

**Land Management Plan Compliance Checklist
Four Creeks State Forest – 2022**

Section A: Acquisition Information Items			
Item #	Requirement	Statute/ Rule	Page Numbers and/or Appendix
1.	The common name of the property.	18-2.018 & 18-2.021	Page 1 (Executive Summary); Page 9 (II.A.1)
2.	The land acquisition program, if any, under which the property was acquired.	18-2.018 & 18-2.021	Page 1 (Executive Summary); Page 10 (II.A.4); Exhibit R
3.	Degree of title interest held by the Board, including reservations and encumbrances such as leases.	18-2.021	Page 11 (II.B.2)
4.	The legal description and acreage of the property.	18-2.018 & 18-2.021	Page 9 (II.A.2)
5.	A map showing the approximate location and boundaries of the property, and the location of any structures or improvements to the property.	18-2.018 & 18-2.021	Exhibit B
6.	An assessment as to whether the property, or any portion, should be declared surplus.	18-2.021	Page 14 (II.D.3)
7.	Identification of other parcels of land within or immediately adjacent to the property that should be purchased because they are essential to management of the property.	18-2.021	Page 13 (II.D.2); Exhibit C
8.	Identification of adjacent land uses that conflict with the planned use of the property, if any.	18-2.021	Page 14 (II.D.4)
9.	A statement of the purpose for which the lands were acquired, the projected use or uses as defined in 253.034 and the statutory authority for such use or uses.	259.032(10)	Page 3 (I.); Page 3 (I.A); Page 10 (II.A.4)
10.	Proximity of property to other significant State, local or federal land or water resources.	18-2.021	Page 9 (II.A.3); Exhibit F

Section B: Use Items			
Item #	Requirement	Statute/ Rule	Page Numbers and/or Appendix
11.	The designated single use or multiple use management for the property, including use by other managing entities.	18-2.018 & 18-2.021	Page 1 (Executive Summary); Page 3 (I.A); Page 11 (II.B.3)
12.	A description of past and existing uses, including any unauthorized uses of the property.	18-2.018 & 18-2.021	Page 4 (I.C.); Page 10 (II.B); Page 12 (II.C.); Page 14 (II.D.6); Page 14 (II.E.); Page 17 (III.C-D); Page 19 (IV.B.3); Page 20 (IV.C.); Page 24 (V.); Page 27 (VI.); Page 34 (VII.)
13.	A description of alternative or multiple uses of the property considered by the lessee and a statement detailing why such uses were not adopted.	18-2.018	Page 13 (II.D.1)

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Section B: Use Items			
Item #	Requirement	Statute/ Rule	Page Numbers and/or Appendix
14.	A description of the management responsibilities of each entity involved in the property's management and how such responsibilities will be coordinated.	18-2.018	Page 1 (Executive Summary); Page 15 (II.E.1)
15.	Include a provision that requires that the managing agency consult with the Division of Historical Resources, Department of State before taking actions that may adversely affect archaeological or historical resources.	18-2.021	Page 1 (Executive Summary); Page 15 (II.E.1); Exhibit H
16.	Analysis/description of other managing agencies and private land managers, if any, which could facilitate the restoration or management of the land.	18-2.021	Page 15 (II.E.1 & 2)
17.	A determination of the public uses and public access that would be consistent with the purposes for which the lands were acquired.	259.032(10)	Page 12 (II.B.5); Page 24 (V.); Exhibit R
18.	A finding regarding whether each planned use complies with the 1981 State Lands Management Plan, particularly whether such uses represent "balanced public utilization," specific agency statutory authority and any other legislative or executive directives that constrain the use of such property.	18-2.021	Page 12 (II.B.5)
19.	Letter of compliance from the local government stating that the LMP is in compliance with the Local Government Comprehensive Plan.	BOT requirement	Page 14 (II.D.5); Exhibit T
20.	An assessment of the impact of planned uses on the renewable and non-renewable resources of the property, including soil and water resources, and a detailed description of the specific actions that will be taken to protect, enhance and conserve these resources and to compensate/mitigate damage caused by such uses, including a description of how the manager plans to control and prevent soil erosion and soil or water contamination.	18-2.018 & 18-2.021	Page 14 (II.D.6); Page 17 (III.C-D); Page 18 (IV.A); Page 19 (IV.B.3); Page 20 (IV.C.); Page 23 (IV.D); Page 24 (IV.I); Page 27 (VI.); Page 34 (VII.)
21.	*For managed areas larger than 1,000 acres, an analysis of the multiple-use potential of the property which shall include the potential of the property to generate revenues to enhance the management of the property provided that no lease, easement, or license for such revenue-generating use shall be entered into if the granting of such lease, easement or license would adversely affect the tax exemption of the interest on any revenue bonds issued to fund the acquisition of the affected lands from gross income for federal income tax purposes, pursuant to Internal Revenue Service regulations.	18-2.021 & 253.036	Page 11 (II.B.3-4)
22.	If the lead managing agency determines that timber resource management is not in conflict with the primary management objectives of the managed area, a component or section, prepared by a qualified professional forester, that assesses the feasibility of managing timber resources pursuant to section 253.036, F.S.	18-2.021	Page 31 (VI.C.1-4)
23.	A statement regarding incompatible use in reference to Ch. 253.034(10).	253.034(10)	Page 13 (II.D.1)

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Section C: Public Involvement Items			
Item #	Requirement	Statute/ Rule	Page Numbers and/or Appendix
24.	A statement concerning the extent of public involvement and local government participation in the development of the plan, if any.	18-2.021	Page 15 (II.E.3-5)
25.	The management prospectus required pursuant to paragraph (9)(d) shall be available to the public for a period of 30 days prior to the public hearing.	259.032(10)	✓
26.	LMPs and LMP updates for parcels over 160 acres shall be developed with input from an advisory group who must conduct at least one public hearing within the county in which the parcel or project is located.	259.032(10)	Page 16 (II.E.4)
27.	Summary of comments and concerns expressed by the advisory group for parcels over 160 acres	18-2.021	Page 16 (II.E.4); Exhibit U
28.	During plan development, at least one public hearing shall be held in each affected county. Notice of such public hearing shall be posted on the parcel or project designated for management, advertised in a paper of general circulation, and announced at a scheduled meeting of the local governing body before the actual public hearing.	253.034(5) & 259.032(10)	✓
29.	The manager shall consider the findings and recommendations of the land management review team in finalizing the required 10-year update of its management plan.	259.036	Page 16 (II.E.4)
30.	Summary of comments and concerns expressed by the management review team, if required by Section 259.036, F.S.	18-2.021	Page 16 (II.E.4); Exhibit S
31.	If manager is not in agreement with the management review team's findings and recommendations in finalizing the required 10-year update of its management plan, the managing agency should explain why they disagree with the findings or recommendations.	259.036	Page 16 (II.E.4)

Section D: Natural Resources			
Item #	Requirement	Statute/ Rule	Page Numbers and/or Appendix
32.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding soil types.	18-2.021	Page 18 (IV.A.); Exhibit I
33.	Insert FNAI based natural community maps when available.	ARC consensus	Exhibits L, P, & Q
34.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding outstanding native landscapes containing relatively unaltered flora, fauna and geological conditions.	18-2.021	Page 18 (IV.A-I); Exhibits P & Q

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Four Creeks State Forest – 2022**

Section D: Natural Resources			
Item #	Requirement	Statute/ Rule	Page Numbers and/or Appendix
35.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding unique natural features and/or resources including but not limited to virgin timber stands, scenic vistas, natural rivers and streams, coral reefs, natural springs, caverns and large sinkholes.	18-2.018 & 18-2.021	Page 18 (IV.)
36.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding beaches and dunes.	18-2.021	Page 24 (IV.E)
37.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding mineral resources, such as oil, gas and phosphate, etc.	18-2.018 & 18-2.021	Page 24 (IV.F)
38.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding fish and wildlife, both game and non-game, and their habitat.	18-2.018 & 18-2.021	Page 20 (IV.C.); Exhibits L & M
39.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding State and Federally listed endangered or threatened species and their habitat.	18-2.021	Page 20 (IV.C.); Exhibits L & M
40.	The identification or resources on the property that are listed in the Natural Areas Inventory.	18-2.021	Page 7 (I.C. Goal 5); Page 20 (IV.C.); Page 34 (VII.); Exhibits L, P, & Q
41.	Specific description of how the managing agency plans to identify, locate, protect and preserve or otherwise use fragile, nonrenewable natural and cultural resources.	259.032(10)	Page 17 (III.C-D); Page 18 (IV.A.2); Page 19 (IV.B.3 & 5); Page 20 (IV.C.); Page 23 (IV.D); Page 24 (IV.I); Page 30 (VI.C); Page 31 (VI.D-E); Page 34 (VII.)
42.	Habitat Restoration and Improvement		Page 18 (IV.)
42-A.	Describe management needs, problems and a desired outcome and the key management activities necessary to achieve the enhancement, protection and preservation of restored habitats and enhance the natural, historical and archaeological resources and their values for which the lands were acquired.		Page 4 (I.C.); Page 16 (III.) Page 34 (VII.)
42-B.	Provide a detailed description of both short (2-year planning period) and long-term (10-year planning period) management goals, and a priority schedule based on the purposes for which the lands were acquired and include a timeline for completion.		Page 4 (I.C.)
42-C.	The associated measurable objectives to achieve the goals.		Page 4 (I.C.)
42-D.	The related activities that are to be performed to meet the land management objectives and their associated measures.		Page 4 (I.C.); Page 26 (VI, A-D); Page 34 (VII.)

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Section D: Natural Resources			
Item #	Requirement	Statute/ Rule	Page Numbers and/or Appendix
42-E.	A detailed expense and manpower budget in order to provide a management tool that facilitates development of performance measures, including recommendations for cost-effective methods of accomplishing those activities.		Page 4 (I.C.); Page 13 (II.C.4) Exhibit V
43.	***Quantitative data description of the land regarding an inventory of forest and other natural resources and associated acreage.	253.034(5)	Page 11 (II.C.); Page 14 (II.D.6); Page 17 (III.B); Page 18 (IV.A.1); Page 19 (IV.B.1); Page 20 (IV.C.); Page 24 (IV.G); Page 25 (V.A-C); Page 30 (VI.C); Page 34 (VII.); Exhibits I, J, K, L, M, P, & S
44.	Sustainable Forest Management, including implementation of prescribed fire management		Page 27 (VI.) Exhibit N
44-A.	Management needs, problems and a desired outcome.		Page 5 (I.C. Goal 1); Page 27 (VI.A-C); Page 34 (VII.)
44-B.	Detailed description of both short and long-term management goals.		Page 5 (I.C. Goal 1); Page 27 (VI.A-C); Page 34 (VII.)
44-C.	Measurable objectives.		Page 5 (I.C. Goal 1)
44-D.	Related activities.		Page 26 (VI.); Page 23 (IV.D); Page 34 (VII.); Exhibits A & N
44-E.	Budgets.		Page 13 (II.C.4)
45.	Imperiled species, habitat maintenance, enhancement, restoration or population restoration		Page 7 (I.C. Goal 4); Page 20 (IV.C.1.)
45-A.	Management needs, problems and a desired outcome.		Page 7 (I.C. Goal 4); Page 20 (IV.C.); Page 34 (VII.)
45-B.	Detailed description of both short and long-term management goals.		Page 7 (I.C. Goal 4); Page 20 (IV.C.); Page 34 (VII.)
45-C.	Measurable objectives.		Page 7 (I.C. Goal 4)
45-D.	Related activities.		Page 20 (IV.C.); Page 27 (VI.A-C); Page 34 (VII.); Exhibits L & M
45-E.	Budgets.		Page 13 (II.C.4)
46.	***Quantitative data description of the land regarding an inventory of exotic and invasive plants and associated acreage.	253.034(5)	Page 32 (VI.D); Exhibit O
47.	Place the Arthropod Control Plan in an appendix. If one does not exist, provide a statement as to what arrangement exists between the local mosquito control district and the management unit.	BOT requirement via lease language	Page 33 (VI.E); Exhibit W
48.	Exotic and invasive species maintenance and control		Page 32 (VI.D.)

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Section D: Natural Resources			
Item #	Requirement	Statute/ Rule	Page Numbers and/or Appendix
48-A.	Management needs, problems and a desired outcome.		Page 7 (I.C. Goal 5); Exhibit S
48-B.	Detailed description of both short and long-term management goals.		Page 7 (I.C. Goal 5)
48-C.	Measurable objectives.		Page 7 (I.C. Goal 5)
48-D.	Related activities.		Page 31 (VI.D & E); Page 34 (VII.)
48-E.	Budgets.		Page 13 (II.C.4)

Section E: Water Resources			
Item #	Requirement	Statute/ Rule	Page Numbers and/or Appendix
49.	A statement as to whether the property is within and/or adjacent to an aquatic preserve or a designated area of critical state concern or an area under study for such designation.	18-2.018 & 18-2.021	Page 12 (II.B.7)
50.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding water resources, including water classification for each water body and the identification of any such water body that is designated as an Outstanding Florida Water under Rule 62-302.700, F.A.C.	18-2.021	Page 18 (IV.B.); Exhibit J
51.	Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding swamps, marshes and other wetlands.	18-2.021	Page 1 (Executive Summary); Page 18 (IV.B.); Page 34 (VII.)' Exhibit K
52.	***Quantitative description of the land regarding an inventory of hydrological features and associated acreage.	253.034(5)	Page 1 (Executive Summary); Page 18 (IV.B.); Page 34 (VII.)
53.	Hydrological Preservation and Restoration		
53-A.	Management needs, problems and a desired outcome.		Page 7 (Goal 7); Page 18 (IV.B)
53-B.	Detailed description of both short and long-term management goals.		Page 7 (Goal 7)
53-C.	Measurable objectives.		Page 7 (Goal 7)
53-D.	Related activities.		Page 7 (Goal 7); Page 18 (IV.B)
53-E.	Budgets.		Page 13 (II.C.4)

