionable whether species or subspecies.

FNAI State Rank: S1= Critically Imperiled, S2= Imperiled, S3= Very Rare, S4= Apparently Secure, SH= of historical occurrence throughout its range, may be rediscovered.

Ten of the listed species have federal endangered or threatened status. The bald eagle is listed as a threatened species with active nests occurring on THSF property in recent years. Nest trees are recorded and buffer zones delineated with protection also focused on breeding territories, foraging habitat, and roosting sites. The endangered wood stork does not presently nest on THSF and will require no action other than protection while on state land. The endangered red-cockaded woodpecker occurs on THSF. Currently, thirty-nine clusters have been delineated by biologists (Exhibit J). Red-cockaded woodpecker species status is addressed by the U.S. Fish and Wildlife Service Recovery Plan for the Red-cockaded Woodpecker (*Picoides borealis*) (USFWS 2003) and the forest-specific DOF red-cockaded woodpecker management plan (Tate's Hell Red-cockaded Woodpecker Management Plan-Draft), assuring population growth by implementation of intensive monitoring, habitat restoration, cluster augmentation, and translocation of birds.

The threatened indigo snake requires underground burrows or cavities (gopher burrows) during inactivity (cooler months) and for nesting purposes. Prescribed fire in upland habitats will help assure that pocket gophers and gopher tortoises will thrive. Thus, burrows created by these animals will provide shelter for indigo snakes and many other species (i.e. gopher frog). Attempts will be made to protect from harm, or move out of harms way, indigo snakes or gopher tortoises encountered by personnel, cooperators or contractors engaged in activities that may endanger individual specimens. A wildlife biologist or state forest staff person will be contacted to safely move these species if necessary. Prior to operating heavy equipment (timber sales, planting, etc.) in areas that might contain borrows, a 15 foot buffer will be clearly marked around the entrance to every gopher tortoise burrow. Heavy equipment will be kept out of this buffer zone in order to avoid entrapment by collapsing the burrow.

The threatened flatwoods salamander inhabits pine flatwoods communities with wiregrass groundcover and scattered wetlands. This species usually breeds in ephemeral ponds lacking predatory fish and which usually have emergent herbaceous vegetation. Management should include protection of pine flatwoods habitats and associated wetlands, implementing growing-season burns, and allowing fires to burn through occupied sites (wetland basins and adjacent uplands). The habitats of the remaining rare species occurring on THSF will be maintained and enhanced through an extensive and prioritized prescribe burning program.

In order to protect potential habitat for the mussels *Lamsilis subangulata* and *Pleurobema pyriforme*, DOF will work to reduce the negative hydrological impacts of existing and future roads, boat ramps and/or recreation areas by placing structures, where necessary to reestablish or maintain natural waterflow and/or reduce sedimentation.

Three plants on THSF holding federal status include; *Macbridea alba, Pinguicula ionantha,* and the most recently found *Scutellaria floridana*. All are indirectly fire dependant. If herbicides are used for site preparation, spot grid, strip application individual stem or directed foliar spray will be the application methods employed. Herbicides for site preparation will not be used within 60 feet of any known threatened, endangered or sensitive plant species, except where it is necessary to restore threatened or endangered habitat. Buffers around threatened, endangered or sensitive species will be clearly marked so applicators can see and avoid them.

The FNAI will be contacted before any significant ground disturbing activities are conducted on THSF that would potentially impact endangered or threatened species. If rare, threatened and endangered plants and animals are identified on THSF, field report forms (on file at the headquarters) will be completed and sent to FNAI. These forms will be completed by DOF biologists.

Four months of inventory work were conducted with the assistance of FNAI. These surveys were intended to identify rare plant locations to help prioritize areas for prescribed burning and other management activities. Environmentally sensitive areas have been identified and mapped (Exhibit K). These surveys were conducted following burns.

Plant and wildlife surveys will continue to be conducted throughout the forest. Determination of specific locations and type of surveys will be determined through consultation with the DOF biologists, FNAI, and FWC biologist. Biological surveys should concentrate on high use areas; primarily trail corridors and locations where future impacts could impact established native ground cover. Additionally, areas of high potential for rare species occurrence will be surveyed as time and budgets allow.

6. <u>Beaches and Dunes</u>

There are 5,209.91 feet of St. George Sound shoreline adjacent to THSF. Most of this shoreline is a narrow strip of land between US Highway (US) 98 and the Sound. These areas are at constant threat of erosion due to the changes in the amount of sand present, caused by the dredging of the Carrabelle River. Most of the beach areas and the adjacent tidal flats contain exposed pine tree stumps from trees that have been killed by erosion in past storms. For the most part, recreational development is not an option for these sites.

Approximately half of this shoreline includes narrow beaches and stands of mature slash pines. Native dune plants are present on some of these narrow beaches. The forested areas are very dense with undergrowth due to a lack of fire. A previous effort to re-establish native grasses to help stabilize dunes was unsuccessful due to a storm a few weeks after planting.

The remainder of the shoreline is predominantly artificial (including rip-rap and sea walls) because of the immediate proximity of US 98 and the past efforts to stabilize this road. Sections of US 98 (including this area) wash out whenever there is a large storm. The Department of Transportation (DOT) dumps large amounts of sand on these areas several times a year, but most of the sand is gone within a few months. Long-term management of this site may require beach re-nourishment and dune re-establishment. This is likely to be an expensive project, and will require a number of permits. Federal grants and use of available dredge spoil may be considerations.

A small (1.1 acres) parcel south of US 98 contains an area that would be classified as dune. This is the widest section of dune (north to south) on the state forest, but there is only about 50' of beachfront. Vegetation such as sea oats, beach morning glory, and other typical dune pioneer species are evident. Due to a lack of fire, slash pines and woody shrubs are overtaking this area. Houses have been built on either side of this parcel, making prescribed burning difficult or impossible. To maintain this site, mowing or hand clearing will be the best alternatives. It is possible that this site could be managed as a seed source for re-establishing native dune grasses on the other waterfront sites in this area.

7. Swamps, Marshes, or Other Wetlands

The THSF contains approximately 152,000 acres of hydric communities such as wet prairie, wet flatwoods, strand swamp, bottomland forest, baygall, floodplain swamp, and depression marsh. Tate's Hell Swamp plays an important role in the function of the marshes found in the upper bays south of the forest. These marshes serve as nursery areas for Apalachicola Bay. The quality and quantity of freshwater discharged from the swamp to these marshes is critical to maintain conditions that sustain the larval and juvenile aquatic and estuarine organisms utilizing these areas. Impacts documented by Dr. Skip Livingston during the 1970's and 1980's are indicating the close connection between land management activities and survival of the juvenile and larval species utilizing the marshes of the upper bay.

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

Wetland restoration objectives on the state forest include erosion control; restoration of hydrology and/or hydro-period and restoration of wetland plant and animal communities. To achieve these objectives, restoration activities may involve road and soil stabilization, water level control structure removal or installation, exotic species control, site preparation and re-vegetation with native wetland species, and project monitoring. These activities may be conducted individually or concurrently; implemented by DOF personnel or by non-DOF personnel under mitigation or grant contractual agreements.

Wetland restoration projects should be conducted in conjunction with other restoration activities indicated elsewhere in this plan.

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

8. Mineral Resources

Mineral resources within this forest include sand and lime rock. No estimate of their quality and quantity is currently available. As indicated by the Franklin County Soil Survey (USDA 1994), more than 3,000 acres of THSF have lime rock within 5 feet of the surface. There is no estimate of what kind of mineral resources exist on the Crooked River Tract.

9. Unique Natural Features

There are at least ten artesian wells within the state forest.

10. Outstanding Native Landscapes

For the most part, THSF has been severely altered by drainage and conversion to pine plantations. However, there are still some areas that have managed to remain largely unaffected by this alteration. These areas have many listed species, and are beneficial for management of the rest of the forest, by giving an idea of what Tate's Hell looked like prior to industry management.

Dwarf Cypress – The Dwarf Cypress are one of the most unique features of this area. These are known as Dwarf, Bonsai, or Hat-Rack Cypress. Many of these trees are more than 300 years old, although they typically grow to a height of only 15 feet. No one is exactly sure what causes the cypress in this area to be dwarfed. The trees are not genetically different from other pond-cypress trees in the area, and seeds from these trees will grow to normal heights when planted on other sites. There are similar stands of cypress in south Florida that are dwarfed due to a layer of bedrock close to the surface that does not allow the trees to grow properly. The soil in this area is very deep before hitting bedrock, but there is a layer of hard clay that may prevent the cypress roots from growing deeper. The soil here is also very low in nutrients, as evidenced by the many carnivorous plants in the area. This site is generally thought to have historically been flooded for the majority of the year, further reducing the ability of these trees to grow.

A hydrology restoration project was undertaken in one of the most pronounced dwarf cypress areas. This project essentially restored the natural hydrologic patterns in this area by installing culverts, plugging ditches, and removing some unnecessary roads.
After several years of restored water levels, the cypress trees appear to be doing well, and native grasses are becoming more prominent. However, attempts to prescribe burn these areas have been unsuccessful due to the high water levels and the lack of ground fuels. Also, some stands of pine timber need to be removed in these areas. Additional work which may include installation of a water control structure, hand removal of woody shrubs, timber harvest, and prescribed burning will be needed to fully restore these areas.

New River Headwaters – The headwaters of the New River are a spectacular and largely undisturbed landscape. The river meanders through areas of dwarf cypress, and along high banks with large old growth pines. Large areas of intact wet savannas are present in many areas just off of the banks of the river. There are very few access points to this section of river, and little if any sign of civilization is visible. The New River experiences drastic changes in water level depending on local rainfall. In dry periods, the river is a small trickle or a series of pools; however, after large rain events, it can expand to several hundred feet wide. The riverbed makes for an excellent hiking trail during dry periods and a good canoe trail during times of moderate flow.

Wet Savannas – The wet savannas of the area are one of the most biologically diverse plant communities in the world. These areas are dominated by thick wiregrass and pitcher plants. In the spring and fall, they are full of a wide variety of wildflowers. Walker and Peet (1983) stated that "savannas are remarkably species-rich with up to 42 species/0.25 m^2." Draining and conversion to pine plantations have heavily damaged most of the wet savannas on the forest, but a few intact areas still remain. These areas are overgrown, but the repeated use of growing season fire and eventual restoration of natural hydrology will make these areas much like they were hundreds of years ago. As timber harvests have occurred in former savannah areas, they are being restored back to their previous condition.

Scrub – There are 683 acres of scrub on the High Bluff Tract of THSF. These old dunes are sometimes as tall as 60' above sea level, making them some of the highest points in Franklin County. These dunes contain a wide range of rare plants. Some of these plants are found only on the scrub of Franklin and Gulf Counties. Most of the scrub sites have been excluded from fire for many years. These areas have dense stands of sand pines that lean away from the coast. This is a result of the weak root system of the sand pines combined with the storms that hit the area every few years. There is usually a mid-story of oaks and other woody shrubs. There is little or no groundcover in these areas.

On sites that have been burned in the past 10 years, there is a wide variety of groundcover species, as well as small oaks and sand pines. The burned sites sometimes have large areas of white sand with very few plants growing. A powerline right-of-way transects the scrub for several miles. This right-of-way is mowed every year or two, so the woody vegetation is kept very low. Many of the rare plants associated with the coastal scrub have been found in this right-of-way.

Floodplain Forests – The Ochlockonee and Crooked Rivers make up much of the east boundary of THSF. These rivers are primarily fresh water, but they do get slightly saltier during dry periods or extreme tides. The floodplain forests along these rivers extend as much as a mile inland. There has been very little human influence in these areas other than limited timber removal in the late 1800's. The floodplain forests consist of dense stands of oaks, hickories and other hardwoods. Some of these trees have diameters exceeding three feet. The understory is open in most areas except for where the older trees have been killed by storms or disease. Travel through these areas is difficult due to the very deep mud and the many meandering streams.

11. Timber Resources

The DOF will establish a healthy forest with an age distribution that best duplicates natural conditions by implementing current acceptable silvicultural practices, including timber harvesting (clear-cuts and thinning), prescribed burning, and reforestation. Well timed and executed timber harvests play an integral role in the health of forest ecosystems by removing off-site tree species to reestablish native ones and thinning dense forest stands to improve understory composition. This allows for less damaging prescribed burns and improved forest health. Timber stand regeneration/restoration efforts will be through natural and artificial methods. Stand establishment is an integral part of forest restoration. Good stewardship and resource sustainability are essential goals for any proposed silvicultural activity. Use of applicable Silviculture Best Management Practices is part of sound forest management practices.

An initial inventory of merchantable pine stands was completed in the fall of 1997, with annual updates beginning in 2000, following DOF's established procedure. Fieldwork for a hardwood inventory was completed in October 1999. Inventories will be updated on a continual basis according to guidelines established by the DOF's Forest Management Bureau.

