

TEN-YEAR RESOURCE MANAGEMENT PLAN

FOR THE

JENNINGS STATE FOREST

CLAY AND DUVAL COUNTIES

PREPARED BY

DIVISION OF FORESTRY

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

APPROVED ON

October 12, 2007

TEN YEAR RESOURCE MANAGEMENT PLAN
FOR THE
JENNINGS STATE FOREST

Approved by:


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7/18/07
Date


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10-11-06
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JENNINGS STATE FOREST
TEN-YEAR RESOURCE MANAGEMENT PLAN

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**JENNINGS STATE FOREST
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LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

LEAD AGENCY: Florida Department of Agriculture and Consumer Services, Division of Forestry

COMMON NAME OF PROPERTY: Jennings State Forest

LOCATION: Clay County / Duval County

ACREAGE TOTAL: 23,995

<u>LANDCOVER CLASSIFICATION</u>	<u>ACREAGE</u>	<u>LAND COVER CLASSIFICATION</u>	<u>ACREAGE</u>
Sandhill	8,028	Slope Forest	265
Mesic Flatwoods	5,925	Dome Swamp	803
Baygall	4,731	Xeric Hammock	200
Bottomland Forest	1,210	Depression Marsh	2
Wet Flatwoods	1,238	Sandhill Upland Lake	1
Basin Swamp	788	Seepage Stream (Aquatic)	**
Seepage Slope	353	Blackwater Stream (Aquatic)	**
Scrubby Flatwoods	325	Unclassified	126

** Aquatic areas are not assigned acreage.

LEASE/MANAGEMENT AGREEMENT NO.: 3946

Use: Single Multiple

<u>MANAGEMENT AGENCY</u>	<u>RESPONSIBILITY</u>
Division of Forestry (Lead Agency)	General Forest Resource Management
Florida Fish and Wildlife Conservation Commission	Wildlife Resources and Laws
Division of Historical Resources	Historical and Archaeological Resource Management
St. John's River Water Management District	Water Resources

DESIGNATED LAND USE: Multiple-Use State Forest

SUBLEASE(S): None ENCUMBRANCES: FPL Right-of-Way

TYPE ACQUISITION: Conservation and Recreation Lands, P2000, and Save our Rivers

UNIQUE FEATURES: 16 unique features including geological peculiarities and odd plant associations that are artifacts of past land use

ARCHAEOLOGICAL/HISTORICAL SITES: 25 Known Sites

MANAGEMENT NEEDS: Ecosystem Restoration

ACQUISITION NEEDS/ACREAGE: 14,576 Additional Acreage

SURPLUS LANDS/ACREAGE: None

PUBLIC INVOLVEMENT: Liaison Committee, Management Plan Advisory Group, Public Hearing

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

ARC Approval Date: _____ BTIITF Approval Date: _____

COMMENTS: _____

I. INTRODUCTION

Jennings State Forest (JSF) is comprised of 23,995 acres located in northwestern Clay and southwest Duval Counties, approximately two miles from Middleburg, Florida (Exhibit A). This property was acquired under the Conservation and Recreation Lands (CARL) and Save Our Rivers (SOR) programs with CARL, SOR, Preservation 2000 (P2000), and the St. Johns River Water Management District ad valorem funds to protect the watershed of the Upper Black Creek. The forest has diverse ecological communities. Major natural communities found on the forest include sandhill, mesic flatwoods, floodplain swamp, and bottomland forest. JSF is divided by the North Fork of Black Creek and Yellow Water Creek with smaller streams and branches eventually flowing into the North Fork of Black Creek. Sixteen unique features, including geological peculiarities and odd plant associations that are artifacts of past land use, can be found on the property.

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

The primary mission of the Division of Forestry (DOF) in managing JSF is to protect and manage the unique resources of the forest through a stewardship ethic to assure these resources will be available for future generations. This will be accomplished by implementing sound ecosystem management principles, the main objective of which will be to:

- ❖ restore, maintain, and protect in perpetuity, all native ecosystems;
- ❖ insure long-term viability of populations and species considered rare, endangered, threatened, or of special concern;
- ❖ integrate human use through the multiple-use concept, not emphasizing any particular use over the others or over improvement, maintenance, and protection of native ecosystems;
- ❖ protect known archaeological and historical resources; and,
- ❖ practice sustainable forest management utilizing sound silvicultural techniques.

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

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

Management activities on JSF are chronicled in quarterly accomplishment reports and in an annual accomplishment report. Major highlights of the past five years are summarized in the following table. This table does not attempt to account for all activities on the forest but summarizes major activities that are more readily quantifiable. It does not list or identify the multitude of daily activities and public interactions involved in managing the forest.

TABLE 1. Management Accomplishment Summary--2001/02-2006—Jennings State Forest

Program	Activity	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05	FY 2005/06
Reforestation/Restoration	Tree Planting (Acres/Species)	10/ Longleaf pine	18/ Longleaf pine	150/ Longleaf/Slash pine	60/ Longleaf pine	100/ Longleaf pine
	Restoration (Acres/Habitat)	150.0/ Sandhill treated with velpar (ulw)		10.0 / Sandhill		
Fire	Wildfire (No./Acres)	1/ 8.0	4/ 47.0	1/ 0.20	1/ 3.0	1/ 0.20
	Rx. Fire (Acres/Month)	143/ November	498/ July	964/ July	349/ July	88.9/ August
		364/ January	150/ December	270/ December	693/ December	35.5/ December
		700/ February	1,108/ January	1,230/ January	423/ January	479/ January
		450/ April	1,369/ February	470/ February	1,152/ February	541.90/ February
			280/ March	232/ May	113/ April	36.0/ March
			255/ April	109/ June	266/ May	23.0/ June
			439/ May		417/ June	
				1,868/ June		
	Total Rx. Fire Acres		1,657	5,967	3,275	3,413
Boundary Maintenance	Miles Marked or Maintained	10	7	0	1	1
Timber Harvest	# of Sales	2	1	1	0	1
	Pulpwood Tons	1,334	4,513	1,345	0	2,878
	Chip N Saw Tons	1,967	5,000	373	0	446.0
Roads/Trails	Miles maintained or rebuilt	63	57	47	48	47
	Culverts, low water crossings installed or replaced	6	1	0	0	0
Recreation/ Visitor Use	# of Visitors	8,401	8,367	8,426	6,331	9,100
Revenue	Timber Sales	\$95,579.78	\$78,887.93	\$55,351.00	0	\$30,617.00
	Fuelwood	\$300.00	\$450.00	\$300.00	\$202.50	\$269.50
	Recreation	\$194.55	\$1,082.80	\$1,398.55	\$1,308.00	
Information/ Education	Number of tours, public broadcasts, news releases, etc.	15	13	13	11	14
Miscellaneous		1 wildlife viewing blind constructed. 20 ac. treated for SPB*. 65 ac. of exotics treated (climbing fern, tallow, cogon grass, & camphor). 5 yr RMP Approved.	196 pounds of wiregrass seed collected. 17 acres treated for SPB	100 acres chopped. 43 pounds of wiregrass seed collected.	105 acres of mechanical TSI*. 25 acres chopped.	106 acres chopped. 62 acres of exotics treated (cogon grass, tallow, climbing fern, & torpedo grass.)

*TSI-Timber Stand Improvement; *SPB-Southern Pine Beetle

Past Goals and Objectives

The approved resource management plan's goals and objectives for the period of February 7, 2002, through February 6, 2007, are listed to document and track progress. Many of these goals are long-term; therefore, short-term progress is limited. Following is a brief summary of the progress to date.

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

OBJECTIVE 1: The long-term objective of prescribed burning is to simulate, as much as possible, a natural fire regime in which the majority of acres are burned during the lightning season. Areas with high fuel loads may require fuel reduction burns during the dormant season before they can safely support lightning season burns.

STATUS (49% complete): JSF is on a 2-5 year burn rotation. Out of planned prescribed burn acreage of 30,500 for the period 2001/02 through February of 2007, 15,873 acres were burned. Of this, 54% (8,508 acres) were burned in the dormant season and 46% (7,365 acres) were burned in the growing season. Additionally, 80% of all burn units have had at least one burn since state acquisition. The long term goal is to be able to burn 6,000 to 8,000 acres annually to maintain the rotation.

TABLE 2. Growing/Dormant Season Prescribed Burn Schedule

Season of Prescribed Burn	Acres Planned	Acres Completed
Growing Season	15,500	7,365
Dormant Season	15,000	8,508
Total	30,500	15,873

OBJECTIVE 2: Treat sandhill communities with growing season fire, timber stand improvement, commercial hardwood sales, removal of off-site species, and planting longleaf pine.

STATUS (68% Complete): JSF has approximately (6,823) acres of upland sandhill community.

TABLE 3. Sandhill Restoration Operations (FY 2000-2005)

Treatments	Acres Planned	Acres Completed
Growing Season Fire	5,200	3,900
Timber Stand Improvement	750	100
Commercial Hardwood Sales	240	0
Removal of Off-Site Slash, Loblolly and Sand Pine Species	160	16
Reforestation with Longleaf Pine	263	263
Herbicide with Velpar ULW	300	300
Total Acres Treated	6,913	4,723

OBJECTIVE 3: Prioritize the flatwoods, sandhill, and seepage slope communities that require growing season fire.

STATUS: (100% Complete) High priority flatwoods, sandhill, and seepage slope communities requiring growing season fire have been identified and integrated into the burn plan.

OBJECTIVE 4: Restore the burning process to the high quality mesic flatwoods communities using growing season burning.

STATUS: (73% Complete) There have been 5,253 acres of quality mesic flatwoods that have been burned. Out of these 5,253 acres 551 were repeat burns.

OBJECTIVE 5: Begin restoration of 250 acres of mesic flatwoods plantations to naturally regenerating stands of trees without sacrificing ground cover vegetation, native fauna, or other ecosystem values.

STATUS: (20% Complete) Fifty acres of slash pine plantation has been thinned.

OBJECTIVE 6: Survey the present condition of all 353 acres of seepage slopes during planning years 1 and 2.

STATUS: (100% Complete) The condition of these areas was included in the FNAI flora survey that was completed in December 2003.

OBJECTIVE 7: Treat 88 acres or 25% of seepage slopes by closing roads, restoring firelines, and burning during the growing season.

STATUS: (30% Complete) Some roads and firelines have been closed or re-routed.

OBJECTIVE 8: Reduce high fuel levels in the wet flatwoods on 710 acres.

STATUS: (100% Complete) 785 acres of wet flatwoods have been burned.

OBJECTIVE 9: Restore ground cover where the native ground layer has been eliminated or heavily impacted from historical land use. (Need to include restoration in agricultural areas, home sites, turpentine camp, as well as silvicultural areas.)

STATUS: (10% Complete) Some containerized longleaf pine seedlings were planted on an old home site. Experimental restoration techniques are planned for this planning period.

OBJECTIVE 10: Locate, identify, and control non-native invasive plants.

STATUS: (64% Complete)

TABLE 4. Non-native Invasive Species

Project	Percent Complete
Scout and Treat Torpedo Grass	Currently executing DEP grant- 95% (29 acres) of populations have had at least one treatment
Scout and Treat Chinese Tallow, Camphor, Japanese Climbing Fern, Sesbania, Mimosa	Currently executing DEP grant- 60% of populations have had at least one treatment
Work with Adjacent Landowners to Treat Nearby Populations of Exotics	0%
Scout and Treat Cogongrass, Chinese Wisteria, Tropical Soda Apple	100% complete. All known populations have been eradicated.

OBJECTIVE 11: A shop with storage and office space should be constructed on the property.

STATUS: (50% Complete) A two-sided open shop with a concrete foundation has been constructed. Additional storage and office space needs to be constructed.

OBJECTIVE 12: Permanently identify and maintain state forest boundaries.

STATUS: (100% Complete) Forest boundaries have been identified and maintenance is set on a five year rotation.

OBJECTIVE 13: Harrow upland perimeter lines to clearly define property boundaries.

STATUS: (10% Complete) Approximately, eight miles of upland perimeter lines have been harrowed.

OBJECTIVE 14: In conjunction with the Florida Fish and Wildlife Conservation Commission (FWC), develop a wildlife management plan that addresses all appropriate game and fish species and the sustainability of each based on site-specific population data with a continuing monitoring program.

STATUS: (75 % Complete) The shell of the plan is complete, awaiting approval from FWC chain of command.

OBJECTIVE 15: Conduct or contract a major flora inventory survey to identify threatened and endangered species.

STATUS: (100% Complete) The initial survey by Florida Natural Areas Inventory (FNAI) is complete. A more detailed survey is needed.

OBJECTIVE 16: Monitor rare plants to determine population stability or recovery.

STATUS: (Ongoing) Two permanent vegetation plots are established on seepage slopes.

OBJECTIVE 17: Conduct a comprehensive rare/endangered/species of special concern animal species inventory.

STATUS: (35% Complete) Preliminary surveys for flatwoods salamanders (*Ambystoma cingulatum*) and striped newts (*Notophthalmus perstriatus*) have been done in the past. More comprehensive surveys are pending state authorization and funding.

OBJECTIVE 18: Monitor rare animals to determine population stability or recovery in conjunction with the FWC.

STATUS: (Ongoing) FWC monitors populations of the gopher tortoise (*Gopherus polyphemus*). Other monitoring is contingent on initial surveys.

OBJECTIVE 19: Refine map of biological communities with high rare species diversity, such as seepage ravines, seepage slopes, high quality flatwoods and associated ephemeral wetlands, heron rookeries, etc.

STATUS: (50% Complete) Original map is complete and will serve as a base for the new map.

GOAL 2: Integrate human use through the multiple-use concept, not emphasizing any particular use over the others or over improvement, maintenance, and protection of native ecosystems.

OBJECTIVE 1: Implement the 5-Year Outdoor Recreation Plan.

STATUS: (60% complete) A pavilion has been constructed at the Old Jennings Recreational Trailhead; the Dunn's Farm Trailhead and trail has been constructed. Indian Ford restoration has commenced.

OBJECTIVE 2: Update the 5-Year Outdoor Recreation Plan on an annual basis.

STATUS: (100% Complete) A plan has been update annually.

OBJECTIVE 3: Implement 5-Year Road Management Plan.

STATUS: (53% Complete) To date, 85,319 feet of road out of 159,525 total feet has been improved. The 85,319 feet of road will be in the maintenance portion of the road plan.

OBJECTIVE 4: Update the 5-Year Road Management Plan.

STATUS: (100% Complete) Plan updated.

OBJECTIVE 5: Increase visibility by all cooperating law enforcement agencies to reduce illegal hunting, fishing, off-road use, and litter violations.

STATUS: (Completed) The addition of an Agricultural Law Enforcement Officer on Jennings State Forest has had a positive impact on deterring illegal activity. Additional years of monitoring enforcement will help to determine trends in illegal activity.

TABLE 5. Illegal Activity Reported 2003-2005

Written Warnings	# of Warnings	Notice to Appear	# of Citations
Possession of Alcohol	91	Possession of Alcohol	36
ATV in Closed Area	30	ATV in Closed Area	23
Vehicle in Closed Area	43	Vehicle in Closed Area	43
Damage to State Lands	9	Damage to State Lands	11
Hunting Violations	55	Hunting Violations	19
Florida Litter Law	8	Drug Violations	28
Misc. Violations	11	Misc. Violations	12
Total	247	Total	172

GOAL 3: Practice sustainable forest management utilizing sound silvicultural techniques. The forest will be managed to recover from certain forest management practices conducted prior to state purchase, such as clear-cutting without regeneration, off-site plantations, and fire suppression. There will be no target rotation age for trees, which will be managed to produce a multi-aged, naturally regenerating forest.

OBJECTIVE 1: Update forest inventory every year.

STATUS: (100% Complete). Each year forest inventory is conducted based on criteria put forth in the State Forest Handbook (Chapter 6.3).

TABLE 6. Forest Inventory

Fiscal Year	Number of Stands	Acres
2002/03	60	* 5,083
2003/04	31	945

* Includes new property acquisition in Yellow Water and Longbranch 3

OBJECTIVE 2: Implement the Five-Year Timber Management Plan.

STATUS: (100% Complete) A five year timber management plan has been in use since fiscal year 2001/02.

OBJECTIVE 3: Update the Five-Year Timber Management Plan.

STATUS: (100% Complete) The five-year timber management plan has been updated annually.

GOAL 4: Protect known archaeological and historical resources.

OBJECTIVE 1: Protect cultural sites when preparing firelines and carrying out other ground disturbing activities.

STATUS: (100% Complete). All fire line construction and ground disturbing activities are supervised by the two archeological monitors on staff.

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

OBJECTIVE 1: Restore natural sheet flow and reduce erosion along trails and roads.

STATUS: (100% Complete). No new roads have been constructed. The new Dunn's Farm Trail was constructed using old closed administrative roads. Water bars were constructed off of the now closed Fox Tail entrance. Indian Ford restoration has commenced.

OBJECTIVE 2: Protect water resources during management activities through use of Silvicultural Best Management Practices (BMPs).

STATUS: (100% Complete) Manage water resources using state lands BMPs.

OBJECTIVE 3: A surface and ground water analysis and monitoring program should be planned and implemented within the timeframe of this plan in cooperation with agencies with statutory responsibility such as the St. John's River Water Management District (SJRWMD) and the Department of Environmental Protection (DEP).

STATUS: (40% Complete) A cooperative program has been set up with SJRWMD with a series of groundwater wells being placed and monitored on the forest. Surface water monitoring needs to be addressed.

OBJECTIVE 4: Survey and cap abandoned wells in cooperation with the SJRWMD.

STATUS: (100% Complete) SJRWMD has accessed all known wells and have dealt with them accordingly.

OBJECTIVE 5: Restore one canoe landing to reduce sedimentation into the creeks.

STATUS: (20% Complete) Supplies have been ordered and are stocked on site. Road work has been initiated.

GOAL 6: Provide an environmental education outreach program.

OBJECTIVE 1: Develop and implement an environmental education outreach program within one year of management plan approval.

STATUS: (100% Complete) An environmental outreach program known as the Wilkinson Jr. High School's Legacy Program has been established. The Division of Forestry assists Wilkinson Jr. High legacy students with teaching younger elementary school level children about JSF and its various ecosystems.

C. Goals/Objectives for the Next Ten Year Period

The following goals and objectives provide direction and focus management resources for the next ten-year planning period. This section should be used to measure management accomplishments. Funding, agency program priorities, and the wildfire situation during the planning period will determine the degree to which these objectives can be met.

GOAL 1: Restore, maintain, and protect in perpetuity, all native ecosystems.

OBJECTIVE 1: The long-term objective of prescribed burning is to simulate, as much as possible, a natural fire regime in which the majority of acres are burned during the lightning season. Areas with high fuel loads may require fuel reduction burns during the dormant season before they can safely support lightning season burns.

Ten-Year Growing/Dormant Season Prescribe Burn Schedule

Season of Prescribed Burn	Acres Planned
Growing Season	31,000
Dormant Season	30,000
Total	61,000

PERFORMANCE MEASURES: Update the Prescribed Burning Plan annually. Total acres burned during the growing season. Total acres burned during the dormant season.

OBJECTIVE 2: Design and implement a monitoring plan that addresses pre and post-burn monitoring in the appropriate fire adapted communities in year one of the planning period.

PERFORMANCE MEASURES: Completion and implementation of the monitoring plan.

OBJECTIVE 3: Treat sandhill communities with growing season fire, timber stand improvement, commercial hardwood sales, removal of off-site species, and planting longleaf pine (*Pinus palustris*).

Sandhill Restoration Operations:

Treatments	Acres Planned
Growing Season Fire	5,200
Timber Stand Improvement	750
Commercial Hardwood Sales	240
Removal of Off-Site Slash, Loblolly and Sand Pine Species	160
Reforestation with Longleaf Pine	180

PERFORMANCE MEASURES:

Treatments	Acres Completed
Growing Season Fire	
Timber Stand Improvement	
Commercial Hardwood Sales	
Removal of Off-Site Slash, Loblolly and Sand Pine Species	
Reforestation with Longleaf Pine	

OBJECTIVE 4: Prioritize the flatwoods, sandhill, and seepage slope communities that require growing season fire.

PERFORMANCE MEASURE: Prioritized list of communities requiring growing season fire.

OBJECTIVE 5: Reintroduce seasonal fire to the high quality mesic flatwoods communities using growing season burning.

PERFORMANCE MEASURE: Total acres prescribed burned during the growing season in the mesic flatwoods. Percentage of mesic flatwoods with growing season fire reintroduced.

OBJECTIVE 6: Begin restoration of 250 acres of mesic flatwood plantations to naturally regenerating stands of trees without sacrificing ground cover vegetation, native fauna, or other ecosystem values.

PERFORMANCE MEASURE: Acreage and percentage of mesic flatwood stands treated.

OBJECTIVE 7: Treat 88 acres or 25% of seepage slopes by closing roads, restoring firelines, and burning during the growing season.

PERFORMANCE MEASURE: Number of acres treated.

OBJECTIVE 8: Protect environmentally sensitive communities and ecotones when preparing firelines and carrying out management activities.

PERFORMANCE MEASURE: Map sensitive areas. Train staff on protection of sensitive areas.

OBJECTIVE 9: Reduce high fuel levels in the wet flatwoods on 450 acres.

PERFORMANCE MEASURE: Fuel reduction acreage.

OBJECTIVE 10: Restore ground cover where the native ground layer has been eliminated or heavily impacted from historical land use. (Need to include restoration in agricultural areas, home sites, turpentine camp, as well as silvicultural areas.)

PERFORMANCE MEASURE: Choose several disturbed sites and continue experimental restoration.

OBJECTIVE 11: Locate, identify, and control exotic plants.

PERFORMANCE MEASURE: Number of acres identified for treatment.
Number of acres treated.

OBJECTIVE 12: Continue annual maintenance on state forest boundaries.

PERFORMANCE MEASURE: Percentage of boundary maintained.

OBJECTIVE 13: Harrow upland perimeter lines to clearly define property boundaries.

PERFORMANCE MEASURE: Percentage of upland perimeter lines harrowed.

OBJECTIVE 14: In conjunction with the FWC, develop a wildlife management plan that addresses all appropriate game and fish species and the sustainability of each based on site-specific population data with a continuing monitoring program.

PERFORMANCE MEASURE: Completion of the Wildlife Management Plan.

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

OBJECTIVE 1: Institute an on-going program (FNAI follow-up) of surveying and monitoring for listed species of plants and wildlife.

PERFORMANCE MEASURE: Re-survey scheduled with proposed dates and appropriate organizations identified to perform fieldwork. In addition an updated map showing locations of listed species, their habitat, and breeding areas should be developed.

OBJECTIVE 2: Monitor rare plants to determine population stability or recovery.

PERFORMANCE MEASURE: Number of permanent plots established in critical plant communities.

OBJECTIVE 3: Monitor rare animals to determine population stability or recovery in conjunction with the FWC.

PERFORMANCE MEASURE: Number of surveys for target species.

OBJECTIVE 4: Refine map of biological communities with high rare species diversity, such as seepage ravines, seepage slopes, high quality flatwoods and associated ephemeral wetlands, heron rookeries, etc.

PERFORMANCE MEASURE: Development of revised map.

GOAL 3: Integrate human use through the multiple-use concept, not emphasizing any particular use over the others or over improvement, maintenance, and protection of native ecosystems.

OBJECTIVE 1: Update the 5-Year Outdoor Recreation Plan on an annual basis.

PERFORMANCE MEASURE: Annual update of 5-Year Outdoor Recreation Plan completed.

OBJECTIVE 2: Update the 10-Year Road Management Plan on an annual basis.

PERFORMANCE MEASURE: Annual update of the 10-Year Road Management Plan.

OBJECTIVE 3: Develop and implement new names for the fifteen numbered open forest roads.

PERFORMANCE MEASURE: New road names developed and implemented.

OBJECTIVE 4: Increase visibility by all cooperating law enforcement agencies to reduce hunting, fishing, off-road use, and litter violations.

PERFORMANCE MEASURE: Has law enforcement been reasonably effective?

GOAL 4: Practice sustainable forest management utilizing sound silvicultural techniques. The forest will be managed to recover from certain forest management practices conducted prior to state purchase, such as clear-cutting without regeneration, off-site plantations, and fire suppression. There will be no target rotation age for trees, which will be managed to produce a multi-aged, naturally regenerating forest.

OBJECTIVE 1: Update forest inventory every year.

PERFORMANCE MEASURES: Update of the forest inventory completed as planned. Total acres inventoried.

OBJECTIVE 2: Update the Five-Year Timber Management Plan.

PERFORMANCE MEASURE: Completion of the Timber Management Plan update each year.

OBJECTIVE 3: Complete sand pine plantation removal from forest.

PERFORMANCE MEASURE: Acreage of sand pine plantation removed.

GOAL 5: Protect known archaeological and historical resources.

OBJECTIVE 1: Protect cultural sites when preparing firelines and carrying out other ground disturbing activities.

PERFORMANCE MEASURES: Number of staff trained in compliance rules and site locations (number of trained archaeological monitors on staff). Site maps updated in the fire management and recreation plans as new sites are discovered.

GOAL 6: Restore, maintain, and protect hydrological functions related to the quality and quantity of water resources and the health of associated wetland and aquatic natural communities.

OBJECTIVE 1: Restore natural sheet flow and reduce erosion along trails and roads.

PERFORMANCE MEASURES: Culverts replaced or installed at critical trail and road crossings. Rock crossings installed.

OBJECTIVE 2: Protect water resources during management activities through use of Silvicultural Best Management Practices (BMPs).

PERFORMANCE MEASURE: Compliance percentage with state lands BMPs.

OBJECTIVE 3: A surface and ground water analysis and monitoring program should be planned and implemented within the timeframe of this plan in cooperation with agencies with statutory responsibility such as the SJRWMD and the DEP.

PERFORMANCE MEASURE: Development of analysis and monitoring program. Analysis and monitoring plan implemented.