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Section F: Historical, Archaeological and Cultural Resources			
Item #	Requirement	Statute/ Rule	Page Numbers and/or Appendix
54.	**Location and description of known and reasonably identifiable renewable and non-renewable resources of the property regarding archaeological and historical resources.	18-2.018, 18-2.021 & per DHR's request	Page 17 (III.B); Exhibit G
55.	***Quantitative data description of the land regarding an inventory of significant land, cultural or historical features and associated acreage.	253.034(5)	Page 17 (III.B); Exhibit G
56.	A description of actions the agency plans to take to locate and identify unknown resources such as surveys of unknown archaeological and historical resources.	18-2.021	Page 17 (III.C & D); Exhibit H
57.	Cultural and Historical Resources		Page 16 (III.)
57-A.	Management needs, problems and a desired outcome.		Page 7 (I.C. Goal 6)
57-B.	Detailed description of both short and long-term management goals.		Page 7 (I.C. Goal 6)
57-C.	Measurable objectives.		Page 7 (I.C. Goal 6)
57-D.	Related activities.		Page 7 (I.C. Goal 6); Page 16 (III.)
57-E.	Budgets.		Page 13 (II.C.4)

Section G: Facilities (Infrastructure, Access, Recreation)			
Item #	Requirement	Statute/ Rule	Page Numbers and/or Appendix
58.	***Quantitative data description of the land regarding an inventory of infrastructure and associated acreage.	253.034(5)	Page 11 (II.C); Exhibit D
59.	Capital Facilities and Infrastructure		
59-A.	Management needs, problems and a desired outcome.		Page 8 (I.C. Goal 8)
59-B.	Detailed description of both short and long-term management goals.		Page 8 (I.C. Goal 8)
59-C.	Measurable objectives.		Page 8 (I.C. Goal 8)
59-D.	Related activities.		Page 11 (II.C.); Page 24 (V.);
59-E.	Budgets.		Page 13 (II.C.4)
60.	***Quantitative data description of the land regarding an inventory of recreational facilities and associated acreage.	253.034(5)	Page 1 (Executive Summary); Page 11 (II.C.); Page 25 (V.); Exhibit D
61.	Public Access and Recreational Opportunities		Page 25 (V.)
61-A.	Management needs, problems and a desired outcome.		Page 5 (I.C. Goal 2)
61-B.	Detailed description of both short and long-term management goals.		Page 5 (I.C. Goal 2)

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Section G: Facilities (Infrastructure, Access, Recreation)			
Item #	Requirement	Statute/ Rule	Page Numbers and/or Appendix
61-C.	Measurable objectives.		Page 5 (I.C. Goal 2)
61-D.	Related activities.		Page 24 (V.); Exhibits A, D, & E
61-E.	Budgets.		Page 13 (II.C.4)

Section H: Other/ Managing Agency Tools			
Item #	Requirement	Statute/ Rule	Page Numbers and/or Appendix
62.	LMP Compliance Checklist at the front of the plan.	ARC and managing agency consensus	✓
63.	Executive Summary at the front of the LMP. Include a physical description of the land.	ARC and 253.034(5)	Page 1 (Executive Summary)
64.	The accomplishments since the drafting of the last LMP set forth in an organized format.	ARC consensus	Page 4 (I.B.); Exhibit A
65.	Key management activities necessary to achieve the desired outcomes regarding other appropriate resource management.	259.032(10)	Page 4 (I.C.); Page 34 (VII.)
66.	Summary budget for the scheduled land management activities of the LMP including any potential fees anticipated from public or private entities for projects to offset adverse impacts to imperiled species or such habitat, which fees shall be used to restore, manage, enhance, repopulate, or acquire imperiled species habitat for lands that have or are anticipated to have imperiled species or such habitat onsite. The summary budget shall be prepared in such a manner that it facilitates computing an aggregate of land management costs for all state-managed lands using the categories described in s. 259.037(3) which are resource management, administration, support, capital improvements, recreation visitor services, law enforcement activities.	253.034(5)	Page 4 (I.C.); Page 13 (II.C.4) Exhibit V
67.	Cost estimate for conducting other management activities which would enhance the natural resource value or public recreation value for which the lands were acquired, include recommendations for cost-effective methods in accomplishing those activities.	259.032(10)	Page 4 (I.C.)
68.	A statement of gross income generated, net income and expenses.	18-2.018	Page 13 (II.C.4)

* The following taken from 253.034(10) is not a land management plan requirement; however, it should be considered when developing a land management plan: The following additional uses of conservation lands acquired pursuant to the Florida Forever program and other state-funded conservation land purchase programs shall be authorized, upon a finding by the Board of Trustees, if they meet the criteria specified in paragraphs (a)-(e): water resource development projects, water supply development projects, storm-water management projects, linear facilities and sustainable agriculture and forestry. Such additional uses are authorized where: (a) Not inconsistent with the management plan for such lands; (b) Compatible with the natural ecosystem and resource values of such lands; (c) The proposed use is appropriately located on

Land Management Plan Compliance Checklist Four Creeks State Forest – 2022

such lands and where due consideration is given to the use of other available lands; (d) The using entity reasonably compensates the titleholder for such use based upon an appropriate measure of value; and (e) The use is consistent with the public interest.

- ** While maps of Native American sites should not be included in the body of the management plan, the DSL urges each managing agency to provide such information to the Division of Historical Resources for inclusion in their proprietary database. This information should be available for access to new managers to assist them in developing, implementing and coordinating their management activities.
- *** The referenced inventories shall be of such detail that objective measures and benchmarks can be established for each tract of land and monitored during the lifetime of the plan. All quantitative data collected shall be aggregated, standardized, collected, and presented in an electronic format to allow for uniform management reporting and analysis. The information collected by the DEP pursuant to s. 253.0325(2) shall be available to the land manager and his or her assignee.

TEN-YEAR LAND MANAGEMENT PLAN

FOR THE

FOUR CREEKS STATE FOREST

NASSAU COUNTY



PREPARED BY THE

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

FLORIDA FOREST SERVICE

APPROVED ON

MONTH DD, 2022

TEN-YEAR LAND MANAGEMENT PLAN
FOR THE
FOUR CREEKS STATE FOREST



Approved by:

Erin Albury, Director
Florida Forest Service

Date

James Roberts, Chief
Forest Management Bureau

Date

TEN-YEAR LAND MANAGEMENT PLAN

FOUR CREEKS STATE FOREST

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**TEN-YEAR LAND MANAGEMENT PLAN
FOUR CREEKS STATE FOREST
EXHIBITS**

FCSF Ten-Year Management Accomplishment Summary	Exhibit A
Location/Boundary Map	Exhibit B
Optimal Management Boundary Map	Exhibit C
Facilities, Recreation, and Improvements Map	Exhibit D
Road Map.....	Exhibit E
Proximity to Significant Managed Lands	Exhibit F
Department of State Report on Archaeological and Historical Sites.....	Exhibit G
Management Procedures for Archaeological and Historical Sites and Properties on State Owned or Controlled Lands	Exhibit H
Soil Types Map and Descriptions	Exhibit I
FDEP Outstanding Florida Waters	Exhibit J
Water Resources Map	Exhibit K
FNAI Managed Area Tracking Record.....	Exhibit L
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FCSF Fire History	Exhibit N
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Current Natural Communities Map	Exhibit P
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Management Prospectus	Exhibit R
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Compliance with Local Comprehensive Plan	Exhibit T
State Forest Management Plan Advisory Group Summary	Exhibit U
State Forest Summary Budget	Exhibit V
Arthropod Control Plan.....	Exhibit W

LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

LEAD AGENCY: Florida Department of Agriculture and Consumer Services (FDACS), Florida Forest Service
COMMON NAME: Four Creeks State Forest (FCSF)
LOCATION: Nassau County
ACREAGE TOTAL: 13,658 acres

Historic Natural Communities	Approximate Acreage*
Mesic Flatwoods	3,861
Floodplain Swamp	2,638
Wet Flatwoods	2,574
Salt Marsh	1,319
Bottomland Forest	1,171
Floodplain Marsh	649
Dome Swamp	383

* A 170-acre Parcel Acquisition has not been mapped

Historic Natural Communities	Approximate Acreage*
Mesic Hammock	314
Blackwater Stream	275
Wet Prairie	107
Hydric Hammock	84
Basin Swamp	76
Baygall	38

TIITF LEASE AGREEMENT NUMBERS: 4507 and 4844
USE: Single ____ Multiple X

MANAGEMENT AGENCY

FDACS, Florida Forest Service
Florida Fish and Wildlife Conservation Commission
St. Johns River Water Management District
Department of State, Division of Historical Resources

RESPONSIBILITY

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

DESIGNATED LAND USE: Multiple-Use State Forest
SUBLEASES: None
ENCUMBRANCES: None
TYPE ACQUISITION: Florida Forever's Northeast Florida Timberlands and Watershed Reserve Project
UNIQUE FEATURES: Four waterways flow through FCSF to make up the prominent feature of this forest. These waterways form a diverse network of aquatic and wetland habitats.
ARCHAEOLOGICAL / HISTORICAL: One known site
MANAGEMENT NEEDS: Adequate funding to implement Hydrological Restoration Plan, Ground Cover Restoration and Reforestation
ACQUISITION NEEDS: Approximately 7,222 acres located in the Optimal Management Boundary
SURPLUS ACREAGE: None
PUBLIC INVOLVEMENT: 2010, 2014 and 2019 Land Management Reviews, Management Plan Advisory Group and Public Hearing, SFI Liaison Committee Meetings, and FDEP Acquisition and Restoration Council Public Hearing - - - - -
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DO NOT WRITE BELOW THIS LINE
(FOR DIVISION OF STATE LANDS USE ONLY)

ARC Approval Date: _____ TIITF Approval Date: _____
Comments:

I. Introduction

Four Creeks State Forest is located between Callahan and Yulee, Florida, on approximately 13,658 acres in Nassau County. The property was jointly acquired by the St. Johns River Water Management District (SJRWMD) and the Board of Trustees of the Internal Improvement Trust Fund (TIITF). Four Creeks was named after the four water systems that traverse it: Alligator / Mills, Thomas, Boggy, and Plummer creeks. The four creeks join to form the headwaters of the Nassau River, which borders the southeastern portion of the forest.

Thirteen different natural and managed communities can be found on the forest, with bottomland hardwoods, pine plantation, floodplain swamp, and salt marsh being the dominant communities. Of the 13 communities, 8 are considered wetland community types. These wetland communities perform essential roles in the protection of water quality, groundwater recharge, flood control, and aquatic habitat preservation. These wetlands, combined with the creek systems, not only provide a natural environment ideal for native flora, fauna, and outdoor recreation, but they also help to provide clean water for the citizens of northern Florida.

Wildlife common to FCSF includes white-tailed deer, wild turkey, wild hog, and numerous songbirds. These communities also support several rare and/or threatened species of flora and fauna, including the American alligator, gopher tortoise, painted bunting, blueflower butterwort, and hooded pitcher plant.

A. General Mission and Management Plan Direction

The primary mission of the Florida Forest Service (FFS) is to “protect Florida and its people from the dangers of wildland fire and manage the forest resources through a stewardship ethic to assure they are available for future generations.”

Management strategies for FCSF center on the multiple-use concept, as defined in sections 589.04(3) and 253.034(2)(a) Florida Statutes. Implementation of this concept will utilize and conserve state forest resources in a harmonious and coordinated combination that will best serve the people of the state of Florida, and that is consistent with the purpose for which the forest was acquired. Multiple-use management for FCSF will be accomplished with the following strategies:

- Practice sustainable forest management for the efficient generation of revenue and in support of state forest management objectives;
- Provide for resource-based outdoor recreation opportunities for multiple interests;
- Restore and manage healthy forests and native ecosystems ensuring the long-term viability of populations and species listed as endangered, threatened, or rare, and other components of biological diversity including game and non-game wildlife and plants;
- Protect known archaeological, historical, and cultural resources;
- Restore, maintain, and protect hydrological functions related to water resources, and health of associated wetland and aquatic communities; and
- Provide research and educational opportunities related to natural resource management.

This management plan is provided according to requirements of Sections 253.034, 259.032 and 373, Florida Statutes (F.S.), and was prepared utilizing guidelines outlined in Section 18-2.021 of the Florida Administrative Code (FAC). It is not an annual work plan or detailed operational plan but provides general guidance for the management of FCSF for the next ten-

year period and outlines the major concepts that will guide management activities on the forest.

The FCSF is managed under a multiple-use concept where timber, wildlife, recreation, water, and aesthetics are resources for the public good. Long-term sustainability is the guiding principle. Since 2018, FCSF has been independently certified by the Sustainable Forestry Initiative (SFI) under the SFI 2015-2021 Forest Management Standard. The primary management operations include prescribed burning, timber harvesting, and hydrologic restoration. Each operation affects change in different temporal and spatial scales but in a linked and integrated way.

B. Past Accomplishments

Data regarding past management activities and public use on FCSF have been compiled monthly and are available from the forest manager. A table has been prepared for this plan that summarizes the accomplishments for each of the past ten years. See Exhibit A. The table does not attempt to account for all activities on the forest but summarizes major activities. It does not list the multitude of daily activities and public interactions involved in managing the forest.

There have been numerous events, developments, and activities since the 2010 Ten-Year Land Management Plan was approved. Some noteworthy accomplishments include:

- Prescribed fire applied to more than 12,288 acres
- 170,280 tons of timber harvested from 3,266 acres
- 203,211 bare root slash pine seedlings planted on 260 acres
- 15,987 acres inventoried (> 10% annually)
- 2,655 acres treated for non-native invasive plants
- 77 miles of roads graded
- 43 miles of roads rebuilt and stabilized
- 412 culverts installed
- 3 low water crossings installed
- 218,118 estimated day-use visitors
- 2 new parking areas established
- 7 interpretive programs or tours on the forest
- 76 miles of forest boundary marked or maintained
- Installation of the Saul's Landing campground with 3 primitive drive-up sites
- 1 concrete boat ramp rebuilt
- Attained Sustainable Forestry Initiative (SFI) certification

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. Funding, agency program priorities, and the potential for wildfire during the planning period will determine the degree to which these objectives can be met. Management activities on FCSF during this management period must serve to conserve, protect, utilize, and enhance the natural and historical resources and manage resource-based public outdoor recreation, which is compatible with the conservation and protection of this forest. Most of the management operations will be conducted by the FFS,

although appropriate activities will be contracted to private sector vendors or completed with the cooperation of other agencies. All activities will enhance the property's natural resource or public recreational value.

The management activities listed below will be addressed within the ten-year management period and are defined as goals, with each goal containing short-term objectives, long-term objectives, or ongoing objectives. Short-term objectives are those that are achievable within a two-year planning period, and long-term objectives are achievable within a ten-year planning period. Objectives are listed in priority order for each goal. Other activities will be completed with minimal overhead expense and existing staff.