IV. MANAGEMENT CONCEPTS BY NATURAL COMMUNITIES AND PROPOSED MANAGEMENT ACTIVITIES

A. Existing and Planned Uses

1. Property Boundaries Establishment and Preservation

State forest boundaries were blazed by surveyors prior to the sale of the land to the State. When DOF acquired management of the forestlands, the agency's employees implemented the establishment of the boundary lines in accordance to the Department of Agriculture and Consumer Services, Division of Forestry's Policy and Procedures Chapter 525.108 and the State Lands Manual, Chapter 6.9.2. The surveyors had already placed corner post and painted witness trees along the boundary lines. The DOF employees then placed the standard DOF state forest boundary signs along all the boundaries. The underbrush clearing of the boundary lines was accomplished with the use of inmate hand crews and mechanical means. The boundary lines running through the pine flatwoods habitat were constructed with the use of a V-blade tractor and/or harrow. The boundary lines through the wetland habitat were constructed with the use of a gyro-tract, posi-tract, or inmate hand crews. These boundary lines serve as firebreaks and as easily distinguishable property boundaries. Ninety percent of the forest boundary has been marked and maintained in accordance with the DOF guidelines. In cases where a trespass has occurred, efforts will be made to have the line surveyed and an agreement reached to return this property to state forest management. As of November 2003, THSF had 145 miles of boundaries, plus the Crooked River Tract.

2. Soil and Water Protection

With the exception of some erosion related to forest roads, THSF has no known major soil or erosion problems present. Management activities will be executed in a manner that minimizes the potential for soil erosion. All activities planned for THSF will be conducted in accordance with Silviculture Best Management Practices (BMP) (FDACS 2004) and/or other appropriate measures as deemed necessary by the DOF's Forest Hydrologist and/or Watershed Specialist. 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.

3. **Roads**

Currently THSF has 268 miles of primary and secondary roads and affords a multitude of public access (Exhibit L). Maintenance of unpaved roads represents one of the most significant costs in this state forest's budget. Soil erosion that occurs on these roads, as well as the resulting damage to the associated drainage systems, is the single most significant factor affecting maintenance needs and costs. Resulting impacts from erosion, that also affect road maintenance costs include flooding, destruction of water control structures, effects on water quality and aesthetics. All of these impacts have the potential to create dissatisfaction among state forest user groups, environmental interests, loggers and other contractors, as well as state forest workers themselves. A poorly maintained road system tarnishes our reputation as a responsible managing agency.

To address road maintenance needs, DOF has developed a Road and Bridge Plan for each state forest, which focuses on adherence to the current DOF Forest Roads Standards (FDACS DOF Policies and Procedures 500.108) and Silviculture BMP (FDACS 2004). Existing databases of threatened and endangered plants will be consulted, as well as significant archaeological sites, before initiating significant ground disturbing activities. THSF will be a key player in the statewide standardization of road and bridges, due to the forest's terrain and the miles of roads, and number of bridges.

The road plan further calls for planning and recording road and bridge maintenance activities in a GIS computer database. Recorded data includes, but is not limited to: culvert rating, replacement, installation, and repair dates. With the recent acquisition of new state lands and the introduction of a seven person road crew, our plan will be instrumental in the completion of all road improvements. The plan includes the following activities: road removal; road grading; major and minor new construction or upgrades; bridge repair and maintenance; and installation of low water crossings. Tracking as much information as possible affords a long range view of potential projects and funding requirements. The goal is not to create a causative list of maintenance factors but instead to promote a comprehensive maintenance program that incorporates the knowledge and innovative ideas of personnel throughout all areas in an effort to reduce roadway maintenance needs and costs. The primary focus of all improvements and maintenance will continue to be public safety, ease of access for recreation and forest management activities.

Roads that are not needed for public access will be used for management purposes and to serve as recreation trails. Some unused roads will be restored to natural grade, to assist in hydrologic restoration.

In cases where roads will be restored (i.e., reworked to natural grade) or for minimizing erosion during maintenance, water resource protection measures will be developed in conjunction with the NWFWMD and accomplished in part through use of BMP. Restored roads will be designed to minimize erosion during maintenance and allow reestablishment of natural flow patterns. Restoration activities will include installation of low water crossings, culverts, and/or reshaping of road surfaces similar to the typical road sections used by the Apalachicola National Forest (U.S. Forest Service).

4. Recreation Management

Recreational opportunities available to the public have increased dramatically over the past several years on THSF. Hunting, canoeing, boating, fishing, and primitive camping are the primary recreational activities on the forest. In addition, visitors also enjoy the High Bluff Coastal Hiking Trail and the Ralph G. Kendrick Dwarf Cypress Boardwalk on THSF. The primary outdoor recreation objective is to provide the public with dispersed outdoor recreation opportunities that are dependant on the natural environment.

5. Existing Facilities/Infrastructure/Recreational Activities

THSF provides public access via paved roads, County Road (CR) 67, SR 65 and US 98. There is also access to THSF from the north through the Apalachicola National Forest. In total there are over 35 access points.

THSF currently has over 850 miles of non-paved roads. The majority of these roads have been made from pulling ditches on both sides, and using the existing sandy soils as the elevated driving surface. The forest has primary, secondary, and tertiary roads that have standards. The roads will be maintained according to the statewide standard for their class. All the recreation areas can be accessed via primary or secondary roads. Primary and secondary roads will allow travel in most two wheel drive vehicles under most weather conditions.

Several parking areas are located throughout THSF. The High Bluff Coastal Hiking Trail has two parking lots, one on each end of the trail. Ralph G. Kendrick Dwarf Cypress Boardwalk and the Womack Creek Group Recreation Area also have small parking areas for a dozen vehicles each. Cash Creek Day Use Area and the Gully Branch Day Use Area have openings that serve as parking areas.

The High Bluff Coastal Hiking Trail offers hikers an opportunity to meander through diverse coastal sandhill communities and mesic flatwoods. The five-mile hiking trail also winds around Yent's Bayou, near young longleaf pine plantations and through natural sand pine and longleaf pine stands. There is a parking lot at each end of the hiking trail, with kiosks, and access is available directly off of US 98. The kiosks provide information about sandhill communities, endangered and threatened species found in the area, poisonous animals and plants, and the turpentine industry.

The Ralph G. Kendrick Dwarf Cypress Boardwalk offers visitors a unique view of the rare dwarf cypress. An existing road that ran through the dwarf cypress was removed and the boardwalk was built on the old roadbed. The boardwalk is approximately 300 ft. long with a 100 sq. ft. covered deck that rises 30 ft. above the dwarf cypress. There is also a 30 ft. spur that brings you at eye level with the dwarf cypress community. The site also has a kiosk that provides information about dwarf cypress and local hydrology. The boardwalk is easily accessible off Dry Bridge Road from either SR 65 or US 98.

The Cash Creek Day Use Area is a popular destination for many local visitors and is directly off SR 65. This area offers a boat ramp and dock with access to East Bay and the Apalachicola River. Handicap parking is also available. There are future plans to improve this site.

Miller Landing Day Use Area located at the end of Bear Creek Road offers a canoe launch to East Bay and the adjacent marsh, which is an excellent area for seasonal birding. In the future, an improved picnic site would be a nice addition to this scenic area.

The Gully Branch Day Use Area is located on the New River and Gully Branch Road, off CR 67. This site contains two pavilions with picnic tables and a boat ramp. The pavilions, boat ramp, and bridge at this location were recently improved.

There are currently twenty-nine sites designated for primitive camping in THSF (Exhibit M). Each campsite contains a picnic table, free standing grill, and campfire ring. Primitive campsites are located throughout the forest. Most are located on rivers or streams. Most campsites have canoe-launching areas. All but two of these campsites can be rented as hunt camps during hunting season.

Hunting is an important recreational activity on THSF. THSF is open to regulated hunting. The FWC is responsible for setting hunting seasons, establishing bag and possession limits and managing fish and wildlife. The south portion of the forest is designated as a still hunt only area, while the rest of the forest is open to dog hunting as well as still hunting. The Womack Creek Tract is located on the northeast side of the forest, on the east side of CR 67. This tract is reserved as a still hunt area for two weeks and general dog hunting for two weeks.

6. Planned Recreational Activities

Womack Creek Group Recreation Area- This site is currently under construction. Facilities planned for this site include a large bathhouse, primitive campsites, nature trail, and a boat ramp for access to the Ochlockonee River. The site would be rented out as a group camp area with approximately twelve separate campsites.

Cash Creek Day Use Area Improvements- The Cash Creek area is an extremely popular recreation area and is in need of improvements. The proposed plan for this area is to build a pavilion with picnic tables and restroom facilities. The parking area will be more defined and split rail fence will separate the parking area from the pavilion and restroom facilities.

High Bluff Coastal Hiking Trail- Future plans for the High Bluff Coastal Hiking Trail include building a spur trail that would lead to the top of a remnant coastal dune that overlooks the St. George Sound. There are also immediate plans to build a footbridge across the Yent’s Bayou Canal that would link Phase I Trail with the Phase II Trail.

Off-Highway Vehicle Program- The 2002 Florida Legislature created the Mark T. Schmidt Off-Highway Vehicle Safety and Recreation Act, Chapters 261 and 317, Florida Statutes. Off-highway vehicles are popular throughout the state. An effectively managed off-highway vehicle (OHV) area will accommodate this recreational use, while sustaining the natural resources. To address the demand for this use, an OHV implementation plan was developed and boundaries designated on THSF. The OHV recreational area is composed of a trail system on existing roads designated by the Division of Forestry within the identified recreational area (Exhibit N). This program was implemented on THSF in 2005.

The Division of Forestry submits an annual OHV report that includes the status of the THSF OHV area to the statewide Off-Highway Vehicle Recreation Advisory Committee each fiscal year and provides a copy to the Division of State Lands for dissemination to the Acquisition and Restoration Council.

The OHV area on THSF complies with Section 261.08, F.S. that addresses repair, maintenance, and rehabilitation of areas, trails and lands that specifically states:

"(1) The protection of public safety, the appropriate use of lands in the system, and the conservation of the environment, wildlife habitats, native wildlife, and native flora and fauna in the system are of the highest priority in the management of the system. Accordingly, the public land managing agency shall avoid or minimize adverse impacts to the environment, promptly repair and continuously maintain areas and trails, anticipate and prevent accelerated erosion, and rehabilitate lands to the extent damaged by off-highway vehicle use in accordance with the management plans of the public land managing agency.

(2) The public land managing agency shall monitor the condition of soils and wildlife habitat in each area of the system to determine whether there is compliance with applicable environmental laws and regulations and shall take appropriate action as necessary.

(3) The public land managing agency may regulate or prohibit, when necessary, the use of off-highway vehicles on the public lands of the state in order to prevent damage or destruction to said lands."

<u>New River, Crooked River, and Ochlockonee River Canoe Trails</u>**-** Thirty-five miles of rivers, streams and creeks on the state forest are well suited to accommodate the watercraft enthusiast. Canoe launch, retrieval, and camp sites need to be thoroughly researched, planned and implemented. A special canoe trail brochure will also need to be developed.

<u>Rock Landing Recreation Area Improvements</u>**-** Improvements are needed to the current boat ramp and dock. Trees need to be cut down around the perimeter to make more space for the primitive campsites. A much needed parking lot will be established. A top layer of crushed concrete is needed in the entrance road and parking lot. Split rail fencing will encompass the perimeter and other sensitive areas.

<u>Parker Place Improvements</u>**-** Trees need to be cut down around the current perimeter to widen the area. Crushed concrete is needed to cap the entrance road and parking area. Concrete barriers will be placed to establish parking spots. Small improvements are needed to the boat ramp and campsite. Split rail fencing will encompass the perimeter and other sensitive areas.

<u>Gully Branch Day Use Area Improvements</u>**-** Trees need to be cut down around the perimeter to make room for a parking lot and bathrooms. One of the small picnic pavilions will be converted into a large barbeque grill and smoker.

7. <u>Fire Management</u>

All guidelines as outlined in the DOF's Fire Management Policy will be used on THSF. The DOF utilizes a total fire management program on state forests that includes prevention, detection, suppression and prescribed burning. This program is the responsibility of the DOF under the direction of the Tallahassee District Manager. DOF personnel and equipment will be utilized for pre-suppression practices and rehabilitation of firelines on the forest. BMPs for fireline construction will be followed as described in the Silviculture BMP Manual (FDACS 2004). If firelines are installed as a result of suppression actions during a wildfire, every effort will be made to rehabilitate these lines within two weeks of the wildfire "controlled" date. Helispots and dip sites have been identified (Exhibit O). These areas will be enhanced for emergency response uses.

Emphasis will be placed on prescribed burning, fire prevention, and education to help reduce wildfire occurrence on the forest and in the surrounding communities. Smoke management in and around these communities will be addressed during preparation of prescribed fire prescriptions by utilization of the smoke screening system. DOF personnel and equipment will be used for these activities. All prescribed burning will be the responsibility of the DOF personnel from the Tallahassee District and will be planned and carried out in accordance with the THSF Fire Management Plan. This plan will be in compliance with the DOF Fire Management Policy.

Natural firebreaks, roads, and brush cutter lines with foam should be utilized as much as possible. Firelines should only be installed when absolutely necessary. DOF personnel and equipment will be used for fireline installation, fireline maintenance, and burn perimeter preparation. A memorandum of understanding is currently in place between the U.S. Forest Service and DOF to conduct cooperative prescribed burns where roads on either property will be used as firelines rather than plowing new firelines at the property boundary. In using prescribed fire in the various pyric communities on this forest, it is important to understand the ecological richness of the ecotones that divide them- especially those margins between wetland and upland communities. Every effort will be made to avoid the construction and/or maintenance of fire lines in these environmentally sensitive areas. The biological diversity of these ecotones will benefit from prescribed fire being allowed to burn uninterrupted into the edges of the adjacent hydric communities. In this manner fire also serves to limit the invasion of less fire-adapted, hydric species (e.g. titi) into the adjacent, more mesic communities.