OBJECTIVE 4: Survey and cap abandoned wells on newly acquired land in cooperation with the SJRWMD.

PERFORMANCE MEASURE: Completion of survey and capping.

OBJECTIVE 5: Restore two canoe landings to reduce sedimentation into the creeks.

PERFORMANCE MEASURE: Number of landings restored.

OBJECTIVE 6: Rehabilitate/restore/re-vegetate closed roads/trails that are badly eroded causing sedimentation in the creeks and hydrologic alterations.

PERFORMANCE MEASURE: Number of eroded roads/trails restored.

GOAL 7: Provide an environmental education outreach program.

OBJECTIVE 1: Continue environmental education outreach program with local schools and community groups.

PERFORMANCE MEASURES: Number of programs completed annually.
Number of groups involved.

OBJECTIVE 2: Storage and office space needs to be constructed for current and additional educational supplies.

PERFORMANCE MEASURE: Completion of construction.

II. ADMINISTRATIVE SECTION

A. Descriptive Information

1. Common Name of Property

The common name of the property is Jennings State Forest (JSF).

2. Location, Boundaries, and Improvements

JSF is located in northwest Clay and southwest Duval County regions, approximately 2 miles north and northwest of Middleburg, Florida. Forest boundaries are identified on the attached map (Exhibit B). Four structures exist: the forest headquarters is located at the end of Long Horn Road, a FWC Check Station and Old Jennings Recreational Trailhead Pavilion located on Live Oak Lane, and an observation viewing tower that is located off of the powerline right-of-way.

3. Legal Description and Acreage

Total forest acreage is 23,995. The property is located in all or part of Sections 20, 29, 32-33, Township 3 South, Range 24 East, Duval County; Sections 1, 10-15, 22-24, 26, 27, and 35, Township 4 South, Range 23 East; Sections 3-11, 14-22, 27-29, and 32-34, Township 4 South, Range 24 East; Sections 2, 11, and 14, Township 5 South, Range 23 East; and Sections 4 & 5, Township 5 South, Range 24 East, Clay County, Florida.

Parcel Name	County	Acreage
Jennings, S. Bryan Jr.	Clay	6,265.00
Odum, Linda Jennings	Clay	814.12
Sandridge, Dorothy J. & Gordon R.	Clay	4,914.46
Ward, Marjorie S. & Fred W. Forehand	Clay	621.13
Huntley	Clay	639.39
Jennings	Clay	6328.66
San Lebrydo Lumber Co.	Clay	588.65
Spenser, Philip	Clay	361.64
Longleaf Timber Co., Black Timber Investments	Duval	402.34
Longleaf Timber Co., Cochise Pines Investments	Duval	324.77
TPL, Long Branch Farms	Clay	1,839.61
Longleaf Timber Co., Longleaf Timber Investments	Duval	372.73
Longleaf Timber Co., Timber Forest Trail Investments	Duval	80.58
Longleaf Timber Co., Yellow Water Investments	Duval	278.71
Deese, Debra	Clay	34.02
Thomas, Patricia A.	Clay	15.93
JEA/Wallace	Clay	40.07
Jackson, Bennett F. Estate	Clay	73.25
TOTAL		23,995.06

4. Degree of Title Interest Held by the Board

The Board of Trustees of the Internal Improvement Trust Fund holds fee simple title to the 12,648.73 acres of JSF. A copy of lease agreement #3946 between the Board of Trustees of the Internal Improvement Trust Fund and the Department of Agriculture and Consumer Services (DACS), Division of Forestry (DOF), providing authority for the DOF to manage JSF as "lead agency" and the FWC to act as "cooperating agency" is available at the Jennings State Forest office. The SJRWMD holds full fee simple title to 8,047.59 acres on JSF, which were acquired utilizing P2000 and SJRWMD ad valorem funds, and via mitigation/donation, and another 3,298.74 acres are held joint fee simple title with the Board of Trustees. The DOF has an intergovernmental management agreement with the SJRWMD for management of the SJRWMD-owned parcels.

5. Proximity to Other Public Resources

TRACT	AGENCY	DISTANCE
Cecil Commerce Center	City of Jacksonville	Adjacent to NE border
Camp Blanding	DMA	Adjacent to S border
Branan Field Mitigation Park	FWC	1 mile NE
Black Creek Ravines Conservation Area	SJRWMD	3 miles SE
Raiford Wildlife Management Area	FWC	7 miles W

TRACT	AGENCY	DISTANCE
Cary State Forest	DOF	15 miles N
Mike Roess Gold Head Branch State Park	DEP	20 miles S
Belmore State Forest	DOF	20 miles SE
Bayard Conservation Area	FWC	23 miles SE

DOF- Florida Division of Forestry
DEP- Florida Department of Environmental Protection
DMA- Florida Department of Military Affairs
FWC- Florida Fish and Wildlife Conservation Commission
SJRWMD- St. John's River Water Management District

6. Aquatic Preserve/Area of Critical State Concern
The property is not within an aquatic preserve or an area of critical state concern, nor is it in an area under study for such designation.

B. Acquisition Information

1. Land Acquisition Program
JSF was purchased under the CARL and SOR acquisition programs, utilizing CARL, P2000, and SOR funds as part of the Upper Black Creek CARL project. The 12,648.73 acres of land owned by the Board of Trustees of the Internal Improvement Trust Fund was purchased through use of CARL and P2000 funds. The 11,306.26 acres owned by the SJRWMD was purchased with P2000 and SOR funds and 40.07 acres were acquired through mitigation.
2. Legislative or Executive Constraints
There are no known legislative or executive constraints specifically directed toward JSF.
3. Purpose for Acquisition
The primary mission of the Division of Forestry (DOF) in managing JSF is to protect the watershed of the Upper Black Creek and the surrounding uplands of the forest through a stewardship ethic to assure these resources will be available for future generations. The main objectives for the acquisition of the property and the primary goals of the DOF in managing the tract are:
 - To conserve and protect environmentally unique and irreplaceable lands that contains native, relatively unaltered flora and fauna representing a natural area unique to, or scarce within, a region of this state or a larger geographical area.
 - To conserve and protect native species habitat or endangered or threatened species.
 - To conserve, protect, manage, or restore important ecosystems, landscapes, and forests, if the protection and conservation of such lands is necessary to enhance or protect significant surface water, ground water, coastal, recreational, and timber

resources, or to protect fish or wildlife resources which cannot otherwise be accomplished through local and state regulatory programs.

- To provide areas, including recreational trails, for natural resource-based recreation.
- To preserve archaeological or historical sites.

4. Designated Single or Multiple Use Management

JSF is designated for multiple-use management with the DOF acting as the lead agency as stated in Multiple Agency Lease Agreement Number 3946. Authority for multiple-use management is given under Chapters 253 and 589, Florida Statutes.

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

5. Alternate Uses Considered

No alternate uses are being considered at this time. The following uses were considered and determined not compatible water resource development projects, water supply development projects, storm-water management projects, linear facilities and cell towers. Other uses will be considered as requests are made and will be accommodated as appropriate if they are determined to be compatible with existing uses and with the management goals and objectives of the forest.

6. Additional Land Needs

There are numerous parcels of land within and immediately adjacent to the property that should be purchased since they are essential to the management of the property. The DOF will work with these property owners, on a willing seller basis, in an effort to acquire these parcels. Highest emphasis for purchase should be given to privately owned property (inholdings) within the boundaries of JSF. Property to acquire adjacent to the forest includes the North Fork of Black Creek drainage along the central west side, land in the southwest corner to extend the wildlife corridor adjacent to Camp Blanding, and parcels in the northwest and northeast corners. Purchasing additional land within the optimal management boundary (Exhibit B) would facilitate restoration, protection, maintenance, and management of the natural resources on JSF.

7. Adjacent or Conflicting Uses

The only major conflicting land use is located on a private parcel on Clay County Road 218. This parcel may have soil contamination issues due to its past use as an automotive salvage yard. Also, the addition of the Oakleaf Plantation subdivision (approximately 11,000 new homes with schools and retail development) on the NE side of the forest may eventually present a conflict with regard to management activities such as timber harvesting and prescribed burning.

8. Surplus Land Assessment

All of the property within the current boundaries of JSF is important for management and none should be declared surplus.

C. Agency and Public Involvement

1. Responsibilities of Managing Agencies

The DOF is responsible for the overall management of the forest. The FWC will assist the DOF in providing technical advice on the management of wildlife populations (game and non-game), setting hunting seasons, establishing bag limits, and enforcing rules and regulations related to the management of the wildlife resources. The FWC also conducts wildlife surveys, and provides bird boxes for wood ducks (*Aix sponsa*), American kestrels (*Falco sparverius*), and eastern blue birds (*Sialia sialis*). The SJRWMD is a part owner and cooperator, providing assistance with respect to water management, water supply, and the conservation and protection of the water resources. The Division of Historical Resources (DHR) cooperates with the DOF regarding appropriate management practices on historical or archaeological sites on the forest as stated in Section 267.061(2)(d), Florida Statutes.

2. Public and Local Government Involvement

The Florida Department of Agriculture and Consumer Services, DOF is responsible for the development of this management plan and its implementation. Input was solicited from the SJRWMD, FWC, DHR, and FNAI. This plan was submitted to the JSF Management Plan Advisory Group for input and was reviewed at a public hearing at 6:30pm on February 27, 2007 in the Middleburg Elementary Cafetrium. The DOF also responds to public involvement through communication with individuals, user groups, and government officials. The plan incorporates applicable comments from the Department of Environmental Protection's Land Management Review Team (Exhibit C).

3. Compliance with Comprehensive Plan

This plan will be submitted to officials of Clay and Duval counties for review of compliance with their local comprehensive plans (Exhibit D).

III. RESOURCE SECTION

A. Past Uses

Past uses of the land include: timber harvesting, naval stores production, cattle grazing, agriculture, hunting, fishing, and swimming. A large portion of the state forest was owned by the S. Bryan Jennings family since the early 1900s. Much of the forest was clear-cut in the late 1800's and early 1900's and most of the original longleaf pine was removed during this period. Prior to state acquisition most of this land was leased to hunt clubs.

B. Renewable and Non-Renewable Resources

1. Soil Types

See Exhibit E for soils information from the USDA, Soil Surveys for Clay and Duval Counties, Florida.

2. Archaeological and Historical Resources

The Bureau of Archaeological Research has conducted an Assessment of Cultural Resources on JSF. Twenty-five archaeological sites (listed in Table 7) have been recorded including: six aboriginal sites, six historic cemeteries, eight historic homesteads, and five historical sites associated with the naval stores industry. The DOF will comply with guidelines outlined in "Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Lands" (Exhibit F). JSF will protect known archaeological and historical sites, and will also utilize the expertise of the DHR CARL Archaeologists for detecting unknown resources.

Table 7. Archaeological and Historical Sites found on JSF

SITE ID	SITE NAME	SITE TYPE
CL00053	FP&L D-P#1	Land-terrestrial
CL00054	FP&L D-P#2	Land-terrestrial
CL00055	FP&L D-P#3	Land-terrestrial
CL00647	WILBANKS	Campsite (prehistoric)
CL00658	SPENCER HOMESTEAD	Building remains
CL00659	GRIFFIN HOMESTEAD	Farmstead
CL00660	SECTION 21 SIDE CAMP	Campsite (prehistoric)
CL00661	DOUBLE DIPS	Farmstead
CL00662	SECTION 33 HOMESTEAD	Farmstead
CL00663	SECTION 29 CAMP	Campsite (prehistoric)
CL00664	HUGH-BRINSON TURPENTINE CAMP	Building remains
CL00665	WADE NOLAN HOMESTEAD	Building remains
CL00666	WILLARDS UNCLE PADGETT HOMESTEAD	Building remains
CL00667	NUGRAPE HOMESTEAD	Building remains
CL00668	HARRIS HOMSTEAD	Farmstead
CL00669	PADGETT HOMESTEAD	Farmstead
CL00670	BARREL STAVE DUMP	Land-terrestrial
CL00671	GIANT LARRY	Land-terrestrial
DU00651	YELLOW WATER CREEK	Lithic scatter/quarry
CL00642	PADGETT CEMETERY	Historical cemetery

SITE ID	SITE NAME	SITE TYPE
CL00643	BELL CEMETERY	Historical cemetery
CL00644	JOHN YOUNGBLOOD CEMETERY	Historical cemetery
CL00645	NOLAN RIDGE CEMETERY	Historical cemetery
CL00646	DUNN'S CEMETERY	Historical cemetery
DU14283	MANNING CEMETERY	Historical cemetery

3. Water Resources

Long Branch Creek and Yellow Water Creek join the North Fork of Black Creek and represent the main hydrologic features on this tract. There are numerous tributaries feeding these main creeks.

Major creeks traverse approximately 13 miles, with 6 miles appropriate for canoeing. In addition to blackwater creek and stream communities, dome swamps, basin swamps, strand swamps, and basin marshes occur throughout the forest. All surface waters on JSF are classified as Class-III-recreation, propagation, and maintenance of a healthy population of fish and wildlife. (Rule 62-302.400, Florida Administrative Code).

4. Fish and Wildlife

JSF is located in its own Wildlife Management Area (WMA), which is known as the Jennings State Forest Wildlife Management Area (JSFWMA). Management of this area will be directed to the production of biological diversity and species composition consistent with existing natural community types. Such communities will be restored and/or maintained through habitat management. All biological resources will be managed to maintain diversity.

JSF is home to a large number of species (Exhibit G). JSF has an abundance of white-tailed deer (*Odocoileus virginianus*), and wild turkey (*Meleagris gallopavo*). JSF is thought to be one of the most sought after places to hunt in Florida. Obtaining a quota permit is extremely competitive, and a highly sought after commodity. Hunting is regulated by permit only (during archery, muzzleloading, general gun, and spring turkey), thus the reason why it remains a high-quality area. JSF also supports a moderate population of wild hogs (*Sus scrofa*). Hunter harvest pressure on wild hogs is able to control this population at the current time. However, if habitat destruction occurs on a wide spread basis, nuisance trapping may be needed to reduce the herd size. Quail population has rebounded due to continued habitat restoration as a result of controlled burning. A prescribe burn regime is essential for future management for quail species.

5. Endangered or Threatened Species

Tables in Exhibit H (FNAI Managed Area Tracking Summary) address species of management concern known to be on JSF, or that may reasonably be expected to return to the forest as restoration progresses.

6. Beaches and Dunes

There are no beaches or dunes on JSF.

7. Swamps, Marshes, or Other Wetlands

JSF contains ten wetland community types, as listed in the following table. These communities were delineated from aerial photographs in order to conduct stand descriptions and were ground-truthed by DOF staff during the stand description process.

TABLE 8. Wetland Communities

FNAI Communities	Acres per Community
Baygall	4,731
Bottomland Forest	1,210
Wet Flatwoods	1,238
Basin Swamp	788
Seepage Slope	353
Dome Swamp	229
Depression Marsh	2
Sandhill Upland lake	1
Seepage Stream (Aquatic)	NA
Blackwater Stream (Aquatic)	NA
Total Acres	8,552

An additional wetland delineation and ground-truthing will take place during the course of this ten-year plan. The data will confirm that proper natural communities were assigned, verify acreage, and examine the effects of the fire program on baygall and seepage slopes. The preliminary wetland delineations for this project are shown in Exhibit I.

The ArcView data on which these delineations are based was obtained from the Land Use Cover Classification data from the SJRWMD. Other data, including digital orthoquads, stand description data from FY 1997/98, and wetland delineations from the National Wetland Inventory, were used as a reference. For comparison, the National Wetland Inventory had delineated about 4,500 acres of wetlands on JSF. Most of the additional 4,052 acres listed in the above table are in baygall and other wetland hardwood communities, although some may be misidentified mesic flatwoods (especially in compartments 1 and 4 in the Old Jennings Tract and compartment 5 of the Clay Hill Tract). Refining and ground-truthing the ecological communities map for JSF will make wetland delineations and acreage more accurate over the next ten years.

The water resources on Jennings 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, Jennings 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

No mineral resources are known to exist on this property.

9. Unique Natural Features

Sixteen unique natural features are listed for JSF, including geological peculiarities and odd plant associations that are artifacts of past land uses. Additional unique features identified include: the two oldest stands of longleaf pine on JSF, three ravines with seepage streams, two seeps with strikingly intact hydrology, two seeps covered in ferns that grew in response to a past disturbance regime, a particularly steep slope forest, an upland sandhill lake, a hard limestone crossing on the North Fork of Black Creek (Indian Ford), a scenic island on the creek, and an isolated xeric hammock on a disturbed longleaf pine island in the creek bottom. See Exhibit J for a map of unique natural features found on JSF.

10. Outstanding Native Landscapes

Almost all of JSF is in remarkably good condition, making the designation of outstanding native landscapes challenging. Three general categories stand out on JSF: the blackwater stream and bottomland forest communities associated with the North Fork of Black Creek and Yellow Water Creek, the three seepage streams and their ravines located in north Clay Hill 2, and finally, seeps and baygalls of various kinds with intact hydrological connection to the sandhills and mesic flatwoods.

The ecological and recreational value of Black Creek is self-evident. The ravine systems on JSF are valuable because they are rare and intact.

11. Timber Resource

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

All on-going timber management practices will follow the recommendations for water quality protection and erosion control contained in the revised 2004 Silviculture Best Management Practices Manual.

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

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

IV. MANAGEMENT CONCEPTS BY NATURAL COMMUNITIES AND PROPOSED MANAGEMENT ACTIVITIES

A. Existing and Planned Uses

The tract will be managed under the multiple-use concept. As previously stated, Florida Statutes describe the general management philosophy on public land; specifically CARL lands, in order to achieve the greatest combination of benefits to the people of the state. Activities will include: restoration, maintenance, and protection of all native ecosystems; integration of appropriate human uses; and insuring long-term viability of populations and species considered endangered, threatened, or of special concern. Integrated activities include: timber management, recreation management, wildlife management, and watershed management.

1. Property Boundaries Establishment and Preservation

Ninety-five percent of the forest boundary has been established, except along wetland boundaries. Boundary line painting and posting was contracted out according to DOF specifications during the 1999-2000 fiscal year and was completed in February of 2001. JSF is only fenced where needed near neighborhoods and problem areas.

2. Soil and Water Protection

The acquisition and management of this public land had among its objectives to optimize ecological restoration, protect and manage existing natural resources, and

facilitate sensible public use. Concern over a continuous usable source of fresh water requires emphasis on protecting this vital resource. The North Fork of Black Creek and Yellow Water Creek bisect a large portion of this forest. Branches and seepage streams occur along these creeks. All of the watersheds within the forest feed Black Creek and eventually flow into the St. Johns River. Forest management activities relating to timber harvesting practices will comply with the revised 2004 Division of Forestry publication "Silviculture Best Management Practices Manual." Copies of this publication are available upon request from the DOF Forest Hydrology Section.

3. Roads

There is road access to JSF for the public on the east, southwest, north, and northwest sides (Exhibit K). Old Jennings Road (CR 220), and the county maintained Live Oak Lane are the entrances on the east side (Old Jennings Tract) of the forest. County Road 218 runs through a portion of the southwest side of the forest. Southwest access into the Clay Hill Tract includes: Long Horn Road, Nolan Road, and the county maintained Hattie Nolan Road leading to Padgett Cemetery. The county maintained Long Branch Road provides access to the northwestern portion of the forest known as Long Branch Tract. County Road 217 provides access to Long Branch Cemetery Road and Long Branch Road leading to Nolan Ridge Cemetery. Manning Cemetery and Nathan Hale Roads, located off Duval County Road 228, provide access to the northern portion of the forest known as Yellow Water. Road improvements are necessary in key locations to offer year round, all weather, two-wheel drive access.

Interior forest roads are composed of sand or clay and have a variety of classifications. Fifteen numbered forest roads totaling 32 miles in length provide access to most of the forest. Restoration requires closing approximately 120 miles of roads to public vehicle access; however, existing roads and firelines offer hiking, off-road biking, and equestrian access. Any plans for the establishment of new roads will be reviewed by the DOF, DHR, and the Acquisition and Restoration Council (ARC).

4. Recreation Management

The demand for resource-based outdoor recreation on JSF will continue to grow as the result of urbanized growth from the nearby City of Jacksonville, Florida. The primary outdoor recreation objective is to provide the public with dispersed outdoor recreational opportunities that are dependent on the natural environment. These activities include swimming, canoeing, hiking, hunting, fishing, nature study, bicycling, horseback riding, and primitive camping (Exhibit L).

a. Existing Facilities/Infrastructure/Recreational Activities:

JSF, through its road system, provides adequate public access on its east, southwest, and northwest sides. We also gain access to our new holding in Duval County from Manning Cemetery Road and Nathan Hale Road. These properties are not yet open to the public or WMA usages, but are anticipated soon.

The Old Jennings Recreation Area parking lot is located on Live Oak Lane, approximately 1/4 mile north of the Live Oak Lane and Old Jennings Road

intersection. This multiple-use parking lot offers hikers, bicyclists, and horseback riders a convenient forest entrance. It includes an informational kiosk, trash receptacles, a picnic pavilion with picnic tables, grills, restroom facilities, and a trailhead to the North Fork Black Creek Trail. Trails lead to the southern Old Jennings Tract and a primitive campground which is located nearly three miles from the Old Jennings Trailhead, off the North Fork Black Creek Loop. This backcountry campground is also accessible by water, between Knight's Landing and Indian Ford. Reservations and a State Forest Use Permit are required for overnight camping. This area is designated as a recreational and fee payment area during daylight hours. The fee station is located just outside the northwest corner of the parking lot.

A multiple-use trail system offers equestrians, bicyclists, and hikers an opportunity to enjoy the ecological diversity and natural beauty of the JSF. Existing roads and fire lines were used for this trail system. The North Fork of Black Creek Trail starts at the primary trailhead on Live Oak Lane and continues through a sandhill community down into mesic flatwoods communities. The trail parallels the eastside of the North Fork of Black Creek and then loops back to the trailhead. This five-mile trail is broken into three loops, Bird Blind Loop, Longleaf Pine Loop, and the North Fork of Black Creek Loop. Each trail loop becomes progressively longer and more difficult, accommodating beginner hikers, children, seniors, as well as more experienced hikers. A bird viewing blind complete with benches and bird feeders are also located on this trail loop.

Equestrians visiting the forest will enjoy parking at the Old Jennings Recreational Area and venturing out on one of two horse trails on the east side of the forest. The eight and 16 mile Evans Horse Trail loops offer riders a scenic journey taking four to eight hours.

The Fire and Water Nature Walk, a fee area, is an approximate one-mile nature walk that promotes environmental education on the importance of prescribed fire. The trailhead is located on the northeast side of the forest, and can be accessed from Live Oak Lane (1.5 miles north of the Old Jennings Recreation Area). The nature trail passes through five natural communities located within the JSF. This self-guided trail explains the characteristics and requirements of the natural communities, showing how resource management restores and maintains their health, vigor, and natural composition.

Along the trail in a sandhill community, the forest visitor can observe nature in our bird viewing blind areas complete with benches, year around feeders, and birding information. Just past position #5 (Slope Forest and Blackwater Stream) a tired visitor may find rest on our ravine overlook platform built by a local Eagle Scout for his Life Project.

Traveling north on Live Oak Lane to the power lines that bisect the Old Jennings Tract, ¼ mile east is the wildlife viewing tower. A large parking area is there,

with an informational kiosk, to help visitors identify the different species that they may observe. The wildlife viewing tower is a Texas style tree stand, approximately 10 feet tall and is able to accommodate six-eight people comfortably for individual and/or group viewings.

The Dunn's Farm Trail is located in the Clay Hill Tract of the forest with the trailhead located adjacent to the forest headquarters. This trail loops approximately two-miles through flatwoods, a sandhill, and upland hardwood hammock. On the north portion of the loop, the trail parallels a steep-head ravine for a short distance. There is also a camp zone along this trail providing hikers the opportunity to enjoy the night.

Four canoe landings are situated along the North Fork of Black Creek within the Clay Hill Tract. Powell Ford and Ellis Ford are accessible by Nolan Road to Roads 5 and 6, respectively, and provide upstream access. Knights Landing and Indian Ford, are accessible by Roads 7 and 9, respectively. A canoe trip from Powell Ford to Indian Ford offers canoeists a wild and natural experience ranging from 6-8 hours in length. Parking is available on all canoe landings. The Black Creek Primitive Campground is located between Knights Landing and Indian Ford and is accessible by water or by foot. The grounds include: accommodations for up to twelve people, two fire rings, and eight tent pads. Availability is based on reservation and State Forest Use Permits. Permits and payments can be made at the JSF office, or the fee station located at Old Jennings Recreation Area Trailhead.

The North Fork Recreation Area can be accessed by Long Branch Cemetery Road. This scenic parking and picnic area overlooks the North Fork of Black Creek. An information kiosk is located there to provide visitors with an idea of activities that are available in the area. Picnic tables, grills, and trash receptacles are very accessible.

JSF has a Wildlife Management Area (WMA) which is managed by the FWC. All fish and wildlife laws are enforced by the FWC and the local Agriculture Law Enforcement officer. Hunting on the forest is scheduled annually by a cooperative effort between the DOF and the FWC. Specific seasons, quotas, and bag limits are set annually.

b. Planned Recreational Activities:

- i. Public Access: Four forest roads need improvement to facilitate public access. Road 1, within the Long Branch Tract, will be improved to provide two-wheel drive access. Roads 6, 7 and 9 leading to existing canoe landings require minor improvements for year round access. The entrance to Fox Tail Landing will be stabilized and improved to allow for two-wheel accessibility.