➤ **GOAL 1: Sustainable Forest Management**

Objective 1: Continue to update and implement the Five-Year Silviculture Action Plan including reforestation, timber harvesting, prescribed burning, restoration, and timber stand improvement activities and goals. (Ongoing objective)

Performance Measures:

- Annual updates of the Five-Year Silviculture Action Plan completed
- Continued implementation of the Five-Year Silviculture Action Plan (acres treated)

Objective 2: Continue to implement the FFS process for developing stand descriptions and conducting forest inventory, including maintaining a GIS database containing forest stands, roads, and other attributes (including, but not limited to: rare, threatened, and endangered species, archaeological and historical resources, and non-native invasive species locations). (Ongoing objective)

Performance Measures:

- Update GIS database and re-inventory all attributes as required by FFS procedures
- Number of acres inventoried

➤ **GOAL 2: Public Access and Recreational Opportunities**

Objective 1: Maintain public access and recreational opportunities that are compatible with multiple-use management. (Ongoing objective)

Performance Measure: Number of visitor opportunities per day

Objective 2: Evaluate the potential for additional public access and recreational areas on FCSF that are compatible with multiple-use management. Recreational opportunities will fall under the scope of multiple-use management in accordance with watershed protection, conservation, ecosystem restoration; and as detailed in the purpose for acquisition. (Short-term objective)

Performance Measure: List of viable access points and visitor opportunities for consideration

Objective 3: Continue to safely integrate human use into FCSF, follow the Five-Year Outdoor Recreation Plan and update annually. (Ongoing objective)

Performance Measures:

- Continued implementation of the Five-Year Outdoor Recreation Plan
- Annual updates of the Five-Year Outdoor Recreational Plan completed

Objective 4: Continue to involve and meet with the Liaison Committee. The purpose of Liaison Committee meetings is to facilitate communication between the FFS and committee members (and the groups they represent) about state forest management and to obtain feedback from these entities. The Liaison Committee consists of local residents, community leaders, special interest group representatives (vendors, hunters and other recreational users, etc.), environmental group representatives, and other public / private entities. (Ongoing objective)

Performance Measures:

- Liaison Committee remains organized
- Continued annual meetings

Objective 5: Maintain cooperation with Florida Fish and Wildlife Conservation Commission (FWC) to develop specific hunting season quotas and bag limits, and to address hunting issues which are to be agreed upon at an annual cooperator meeting between FFS and FWC. (Ongoing objective)

Performance Measures:

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

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

Performance Measures:

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

➤ **GOAL 3: Habitat Restoration, Improvement, and Fire Management**

Objective 1: The FCSF currently contains approximately 6,857 acres of fire-dependent communities. FCSF staff will plan and conduct prescribed burns in a manner that benefits these fire-dependent natural communities within the forest. To achieve an average fire-return interval of 2 to 5 years for most fire-dependent communities, FFS will attempt to conduct prescribed burns an average of approximately 1,400 to 3,400 acres per year. Currently FFS staff estimates 3,728 acres at FCSF are within the desired fire-return interval. (Ongoing objective)

Performance Measures:

- Number of acres burned during the dormant and growing seasons
- Number of acres burned within target fire-return interval

Objective 2: Continue to annually update and implement the Five-Year Prescribed Burning Management Plan and the prescribed burning goals. (Ongoing objective)

Performance Measures:

- Annual updates of the Five-Year Prescribed Burning Management Plan completed
- Continued implementation of the Five-Year Prescribed Burning Management Plan (acres treated)

Objective 3: Reduce the threat of wildfire within the wildland urban interface on FCSF and the surrounding community through a comprehensive mitigation strategy that includes evaluating vegetative fuels near residential areas and identifying potential fuel reduction projects. (Ongoing objective)

Performance Measures:

- Evaluation completed
- Should the evaluation determine that fuel reduction is necessary, number of acres treated for fuel reduction

Objective 4: Utilize prescribed fire to enhance restoration of native groundcover. Evaluate areas where native groundcover has been eliminated or heavily impacted from historical land use on a case by case basis for alternative methods to address reestablishment of native groundcover plants. Restore native groundcover where practical or heavily impacted from historical land use. (Long-term objective)

Performance Measure: Number of acres restored.

➤ **GOAL 4: Listed and Rare Species Habitat Maintenance, Enhancement, Restoration, or Population Restoration**

Objective 1: In cooperation with the (FWC), develop a Wildlife Management Strategy addressing the wildlife species for FCSF, with emphasis on imperiled species and associated management prescriptions for their habitats. (Long-term objective)

Performance Measures:

- Imperiled species management strategy completed
- Baseline listed and rare species list completed for FCSF

Objective 2: In consultation with FWC, implement survey and monitoring protocols, where feasible, for listed and rare species. (Ongoing objective)

Performance Measure: Number of species for which monitoring is ongoing

➤ **GOAL 5: Non-Native Invasive Species Management and Control**

Objective 1: Continue to follow and annually update the Five-Year Ecological Plan for FCSF, to locate, identify, and control non-native invasive species. (Ongoing objective)

Performance Measures:

- Total number of acres identified and successfully treated
- Annual updates of the Five-Year Ecological Plan completed
- Continue to maintain FCSF non-native invasive species database information annually

➤ **GOAL 6: Cultural and Historical Resource Management**

Objective 1: Ensure all known sites are recorded in the Florida Department of State, Division of Historical Resources (DHR) Florida Master Site file. (Ongoing objective)

Performance Measure: Number of recorded sites

Objective 2: Monitor recorded sites and send updates to the DHR Florida Master Site File as needed. (Ongoing objective)

Performance Measure: Number of sites monitored. Reports submitted to DHR.

Objective 3: Maintain at least one (1) qualified staff member as an Archaeological Resource Management (ARM) Monitor. (Ongoing objective)

Performance Measure: Number of local staff trained as ARM Monitors

➤ **GOAL 7: Hydrological Preservation and Restoration**

Objective 1: Protect water resources during management activities through the implementation of Silviculture Best Management Practices (BMP) that are applicable to forest road maintenance and construction, construction of pre-suppression firelines, timber stand improvement activities, timber harvesting, sinkholes, etc. (Ongoing objective)

Performance Measure: Percent compliance with Silviculture BMP

Objective 2: Close, rehabilitate, or restore those roads, firelines, and trails that have evidence of erosion into surrounding water bodies causing alterations to the hydrology and / or water quality. (Ongoing objective)

Performance Measure: Number of roads, firelines, and trails closed, rehabilitated, and / or restored

Objective 3: Conduct or obtain a site assessment / study to identify potential hydrological restoration needs. (Short-term objective)

Performance Measure: Assessment conducted

➤ **GOAL 8: Capital Facilities and Infrastructure**

Objective 1: FCSF staff, along with help from volunteers, and / or user groups, will continue maintenance of 6 parking areas and 1 trailhead, 2.5 miles of trails, 3 boat/canoe/kayak launches, and 43 miles of primary, secondary, and tertiary roads. (Ongoing objective)

Performance Measure: Number of existing facilities, miles of roads, and miles of trails maintained

Objective 2: Continue to follow the Five-Year Roads and Bridges Management Plan and update annually. (Ongoing objective)

Performance Measures:

- Continued implementation of the Five-Year Roads and Bridges Management Plan
- Annual updates of the Five-Year Roads and Bridges Management Plan completed

Objective 3: Continue to implement the Five-Year Boundary Survey and Maintenance Management Plan and update annually. Approximately 20% of the forest boundary will be evaluated and remarked annually as necessary which includes harrowing, reposting signage, and repainting boundary trees. (Ongoing objective)

Performance Measures:

- Continued implementation of the Five-Year Boundary Survey and Maintenance Management Plan
- Percentage of forest boundary maintained annually per State Forest Handbook guidelines
- Annual updates of the Five-Year Boundary Survey and Maintenance Management Plan completed

II. Administration Section

A. Descriptive Information

1. Common Name of Property

The common name of the property is the Four Creeks State Forest.

2. Legal Description and Acreage

The FCSF is comprised of 13,658 acres, more or less.

FCSF is located in south-central Nassau County, approximately one mile east of Callahan, Florida. Forest boundaries are identified on the Boundary Map, Exhibit B. The property occupies all or part of Sections 7-9, 13-14, 27, 28, 40-43, 45, Township 02 North, Range 26 East; and Sections 13-15, 22-24, 27, 37, 43, 44, 46-52, Township 02 North, Range 25 East. Acreage acquired is identified in Table 1.

Table 1. FCSF Acreage by Funding Source

Funding Source	Acres
Florida Forever	12,973.10
St. Johns River Water Management District	395.00
Smurfit-Stone Donation	3.95
Murphy Act Lands	286.00

A complete legal description of lands owned by the TIITF and the SJWMD is on record at the FCSF Forestry Station Office, Florida Department of Environmental, Protection (FDEP), and the FFS State Office in Tallahassee.

3. Proximity to Other Public Resources

Lands managed by state, federal, or local government for conservation of natural or cultural resources that are located within approximately 25 miles of the FCSF are mapped in Exhibit F and listed in Table 2.

Table 2. Nearby Significant Public Conservation Lands

Tract	Managing Agency	Distance
Thomas Creek Conservation Area	WMD	<1 mile S
Seaton Creek Historical Preserve	COJ	<1 mile S
Nassau River-St. Johns River Marshes and Fort Clinch Aquatic Preserves	ORCP	3 miles E
Timucuan Ecological and Historic Preserve	NPS	3 miles E
Kings Road Historical Preserve	COJ	6 miles SW
Monticello Wildlands Preserve	COJ	10 miles SW
Bulls Bay Preserve	COJ	14 miles S
Cary State Forest	FFS	15 miles SW
Camp Milton Historic Preserve	COJ	15 miles SW
Pumpkin Hill Creek Preserve State Park	FDEP	15 miles SE
Betz Tiger Point Preserve	COJ	16 miles SE

Tract	Managing Agency	Distance
Cedar Point Preserve Loop	COJ	17 miles SE
Fort Clinch State Park	FDEP	19 miles E
Ralph E. Simmons Memorial State Forest	FFS	20 miles N
Amelia Island State Park	FDEP	25 miles E

FDEP – Florida Department of Environmental Protection, Division of Recreation and Parks

ORCP– Office of Resilience and Coastal Protection

COJ – City of Jacksonville

WMD – Water Management District

FFS – Florida Forest Service

NPS – National Park Service

4. **Property Acquisition and Land Use Considerations**

The TIITF and SJRWMD each hold 50% of the original 10,221.10 acres of FCSF under lease agreement 4507. Pursuant to section 259.032(9)(e), F.S., staff recommended that the TIITF designate the Department of Agriculture and Consumer Service’s Florida Forest Service as the managing agency for this site. In November of 2007, Lease 4507 was amended to add the SJRWMD to the lease as a co-lessor and to include all sovereign lands which are located within the boundary and contiguous with the boundaries of FCSF which amounted to approximately 2,582 acres. The acquisition of this property was funded with monies from SJRWMD and FDEP’s Florida Forever Program. Two additional parcels were acquired cooperatively in 2011 between TIITF and SJRWMD: the Smurfit-Stone Tract and the Murphy Act Lands parcel. A Partial Release of Lease 4507 released the Smurfit-Stone Corp and Murphy Act Lands and are now included in Lease 4844 along with the Studdard Tract; a 170-acre parcel. The lease agreements can be viewed at the offices of the Florida Department of Environmental Protection (FDEP), Division of State Lands and FCSF Headquarters. All parcels acquired are identified in Table 3.

Table 3. Parcel Acquisition

Parcel Name	Lease No.	Lease Date	Acres
Three Rivers Timber*	4507	8/15/2005	10,221.10
Three Rivers Timber*	4507	11/29/2007	2,582.00
Geiger Tract**	N / A	7/29/2008	395.00
Smurfit-Stone Corp***	4844	6/22/2011	3.95
Murphy Act Lands***	4844	8/18/2011	286.00
Studdard Tract***	4844	9/22/2020	170.00

* TIITF and SJRWMD 50/50 interest

** SJRWMD holds 100% interest

*** TIITF holds 100% interest

B. **Management Authority, Purpose, and Constraints**

1. **Purpose for Acquisition / Management Prospectus**

The main objectives for the acquisition of this property are:

- To conserve and protect, through sustainable forest management practices, environmentally unique and irreplaceable lands that contains native flora and fauna that represent 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 and endangered and 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 amenities that support natural resource-based recreation; and
- To preserve archaeological or historical sites.

See Exhibit R.

2. Degree of Title Interest Held by the Board

The TIITF and SJRWMD each hold 50% interest of 12,803.10 acres of the 13,658.35 acres of FCSF (Lease Agreement Number 4507). The TIITF holds 100% interest of 459.95 acres of the 13,658.35 acres of FCSF (Lease Agreement Number 4844).

3. Designated Single or Multiple-Use Management

FCSF is managed under a multiple-use concept by the FFS, under the authority of Chapters 253 and 589, F.S. The FFS is the lead managing agency as stated in TIITF Management Lease Numbers 4507 and 4844.

Multiple-use management is the harmonious and coordinated management of timber, recreation, conservation of fish and wildlife, forage, archaeological and historic sites, habitat and other biological resources, and water resources so they are utilized in the combination that will best serve the people of the state, making the most judicious use of the land for some or all these resources and considering the relative values of the various resources. Local demands, acquisition objectives, and other factors influence the array of uses that are compatible with and allowed on any specific area of the forest. This management approach is believed to provide for the greatest public benefit, by allowing compatible uses while protecting overall forest health, native ecosystems, and the functions and values associated with them.

4. Revenue Producing Activities

Numerous activities on FCSF provide for multiple-use, as well as generate revenue, to offset management costs. Revenue producing activities will be considered when they have been determined to be financially feasible and will not adversely impact management of the forest. Current and potential revenue producing activities for the FCSF include, but are not limited to:

- *Timber Harvests* – Timber harvests on FCSF will be conducted on a regular basis to improve forest health, promote wildlife habitat, restore plant communities, and provide other benefits.
- *Recreation Fees* – Fees are currently not collected for day use and camping (both walk-up and through online reservation system), although fees may be required as additional camping opportunities are installed or increased forest use justifies fee collection. Fees are collected for miscellaneous commercial vendor permits.
- *Other miscellaneous* – Other miscellaneous forest products including, but not limited to, palm fronds and berries, pinecones, pine straw, and firewood may be considered.

5. 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 FFS's management of public land is derived from Chapters 253, 259 and 589, F.S.