Fire management on THSF is unique and very challenging. Heavy fuel loads exist as a result of previous management practices that excluded prescribed fire for the past 20 to 30 years. The restoration of this land, which acts as a buffer for the Apalachicola Bay, was one of the major goals of the CARL purchase of THSF. Prescribed fire is the major tool that leads the restoration effort. The natural fires that occurred here prior to the 1950's have left remnant areas of intact groundcover, giving some idea of what should be striven for with the burning regime.

The long-term goal of prescribed burning is to simulate, as closely as possible, a natural fire regime in which the majority of acres are burned during the lightning season. Such fires are needed to maintain and stimulate the recovery of the native herbaceous and grassy ground cover, and promote the regeneration of native pines. Some of these areas may first require a series of dormant season fuel reduction burns, before it becomes safe to initiate growing season burns.

THSF's goal is to prescribe burn 37,000 to 46,000 acres annually, once forest groundcover vegetation has reached a *maintenance stage* (where the understory is predominated by herbaceous vegetation). There are several areas that have had one or two growing season burns, but additional growing season burns are needed for these areas to move into a maintenance stage of growing season fire regime.

A Prescribed Fire Operational Plan has been developed and will continue to be updated annually. An Annual Prescribed Burn Plan is also developed each year, which identifies those areas where growing season burns and dormant season burns will be implemented. Burn objectives, type of burn, map of the burn unit, sensitive areas and other information specific to that burn area will be presented in the Annual Prescribed Burn Plan.

A "key factors" list has been developed to assist burn managers with the task of determining priority areas to burn. The list is as follows:

1. Areas containing RCW clusters or foraging zones, as well as other fire-dependent listed species;

2. Restoration/Reforestation preparation areas; e.g. chopped sites;

3. Areas with longleaf pine needing to be released;

4. Areas burned within the past 2-5 years that contain communities requiring prescribed fire on a more frequent interval;

5. Areas with relatively intact groundcover;

6. Areas where past timber sales have occurred;

7. Fire tolerant young slash pine or areas of previous burn (6-10 years);

8. Areas needing timber marked for sale;

9. Un-burned areas (heavy fuels 11+ years).

Planned growing season prescribed burn stands (GSPB) with timbered stands adjacent that are not in the maintenance stage of burning (i.e. have not been burned in the past 3 years and/or have accumulated fuel loads that may prove hazardous when conducting growing season burns in close proximity) will cause both the GSPB stand and the non maintenance stand to be weighted the same. For example, if a RCW stand is considered to be a first priority for a growing season burn then adjacent stands would be considered first priority for a dormant season burn during the previous winter. In addition, areas that contain listed species with a first priority burn that have yet to be burned by the end of the year will be considered first priority for the following year's fire plan, unless the risk is too severe.

Post burn evaluations will be performed by the silviculture and/or ecology section to monitor effectiveness of the burn. Comments on burn effectiveness, techniques, problems during burn, weather leading up to burn, or any recommendations for future burns are some of the information that should be included on the evaluation. These evaluations should be reviewed by burn managers.

During the annual burn plan meeting, it should be used to evaluate special circumstances, and be reviewed when writing prescriptions for areas rotating back into the annual burn plan. This self-evaluation process should continually improve the prescribed burn program on THSF.

8. Silvicultural Guidelines & Forest Resource Management Objectives

Timber is a valuable economic resource and timber harvesting for the purposes of biological restoration and improving forest health are recognized silvicultural objectives on state forests. The following objectives or strategies will be applied to silvicultural practices on THSF:

- **a.** Maintain ecosystem quality through the use of prescribed fire.
- **b.** Restore natural ecological communities through hydrological restoration, timber harvesting, and reforestation using established methods and methods developed through research.
- **c.** Maintain the forest over the long term through natural regeneration. Uneven-aged management of pine stands will be utilized to create a forest that exhibits old growth characteristics and that yields multiple ecological benefits.
- **d.** Improve, maintain and protect all native ecosystems.
- **e.** Ensure the long-term viability of populations and species considered rare, endangered, threatened, or of special concern.
- **f.** Maintain a sustainable silviculture management program that enhances the natural diversity of the state forest with minimal environmental impact.
- **g.** Maintain and protect water quality and aquatic resources.

Timber harvesting guidelines will be developed for each sale on a site-specific basis to minimize damage to sensitive resources. These guidelines will address the following: the importance of snags for wildlife habitat, BMP, specific needs (as related to rare and endangered species), limitations on harvesting in wet periods, machinery use, road systems, protection of groundcover, and other items that may be pertinent to a specific site. These items will be addressed in the timber sale contract. Silvicultural prescriptions will favor the retention and growth of larger and older trees. Natural regeneration will be dependent on the site and species characteristics.

Areas proposed for timber harvest will be surveyed for listed species, prior to marking as part of the environmental assessment. State forest staff will develop harvesting plans. All harvesting on lands adjacent to lakes, rivers, and wetlands will be carried out in compliance with the public lands section of the BMP publication, and will be conducted so as to meet or exceed these guidelines.

On THSF, timber sales are generally advertised for competitive bids and sold as per ton sales. A sealed minimum acceptable price is set prior to bids being opened. This price is based on the particular class of timber for sale, local stumpage prices, and logging conditions. Salvage sales, where it is necessary to rapidly remove timber damaged by fire, insects, disease or other natural disasters, or specific areas where it is impractical to mark/cruise timber, will be sold instead on a per ton basis. In such sales, the mill receiving the wood furnishes weights of the timber, which will be acceptable for payment purposes.

Reforestation Plans will be developed for each site on a site-specific basis. Silvicultural practices on state forests emphasize mimicking natural ecosystem processes and protecting rare biological communities, ecosystems, and species by considering the total ecosystem. Under the current reforestation plan, sites are managed based on their natural community types. The DOF continues to promote natural regeneration as the method of choice to regenerate all forest stands, for better stand management and a cost savings to the taxpayer. Reforestation will be a key component in restoring natural ecosystems. Existing plant communities, listed species, stocking levels, species to be planted, and site preparation techniques will be addressed in the environmental assessment. In preparing restoration areas for reforestation, site preparation techniques that will have the least damaging impact on desired ground cover species, and still be effective, will be selected. Fire will be the preferred technique; however, herbicides, mowing, walk-down and roller chopping or combinations of the above may be necessary and will be prescribed if their impact on sensitive ground cover species will be minimal. Private vendors will be used in most cases to implement silvicultural prescriptions.

Objectives for timber resource management provide for a sustainable yield of a broad range of forest products, following silvicultural practices that are consistent with multiple-use management principles. This will guarantee the continuing existence of the forest for future generations. The state forest is divided into ten tracts (Exhibit P). Each tract consists of compartments and stands for management purposes. Forest management activities, including timber harvests, reforestation and inventory will be conducted on a stand basis following the stand description analysis and annual field visits by staff foresters. Forest inventory updates will be conducted each year on stands selected according to the statewide criteria. Total timber volumes for the forest will be determined using updated data, as well as growth and yield projections for stands, which have been previously inventoried. Timber harvesting on THSF will be planned so that harvest levels do not exceed growth over the lifespan of this plan. Exceptions can be made to address forest health problems and restoration efforts of natural communities.

9. 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 which expands the knowledge of forestry and the ecology of the forest, or related fields. Past and ongoing research projects have focused on historic vegetation patterns, plant genetic diversity, and water chemistry.

The DOF cooperates with the U.S. Forest Service, the University of Florida, and other educational institutions and government agencies, in the accumulation of this information. There is a great need and interest in research directed towards hydrologic restoration, reforestation efforts, and effects of recreational uses on ecological communities and species populations.

The DOF is in favor of allowing research to occur on state forests. The DOF will consider assisting with research projects when funds and manpower are available. The DOF’s Forest Ecologist must approve all research projects and specimen collections before they are initiated. All research projects must comply with Chapter 267.12, Florida Statues and Rule 1A-32, Florida Administrative Code. As a requirement of all research projects, a copy of all final reports must be submitted to the Forest Management Bureau, and to the local staff at THSF.

10. Law Enforcement

The Florida Department of Agriculture and Consumer Services Office of Agricultural Law Enforcement (OALE) will handle primary law enforcement responsibilities. Wildlife officers from FWC will enforce fish and wildlife regulations, and provide assistance in enforcing state forest rules. The Franklin and Liberty County Sheriff's Offices provide additional law enforcement support.

Special rules (Chapter 5I-4, Florida Administrative Code) of the Department of Agriculture and Consumer Services, DOF, have been promulgated for the public use of state lands, restrictions of forest traffic and camping. These rules are on file at THSF headquarters and at the DOF State Office in Tallahassee.

11. Wildlife and Fish Management

Wildlife management plays an important role in the management of resources on THSF. The forest is open to regulated hunting under the direction of the FWC. Under the terms of Lease #4041 the DOF provides land management and general supervision following the multiple-use management concept, and the FWC is responsible for the biological aspects of managing fish and wildlife populations, setting hunting seasons, establishing possession and bag limits, and overall enforcement of fish and wildlife laws.

The boundaries of the Tate's Hell Wildlife Management Area include all of the state forest except for approximately 3,900 acres on the west side of SR 65. For wildlife management purposes, this small portion of THSF will be included in the FWC's Apalachicola River Wildlife & Environmental Area.

The white-tailed deer population is relatively low as compared to other proximal public lands. THSF has been a Wildlife Management Area since 1994. A Still-Hunt Only Area was established on THSF beginning in fiscal year 1996-97. This area encompasses roughly 26,500 acres located in the High Bluff Tract, and is better described as all state forest land south of Dry Bridge Road to the southern forest boundary and east of Car Body Road to the New River. Similar hunting rules were established on the Crooked River Tract in 2004 adding another 13,000 acres to the THWMA. The rest of the forest is open to dog hunts. A more restrictive deer season has been established for the 13,764 acre Womack Creek Tract that provides for both still-hunting and dog-hunting while also providing for other non-hunting recreational opportunities during the winter months. It is the DOF’s desire to have sites on this tract enhanced for other recreational opportunities, such as hiking, horseback riding, canoeing, fishing, bird watching, and boating.

Note that all species, including game species and non-game species, are very important for a sustainable and diverse habitat on THSF. Both types of species should be properly managed under these guidelines.

Hunting and fishing are important cultural and recreational uses of THSF, but may sometimes conflict with restoration efforts and other recreational uses of the forest. Restoration and maintenance of native ecosystems will remain as the primary objectives on THSF. Forest management practices will be carefully planned and implemented to accommodate hunting and fishing, as much as possible. Small wildlife openings may be established to encourage early successional species, improving wildlife habitat and providing hunting opportunities.

In order to assist the FWC with their goal of protecting, maintaining, and restoring wildlife habitat and providing quality hunting and fishing activities at levels that can be produced and sustained through multiple-use management, the following guidelines will be used:

a. **Timber Harvesting**

All timber harvesting will be conducted in the manner as specified in Section IV.A.8 of this plan. It will also comply with the DOF's RCW guidelines, which conform to the federal RCW guidelines.

All cutting on or adjacent to bottomland forests, depressional marshes, dome swamps, freshwater streams, tidal swamps, wet prairie/savannahs, strand swamps, baygalls, floodplain swamps, blackwater streams, rivers, and intermittent streams will meet or exceed criteria in the public lands section of the BMPs.

Special efforts will be taken to leave clusters of natural trees when thinning operations occur in the slash pine plantations. Volunteer longleaf pine will be protected, if feasible, as well as any older flat-topped pines in plantations.

b. **Prescribed Burning**

Prescribed burning will be utilized to re-establish and enhance the natural fire regime and thus natural habitats. A biologist will have input into the Annual Prescribed Burn Plan.

c. **Managing Non-Game Species**

Non-game species will be managed and protected through the restoration and maintenance of native ecosystems found on the forest. Research among state and federal agencies will provide valuable information in determining future management objectives of non-game species.

Several non-game wildlife surveys have been conducted over the past five years. These have included surveys for fish, herpetofauna, and wading birds. Additionally, DOF and FWC biologists keep and update a record of animals encountered throughout the forest. Additional surveys will need to be conducted in the future. Determination of specific locations and type of surveys will be determined through consultation with the DOF Biologists, FWC Biologists and FNAI staff.

d. **Sensitive Species**

Specialized forest management techniques will be used, as necessary, to protect or increase endangered and threatened species and species of special concern, as applicable for both plants and animals. Species-specific management plans will be developed when necessary. Continued field observations by the DOF Biologist and FWC Staff will be conducted to determine locations and status of these species.

The following management practices are recommended to protect and preserve threatened or endangered species that are present on the forest:

1. Locate cover, habitat/foraging ranges and breeding areas used by rare and endangered species and include locations on a GIS vegetation map.

2. Protect and properly manage habitat important to rare and endangered species.

3. Implement other specialized management practices for rare and endangered species as deemed necessary.

12. <u>Non-native Invasive Species</u>

The practice of DOF is to aggressively locate, identify and control non-native invasive species on state lands. A non-native invasive species control plan has been developed and implemented. Species that have been found include; *Albizia julibrissin* (mimosa), *Imperata cylindrica* (cogongrass), *Melia azedarach* (China berry), *Lygodium japonicum* (Japanese climbing fern), *Cinnamomum camphora* (camphor tree), *Lantana camara* (lantana), *Sapium sebiferum* (Chinese tallow), *Dioscorea bulbifera* (air potato) and *Panicum repens* (torpedo grass) (Exhibit Q). The majority of the infested areas have been treated, however, some are requiring a follow up treatment. As new locations are found they are added into the treatment plan for eradication. The rate and frequency of treatments will decrease as the major infested areas are treated. The strategy for controlling invasive plants beyond initial treatment will require vigilant preventative measures in forest stands and along roads. Hand removal followed by stump treatments has been used on camphor and Chinese tallow.