- ii. Parking: Four parking areas adjacent to the North Fork of Black Creek require improvements. Parking improvements at Indian Ford, Ellis Ford, Knight's Landing, and Fox Tail Landing are necessary for public access. Improvements to the Knight's Landing and Indian Ford parking areas were completed during the 2005/2006 fiscal year. An additional parking area needs to be constructed within the Yellow Water Tract off of Nathan Hale Road for visitors coming to the forest from Duval County.
- iii. Old Jennings Recreation Area: Projects planned for this site for the next ten year period include: trail benches, a foot bridge, one wildlife blind, and one viewing tower.
- iv. North Fork Recreation Area: Projects planned for this area for the next ten years include a pavilion and restroom facility. A picnic area is planned about 2 ¼ miles to the east along Yellow Water Creek, about a mile north of the intersection of Yellow Water Creek and Black Creek, and will be accessible from Road 1. Additional projects will be proposed at this site as needed.
- v. Recreational Trails: A forest education center with a nature trail, exhibits, and a pavilion is planned for the Clay Hill Tract. Both upland and wetland communities will be featured. An unpaved bicycle trail along with a hiking trail and trailhead is planned for development within the Long Branch Tract. An additional bicycle trail and trailhead is planned for the Old Jennings Tract off of the intersection of Roads 12 and 14. These trails will loop through several natural communities. Trails planned for the Clay Hill Tract include a hiking trail between Knights Landing and Indian Ford. Trails planned for the Yellow Water Tract include a hiking and horseback trail. There is potential for a horseback trail originating from Yellow Water to join up with the 16-mile loop trail already established off of the Old Jennings Recreational Area. In addition, improvements to the 16-mile horse trail and multiple-use trail will enhance recreation within the Old Jennings Recreation Area.
- vi. Wildlife Viewing: The JSF Wildlife Viewing Program has been integrated into this plan. This program offers the non-hunting public greater opportunities for wildlife viewing. The addition of two observation towers and three ground blinds should provide excellent wildlife viewing opportunities for the public. An informational kiosk will be constructed at each observation tower to help the viewer identify wildlife species.
- vii. Primitive Campgrounds: The Hammock Campground is planned for the 2006-2007 fiscal year (depending on funding availability). This campground will be accessible to drive up campers. The campground will be located in an oak hammock west of Road 11 on the Old Jennings Tract. The proposed area will have a picnic table and fire ring at each site, with trash receptacles located at the entrance and exit. A gathering area is also planned for this campground and will consist of a pavilion, four grills, two trash receptacles,

up to six picnic tables and a pitcher pump well for access to non-potable water. In addition, a self-contained restroom will be installed at the campground. The grounds will also include accommodations for 20-30 campers on ten camp tent pads. This campground will be ideal for organizations such as the Boy Scouts and Girl Scouts as well as other large groups.

The Bootleggers Primitive Campground will be available in the following years. This campsite will be accessible by canoe and is designated for the Long Branch Tract next to the North Fork of Black Creek. Size and improvements are similar to the North Fork of Black Creek Campground.

viii. Equestrian Center- An equestrian center is currently being considered for placement on JSF. During the current ten-year planning period, the DOF will work with representatives of the equestrian community to determine if a suitable site can be located for placement of an equestrian center. Development of the center will be dependant upon funding and location of a suitable site.

5. Fire Management

Wildfire prevention, detection, and suppression is the responsibility of the DOF's Jacksonville District (District -7), particularly the rangers assigned to this forest, Penney Farms Work Center, Cecil Field, and Baldwin Area. Clay County has five tractor-plow units and one Duval County unit stationed at Cecil Field. Emphasis will be placed on prescribed burning, fire prevention, and education to help reduce wildfire occurrence in the forest. The Incident Commander responding to wildfires on JSF has three paramount considerations, listed in order of priority: 1) protection of human lives, both firefighters and the public, 2) protection of improvements, and 3) protection of natural resources.

The annual forest prescribed burning program produces multiple benefits and is considered to be the primary management tool used on the forest. The purpose of prescribed burning on JSF is to restore, maintain, and protect in perpetuity all native ecosystems, ecotones, and their ecological processes.

With an average three to four year fire return interval over approximately 24,000 acres, the goal is to burn 6,000 to 8,000 acres annually. Until fuel loads are reduced, a more realistic goal will be set around 4,000 to 6,000 acres per year. Units that have had at least one burn are considered to be in the "maintenance phase" and will be concentrated on more than areas that have not been burned. The idea is that progress will not be lost in an attempt to restore a few stands that are already in poor condition. One or two unburned stands will be prescribed burned annually, during the dormant season, in an attempt to work towards having all units in the "maintenance phase."

Harrowed interior and perimeter firebreaks have been established and will be used when feasible on prescribed burns and wildfire control efforts. As fuel loads are

reduced, burn units may be combined, reducing the number of interior lines and ultimately improving hydrologic functions and ecosystem processes. Natural firebreaks such as baygall strands and the creeks should be used whenever possible to reduce the disturbance in transition areas. If these hydric areas are not wet enough to contain a fire, the burn should be held off until the area is wet enough. This practice will help achieve the goal of burning across transitions to maintain ecotones and reduce hardwood encroachment. These hydric areas are known to periodically burn naturally; however, due to fire suppression duff layers may be abnormally thick. If these areas are burned when dry, the timber that is lost and smoke problems that may occur will outweigh the restoration benefits.

To determine the effects of the fire management program, a good monitoring program is needed. This program should include pre- and post-burn evaluations. In addition, establishing a series of photo points and permanent vegetation plots will increase the effectiveness of the monitoring process. Some indices of the effectiveness of burns are: percent needle scorch, percent fuel consumed, percent stem char, and no net loss of the organic layer. Additionally, fire management facilitates timber management operations and decreases fuel loading, consequently enhancing public safety.

6. Silvicultural Guidelines & Forest Resource Management Objectives

a. Objectives

The objectives of these timber management guidelines are:

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

b. Silvicultural Operations

The forest will be directed towards recovery from past management practices including: clear-cutting without regeneration, even-aged plantations, off-site species, and fire exclusion. All stands of off-site slash (*Pinus elliottii*) or sand pine (*Pinus clausa*), on JSF, with merchantable volumes will be scheduled for harvest. Followed by, a subsequent reforestation with longleaf pine (*Pinus palustris*) or other appropriate species. Sand pine plantations are scheduled for restoration first, since these stands have merchantable volumes. In areas where oak densities are too high, restoration will involve removal by mechanical or chemical means. Most longleaf stands that occur in sandhill communities have few mature trees; however, pine regeneration exists at various levels. Natural regeneration surveys are currently being conducted to determine stand stocking

levels. Sandhill stands will be reforested with longleaf pine as required for ecosystem restoration. Slash pine plantations will be restored to species that historically occurred on this site.

Prescribed fire and herbicide applications will be the primary methods of site preparation prior to tree planting. Artificial regeneration will restore old sand pine plantations to productive and diverse sandhill communities. Planting small openings in sandhill stands with longleaf pine will increase stocking in some areas.

On sites where chemicals are necessary (due to past fire exclusion), applications will be limited to reflect the desired effects on all site species. From past operations, it has been determined that rates as low as 1.5 lbs per acre of DuPont Velpar® ULW is sufficient to reduce oak populations on sandhills. Stands that have been treated with herbicides leave a percentage of residual oak to benefit wildlife.

Thinning, group selection, shelterwood, and clear-cutting will all be necessary for maintenance and restoration of timber stands and communities. There are no target rotation ages for pine stands on JSF.

c. Timber Inventory Control

Initial timber inventory and stand descriptions were completed in November 1997. During the fiscal year 2001-2002, JSF underwent stand delineation. The number of total stands within the forest boundaries dropped from 467 to 230. All stand numbers and acreage information in this plan reflects the new stand delineation. Currently, forest volume on 23,995 acres is approximately 132,197 tons of pine saw timber, 195,194 tons of pine pulpwood, and 111,424 of pine chip-n-saw. The average merchantable pine basal area is approximately 53 square feet per acre in planted stands and 39 square feet per acre in natural stands with an average growth rate 5.6% on all productive and nonproductive land. Slightly more than half of all the productive forestland contains trees between the ages 40-49 years old.

Within the State Forest System, the annual harvest volume on each forest will not exceed the annual growth for that forest. An accurate estimation of the standing timber will ensure that stands will not be depleted.

The stand delineation and inventory completed by the DOF, during fiscal year 2001-2002, will provide sufficient timber inventory control parameters for at least the next five years. This is the normal interval between re-measurements of the timber inventories on state forests. Portions of the forest will be re-inventoried each year, with each stand being re-inventoried at least every five years.

d. Timber Sales

On JSF, timber sales are generally advertised for competitive bids and sold as lump sum sales. A sealed minimum acceptable bid is set prior to bids being opened. The price is based on the particular class of timber for sale, local stumpage prices, and logging conditions. Per unit sales will only be used with permission from the State Lands Silviculturalist. Salvage sales, where it is necessary to remove damaged timber rapidly, are normally negotiated and sold on a per ton basis. With such a sale, the mill receiving the wood furnishes weights of the timber, which will be acceptable for payment purposes.

7. Research Projects/Specimen Collection

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

All research projects to be considered on JSF, must be approved by the Forest Ecologist of the DOF. Any requests for research projects should be submitted to the Forester or Forest Biologist, who will then forward it through the JSF supervisor, to the DOF Forest Ecologist for final approval. Requests must include: a letter outlining the purpose, scope, methodology, and location of the proposed research project. Requests are subject to review by DOF Foresters, Biologists, the Forest Entomologist/ Pathologist, and the Forest Hydrology Section as appropriate. Permission to conduct research will require that the investigator provide copies of any reports or studies generated from research projects to the JSF staff. The status of existing projects will be subject to periodic review by the State Forest staff.

Since JSF was acquired by DOF, the following research projects have been initiated:

- Isolated Ephemeral Wetland Sampling (2004-2005)
- Effects of Fragmentation on Native Ant Species in Longleaf Pine Forests (2005)
- The Role of Headwater Type in the Structure and Function of Low Order Streams (2005)
- Survey for Exotic Ticks (2005)

8. Law Enforcement

Primary law enforcement responsibilities will be handled by State Forest staff, DACS Office of Agriculture Law Enforcement, and FWC wildlife officers. Additional assistance has been offered by the Clay County Sheriff's office as needed.

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

9. Wildlife and Fish Management

Wildlife management will play an important role in the management of resources on JSF. The forest is open to regulated hunting, which is managed by the FWC. The DOF provides land management and general supervision following the multiple-use management concept. The FWC provides cooperative technical assistance in managing the wildlife and fish populations setting seasons, establishing bag and season limits and overall wildlife and fish law enforcement. Hunters and fishermen are subject to the same game and fish laws as those enforced on private land, with the exceptions of any special stipulations from JSFWMA.

The FWC has helped to reduce illegal game harvest; however, occasional illegal hunting continues to be a problem. State agencies will coordinate Land Management Plans and procedures in such a manner that the objectives of ecosystem restoration and forest management may be met. Copies of current WMA regulations for JSF are available from the DOF the FWC, and online at <http://wildflorida.org/hunting>.

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

a. Timber Management

Timber management will be conducted in a manner specified in above sections of this plan. The DOF recognizes the importance of snags for wildlife value. As a general rule, snags will be left alone in their natural environment unless they are deemed to be a potential safety hazard. Areas of significant pine timber mortality will be harvested as directed by the severity of the situation. A select portion of stand habitats that have a basal area of less than a 50ft² will be left open to promote ground-nesting bird species such as the northern bobwhite quail (*Colinus virginianus*).

b. Prescribe Burning

Prescribed burning will be conducted in a manner specified in above sections of this plan. Prescribed burning provides numerous benefits to the forest. Many plant and wildlife species have adapted to frequent prescribed burnings, while plants such as wiregrass (*Aristida beyrichiana*) are dependent on fire. Burning improves wildlife habitat by promoting the growth of tender new vegetation.

This new vegetation is utilized directly by white-tailed deer, eastern cottontails (*Sylvilagus floridanus*), and many other small animals. While quail and other birds, prefer the seeds produced by recently burned plants. Prescribe burning opens up the forest, helps control competing vegetation, and reduce nuisance insects like the black legged tick (*Ixodes scapularis*) that can transmit Lyme disease. Prescribe burning also reduces the chance of harmful wildfires by reducing the buildup of fuels.

c. Managing Non-Game Species

Non-game species, including rare and sensitive species, will be managed and protected through the maintenance of the native ecosystems found on the property. Research by the other state agencies and institutions and the federal government will provide valuable information in determining the management objectives for non-game wildlife species.

FWC also monitors southeastern American kestrels (*Falco sparverius paulus*), eastern blue birds (*Sialia sialis*), gopher tortoises (*Gopherus polyphemus*), and wood ducks (*Aix sponsa*). Current monitoring data can be found in the FWC Annual Management Report (AMR). Future monitoring will continue to be conducted as dictated by FWC's budget and overall mission statement. Additional survey projects and monitoring will include Black Creek crayfish (*Procambus pictus*), striped newt, and flatwoods salamander. Fish management will be established by state established bag limits, and the agency's fisheries biologists will conduct an electroshock survey of the creeks to determine what species of fish are present.

d. Hunter and Public Access

All of JSF, excluding some small in-holdings, and the facility's office, makes up the JSFWMA. Hunting dates, bag limits, and hunter quotas are established annually by the FWC in cooperation with the DOF. The FWC regulates hunting activities and enforces game laws. FWC law enforcement efforts have helped to reduce illegal hunting activities on JSF; however, illegal hunting continues to be a problem. JSFWMA regulations are updated annually and are identified in the current WMA brochure provided by FWC.

FWC operates one manned check station off Live Oak Lane during the archery, muzzleloading, general gun, and spring turkey seasons to collect biological data on white-tailed deer, wild turkey (*Meleagris gallopavo*), and wild hogs (*Sus scrofa*). FWC also monitors the harvest of small game species such as bobwhite quail, mourning dove (*Zenaida macroura*), snipe (*Gallinago gallinago*), gray squirrel (*Sciurus carolinensis*), rabbit, duck, raccoon (*Procyon lotor*), bobcat (*Felis rufus*), and American woodcock (*Scolopax minor*). A list of species and the number harvested are recorded in the FWC Annual Management Report (AMR) for Jennings State Forest. The AMR is produced by an FWC area biologist, who follows strict guidelines established by FWC. A copy of the report is on file at the JSF Headquarters on Long Horn Road, or available by request from the FWC Camp Blanding Field office.

e. Biological Data Collection – Game Species

FWC conducts annual quail call counts, deer track counts, as well as deer spotlight and turkey population count estimates. These monitoring activities will be continued as funding is allows. As future lands are added, additional survey routes may be added to better predict the actual deer densities on the property.

These estimates will assist in establishing harvest goals, and predict how the ecosystems may respond over time due to herd densities.

f. Research Projects/Specimen Collection

The FWC has received complaints from the general public about the health of Black Creek. An action team was formed, and the general consensus was that a monitoring program needed to be developed and implemented. FWC has limited data on the population size of the Black Creek crayfish. In early 1990's, FWC filed a report on the health of Black Creek, and is now requesting funding to perform a follow up report. FWC will aim for more detailed report on the health of Black Creek to address the public's concerns. As data from the monitoring program and future reports become available, they will be kept on file at the JSF DOF office.

g. Law Enforcement

DOF and FWC law enforcement personnel handle all primary law enforcement responsibilities on JSF as well as enforcing state statutes and rules. Additional assistance will be offered by the Clay County Sheriff's Office as needed. FWC will continue to enforce all hunting and fishing rules governing harvest of game species. FWC law enforcement will continue to patrol the area to enforce the existing laws. Illegal game harvest is still a concern, along with destruction of signage, vandalism, and operation of a motor vehicle in closed areas. The addition of officers from both agencies will be helpful.

h. Rare Plant Species Monitoring

FWC will assist DOF staff with any requests regarding plant species monitoring. Currently, JSF has two rare orchids Eaton's ladies tresses (*Spiranthes eatonii*) and Florida ladies'-tresses (*Spiranthes floridana*) that are being monitored by the North Florida Orchid Society. Paul Martin Brown discovered sites where these species are found and has requested help in establishing management objectives with field logistics. In 2004, Mr. Brown wrote a report "Status of *Spiranthes eatonii* Ames ex P.M. Brown at Two State Properties." This report outlines the species' location, history, and taxonomic identification characteristics. JSF headquarters has a copy of this report. A management plan and protective actions should be developed and implemented immediately to protect these rare species. Prescribe fire should be the main tool used in the manipulation of this habitat. Recreation on the areas that host these plant species must be limited to avoid soil compaction and other destructive activities. Another orchid located on JSF is the Chapman's fringed orchid (*Platanthera chapmanii*). Mr. Brown has also written a report on this orchid species entitled "Understanding *Platanthera Chapmanii* (Orchidaceae), its origins and hybrids." A map included in Mr. Brown's report, shows the distribution of these plant species on JSF.

i. Future Projects

FWC will continue to assist DOF with controlled burning, providing technical support on future matters, assisting with gate and cable maintenance, law enforcement, and public educational programs.

FWC will continue to maintain the check station on Live Oak Lane, and the self-serve check stations off of the Hattie Nolan, Nolan, Long Horn, and Long Branch Road entrances. These self-serve entrances will need to be improved to provide safe access for motorists. Currently, the entrances are a safety hazard because vehicles cannot pull off the road completely while checking in, obtaining maps, or accessing other information. Additional check stations may be added as needed at the entrance areas mentioned above. More signs will need to be placed there to provide public information about hunting and recreational activities. Hunting pressure will dictate if a check station needs to be placed in a particular area. Currently, the majority of hunting pressure is located off Live Oak Lane, and Long Branch Road.

i. Quail Management

Northern bobwhite quail has suffered serious declines throughout much of its range during the last three decades. It is estimated that the bobwhite population has declined 65% between the years of 1980 and 1999. In response to this serious decline, the Northern Bobwhite Conservation Initiative (NBCI) was established, and the FWC developed a Conceptual Plan for Northern Bobwhite Restoration in Florida. A copy of this report is available from the DOF or from the FWC. The report shows past and current trends, along with management guidelines for bobwhite populations.

JSF has the potential to become an important area for quail management and hunting. Management practices that promote quail by emphasizing ecosystem restoration, prescribed burning, and thinning will also benefit other wildlife species and recreation in the forest. FWC and the DOF are considering the development of a proposal to set up a model quail management area on JSF that will be tied to the Upland Ecosystem Restoration Project. The purpose of the multi-agency UERP is to prioritize public lands in Florida for restoration of upland ecosystems and to initiate large-scale habitat restoration projects on selected areas to enhance populations of northern bobwhite and other declining or threatened upland plants and animals.

The general locations to be considered for this area will be on the Long Branch Farms tract, the vicinity of Long Branch Road (Road 1), and the sandhill site off Live Oak Lane. Some common considerations will be to maintain appropriate basal areas and frequent burning at about 2-year intervals, including growing season burns to stimulate growth of grasses and legumes. This area will provide the public an opportunity to engage in various forms of recreational activities including hunting. If food plots are determined to be necessary, these will follow the conditions stated in the State Forest Handbook (see below).

ii. Food Plots

FWC advocates the use of supplemental food plots to enhance wildlife populations and provide food during periods when, and in areas where, appropriate food plants would otherwise be unavailable. While prescribed burning will be the main tool for stimulating healthy forest ecosystems and food resources for wildlife food plots will be considered under the conditions of Chapter 7 of the State Forest Handbook, "Wildlife Openings and Food Plots." Site manipulation will be in the form of mowing, using a no-till seed drill, and if needed, disking may be used to reduce competition. "Certified seed" (contains less than 5% of the non-target plant species) will be used in the establishment of supplemental food plots for wildlife enhancement.

10. Non-Native Invasive Species

The policy of the DOF is to locate, identify, and eradicate invasive exotic species. State Forest employees continually monitor the forest for exotics while conducting management activities. When invasive exotic species are discovered, an eradication plan will be developed and implemented based upon the severity of the infestation and the availability of personnel and funding. Primarily, known upland exotics are located near the forest boundary. Locations of plants such as cogongrass (*Imperata cylindrica*), torpedo grass (*Panicum repens*), camphor (*Cinnamomum camphora*), Chinese tallow (*Sapium sebiferum*), Japanese climbing fern (*Lygodium japonicum*), and mimosa trees (*Albizia julibrissin*) have been mapped and some species treated with the appropriate herbicides and mechanical treatments. A DEP grant was executed in August 2004, which treated 29 acres of torpedo grass along interior roads and less than one acre of Japanese climbing fern.

Another treatment was done in May of 2005. In-house treatments of climbing fern, camphor, tallow, torpedo grass, mimosa, and sesbania (*Sesbania punicea*) are being initiated. Another DEP grant was applied for in 2005.

Feral hogs are located on the property. Several are taken each year during hunting seasons, and significant damage has not been recorded.

11. Insects, Disease, and Forest Health

At the time of this writing JSF is dealing with red bay (*Persea borbonia*) mortality. This mortality is the result of the red bay ambrosia beetle (*Xyleborus glabratus*) which entered the United States through the State of Georgia in 2001. The beetle infects the red bay tree similarly to the southern pine beetle by introducing a fungus into the sap wood that rapidly causes the tree to wilt and die. JSF has one known location of red bay mortality which is located in the Clay Hill Tract along County Road 218. The DOF Forest Entomologist is conducting research to determine methods to control the spread of this pest.

During fiscal years 2001/2002 and 2002/2003, JSF had a southern pine beetle (*Dendroctonus frontalis*) outbreak with twelve spots located on the forest. Knowing this, extra care should be taken in future years to monitor beetle activity. Should

unexpected insect/disease outbreaks occur, State Forest Management staff will consult with the Forest Health Section to develop scientifically sound responses and/or management prescriptions.

In compliance with Florida Statute 388.4111, all lands contained within this lease have been evaluated and subsequently designated as environmentally sensitive and biologically highly productive. Such designation is appropriate and consistent with the previously documented natural resources and ecosystem values and affords the appropriate protection for these resources from arthropod control practices that would impose a potential hazard to fish, wildlife, and other natural resources existing on this property. After approval of this plan, the local arthropod control agency will be contacted and will be provided a description of the management objectives for JSF. 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 for JSF.

12. 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. Requests for linear facility uses will be handled according to Governor and Cabinet's linear facility policy which can be found in Chapter 2 of the State Forest Handbook.

A Florida Power and Light Company power line right-of-way bisects the northern portion of the forest in a northwest to southeast direction. The right-of-way is 390' wide and over 4 ³/₄ miles long.

The DOF does not favor the fragmentation of natural communities with linear facilities; consequently, easements for such uses will be discouraged to the greatest extent possible. The DOF does not consider JSF suitable for any new linear facilities. When such encroachments are unavoidable, previously disturbed sites will be the preferred location.

The objectives when identifying possible locations for new linear facilities will be to cause no damage to sensitive resources (e.g., listed species and archaeological sites), avoid habitat fragmentation, and limit disruption of management activities and resource-based multiple-use activities, such as recreation.

Collocation with existing corridors will be considered but will be used only where expansion of existing corridors does not significantly increase the level of habitat fragmentation and disruption of management and multiple-use activities. The DOF will further encourage the use of underground cable where scenic considerations are desirable. Easements for utilities and other right of ways are subject to the review and approval by the Board of Trustees of the Internal Improvement Fund, and will follow the procedures outlined in Chapter 18-2., Florida Administrative Code covering easements.

13. Ground Disturbing Activities

Although the DOF's approach to handling ground disturbing activities is identified in various sections in 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 ensure that ground disturbing activities will not adversely impact sensitive resources. This includes areas such as archeological and historic sites, ecotones, wetlands, and sensitive species. "Management Procedures for Archaeological and Historical Sites and Properties on State Owned or Controlled Lands" (Exhibit F) will be followed.

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 monitored by state forest field staff; they will be developed so as to avoid sensitive areas. As for other ground disturbing activities such as construction of buildings, parking lots, and new roads, we will consult with Division of State Lands, FNAI, and DHR.

14. On-Site Housing

DOF may establish on-site housing (mobile/manufactured home) on Jennings 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. Apiaries

There are currently no apiary leases on JSF. The feasibility of pursuing and establishing apiary leases on JSF in areas where appropriate will be evaluated.

16. Cattle

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

17. Ground Cover

Management activities will be considered and conducted to protect and enhance the condition and integrity of the native ground cover. Management techniques, such as prescribed fire in the growing season, are used to rejuvenate and maintain ground cover to the greatest extent practical.

18. Restoration

The pre-Columbian natural world serves as the standard for the integrity of communities and ecological interactions on JSF. Like many other areas in the Southeastern Coastal Plain, fire and hydrology represent the key ecosystem processes. Thus, the JSF restoration vision focuses on mimicking pre-Columbian fire and hydrological patterns.

This historical restoration philosophy has produced three classes of restoration goals: restoring proper fire, restoring proper hydrology, and restoring proper species composition. These goals often interact and build upon each other. Specific actions to accomplish these goals are spelled out in the management by community section IV-B of this plan.

a. Fire

Prior to European settlement, fires in Florida generally burned on a landscape scale until stopped by rain, a body of water, or another natural fire barrier. These fires were frequent and burned most often during the lightning season. The combination of strong wet/dry seasonality and nutrient poor soils produced a pyrogenic flora rich in one-hour and waxy fuels.

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

b. Hydrology

A marked wet and dry season coupled with permeable soils and karst topography results in great extremes of flooding and drought in Florida. Flat land magnifies this problem. Human habitation has made Florida rich in roads, canals, and retention ponds, but poor in historic water flows. Management techniques to mirror ancient hydrological processes on JSF are nearly impossible on a landscape scale, because only a fraction of the North Fork of Black Creek Watershed is in ownership by the State of Florida. Smaller scale restoration of individual roads and firelines on the forest is much more achievable and productive.

c. Species Composition

The restoration priority is to ensure that species vital to ecosystem processes are in place on JSF. A continuous, pyrogenic ground cover in systems that should burn is important, as well as is the presence of longleaf pine. Juvenile longleaf

pine tolerates fire earlier than other woody vegetation allowing a shorter fire return interval to coexist with silviculture.