6. Legislative or Executive Constraints

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

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

7. Aquatic Preserve / Area of Critical State Concern

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

C. Capital Facilities and Infrastructure

1. Property Boundaries Establishment and Preservation

FCSF boundary lines, 25.1 miles total, are managed by state forest personnel in accordance with the guidelines of the State Forest Handbook. There are 18 gates throughout FCSF that require periodic maintenance. The state forest boundary lines are to be maintained by periodic clearing, repainting and reposting of state forest boundary signs by FFS personnel.

2. Improvements

No structures exist on the property at this time. Per available funding, plans for constructing an on-site office and equipment barn capable of supporting one forester, two or more forest rangers, and the necessary equipment to provide adequate fire suppression and state lands management activities are being considered.

3. On-Site Housing

There are no residences on FCSF.

FFS may establish on-site housing (mobile / manufactured home) on FCSF 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 District Manager and approved by the FFS 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 DHR and Florida Natural Areas Inventory (FNAI) for review and recommendations. This type of housing will not exceed three homes per location with the possibility of more than one on-site housing location occurring if considered necessary by the District Manager and approved by the Director.

4. Operations Infrastructure

a. Operations Budget

For Fiscal Year 2020-2021, the annual operational budget for FCSF was \$30,710.61. This amount includes expenses and contractual services. A summary budget for FCSF is contained in Exhibit V. Implementation of any of the activities within this management plan is contingent on availability of funding, other resources, and other statewide priorities.

b. Equipment

To carry out the mission of the FFS, FCSF maintains a diverse range of equipment such as one pick-up truck, road grader, loader, dump truck, farm tractor, ATV, ATV pull-behind harrows, UTV, batwing mower, riding mower, and several other pieces of landscape maintenance equipment. Additional equipment can be used from other resources throughout the Jacksonville District, when needed, for management activities on FCSF.

c. Staffing

The FCSF is managed by one (1) state lands Forester. Additional FFS employees provide support to forest resource planning, administrative function, and work project coordination, including the Nassau County Forest Area Supervisor, District Recreation Coordinator, OPS invasive species Biologist, and Nassau County based forest rangers.

The Forester will work to achieve the goals outlined in this management plan. Recreation planning and management activities, as well as resource management and planning activities, such as trail flagging/identification, recreational facility placement, timber cruising, and sale administration, etc., are the responsibility of the Forester under the direction of the Resource Administrator and District Manager. Forest operations, such as road maintenance, operations/recreational facility maintenance, prescribed burning, etc., are the responsibility of the Forest Area Supervisor under the direction of the Operations Administrator and the District Manager.

D. Additional Acquisitions and Land Use Considerations

1. Alternate Uses Considered

No alternate uses are being considered at this time. Alternate uses will be considered as requests are made and will be accommodated as appropriate if they are determined to be compatible with existing uses and with the management goals and objectives of the forest. Uses determined as incompatible include, but are not limited to: water resource development projects, water supply projects, storm-water management projects, sewage treatment facilities, linear facilities, off-highway vehicle use, communication towers and antennas, dumping, mining, and oil well stimulation (e.g. hydraulic fracturing/fracking), or as determined by law, regulation or other incompatible uses as described elsewhere in the management plan. Deadhead logging is not compatible and is not considered appropriate use within or adjacent to the state forest boundaries. Although no water resource projects are being considered at this time on SJRWMD-owned lands within FCSF, they should not be precluded.

2. Additional Land Needs

The purchasing of additional land, within the optimal management boundary would facilitate restoration, protection, maintenance, and management of the natural resources on FCSF.

There are four parcels of land comprised of 7,222 acres adjacent to the property which should receive priority for acquisition, as they would benefit the management of the property. FFS will work with the property owners, on a willing seller basis, to acquire these parcels. See Exhibit C.

3. Surplus Land Assessment

On conservation lands where FFS is the lead manager, FFS assesses and identifies areas for potential surplus land. This consists of an examination of resource and operational management needs, public access and recreational use, and GIS modeling and analysis.

The evaluation of FCSF by FFS has determined that all portions of the forest are being managed and operated for the original purpose of acquisition, as well as, center on the multiple-use concept, as defined in sections 589.04(3) and 253.034(2)(a), F.S. Implementation of this concept will utilize and conserve state forest resources in a harmonious and coordinated combination that will best serve the people of the state of Florida. Therefore, no portion of the FCSF is recommended for potential surplus.

4. Adjacent Conflicting Uses

Residential and commercial development adjacent to and within several miles of the FCSF boundary may restrict prescribed burning due to smoke management concerns.

FFS will cooperate with adjacent property owners, prospective owners, or prospective developers to discuss methods to minimize negative impacts on management, resources, facilities, roads, recreation, etc., and discuss ways to minimize encroachment onto the forest.

5. Compliance with Comprehensive Plan

This plan was submitted to the Board of County Commissioners in Nassau County for review and compliance with their local comprehensive plans. See Exhibit T.

6. Utility Corridors and Easements

FFS does not favor the fragmentation of natural communities with linear facilities. Consequently, easements for such uses will be discouraged to the greatest extent practical.

Currently there are no established utility corridors on FCSF. The FFS does not consider FCSF suitable for any new linear facilities.

When such encroachments are unavoidable, previously disturbed sites will be the preferred location. The objectives, when identifying possible locations for new linear facilities, will be to minimize damage to sensitive resources (e.g., listed species and archaeological sites), minimize habitat fragmentation, limit disruption of management activities, including prescribed burns, and limit disruption of resource-based multiple use activities such as recreation.

Collocation of new linear facilities with existing corridors will be considered but will be used only where expansion of existing corridors does not increase the level of habitat

fragmentation and disruption of management and multiple-use activities. FFS will further encourage the use of underground cable where scenic considerations are desirable. Easements for such utilities are subject to the review and approval of the TIITF and the SJRWMD. Requests for linear facility uses will be handled according to the Governor and the Cabinet's linear facilities policy.

E. Agency and Public Involvement

1. Responsibilities of Managing Agencies

FFS is the lead managing agency, responsible for overall forest management and public recreation activities, as stated in TIITF Management Lease Numbers 4507 and 4844. Pursuant to the management lease, the lead managing agency may enter into further agreements or to subleases on any part of the forest.

FFS will cooperate with DHR regarding appropriate management practices on historical or archaeological sites on the property as stated in Section 267.061, F.S. DHR will be consulted prior to the initiation of any ground disturbing activities by the FFS or any other agency involved with the forest.

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

The SJRWMD will be consulted and involved in matters relating to water resources and hydrological restoration as appropriate.

2. Law Enforcement

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

The FDACS Office of Agricultural Law Enforcement (OALE) will assist with open burning and wildfire investigations as needed. The Nassau County Sheriff's Office provide additional assistance as needed.

Special rules under Chapter 5I-4 of the FAC were promulgated for FDACS, FFS, to manage the use of state lands and better control traffic, and to oversee camping and other uses on FCSF.

3. Wildland Fire

FFS has the primary responsibility for prevention, detection, and suppression of wildfires wherever they may occur. FFS shall provide leadership and direction in the evaluation, coordination, allocation of resources, and monitoring of wildfire management and protection as stated in 590.01, F.S. FFS also has the responsibility of authorizing prescribed burns as

stated in 590.02 (1)(i), F.S.

4. Public and Local Government Involvement

This plan has been prepared by FFS and will be implemented by FFS. FFS responds to public involvement through liaison committees, management plan advisory groups, public hearings, and through ongoing direct contact with user groups. Land Management Review Teams as coordinated by the Division of State Lands have conducted three reviews of management plan implementation in 2010, 2014, and 2019. See Exhibit S. The review teams' recommendations were addressed in this plan, as appropriate.

A state forest liaison committee of private citizens and representatives of forest user groups meet semi-annually to provide input on forest management activities and share their ideas with FFS staff to improve the state forest.

The plan was developed with input from the FCSF Management Plan Advisory Group and was reviewed at a public hearing on October 21, 2021. A summary of the advisory group's meetings and discussions, as well as written comments received on the plan, are included in Exhibit U. The Acquisition and Restoration Council (ARC) public hearing and meeting serve as an additional forum for public input and review of the plan.

5. Volunteers

Volunteers are important assets to FCSF. Volunteer activities may occur as one-time events or in association with long-term recurring projects and routine maintenance. Additional volunteer recruitment will continue to assist furthering the FFS's mission.

6. Friends of Florida State Forest

Friends of Florida State Forests Inc. (FFSF) is a Direct Support Organization (DSO) of the FFS. FFSF supports management activities and projects on Florida's state forests. FFSF is an organization established by Florida statute that supports programs within Florida's state forests and is governed by a board of directors representing all areas of the state. Through community support, FFSF assists the FFS to expand opportunities for recreation, environmental education, fire prevention, and forest management within Florida's state forests.

The FFSF program is referenced in Chapter 589.012, F.S. For more information visit: www.floridastateforests.org.

III. Archaeological/Cultural Resources and Protection

A. Past Uses

The land that comprises FCSF has played an important historic role in the commerce of north Florida, beginning in the 1800s with the growth and expansion of the railroad industry in Nassau County. Several large railways were constructed during this time, including David Yulee's Florida Railroad, which ran parallel to the northern boundary of the forest. Several smaller rail spurs crossed through the forest, remnants of which can still be found. These railways transported pine and cypress lumber from Nassau County to the ports of downtown Jacksonville. By the 1900s, the railroad spurs were abandoned. After several decades of turpentine and

cattle grazing, the land was sold to various industrial forest products companies. An era of intensive pine management for pulpwood production began, continuing until state acquisition.

B. Archaeological and Historical Resources

A review of information contained in the Florida Department of State, Division of Historical Resources, Florida Master Site file has determined there is one recorded archaeological resource group on FCSF. It is currently not listed in the National Register of Historic Places. See Exhibit G.

Table 4. Historical Sites on FCSF

Site ID	Site Name	Site Type
NA01247	Italia	Resource Group

C. Ground Disturbing Activities

Representatives of DHR and FNAI will be consulted prior to the initiation of proposed ground disturbing activity as required per DHR guidelines. FFS will make every effort to protect known archaeological and historical resources. FFS will follow the “Management Procedures for Archaeological and Historical Sites and Properties on State Owned or Controlled Lands” and will comply with all appropriate provisions of Section 267.061(2)(a,b), F.S. (Exhibit H). Any significant ground disturbing activity proposal will be submitted to DHR’s Compliance and Review office for review prior to undertakings and allow the Division a reasonable opportunity to comment. Ground disturbing activities not specifically covered by this plan will be conducted under the parameters of the “List of ARC / Division of State Lands Approved Interim Management Activities”.

D. Survey and Monitoring

Currently no assigned FCSF staff are trained by DHR as ARM monitors. However, seven district staff trained as ARM monitors provide oversight as required for any ground disturbing and management activities that occur. FFS will pursue opportunities for training additional personnel. Unless required on a more frequent basis, all archaeological and historical sites within the state forest will be monitored annually. FFS field staff will monitor the listed site to note condition and any existing or potential threats. FFS will consult the public lands archaeologists at DHR to determine any protection measures that might be required for sites with existing or potential threats.

Any known archaeological and historical sites will be identified on maps to aid State Forest personnel and if necessary, law enforcement personnel in patrolling and protecting sites. Applicable surveys will be conducted by ARM monitors or contracted archaeologists during the process of planning and implementing multiple-use management activities. FFS personnel will remain alert for any environmentally significant resource discoveries and protective actions will be taken as necessary. In addition, FFS will seek the advice and recommendations of DHR regarding any additional archaeological survey needs. Trained monitors may oversee limited types of ground disturbing activities in which DHR recommends monitoring. FFS will utilize the services of DHR Public Lands archaeologists, when available, to locate and evaluate unknown resources, and to make recommendations in the management of known resources.

IV. Natural Resources and Protection

The primary purpose for FFS management of FCSF is protection of wetlands and associated natural communities within the floodplain of the St. Johns River through a stewardship ethic to assure these resources will be available for future generations. Management activities will be executed in a manner to minimize soil erosion and maintain and protect/enhance the hydrological resources on FCSF. If problems arise, corrective action will be implemented by FFS staff under the direction of FFS's Forest Hydrology Section. Efforts will be made to monitor and protect FCSF's waterbodies and their associated water quality and native plants and animals.

FCSF falls within the jurisdiction of the SJRWMD. FFS will coordinate with SJRWMD and/or FDEP, as necessary, on activities pertaining to water resource protection and management. Any activities requiring water management district permits will be handled accordingly. FFS will work with SJRWMD to ensure that levels and quality of ground and surface water resources are appropriately monitored.

A. Soils and Geologic Resources

1. Resources

Soil information for FCSF was obtained from the United States Department of Agriculture Natural Resources Conservation Service (NRCS). The predominant soils listed by the NRCS are the Chaires fine sand series and Goldhead fine sand series. The Goldhead series is found in slightly lower elevations and sloughs. Both series consist of nearly level, poorly drained soils. Additional soils series present on FCSF include the Buccaneer clay series and the Croatan muck. These soils are the dominant series in the wetland communities. Detailed information on all soils present on the state forest may be found in Exhibit I.

2. Soil Protection

Management activities will be executed in a manner to minimize soil erosion. As problems arise, corrective action will be implemented by FFS staff under the direction of the FFS Forest Hydrology section in conjunction with recommendations as contained in the most current version of the Florida Silviculture BMP.

Currently the only known soil erosion concerns at FCSF occur on the bank of Alligator Creek at the Saul's Landing recreation area and on the bank of Mills Creek at the Hobb's Landing recreation area. Successive flooding events, often combined with abnormally high tidal fluctuation, have created small depressions in the creek bank. As their sides slowly crumble away and deposit into the creek, new hollows form and reach further into the bank. This type of creek bank erosion is common along the outside bends of creeks during major flood stage events and is not a direct result of management activities. Since this erosion is a potential threat to recreational infrastructure, it is discussed in the Public Access and Recreation section of this plan.

B. Water Resources

The water resources on FCSF perform essential roles in the protection of water quality, groundwater recharge, flood control, and aquatic habitat preservation. In the interest of maintaining these valuable resource functions, state forest management personnel will work with the FFS Hydrology Section to incorporate 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. See Exhibit K for a map of the water resources at FCSF.

1. Resources

Four main waterways flowing through FCSF form a network of navigable waterways. Thomas Creek forms the southern boundary of the forest and serves as the county divide between Nassau and Duval Counties. Alligator Creek is a manmade canal that flows for one and a half miles across the forest before turning into Mills Creek. Mills Creek then flows for approximately six miles before joining with Boggy Creek. Boggy Creek flows in from the north for about two miles before forming the headwaters of the Nassau River. A third system, Plummer Creek, also flows into the Nassau River. Thomas Creek also joins with the Nassau River, which then flows east to the Atlantic Ocean. All the creeks are navigable by small watercraft.