Use of appropriate herbicides to control these species will be limited to those locations and species where there is no practicable alternative. Prescribed fire and proven mechanical methods will be the preferred method of control, whenever feasible. If the need occurs, NWFWMD and DEP funding may be available to supplement control efforts with staff and funding.

Over this ten-year period, feral hog monitoring will continue. This species currently has a small population; however, the number can change over a short period of time. DOF and FWC will collaborate on management decisions concerning this species.

All management activities and proposals will be scrutinized for their contribution to the spread of non-native invasive species. Those activities and proposals found to promote these species will be eliminated or rejected.

13. <u>Insects and Disease</u>

Forest management practices will be conducted in such a way as to avoid insect and disease problems. If outbreaks do occur, operational and strategic plans will be implemented to control any infestations. Specific long range strategies to avoid and/or minimize losses to such outbreaks in the future will be the management objective. State forest management staff will consult with the Forest Health Section to develop scientifically sound responses and/or management prescriptions.

In 2001, a moderate outbreak of pitch canker was discovered within a 150 acre, 14 year old slash pine plantation on the Womack Creek Tract. THSF staff interacted with the DOF’s Forest Health Section and a continuous monitoring program was instituted until very little evidence of the disease was apparent in the summer of 2003. Prescribed burning and timber thinning have been aggressively conducted in the Womack Creek Tract, which will likely prevent further spread of pitch canker by maintaining healthy pine stands. State forest staff also monitors incidental outbreaks of *Ips* bark beetles throughout the forest. These outbreaks generally run their course without involving more than a couple acres. Aerial surveys are conducted every June for southern pine beetle outbreaks.

In compliance with Florida Statutes 388.4111 and the lease agreements, 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 THSF. 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 THSF.

14. On-Site Housing

DOF may establish on-site housing (mobile/manufactured home) on Tate's Hell State Forest 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 Division of Historical Resources (DHR) and Florida Natural Areas Inventory (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.

15. Utility Corridors and Easements

The use of state forest property for utility lines, pipelines, linear facilities and transportation corridors will be discouraged to the greatest extent possible. The placement of these linear facilities in a forest fragments the natural communities. Request for linear facility uses will be handled according to the Governor and Cabinet's Linear Facilities Policy. Currently there are few utility easements crossing the forest. The DOF does not consider THSF 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, archaeological sites and wetlands), to avoid habitat fragmentation, and to limit disruption of management activities and resource-based multiple-use activities, such as recreation.

The DOF will further encourage the use of underground cable where scenic considerations are desirable. Easements for such utilities are subject to the review and approval of the Trustees.

16. <u>Ground Disturbing Activities</u>

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, including a certified archaeological monitor, 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.

17. <u>Apiary Leases</u>

Bee yards have been historically kept on this land, and beekeeping does not negatively impact state forest management. Therefore, the DOF has continued to allow the individuals who had leases with the previous landowners to continue to keep bees on the state forest. There have been no requests for additional individuals to keep bees on the state forest, and the existing beekeepers have split up the leases of those that have decided to get out of the business.

The DOF has guidelines to follow when considering a site for an apiary yard. Currently, most of the sites are on existing roads. The state forest staff is currently in the process of developing a plan for establishing permanent sites throughout the forest. Clearing of apiary sites began in August 2003, and will continue until all ninety sites are completed. Four corner posts will be placed at each apiary site and a metal tag will identify the site with a unique number. These permanent apiary sites are located within compartments and off of the roads to reduce conflicts with management activities and other user groups. All apiary sites were mapped and constructed by June 2004. These sites were established by the DOF, and are maintained by the lessees. The DOF will continue to honor these low impact leases unless future conflicts or new research identifies adverse impacts to the natural communities, plants, or animals. The current cost to lease a site is identified in the DOF fee brochure.

All DOF apiary lease agreements include language that informs lessees that they are prohibited from harming bears. An FWC brochure with recommendations for keeping bears out of apiary sites is included with all leases. In the event that bear predation on bee yards occurs, beekeepers must contact the FWC biologist. The FWC biologist will take appropriate action for removing the bear if necessary.

Black titi, which blooms in February and March are the staple for bees in this area. The titi on THSF is unnaturally dense and abundant due to the lack of fire over the years. Prescribed fire has become a primary management tool, which will eventually reduce the abundance of titi. Apiary leaseholders are being advised of this long-term effect and also are provided a copy of the annual burn map for their information when renewing their leases.

18. Cattle Grazing

Cattle Grazing can be a useful tool in fuel reduction planning and will be evaluated where appropriate.

19. Photo Plots

This is a summary of photographic documentation that was initiated on THSF, beginning in April 2000. This project consists of 152 photo plots strategically placed on THSF lands on a one plot per 1,200 acre basis in a variety of community types and timber conditions. Plots were established in April 2000. GPS coordinates of each plot were collected and directions to the plot recorded. This should be revised each year if time allows. Plots are photographed each year in the spring with additional photos taken every third year during the fall season. The first set of fall photos were in October 2002. The photographic data provides valuable information and documentation of the effects management prescriptions have on THSF lands. This photographic documentation records the long term effects of reforestation practices, prescribed fires, habitat restoration efforts, and timber harvests, among other activities.

B. Description of Natural Communities and Proposed Management Activities

The community and cover types of THSF (Exhibit R) were identified during an historic vegetation mapping project completed in March 2000.

After receiving this map, and descriptions of the different cover types, the local staff in cooperation with the DOF Forest Management Bureau developed a set of guidelines for restoring each of the historic vegetation types from their current conditions to the desired future conditions. These management guidelines were approved by the Forest Management Bureau and the DOF Director in March 2001. The following section has been copied directly from these guidelines.

Note that types and acreages in this section do not match exactly those in the Executive Summary. The section below recognizes that natural communities occur in mosaics and patches of various natural communities which are found in certain specific associations in the landscape. The Executive Summary, on the other hand, is an effort to show acreages in each natural community type separately.

Additionally, the total area mapped does not correspond to the total acreage of Tate’s Hell State Forest. When the survey was done, some areas that were not part of the state forest were mapped in anticipation of State acquisition, and/or to show trends on adjacent lands. Some of this mapped area has been purchased by the State, and other areas have not, and will not be purchased. Also, some land that has been purchased, (e.g. Crooked River Tract) has not yet been surveyed to determine historic vegetation.

Sand Pine Scrub

Existing Conditions

Most of the sand pine scrub sites on THSF have not been severely disturbed. There are some areas with scattered off road vehicle trails, and there is a powerline right of way that bisects the length of this area. Many rare plants are found in or near this right of way. Some stands have been planted to sand or slash pine. These stands typically have very low productivity. Some parts of this vegetation type have been disturbed recently by fires and hurricanes.

Desired Future Condition
Sand pine scrub occurs on THSF along coastal dune ridges, generally within one mile of St. George Sound. Typical vegetation consists of Choctawatchee sand pine with an understory dominated by scrub oaks. This vegetation type will not be managed for timber production; therefore, the density and composition of the overstory will vary. Most natural fires in this vegetation type are catastrophic stand replacement type fires during unusually dry periods. Groundcover is typically sparse, and restricted to areas that have been opened by fire, storms or other disturbance. Many rare groundcover species are found in these openings.

Area mapped 1,848 acres

Fire Requirements 20-80 years

Restoration
Primarily, restoration will focus on maintenance of this system. These areas will often occur adjacent to other vegetation types that require a more frequent burn interval. In these cases, fire should be applied to the adjacent vegetation types under normal intervals and conditions. If some parts of the sand pine scrub burn, the fire will be allowed to burn itself out, creating natural transition zones. Most natural fires in this vegetation type were catastrophic stand replacement type fires during unusually dry periods. At some point, THSF staff may want to have this type of fire in these areas.

Groundcover
Many of these areas have fairly intact native vegetation. Restoration by prescribed fire at the stated fire return interval will be all that is necessary for most areas. Some areas do have problems with off road vehicle traffic that will need to be stopped. There are several rare groundcover plants that occur in this vegetation type. These plants are often found in areas that have been kept open by fire or other disturbance. Some areas may be experimentally bush-hogged for groundcover restoration/maintenance without the use of fire.

Hydrology
With very few exceptions, hydrologic restoration will have no effect on these areas.

Silviculture
The poor soils associated with this vegetation type will make it impractical to grow any tree species other than sand pine. At present, there is not a significant market for that species. Pine plantations already existing on these sites will be managed to eventually return to a natural condition. If an area is scheduled for a stand replacement fire, removal of merchantable timber prior to burning will be considered. Pockets of sand pine may be left to provide seed sources for regeneration. These areas will not be artificially reforested regardless of the pine density.

Mesic Flatwoods - Swamp Mosaic

Existing Conditions
Most of these areas have been drained, bedded, and planted to slash pine, primarily in the 1960's-70's. Some areas have been harvested and replanted; some have been seed tree cut or clear-cut; and some areas still have merchantable plantations standing. Intact groundcover is still found in

many areas, and remnants are scattered throughout most stands. Hardwood competition due to the lack of fire is a problem in most areas. Several areas of this vegetation type have been replanted to longleaf pine under State management.

Desired Future Condition

This vegetation type consists of a mosaic of mesic flatwoods and various types of swamps. Grassy groundcover species are present (wiregrass, beakrushes, pinewoods dropseed) along with scattered shrubs and palmettos. Tree species consist of slash and longleaf pines (pure and mixed stands) on the flatwoods, with pond pine, pond cypress and various hardwood species in the swamps. Longleaf pine is likely more prevalent on the flatwoods due to the frequent fire, and low available moisture of these sites. Stands are generally uneven-aged with basal areas running from 30-80 $ft.^2/ac$. The transition zones between the flatwoods and the swamps typically consist of savanna vegetation that requires frequent fire. The swamp areas typically burn at the edges and further in depending on weather conditions. This community type occurs on the comparatively higher land throughout the forest.

Area mapped 27,469 acres

Fire Requirements 2-4 years

Restoration

Restoration of this vegetation type will focus on conversion of existing plantations to uneven-aged management, reforestation of harvested areas, frequent prescribed fires, and hydrologic restoration of swamp areas.

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. The transition zones typically consist of wet savanna vegetation that requires fire. The prescribed fires should be allowed to burn into the swamp areas to various extents depending on fuel and weather conditions.

Hydrology

Restoration of natural hydrology may cause the low areas of the mesic flatwoods areas to become wetter. Low water crossings, road removals and ditch plugs may be needed to restore natural hydrology to these areas. Existing firebreaks should be rehabilitated whenever possible, and new lines will be established/maintained only in extreme situations. To protect water quality, rare plants and flatwoods salamander habitat, mechanical disturbance in the transition zones and swamp areas of this mosaic will be strongly restricted.

Silviculture

The mesic flatwoods portion of this mosaic vegetation type will be one of the primary vegetation types for long term silvicultural management on THSF. Management should focus on uneven-aged management of a mixture of slash and longleaf pines. Stocking densities/basal area should be managed to allow adequate sunlight to maintain abundant graminoid groundcover (30-80 $ft.^2/ac$). Existing longleaf pines need to be retained to allow for natural regeneration of that species. Timber management will not be appropriate in the transition zones and swamp areas.

Existing Condition	Prescription for Restoration
Slash Pine Plantations	These stands should be aggressively burned and thinned to allow for eventual conversion to uneven-aged management. To reduce the potential for damage to existing stands, some areas may need to be thinned prior to burning. Existing longleaf pines need to be retained to provide a seed source. Underplanting of longleaf pine may be desired in some areas.
Seed Tree Cuts (No Regeneration)	These areas should be burned until woody vegetation has been reduced and native groundcover is well established (initially, single drum chopping may be necessary). Once this condition has been reached, the mature trees should be summer/fall burned prior to a good seed crop. After successful seeding, these sites should be left unburned until the majority of dominant seedlings have reached a height of 10' (5-10 years). These stands will eventually be converted to uneven-aged management. Seed trees will be retained. Underplanting of longleaf pine may be desired in some areas.
Seed Tree Cuts (Natural Regeneration) (300-800 Trees Per Acre)	These stands should be left unburned until the majority of dominant trees have reached a height of 10' (5-10 years). These stands will eventually be converted to uneven-aged management. Seed trees will be retained. Underplanting of longleaf pine may be desired in some areas.
Clear-cuts (No Regeneration)	These areas will be repeatedly burned and planted to longleaf pine. Single drum chopping may be necessary. The long term goal for these stands is to convert them to uneven-aged longleaf pine management.
Clear-cuts (Natural Regeneration) (300-800 Trees Per Acre)	These stands should be left unburned until the majority of dominant trees have reached a height of 10' (5-10 years). These stands will eventually be converted to uneven-aged management. Underplanting of longleaf pine may be desired in some areas.
Longleaf Pine Plantations	The long term goal for these stands is to convert them to uneven-aged longleaf pine management. Early spring burns should be initiated within 2 years of planting. As the trees reach merchantable size, thinnings will open areas for natural regeneration and the development of multiple age classes.

Wet/Mesic Flatwoods (Grassy)

Existing Conditions

Most of these areas have been drained, bedded, and planted to slash pine, primarily in the 1960's-70's. Some areas have been harvested and replanted, some have been seed tree cut or clear-cut, and some areas still have merchantable plantations standing. Intact groundcover is still found in many areas, and remnants are scattered throughout most stands. Hardwood encroachment due to the lack of fire is a problem in most areas. Several areas of this vegetation type have been replanted to longleaf pine in recent years.