No current plans exist to artificially reintroduce any species that have become extirpated on JSF.

Specific species will be monitored, in anticipation of their return, as they may migrate back as restoration efforts proceed to improve habitats in the forest, e.g. red-cockaded woodpecker (*Picoides borealis*) and flatwoods salamander.

Restoration also aspires to control non-native invasive species. Chinese tallow and torpedo grass are both present and have the ability to spread rapidly. Aggressive herbicide control will minimize and eventually kill these infestations. Currently, no upland invasive exotic populations dominate more than a tenth acre in a given spot except torpedo grass. Torpedo grass infestations along roads are sometimes continuous for more than ¼ mile, but are limited to within 15 feet of the road. The population of cogongrass has been controlled and there is no evidence of any remaining individual plants. Because of JSF's suburban setting, the potential for new infestations of non-native invasive species is high. Long-term monitoring and control is vital and will be conducted as staffing and funding allows.

d. Adaptive Management Monitoring Area

This ten-year resource management plan represents the best knowledge of the DOF at this time. Since restoration, a key management goal, is inherently experimental, it is important to periodically monitor and re-evaluate land management results, to ensure that they are in line with our mission statement. Re-evaluation tactics will highlight both unsatisfactory management practices as well as practices that have completed enough that monitoring can be ceased or discontinued. The figure, "Critical Communities and their Burn Units for Restoration on JSF" (Exhibit M) shows seven areas on JSF appropriate to evaluate when the next ten-year resource plan is written. Five areas, 2- 6, have intact understories and fairly intact hydrology. Ten more years of management should maintain the present species, improve the hydrology, and drastically improve timber stocking. Two areas, 1 and 7, are in fair to poor shape ecologically. Ten more years of management should increase understory, plant species diversity, and improve timber stocking. Area 1 is inaccessible and receives little attention, while area 7 is very accessible. The following are reference numbers for "Critical Communities and their Burn Units for Restoration on JSF" (Exhibit M):

- 1 - Corridor to Camp Blanding
- 2 - Seeps and Gumbo Flatwoods
- 3 - Seeps and Sandhills
- 4 - Seeps and Sandhills
- 5 - Seeps, Dome Swamps, and Mesic Flatwoods

6 - Seeps and Sandhills

7 - Blackwater Stream and Broad Transition Zone

B. Description of Natural Communities and Proposed Management Activities

See Exhibit N for the FNAI Ecological Communities Map.

1. Sandhill

Desired Future Condition

Overstory- Sandhill communities are characterized by scattered longleaf pines over a dense, grassy understory. This community occurs on ridge-tops and slopes of well-drained, rolling hills sloping gradually into flatwoods, or more steeply into drainages. Large diameter longleaf pine is the primary overstory tree species with some various oak species such as turkey oak (*Quercus laevis*), sand post oak (*Quercus stellata*), and bluejack oak (*Quercus incana*) lightly interspersed ($BA \leq 10 \text{ft}^2/\text{ac}$). Stands are uneven-aged, containing at least three age classes, with total basal areas ranging from 20 – 70 ft^2 per acre. The midstory is a patchy mix of longleaf regeneration, both saplings and seedlings, and hardwoods in varying densities. Offsite species such as sand pine, slash pine, loblolly pine, and laurel oak (*Quercus laurifolia*) will be virtually non-existent.

Groundcover- Sandhills are nutrient poor sites naturally maintained by frequent fire, approximately every two to four years. The continuous, pyrogenic understory is a species rich, dense grass/herbaceous type. Dominant grass species are wiregrass, Florida toothache grass (*Ctenium floridanum*), lopsided Indian grass (*Sorghastrum secundum*), and pineywoods dropseed (*Sporobolus junceus*). Common herbaceous species are blazing star (*Liatris sp.*), deer tongue (*Carphephorus sp.*), blackroot (*Pterocaulon pycnostachyum*), and Florida elephant's-foot (*Elephantopus elatus*). Occasional patches of woody shrubs also occur. Seep transition areas and isolated wetlands are important parts of the ecosystem as well and prescribed fire should be allowed to burn into these areas whenever conditions allow, regulating woody competition.

Fauna- Sandhill species are dispersed throughout the community type in healthy, sustainable populations. Species such as gopher tortoise, gopher frog (*Rana capito*), eastern indigo snake (*Drymarchon corais couperi*), Sherman's fox squirrel (*Sciurus niger shermani*), Say's spiketail (*Cordulegaster sayi*), Florida pine snake (*Pituophis melanoleucus mugitus*), and red cockaded woodpecker can be located with reasonable ease. Microhabitats such as large trees, bare sand, and logs should contain the appropriate associated fauna.

Processes- The primary process driving sandhill condition and function is fire which has a two to four year return interval. Growing season fire is required by many sandhill flora species for stimulation of reproduction. Fire exclusion leads to domination by turkey oaks and other hardwoods. Eventually this leads to a reduction in groundcover species and continuity. The sandhills on JSF range in site index with richer sites having a more diverse and dense groundcover component than poor sites.

Other key processes are a functional hydroperiod, evidenced by occasional flooding of isolated wetlands and plant-insect interactions.

Existing Conditions

Much of this community type is currently in fair to excellent condition. The majority of stands are even aged, however at least 40% of all stands have at least three age classes. Several hundred acres of offsite sand pine were planted around 1973. Approximately 80% of the sand pine plantations have been harvested. Approximately 60% of the harvested sand pine plantations have been replanted and others are scheduled to be replanted with longleaf pine once groundcover has been reestablished. Native groundcover is intact in most areas, except where hardwood competition or sandpine plantation has reduced or eliminated it. Oak encroachment is also an issue on degraded sandhills due to fire suppression and a variety of methods are being pursued to reduce their stocking. Past land uses have also resulted in many woods roads, old fields, and firelines that interrupt some of the natural hydrology and have created communities resembling xeric hammocks.

Management Actions to Attain the Desired Future Condition

Restoration will focus on sandpine removal, conversion of plantations to uneven aged stands, hardwood control, and reintroduction of a natural fire regime. In addition, the natural hydrology will be restored.

Groundcover- For the majority of this community type, spring and summer fires on a 2-4 year interval will effectively rejuvenate the native groundcover species. There is some evidence that suggests that mixing an occasional winter burn may improve wiregrass seed production and viability. In areas with heavy oak encroachment and very sparse groundcover, herbicide treatment may be needed before a fire can carry through the stand. In the past, this has been a very effective way to stimulate groundcover species, primarily wiregrass. However, this method is expensive and has potential detrimental impacts on other woody species; therefore it should be used judiciously. In sandpine plantations, clearcutting followed by several years of annual summer fires is needed to eliminate seedling sandpine competition.

Hydrology- The primary way of restoring the natural hydrology is the elimination of unneeded roads and firelines. This process can be accomplished by creating larger burn blocks as fuel loads are reduced. Rehabilitation of firelines and maintenance of water control structures on roads should be done as often as possible. Due to the quality of this community type, and the associated rare flora and fauna, mechanical disturbance should be minimized and old fire lines should be used if possible.

Silviculture- Management will focus on creating uneven-aged stands of longleaf pine that have old growth characteristics and include a small oak component. The oak density will be determined by the fire regime and individual site characteristics. Silvicultural activities will include thinnings in denser stands, removal of off-site slash pine, harvesting of the sand pine plantations, site prep burning, and hand

planting. Due to the presence of red-cockaded woodpeckers at Camp Blanding on the southern border, creation and maintenance of an open midstory is desirable.

Total basal area of $<70\text{ft}^2/\text{ac}$ is desired both for creating potential red-cockaded woodpecker habitat and to maintain groundcover. It should be realized that some of these goals will probably not be met in this planning period.

Recreation- Various recreational activities take place in this community type, ranging from horseback riding to hiking, hunting, and camping. Currently, there are facilities in place to support recreation. Other recreational areas are being planned such as a drive up campground, additional trails, and more facilities at the trailheads. Recreational facilities and support systems should be designed to minimize erosion and other adverse environmental impacts.

2. Mesic Flatwoods

Desired Future Condition

General- Mesic flatwoods is a general category for several open canopy pine forest types with continuous pyrogenic ground fuels and little understory. The vegetation associations are dependent on changes in the soils. Soils are generally flat, moderately to poorly drained acidic sands over a hardpan that inhibit percolation and hinders the development of a deep root zone. These soils are often flooded in the wet season and are very dry in the dry season. Plant associations found on JSF are longleaf pine-wiregrass-runner oak (*Quercus elliotii*)-chinkapin oak (*Castanea pumila*), longleaf pine-slash pine-saw palmetto (*Serenoa repens*)-gallberry (*Ilex glabra*), and longleaf pine-slash pine-Florida three awned grass (*Aristida floridana*)-St. John's Susan (*Rudbeckia nitida*). The flat topography causes flatwoods forests to grade into other communities such as wet flatwoods, dry prairie, and scrubby flatwoods.

Overstory- The overstory consists of open (basal area $\sim 30\text{-}90\text{ft}^2/\text{ac}$), naturally regenerating pine stands with at least three age classes present. Stand compositions range from pure and mixed depending on individual site characteristics. Pine species include longleaf, slash, loblolly, and pond pine with longleaf and slash being the most prevalent. Large diameter pines dominate the overstory. There is also a very light interspersion of oaks and other hardwoods.

Midstory- The midstory is composed of a variety of shrubs and vines that are low in height and density conducive to the maintenance of a continuous pyrogenic understory. Densities should be low enough to facilitate easy movement by fauna such as gopher tortoise, turkey, and deer. Densities should also be conducive for regeneration of shade-intolerant species such as longleaf pine and wiregrass.

Groundcover- Groundcover in this community type is continuous, with a variety of grasses, legumes, and shrubs with various associations depending on the specific site. Some examples are wiregrass, pineland scurfpea (*Orbexilum virgatum*), gallberry, orchids, palmetto, *Vaccinium* spp., and toothache grass. Species of interest found in

mesic flatwoods on JSF include Bartram's ixia (*Calydorea coelestina*), Florida toothache grass, Florida hartwrightia (*Hartwrightia floridana*), West's flax (*Linum westii*), butterworts (*Pinguicula spp.*), and St. John's Susan.

Fauna- Healthy populations of fauna associated with flatwoods are distributed throughout this community type. Example species are Sherman's fox squirrel, red-headed woodpecker (*Melanerpes erythrocephalus*), and white-tailed deer.

Ecotones- A variety of ecotones can be found within the flatwoods community. These systems are generally of higher biological diversity. Some examples are grassy margins of embedded cypress domes and seep margins along baygall wetlands. Ecotone boundaries are variable and are driven by the processes of fire and hydroperiod.

Processes- The primary ecological process in the flatwoods are fire and hydroperiod. The natural return interval is between two and five years. Growing season fire is dominant however, fires in this community may occur at any time of the year. Evidence of a functional hydroperiod can be determined by the flooding and drying of embedded wetlands. Snags and logs are evidence of ongoing insect-plant-animal interactions.

Current Condition- The mesic flatwoods community is a range of plant associations growing on moderate to poorly drained sites. Natural plant associations grade from longleaf pine- wiregrass on drier sites to longleaf, slash, pond pine and gallberry on wetter sites. The majority (~ 57%) of this community type had been converted to commercial slash pine plantations prior to state acquisition, with some offsite sandpine plantation as well. Most flatwoods and therefore most plantations are in the northern end of the forest- Long Branch, Yellow Water, and Old Jennings tracts. Yellow Water and Long Branch contain large stands of young slash pine plantation, some that are too young to burn under. A variety of silvicultural practices were used including single pass chopping, burning, bedding, and row planting. Basal area averages about 45ft² acre with some stands being as high as 120ft² acre. Many areas have experienced fire exclusion to some degree resulting in heavy fuel loading and hardwood encroachment from adjacent community types. Native groundcover is intact in most areas.

Management Actions to Attain the Desired Future Condition

Restoration activities will include conversion of the stands that are in even-aged plantations to uneven-aged stands through thinning, clear cuts, prescribed fire, and planting; however in certain instances, based on site characteristics, the pursuit of even-aged management may be the preferred method to manage certain flatwoods community sites. These sites will be determined on a case by case basis with input provided by Forest Management and the field unit. In addition, removal of unneeded roads and firelines to restore hydrology is important.

Groundcover- Groundcover will be rejuvenated using a combination of fuel reduction and growing season burns on a 2 – 5 year cycle. Burning across transitions to reduce hardwood encroachment is important and should be done whenever possible as these transitions include a variety of rare species. Examination of aerial photos has shown rapid expansion of baygall communities into these transition zones.

Hydrology- Rehabilitation of firelines and elimination of roads especially on transition areas is vital to restoring the hydrology in this system. If new firelines and roads are needed, or new recreational trails are established, any seepage slopes/transition zones should be avoided. In addition, there will be strict adherence to forestry silviculture BMPs.

Silviculture- Creation of open, uneven-aged stands that regenerate naturally is a primary management goal. This can be accomplished through thinnings and seed tree cuts in the slash pine plantations. Natural seeding should be sufficient to produce an uneven aged forest in most cases. Sand pine plantations should be harvested and burned for several years to eliminate sandpine seedlings before being replanted. Hand planting has been successful in the past and should be the preferred method of reforestation. Rare plants such as Bartram's ixia and St. John's Susan are found in this habitat so all silvicultural activities should be focused on minimizing soil and ground cover disturbances. In the long term, sufficient red-cockaded woodpecker habitats may be created and appropriate management should be considered at that time.

Recreation- Recreation takes many forms in this community type. Currently there are hiking and equestrian trails, a campground, and a recreation area complete with a pavilion and grills. This community type is also popular with hunters due to the variety of game species that inhabit the area. Proposed recreation includes: a bike trail and possibly some more facilities such as bird watching blinds, and towers. Most forms of recreation have little adverse impact; however, the trails should be placed in areas that will minimize erosion and other impacts.

3. Baygall

Desired Future Condition

General- Baygalls are wetlands that form on slopes or areas where sheet flow has reached an impermeable layer of soil. These communities are almost always moist, however they rarely flood. Soils are nutrient poor, acidic peats. The primary difference between current and desired condition is the size and location of the baygall communities.

Overstory- The overstory consists of dense hardwood vegetation, very similar to its current condition. Primary species are: swamp redbay (*Persea palustris*), sweet-bay (*Magnolia virginiana*), sweet gum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), loblolly-bay (*Gordonia lasianthus*), loblolly pine (*Pinus taeda*), and pond pine (*Pinus serotina*).

Midstory- The midstory is composed of a mix of shade tolerant species. Primarily these are sapling stage bays and other hardwoods.

Groundcover- Vegetative groundcover is virtually non-existent due to shading.

Ecotones- Baygalls are often surrounded by transition zones such as wet flatwoods and seeps. These areas contain a higher biological diversity, primarily controlled by fire.

Processes- Growing season fire is vital to reducing the encroachment of these communities into surrounding transition zones and communities. Generally, there is a two-five year return interval around the perimeter with a longer return interval on the interior. Care must be taken when reducing fuel loads to avoid killing pines due to the amount of feeder roots that often permeate the duff layer.

Current Condition- Fire suppression has led to rapid expansion of baygall communities, evidenced by comparing past aerial photos. Most of this expansion has occurred onto seepage slopes or flatwoods and has caused very heavy fuel loading, primarily in the form of duff and peat. The dense overstory consists primarily of loblolly-bay, yellow poplar (*Liriodendron tulipifera*), swamp tupelo (*Nyssa biflora*), and bays. The understory is often a dense combination of fetterbush (*Lyonia lucida*) and young bays. Fuel loads are very high, consisting of leaf litter, peat, and thick duff. Firelines are common around and in some cases through these systems.

Management Actions to Attain the Desired Future Condition

The primary goal is to reduce these communities to their natural niche and to reduce the fuel buildup. This can be done through dormant and then growing season fire regimes.

Groundcover- Groundcover is non-existent within the baygall, however where seeps and flatwoods have been overgrown, a variety of grasses and herbaceous plants will reappear once competition from woody plants is eliminated.

Hydrology- The hydrologic restoration of these systems can be accomplished by rehabilitating firelines that run through and around them. In addition, limiting mechanical disturbances to emergencies is encouraged. Reduction and rehabilitation of firelines in these areas will be difficult to do since baygalls are often the dividing lines between burn units, and the risk of a fire escaping is too great to take.

Silviculture- Harvesting operations can be used to reduce fuel loads in these systems. Reduction of basal area should help promote understory development. A concern is hydrologic alteration. To prevent adverse effects, strict adherence to BMPs is a must. Harvesting will often coincide with operations in adjacent flatwoods systems.

4. Bottomland Forest

Desired Future Condition

General- Bottomland forests are hardwood-dominated communities, found on flat floodplains surrounding the creek system on Jennings where it has distinct banks. These communities are primarily found along Black Creek with some areas along Yellow Water Creek as well, and flood occasionally during high water events. The future condition of this forest type is similar to its current condition.

Overstory- The overstory consists of a dense canopy of hardwoods with scattered pines. Primary tree species are laurel oak, water oak (*Quercus nigra*), live oak (*Quercus virginiana*), red maple, sweetgum, loblolly pine, and fringe tree (*Chionanthus virginicus*). This forest type is closed canopied in the summer and is a major source of mast on JSF.

Midstory- The midstory is relatively open except for dense patches in old tree fall light gaps. Primarily it consists of young hardwoods, saw palmetto, and woody shrubs.

Groundcover- Groundcover is nearly nonexistent, and is only found in isolated light gaps.

Fauna- This vegetative community supports a variety of wildlife. When mast is available, these systems see increased use by species such as deer, turkey, and hogs. The large, older trees provide abundant cavities for nesting by squirrels and birds.

Ecotones- Ecotones around this community are often distinct, such as the steep drop to the creeks.

Processes- The forest serves as a buffer, minimizing flooding downstream as well as maintaining water quality through sediment reduction. Fire rarely enters this community and is not part of the management plan; however, it may be used to keep these areas from encroaching on adjacent communities.

Current Condition- This forest type primarily exists along the banks of Black Creek and Yellow Water Creek and is in relatively good condition. During high water it helps reduce flooding downstream and protects water quality by reducing direct runoff and sedimentation. The dense canopy is primarily composed of hardwoods such as water, laurel, and live oaks, loblolly pines, sweetgum, red maple, and tupelo. The patchy midstory is often composed of saw palmetto, sparkleberry (*Vaccinium arboreum*), and other woody shrubs. Recreational use along the creeks is the primary cause of disturbance but is isolated to a few areas.

Management Actions to Attain the Desired Future Condition

Restoration will focus on the canoe landings and other public access points.

Groundcover- Groundcover is limited to scattered patches of grasses and otherwise consists of leaf litter and vegetative debris. No restoration is needed due to periodic cleansing by floods.

Hydrology- Stabilizing the creek banks at public access points is a primary goal. This will help reduce erosion and sedimentation. The creek system is home for the Black Creek Crayfish which is sensitive to sedimentation and water quality.

Silviculture- No silvicultural activities are in the current planning period. A hardwood/cypress inventory was conducted in 1999.

Recreation- The creeks are probably the most popular recreation sites on the forest. Limiting people to designated areas is important in preventing erosion and disturbance. This will be difficult due to the amount of access points. Installing hiking/biking trails may enhance the experience of the forest user, but they should be designed to create the least amount of disturbance. In addition, the four canoe landings need to be stabilized in order to reduce sedimentation.

5. Wet Flatwoods

Desired Future Condition

General- Wet flatwoods are transition communities sandwiched between mesic flatwoods and basin or dome swamps. Soils are sands over a hardpan that stay inundated longer than mesic flatwoods. These communities are very susceptible to hydrologic alterations and fire suppression. It is important to maintain a fire regime to reduce fuel loads and the possibility of catastrophic wildfires.

Overstory- Overstory structure is moderately open with basal areas slightly higher than mesic flatwoods, around 60 ft²- 70 ft² per acre. Overstory composition will be much the same as it is currently, that is a mix of pond, loblolly, longleaf, and slash pines, along with loblolly bay and other scattered hardwoods.

Midstory- The midstory consists of a dense shrub layer with fetterbush, gallberry, and greenbriers (*Smilax sp.*) being common species.

Groundcover- The understory is primarily dead fuels with native grasses and other live pyrogenic fuels mixed in. Continuity and density are limited by the density of the midstory.

Processes- Fire is an important process that when excluded can lead to catastrophic wildfires. The return interval is longer than mesic flatwoods, generally three to ten years, and is determined by the hydroperiod. These areas will be burned in conjunction with the surrounding mesic flatwoods.

Current Condition These are wet transitional areas often located between mesic flatwoods and baygalls or dome swamps. The overstory consists of a mix of: pond,

slash, loblolly, and longleaf pines with some interspersed hardwoods. The midstory is often a mix of bays and young pines with an understory composed of palmetto and gallberry with some grasses such as wiregrass and broomsedge (*Andropogon sp.*). Currently, baygall encroachment has reduced the size of this community and altered the plant composition.

Management Actions to Attain the Desired Future Condition

Restoration can generally be completed through a combination of reintroducing fire on a regular basis and restoring the hydrology.

Groundcover- Groundcover can be restored and maintained through regular prescribed burns. This will prevent large buildups of duff and ladder fuels as well.

Hydrology- These are wet ecosystems with a thin sand layer over hardpan and stay inundated longer than a mesic flatwoods. Hydrologic patterns are easily altered. To maintain and restore the hydrology, construction of firelines and roads should be avoided. Existing ones should be rehabilitated where possible.

Silviculture- Harvesting operations can be used to reduce fuel loads in these systems. Reduction of basal area should help promote understory development. A concern is hydrologic alteration. To prevent adverse effects, strict adherence to BMPs is a must. Harvesting will often coincide with operations in adjacent flatwoods systems.

6. Basin Swamp

Desired Future Condition

General- Basin swamps are considered to be large wetlands or wetland systems independent of a river or stream system that flood infrequently. Soils are acidic, nutrient poor peats, and mucks accumulated through the long hydroperiod. Vegetative composition and structure should be very similar now except that an increased groundcover with greater diversity should exist in the perimeter transition zones.

Overstory- The overstory will consist of a mix of cypress (*Taxodium spp.*), pines, bays, tupelo, red maple, sweet bay, with actual composition and density depending on the fire history and soils.

Midstory- The midstory will be open with patches of woody shrubs such as fetterbush and buttonbush (*Cephalanthus occidentalis*) dominating high points and old stumps.

Fauna- These communities provide habitat for a variety of species including wood ducks and a variety of reptiles and amphibians. Depending on the hydroperiod and individual characteristics, fish may be present.

Ecotones- Ecotones are present around the margins. Grasses and herbaceous plants make up the groundcover component.

Processes- Fire is an important process in maintaining the ecotones around the margins of these swamps and for reducing fuel loads. The return interval will match that of the surrounding community for the margins and will be much longer for the interior portions.

Current Condition- The overstory consists of cypress, tupelo, bays, red maple, and loblolly pines. The midstory is often fetterbush and some other woody shrubs located primarily around the perimeter, on old stumps, and on isolated high spots that remain drier. Open water areas contain hydric plants such as lily pads, maiden cane, and mosses. In dry years, sedges and grasses may also be present. Fire suppression has led to very heavy fuel loads in many of these areas. Turpentine was a common practice, at least around the perimeter, evidenced by cat-faced trees and pitch pots. Fire lines and old roads often surround these areas, causing alteration of natural hydrologic patterns. Another potential hydrologic problem exists as well. Feral hogs are on the property, and while the population seems to be low, rooting damage still occurs. Not only does this alter the hydrology, it also is a threat to many of the native plants on the forest.

Management Actions to Attain the Desired Future Condition

Groundcover- Once fuel loads are reduced through winter burns, growing season fires can be used to control growth of woody shrubs and burn across transition zones around the edges of these communities. This should create a diverse groundcover component.

Hydrology- Old firelines and roads should be rehabbed, once they become accessible, to restore natural sheet flow. The primary deterrent is that unless drought conditions are severe, more damage than good may be done by entering these areas with heavy equipment. If feral hog damage becomes a problem, a removal program may need to be implemented.

Silviculture- No silvicultural activities are planned for this community during this planning period. A hardwood/cypress inventory was conducted in 1999. It may be necessary to reforest some basin swamps with cypress.

7. Seepage Slope

Desired Future Condition

General- Seepage slope communities occur on slope sides where water has percolated down until it reaches an impermeable layer. These areas are moist except during the driest droughts, yet they never flood. Degree of slope on Jennings ranges from imperceptible to appreciable. The hydric soils are acidic, poor loams. These are fragile communities that need careful management.

Overstory- This community is comprised of a very open overstory (basal area 20 – 45ft² acre). Primary tree species are longleaf, slash, and loblolly pines.

Groundcover- The groundcover component is a continuous layer of grasses and herbaceous plants. Typical groundcover plants include wiregrass, beak sedge (*Rhynchospora inundata*), yellow eyed grass (*Xyris* L.), bog-buttons (*Lachnocaulon* spp.), hat-pins (*Syngonanthus flavidulus*), butterworts, pitcher plants, club moss , meadow beauty (*Rhexia mariana*), and Curtis' dropseed (*Sporobolus curtissii*).

Fauna- The diverse groundcover provides a food source for a variety of wildlife. When located adjacent to intact sandhill, the seeps are also necessary for the life cycle of the endangered Say's spiketail.

Processes- The fire return interval is very dependent on the surrounding community since these areas will be burned with them. Generally this will be two to five years.

Current Condition- The FNAI was unable to identify seepage slopes from the historical aerial photographs used to develop the Historic Natural Communities map in Exhibit N. Seepage slopes are considered unmapped inclusions in mesic and wet flatwoods and baygalls on this map. The current location of many of these is well known to DOF and they appear on other maps used in management.

The current condition of this community type ranges from good to poor. There is also a large range in slope percentage. Since this community is often the transition area between two other community types, it could be lumped into several other ecosystems. On good sites the overstory is very open, groundcover is abundant, and includes a variety of orchids and rare plants. On the poor sites, the adjacent baygalls and slope forests have encroached or completely overtaken the community. In this condition, groundcover is sparse or nonexistent. In addition, it has been common practice in the past to create firelines and roads along these transitions, disrupting the hydrology.