2. Water Classification

The Florida Department of Environmental Protection, Standards Development Section reports all surface waters on FCSF are classified as Class III waters which is the statewide default classification under subsection 62-302.400(15) FAC.

According to subsection 62-302.700(9) F.A.C., two Outstanding Florida Waters are adjacent to, or near the state forest. These are the Nassau Valley State Reserve OFW (62-302.700(9)(e)9 F.A.C. and the Timucuan Ecological and Historic Preserve OFW (62-302.700(9)(k)2 F.A.C. See Exhibit J.

3. Water Protection

Water resource protection measures, at a minimum, will be accomplished using BMP guidelines as described in the most current version of Silviculture Best Management Practices Manual.

4. Swamps, Marshes, and Other Wetlands

In addition to the waterways, FCSF contains approximately 6,312 acres in eight hydric communities: basin swamp, dome swamp, floodplain swamp, bottomland forest, baygall, floodplain marsh, salt marsh, and blackwater stream. Maintenance of naturally occurring wetland communities is a high priority and will be accomplished through appropriate management activities, including prescribed fire when necessary, and adherence to Silviculture BMP.

5. Wetlands Restoration

Wetlands restoration objectives on the state forest include erosion control, restoration of water levels and / or hydroperiods, 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, non-native invasive species control, site preparation and re-vegetation with native wetlands species, and project monitoring. These activities may be conducted individually or concurrently; implemented by FFS personnel or by non-FFS personnel under mitigation or grant

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

Where applicable, FCSF, with assistance from the FFS Forest Management Bureau, may pursue funding to develop and implement wetlands restoration projects. Additionally, cooperative research among FFS, other state agencies, and the federal government will provide valuable information in determining future management objectives of wetlands restoration.

Wetlands restoration will be coordinated with the SJRWMD. Any activities requiring permits from the water management district will be handled accordingly and will follow the latest edition of the FFS Silviculture BMP Manual.

6. Florida Department of Environmental Protection Basin Management Action Plans (BMAP)

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

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

Currently FCSF does not reside in an active or pending BMAP zone.

C. Floral and Faunal Resources

1. Rare, Threatened, and Endangered Species

The intent of FFS is to manage FCSF in a fashion that will minimize the potential for wildlife species to become imperiled. FFS employees continually monitor the forest for threatened or endangered species while conducting management activities. Specialized management techniques may be used, as necessary, to protect or increase protection of rare, threatened, and endangered species, as applicable for both plants and animals. See Table 5.

Table 5. Rare, Threatened, or Endangered Species Documented on FCSF

Common Name	Scientific Name	FNAI Global Rank*	FNAI State Rank*	Federal Status*	State Status*
American alligator	<i>Alligator mississippiensis</i>	G5	S4	SAT	FT(S/A)
Blueflower butterwort	<i>Pinguicula caerulea</i>	G4	S3S4	N	LT
Gopher tortoise	<i>Gopherus polyphemus</i>	G3	S3	C	ST

Common Name	Scientific Name	FNAI Global Rank*	FNAI State Rank*	Federal Status*	State Status*
Hooded pitcherplant	<i>Sarracenia minor</i>	G4	S4	N	ST
Little blue heron	<i>Egretta caerulea</i>	G5	S4	N	ST
Painted bunting	<i>Passerina ciris</i>	G5	S3	N	N
Tricolored heron	<i>Egretta tricolor</i>	G5	S4	N	ST
Wood stork	<i>Mycteria americana</i>	G4	S2	T	FT
Crested yellow orchid	<i>Platanthera cristata</i>	G5	S3S4	N	LT

*** STATUS/RANK KEY**

FNAI Global Rank: G1= Critically Imperiled, G2= Imperiled, G3= Rare, G4= Secure, G5= Demonstrably Secure, G#Q= Rare but questionable whether it is species or subspecies

FNAI State Rank: S1= Critically Imperiled in Florida, S2= Imperiled in Florida, S3= Rare in Florida, S4= Secure in Florida, S5= Demonstrably secure in Florida, SU= Not under review in Florida

Federal Status (USFWS): C= Candidate species for which Federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened, E= Endangered, N= Not currently listed, T= Threatened, SAT= Treated as Threatened due to similarity of appearance.

State Status (FWC): C= Candidate for listing, FE= Listed as Endangered Species at the Federal level by the USFWS, FT= Listed as Threatened Species at the Federal level by the USFWS, FT(S/A)= Federal Threatened due to similarity of appearance, N= Not currently listed, nor currently being considered for listing, ST= State population listed as Threatened by the FFWCC.

2. Florida Natural Areas Inventory

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

a. Element Occurrences

FNAI element occurrences data layer includes occurrences of rare species and natural communities. For animals and plants, element occurrences usually indicate a viable population of the species. FNAI reports a few documented Element Occurrences of rare or endangered species within the vicinity of the property. See Exhibit L.

Documented habitat includes: Basin swamp, baygall, bottomland forest, dome swamp, floodplain marsh, floodplain swamp, hydric hammock, mesic flatwoods, mesic hammock, salt marsh, and wet flatwoods.

b. Likely and Potential Habitat for Rare Species

In addition to documented occurrences, other rare species and natural communities may be identified on or near FCSF. Rare species and communities that have not been documented but that are likely or potential at the site are listed in Exhibit L.

c. Land Acquisition Projects

FCSF is located within the Northeast Florida Timberlands and Watershed Reserve Project, a Florida Forever BOT project, which is part of the State of Florida's Conservation and Recreation Lands land acquisition program.

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

3. Florida Fish and Wildlife Conservation Commission

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

Other findings by the FWC include:

- a. No Strategic Habitat Conservation Areas (SHCA) occur within the property boundaries, although the property itself is surrounded by multiple SHCAs.
- b. FCSF is located within an area of moderate Species Richness which is the number of species within a given sample, community, or area.
- c. Multiple Priority Wetlands are located near FCSF.
- d. FWC's response includes a map indicating multiple species locations.

These data represent only those occurrences recorded by FWC staff and other affiliated researchers. The database does not necessarily contain records of all listed species that may occur in a given area. Also, data on certain species are not entered into the database on a site-specific basis. Therefore, one should not assume that an absence of occurrences in their database indicates that species of significance do not occur in the area. See Exhibit N.

The FWC recommends the review of management guidelines in the published FWC Gopher Tortoise Species Management Plan to guide management actions for the gopher tortoise (*Gopherus polyphemus*) on the area. The FWC Gopher Tortoise Species Management Plan provides beneficial resource guidelines for habitat management and monitoring of the gopher tortoise. For reference, the FWC Gopher Tortoise Species Management Plan can be accessed at MyFWC.com.

The FWC recommends the review of management guidelines in FWC's published Species Action Plans for the management of imperiled, rare, and focal species. The FWC Species Action Plans provide beneficial resource guidelines for habitat management and monitoring of the respective species. For reference, the FWC Species Action Plans can be accessed at MyFWC.com.

4. Game Species and Other Wildlife

Wildlife management plays an important role in the management of resources on FCSF. FWC provides cooperative technical assistance in managing the wildlife and fish populations, setting hunting seasons, establishing bag and season limits, and overall wildlife and fish law enforcement on the forest.

Most of the state forest is part of the Four Creeks Wildlife Management Area (WMA). 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.

Notable wildlife documented in the WMA includes deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), wild hog (*Sus scrofa*), gopher tortoise (*Gopherus polyphemus*), wading birds such as great egret (*Ardea alba*) and tricolored heron (*Egretta tricolor*), and numerous species of resident and migratory songbirds like Carolina chickadee (*Poecile carolinensis*) and cedar waxwing (*Bombycilla cedrorum*). Freshwater turtles and otters (*Lontra canadensis*) may occur along the creek.

FFS and FWC cooperatively maintain approximately 7 acres of permanent wildlife openings and planted food plots on the FCSF. Wildlife openings and food plots will be established and maintained in accordance with the FFS State Forest Handbook.

Non-game species will be managed and protected through the restoration and maintenance of native ecosystems found on the forest. The current State Forest Handbook gives additional details for such topics as snag management and retention.

5. Survey and Monitoring

FFS will implement species-specific management plans developed by FWC and other agencies as applicable. FFS will cooperate with FWC and other agencies in the development of new wildlife management plans and monitoring protocols, as necessary. Such plans will be consistent with rule and statute promulgated for the management of such species.

a. Gopher Tortoises

Surveys for gopher tortoise burrows have been conducted by FFS and FWC staff intermittently, as needed. All surveys are done in cooperation with FWC.

b. Florida Black Bear

FFS will continue to cooperate with FWC to implement FWC's state-wide Florida Black Bear Management Plan, with an emphasis on maintaining sustainable black bear populations in suitable habitats throughout Florida for the benefit of the species and people.

c. Listed Plant Species

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

d. Other Rare Biota Surveys

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

During routine management activities, incidental sightings of rare animals and plants are GIS-mapped by FFS staff. All rare species data is collected and sent to FNAI annually.

Surveys conducted by university researchers and students and knowledgeable naturalists on FCSF augment information provided by formal surveys conducted by FWC and other cooperating agencies. The FFS will seek assistance from citizen science, colleges, universities and other agencies to gather data on plant and animal species.

D. Sustainable Forest Resources

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

E. Beaches and Dune Resources

No beaches occur on FCSF.

F. Mineral Resources

No mineral resources of commercial value are known to exist on this property.

G. Unique Natural Features and Outstanding Native Landscapes

Thomas Creek, Alligator Creek/Mills Creek, Plummer Creek, and Boggy Creek merge at the east end of the forest to form the Nassau River. This complex system of creeks on FCSF is considered a unique natural feature.

H. Research Projects / Specimen Collection

Research projects may be performed on the forest on a temporary or permanent basis for the purpose of obtaining information that furthers the knowledge of forestry and related fields. FFS cooperates with other governmental agencies, non-profit organizations, and educational institutions, whenever feasible, on this type of research. FFS will consider assisting with research projects when funds and manpower are available.

All research to be conducted on FCSF must be considered in accordance with the guidelines stated in the State Forest Handbook. Any requests for research should be submitted in writing to the appropriate field staff to be forwarded to the Forest Management Bureau for approval. Requests must include: a letter outlining the purpose, scope, methodology, and location of the proposed research. Requests are subject to review by FFS foresters, biologists, the Forest Health Section, and the Forest Hydrology Section, as appropriate. Authorization to conduct research will require that the investigator provide copies of any reports or studies generated from any research to the FFS and the FCSF staff. Other special conditions may be applicable, and the authorization may be terminated at any point if the study is not in compliance.

Research projects / specimen collections that have been initiated on the property include:

- *Callisia* genetic traits – Florida Museum of Natural History (2015)
- Ornate Chorus Frog (*Pseudacris ornata*) status and distribution – Florida Fish and Wildlife Conservation Commission (2015)
- Florida Duskywings (Lepidoptera:Hesperiidae:*Erynnis horatius*) – McGuire Center for Lepidoptera and Biodiversity (2018)
- *Trichostema* distribution and evolutionary trends – University of North Carolina (2018)

- Lepidoptera, Coleoptera, Diptera, and Hymenoptera – McGuire Center for Lepidoptera and Biodiversity (2019)

I. Ground Disturbing Activities

Although the FFS's approach to handling ground disturbing activities is identified in other sections of this plan, the FFS's overall approach to this issue is summarized here. FFS recognizes the importance of managing and protecting sensitive resources and will take steps to ensure that such resources are not adversely impacted by ground disturbing activities. Sensitive resources include areas such as known sensitive species locations; archaeological, fossil, and historical sites; ecotones, wetlands, and water resources. The process for evaluating and obtaining approval for ground disturbing activities is outlined in Appendix 2.A.6. of the State Forest Handbook.

When new pre-suppression firelines, recreational trails, or other low-impact recreational site enhancements are necessary, their placement will be reviewed by state forest field staff to avoid sensitive areas. For ground disturbing activities such as construction of buildings, parking lots, and new roads, the FFS will consult with FNAI, DHR, SJRWMD, and the Acquisition and Restoration Council (ARC), as appropriate.

V. Public Access and Recreation

The primary recreation objective is to provide the public with dispersed outdoor recreational activities that are dependent on the natural environment. FFS will continue to promote and encourage public access and recreational use by the public while protecting resources and practicing multiple-use management.

Periodic evaluations will be conducted by FFS staff to monitor recreational impacts on resources. Modifications to recreational uses will be implemented should significant negative impacts be identified. New recreation opportunities and facilities, which are compatible with the primary goals and responsibilities of the FFS, will be considered only after FFS determines their compatibility with other forest uses and forest resources. Assessment of visitor impacts, outdoor recreation opportunities and facilities, and proposed changes will all be addressed in the Five-Year Outdoor Recreation Plan updates.

A. Existing Recreational Opportunities

The FCSF provides one (1) vehicular, and one (1) walk-in public entrance via FL-200, and an additional vehicular entrance at the intersection of Bismark and Pacetti Road in the town of Callahan. There are a wide variety of recreational opportunities available at FCSF. Hunting, wildlife viewing, picnicking, hiking, horseback riding, bicycling, fishing, boating, paddling, and primitive camping can be enjoyed using existing service roads and established trails. See Exhibit D for a map of the facilities and improvements.

- More than 43 miles of non-paved roads
- Hunting on more than 13,000 acres
- Annual youth turkey hunts
- Self-guided hiking
- Four landings for canoe and kayak entry
- Three recreation areas with picnic tables and canoe launches

- One (1) primitive, drive-up campground with 3 sites

B. Planned Recreational Opportunities

FFS will continue to assess plans for additional recreational opportunities based on demand, carrying capacity, demographics, and impact to the resources on the forest. All planned improvements may be completed as staff and funding permits. Both terrestrial and aquatic resources and related activities will be evaluated. Any specific plans will be incorporated into the Five-Year Outdoor Recreational Plan on file at FCSF.

1. Public Access and Parking

Within this ten-year planning cycle, the addition of new parking and forest access points will be evaluated and constructed based on management-determined needs. Existing parking, forest access points, and recreational areas will continue to be evaluated for updates and improvements.

2. Recreational Trails

Suitable locations are being evaluated for new hiking, bicycle, horse and/or multiple use trails. The construction and maintenance of these trails will be on-going.