Desired Future Condition
These areas are pine flatwoods (wet and mesic) with abundant grasses in the groundcover (wiregrass, beakrushes, chalky bluestem, pinewoods dropseed). Tree species consisted of slash and longleaf pines (pure and mixed stands), with scattered pond pine and pond cypress. Stands are generally uneven-aged and fairly open with basal areas running from 30–80 $ft.^2/ac$. This vegetation type occurs over large areas and may be situated downhill from upland pine ridges and uphill from wet savannas, basin swamps, or riparian areas.

Area mapped 8,254 acres

Fire Requirements 2-4 years

Restoration
Restoration of this vegetation type will focus on conversion of existing plantations to uneven-aged management, reforestation of harvested areas, frequent prescribed fires, and hydrologic restoration of adjacent wetlands.

Groundcover
Early growing season fires at a 2-3 year interval will be the most effective way of restoring the native groundcover in this vegetation type. Initially, single drum chopping may be necessary. The prescribed fires should be allowed to burn into the swamp areas to various extents depending on fuel and weather conditions.

Hydrology
Single drum chopping may be needed in some badly damaged areas to repair logging ruts and bedding to restore natural sheet flow patterns. Groundcover restoration may need to take place prior to hydrology restoration. Restoration of natural hydrology in adjacent vegetation types may cause low areas of this vegetation type to become wetter.

Silviculture
This will be one of the primary vegetation types for long term silvicultural management on THSF. Management should focus on uneven-aged management of a mixture of slash and longleaf pines. Stocking densities/basal area should be managed to allow adequate sunlight to maintain abundant graminoid groundcover (30-80 basal area). Existing longleaf pines need to be retained to allow for natural regeneration of that species.

Existing Condition	**Prescription for Restoration**
Slash Pine Plantations	These stands should be aggressively burned and thinned to allow for eventual conversion to uneven-aged management. To reduce the potential for damage to existing stands, some areas may need to be thinned prior to burning. Existing longleaf pines need to be retained to provide a seed source for that species. Underplanting of longleaf pine may be desired in some areas.

Seed Tree Cuts (No Regeneration)	These areas should be repeatedly burned (including early growing season burns) until woody vegetation has been reduced and native groundcover is well established, and hardwood competition is controlled (initially, single drum chopping may be necessary). Once this condition has been reached, the mature trees should be summer/fall burned prior to a good seed crop. After successful seeding, these sites should be left unburned until the majority of dominant seedlings have reached a height of 10' (5-10 years). These stands will eventually be converted to uneven-aged management. Seed trees will be retained in all areas. Underplanting of longleaf pine may be desired in some areas.
Seed Tree Cuts (Natural Regeneration) (300-800 Trees Per Acre)	These stands should be left unburned until the majority of dominant trees have reached a height of 10' (5-10 years). These stands will eventually be converted to uneven-aged management. Seed trees will be retained in all areas. Underplanting of longleaf pine may be desired in some areas.
Clear-cuts (No Regeneration)	These areas will be burned and planted to longleaf pine. Single drum chopping may be necessary. These stands will eventually be converted to uneven-aged management.
Clear-cuts (Natural Regeneration) (300-800 Trees Per Acre)	These stands should be left unburned until the majority of dominant trees have reached a height of 10' (5-10 years). At this point, they are tall enough to withstand fire, and should be burned at a 2-4 year interval (including early growing season burns). These stands will eventually be converted to uneven-aged management. Underplanting of longleaf pine may be desired in some areas.
Longleaf Pine Plantations	The long term goal for these stands is to convert them to uneven-aged longleaf pine management. Early spring burns should be initiated within 2 years of planting.

Wet/Mesic Flatwoods – Shrubby

Existing Conditions
Many of these areas have been drained, bedded, and planted to slash pine, primarily in the 1960's-70's. Some areas have been harvested and replanted, some have been seed tree cut or clear-cut, and some areas still have merchantable plantations standing. Intact groundcover is still found in some areas, and remnants are scattered throughout many stands. Hardwood competition due to the lack of fire is a problem in most areas. Several areas of this vegetation type have been replanted to longleaf pine in recent years.

Desired Future Condition
This vegetation type consists of pine flatwoods (wet and mesic) that contain larger amounts of shrubs (black titi, white titi, gallberry, palmetto) than graminoid dominated flatwoods. Grassy groundcover species are present (wiregrass, beakrushes, pinewoods dropseed), but they are not as dense as on grassy flatwoods. This is likely due to a less frequent fire return interval. Tree species consist of slash and longleaf pines (pure and mixed stands), with scattered pond pine and pond cypress. Slash pine is likely more prevalent due to the low fire frequency. Stands are generally

uneven-aged, with basal areas running from 55-75 ft.^{2}/ac. This vegetation type occurs on low interior flat lands throughout Tate's Hell State Forest.

Area mapped 13,805 acres

Fire Requirements 2-4 years

Restoration
Restoration of this vegetation type will focus on conversion of existing plantations to uneven aged management, reforestation of harvested areas, frequent prescribed fires, and hydrologic restoration of adjacent wetlands.

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. Initially, single drum chopping may be necessary. Once ground cover has been well established, a 2-4 year burn interval (including early spring burns) should maintain a natural distribution of shrubs and grasses.

Hydrology
Restoration of natural hydrology may cause some of the low areas to become wetter. Groundcover restoration may need to take place prior to hydrology restoration. Single drum chopping may be needed to restore sheet flow, and facilitate prescribed burning in some areas.

Silviculture
This will be one of the important vegetation types for long term silvicultural management on THSF. Management should focus on uneven-aged management of a mixture of slash and longleaf pines. Stocking densities/basal area may be higher in shrubby flatwoods than grassy flatwoods (55-75 basal area). Existing longleaf pines need to be retained to allow for natural regeneration of that species.

Existing Condition	Prescription for Restoration
Slash Pine Plantations	These stands should be aggressively burned and thinned to allow for eventual conversion to uneven-aged management. Existing longleaf pines need to be retained to provide a seed source. To reduce the potential for damage to existing stands, some areas may need to be thinned prior to burning. Existing longleaf pines need to be retained to provide a seed source. Underplanting of longleaf pine may be desired in some areas
Seed Tree Cuts (No Regeneration)	These areas should be burned until woody vegetation has been reduced and native groundcover is well established (Initially, single drum chopping may be necessary). Once this condition has been reached, the mature trees should be summer/fall burned prior to a good seed crop. After successful seeding, these sites should be left unburned until the majority of dominant seedlings have reached a height of 10' (5-10 years). These stands will eventually be converted to uneven-aged management. Seed trees will be retained. Underplanting of longleaf pine may be desired in some areas

Seed Tree Cuts (Natural Regeneration) (300-800 Trees Per Acre)	These stands should be left unburned until the majority of dominant trees have reached a height of 10' (5-10 years). These stands will eventually be converted to uneven-aged management. Seed trees will be retained. Underplanting of longleaf pine may be desired in some areas
Clear-cuts (No Regeneration)	These areas will be burned and planted to longleaf pine. Single drum chopping may be necessary. The long term goal is to convert these stands to uneven-aged management.
Clear-cuts (Natural Regeneration) (300-800 Trees Per Acre)	These stands should be left unburned until the majority of dominant trees have reached a height of 10' (5-10 years). At this point, they are tall enough to withstand fire, and should be burned at a 2-4 year interval (including early growing season burns). These stands will eventually be converted to uneven-aged management. Underplanting of longleaf pine may be desired in some areas.
Longleaf Pine Plantations	The long term goal for these stands is to convert them to uneven-aged longleaf pine management. Early spring burns should be initiated within 2 years of planting.

Wet Savanna

Existing Conditions
Most of these areas have been drained, bedded, and planted to slash pine, primarily in the 1960's-70's. Some areas have been harvested and replanted, some have been seed tree cut or clear-cut, and some areas still have merchantable plantations standing. Most of the harvested areas have very deep ruts from logging equipment. These ruts restrict sheet flow, and may stop prescribed fires. Intact groundcover is still found in many areas, and remnants are scattered throughout most stands. Some areas have not been converted to plantations. These areas have dense savanna type groundcover, scattered, old flat-topped trees (pine and cypress), and various shrubs. Hardwood encroachment due to the lack of fire is a problem in most areas.

Desired Future Condition
Wet savannas are typically graminoid vegetation in wet, broad flats, and along wetland-upland ecotones. They are characterized by wiregrass, wiry beakrushes, and pitcher plants. Wet savannas with cypress may lack wiregrass, but be dominated by beakrushes, nutrushes, and sedges. Tree species include slash pine, longleaf pine, pond pine and pond cypress. Trees are at a very low density (0-15 trees/acre), and may not be present at all in many areas. Wet savannas often occur in ecotones between flatwoods and various types of swamps. These ecotones range in width from a few feet to more than a mile, depending on topography and other factors.

Area mapped 19,860 acres

Fire Requirements 1-4 years

Restoration
Restoration of wet savannas will include frequent prescribed burning, restoration of natural hydrology, and management of existing timber stands to return to a more natural stocking density.

Groundcover
To initially restore these areas, more frequent fire return intervals (1-2 years) would be desirable. Severely damaged sites may be experimentally single drum chopped to reduce woody vegetation and facilitate burning. Artificial seeding of savanna species may be required in severely damaged areas. Merchantable pines on savanna sites should be aggressively thinned and, once the groundcover has been restored enough to carry fire, clear-cut/restoration harvested to reflect a natural appearance (0-15 trees/acre). Planting of pine and cypress will not be appropriate in these areas.

Hydrology
Restoration of natural hydrology in these areas will include removal of non-essential roads, and plugging of ditches in adjacent stands to increase water retention. Some severely damaged areas may be experimentally single drum chopped to reduce ruts and improve sheet flow. Native groundcover needs to be restored prior to hydrologic restoration.

Silviculture
There will be little or no long term timber management on this vegetation type. Timber management will focus on restoring plantations to natural tree densities (0-15 trees/acre) once the groundcover has recovered enough to carry fire on its own. Timber harvests need to be restricted to dry periods or specialized equipment. Reforestation will not be appropriate on these sites.

Existing Condition	**Prescription for Restoration**
Slash Pine Plantations	Plantation management will focus on eventual restoration to the historical vegetation type. This will likely consist of aggressive prescribed burning, a series of thinnings, followed by an eventual restoration harvest once the groundcover has reestablished itself. Remnant cypress and flat-topped pines need to be retained during harvests. All harvests need to be conducted during dry periods. Reseeding of native savanna species may be required in some areas. Once natural pine and cypress densities have been achieved, there will be little management other than fire in these stands.
Clear-cuts/Seed Tree Cuts (No Regeneration)	Areas of this vegetation type will be burned to restore the natural groundcover components. Severely damaged sites may need to be single drum chopped to facilitate burning, reduce woody species, and reduce ruts. Reseeding of native savanna species may be required in some areas. Tree species will be allowed to naturally seed in from adjacent stands. Tree species regeneration should not alter prescribed burning rotations
Clear-cuts/Seed Tree Cuts (Natural Regeneration) (300-800 Trees Per Acre)	Aggressively burn, work towards March-May burns as soon as fuels have been reduced. Severely damaged sites may need to be single drum chopped to facilitate burning, reduce woody species, and reduce ruts. Reseeding of native savanna species may be required in some areas. Existing pines and regeneration from adjacent stands will be managed to maintain a density of 0-15 trees/acre. Artificial regeneration of pines and cypress will not be appropriate.
Intact Sites	These areas need to be frequently burned (including early lightning season burns) to reduce woody vegetation and maintain groundcover. Timber harvests and artificial regeneration should not be necessary.

Wet Savanna - Pine Flatwoods Mosaic

Existing Conditions
Most of these areas have been drained, bedded, and planted to slash pine, primarily in the 1960's-70's. Some areas have been harvested and replanted, some have been seed tree cut or clear-cut, and some areas still have merchantable plantations standing. Slash pines are regenerating in some harvested areas. Intact groundcover is still found in many areas, and remnants are scattered throughout most stands. Encroachment by hardwood shrubs, due to the lack of fire is a problem in most areas. Several areas of this vegetation type have been replanted to longleaf pine in recent years.

Desired Future Condition
These areas are a mosaic of open low grasslands of wet savanna, with patches of pine flatwoods on slightly higher ground. Patches range in size from less than one acre to more than 100 acres, generally in very irregular shapes. Tree species consist of slash and longleaf pines (pure and mixed stands), with scattered pond pine and pond cypress. Stands on the flatwoods are generally uneven-aged and fairly open with basal areas running from 30–80 ft.^{2}/ac. Tree densities on the savannas are very low (0-15 trees/acre) with a mixture of pines and cypress. Generally it is assumed that flatwoods occur on the slightly higher areas and savannas are on the wetter portions.
Since the elevation differences may only be a few inches, the exact boundaries are not easily identified. Naturally occurring and man-caused fires likely have a substantial role in the development of the ecotones between the two vegetation types. The actual lines where one type ends and the other begin fluctuate over time, but the core areas remain in their natural vegetation type.

Area mapped 49,903 acres

Fire Requirements 2-4 years

Restoration
This will be the most challenging vegetation type to manage on the state forest. Restoration of this vegetation type will focus on prescribed burning to restore groundcover, and timber management to maintain/restore natural pine densities. A variety of hydrologic restoration activities could likely occur in and around these areas.