Management Actions to Attain the Desired Future Condition

The primary restoration goals are to push back the encroaching woody vegetation and restore the hydrology.

Groundcover- Groundcover species on these sites are very shade intolerant. The encroachment of woody species needs to be reduced and the primary tool for this is fire. Elimination of firelines dividing the seeps from the surrounding communities allows fire to be introduced with a greater intensity if conditions allow. In some sites summer fires are possible but in others dormant season burns will have to be used first to reduce fuel loads. These practices have already been implemented at some sites and have worked extremely well.

Hydrology- Rehabilitation of old firelines (i.e. disking where feasible) and roads is the best way to improve the hydrology. In addition, since these areas are bordered by

natural fire breaks, new lines should be put in only during extreme wildfire emergencies. The natural breaks should be used whenever possible during prescribed burns. Bringing roads up to grade and stabilizing them to reduce erosion and sedimentation is also needed.

Silviculture- Due to the sensitive nature of this community, extreme care should be taken when performing silvicultural activities. Activities can be performed and may be necessary to open the canopy.

All skid trails should be rehabbed and loading decks should not be located immediately adjacent to these sites. In addition, BMPs need to be adhered to as a start, but more extreme care may be warranted by individual site characteristics.

Recreation- These are fragile ecosystems, yet they also contain a variety of rare and interesting plants that will naturally draw public interest. The goal should be to limit heavy amounts of recreation in these areas by limiting access through strategic trail placement and minimal, if any, promotion.

8. Scrubby Flatwoods

Desired Future Condition

General- These communities are isolated islands and old stream banks along the creeks within the forest. The highly drained, deep sands support an open overstory of longleaf, slash, and loblolly pines. Some scattered hardwoods such as Chapman's oak and sand live oak are present. The midstory consists of woody shrubs such as lyonia. The understory is a patchy mix of groundcover plants such as saw palmetto, wiregrass, tar flower (*Befaria racemosa*), and lichens. Bare sand patches complete the mosaic. Fuel continuity is poor. The areas do not flood but are surrounded by baygall drains and bottomland forest along the creeks.

Overstory- Scrubby flatwoods consist of an open overstory of longleaf pine, with scattered slash pine, loblolly pine, sand live oak (*Quercus geminate*), Chapman's oak (*Quercus chapmanii*), and lyonia (*Lyonia ferruginea*).

Midstory- The sparse midstory is composed of species such as saw palmetto, dwarf blueberry (*Vaccinium corymbosum*), gopher apple (*Licania michauxii*), and tar flower (*Befaria racemosa*) divided by many patches of bare white sand.

Groundcover- The sparse understory is broken up by many patches of bare white sand. Primary species are wiregrass and runner oak.

Processes- Because of its poor horizontal fuel continuity, this community has a long fire frequency, up to 25 years.

Current Condition- Two types of scrubby flatwoods exist on JSF. The first is the dry levees along the North Fork of Black Creek and Big Branch bordered by baygall

(Section 5, Township 5 South, Range 24 East, and Sections 32 and 33 in Township 4 South, Range 24 East) and the second is the fire excluded long leaf islands. These are one to five acre islands surrounded by baygall and can be converted to mesic flatwoods through aggressive burning. Soils are deep, very well drained sands formed from reticulated sandbars. Some longleaf islands have been converted to mesic flatwoods through aggressive burning by poachers in the past.

Management Actions to Attain the Desired Future Condition

The focus will be more on prevention of encroachment and maintenance of the community.

Groundcover- The sparse groundcover can be maintained by fire. The goal is to burn these areas every five to ten years and to use the surrounding wetlands for containment.

Hydrology- The deep sandy soils should be left undisturbed. No firelines are needed as the surrounding baygall and bottomland forest will act as a buffer from wildfires.

Silviculture- No harvesting is planned in this period.

Recreation- There are no planned recreation facilities or structures in most areas due to isolation. Part of one island may be converted into a parking area near Indian Ford to support the volume of recreation that occurs there. This will also help to minimize the disturbance from erosion at this site.

9. Slope Forest

Desired Future Condition

General- Slope forests occur primarily along the seepage stream ravines in the Clay Hill tract of JSF, with some occurring along Black Creek as well. Future condition of these sites will be nearly the same as currently seen. The moist, mild microclimate in the ravines has produced an interesting diversity of flora with a mesic, more northern aspect and elements such as spruce pine (*Pinus glabra*), chestnut oak (*Quercus michauxii*), and needle palm (*Rhapidophyllum hystrix*). Soils are sandy with a surface organic layer.

Overstory- The canopy is primarily composed of naturally regenerating stands of hardwood species. Common species are sweetgum, pignut hickory (*Carya glabra*), water oak, laurel oak, and American holly (*Ilex opaca*). It is dense, becoming closed in summer.

Midstory- The midstory is composed of a variety of woody shrubs and overstory regeneration. Species include sparkleberry, needle palm, hollies, and oak species.

Ecotones- The community is often bordered by sandhill on the upper end and grades into bottomland forest on the lower end.

Processes- There is no natural fire return interval in this community. Periodic heavy rains reduce the accumulation of organic matter along the bottom of the ravines.

Current Condition- These unique communities primarily exist in ravines in the Clay Hill tract, with some pockets along the blackwater streams throughout the forest. The microclimate in the ravines has allowed flora with a more northern aspect to thrive. The dense canopy is primarily hardwoods with some large stands of swamp chestnut oaks present. In addition, yellow poplar and spruce pines are present. The midstory is a dense mix of young hardwoods with some interspersions of saw palmetto. Needle palm has been confirmed on site.

The ground cover is primarily leaf litter with some ferns in areas. These sandy soiled sites grade from sandhills down to bottomland hardwood forest. The primary location, along the ravines in Clay Hill, was bordered by old fields on the uphill side, yet little evidence of disturbance is present.

Management Actions to Attain the Desired Future Condition

Little if any restoration is needed. Focus should be on exotic species prevention and control of human disturbance.

Groundcover- Very little groundcover is present. No management needs.

Hydrology- Human disturbances should be avoided. The uniqueness of these communities will tend to attract human traffic, especially around the Dunn's Farm Trail. Limiting access will help to control erosion and soil disturbances that could disrupt seeping and stream flows.

Silviculture- No harvesting is planned in this period.

Recreation- As mentioned above, limiting access is important for controlling disturbance in these fragile areas. A viewing tower has been put in place on the Fire and Water Nature Trail and a similar one is scheduled to be built on the Dunn's Farm Trail. These will provide places for the public to enjoy the communities while limiting disturbance.

10. Dome Swamp

Desired Future Condition

General- Dome swamps are also known as cypress domes. They are shallow depressional wetlands surrounded by flatwoods or sandhill, which are intermittently wet. The primary water supply for these wetlands is runoff from the surrounding uplands. The soil is usually covered by a layer of decomposing organic matter.

Overstory- They are typically dominated by pond cypress (*Taxodium ascendens*), although myrtle-leaved holly (*Ilex myrtifolia*), tupelo, and slash pine may also be present.

Midstory- Fetterbush dominates the midstory which varies in densities from open to dense.

Groundcover- Grassy depressional marshes exist in the center of some domes while others have a marshy fringe around the outside, others may have both. These marshy areas can be dominated by a variety of sedges or St. John's Susan and often have a more open or nonexistent overstory. These open areas are also habitat for a variety of orchids, and other herbaceous plants.

Fauna- The size, position, fire regime, and hydroperiod determine the habitat quality for amphibians such as the striped newt. Newts, as well as gopher frogs and a variety of other reptiles and amphibians use these areas for breeding. Efforts to find flatwoods salamanders have failed however there is still a chance that they may be found.

Processes- A regular fire interval is important to maintain the grassy fringes by deterring hardwood encroachment and peat accumulation. The return interval ranges from two to five years. An annual hydroperiod where these sites dry down completely is also critical for providing habitat for species such as striped newts and gopher frogs to breed in without predation from fish.

Current Condition- Overall, the existing dome swamps are in very good condition with minimal disturbance and are therefore species rich. The overstory is primarily pond cypress with some pines interspersed. Open areas exist in some of the swamps that are considered depressional marshes. In some areas, fetterbush is the dominant understory, growing on old stumps and other higher ground. Fuel loads are very high, however, there has been success reintroducing growing season fire. The swamps in timbered areas tend to be the most disturbed and often consist of a pine overstory with a poor fringe understory.

Management Actions to Attain the Desired Future Condition

Restoration activities should focus on hydrology and groundcover especially around transition zones.

Groundcover- Maintaining the grasses/sedges and other groundcover plants in and around the perimeter through fire is important both for maintaining species diversity and for providing habitat for the striped newt breeding cycle. By burning, the duff layer is reduced, plant growth is promoted, and woody encroachment is controlled. Striped newts need tussocks of grasses and sedges around the perimeter of these areas for part of their life cycle which is promoted through growing season fire.

Hydrology- Current firelines and roads that are adjacent to or through these communities should be rehabilitated or eliminated. Firelines should not be plowed unless there is a major need or if no other lines are suitable. All fireline construction activities should follow the recommendations in the DOF Silviculture BMP Manual.

Silviculture- No timber harvesting is planned in this community during this period. A hardwood/cypress inventory was conducted in 1999.

11. Xeric Hammock

Desired Future Condition

General- Xeric hammocks are not historical community types on JSF; they occur on old field sites with sandhill type soils, replacing the natural longleaf pine system. Some of these areas will be used for recreational purposes such as campgrounds and parking areas. Some locations will be chosen for experimental restoration using a variety of techniques. In areas with little or no recreational value that will be restored, the overstory will be converted to an open stand of longleaf pine/turkey oak with an understory of upland grasses such as wiregrass and pinewoods dropseed with a sparse mix of woody shrubs, resembling the original sandhill structure and composition.

Overstory- The overstory consists of dense upland oaks such as live, laurel, post, and sand post over a sparse understory.

Midstory- The midstory consists of woody shrubs such as sparkleberry and high bush blueberry along with young oaks at varied densities.

Groundcover- In restored areas, grasses and herbaceous plants dominate the groundcover component.

Processes- Fire is difficult to introduce, but these areas will be burned with the surrounding sandhill every 2-5 years. Old roads and firelines that have eroded will be brought to grade and rehabilitated.

Current Condition- Currently these sites exist on old field or disturbed sites with sandhill soil types. They are dominated by a dense overstory of live, post, laurel, and other oaks with a scattered mix of longleaf pine. The midstory primarily consists of woody shrubs such as sparkleberry and high bush blueberry (*Vaccinium corymbosum*) growing in various densities. Groundcover is often very sparse or nonexistent. Some remnants of wiregrass can be found as well as some pasture grasses. Roads and old fire lines are common as these sites were often used by humans as home sites, etc.

Management Actions to Attain the Desired Future Condition

Groundcover- If restoration is desirable; fire is difficult to introduce into these systems. It may take some use of herbicide or mechanical overstory removal to open

the overstory and allow an understory to develop before groundcover can be rejuvenated.

Hydrology- Bringing roads to grade and rehabbing firelines may be needed. There is some possibility of soil compaction as well. Again, experimental techniques will be used. Additional information and guidance may be obtained by contacting the DOF Forest Hydrology Section or the nearest BMP Forester.

Silviculture- These sites are dominated by oaks of little or no commercial value; no silviculture is planned in these sites during this period.

Recreation- These areas are excellent recreational sites. Already there is a campground slated to be developed in one hammock.

Other possibilities are biking, equestrian; hiking trails, parking areas, and trail heads. The recreation potential is almost unlimited due the prior disturbance on these sites.

12. Depression Marsh

Desired Future Condition

Depression marshes are shallow isolated wetlands dominated by herbaceous vegetation, such as St. John's wort (*Hypericum perforatum*) and sedges. Hydro-period is variable among years. Fire is important in these marshes to prevent hardwood invasion. Depending on the year and season, fires may extinguish themselves in the fringe or burn across the marsh.

There is one depression marsh in Section 5, Township 5 South, Range 24 East. This two-acre site will be burned with the surrounding sandhill, on a two to five-year interval.

Current Condition-One depression marsh exists on Jennings State Forest. It has no overstory and a very sparse, patchy midstory of young pond cypress and yaupon holly (*Ilex vomitoria*). Ground cover is a dense mat of maiden cane (*Panicum hemitomon*) with some St. John's wort, and low panicums (*Dicanthelium spp.*). The transition area is dominated by young longleaf pine, saw palmetto, and gallberry.

Management Actions to Attain the Desired Future Condition

This community type is in excellent condition and can be maintained through a few basic practices.

Groundcover- Groundcover is currently intact. Regular fires encroaching or burning through from the surrounding sandhill will maintain this.

Hydrology- No mechanical activities should be performed in or adjacent to this site. Due to its size, it can easily be included in the surrounding burn unit, therefore firelines are not needed around it.

Silviculture- Due to the lack of overstory and the good condition of the site, no silvicultural activities will take place in the site. Should activities take place in the surrounding areas, care should be taken to avoid this wetland and any ground disturbances should be minimized and rehabilitated. If fire should be excluded for a period of time long enough that a midstory and overstory begin to develop, hand removal may be needed.

Recreation- No recreation should take place in this site. Limited biological sampling is currently being done for research purposes. This could continue on a limited basis.

13. Sandhill Upland Lake

There is one sandhill upland lake on JSF in Section 21, Township 4 South, Range 24 East. This is a shallow, round lake with no inflow or outflow except for groundwater seepage. It is fairly steep sided, with a limited fringe around it. St. John's wort and myrtle-leaved holly are present. The small transition zone around this 0.2 acre site will be burned with the surrounding sandhill on a two to five-year interval.

14. Seepage Stream

Seepage streams flow from shallow ground water that has percolated through well drained soils. They are clear to light tea-colored. Their origin in groundwater buffers their temperature and makes them free of debris and sediment. They primarily have sand bottoms, with some areas of exposed limestone, clay, or gravel. A dense hardwood canopy covers most of the stream, except for sites with tree-fall gaps.

A parallel line of ravines with seepage streams drains north in the Clay Hill Tract into the North Fork of Black Creek. Despite the presence of old fields near these streams, past land use has had minimal impact on these systems.

The primary management goal for seepage ravines is to control access to foot, bike, and horse traffic in order to minimize damage to the ravine sides.

15. Blackwater Stream

Blackwater streams can be either perennial or seasonal watercourses with headwaters in sandy lowlands where extensive wetlands with organic soils act as water reservoirs. The water these wetlands discharge is rich in tannins and generally acidic. Water temperatures may fluctuate dramatically. The dark waters limit light penetration. Blackwater streams have sandy bottoms underlain by limestone, with periodic limestone outcrops. An organic layer often covers the sand. Blackwater streams differ from alluvial streams, which have continuous flood plains. Instead, they have high steep banks alternating with floodplain swamps. The high banks confine water movement except for major floods.

The North Fork of Black Creek and its larger tributaries are fine examples of North Florida blackwater streams. The North Fork of Black Creek is designated as an Outstanding Florida Waters (OFW). Management activities that maintain or enhance

water quality are the primary means to preserve the excellent state of these systems. These include: closing unnecessary roads and improving open roads to maintain water flows and minimize run-off, minimizing the number of maintained firelines, proper fireline construction using design features like water-bars, careful attention to Best Management Practices (BMPs) during silvicultural operations, and minimal site preparation (usually just fire) for reforestation operations.

The large, upstream portion of the North Fork of Black Creek watershed, which is outside of State ownership, complicates this management.

The primary species of interest found in the blackwater streams on JSF is the Black Creek crayfish.

C. Impact of Planned Uses on Property Resources

The renewable resources that need protection include:

1. Timber

Guidelines outlined in Sections III-8-11 and IV-A-6 of this plan will insure a continuing timber resource and diverse ecological resources for an indefinite time period.

2. Wildlife

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

3. Water

Guidelines outlined in Section IV-A-2 of this plan will insure and protect a continuing renewable water resource.

4. Historical/Archaeological

In the event of any significant ground disturbing activity, DHR will be contacted for review and comment. The DOF will then follow the management procedures outlined in Exhibit F and will comply with all appropriate provisions of Section 267.061 Florida Statutes.

V. MANAGEMENT SUMMARY

A. Operations Infrastructure

The current annual budget (2006/07 FY) for JSF is \$521,422; however, annual appropriations change. This amount includes salaries, expenses, and operating capital outlay; and is broken down as follows:

Operating Budget (general costs for fuel, supplies, etc.)	\$ 95,463
Salary and Benefits	\$365,759

Expense (restoration, invasive species treatment, recreation enhancements, prescribe burning, etc.)	\$25,700
Operating Capital Outlay (computers and a replacement vehicle)	\$10,500
Other Personal Services	\$24,000

Eight people are currently assigned to JSF; they include: a Forestry Supervisor II, Biological Scientist II, Forester, Law Enforcement Investigator, two Senior Forest Rangers, a Forest Ranger, and an Administrative Secretary. Two part time OPS Park Rangers are also assigned to the forest. Additional support is provided by the Division's Clay County Rangers and other Jacksonville District personnel.

B. Management Needs, Priority Schedule, and Cost Estimates

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

PRIORITY 1

1. To prevent destructive wildfires, an aggressive prescribed burning and wildfire prevention, detection, and suppression program has been initiated. Fire management will reduce fuel loading, thus increase public safety, facilitate timber management, and restore, maintain, and protect native ecosystems, natural communities, ecotones, and their ecological processes. Estimated total cost per year is \$60,000.
2. The road system on JSF has been established and must be maintained for administrative and public access. Forest roads are maintained for minimal impacts on the natural resources. Several road improvement projects are scheduled to improve year round access on key primary roads. Maintenance and improvement costs average \$38,000 per year.
3. Restoring a part of the natural longleaf pine-wiregrass ecosystem for this planning period consists of two main projects. Restoring sand pine plantations to sandhill communities requires sand pine removal and longleaf pine reforestation. Sandhills in poor condition from fire exclusion may need herbicide treatment to reduce oak density and release pine regeneration. Prescribed burning, as a restoration tool, is included in #1 above. The estimated longleaf pine reforestation cost is \$17,000 per year. Additional applications of Velpar ULW may be needed in areas where oak populations are high due to fire exclusion. The lowest application amount will be applied with careful attention to providing / leaving some mast trees for wildlife.
4. Implementing the recreation management portion of Ten-Year Plan will cost approximately \$30,000 per year.
5. A shop building is needed at the JSF headquarters to properly maintain and store tools and equipment. The building will be located at the JSF headquarters site previously approved by the Land Management Advisory Council. The total estimated cost,

which includes construction of the facility, site development, outside utilities, and other contingencies, is \$100,000.

6. Develop and implement a wildlife management plan in cooperation with the FWC within two years.

PRIORITY 2

1. A rare animal species inventory and monitoring program will be conducted in cooperation with FNAI and the FWC. The estimated cost will vary depending on the intensity of the survey.
2. A comprehensive rare plant species inventory will be implemented. The estimated contractual cost will vary depending on the intensity of the survey. Monitoring rare plant species should be conducted by the DOF.
3. A surface and ground water analysis and monitoring program should be planned and implemented within the timeframe of this plan in cooperation with agencies with statutory responsibility such as the SJRWMD and the Department of Environmental Protection (DEP).
4. The estimated cost of the wiregrass revegetation project is \$3,500.
5. The estimated cost for implementing the forest exotic species control plan is \$5,000.

PRIORITY 3

1. The state forest boundary must be maintained. Boundaries will be patrolled on a routine basis and the entire boundary will be reworked approximately every five years or as needed. The estimated cost for boundary maintenance is \$15,000.

TABLE 9. 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	\$60,000			\$60,000
-Timber Management				
-Hydrological Management				
-Other	\$17,000	\$3,500		\$20,500
Administration:				
- Units/Projects				
Capital Improvements:				
-New Facility Construction	\$100,000			\$100,000
-Facility Maintenance	\$38,000		\$15,000	\$53,000
Visitor Services/Recreation:				
-Information/Education Programs				
-Operations	\$30,000			\$30,000
TOTAL	\$245,000	\$8,500	\$15,000	\$268,500

C. Plans for Locating Unknown Resources

Representatives of the DHR and FNAI will be consulted prior to the initiation of any proposed significant ground disturbing activity by the 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”.

1. Archaeological Resources

The DOF has State Forest personnel trained as Archaeological Monitors. Trained monitors will oversee ground disturbing activities in which the DHR recommends monitoring. The DOF will utilize the services of the DHR CARL archaeologists to locate and evaluate unknown resources and to make recommendations in the management of known resources. Known archaeological and historical sites have been identified on maps to aid State Forest and law enforcement personnel in patrolling and protecting sites.

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

2. Soil and Water Resources

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

3. Other Resources

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

D. Conformation to State Lands Management Plan

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

E. Multiple-Use Potential-Income Producing Activities

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

Timber sales – In a normal year Jennings State Forest conducts one timber sale averaging 3000 to 5000 tons in size. Depending on tonnage, product class being sold, and future market prices this could generate an annual income of up to \$60,000 per year.

Recreation and Camping Fees – Currently, Jennings State Forest has several recreational fee sites generating on average \$2,100 per year. Within the time frame of this plan, there is potential to increase the number of recreational fee areas with the addition of new recreational facilities.

Miscellaneous Forest Products – There is the potential for minor income for the sale of miscellaneous forest products such as palmetto fronds and berries, pine cones, and oak leaves.

Environmental Education Tours – A potential income exists from the ecotourism activities associated with visiting natural habitats. JSF provides a unique mixture of upland longleaf pine/wiregrass and marsh/scrub habitat which will be of interest to many groups.

F. Potential Use of Private Land Managers

The forest manager makes ongoing evaluations of the use of private land managers, consultants, and contractors to facilitate the total resource management activities of this state forest. Private contractors have already been utilized to site prepare and plant longleaf pine trees. Additional opportunities for outsourcing land management work are anticipated to include:

Restoration Activities- Several thousand acres of sandhill, through past land management practices, have become overgrown with oak species. As a result, there is potential for herbicide applications to be contracted out.

Tree Planting – Jennings State Forest on average conducts one tree planting per year in which private contractors are employed.

Boundary Fencing – Due to an increase in urban interface there are several miles of forest boundaries that need fencing.

VI. REFERENCES

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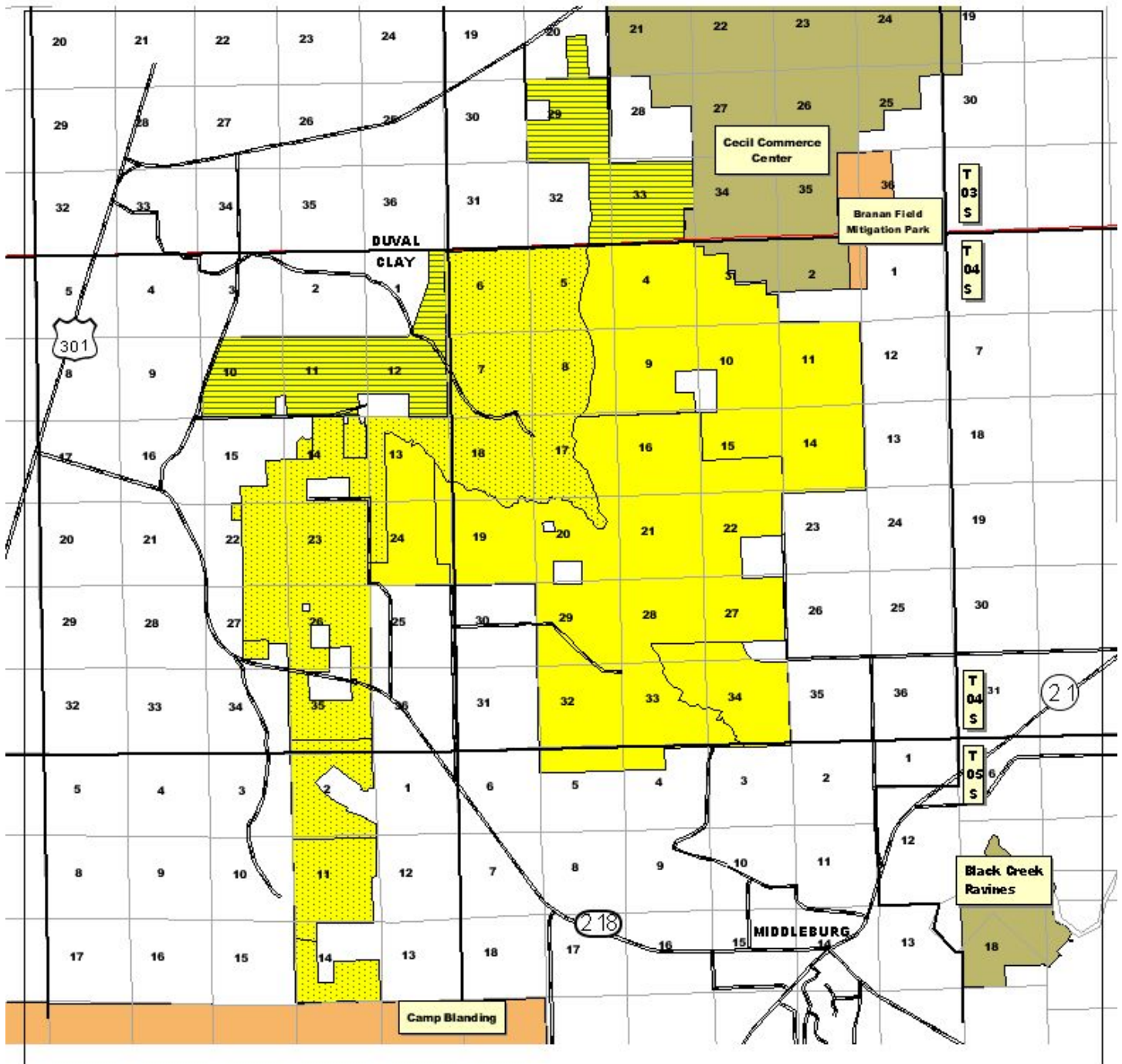
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Florida Division of Forestry. Revised 2004. "Florida's Silviculture Best Management Practices Manual." Florida Department of Agriculture and Consumer Services, Division of Forestry. Tallahassee, Florida.