3. Waterway Stabilization and Improvements

The installation of waterway bank stabilization (bulkheads), improved kayak/canoe launches, fishing docks, and boardwalks are being considered.

4. Camping

Suitable locations are being evaluated for additional camping opportunities. Camping areas/campgrounds may be drive-up, hike-to, primitive, have electric and/or water facilities, recreational vehicle capable, and screened-in structures.

5. Recreational Vehicle (RV) Camping

Locations within FCSF are being evaluated for future full-service camping. A full-service campground may include sites with electric and water hookups, concrete pads, a bathhouse facility, and a central septic dump station.

6. Environmental Education

As the surrounding population continues to grow, environmental education opportunities will be supported by the FFS and local staff. Programs and/or projects with school groups, environmental organizations, private landowners, Boy/Girl Scouts, 4-H, local FFA, and similar entities will be encouraged. Nassau County and various Jacksonville District staff will continue to deliver on-site and off-site environmental education programs as requested.

FFS currently provides visitors to FCSF environmental education through interpretive displays in existing kiosks. The addition of new kiosks and other interpretive displays will be evaluated and installed based on management determined needs.

7. Wildlife Viewing/Scenic Overlooks

Suitable locations are being evaluated for wildlife viewing and scenic waterway overlook

platforms. These structures may be constructed along creeks or overlooking established food plots and other openings.

C. Hunter Access

FCSF is open to regulated hunting. FWC manages hunting on FCSF. Hunting season dates, limits, and methods are established annually by FWC, in cooperation with the FFS. Four Creeks Wildlife Management Area (WMA) regulations are updated annually and are identified in the current WMA online brochure provided by FWC at MyFWC.com.

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

VI. Forest Management Practices

A. Prescribed Fire

Forest management practices on FCSF are important in the restoration and maintenance of forest ecosystems and provide a variety of socio-economic benefits to Floridians. Management practices on FCSF include a prescribed fire program which is an effective tool in controlling the encroachment of shrubs and off-site hardwoods, stimulating the recovery of native herbaceous groundcover, and promoting the regeneration of native pines.

FFS utilizes a fire management program on state forests that includes wildfire prevention, detection and suppression, and prescribed burning. This program is the responsibility of FFS's Jacksonville District and is detailed in the Five-Year Prescribed Burning Management Plan. Emphasis will be placed on prescribed burning, wildfire prevention, and education to help reduce wildfire occurrence on the forest.

A fire history graph detailing the recent history of prescribed burns and wildfires at FCSF is available in Exhibit N.

FFS has one (1) non-useable fire tower and three (3) tractor-plow units located in Nassau County. An additional tractor-plow unit located at the Tisonia field station in Duval County provides support to the Nassau response area. Additional support is available from neighboring counties. Personnel and equipment stationed at FCSF will be used for pre-suppression practices, establishment of firebreaks, rehabilitation of existing firelines, construction of new firelines, maintenance of perimeter firebreaks, and prescribed burning.

The annual forest prescribed burning program produces multiple benefits. The purposes of prescribed burning on FCSF are to facilitate forest management operations; enhance wildlife and listed species habitat; decrease fuel loading; enhance public safety; and restore, maintain, and protect all native ecosystems, ecotones, and their ecological processes. FFS personnel are responsible for planning and implementing the annual prescribed burn program for FCSF, which will consist of dormant and growing season burns. An update to the Five-Year Prescribed Burning Management Plan is developed each year by FFS staff. All burns conducted on FCSF are executed by Florida Certified Prescribed Burn Managers in accordance with Chapters 590.125, F.S. and 5I-2 F.A.C.

According to FNAI, historic, fire-dependent natural communities on FCSF are estimated to have occupied approximately 8,785 acres and to have burned at approximately 2 to 5-year intervals in the flatwoods, 1 to 5-year intervals in the floodplain and salt marshes, and from 2 to 100-year intervals in the dome swamps. Current fire-dependent communities encompass 6,857 acres. Based on current conditions and management objectives, FCSF will plan for 1,500 to 2,000 acres to be prescribed burned annually. Meeting prescribed fire goals will be largely dependent on weather conditions, available personnel, and statewide emergency situations such as wildfires, hurricanes, and other natural disaster response and relief.

1. Fire Management

The fire management plan will serve as a working tool and an informational document for FCSF. The plan will provide guidelines in regard to wildfire suppression and prescribed fire management. It will specify burn units, burn unit prescriptions, appropriate fire-return intervals, and fire suppression planning. The plan may be reviewed and amended as necessary.

The use of prescribed fire in the management of timber, wildlife, and ecological resources on FCSF is necessary if the FFS is to fulfill the goals and objectives stated in this plan including: enhancing and restoring native plant communities, managing protected species, managing timber, recreation, historical, and other resource values. The fire management plan and its objectives shall reflect and incorporate these multiple-resource objectives.

- a. Prescribed Fire:** Prescribed fire is the most important land management tool, both ecologically and economically, for managing vegetation and natural communities, and for perpetuating existing wildlife populations in Florida. Forest operational records and staff experience should be combined with the FNAI inventory and assessment (2016) to identify areas that may require mechanical or chemical treatments in conjunction with prescribed fire to restore a more natural vegetative structure.
- b. Burn Unit Plans:** Each prescribed fire will be conducted in accordance with FFS regulations and state law (Rule Chapter 5I-2 F.A.C., Chapter 590 F.S.) and have a burn unit plan (or prescription). Each prescription will contain, at a minimum, the information required by Section 590.125(3), F.S., needed to complete the FFS Prescribed Burn Plan Form FDACS 11461.

Aerial ignition may be considered for large burn units where this tactic can be cost effective for larger burn acreages. Consideration should be given to rotating burn units between dormant and growing season burns over time. Fire-return intervals for a burn unit are recommended to fall within the natural, historic range for the dominant natural community or communities within a given burn unit.

Based upon available species survey data, burn units within a prescription that have listed wildlife species shall explicitly state their presence and any restrictions or requirements relative to prescribed burning in proximity to these species or habitats. These may include time of year, pre-burn preparation, fire-return intervals, and other burn parameters.

B. Wildfires, Prevention, Fire / Prescribed Fire Strategies

FFS utilizes a comprehensive wildfire management approach on state forests that includes an ongoing program of wildfire prevention, detection and suppression, and prescribed burning. Implementation of this program is the responsibility of FFS's Jacksonville District. Emphasis will be placed on consistent accomplishment of prescribed burning goals and community outreach to increase public understanding of wildfire prevention and the benefits of prescribed fire.

FFS has three paramount considerations regarding wildfires and these are established in priority order:

- 1) Protection of human lives
- 2) Protection of improvements
- 3) Protection of natural resources

All procedures regarding wildfire will follow the State Forest Handbook and the FCSF Fire Management Plan.

1. Suppression Strategies

If a wildfire occurs on FCSF there are two alternative suppression strategies as defined below:

- a. **Contain and Control** is defined as a suppression strategy where a fire is restricted to a certain area by using existing natural or constructed barriers that stop the fire's spread under the prevailing and forecasted weather until it is out. This strategy allows the use of environmentally sensitive tactics based on fuels, fire behavior, and weather conditions that keep a wildfire from burning a large area or for a long duration.
- b. **Direct Suppression** is defined as a suppression strategy where aggressive suppression tactics are used to establish firelines around a fire to halt its spread and to extinguish all hotspots. This alternative is used whenever there is a threat to human life, property, private lands, and/or critical natural or cultural resources. This strategy should also be used when the total district fire load dictates that crews not be involved with individual fires for any longer than absolutely necessary.

Appropriate suppression action will be that which provides for the most reasonable probability of minimizing fire suppression cost and critical resource damage, consistent with probable fire behavior, total fire load, potential resource and environmental impacts, safety, and smoke management considerations. The Incident Command System (ICS) will be used for all suppression actions.

2. Smoke Management

Caution will be exercised to prevent a public safety or health hazard from the smoke of any prescribed burn or wildfire. Prescribed burns must pass the smoke screening procedure and be conducted by a certified burner. If smoke threatens to cause a safety hazard, then direct immediate suppression action will be taken.

3. Firebreaks and Firelines

A system of permanent fire breaks will be developed and maintained around and within the boundaries of FCSF to guard against fires escaping from and entering the forest. Such fire breaks will consist of natural barriers, roads, trails, permanent grass strips and where appropriate, well-maintained harrowed lines. All pre-suppression fire breaks will meet the established Silvicultural BMP criteria.

During wildfire suppression, the use of water and foam, permanent fire breaks, natural barriers and existing roads and trails for firelines can be used when human life, safety, property, and resource considerations allow. Plowed and / or bladed lines will be used for initial installation of firelines in heavy fuels and in cases where it's considered necessary to protect life, property, or resources and/or to minimize threats to firefighters. Plowed and bladed lines will be rehabilitated, and BMPs implemented as soon as practical after the fire is suppressed.

4. Sensitive Areas

FCSF retains on file in the state forest headquarters an Environmentally Sensitive Area Map that identifies protected sites such as critical wetlands and archaeological and historical sites known to occur on the state forest. FFS personnel are aware of these areas in the event of a wildfire. Special precautions will be followed when prescribed burning in sensitive areas on FCSF. When possible, fire staff will avoid line construction in wetland ecotones throughout the forest.

5. Firewise Communities

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

6. Adjacent Neighbor Contacts

The staff at FCSF maintains a list of neighbors that have requested they be notified in advance of prescribed burns. These families are contacted by telephone or email with potential sites and dates of anticipated prescribed burns.

7. Post-Burn Evaluations

A post-burn evaluation is required for each prescribed burn on the state forest to assess impacts on timber and habitat. Based on the evaluations, decisions will be made on the effectiveness of the prescribed burn and improvements that can be made in the future. A historical fire record for all significant fires and prescribed burns will be maintained. This will be accomplished using completed burn plans and through the maintenance of GIS data. These records are intended to provide data for future management decisions.

C. Sustainable Forestry and Silviculture

Timber is a valuable economic and ecological resource, and timber harvesting for the purposes of generating revenue, improving stand viability, forest health, wildlife, and ecological restoration and maintenance is critical to the silvicultural objectives on the state forest.

1. Strategies

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

- a. To restore and maintain forest health and vigor through timber harvesting, prescribed burning, and reforestation, both naturally and artificially, with species native to the site.
- b. To create, through natural or artificial regeneration, uneven-aged, and even-aged management, a forest with both young and old growth components that yields sustainable economic, ecological, and social benefits.

2. Silvicultural Operations

Silvicultural operations on FCSF will be directed toward improving forest health, wildlife habitat, ecological and economical sustainability, as well as toward recovery from past management practices that are not in accordance with the objectives of this plan. Stands of any off-site species with merchantable volume will be scheduled for harvest, followed by reforestation with the appropriate tree species. Herbicide applications may be necessary to control woody competition and to re-establish desired natural species of both overstory and groundcover. Site preparation methods may include prescribed fire, mechanical vegetation control, and / or herbicide applications. Herbicides used will be registered for forestry use by the U.S. Environmental Protection Agency (EPA) and will not adversely affect water resources.

Prescribed fire is the most desirable method of vegetation control in fire-dependent ecosystems. However, due to the existence of areas where fuel loads have reached dangerous levels or urban interface dictates prescribed fire is not suitable, mechanical or chemical vegetation control may be used. Mechanical and / or chemical vegetation control will be utilized where appropriate as determined by FFS staff for wildlife enhancement, fuel mitigation, and reforestation.

Maintenance and restoration of timber stands and natural communities through timber harvesting will include thinning for maintenance, regeneration harvests applicable to the species present, and clear-cutting to remove off-site species.

All silvicultural activities, including timber harvesting and reforestation, will meet or exceed the standards in FFS's Silviculture BMPs and State Forest Handbook, and will follow the Five-Year Silviculture Action Plan.

3. Forest Inventory

The purpose of a forest inventory is to provide FFS resource managers with information and tools for short and long-range resource management and planning. Ten percent of FCSF's forested acreage will be re-inventoried annually to provide an accurate estimation of the standing timber and to ensure that stands will be managed sustainably.

Timber / forestry resources available on the property include commercially important pine species such as slash, longleaf, loblolly, and occasional pond pine, as well as other significant species such as cypress, cedar, and mixed hardwoods.

4. Timber Sales

Timber sales are generally advertised for competitive bids and sold on a per unit or lump sum basis. All timber sales are conducted according to guidelines specified in the State Forest Handbook.

5. Cattle Grazing

Cattle grazing activities assist in maintaining pastures and controlling non-native plants, support the maintenance of fences and gates, and provide a source of income.

Currently there are no cattle leases on FCSF.

6. Sustainable Forestry Initiative

The Sustainable Forestry Initiative (SFI) 2015-2021 Forest Management Standard promotes sustainable forestry practices based on 13 Principles and 15 Objectives. These requirements include measures to protect water quality, biodiversity, wildlife habitat, species at risk, and forests with exceptional conservation value. The SFI 2015-2021 Forest Management Standard applies to any organization in the United States or Canada that owns or manages forestlands.

The SFI program is committed to continuously improving responsible forest management. SFI Program Participants must meet or exceed applicable water quality laws and regulations, with measures to manage and protect wetlands and riparian zones on certified lands. Participants must continually evaluate habitat and biodiversity impacts from forest activities which leads to improved habitat quality and protection of imperiled or critically imperiled species.

D. Non-Native Invasive Species Control

FFS employees continually monitor the forest for non-native invasive species while conducting management activities. FFS will locate, identify, and apply control measures with the intent to eradicate or control non-native invasive species. Table 6 lists the general treatment strategy, acres impacted, and population stability trend for non-native invasive plant species occurring on FCSF. Also see Exhibit O.

On-going maintenance and monitoring strategies are outlined in the Five-Year Ecological Management Plan which is developed to locate, identify, and control non-native invasive plant species. Occurrences of non-native invasive species are recorded in the FCSF GIS database and are monitored and treated annually as funding permits. The GIS database is updated as new infestations are discovered.

Adjacent landowners who are known to have these species on their property will be approached to cooperate on control measures. FFS works to control the spread of non-native invasive species by decontaminating agency equipment and equipment used by private contractors according to the State Forest Handbook.

FFS will enlist support from FWC in efforts to control non-native invasive animals. Feral hogs (*Sus scrofa*) are present on FCSF but are not believed to occur in any substantial numbers at this

time. FWC has issued a feral hog control permit to FFS for all state forests and FFS will allow for feral hog removal on FCSF through trapping and hunting as necessary.