Groundcover
To initially restore the native vegetation of these areas, more frequent fire return intervals (1-2 years or as often as fuels allow) would be desirable. Fire return intervals of 2-4 years will be more appropriate once the savannas reach a maintenance stage. Some areas may initially need single drum chopping to reduce skidder ruts, reduce woody shrub competition, and to help facilitate prescribed burning. Stocking densities/basal area in the flatwoods areas should be managed to allow adequate sunlight to maintain abundant graminoid groundcover (30-60 ft.^{2}/ac).

Hydrology
Hydrologic restoration in this vegetation type may include low water crossings, removal of unnecessary roads, and single drum chopping to reduce ruts and restore sheet flow where needed. Ditch plugs or flash board risers in adjacent stands should increase water retention in these areas. Hydrologic restoration is likely to make many areas of this mosaic wetter for longer portions of the

year, thereby reducing the opportunities for prescribed burning. Therefore, restoration of native groundcover should be well under way prior to permanent restoration of natural hydrology.

Silviculture

As a general rule, the savanna areas will be restored to the desired future condition (*see Wet Savanna recommendations*), and the flatwoods areas may be managed similarly to grassy flatwoods where feasible. At this time, it is very difficult to determine the boundaries between these areas. Repeated prescribed burns will encourage native plant species and differences between the two vegetation types in this mosaic should become more apparent. Due to the irregular shapes, small acreage, and possible inaccessibility of many of the flatwoods areas, timber management may not be feasible in many areas. In some cases, it may be necessary to cross savanna areas to access timber in isolated flatwoods sites. The decision of whether to leave this timber or to cross the savanna will need to be made on a case by case basis. There will have to be a balance between potential groundcover and hydrologic damage, the health needs of the stand, and the value of the timber to be harvested. Stocking densities and basal area in the flatwoods areas should be managed to allow adequate sunlight to maintain abundant graminoid groundcover (30-80 basal area). Harvests will be restricted to dry periods and/or specialized equipment.

Existing Condition	**Prescription for Restoration**
Slash Pine Plantations	Boundaries of the different vegetation types in this mosaic will be made more apparent through aggressive prescribed burning, (including early lightning season burns), and thinning of merchantable timber. Once the different areas can be identified, tree densities in the savanna areas will be reduced to 0-5 trees/acre, and flatwoods areas will be managed for uneven-aged management of pines where feasible. To reduce the potential for damage to existing timber, some areas may need to be thinned prior to burning. Underplanting of longleaf pines may be desired in some flatwoods areas.
Clear-cuts/Seed Tree Cuts (No Regeneration)	The flatwoods areas will be reforested to or under-planted with longleaf or slash pine and eventually managed as uneven-aged stands where feasible. These areas will be chopped and burned during the growing season, followed by a band herbicide treatment the following fall. Seedlings (slash or longleaf pine) will be planted down the center of the treated bands. Prescribed burning will resume as soon as fuels allow. All slash pine seed trees will be retained on flatwoods, and seed trees will be retained on savannas at appropriate densities (0-5 trees/acre).
Clear-cuts/Seed Tree Cuts (Natural Slash Pine Regeneration) (300-800 Trees Per Acre)	These stands should be left unburned until the majority of dominant trees have reached a height of 10' (5-10 years). At this point, they should be tall enough to withstand low intensity prescribed fires, and should be burned at a 1-2 year interval (including early lightning season burns once fuels have been reduced) until the savanna and flatwoods areas can be identified. Flatwoods areas will then be managed for uneven-aged management of timber where feasible, and savanna areas will be restored to natural stocking conditions (0-5 trees/acre). Slash pine seed trees will be retained on flatwoods, and retained on savannas at appropriate densities. Underplanting of longleaf pine may be desired in some flatwoods areas.

Longleaf Pine Plantations	In the past, longleaf pines have been planted on areas of this mosaic without distinguishing the flatwoods from the savannas. Pines were planted equally in all areas, with the expectation that the trees in the savanna areas would have lower survival. The flatwoods sites are intended to end up with a stocking of 300-700 trees/acre. The long term goal is to manage the flatwoods areas for timber (where feasible), and to restore the savanna areas to the desired future condition. This may include harvesting longleaf pines to natural densities once they become merchantable.

Wet Savanna - Swamp Mosaic

Existing Conditions
The wet savanna portions of these sites may have been converted to slash pine plantations. In some cases, firelines were plowed to keep site prep fires out of the swamp areas. Intact groundcover is still found in many areas, and remnants are scattered throughout most stands. Hardwood encroachment due to the lack of fire is a problem in most areas. Planted pines generally did poorly on these sites, and often, only the beds remain as evidence of planting.

Desired Future Condition
These areas are a mosaic of open low grasslands of wet savanna, with scattered swamps in wetter areas. Trees are at very low densities (0-5 trees/acre) in savanna areas, and consist of slash and longleaf pines with scattered pond pine and pond cypress. The type of swamp can be variable and includes: shrub wetlands, cypress domes, and basin swamps. This mosaic generally occurs as a transition zone from flatwoods sites to wetter areas.

Area mapped 617 acres

Fire Requirements
Generally, savanna areas need fire at a 1-4 year interval. This vegetation type generally occurs with or near flatwoods areas, and should be burned in rotation with those stands. Swamps do not necessarily need fire, but fires should be allowed to burn into these areas to various extents as conditions allow to encourage the development of ecotones. Firelines should not be plowed to keep fire out of swamp areas.

Restoration
Restoration of these sites will focus on prescribed burning to restore groundcover/develop ecotones, restoration of natural hydrology, and managing planted pines to more natural densities.

Groundcover
To initially restore these areas, more frequent fire return intervals (1-2 years) would be desirable. Severely damaged sites may be experimentally single drum chopped to reduce woody vegetation and facilitate burning. Artificial seeding of savanna species may be required in severely damaged areas. Merchantable pines on savanna sites should be aggressively thinned and, once the groundcover has been restored enough to carry fire, clear-cut/restoration harvested to reflect a natural appearance (0-15 trees/acre). Planting of pine and cypress should not be necessary in these areas.

Hydrology
Restoration of natural hydrology in these areas will include removal of non-essential roads, and plugging of ditches in adjacent stands to increase water retention. Some severely damaged areas may be experimentally single drum chopped to reduce ruts and improve sheet flow. Native groundcover may need to be restored prior to hydrologic restoration. Existing fire breaks should be rehabilitated wherever possible, and new lines will be established/maintained only in extreme situations. To protect water quality and flatwoods salamander habitat, mechanical disturbance in the transition zones and swamp areas of this mosaic will be minimized.

Silviculture
There will be little or no long term timber management on this vegetation type. Timber management will focus on restoring savanna areas to natural tree densities (0-15 trees/acre) once the groundcover has recovered enough to carry fire on its own. Timber harvests need to be restricted to dry periods or specialized equipment. Artificial reforestation will not be appropriate on these sites. Timber management will not be appropriate in the transition zones and swamp areas.

Wet Savanna - Cypress Flats

Existing Conditions
Most of these areas have been drained, bedded, and planted to slash pine, primarily in the 1960's-70's. Some areas have been harvested and replanted, some have been seed tree cut or clear-cut, and some areas still have merchantable plantations standing. Intact groundcover is still found in many areas, and remnants are scattered throughout most stands. Some areas have not been converted to plantations. These areas have dense savanna type groundcover, old flat-topped trees (pine and cypress), and various shrubs. Hardwood encroachment due to the lack of fire is a problem in most areas.

Desired Future Condition
These areas are typically an open cypress and pine canopy with a mid-story of shrubs, yet still open enough to permit growth of abundant herbaceous vegetation. These may be wet savanna areas that do not burn as often, allowing a higher density of trees and shrubs. A diversity of age classes may be present. Relative densities of pines and cypress can vary greatly throughout this vegetation type. There are not many well maintained examples of this vegetation type, so much of this is educated guesswork. A good estimate of tree density would be 5-20 trees/acre as a mixture of pines and cypress.

Area mapped 11,445 acres

Fire Requirements 5-10 years

Restoration
Restoration of these sites will include prescribed burning to improve ground cover, thinning of plantations to more natural densities, and various hydrologic restoration activities.

Groundcover
To initially restore these areas, more frequent fire return intervals (2-4 years) would be desirable. Frequent early spring burns, will be the primary tools for restoring this vegetation type. Initially, single drum chopping may be necessary. In most cases, restoration of groundcover species will take priority over pine and cypress seedling preservation. Long term basal area and stocking

densities need to be maintained to allow adequate sunlight to reach the ground to maintain abundant graminoid groundcover.

Hydrology
Hydrologic restoration projects such as road removals and low water crossings may occur in this vegetation type. These areas are likely to get wetter as natural hydrology is restored. Native groundcover should be restored (with repeated early lightning season burns) before hydrology is restored. Some areas may need to be single roller chopped to reduce the skidder ruts, and improve sheet flow.

Silviculture
There will be little or no long term timber management on this vegetation type. Timber management will focus on restoring plantations to a more natural condition. Timber harvests need to be restricted to dry periods or specialized equipment. Remnant cypress and flat-topped pines need to be retained whenever possible.

Existing Condition	Prescription for Restoration
Slash Pine Plantations	Plantation management will focus on eventual restoration to the historical vegetation type. This will likely consist of aggressive prescribed burning, a series of thinnings, followed by an eventual restoration harvest once the groundcover has reestablished itself. Remnant cypress and flat-topped pines need to be retained during harvests. All harvests need to be conducted during dry periods. Once “natural” pine and cypress densities have been achieved, there will be little management other than fire in these stands.
Clear-cuts/Seed Tree Cuts (Regardless of Regeneration)	Areas of this vegetation type will be burned to restore the natural groundcover components. Some areas may initially need to be single roller chopped to reduce the skidder ruts and allow for easier burning. Once the groundcover has been reestablished, planting of pond cypress and slash pine, at low densities, may be appropriate.
Intact Sites	These areas need to be frequently burned (including early lightning season burns) to reduce woody vegetation and maintain groundcover. Timber harvests and artificial regeneration should not be necessary.

Shrub Wetland

Existing Conditions
Most of these sites were excluded from pine plantations, and very few have been burned within the last 30 years. These areas are very overgrown, but the species composition is still fairly intact. The extensive draining of the area has made many of these sites much drier than they would naturally have been. Some of these areas have plowed firelines at the edges of the pine plantations.

Desired Future Condition
These are depressional wetland areas dominated by dense shrubs, typically black and white titi. Fires are typically catastrophic fires during unusually dry periods. Most shrubs resprout after fires and slowly grow back until the next fire. Shrub heights and densities vary greatly depending on moisture levels, shrub species and time since disturbance. There is only scattered groundcover, primarily as pioneer species in the years following fires. Shrub wetlands with a significant tree

overstory component are classed as mixed forested wetlands. Soils tend to be saturated most of the year.

Area mapped 4,145 acres

Fire Requirements 10-20 years

Restoration
Restoration will focus on restoring natural hydrology, and burning to create ecotones/maintain natural diversity.

Groundcover
These areas should be burned in rotation with adjacent stands, allowing fire to creep into these areas and create ecotones as conditions allow. Experimental chopping or bush-hogging to reduce fuels and improve burning conditions may be tried in some areas. Existing fire breaks should be rehabilitated wherever possible, and new lines will be established/maintained only in extreme situations.

Hydrology
Hydrology projects, such as low water crossings and road removals may occur on parts of this vegetation type. Some of these areas will become naturally wetter as hydrology is restored. Existing firelines should be rehabilitated wherever possible, and new lines will be established/maintained only in extreme situations.

Silviculture
Timber management is not appropriate in shrub wetlands. Any trees on these sites will be left standing, and no reforestation will be necessary. Mortality from fire, and pine recruitment from adjacent stands will be acceptable.

Basin Swamps (Atlantic White Cedar)

Existing Conditions
Some of these sites have been converted to slash pine plantations, and others have been left relatively intact. These sites were generally excluded from pine plantations, and vegetation may be fairly intact. The extensive draining of the forest has made many of these sites much drier than they would naturally have been. Some of these areas have plowed firelines at the edges of the pine plantations, and few if any sites have been burned within the last 30 years.

Desired Future Condition
These sites are typically located in depressional areas and are dominated by an overstory of Atlantic white cedar. There may be a sparse understory of woody shrubs or grasses. Other tree species (slash pine, pond pine, pond cypress, bay) may be present. These sites support very high tree densities with basal area often 100 ft.^{2}/ac and higher. Mature stands are generally even-aged, very dense, and very little light reaches the forest floor. Soils tend to be saturated most of the year. Most natural fires in this vegetation type are catastrophic stand replacement type fires during unusually dry periods

Area mapped 750 acres

Fire Requirements 50-100 years

Restoration

These areas will often occur adjacent to other vegetation types that require a more frequent burn interval. In these cases, fire should be applied to the adjacent vegetation types under normal intervals and conditions. If some parts of the basin swamp burns, the fire will be allowed to burn itself out, creating natural transition zones.

Groundcover

Groundcover in these stands is typically very sparse due to the density of the overstory. Allowing prescribed fires in adjacent stands to burn into Atlantic white cedar stands will encourage the redevelopment of transition zones, and enhance plant diversity. Existing fire breaks should be rehabilitated wherever possible, and new lines will be established/maintained only in extreme situations.

Hydrology

Hydrologic restoration projects such as removal of unnecessary roads and low water crossings may occur in this vegetation type. Basin swamps are likely to return to a more natural (wetter) condition as natural hydrology is restored. Existing fire breaks should be rehabilitated wherever possible, and new lines will be established/maintained only in extreme situations.