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Florida Natural Areas Inventory. February 1990. "Guide to the Natural Communities of Florida." Florida Natural Areas Inventory and Florida Department of Natural Resources.

EXHIBIT A
LOCATION MAP



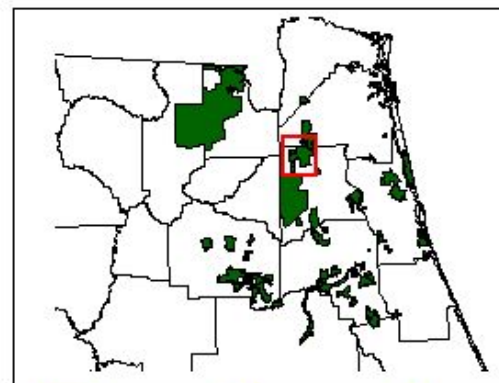
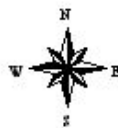
Jennings State Forest

CLAY COUNTY

- Local Roads
- County Line
- STR

- CARL
- SJRWMD
- SJRWMD/CARL

- Public Lands**
- Federal Managed Area
- Local Managed Area
- State Managed Area



Map Date: May 18, 2005
E. Smith

0 0.8 1.6 Miles

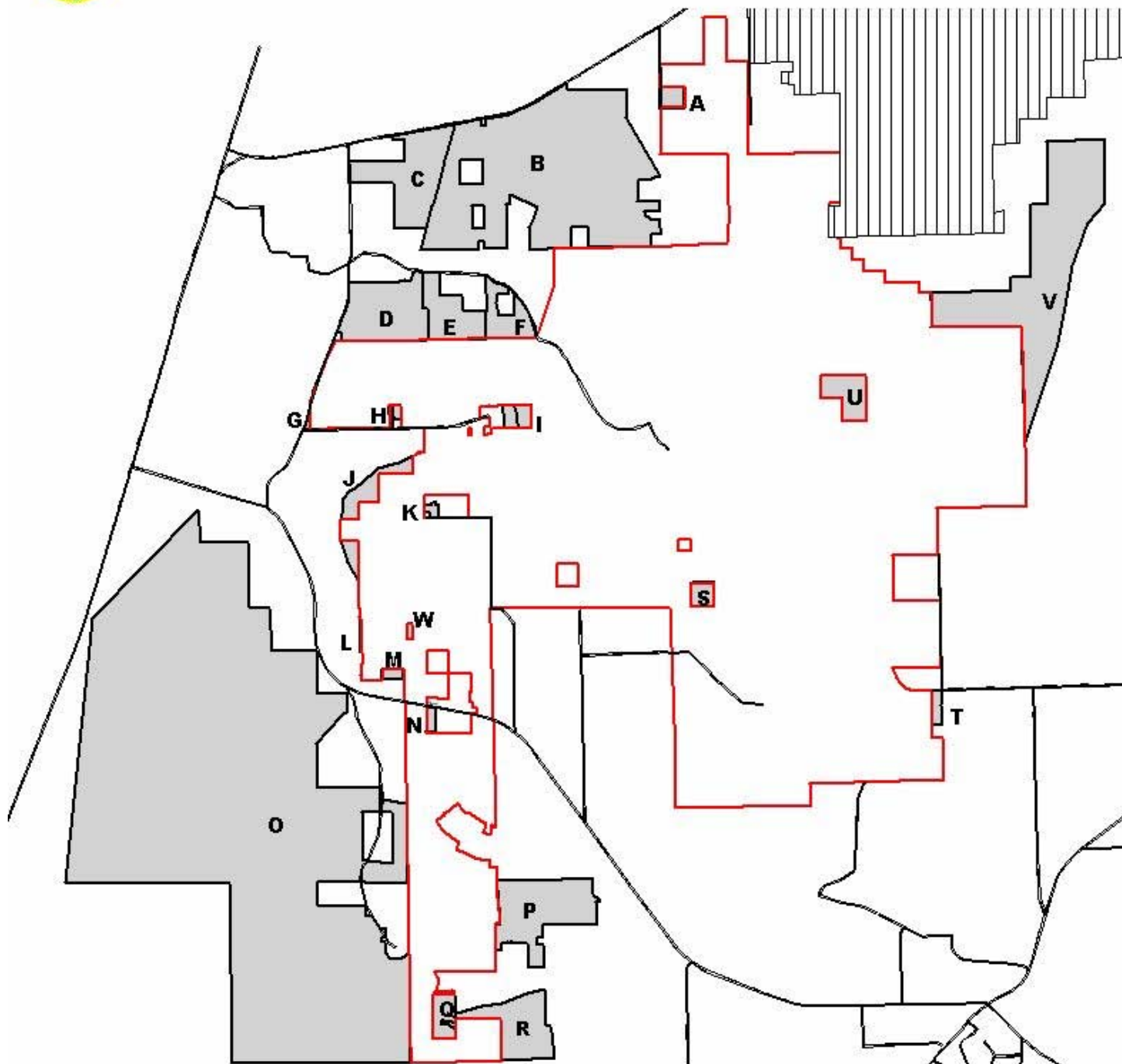


EXHIBIT B

OPTIMAL MANAGEMENT
BOUNDARY



Jennings State Forest Optimal Management Boundary



-  Jennings State Forest
-  Cecil Field Commerce Center
-  Optimal Boundary
-  County Roads and Highways

0 0.5 1 Miles

E. Smith
6/10/2006
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GENERAL EXPLANATION
This map shows the proposed optimal management boundary for the Jennings State Forest. The boundary is based on a review of the forest's resources and the needs of the public. The boundary is shown in red on this map. The Cecil Field Commerce Center is shown in hatched. Other areas are shown in grey. County roads and highways are shown with wavy lines.

LEGEND FOR OPTIMAL MANAGEMENT BOUNDARY MAP

LETTER ID	OWNER	ACRES
A	Duval	42.520
B	Timber Forest Trail Investments	2191.413
C	Diamond Timber Investments	425.660
D	American Pulse	387.527
E	Griffis Properties	214.618
F	Griffis Properties	143.219
G	Eailene Karr	6.443
H	Garcis	6.108
H	Williams	8.866
I	Newman	28.478
J	Parker, Wilkinson	33.314
J	Lassiter, Bolin	115.911
J	Johns	22.617
K	Francis	13.206
L	Unknown, narrow property	4.666
M	Howard Padgett	18.967
N	Junk Yard	19.351
O	Wachovia	8647.926
P	Huntley/Grace	448.754
Q	Weeks Family	77.205
R	Spencer	287.234
S	Warth	43.209
T	Odum	28.125
U	Sonny Griffin	124.787
V	AFI Associates	1229.848
W	Brooks/Carter	6.362

EXHIBIT C

LAND MANAGEMENT REVIEW TEAM FINDINGS

**Land Management Review of
Jennings State Forest
Lease No. 3946
August 6, 2003**

Prepared by Division of State Lands Staff

William Howell, OMC Manager
Bonnie Malloy, Administrative Assistant

For

Jennings State Forest Review Team

FINAL REPORT
November 20, 2003

Land Manager:	<u>DOF</u>
Area:	<u>20,623 Acres</u>
County:	<u>Clay</u>
Mngt. Plan Revised:	<u>2/07/2002</u>
Mngt. Plan Update	<u>2/07/2007</u>
Due:	

Management Review Team Members

Agency Represented	Team member Appointed	Team member In attendance
Division of Forestry	Bill Korn	Bill Korn
DEP Northeast District	Russell Price	Jennifer Auger
Clay County	Tonya Jolley	
Conservation org.	David White	David White
Soil and Water Conservation	Bill Grubbs	Bill Grubbs
DRP District 2	Dan Pearson	Anne Barkdoll
FWCC	Allan Hallman	Allan Hallman
Private Land Manager	Mark DuPree (<i>Mac</i>)	Mac DuPree

Process for Implementing Regional Management Review Teams

Legislative Intent and Guidance:

Chapter 259.036, F. S. was enacted in 1997 to determine whether conservation, preservation, and recreation lands owned by the state Board of Trustees of the Internal Improvement Trust Fund (Board) are being managed properly. It directs the Department of Environmental Protection (DEP) to establish land management review teams to evaluate the extent to which the existing management plan provides sufficient protection to threatened or endangered species, unique or important natural or physical features, geological or hydrological functions, and archaeological features. The teams also evaluate the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices, including public access, are in compliance with the adopted management plan. If a land management plan has not been adopted, the review shall consider the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices are in compliance with the management policy statement and management prospectus for that property. If the land management review team determines that reviewed lands are not being managed for the purposes for which they were acquired or in compliance with the adopted land management plan, management policy statement, or management prospectus, DEP shall provide the review findings to the Board, and the managing agency must report to the Board its reasons for managing the lands as it has. A report of the review findings are given to the managing agency under review, the Acquisition and Restoration Council, and to the Division of State Lands. Also, DEP shall report the annual review findings of its land management review teams to the Board no later than the second board meeting in October of each year.

Review Site

The management review of Jennings State Forest considered approximately 20,623 acres in Clay County that are managed by the Division of Forestry (DOF). The team evaluated the extent to which current management actions are sufficient, whether the land is being managed for the purpose for which it was acquired, and whether actual management practices, including public access, are in compliance with the management plan. The DOF revised the management plan on February 7, 2002, and the management plan update is due on February 7, 2007.

Review Team Determination

Is the land being managed for the purpose for which it was acquired?

After completing the checklist, team members were asked to answer “yes” or “no” to this question. All team members agreed that the Jennings SF is being managed for the purpose for which it was acquired.

Are actual management practices, including public access, in compliance with the management plan?

After completing the checklist, team members were asked to answer “yes” or “no” to this question. All team members agreed that actual management practices, including public access, were in compliance with the management plan for this site.

Commendations to the Managing Agency

1. The Team commends the manager and staff for their outstanding efforts to provide structured public access, for their efforts to stabilize the roads and parking areas, and for their success with obtaining a

strong law enforcement presence, including coordination with local law enforcement and with the Florida Fish and Wildlife Conservation Commission. (7+, 0-)

2. The team commends the manager and staff for their aggressive, well planned burn program. (7+,0-)

Exceptional Management Actions

The following items received high scores on the review team checklist (see attachment 1), which indicates that management actions exceeded expectations

Exceptional management actions:

- Management and protection the bottom land forest, basin swamp, seepage slope, dome swamp, sandhill upland lake, sandhill, scrubby flatwoods, slope forest, mesic flatwoods, xeric flatwoods, and seepage slope communities.
- Protection and preservation of listed plants and animals.
- Protection, survey and preservation of cultural sites.
- Excellent prescribed fire program including burning of large areas, appropriate frequency and high quality burns.
- Restoration of the sandhill/sand pine community.
- Excellent wildlife habitat and hunting/fishing quality.
- Excellent control of non-native plants .
- Excellent control of soil erosion.
- Exceptional roads, parking, access to water, and boundary surveys.
- Excellent ground water quality testing program.
- Exceptional law enforcement presence.
- Excellent parking, roads and recreational opportunities.
- Exceptional environmental education/outreach and interpretive programs.
- Exceptional silviculture program.

Recommendations and Checklist Findings

The management plan must include responses to the recommendations and checklist items that are identified below.

Recommendations

The following recommendations resulted from a discussion and vote of review team members.

1. The team recommends that DOF consider trapping hogs if the hog population becomes a resource management issue. (VOTE: 7+, 0 -)

Manager's Response: Nearby development and other land use changes are having an impact on the regional feral hog population. Hogs will be harvested during supervised small game hunting seasons. Both signs of the hog population level and resource damage from hogs will be monitored. If the resource damage caused by feral hogs becomes unacceptable, other control strategies will be examined.

2. The team recommends that within the designated public fuel wood areas, that laurel and live oak trees be allowed to be harvested. (VOTE: 7+, 0-)

Manager's Response: DOF agrees with this recommendation.

3. The team recommends that the DOF make it a high priority to construct a shop, equipment, and office facility at Jennings State Forest. (VOTE: 7+, 0 -)

Manager's Response: DOF agrees with the recommendation and will continue to pursue funding and construction of this important facility. .

4. The team recommends that the use of Velpar be used as judiciously as possible, minimizing impacts of this treatment to the diversity of the woody groundcover species. (VOTE: 7+, 0 -)

Manager's Response: Velpar has been a very useful tool on Jennings State Forest, as part of an integrated approach to reintroduce a suitable fire regime onto sandhills. Several application methods and a range of application rates have been tried in an adaptive management strategy. Presence/absence data of woody forbs is one of the variables monitored.

Checklist findings

The following items received low scores on the review team checklist (see Attachment 1), which indicates that management actions, in the field, were insufficient (f) or that the issue was not sufficiently addressed in the management plan (p). These items need to be further addressed in the management plan update.

1. Discussion in the management plan of the need to control invasive animals (hogs) (p,f).

Manager's Response: See recommendation 1.

2. Discussion in the management plan of including the adjacent junk yard in the optimal boundary so that if mitigation money becomes available it could be purchased and cleaned up.(f)

Manager's Response: The junk-yard will be closely monitored by DOF staff and appropriate action will be taken if a problem is identified. Should the junk-yard be offered for sale, DOF will respond accordingly at that time.

3. Discussion in the management plan of the need for a new shop/office facility (f).

Manager's Response: See recommendation 3.

Team Member's Comments

Natural Communities: protection and maintenance: (I.A)

- Management plan needs correction to cover Loblolly pine harvesting in Baygall community.
- Strive to develop forest conditions desirable to RCWS.
- Baygall needs more burning.

Listed Species: protection and preservation: (I.B)

- Management plan should address management needs and actions on major listed species in greater detail.
- Needs more animal surveys and monitoring.
- Striped Newt population is in excellent condition.

Cultural Resources: (II.A; II.B)

- Good handle on archeological sites and protection needs.

Prescribed Fire (Natural Community Maintenance): (III.A)

- Good progress in establishing regular frequency of burning in the sandhills. Continued effort is needed in the flatwoods.
- Considering the recent draught, the number of acres burned is good. Still need to move more to growing season and keep-up for FY02-03 frequency.
- More area needs to be burned even if it means getting outside help.
- Areas burned past 2003 indicate great planning and even better implementation.

Restoration of Disturbed Natural Communities: (III.B)

- Good effort to remove sand pine and reestablish longleaf pine. Commend adaptive approach to hold off replanting longleaf pine until sand pine seedlings can be controlled.
- Ditches on outside property is a concern, but no action can be made due to private ownership. Need to partner with the landowners to address issues to minimize problems.
- The road work at the forest has been well thought out and exceptional. The effort to stabilize roads used for public access will have many benefits for run-off areas.

Non-native Invasive and Problem Species: (III.D)

- Good monitoring. Staff has identified future or potential areas of concern.
- New issues regarding exotic animals due to revision of hunting season need to be addressed.
- Need language to address feral hogs, dogs and cats.
- Check bottom and forest for privet and climbing fern.
- Need to develop/implement control strategies in order to protect seepage slope communities.
- More information in plan is needed addressing exotics and size of populations by species.

Hydrologic/Geologic Function: (III.E)

- Need to monitor better with providing numbers for ground water.

- Surface water monitoring needs to be improved and addressed in plan.
- Junkyard and soil effects need to be reported. (Quality concern!)
- Great job stopping soil erosion in North Fork Recreation Area.
- Excellent work to control erosion at roads proximate to stream. Stabilization of sloped roads and at low water areas with slag material shows good results.
- Management plan should address and needs or current monitoring of Black Creek system.

Resource Protection: (III.F)

- More funds are needed to maintain gates and fencing due to urban interface issues.
- Considering the amount of visitors, law enforcement officer has been a great asset.

Adjacent Property Concerns: (III.G)

- Acquire adjacent underdeveloped properties identified in optimum boundary.
- Continued expanding development is a problem.
- Look into Oakleaf plantation wet area for conservation.

Public Access and Education: (IV.1.C; IV.2; IV.3)

- Excellent road upkeep.
- Need Park Ranger to do recreation, education and outreach.

Management Resources: (V.2; V.3; V.4)

- A pole barn should be a priority to protect expensive equipment.
- Increase funding for recreation staff.

Exceptional Management Actions:

- This forest should be applauded for their efforts.
- Increased law enforcement presence has made a tremendous difference in dumping and trespassing.
- Exceptional job on road system.
- Great efforts to provide structured public access, improve road construction and reduce run-off and erosion damage.
- Excellent efforts with public outreach concerning timber management activities and fire management.

Areas of Insufficient Management:

- Forest needs shop to store equipment.
- Park ranger needs to focus on recreation.
- More fire is needed in Baygall areas.
- Need wildlife management plan.
- Need proper facilities to protect large, expensive equipment.

Recommendations for Improving Management of this Site:

- Herbicide in Sandhills has been very effective, perhaps too effective, in controlling turkey oaks and groundcover diversity. Suggest caution in extending these treatments in areas of sandhill where groundcover quality is high. Collect pretreatment and post-treatment data on vegetation response and effect on groundcover response. Follow-up 2-3 years to observe long-term effects.
- Need shop and more office facilities.
- Do not allow drive-up horse camping facility- conflict of interest. (DOF is catering to horse back community only, not other interest groups.
- Need park ranger for recreation.
- Youth campsite and horse camp are too close, only one is needed.
- Equestrian facility will damage the state lands. Land was required for protection, not to allow open horseback recreation.
- Need bridges to bisect creek for access!

Interpretive facilities and signs	IV.3	1	1	1	1	1	1	1	1.00
Environmental education/outreach	IV.4	1	1	1	1	1	1	1	1.00
Fishing	VI.A.1	1	1	1	1	1	1	1	1.00
Swimming	VI.A.2	1	1	1	1	1	1	1	1.00
Off Road Biking	VI.A.3	1	1	1	1	1	1	1	1.00
Primitive Camping	VI.A.4	1	1	1	1	1	1	1	1.00
Hiking	VI.A.5	1	1	1	1	1	1	1	1.00
Fishing	VI.A.6	1	1	1	1	1	1	1	1.00
Hunting	VI.A.7	1	1	1	1	1	1	1	1.00
Horseback Riding	VI.A.8	1	1	1	1	1	1	1	1.00
Canoeing	VI.A.9	1	1	1	1	1	1	1	1.00
Primitive Driveup Horse Camping	VI.B.1	1	1	1	1	1	1	1	1.00

FIELD REVIEW		1	2	3	4	5	6	7	Average
Baygall	I.A.1	3	2	2	4	4	4		3.17
Bottomland Forest	I.A.2	4	3	3	5	4	3		3.67
Wet Flatwoods	I.A.3	3	2	3	4	4	3		3.17
Basin Swamp	I.A.4	3	3	4	5	4	4		3.83
Seepage Slope	I.A.5	3	4	4	5	4	4		4.00
Dome Swamp	I.A.6	3		4	4	4	4		3.80
Sandhill Upland Lake	I.A.7	3		4	5	4	5		4.20
Sandhill	I.A.8	4	3	3	5	4	3		3.67
Scrubby Flatwoods	I.A.9	3	3	4	4	4	4		3.67
Slope Forest	I.A.10	3	4	4	5	4	4		4.00
Mesic Flatwoods	I.A.11	4	4	3	5	4	4		4.00
Xeric Flatwoods	I.A.12	3	4	4	4	4	4		3.83
Seepage Slope	I.A.13	3	4	4		4	4		3.80
Animals	I.B.1	3	4	3	5	3	4		3.67
Plants	I.B.2	4	4	4	5	3	4		4.00
Survey	II.A	3	4	4	4	4	3	5	3.86
Protection and Preservation	II.B	4	4	4	4	4	3	5	4.00
Area Being Burned	III.A.1	4	4	3	5	4	3	5	4.00
Frequency	III.A.2	4	4	2	4	3	3	5	3.57
Quality	III.A.3	4	3	3	5	3	3	5	3.71
Sandhill/Sandpine	III.B.1	4	4	3	4	3	4	5	3.86
Wildlife Habitat	III.C.1	4	4	3	4	3	4	4	3.71
Hunting/Fishing Quality	III.C.2	3	4	3	4	3	4	4	3.57
Animals	III.D.1	2	2	3	2	3	2	3	2.43
Plants	III.D.2	4	3	4	5	3	3	4	3.71
Roads/Culverts	III.E.1a	4	4	4	4	4	4	5	4.14
Soil erosion	III.E.1b	4	4	4	4	4	5	5	4.29
Ditches	III.E.1c		2		4				3.00
Ground water quality	III.E.2a	3	4	4	3	2	3		3.17
Ground water quantity	III.E.2b	3	4	4	3				3.50

Surface water quality	III.E.3a	3		4	3	3				3.25
Surface water quantity	III.E.3b	3		4	3	3				3.25
Boundary survey	III.F.1	3	4	4	4	3	4	4		3.71
Gates & fencing	III.F.2	4	4	3	3	3	2	4		3.29
Signage	III.F.3	4	4	4	4	3	4	5		4.00
Law enforcement presence	III.F.4	4	5	5		4	4	5		4.50
Expanding Development	III.G.1a	3	3	4	2	3	2			2.83
Junk Yard	III.G.1b	3	2	2	2	3	2			2.33
Inholdings/additions	III.G.2	3	3	4	2					3.00
Silviculture	III.H.1	4	4	4	4	3	4	4		3.86
Roads	IV.1a	4	5	4	5	4	5	5		4.57
Parking	IV.1b	4	5	4	4	4	4	4		4.14
Water Access	IV.1c	4	5	3	4	4	3	4		3.86
Recreational opportunities	IV.2	4	5	4	5	4	4	5		4.43
Interpretive facilities and signs	IV.3	4	5	4	4	4	3	5		4.14
Environmental education/outreach	IV.4	4	4	5	3	3		5		4.00
Waste Disposal	V.1.a	3		3		3	3	4		3.20
Sanitary Facilities	V.1.b	3		3	4		3	4		3.40
Buildings	V.2.a	2	2	2	2	2	1	2		1.86
Equipment	V.2.b	3		3	3	2	3	4		3.00
Staff	V.3	2		3	3	2	3	4		2.83
Funding	V.4			3	2		3			2.67

EXHIBIT D

COMPLIANCE WITH THE LOCAL COMPREHENSIVE PLAN



Florida Department of Agriculture and Consumer Services
CHARLES H. BRONSON, Commissioner
The Capitol • Tallahassee, FL 32399-0800
www.doacs.state.fl.us

August 29, 2007

Ms. Ann Stodola,
Senior Planner
Clay County Planning and Zoning Department
P.O. Box 367
Green Cove Springs, Florida 32043

Please Respond to:

Division of Forestry
Forest Management Bureau
3125 Conner Blvd. C-25
Tallahassee, FL 32399-1650
Telephone: (850) 488-6611
Fax: (850) 921-6724

Dear Ms. Stodola:

Enclosed is a copy the Florida Division of Forestry's draft Ten-Year Resource Management Plan for Jennings State Forest (Clay and Duval Counties). The plan has been approved by Division of Forestry Director, Mike Long and should be going before the Acquisition and Restoration Council (ARC) during their October 10, 2007 meeting. Please review the plan at your earliest convenience and reply to me at the above address as to whether the plan complies with Clay County's local comprehensive plan. You can call me at 850/488-1495 if you have any questions. Thank you for your attention to this matter.

Sincerely,

CHARLES H. BRONSON
COMMISSIONER OF AGRICULTURE

Katherine Lewis
State Lands Planning Coordinator

enclosure

cc: Bruce Hill
Todd Knapp
Frank Burley
Heather Venter





Florida Department of Agriculture and Consumer Services
 CHARLES H. BRONSON, Commissioner
 The Capitol • Tallahassee, FL 32399-0800
 www.doacs.state.fl.us

Please Respond to:

August 29, 2007

Division of Forestry
 Forest Management Bureau
 3125 Conner Blvd. C-25
 Tallahassee, FL 32399-1650
 Telephone: (850) 488-6611
 Fax: (850) 921-6724

Ms. Margo Moehring
 Chief, Division of Strategic Planning
 City of Jacksonville
 128 East Forsyth Street, Suite 500
 Jacksonville, Florida 32202

Dear Ms. Moehring:

Enclosed is a copy of the Florida Division of Forestry's draft Ten-Year Resource Management Plan for Jennings State Forest (Clay and Duval Counties). The plan has been approved by the Division of Forestry Director, Mike Long and should be going before the Acquisition and Restoration Council (ARC) during their October 10, 2007 meeting. Please review the plan at your earliest convenience and reply to me at the above address as to whether the plan complies with Duval County's local comprehensive plan. You can call me at 850/488-1495 if you have any questions. Thank you for your attention to this matter.

Sincerely,

CHARLES H. BRONSON
COMMISSIONER OF AGRICULTURE

Katherine Lewis

Katherine Lewis
 State Lands Planning Coordinator

enclosure

cc: Bruce Hill
 Todd Knapp
 Frank Burley
 Heather Venter



Florida Agriculture and Forest Products
 \$97 Billion for Florida's Economy

EXHIBIT E

SOIL MAPS & LEGEND



Jennings State Forest Soils Map



0 1 Miles

GENERAL DISCLAIMER
This map is a general representation of the soil conditions in the Jennings State Forest. It is not intended to be used for any purpose other than general information. The Florida Department of Natural Resources is not responsible for any errors or omissions in this map. The user assumes all liability for any use of this map.