Training in the identification and control of invasive species will be scheduled for personnel as time and resources permit. Training concerning non-native invasive plants will be coordinated with the Forest Management Bureau's Forest Health Section. Control of non-native invasive species will be target-specific and use a variety of methods including appropriately labeled and efficacious herbicides.

Table 6. Non-Native Invasive Plant Species Occurring on FCSF

Common Name	Scientific Name	Treatment Strategy	Acres Impacted	Increasing /Decreasing
Chinese tallow	<i>Triadica sebifera</i>	Single and/or broadcast manual/mechanical and herbicide treatment	Forest-wide	Increasing
Cogongrass	<i>Imperata cylindrica</i>	Spot treatment with herbicide	.1 ac Sporadic occurrence	Decreasing/ Stable
Japanese Climbing Fern	<i>Lygodium japonicum</i>	Spot treatment with herbicide	Scattered with varying intensity of occurrence	Increasing
Tropical Soda Apple	<i>Solanum viarum</i>	Spot treatment with herbicide	Sporadic occurrence	Stable

E. Insects, Disease, and Forest Health

Currently there are no significant insect or disease problems on FCSF. State forest staff monitors for incidental outbreaks of pine bark beetles (*Ips* spp.) throughout the forest. These outbreaks generally run their course without involving more than several acres. Aerial surveys are conducted every March / April through the growing season for southern pine beetle (*Dendroctonus frontalis*) outbreaks. In the event of a forest pest or disease outbreak, FCSF resource managers will consult with the Forest Management Bureau's Forest Health Section to formulate an appropriate and effective response.

In compliance with Section 388.4111, F. S., and in Section 5E-13.042, F.A.C., all lands have been evaluated and subsequently designated as environmentally sensitive and biologically highly productive. Such designation is appropriate and consistent with the previously documented natural resources and ecosystem values and affords the appropriate protection for these resources from arthropod control practices that would impose a potential hazard to fish, wildlife, and other natural resources existing on this property. The local arthropod control agency in Nassau County will be notified of the approval of this plan, documenting this designation.

As a result, prior to conducting any arthropod control activities on FCSF, the local agency must prepare a public lands control plan that addresses all concerns that FFS may have for protecting the natural resources and ecosystem values on the state forest. In this regard, FFS will provide

the local agency details on the management objectives for FCSF. This public land control plan must be in compliance with FDACS guidelines and using the appropriate FDACS form. The plan must then be approved and mutually adopted by the county, FFS, and FDACS, prior to initiation of any mosquito control work. Should the local mosquito control district not propose any mosquito control operations on the property, no arthropod control plan is required. See Exhibit W.

F. Use of Private Land Contractors

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

1. Herbicide applications
2. Restoration activities
3. Reforestation activities
4. Timber harvesting
5. Biological assessments and mapping

VII. Proposed Management Activities for Natural Communities

In 2016, FNAI completed an inventory and natural community mapping project on FCSF. Current and historic natural community types can be found in Exhibits P and Q, and Table 7. This inventory included managed and altered community types which are habitats that have been impacted by humans and do not fit into FNAI's Natural Community Classification. See Tables 8 and 9.

Table 7. Natural Community Types

Community Type	Historic Acres*	Current Acres*
Basin swamp	76	74
Baygall	38	34
Blackwater stream	275	275
Bottomland forest	1,171	1,101
Dome swamp	383	288
Floodplain marsh	649	13
Floodplain swamp	2,638	3,215
Hydric hammock	84	70
Mesic flatwoods	3,861	77
Mesic hammock	314	194
Salt marsh	1,319	1,312
Wet flatwoods	2,574	157
Wet prairie	107	0
Managed and other altered landcover types**	0	6,679
June 2020 Parcel Acquisition (not mapped)	170	170
TOTAL	13,659	13,659

* Note rounding errors exist.

** See Tables 8 and 9

Table 8. Managed Community Types

Community Type*	Current Acres**
Pine plantation	6,337
Pasture - improved	299

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

** Note rounding errors exist.

Table 9. Altered Landcover Types

Landcover Type*	Current Acres**
Artificial pond	2
Clearing	1
Road	40

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

** Note rounding errors exist.

For the purposes of this management plan, restoration is defined as the process of returning ecosystems to the appropriate structure and species composition, based on soil type. Management during this ten-year period will begin with a forest-wide assessment of the fuel loading, timber densities, reforestation needs, and groundcover in order to develop a five-year comprehensive operational plan for prescribed burning and other management activities across the forest. Strategies may include thinning of pine plantations, mowing, or chopping in areas of heavy fuel buildup, application of both dormant and growing season fires, reforestation, the use of site preparation methods, both mechanically and/or the use of herbicides to control hardwoods and/or hardwood regeneration. Site preparation and reforestation may be required to increase pine stocking in stands with very poor stocking or in restoration efforts. Fire return intervals are included as a guide and may vary depending upon specific conditions and are intended to attain desired forest and resource management goals. See Table 10.

Table 10. Prescribed Fire Interval Guide on FCSF

Habitat Type	Historic Fire Return Intervals*	FCSF Fire Frequency Goal (Local)	Comments
Basin Swamp	5-150 years	5-20 years	Although the lowest portions of basin swamps rarely burn through, the edges of these swamps often have graminoid-dominated ecotones that burn with the adjacent uplands.
Baygall	N/A	N/A	Baygall burn infrequently, perhaps only a few times each century in the deepest baygalls
Bottomland Forest	N/A	N/A	Fires are rare in bottomland forest, occurring only during times of extreme drought
Dome Swamp	3-100 years	3-5 years	Fire frequency is greatest at the periphery of a dome swamp, where a normal fire cycle might be as short as 3 to 5 years. In contrast, fires may occur as infrequently as every 100 years in the wetter interior portions

Habitat Type	Historic Fire Return Intervals*	FCSF Fire Frequency Goal (Local)	Comments
Floodplain Marsh	3-5 years	1-5	Floodplain marshes may burn as frequently as every 1 to 5 years
Floodplain Swamp	N/A	N/A	Floodplain swamps rarely burn and only under extreme drought conditions
Hydric Hammock	N/A	N/A	Fire is not required to maintain this community
Mesic Flatwoods	2-4 years	2-4 years	Mesic flatwoods require repeated applications of growing season fires on a 2 to 4-year cycle
Mesic Hammock	N/A	N/A	Fire is infrequent; in most cases leaf litter and mesic conditions impede fires throughout the year
Salt Marsh	5 years	5 years	Historically burned on roughly a 5-year cycle similar to deep water floodplain marsh
Wet Flatwoods	2-5 years	2-5 years	Wet flatwoods require repeated applications of growing season fires on a 2 to 5-year cycle

* As determined by FNAI

The following community descriptions, existing condition descriptions, and management recommendations are taken from the 2016 FNAI mapping project report and the Guide to the Natural Communities of Florida (FNAI 2010), as well as from the knowledge and experience gained by FFS during forest inventory efforts and routine field work on FCSF.

To achieve the objectives outlined in this plan, the following management activities will be performed in the natural and managed communities at FCSF during the next ten-year planning period. Goals, desired conditions, standards, and guidelines provide management area direction. These goals and desired conditions may take many planning cycles to attain.

A. **Basin Swamp**

Description:

Basin swamps are large, irregularly shaped, forested wetlands that are independent from river systems. Basin swamps vary in species composition, depending on fire and hydrological history, but generally are dominated by hydrophytic trees and shrubs capable of withstanding extensive hydroperiods. The soils are generally acidic, nutrient-poor peats overlying an impervious soil layer.

While canopy species can be variable, generally the dominant trees are pond cypress (*Taxodium ascendens*) and swamp tupelo (*Nyssa sylvatica* var. *biflora*). Other typical canopy and sub-canopy trees include slash pine (*Pinus elliotii*), loblolly bay (*Gordonia lasianthus*), sweetbay (*Magnolia virginiana*), red maple (*Acer rubrum*), dahoon (*Ilex cassine*), and swamp bay (*Persea palustris*). Shrubs are sparse to dense, depending on hydrology and fire history. Common shrubs include sweet pepperbush (*Clethra alnifolia*), myrtle-leaved holly (*Ilex cassine* var. *myrtifolia*), Virginia willow (*Itea virginica*), fetterbush (*Lyonia lucida*), and wax myrtle (*Myrica cerifera*). Herbaceous coverage is variable, but typically includes purple bluestem (*Andropogon glomeratus* var. *glaucoptis*), clustered sedge, Walter's sedge (*Carex striata*), Carolina redroot

(*Lachnanthes caroliana*), primrosewillow (*Ludwigia* sp.), foxtail club-moss (*Lycopodiella alopecuroides*), maidencane (*Panicum hemitomon*), beaksedge (*Rhynchospora* sp.), lizard's tail (*Saururus cernuus*), bladderworts (*Utricularia* spp.), netted chain fern (*Woodwardia areolata*), Virginia chain fern (*Woodwardia virginica*), savannah yellow-eyed grass (*Xyris flabelliformis*), and yellow-eyed grass (*Xyris* spp.). Sphagnum moss (*Sphagnum* spp.) is common in areas where the soil is saturated but not flooded. Typical vines present include coral greenbrier (*Smilax walteri*), laurel greenbrier (*Smilax laurifolia*), and Eastern poison ivy (*Toxicodendron radicans*).

In historic aerial photographs, basin swamps are often difficult to distinguish from bottomland forests or mesic hammock. These swamps were primarily identified through current photography.

Current Conditions:

Basin swamps at FCSF are variable in size, shape, and species composition. Edges have been encroached by pine plantations and likely have a higher shrub height and density as a result of infrequent fire. However, the interiors are generally undisturbed. The canopies are dominated by pond cypress, tupelo, slash pine, and to a lesser extent, sweetbay and loblolly bay. Red maple and swamp bay are common in the sub-canopy with occasional dahoon holly. Shrub cover is dense in most cases and consists of red maple, sweet pepperbush, Chinese tallow (*Sapium sebiferum*), loblolly bay, myrtle-leaved holly, gallberry (*Ilex glabra*), Virginia willow, fetterbush, sweetbay, wax myrtle, and highbush blueberry (*Vaccinium corymbosum*). Herb cover is represented primarily by netted chain fern, Virginia chain fern, and lizard's tail. Epiphytes include resurrection fern (*Pleopeltis polypodioides* var. *michauxiana*), Bartram's air-plant (*Tillandsia bartramii*), and Spanish moss (*Tillandsia usneoides*). The vine laurel greenbrier is occasional to common.

Fire Regimes:

Fire intervals in basin swamps are 5 to 150 years. Although the lowest portions of basin swamps rarely, if ever, burn through, the edges of these swamps often have graminoid-dominated ecotones that burn with the adjacent uplands.

Management Needs:

Many of the ecotones between basin swamps and surrounding communities have been disturbed by planting of pine trees and installation of firebreaks. Thinning of the stands and implementing regular prescribed fire will improve the structure and composition of these generally diverse edges. Use firebreaks as little as practical for achieving ecologically beneficial, yet safe prescribed fire. Cypress and pines are very tolerant of light surface fires but burning into the peat can not only be a smoke hazard, but can kill the trees, lower the ground surface, and possibly transform the swamp into a lake or pond.

B. Baygall

Description:

Baygall is a closed canopy evergreen forest typically found at the base of sandy slopes where water seepage maintains a saturated substrate or in basins where high water tables maintain saturated conditions. Soils are acidic and generally composed of peat.

Characteristic canopy trees of baygalls include loblolly bay, sweetbay, swamp bay, pond pine (*Pinus serotina*), and slash pine. Common shrubs and small trees include fetterbush, wax myrtle, large gallberry (*Ilex coriacea*), and highbush blueberry. A dense overstory and low light levels typically limit herbaceous plants to Virginia chain fern, beaksedges (*Rhynchospora* spp.), sedges (*Carex* spp.), sphagnum moss, Carolina redroot (*Lachnanthes caroliniana*), and cinnamon fern (*Osmundastrum cinnamomeum*). Epiphytes are infrequent to absent. Vines may include laurel greenbrier and muscadine (*Vitis rotundifolia*).

Current Conditions:

Baygall occurs in scattered small depressions within pine plantations (on former mesic and wet flatwoods communities). Loblolly bay typically dominates from the canopy to the tall and short shrub strata. Other canopy trees are sweetbay, swamp tupelo, and slash pine. The subcanopy has shorter canopy species plus dahoon. The tall shrubs include fetterbush, dahoon, sweetbay, wax myrtle, swamp tupelo, swamp bay, and water oak (*Quercus nigra*). Short shrubs are predominantly loblolly bay and fetterbush with the other tall shrubs present in fewer numbers. Dominant herbaceous species are clustered sedge, Carolina redroot, cinnamon fern, sphagnum moss, netted chain fern, and Virginia chain fern. The vine laurel greenbrier is common. Baygalls appear to be in good to fair condition. Edges have been minimally impacted by the past establishment of the pine plantations, logging, and firebreaks.

Fire Regimes:

Baygall burns infrequently, perhaps only a few times each century in the deepest portions. Fire from adjacent pyrogenic communities should be allowed to burn into the baygall to maintain ecotones. The saturated soil and humid conditions within baygalls typically inhibit fire, but severe drought may create conditions which allow them to burn catastrophically.

Management Needs:

Management activities for baygall on FCSF should focus on limiting mechanical soil disturbance, including firebreaks, in ecotones between baygall and the adjacent uplands. Hydrologic alterations in baygalls, such as ditches and roads, should be restored to natural conditions where practical.

C. Bottomland Forest

Description:

Bottomland forest is a closed canopy forest of mixed hardwood species occurring along creeks and rivers or in basins which are infrequently inundated. The dense canopy maintains relatively high humidity levels; thus, fires are a rare occurrence. Bottomland forests should have a closed canopy of mixed hardwoods dominated by laurel oak (*Quercus laurifolia*), American elm (*Ulmus americana*), swamp tupelo, green ash (*Fraxinus pennsylvanica*), swamp chestnut oak (*Quercus michauxii*), water oak, sweetgum (*Liquidambar styraciflua*), and water locust (*Gleditsia aquatica*). The subcanopy should be moderately dense and consist of dahoon, swamp dogwood (*Cornus foemina*), cabbage palm (*Sabal palmetto*), American hornbeam (*Carpinus caroliniana*) and young canopy saplings. The shrub layer should be open to moderately dense and is typically dominated by bluestem palmetto (*Sabal minor*), wax myrtle, yaupon (*Ilex vomitoria*), and buttonbush (*Cephalanthus occidentalis*). Herbs are sparse due to the closed canopy, but typically include wood oats (*Chasmanthium* spp.), millet beaksedge (*Rhynchospora miliacea*), lizard's

tail, swamp leather-flower (*Clematis crispa*), royal fern (*Osmunda regalis* var. *spectabilis*), cinnamon fern, and Virginia chain fern. Vines should be common and consist of rattan vine (*Berchemia scandens*), poison ivy, peppervine (*Ampelopsis arborea*), catbriers (*Smilax* spp.), and climbing hydrangea (*Decumaria barbara*).