Silviculture

The soils of these stands do not support equipment well, and at present, there is a minimal market for this Atlantic white cedar. If market conditions improve, and specialized equipment is utilized, harvests of Atlantic white cedar could be conducted prior to stand replacement fires. These harvests must be planned and managed to minimize damage to the ecosystem. Further research needs to be conducted to determine the silvicultural needs of this vegetation type.

Existing Condition	**Prescription for Restoration**
Slash Pine Plantations	Pine plantations already existing on these sites will be managed to eventually return to a natural condition. Removal of pines in this vegetation type could help to restore the typical monoculture of Atlantic white cedar, provided the harvest is planned to minimize damage to the ecosystem.
Harvested Areas	Harvested areas will be allowed to naturally return to the desired future condition. Atlantic white cedar is a prolific seeder, so reforestation of clear-cut areas on this vegetation type will rarely, if ever, be required. If the seed source has been eliminated, planting of Atlantic white cedar may be considered.
Intact Stands	These areas will, for the most part, be left alone. Prescribed fires in adjacent stands will be allowed to burn themselves out. If an area is scheduled for a stand replacement, and market conditions for this species improve, removal of merchantable timber prior to burning should be considered. These harvests must be planned to minimize damage to the ecosystem.

Basin Swamp/Shrub Wetland/Mixed Forested Wetland

Existing Conditions
Most of these sites were not converted to pine plantations; however, most stands are severely overgrown due to fire exclusion. The extensive draining of the forest has made many of these sites much drier than they would naturally have been. Some of these areas have plowed firelines at the edges of adjacent pine plantations, and few if any sites have been burned within the last 30 years. Some large areas were converted to pine plantations. It is possible that these areas were actually drier mixed forests (pine/hardwood) that could not be distinguished from the wetland areas using historic photos. Some of these sites have been harvested and replanted to longleaf pine under Division of Forestry management.

Desired Future Condition
These sites are typically located in depressional areas, and riparian zones of small streams. Tree species can include bays, tupelo, pond pine, loblolly pine, slash pine, and pond cypress. There may be an understory of mixed shrubs, grasses, or leaf litter. Stand structure may vary widely due to the diversity of these sites, the time since disturbance, and other factors. Soils tend to be saturated most of the year. This vegetation type includes some areas of mixed forest (pine/ hardwood). Palmettos and upland type grasses are present in many of these stands.

Area mapped 44,605 acres

Fire Requirements
Use variable-burns in rotation with adjacent stands. Longleaf plantations on mixed forested wetland sites may initially need a 2-4 year fire interval.

Restoration
Restoration will focus on reforesting some of the drier mixed forest areas, restoring natural hydrology, and burning to create ecotones/maintain natural diversity.

Groundcover
Vegetation restoration will vary greatly due to the diversity of these vegetation types. As a general rule, these areas should be burned in rotation with adjacent stands, allowing fire to creep into these areas and create ecotones as conditions allow. The mixed forest areas may need more frequent fire to restore native groundcover, and to improve survival of pines. Existing fire breaks should be rehabilitated wherever possible, and new lines will be established/maintained only in extreme situations.

Hydrology
Hydrology projects, such as low water crossings and road removals may occur on parts of this vegetation type. Some of these areas will become wetter as natural hydrology is restored. Existing fire breaks should be rehabilitated wherever possible, and new lines will be established/maintained only in extreme situations.

Silviculture
There will be little or no long term timber management on most parts of this vegetation type. Timber management will focus on portions of the mixed forest that are dry/fertile enough to allow for pine growth and management. Since these areas naturally contained a mix of pines and hardwood species, a longer fire interval (5-10 years) may be appropriate once the pine stands are well established. *Recommendations below are for the drier portions of the mixed forest areas only.*

Existing Condition	Prescription for Restoration
Slash Pine Plantations	These stands should be aggressively burned and thinned to allow for eventual conversion to uneven-aged management. Existing longleaf pines need to be retained to provide a seed source. A substantial hardwood component will be encouraged on these sites.
Seed Tree Cuts (No Regeneration)	These areas should be burned until woody vegetation has been reduced and native groundcover is well established (initially, single drum chopping may be necessary). Once this condition has been reached, the stands should be summer/fall burned prior to a good seed crop. After successful seeding, these sites should be left unburned until the majority of dominant seedlings have reached a height of 10'. These stands will eventually be converted to uneven-aged management. Underplanting of longleaf pine may be desired in some areas. A substantial hardwood component will be encouraged on these sites, once the pines have become established.
Seed Tree Cuts (Natural Regeneration) (300-800 Trees Per Acre)	These stands should be left unburned until the majority of dominant trees have reached a height of 10'. These stands will eventually be converted to uneven-aged management. Underplanting of longleaf pine may be desired in some areas. A substantial hardwood component will be encouraged on these sites, once the pines have become established.
Clear-cuts (No Regeneration)	These areas will be burned and reforested to longleaf, slash or loblolly pine, depending on the site. Single drum chopping and repeated fire may be necessary prior to planting. A substantial hardwood component will be encouraged on these sites, once the pines have become established.
Clear-cuts (Natural Regeneration) (300-800 Trees Per Acre)	These stands should be left unburned until the majority of dominant trees have reached a height of 10'. These stands will eventually be converted to uneven-aged management. A substantial hardwood component will be encouraged on these sites, once the pines have become established.
Longleaf Pine Plantations (Planted 1995-2000)	The long term goal for these stands is to convert these stands to uneven-aged longleaf pine management with a significant hardwood component. Early spring burns should be initiated within 2 years of planting. A substantial hardwood component will be encouraged on these sites, once the pines have become established.

Mixed Forested Wetland

Existing Conditions

These sites were generally excluded from pine plantations, and vegetation may be fairly intact. The extensive draining of the forest has made many of these sites much drier than they would naturally have been. Some of these areas have plowed firelines at the edges of the pine plantations, and few if any sites have been burned within the last 30 years.

Desired Future Condition
This vegetation type includes several types of forested wetland, most of which are subjected to very infrequent fire. They include: cypress-pine/titi forests, blackgum-bay forests, Atlantic white cedar-pine-cypress forests. This vegetation type may grade into shrub land as tree canopies become sparse at the edges of the forest. Mixed forested wetlands can also include large riverine floodplain forests, which may not have burned at all. Stand structure may vary greatly due to many factors including: duration of flooding, soil characteristics, and time since disturbance. There may be an understory of mixed shrubs, grasses, or leaf litter. Soils tend to be saturated most of the year.

Area mapped 3,749 acres

Fire Requirements
In most cases, little or no fire is required to maintain this system. Fires from adjacent stands should be allowed to burn into the edges of these stands to create/maintain ecotones.

Restoration
Restoration of this vegetation type will focus on maintenance of existing stands and restoration of natural hydrology.

Groundcover
Groundcover restoration should be achieved through prescribed burning and the associated development of ecotones. These areas do not need to be directly ignited, but the adjacent upland types should be burned at the recommended intervals. Fire will burn into these areas to various extents depending on weather and other conditions. Existing fire breaks should be rehabilitated wherever possible, and new lines will be established/maintained only in extreme situations. Management of tree canopies should not be necessary.

Hydrology
Hydrology projects, such as low water crossings and road removals may occur where this vegetation type intersects existing roads. Ditch plugs in adjacent stands may help to increase water retention in these areas. Existing fire breaks should be rehabilitated wherever possible and new lines will be established/maintained only in extreme situations.

Silviculture
These areas are not well suited to long term timber management. Most species that grow in this vegetation type have limited marketability, and high soil moisture and low soil stability would make harvests impractical. BMP's would not allow intensive management in these areas since most of these areas are classified as special management zones. Areas that have been harvested should be allowed to regenerate naturally and standing timber should not be harvested.

Deciduous Forested Wetlands

Existing Conditions
These sites were generally excluded from pine plantations, and vegetation may be fairly intact. The extensive draining of the area has made many of these sites much drier than they would naturally have been. Some of these areas have plowed firelines at the edges of the pine plantations, and few if any sites have been burned within the last 30 years.

Desired Future Condition
This vegetation type includes riverine swamps (bald cypress, water tupelo, ogeechee tupelo), floodplain forests (blackgum, red maple, sweet gum, cypress), sloughs, and depressional wetlands (pond cypress, blackgum) dominated by deciduous trees in the canopy. Stand structure may vary greatly due to many factors including: duration of flooding, soil characteristics, and time since disturbance. There may be an understory of mixed shrubs, grasses, or leaf litter.

Area mapped 7,618 acres

Fire Requirements 15-20 years

Restoration
Restoration of these sites will focus on prescribed burning to develop ecotones, and restoration of natural hydrology.

Groundcover
Groundcover restoration should be achieved through prescribed burning and the associated development of ecotones. These areas do not need to be directly ignited, but the adjacent upland types should be burned at the recommended intervals and fire will burn into these areas to various extents depending on weather and other conditions. Existing fire breaks should be rehabilitated wherever possible, and new lines will be established/maintained only in extreme situations. Management of tree canopies should not be necessary.

Hydrology
Low water crossings and other hydrology projects may occur where this vegetation type intersects existing roads. Ditch plugs in adjacent stands may help to increase water retention in these areas. Existing fire breaks should be rehabilitated wherever possible, and new lines will be established/maintained only in extreme situations.

Silviculture
These areas are not well suited to long term timber management. BMP’s would not allow intensive management in these areas since most of these areas are classified as special management zones. Also, high soil moisture and low soil stability would make harvests impractical. Areas that have been harvested should be allowed to regenerate naturally, and standing timber should not be harvested.

Marsh

Existing Conditions
Most of these sites are tidally influenced, so there has been very little widespread silviculture. Some areas were bedded, and the beds remain visible today (pines were never planted or have died). Drainage ditches were dug through several areas to speed drainage of adjacent uplands. This is likely to have caused drastic changes in water salinity and flow rates. This flushing of fresh water can be detrimental to the many fish and invertebrate species that depend on these areas. Exotic species such as torpedo grass are present in some areas. Most of these areas are under DEP jurisdiction.

Desired Future Condition
This vegetation type consists of grass, sedge, or rush dominated hydric grasslands. These sites are generally found at the edges of open waters of rivers, creeks, and coastal lagoons, and in shallow

depressions. Small areas of pines may be found on some slightly elevated sites. Fires do burn through marshes, but the primary disturbance is from water. The water in these marshes may be fresh, brackish, or salty. Marshes are critical to many fish and invertebrates. The restoration of natural water cycles and maintenance of high water quality of these marshes is one of the primary reasons this land was purchased.

Area mapped 2,525 acres

Fire Requirements
Marshes will burn, but fire is not required for maintenance. Without frequent burning, woody species such as slash pine, red maple and sweet gum are likely to encroach from the adjacent upland areas. Marshes should be burned in rotation with adjacent stands.

Restoration
Restoration of these sites will focus on hydrologic restoration of damaged marshes and associated watersheds, and prescribed burning to develop natural transition zones. Monitoring and removal of exotic species may be needed in some areas.

Groundcover
Fire is not needed to maintain marsh vegetation. However, these areas burn easily, and vegetation regrows quickly after fires. Burning in conjunction with adjacent stands will help to maintain/ improve this vegetation type, reduce woody species encroachment, and develop natural transition zones. Torpedo grass and other exotic species must be aggressively controlled.

Hydrology
Hydrologic restoration will restore waterflow/salinity levels and help to reestablish natural species composition. Removal of drainage ditches, canals, and unnecessary roads may occur on these sites. Restoration of upstream watersheds will improve the quality of these sites.

Silviculture
There will be no timber management on these stands. Very few of these areas have any trees on them at all. The high water levels and low soil stability are not suited to equipment operation. On sites that do have existing trees, the trees will be left standing, burned and eventually restored to a natural condition.

C. Impact of Planned Uses on Property Resources

1. Silviculture management will be implemented to ensure a continuing renewable timber resource and diverse ecological resources for an indefinite time period.

2. Recreational uses will be monitored to evaluate impacts on the natural systems. Modification to recreational uses will be implemented, should significant negative impact be identified.

3. 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 Exhibit I and will comply with all appropriate provisions of Florida Statutes 267.061(2).

4. Water resources will be protected through the use of BMPs and/or other appropriate measures as deemed necessary by DOF's Forest Hydrologist and/or Watershed Specialist.

5. Wildlife resources, both game and non-game species, will be protected through resource management techniques coordinated between DOF and FWC.