Jennings State Forest Soil Map Legend


	Albany
	Allanton
	Allanton and Rutlege
	Blanton
	Boulogne
	Centenary
	Evergreen
	Goldhead
	Hurricane
	Leon
	Lynn Haven
	Mandarin
	Mandrin
	Mascotte
	Maurepas
	Meadowbrook
	Meggett
	Newnan
	Ocilla loamy
	Ortega
	Osier
	Ousley
	Pamilco Muck
	Pelham
	Penney
	Plummer
	Pottsburg
	Quartzipsamments
	Ridgeland
	Ridgewood
	Rutlege-Osier complex
	Sapelo
	Sapelo-Meadowbrook
	Surrency
	Troup sand
	Wesconnett
	water

EXHIBIT F

MANAGEMENT PROCEDURES FOR ARCHAEOLOGICAL AND HISTORICAL SITES AND PROPERTIES ON STATE-OWNED OR CONTROLLED LANDS

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled
Properties

(revised February 2007)

These procedures apply to state agencies, local governments, and non-profits that manage state-owned properties.

A. General Discussion

Historic resources are both archaeological sites and historic structures. Per Chapter 267, Florida Statutes, *‘Historic property’ or ‘historic resource’ means any prehistoric district, site, building, object, or other real or personal property of historical, architectural, or archaeological value, and folklife resources. These properties or resources may include, but are not limited to, monuments, memorials, Indian habitations, ceremonial sites, abandoned settlements, sunken or abandoned ships, engineering works, treasure trove, artifacts, or other objects with intrinsic historical or archaeological value, or any part thereof, relating to the history, government, and culture of the state.’*

B. Agency Responsibilities

Per State Policy relative to historic properties, state agencies of the executive branch must allow the Division of Historical Resources (Division) the opportunity to comment on any undertakings, whether these undertakings directly involve the state agency, i.e., land management responsibilities, or the state agency has indirect jurisdiction, i.e. permitting authority, grants, etc. No state funds should be expended on the undertaking until the Division has the opportunity to review and comment on the project, permit, grant, etc.

State agencies shall preserve the historic resources which are owned or controlled by the agency.

Regarding proposed demolition or substantial alterations of historic properties, consultation with the Division must occur, and alternatives to demolition must be considered.

State agencies must consult with Division to establish a program to location, inventory and evaluate all historic properties under ownership or controlled by the agency.

C. Statutory Authority

Statutory Authority and more in depth information can be found in the following:

Chapter 253, F.S. – State Lands

Chapter 267, F.S. – Historical Resources

Chapter 872, F.S. – Offenses Concerning Dead Bodies and Graves

Other helpful citations and references:

Chapter 1A-32, F.A.C. – Archaeological Research

Chapter 1A-44, F.A.C. – Procedures for Reporting and Determining Jurisdiction Over Unmarked Human Burials

Chapter 1A-46, F.A.C. – Archaeological and Historical Report Standards and Guidelines

The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings

D. Management Implementation

Even though the Division sits on the Acquisition and Restoration Council and approves land management plans, these plans are conceptual. Specific information regarding individual projects must be submitted to the Division for review and recommendations.

Managers of state lands must coordinate any land clearing or ground disturbing activities with the Division to allow for review and comment on the proposed project. Recommendations may include, but are not limited to: approval of the project as submitted, pre-testing of the project site by a certified archaeological monitor, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effects.

Projects such as additions, exterior alteration, or related new construction regarding historic structures must also be submitted to the Division of Historical Resources for review and comment by the Division's architects. Projects involving structures fifty years of age or older, must be submitted to this agency for a significance determination. In rare cases, structures under fifty years of age may be deemed historically significant. These must be evaluated on a case by case basis.

Adverse impacts to significant sites, either archaeological sites or historic buildings, must be avoided. Furthermore, managers of state property should make preparations for locating and evaluating historic resources, both archaeological sites and historic structures.

E. Minimum Review Documentation Requirements

In order to have a proposed project reviewed by the Division, the following information, at a minimum, must be submitted for comments and recommendations.

Project Description – A detailed description of the proposed project including all related activities. For land clearing or ground disturbing activities, the depth and extent of the disturbance, use of heavy equipment, location of lay down yard, etc. For historic structures, specific details regarding rehabilitation, demolition, etc.

Project Location – The exact location of the project indicated on a USGS Quadrangle map, is preferable. A management base map may be acceptable. Aerial photos indicating the exact project area as supplemental information are helpful.

Photographs – Photographs of the project area are always useful. Photographs of structures are required.

Description of Project Area – Note the acreage of the project, describe the present condition of project area, and any past land uses or disturbances.

Description of Structures – Describe the condition and setting of each building within project area if approximately fifty years of age or older.

Recorded Archaeological Sites or Historic Structures – Provide Florida Master Site File numbers for all recorded historic resources within or adjacent to the project area. This information should be in the current management plan; however, it can be obtained by contacting the Florida Master Site File at (850) 245-6440 or Suncom 205-6440.

* * *

Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

Susan M. Harp
Historic Preservation Planner
Division of Historical Resources
Bureau of Historic Preservation
Compliance and Review Section
R. A. Gray Building
500 South Bronough Street
Tallahassee, FL 32399-0250

Phone: (850) 245-6333
Suncom: 205-6333
Fax: (850) 245-6438

EXHIBIT G

WILDLIFE SPECIES

List of Wildlife Species found on Jennings State Forest
Compiled by:
Dave Edwards Jr.
And
Allan Hallman
Wildlife Biologist
Florida Fish & Wildlife Conservation Commission

Legend: * = federally listed; **Bold** = state listed species; SSC = species of special concern; T = threatened; E = endangered

Mammals:

Virginia opossum *Didelphis virginiana*
 Nine-banded armadillo *Dasyops novemcintus*

Moles & Shrews:

Southern short-tailed shrew *Blarina carolinensis*
 Least shrew *Cryptotis parva*
 Eastern mole *Scalopus aquaticus*

Bats:

Eastern pipistrelle *Pipistrellus subflavus*
 Seminole bat *Lasiurus seminolus*
 Yellow bat *Lasiurus intermedius*
 Evening bat *Nycticeius humeralis*
 Brazilian free-tailed bat *Tadarida brasiliensis*

Rabbits:

Eastern cottontail *Sylvilagus floridanus*
 Marsh rabbit *Sylvilagus palustris*

Rodents:

Gray squirrel *Sciurus carolinensis*
Sherman Fox squirrel^{SSC} *Sciurus niger shermani*
 Southern flying squirrel *Glaucomys volans*
 Southeastern pocket gopher *Geomys pinetis*
 Cotton rat *Sigmodon hispidus*
 Eastern harvest mouse *Reithrodontomys humulus*
 Oldfield mouse *Peromyscus polionotus*
 Cotton mouse *Peromyscus gossypinus*
 Golden mouse *Ochrotomys nuttalli*
 Pine vole *Microtus pinetorum*
 House mouse *Mus musculus*
 Roof rat *Rattus rattus*
 Norway rat *Rattus norvegicus*

Carnivores:

Florida Black bear^T *Ursus americanus*
 Raccoon *Procyon lotor*
 Striped skunk *Mephitis mephitis*
 River otter *Lutra canadensis*
 Gray fox *Urocyon cinereoargenteus*
 Red fox *Vulpes vulpes*
 Coyote *Canis latrans*
 Bobcat *Felis rufus*

Hooved Mammals:

Wild hog *Sus scrofa*
 White-tailed deer *Odocoileus virginianus*

Birds:

White-breasted nuthatch *Sitta carolinensis*
 Brown-headed nuthatch *Sitta pusilla*
 Carolina wren *Thryothorus ludovicianus*
 House wren *Troglodytes aedon*
 Blue-gray gnatcatcher *Poliopitila caerulea*
 Eastern bluebird *Sialia sialis*
 Wood thrush *Catharus mustelinus*
 American robin *Turdus migratorius*
 Anhinga *Anhinga anhinga*
 Gray catbird *Dumetella carolinensis*
 Northern mockingbird *Mimus polyglottos*
 Brown thrasher *Toxostoma rufum*
 European starling *Sturnus vulgaris*
 Cedar waxwing *Bombycilla cedrorum*
 Bachman's warbler *Vermivora bachmani*
 Northern parula *Parula americana*

Yellow-rumped warbler *Dendroica coronata*
 Yellow-throated warbler *Dendroica dominica*
 Pine warbler *Dendroica pinus*
 Prairie warbler *Dendroica discolor*
 Swainson's warbler *Limothlypis swainsonii*
 Common yellowthroat *Geothlypis trichas*
 Hooded warbler *Wilsonia citrina*
 Summer tanager *Piranga rubra*
 Eastern towhee *Pipilo erythrophthalmus*
 Chipping sparrow *Spizella passerina*
 Song sparrow *Melospiza melodia*
 Bachman's sparrow *Aimophila aestivalis*
 Field sparrow *Spizella pusilla*
 Northern cardinal *Cardinalis cardinalis*
 Red-winged blackbird *Agelaius phoeniceus*
 Eastern meadowlark *Sturnella magna*
 Common grackle *Quiscalus quiscula*
 Boat-tailed grackle *Quiscalus major*
 Brown-headed cowbird *Molothrus ater*
 American goldfinch *Carduelis tristis*
 Pine siskin *Carduelis pinus*
 House sparrow *Passer domesticus*
 Dark-eyed junco *Junco hyemalis*
 Chimney swift *Chaetura pelagica*
 Ruby-throated hummingbird *Archilochus colubris*
 Rufous hummingbird* *Selasphorus rufus*
 Great blue heron *Ardea herodias*
 Great egret *Ardea alba*
 Snowy egret^{SSC} *Egretta thula*
 Little blue heron^{SSC} *Egretta caerulea*
 Cattle egret *Bubulcus ibis*
White ibis^{SSC} *Eudocimus albus*
 Glossy ibis *Plegadis falcinellus*
 Wood stork^E *Mycteria Americana*
 Black vulture *Coragyps atratus*
 Turkey vulture *Cathartes aura*
 Wood duck *Aix sponsa*
 Osprey *Pandion haliaetus*
 Swallow-tailed kite *Elanoides forficatus*
 Bald eagle *Haliaeetus leucocephalus*
 Cooper's hawk *Accipiter cooperii*
 Red-shouldered hawk *Buteo lineatus*
 Red-tailed hawk *Buteo jamaicensis*
Southeastern American kestral^T *Falco sparverius paulus*
 Wild turkey *Meleagris gallopavo*
 Northern bobwhite *Colinus virginianus*
 Common moorhen *Gallinula chloropus*
Sandhill crane^T *Grus canadensis*
 Killdeer *Charadrius vociferus*
 Common snipe *Gallinago gallinago*
 American woodcock *Scolopax minor*
 Rock dove *Columba livia*
 Mourning dove *Zenaidura macroura*
 Common ground-dove *Columbina passerina*
 Eastern screech-owl *Otus asio*
 Great horned owl *Bubo virginianus*
 Barred owl *Strix varia*
 Common nighthawk *Chordeiles minor*
 Chuck-will's-widow *Caprimulgus carolinensis*
 Belted Kingfisher *Ceryle alcyon*
 Northern flicker *Colaptes auratus*
 Red-headed woodpecker *Melanerpes erythrocephalus*
 Red-bellied woodpecker *Melanerpes carolinus*
 Yellow-bellied sapsucker *Sphyrapicus varius*
 Downy woodpecker *Picoides pubescens*
 Hairy woodpecker *Picoides villosus*
 Pileated woodpecker *Dryocopus pileatus*
 Eastern wood-pewee *Contopus virens*
 Acadian flycatcher *Empidonax virens*
 Eastern phoebe *Sayornis phoebe*
 Great crested flycatcher *Myiarchus crinitus*
 Eastern kingbird *Tyrannus tyrannus*
 Loggerhead shrike *Lanius ludovicianus*

White-eyed vireo
Red-eyed vireo
Blue jay
American crow
Fish crow
Carolina chickadee
Tufted titmouse

Vireo griseus
Vireo olivaceus
Cyanocitta cristata
Corvus brachyrhynchos
Corvus ossifragus
Poecile carolinensis
Baeolophus bicolor

Eastern glass lizard
Worm Lizard
Green anole
Southern fence lizard
Mole skink
Five-lined skink
Southern five-lined skink
Broadhead skink
Ground skink
Six-lined race runner

Ophisaurus ventralis
Rhineura floridana
Anolis carolinensis
Eumeces anthracinus pluvialis
E. egregius
E. fasciatus
E. inexpectatus
E. laticeps
Scincella lateralis
Cnemidophorus sexlineatus

Reptiles/Amphibians:

Frogs & Toads:

Oak toad
Southern toad
Southern cricket frog
Green treefrog
Spring peeper
Pinewoods treefrog
Squirrel treefrog
Little grass frog
Southern chorus frog
Ornate chorus frog
Eastern narrowmouth toad
Eastern spadefoot toad
Gopher frog^{SSC}
Florida gopher frog
Bullfrog
Pig frog
Southern leopard frog

Bufo quercus
Bufo terrestris
Acris gryllus
Hyla cinera
H. crucifer
H. femoralis
H. squirella
Limnaeodius ocularis
Pseudacris nigrita
Pseudacris ornata
Gastrophys carolinensis
Scaphiopus holbrooki
Rana areolata
R. a. aesopus
R. catesbeiana
R. grylio
R. virgatipes

Salamanders:

Mole salamander
Two-toed amphiuma
Southern dusky salamander
Southern two-lined salamander
Dwarf salamander
Slimy salamander
Mud salamander
Southern red salamander
Eastern newt
Striped newt
Dwarf siren
Narrow-striped swarf siren
Broad striped dwarf siren
Eastern lesser siren
Greater siren

Ambystoma talpoideum
Amphiumas means
Desmognathus auriculatus
Eurycea cirrigera
Eurycea quadridigitata
Plethodon glutinosus
Pseudotriton montanus
Pseudotriton ruber vioscai
Notophthalmus viridescens
Notophthalmus persriatus
Pseudobranchius striatus
Pseudobranchius axanthus
P. striatus striatus
Sirens intermedia intermedia
Sirens lacertina

Alligators:

American alligator^{SSC*}

Alligator mississippiensis

Turtles:

Common snapping turtle
Florida snapping turtle
Chicken turtle
River cooter
Florida cooter
Florida red-bellied turtle
Box turtle
Florida box turtle
Slider
Yellow-bellied turtle
Mud turtle
Florida mud turtle
Eastern mud turtle
Loggerhead musk turtle
Stinkpot
Gopher tortoise^T
Florida softshell turtle

Chelydra serpentina
Chelydra serpentina osceola
Deirochelys reticularia
Pseudemys concinna
P. floridana
P. nelsoni
Terrapene carolina
T. c. bauri
Trachemys scripta
T. s. scripta
Kinosternon subrubrum
K. s. steindachneri
K. s. subrubrum
Sternotherus minor
S. odoratus
Gopherus polyphemus
Apalone ferox

Lizards:

Eastern slender glass lizard

Ophisaurus attenuatis longicaudus

Non-poisonous snakes:

Scarlet snake
Florida scarlet snake
Racer
Southern black racer
Ringneck snake
Southern ringneck snake
Corn snake
Rat snake
Yellow rat snake
Gray rat snake
Eastern mud snake
Southern hognose snake
King snake
Scarlet kingsnake
Eastern coachwhip
Banded water snake
Florida banded water snake
Florida green water snake
Brown water snake
Rough green snake
Pine woods snake
North Florida swamp snake
Brown snake
Florida brown snake
Florida redbelly snake
Florida crowned snake
Ribbon snake
Garter snake
Eastern garter snake
Pine snake
Eastern indigo snake^T

Cemophora coccinea
C. coccinea coccinea
Coluber constrictor
C. c. priapus
Diadophis punctatus
D. p. punctatus
Elaphe guttata guttata
Elaphe obsoleta
E. o. quadrivittata
E. o. spiloides
Farancia abacura abacura
H. simus
Lampropeltis getulus
L. triangulum elapsoides
Masticophis flagellum flagellum
Nerodia fasciata
N. f. fasciata
N. f. floridiana
N. taxispilota
Opheodrys aestivus
Rhadinaea flavilata
S. p. pygaea
Storeria dekayi
S. d. victa
S. occipitamaculata obscura
Tantilla relicta
Thamnophis sauritus
T. sirtalis
T. s. sirtalis
Pituophis melanoleucus mugitus
Drymarchon corais couperi

Poisonous snakes:

Eastern coral snake
Cottonmouth
Florida cottonmouth
Eastern diamondback
Dusky pygmy rattlesnake

Micrurus fulvius fulvius
Agkistrodon piscivorus
A. p. conanti
Crotalus adamanteus
Sistrurus miliarius miliarius

Fish:

Florida gar
Chain pickerel
Flier
Redear sunfish
Spotted sunfish
Redbreast sunfish
Warmouth
Bluegill
Black crappie
Largemouth bass
Striped bass
American shad
Bowfin
Yellow bullhead
Brown bullhead

Lepisosteus platyrhincus
Esox niger
Centrarchus macropterus
Lepomis microlophus
L. punctatus
L. auritus
L. gulosus
L. macrochirus
Pomoxis nigromaculatus
Micropterus salmoides
Morone saxatilis
Alosa sapidissima
Amia calva
A. natalis
A. nebulosus

Channel catfish	<i>Ictalurus punctatus</i>
Golden shiner	<i>Notemigonus crysoleucas</i>
Mullet	<i>Mugil cephalus</i>
Black banded darter	<i>Percina nigrofasciata</i>
Swamp darter	<i>Etheostoma fusiforme</i>
Brook silverside	<i>Labidesthes sicculus</i>
Hogchoker	<i>Trinectes maculatus</i>
Mosquito Fish	<i>Gambusia affinis</i>
Golden topminnow	<i>Fundulus chrysotus</i>
Chubsucker	<i>(Erimyzon sp.)</i>

Invertebrates:

Butterflies

Eastern tiger swallowtail	<i>Papilio glaucus</i>
Eastern black swallowtail	<i>P. polyxenes asterius</i>
Pale swallowtail	<i>P. euryx edon</i>
Spicebush swallowtail	<i>Prerourus troilus</i>
Gulf fritillary	<i>Agraulis vanillae</i>
Cloudless sulphur	<i>Phoebis sennae</i>
Great purple hairstreak	<i>Atlides halesus</i>
Red-banded hairstreak	<i>Calycopis cecrops</i>
Zebra swallowtail	<i>Eurytides marcellus</i>
Common buckeye	<i>Junonia coenia</i>
Zebra long-wing	<i>Heliconius charitoni</i>
Monarch	<i>Danaus plexippus</i>
Red-spotted purple	<i>Limnitis arthemis astyanax</i>
Long-tailed skipper	<i>Urbanus proteus</i>
Whirlabout skipper	<i>Polites vibex</i>
Fiery skipper	<i>Hylephila phyleus</i>
Horace dusky wing	<i>Erynnis horatius</i>
American painted lady	<i>Vanessa virginiensis</i>

Moths

Carolina sphynx moth	<i>Manduca sexta</i>
Ornate tiger moth	<i>Apantesis ornata</i>
Bella (rattlebox) moth	<i>Utetheisa bella</i>
Sweatheart underwing moth	<i>Catocala amatrix</i>
Polyphemus moth	<i>Antheraea polyphemus</i>
Rosy maple moth	<i>Dryocampa rubicunda</i>
Luna moth	<i>Actias luna</i>
Acraea moth	<i>Estigmene acraea</i>
Polka dot moth	<i>Syntomeida epilais</i>
White-marked tussock moth	<i>Orgyia leucostigma</i>

Other Insects

Oriental cockroach	<i>Blatta orientalis linnoeus</i>
German cockroach	<i>Blatella germanica</i>
American cockroach	<i>Periplaneta americana</i>
Cricket	<i>Gryllus domesticus</i>
Earwing	<i>Forficula auricularia</i>
Flea	<i>Ctenocephalus canis</i>
Blow fly	<i>Lucilia sericata</i>
Stable fly	<i>Stomoxys calcitrans</i>
House fly	<i>Musca domestica</i>
Little house fly	<i>Fannia canicularis</i>
Crane fly	<i>Tipula spp.</i>
Firefly	<i>Photinus spp.</i>
Deer fly	<i>Chrysops spp.</i>

Millipede	<i>Parajulus venustur</i>
Mosquito	<i>Culex pipiens</i>
Scorpion	<i>Centruroids vittatus</i>
Sowbug (Pillbug)	<i>Porcellio scaber</i>
Walking stick	<i>Diapheromera femorata</i>
Praying mantis	<i>Mantis religiosa</i>
Two-stripped walking stick	<i>Anisomorpha buprestoides</i>
Lubber grasshopper	<i>Romalea microptera</i>
Eastern box-elder bug	<i>Leptocoris trivittatus</i>
Eastern milkweed bug	<i>Lygaeus kalmii</i>
Nine-spotted lady bug	<i>Coccinella novemnotata</i>
Two-spotted lady bug	<i>Adalia bipunctata</i>
Burying beetle	<i>Nicrophorus spp.</i>
Palmetto tortoise shell beetle	<i>Hemisphaerota cyanea</i>
Rinoceros beetle	<i>Strategus antaeus</i>
Banded net-wing beetle	<i>Calopteron reticulatum</i>
Patent-leather beetle	<i>Odontotaenius disjunctus</i>
Eastern click-eyed beetle	<i>Alaus oculatus</i>
Green june beetle	<i>Triatoma nitida</i>
Giant water bug	<i>Lethocerus americanus</i>
Cow killer	<i>Dasymutilla occidentalis</i>
Fire ant	<i>Solenopsis geminata</i>
Eastern blood-sucking conenose	<i>Triatoma sanguisuga</i>
Florida leaf footed bug	<i>Acanthocephala femorata</i>
Cicada locust	<i>Magiccicada spp.</i>
Green lace wing	<i>Chrysopa spp.</i>
Antlion	<i>Myrmelean spp.</i>
Metallic wood borer	<i>Dicerca divaricata</i>
Dung beetle	<i>Phanaeus vindex</i>
Black & yellow mud dauber	<i>Sceliphron caementarium</i>
Mole cricket	<i>Gryllotalpa hexadactyla</i>
Large-horned scarab	<i>Phanaeus vindex</i>
Sliverfish	<i>Lepisma saccharina</i>
Long-horned beetle	<i>Plagionotus spp.</i>
Cuban cockroach	<i>Panclhora nivea</i>

Spiders

Rabid wolf spider	<i>Lycosa rabida</i>
Golden rod spider	<i>Misumena vatia</i>
Black widow spider	<i>Latrodectus mactans</i>
Brown recluse spider	<i>Loxosceles reclusa</i>
Black-and-yellow argiope	<i>Argiope aurantia</i>
Brown daddy-long-legs	<i>Phalangium opilio</i>
Daring jumping spider	<i>Phidippus auda</i>

Dragonflies

Saye's spiketail	<i>Cordulagaster sayi</i>
Red saddlebag dragonfly	<i>Tramea onusta</i>
Blue darner	<i>Aeshna multicolor</i>
Green darner	<i>Anax junius</i>

Ticks

Eastern wood tick	<i>Dermacentor spp.</i>
Lone-star tick	<i>Amblyomma americanum</i>
Black legged tick	<i>Ixodes scapularis</i>

Crayfish

Black creek crayfish ^{ssc}	<i>Procambus pictus</i>
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EXHIBIT H

ENDANGERED OR THREATENED SPECIES (FNAI MANAGED AREA TRACKING RECORD)



FLORIDA NATURAL AREAS INVENTORY
1018 Thomasville Road, Suite 200-C
Tallahassee, FL 32303
(850) 224-8207, FAX (850) 681-9364



7/10/2006

Jennings State Forest

Page 1

Summary of occurrence records currently in the FNAI database

SCIENTIFIC NAME	COMMON NAME	FNAI GLOBAL RANK	FNAI STATE RANK	FEDERAL STATE STATUS	FEDERAL STATE STATUS	Number of FNAI recorded locations
<u>AMPHIBIANS</u>						
<i>Notophthalmus perstriatus</i>	Striped Newt	G2G3	S2S3	N	N	10
<u>REPTILES</u>						
<i>Gopherus polyphemus</i>	Gopher Tortoise	G3	S3	N	LS	1
<u>BIRDS</u>						
<i>Aimophila aestivalis</i>	Bachman's Sparrow	G3	S3	N	N	1
<u>PLANTS</u>						
<i>Baldwinia atropurpurea</i>	Purple Honeycomb-head	G2	S1	N	LE	3
<i>Calopogon multiflorus</i>	Many-flowered Grass-pink	G2G3	S2S3	N	LE	1
<i>Calydorea coelestina</i>	Bartram's Ixia	G2	S2	N	LE	6
<i>Cleistes divaricata</i>	Large Rosebud Orchid	G4	S1	N	LT	2
<i>Ctenium floridanum</i>	Florida toothache-grass	G2	S2	N	LE	18
<i>Drosera intermedia</i>	Spoon-leaved Sundew	G5	S3	N	LT	3
<i>Hartwrightia floridana</i>	Hartwrightia	G2	S2	N	LT	18
<i>Linum westii</i>	West's Flax	G2	S2	N	LE	3
<i>Orbexilum virgatum</i>	Pineland Scurfpea	G1	S1	N	PE	1
<i>Rudbeckia nitida</i>	St. John's Black-eyed-susan	G3	S2	N	LE	1
<i>Schoenolirion croceum</i>	Yellow sunnybell	G4	S2	N	PE	1
<i>Verbesina heterophylla</i>	Variable-leaf Crownbeard	G2	S2	N	N	23
<u>NATURAL COMMUNITIES</u>						
Baygall		G4	S4	N	N	2
Bottomland forest		G4	S3	N	N	1
Depression marsh		G4	S4	N	N	1
Mesic flatwoods		G4	S4	N	N	2
Sandhill		G3	S2	N	N	2
Seepage slope		G3	S2	N	N	2

Total count:

Number of tracked elements: 21

Number of distinct occurrences: 102

***** Pending Record:**

<i>Cordulegaster sayi</i>	Say's Spiketail	G2	S1S2	N	N	
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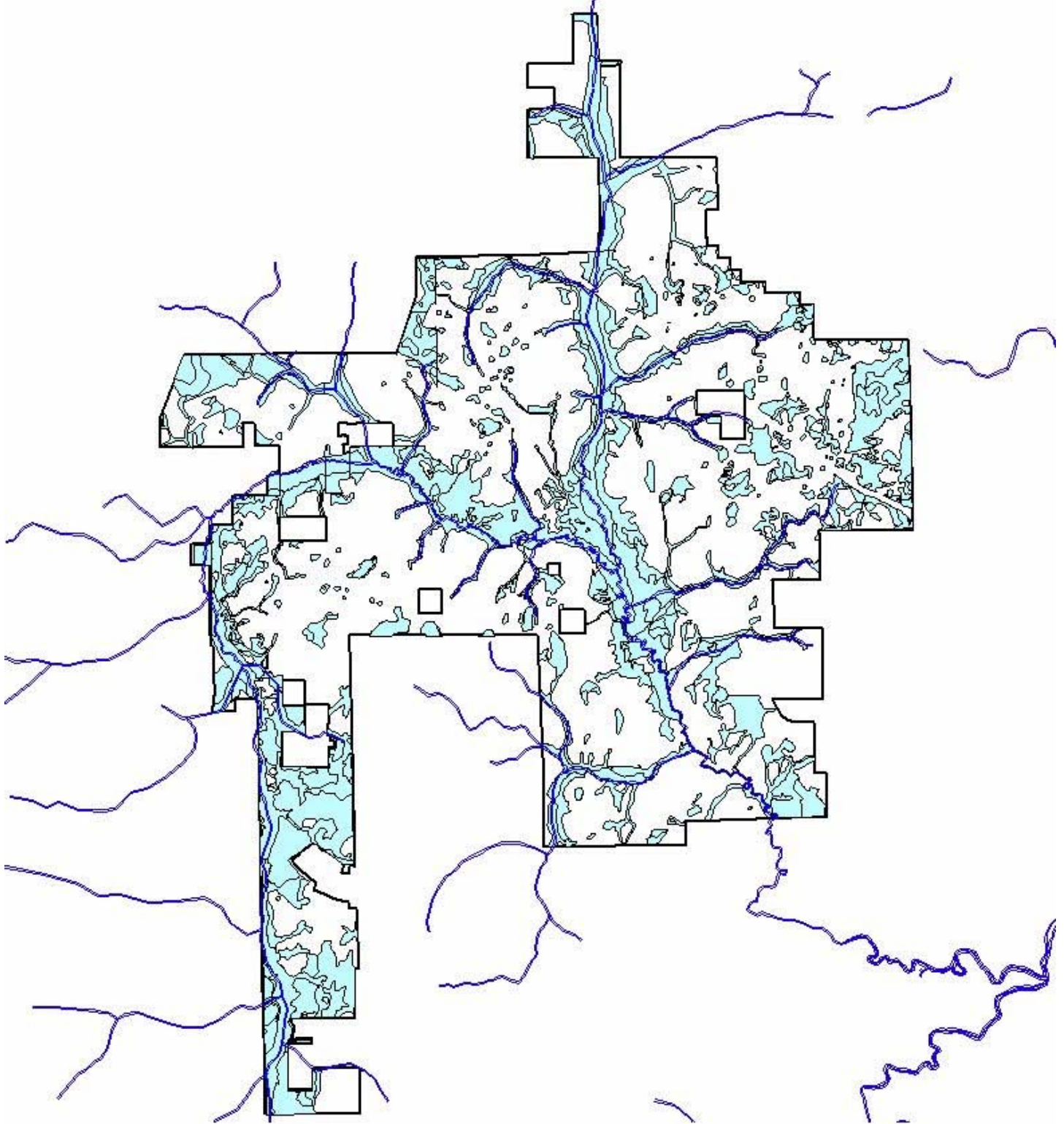
EXHIBIT I

PRELIMINARY JSF WETLANDS MAPS



JSF Wetlands Map

8,552 Wetland Acres
23,995 Total Forest Acres



0 2 Miles

-  St. Johns River Basin
-  Wetlands
-  JSF Boundaries

E. Smith
7/27/05

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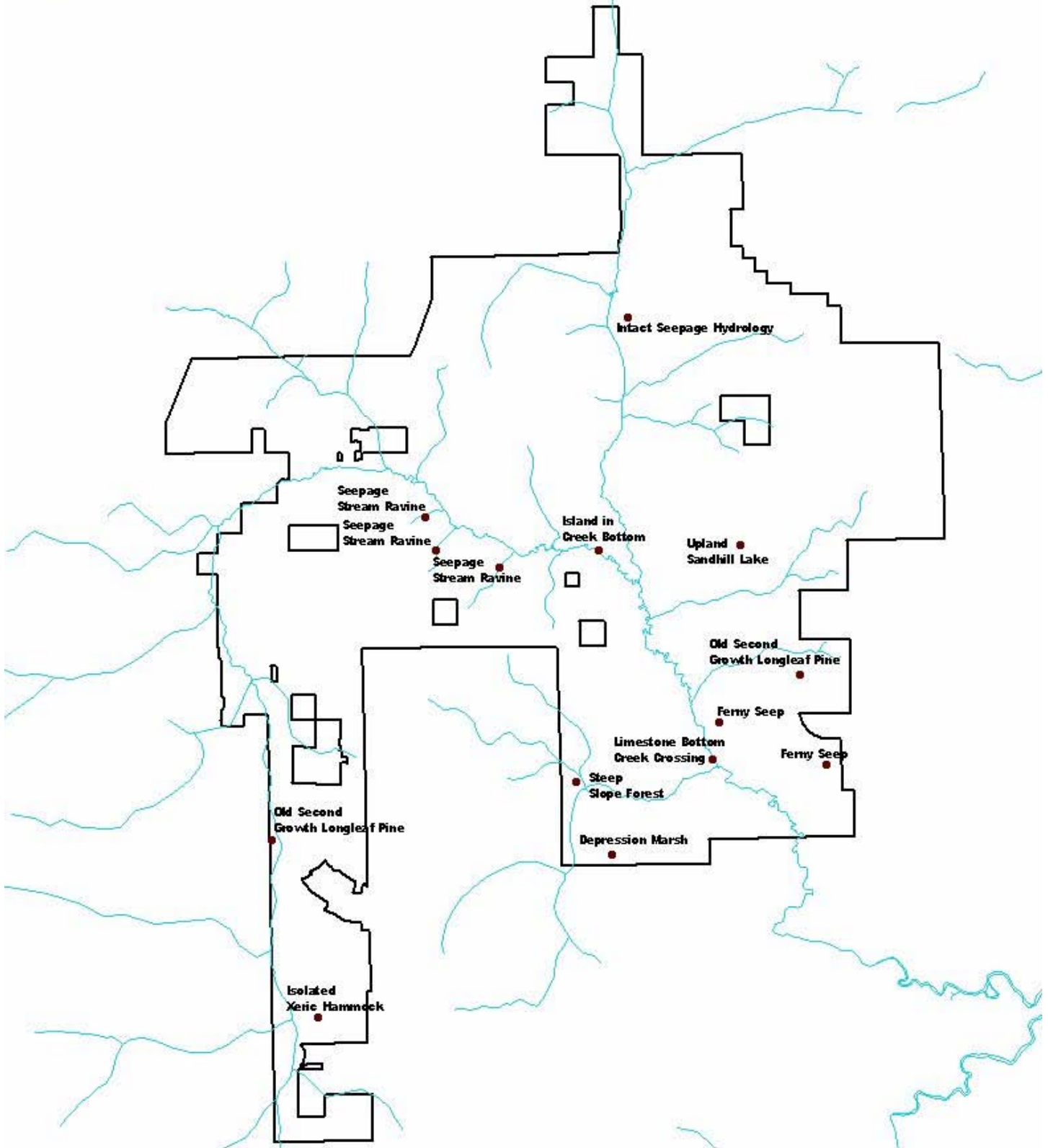
GENERAL DISCLAIMER
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EXHIBIT J

UNIQUE NATURAL FEATURES



Unique Natural Features on Jennings State Forest 23,995 Acres



E. Smith
7/24/2006

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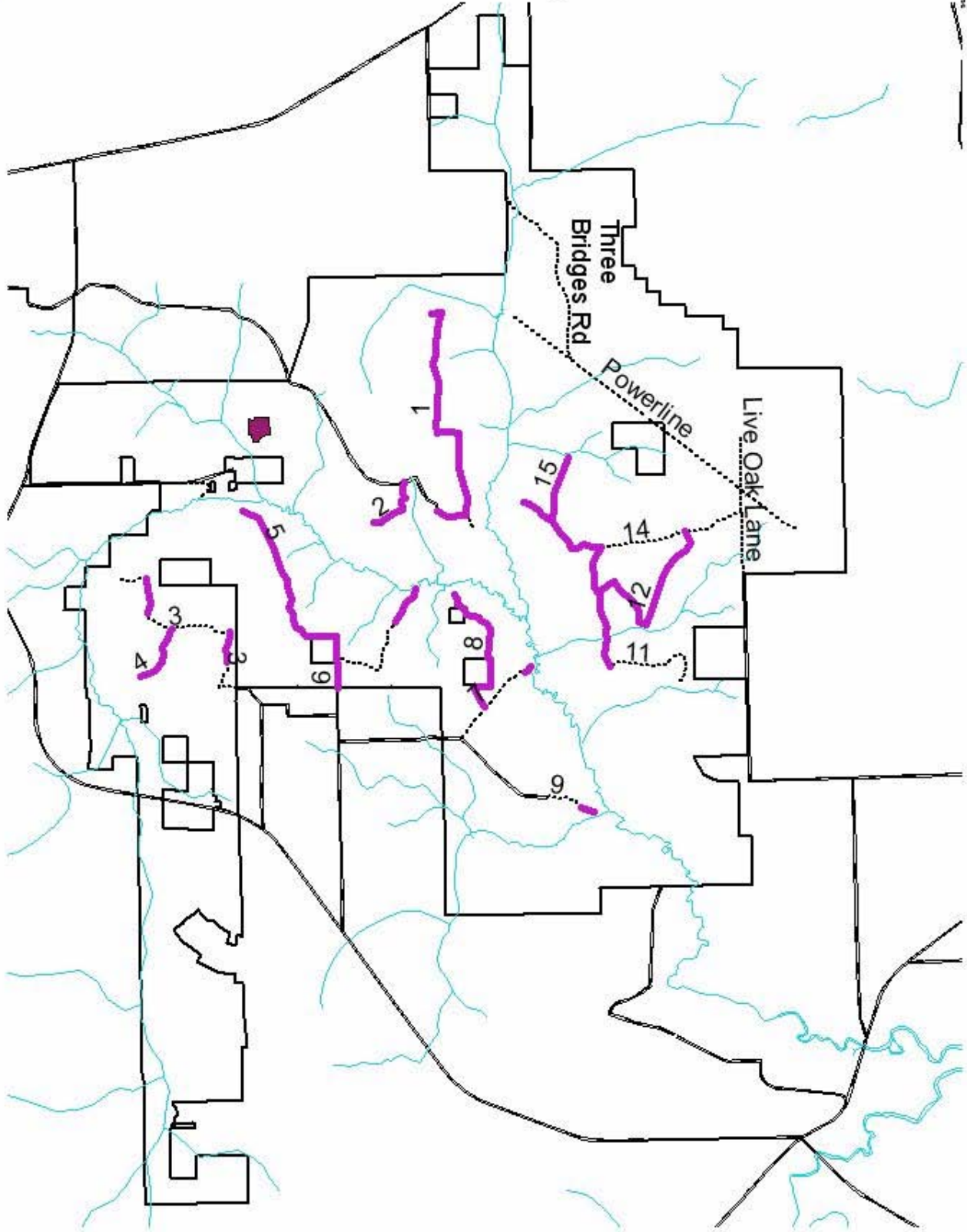
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- Natural Features
- St. Johns River Basin
- JSF Boundary

EXHIBIT K
ROAD MAP



Jennings State Forest Road Map



E. Smith
 7/24/2006
 k:\a\arcproject\plans\1\0yr managemen\plan 2005\road 2005

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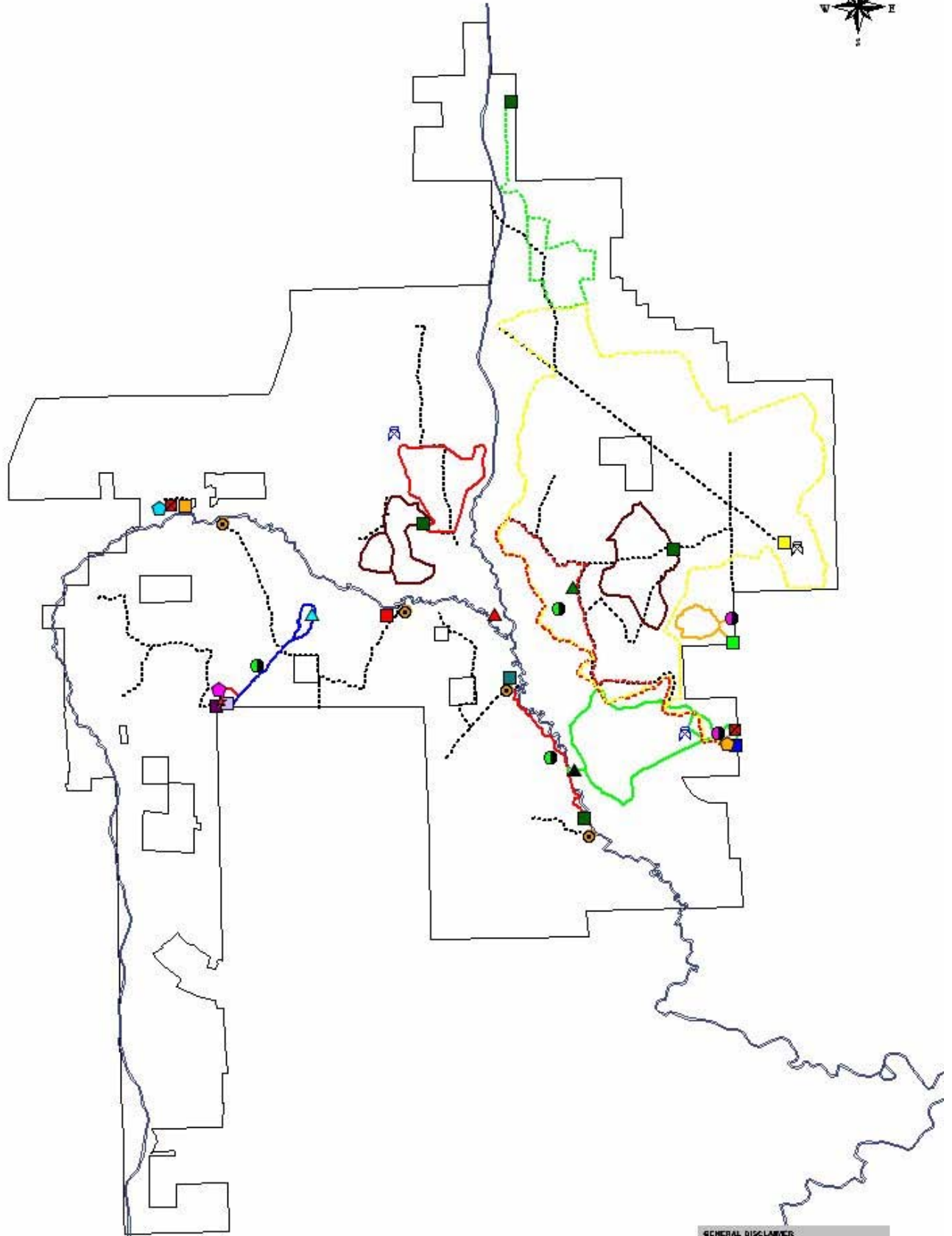
- Roads to Fix
- St. Johns River Basin
- Forest Roads
- County Roads and Highways
- Borrow Pit
- JSF Boundary

EXHIBIT L

EXISTING AND PLANNED FACILITIES



Existing and Planned Facilities



0 1 Miles

E. Smith
7/25/2006
k:\data\proj\eciplan\10 yr management plan 2005 existing and planned

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Existing and Planned Recreational Facilities Legend

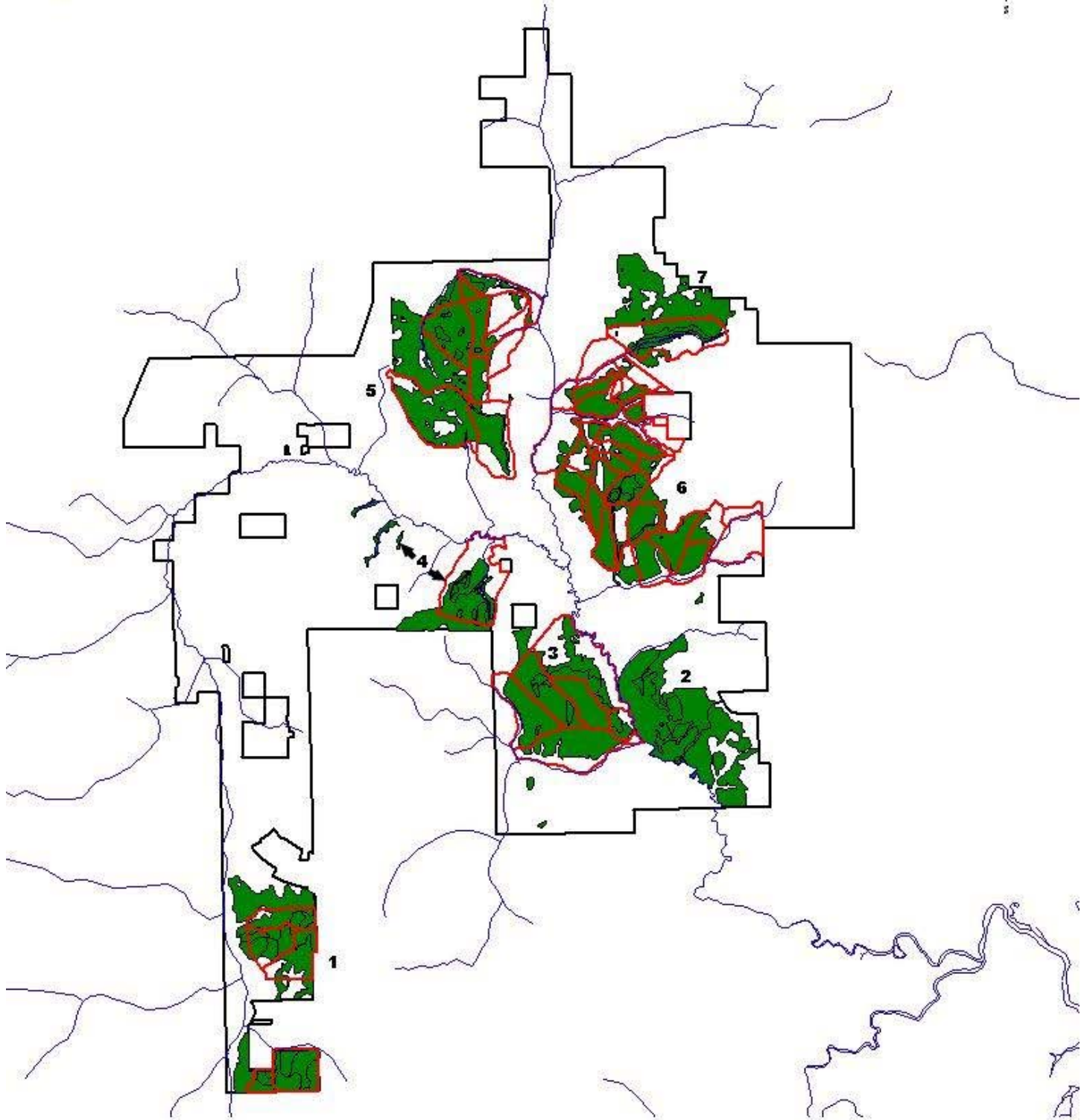
- ★ Office
- Proposed Restrooms
- Pavilions**
- ◆ OJ Rec Area
- ◆ Proposed Dunn's Education
- ◆ Proposed North Fork Rec Area
- ▲ Dunns Farm Camp Zone
- ▲ Black Creek Campground
- Proposed Campgrounds**
- ▲ Bootlegger Campsite
- ▲ Hammock Campground
- Wildlife Viewing**
- Ground Blind
- ⌘ Powerline Observation Tower
- Proposed Ground Blind
- ⌘ Proposed Observation Tower
- Parking Areas**
- Dunn's Farm Trail
- Ellis Ford
- Fire and Water Parking
- JSF Office
- Knight's Landing
- North Fork Recreation Area
- Observation Tower
- Old Jennings Recreation Area
- Proposed
- Canoe Landings
- Horse Trails**
- 8 mile Red Loop
- 16 mile Yellow Loop
- Proposed Horse Trail YW
- Hiking Trails**
- Dunn's Farm Trail
- Fire and Water Nature Trail
- North Fork Black Creek
- Proposed Hiking Trails
- Proposed Bicycle Trails
- Forest Roads
- Creeks
- JSF Boundary

EXHIBIT M

CRITICAL COMMUNITIES AND THEIR BURN UNITS



Critical Communities and Burn Units For Restoration on Jennings State Forest



0 2 Miles

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- St. Johns River Basin
- Critical Burn Units Communities
- Critical Communities
- JSF Boundary

E. Smith
7/24/2006
k:\data\arcproject\plan10\yr management\plan_2005\critical communities burn units

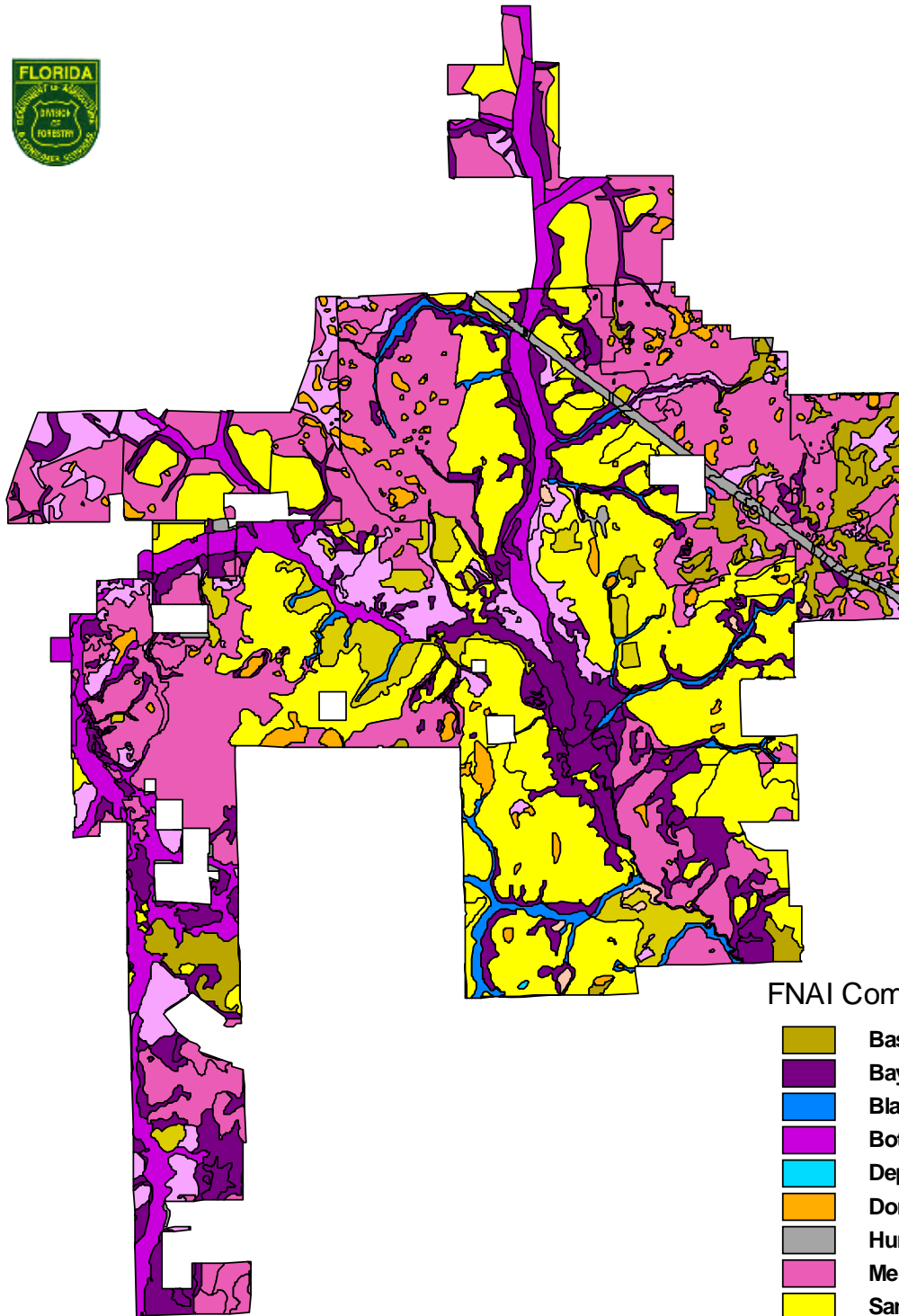
*Numbers coincide with Section IV.A.17.d of the Ten-year Management Plan

EXHIBIT N

FNAI ECOLOGICAL COMMUNITIES MAP

FNAI Ecological Communities Map

EXHIBIT N



0 1 2 Miles

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FNAI Communities

-  Basin Swamp
-  Baygall
-  Blackwater Stream
-  Bottomland Forest
-  Depression Marsh
-  Dome Swamp
-  Human Disturbed
-  Mesic Flatwoods
-  Sandhill
-  Sandhill Lake
-  Scrubby Flatwood
-  Seepage Stream
-  Wet Flatwoods
-  Xeric Hammock