V. MANAGEMENT SUMMARY

A. Operations Infrastructure

The current annual budget (FY 2006/07) for THSF is $2,286,914, however annual appropriations change. This amount included salaries, expense and operating capital outlay and is broken down as follows:

Salary and Benefits (28 various positions), ... $1,311,052
Various Projects Costs (reforestation, restoration, Rx fire, recreation, roads)...................$615,176
Operating Expense (general costs for fuel, supplies, parts, uniforms, utilities etc.)……...$274,386
Other Personal Services (4)……………………………………………………………….$77,500
Operating Capital Outlay (equipment)…………………………………………………$8,800

To carry out the resource management work on the state forest as well as in order to maintain forest improvements such as trails, roads and facilities the following equipment has been assigned or is immediately available for use on THSF:

4wd pickup trucks (15)	John Deere 544 front-end loader
4wd utility vehicles (3)	John Deere 410G backhoe (1)
4wd crew cabs (3)	Utility trailers (3)
17 passenger van (1)	20 ton trailer (1)
Type 6 Engines (4)	Terra-torches w/trailers
Dump trucks (2)	Burn trailers (2)
Type 3 tractor transports (4)	50 ton trailer (1)
Type 3 tractor/plow units (3)	ATVs (2)
Type 2 road tractors (2)	Harrows (2)
Type 2 dozers (2)	17'Carolina Skiff w/40hp outboard motor & trailer
60 ton lowboy (1)	Woods mower
Road graders (3)	Roller choppers (3)
Farm tractors (2)	Heavy woods tree planter
2 disc plow	RT48MC Crane
Brown Tree Cutter	Self-propelled mowers (3)

Facilities and improvements on the forest that provide infrastructure support for staff and equipment include:
Administrative Building (3,375 sq. ft. with 11 offices, 2 restrooms, and 1 conference room)
Office building (1,100 sq. ft., 11 offices, 1 break room, and 1 restroom)
Maintenance shop (6,400 sq. ft. with 3 bays, 1 office, 1 restroom, 1 ranger room, and an upper and lower level warehouse)
50'x 50' closed storage - 2,500 sq. ft. pole barn for equipment storage
50'x 75' open storage
130 sq. ft. pump house/storage building

Utilities serving the public and forest staff include:
6” well for potable water located near the storage buildings
Two septic tanks/drain field systems at headquarters site and shop
Fourteen telephone lines and one fax line provided by GT Com
All offices are hard wired with 56k line for internet and e-mail access
Electric service provided by Progress Energy, Inc

In order to supplement the staff assigned to THSF, the Tallahassee District Recreation Coordinator is responsible for recruiting interested volunteers that can bring needed experience and skills to assist with the management of the forest recreation program as well as the resource management activities. Volunteers have been used within the district for trail maintenance, vegetative inventory work, and educational events. Additional volunteer recruitment will be encouraged to assist with other activities to further DOF’s mission.

In addition, a state forest liaison committee of private citizens, representatives of forest user groups, cooperating agencies, and local officials has been meeting quarterly to provide input on forest management activities and volunteer their ideas to DOF staff to improve the state forest.

B. Management Needs - Priority Schedule and Cost Estimates (Table 5)

The following management needs and priorities have been established for THSF:

1. Ecosystem restoration of extensive acres of slash pine plantations will require using experimental and proven techniques developed by land managers.
2. An updated comprehensive Road Plan and Non-native Invasive Species Control Plan need to be developed.
3. Perimeter boundary lines (approximately 120 miles) need to be maintained where appropriate.
4. High visibility by cooperating law enforcement agencies will be needed to discourage littering, poaching, illegal trespass, forest use violations, illegal camping, etc.
5. Aggressive use of prescribed fire is needed to restore and maintain natural communities.
6. Develop biological monitoring strategies of user impacts on threatened and endangered species.
7. A comprehensive hydrological needs assessment/inventory/plan should be developed. During the next ten years the property will be researched and evaluated in coordination with the DOF Forest Hydrologist and NWFWMD.
   A list of potential restoration projects will be updated and sources of funding, including regional mitigation funds, will be investigated.
8. An Information and Education Plan is needed to keep the public informed and appreciative of the multiple-use management on THSF.

Management activities on THSF during this management period must serve to conserve and protect 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 DOF’s 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. Additional support may be requested from FWC, DEP or NWFWMD.

Priority 1

1. **Prescribed Burning** – Prescribed burning is the primary management tool for the forest. Approximately 77% of the acreage (roughly 156,000 acres) supports vegetative communities that are fire dependent, most of which will be burned on an average rotation of four years or less. Cost estimates are based on DOF's contract burning rate schedule. Manpower and equipment costs are included. (Annual) **Average Acreages Per Year: 40,000---Estimated Annual Cost (DOF): $320,000**

2. **Timber Harvesting -** In order to maintain healthy forest ecosystems, over 30,000 acres of slash pine plantations will have to be thinned or liquidated. **Estimate Acreage Per Year: 3,000---Estimated Annual Cost (Contract): net income**

3. **Non-native invasive Species Control -** Identify, mapping, eradication/control and monitoring of exotic species. (Annual) **Average Acreage Per Year: 5---Estimated Annual Cost: $5,000**

4. **Roads** – An inventory has identified over 850 miles of roads on THSF. There are nearly 270 miles of primary or secondary roads that desperately need to be brought up to established road standards. General maintenance, culvert replacements, bridge repairs, and emergency repairs will also remain paramount to fulfill DOF’s mission. (Annual) **Estimated Annual Cost: $400,000**

5. **Recreation -** Recreational facility improvements and maintenance of existing facilities as discussed earlier in the plan. Estimates are based on known needs and potential future improvements within the next five years. **Estimated Annual Cost: $80,000**

6. **Restoration-** Restoration of wet flatwoods/wet prairie/red-cockaded woodpecker and bald eagle habitat- burning, chemical treatment, mechanical hardwood reduction, timber harvesting, and pine planting are all potential treatments. Cost estimates are for all restoration needed. **Estimated Annual Cost (Contracted): $200,000**

Priority 2

1. **Hydrologic Restoration Plan -** Needs assessment and plan development. A comprehensive survey of ditch flow patterns in all ditches is 50 percent complete. An overall cooperative hydrological plan is currently being developed between DOF and NWFWMD. This plan will develop specific restoration needs for THSF on a watershed basis THSF will be seeking grant, mitigation, and cooperative funding within 5 yrs. **Estimated Annual Cost (Contract): $5,000**

2. **Restoration/Reforestation**- Sites to be machine/hand planted in longleaf pine and wiregrass, prescribed burned, and single drum chopped. (Annual) **Estimate Acreage Per Year: 850 ---Estimated Annual Cost (Contract): $148,750**

3. **Boundary Marking and Maintenance** – Repost state forest boundary signs and paint boundary every three years. Maintain boundary with equipment or hand crews, so as to clearly identify public land boundaries and provide for a safe firebreak. **Estimated Miles Per Year: 40---Estimated Annual Cost: $2,500**

4. **Forest Inventory** – Continue annual pine inventory work to ensure forest health and to set harvest schedule. DOF staff will conduct inventories. (Annual) **Estimate Acreage Per Year: 15,000---Estimated Annual Cost: $1,000**

5. **Biological Survey, Photo Plots, and Monitoring –** Activities will be performed by state forest staff. Emphasis will be place on endangered species monitoring. **Estimated Annual Cost: $2,500**

Priority 3

1. **Operational Plans –** Update current operational plans annually to help guide budget requests and specific forest projects. **Estimated Annual Cost: $500**

2. **Fire Lines/Trails** - Improvements and maintenance will be completed by DOF staff and volunteers. Costs would be limited to fuel and equipment repairs and long term replacement costs. **Estimated Annual Cost: $3,000**

3. **Information and Education Outreach** - Develop plan that deals with directional signs on DOT right-of-ways, popular mapping products, information kiosks, a welcome center, Friends of THSF Charter, routine media spots in local circulations and radio broadcasts, and enhancement of the THSF Liaison Committee. **Estimated Annual Cost: $10,000**

TABLE 5- Estimated Expenditures Organized by Uniform Cost Accounting Council Categories

CATEGORY	PRIORITY 1	PRIORITY 2	PRIORITY 3	TOTAL
Resource Management:				
-Exotic Species Control	$5,000			$5,000
-Prescribed Burning	$320,000		$3,000	$323,000
-Timber Management	$200,000	$149,750		$349,750
-Hydrological Management		$5,000		$5,000
-Other		$5,000		$5,000
Administration:				
-Units/Projects			$500	$500
Capital Improvements:				
-New Facility Construction	$308,000			$308,000
-Facility Maintenance	$443,000			$443,000
Visitor Services/Recreation:				
-Information/Education Programs	$20,000		$10,000	$30,000
-Operations	$27,500			$27,500

CATEGORY	**PRIORITY 1**	**PRIORITY 2**	**PRIORITY 3**	**TOTAL**
TOTAL	$1,323,500	$159,750	$13,500	$1,496,750

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

Representatives from DHR and FNAI will be consulted prior to the initiation of any ground disturbing activity by DOF or any other public agency. The DOF will make every effort to protect known archaeological and historical resources. Ground disturbing activities not specifically covered by this plan will be conducted under the parameters of the List of ARC/Division of State Lands Approved Interim Management Activities.

The DOF will arrange for at least two staff members from THSF to attend a DHR Archaeological Monitor Training class. Trained monitors will oversee ground disturbing activities in which DHR recommends monitoring. The DOF will utilize the services of a DHR CARL archaeologist when available to locate and evaluate unknown resources, and to make recommendations in the management of known resources. As information becomes available, and as staffing allows, known archaeological and historical sites will be identified on maps and training provided 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 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.

DOF staff will consult with the State Lands Section of the Forest Management Bureau during the process of planning and implementing multiple-use management activities. The DOF and other assisting agencies will remain alert for any environmentally or archaeologically significant resources, and protective actions will be taken as necessary.

D. Conformation to State Lands Management Plan

Management of the forest under the multiple-use concept, utilizing multiple-use management principles, complies with the State Lands Management Plan (FDEP 1981) and provides optimum balanced public utilization of the property. Specific authority for the Division of Forestry's management of public lands is derived from Florida Statutes, Chapters 253 and 589.

E. Multiple-Use Potential – Income Producing Activities/Alternative Uses Considered

The multiple use potential of the property can be broken down into these categories:

Timber Management - Thinning and clear-cutting of slash pine plantations should generate **$300,000 to $500,000 annually.**

Apiary Leases - It is estimated that apiary leases will generate approximately **$2,000 annually**.

Recreation - Camping, hunting, fishing, hiking, canoeing, birding, horseback riding, and ecological study are all potential activities that could generate a total of **$5,000 annually.** OHV annual permits could also add an additional $50,000 to $100,000 annually; however, this total will not be included until a campground facility is actually established.

Miscellaneous Forest Products - Firewood collection and Christmas tree harvest produce limited revenue for the forest. Worm grunting, is being monitored for the potential to produce additional revenue. There are no fees for worm grunting at this time, but commercial harvest is not encouraged. These potential activities could generate a total of **$1,000 annually.**

The total revenue potential for THSF is estimated at **$408,000 annually** or $4,080,000 over the next ten years.

Biomass – With recent focus on utilizing natural resource feedstocks to develop ethanol and bio-diesel fuels there may be potential for additional revenue opportunities in this area. Presently the DOF is evaluating these opportunities to determine if they are applicable to the THSF resource availability. To be more specific one particular issue that is being reviewed is the possibility of utilizing titi and other woody specie competitors as feedstocks for biomass opportunities. If this were to come to fruition not only would additional revenue be generated, but also the benefits to restoration goals as it pertains to prescribe burning would be greatly enhanced.

F. Potential Use of Private Land Managers

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

THSF has injected nearly $2,000,000 into the local economy over the past five years. Approximately 38% of the average THSF budget has been utilized by private businesses to assist with the land management opportunities on THSF. Opportunities for such outsourcing of land management work have included or are anticipated to include:

Site preparation – THSF has outsourced all of this work over the past five years and plans to continue to do so. Single drum roller chopping continues to be the preferred method to prep areas for burning and then tree planting. Bid prices have ranged from $28 to $55 per acre. Current term contract is for 8,000 acres and approximately $240,000. The DOF has provided over 14,000 acres ($560,000) of employment opportunities to the private sector. Over the next ten years, THSF will (funding provided) outsource over 2,000 acres per year of site preparation.

Tree planting – THSF has outsourced all of this work over the past five years and plans to continue to do so. Machine and hand planting have both been used over the past five years, however machine planting has accounted for over 95% of the planting. THSF does anticipate a shift towards more hand planting as areas to plant become smaller and in more isolated locations. THSF will also begin supplemental plantings in FY 2003-04, which are almost exclusively hand planted. Bid prices have ranged from $35 to $65 per acre. The current contract is for 50 acres and approximately $2,500. The DOF has provided over (6,700 acres) $368,000 of employment opportunities to the private sector. Over the next ten years, THSF will (funding provided) outsource over 500 acres per year of tree planting.

Timber Harvest – THSF has outsourced all timber harvesting operations by selling timber stumpage over 11,312 acres (11 timber sales) on a competitive sealed bid process. Approximately 8,000 of these acres are still under contract. These timber sales have generated over $700,000 in revenue for the state and provided jobs and raw fibers for the regional timber industries. Over the next ten years harvest rates should double what the past five produced, pending market conditions and local weather conditions.

Hazardous fuel reduction/habitat improvement – Over the past two years private companies have been contracted to mow, walk-down, or chop areas to reduce wildfire potential and/or to improve the habitat for bald eagles and the red-cockaded woodpeckers. Contracts for 2,000 acres of treatment or approximately $140,000 have been issued and will probably continue in a diminishing need over the next ten years. Current contracts are being issued for fire line rehabilitation, walk-down of heavy fuels, and red-cockaded woodpecker mowing.

Road/bridge work- Most of the road and bridge work is performed by THSF staff. However some specialized work has been contracted and proven to be much more efficient and effective than in-house resources. Bridge repair work involving pile driving and/or crane work has been and will continue to be outsourced. Hauling of large quantities of road materials has also been and will continue to be outsourced. It is estimated that over $250,000 of road and bridge work has been contracted out over the past five years.

Data collection- There have been three biological surveys, a photo rectification project, and an aerial elevation laser survey that were outsourced and amounted to $80,000. These types of data collection projects are necessary for THSF to have the information needed to make the right management decisions. As the needs arise, outsourcing of data collection will be the preferred method.

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.

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Florida Department of Environmental Protection. 1981. Conceptual State Lands Management Plan. Florida Department of Environmental Protection, State Lands Division, State Lands Management Bureau. 58 pp.

U.S. Department of Agriculture. 1994. Soil Survey of Franklin County, Florida. U.S. Department of Agriculture, Natural Resource Conservation Service.

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