Current Conditions:

Bottomland forest occurs in FCSF along the creek drainages and edges of floodplain swamp. Many areas along the larger creeks are in good condition. The closed canopy consists of mature red maple, sweetgum, sweetbay, swamp tupelo, slash pine, loblolly pine (*Pinus taeda*), laurel oak, water oak, and live oak (*Quercus virginiana*). The subcanopy has younger canopy species plus American hornbeam, green ash, loblolly bay, dahoon, swamp chestnut oak, bald cypress (*Taxodium distichum*), and American elm. The tall shrub layer has red maple, groundsel tree (*Baccharis halimifolia*), common buttonbush, swamp dogwood, dahoon, sweetgum, fetterbush, wax myrtle, swamp bay, cabbage palm, Chinese tallow, bald cypress, and highbush blueberry. The short shrubs are common persimmon (*Diospyros virginiana*), sweetgum, fetterbush, wax myrtle, swamp bay, sawtooth blackberry (*Rubus argutus*), bluestem palmetto, Chinese tallow, saw palmetto (*Serenoa repens*), highbush blueberry, and possumhaw (*Viburnum nudum*). The herbaceous layer is dominated by slender woodoats (*Chasmanthium laxum*), with less frequent bandana-of-the-Everglades (*Canna flaccida*), giant sedge (*Carex gigantea*), Indian woodoats (*Chasmanthium latifolium*), Virginia dayflower (*Commelina virginica*), fireweed (*Erechtites hieraciifolius*), Virginia iris, rush (*Juncus* spp.), climbing hempvine (*Mikania scandens*), cinnamon fern, royal fern, bracken fern (*Pteridium aquilinum*), narrowfruit horned beaksedge (*Rhynchospora inundata*), millet beaksedge, lizard's tail, Canadian germander (*Teucrium canadense*), and Virginia chain fern.

Fire Regimes:

Fires are rare in bottomland forest, occurring only during times of extreme drought.

Management Needs:

Restoration should focus on eradicating the extensive stand of Chinese tallow in the clear-cut area along the creeks. Additionally, stands of planted pines in bottomland forest should be harvested and not replanted.

D. Dome Swamp

Description:

Dome swamp is an isolated, shallow, forested wetland depression in a matrix of pyrogenic flatland communities. The dome profile results from smaller trees growing around the edges of the interior larger trees. Dome swamps have peat soils, which are thickest toward the center of the dome and are generally underlain with acidic soils and then limestone. Dome swamp often has a fire-maintained herbaceous ecotone which is species-diverse and important for rare plants and animals.

The desired future condition of dome swamp is a mature canopy dominated by pond cypress and swamp tupelo, with an open subcanopy and shrub layer. The herbaceous layer is sparse to dense and becomes denser with greater frequency of fire and the resulting mortality of shrub and woody plant species. The herbaceous ecotones are dominated by wiregrass (*Aristida stricta*) and also

include species of beaksedge, yellow-eyed grasses, Carolina redroot, netted chain fern, Virginia chain fern, peelbark St. John's wart (*Hypericum fasciculatum*), and hooded pitcher plant (*Sarracenia minor*).

Current Conditions:

The dome swamp occurs in scattered locations throughout FCSF. They have been disturbed by past logging of the cypress trees, planting of pine trees, and fire exclusion. Firebreaks often separate them from the adjacent natural community or pine plantation. Canopy trees are red maple, sweetgum, sweetbay, swamp tupelo, slash pine, loblolly pine, and pond cypress. Subcanopy species include those in the canopy plus common persimmon, dahoon, myrtle-leaved holly, swamp bay, and water oak. Tall shrub species consist of red maple, common buttonbush, loblolly bay, dahoon, myrtle-leaved holly, gallberry, sweetgum, fetterbush, sweetbay, wax myrtle, swamp tupelo, swamp bay, Chinese tallow, pond cypress, and highbush blueberry. Short shrubs add red cedar (*Juniperus virginiana*), evergreen bayberry (*Myrica caroliniensis*), red chokeberry (*Photinia pyrifolia*), bluestem palmetto, cabbage palm, and saw palmetto. The herbaceous groundcover includes purple bluestem, clustered sedge, slender woodoats, witchgrass (*Dichanthelium* sp.), tenangle pipewort (*Eriocaulon decangulare*), slender flattop goldenrod (*Euthamia caroliniana*), iris (*Iris* sp.), Carolina redroot, foxtail club-moss, cinnamon fern, royal fern, maidencane, warty panicgrass (*Panicum verrucosum*), rosy camphorweed (*Pluchea rosea*), narrowfruit horned beaksedge, sugarcane plumegrass (*Saccharum giganteum*), hooded pitcherplant, sphagnum moss, netted chain fern, and Virginia chain fern. Epiphytes are resurrection fern, Bartram's air-plant, and Spanish moss. The vine laurel greenbrier is occasional to common.

Fire Regimes:

Fire is essential for the maintenance of dome swamps as periodic fire prevents hardwood invasion which can cause succession to shrub bog or baygall. Fire frequency is greatest at the periphery of a dome swamp, where a normal fire cycle might be as short as 3 to 5 years. In contrast, fires may occur as infrequently as every 100 years in the wetter interior portions.

Management Needs:

At FCSF, restoration efforts should focus on the herbaceous ecotones surrounding dome swamps. This will entail the removal of planted pines, the application of prescribed fire, and the removal of firebreaks. Allowing fire to burn into dome swamps when they are dry will help reduce hardwood tree density and encourage herbaceous growth. The invasive non-native Chinese tallow should be targeted for eradication.

E. Floodplain Marsh

Description:

Floodplain marsh is a wetland of herbs and low shrubs occurring in stream floodplains on sandy alluvial soils, sometimes with areas of considerable peat accumulation. The marsh is dominated by sawgrass (*Cladium jamaicense*) and other herbaceous plants such as soft rush (*Juncus effusus* ssp. *solutus*), royal fern, bulltongue arrowhead (*Sagittaria lancifolia*), and sand cordgrass (*Spartina bakeri*).

Current Conditions:

No examples of floodplain marsh were sampled during the course of this survey. The previous FNAI report from 2007 reported one area of floodplain marsh south of Alligator Creek before it reaches the salt (brackish) marsh at the Nassau River. This site was dominated by sawgrass. The huge decline from historic to current acreage was attributed to lack of fire allowing succession to floodplain swamp. The canopy was dominated by red maple, with occasional red cedar and loblolly pine. Shrubs were primarily wax myrtle, with false indigobush (*Amorpha fruticosa*), groundsel tree, Virginia willow, and sawtooth blackberry. The vine eastern poison ivy was common. Other herbaceous plants in addition to sawgrass were soft rush, royal fern, bulltongue arrowhead, and sand cordgrass.

Fire Regimes:

The natural fire return interval in floodplain marshes varies from one situation to the next, but fire has been shown to be a useful tool for improving wildlife habitat and reducing fuel loads. Floodplain marshes may burn as frequently as every 1-5 years.

Management Needs:

Fire exclusion or burning only during winter months when the marshes typically hold water, allows undesirable establishment of shrubs or trees. This may eventually reduce the hydroperiod and allow succession to floodplain swamp. Fire should be prescribed in the surrounding upland community at a time when water in the marsh is low or absent (commonly late winter to mid-summer), allowing fires to burn through the marsh. Marshes with substantial shrub cover (either within the marsh or surrounding edges) should be targeted for repeated lightning season fires on a short return interval. Fires maintain an open herbaceous community by restricting the encroachment of woody plants.

F. Floodplain Swamp**Description:**

Floodplain swamp is an extensively flooded, closed canopy forest directly adjacent to or within the channel of a stream. The canopy is dominated by bald cypress and swamp tupelo. Other canopy species include red maple, green ash, sweetbay, water tupelo (*Nyssa aquatica*), ogeechee tupelo (*Nyssa ogeche*), and laurel oak. Sub-canopy species may include titi (*Cyrilla racemiflora*), dahoon, Virginia willow, swamp bay, and cabbage palm. Shrubs can vary in frequency and include common buttonbush, titi, sweet pepperbush, wax myrtle, Virginia willow, sparkleberry (*Vaccinium arboreum*), climbing fetterbush (*Pieris phylllyreifolia*), and fetterbush. The herbaceous layer varies from diverse to very sparse, depending on soil and canopy conditions. Herbaceous species may include Virginia chain fern, netted chain fern, Carolina redroot, cinnamon fern, slender woodoats, lizard's tail. Vines can be frequent and include laurel greenbrier, coral greenbrier, and Eastern poison ivy. Southern needleleaf (*Tillandsia setacea*) is a common epiphyte in floodplain swamps.

Current Conditions:

Floodplain swamp border the creeks and are generally in good to excellent condition at FCSF. The existing conditions are very similar to the desired future conditions with mature trees in the canopy and an intact understory. The canopy is dominated by red maple, green ash, sweetgum, sweetbay, swamp tupelo, slash pine, loblolly pine, laurel oak, pond cypress, bald cypress, and

American elm. The subcanopy has younger canopy species along with Carolina ash (*Fraxinus caroliniana*) and dahoon. The shrub layer is fairly open and contains sapling canopy species plus common buttonbush, may haw (*Crataegus aestivalis*), green hawthorn (*Crataegus viridis*), titi, fetterbush, wax myrtle, swamp bay, cabbage palm, and Chinese tallow. Sawtooth blackberry, bluestem palmetto, and saw palmetto are additional short shrubs. The herbaceous groundcover contains a diverse variety of species including false nettle (*Boehmeria cylindrica*), clustered sedge, sedge (*Carex* spp.), spadeleaf (*Centella asiatica*), slender woodoats, spotted water hemlock (*Cicuta maculata*), sawgrass, witchgrass, fireweed, manyflower marshpennywort (*Hydrocotyle umbellata*), saltmarsh morning glory (*Ipomoea sagittata*), Virginia iris, creeping primrosewillow (*Ludwigia repens*), climbing hempvine, cinnamon fern, royal fern, panicum (*Panicum longifolium*), green arrow arum (*Peltandra virginica*), savannah panicum (*Phanopyrum gymnocarpon*), rosy camphorweed, swamp smartweed (*Polygonum hydropiperoides*), arrowleaf tearthumb (*Polygonum sagittatum*), bog smartweed (*Polygonum setaceum*), pickerelweed (*Pontederia cordata*), narrowfruit horned beaksedge, millet beaksedge, marsh rosegiant (*Sabatia dodecandra*), sugarcane plumegrass, bulltongue arrowhead, water spangles (*Salvinia minima*), lizard's tail, sphagnum moss, climbing aster (*Symphyotrichum carolinianum*), netted chain fern, and Virginia chain fern. Vines are fairly common and include laurel greenbrier, coral greenbrier, and muscadine. Bartram's air-plant and Spanish moss are occasional epiphytes.

Fire Regimes:

Floodplain swamps rarely burn and only under extreme drought conditions.

Management Needs:

The maintenance of natural hydrologic regimes is critical to the health of floodplain swamps. Disturbances such as timber harvesting or hydrological alterations such as road causeways and channelization should be avoided. The restoration of the channelized west end of Alligator Creek should be considered. The invasive non-native Chinese tallow should be targeted for eradication.

G. Hydric Hammock**Description:**

Hydric hammock is a low-lying, closed-canopy forest that is periodically flooded. It is characterized as a well-developed hardwood and cabbage palm forest occurring on low, flat, wet sites where limestone may be near the surface.

Hydric hammock has abundant cabbage palm in all strata. The canopy of mature trees contains a wide variety of species such as red maple, red cedar, sweetgum, slash pine, laurel oak, live oak, and cabbage palm. The subcanopy includes young members of the canopy in addition to swamp bay. Shrubs are commonly sparse and include yaupon, wax myrtle, swamp bay, and cabbage palm. Herbaceous species include cinnamon fern, royal fern, green arrow arum, sweetscent (*Pluchea odorata*), lizard's tail, and seaside goldenrod (*Solidago sempervirens*). The most common vine is eastern poison ivy.

Current Conditions:

No examples of hydric hammock were sampled during the course of this survey. The previous FNAI report from 2007 reported hydric hammock on FCSF was a relatively small component of

the forest landscape. It was found in small scattered pockets along the upper edges of the creek floodplain and on small islands in the estuarine tidal marsh. Hydric hammock typically had abundant cabbage palm in all strata. The canopy of mature trees contained a wide variety of species including red maple, red cedar, sweetgum, slash pine, laurel oak, live oak, and cabbage palm. The subcanopy included young members of the canopy and swamp bay. Tall shrubs were yaupon, wax myrtle, swamp bay, and cabbage palm. Short shrubs included groundsel tree, swamp bay, sawtooth blackberry, and cabbage palm. Herbaceous species included cinnamon fern, royal fern, green arrow arum, sweetscent, lizard's tail, and seaside goldenrod. The vine eastern poison ivy was occasional.

Fire Regimes:

Fire is not required to maintain this community. Fires are rare in hydric hammock because of the generally saturated soils and scarcity of flammable groundcover.

Management Needs:

No active management is needed in the hydric hammock community. The maintenance of a natural hydrologic regime is critical to the health of this habitat.

H. Mesic Flatwoods

Description:

Mesic flatwoods are open-canopy forests of widely spaced, uneven-aged longleaf pine (*Pinus palustris*) in north Florida. Slash pine may also be present but is usually more frequent in wetter areas (wet flatwoods). There is little to no subcanopy and very few tall shrubs. A dense groundcover of herbs grows between an open layer of short shrubs. Common shrubs include gallberry, saw palmetto, coastalplain staggerbush (*Lyonia fruticosa*), wax myrtle, running oak (*Quercus elliotii*), dwarf live oak (*Quercus minima*), tarflower (*Bejaria racemosa*), dwarf huckleberry (*Gaylussacia dumosa*), blue huckleberry (*Gaylussacia frondosa* var. *tomentosa*), and shiny blueberry (*Vaccinium myrsinites*). Herbaceous species include wiregrass (*Aristida stricta* var. *beyrichiana*), arrowfeather threeawn (*Aristida purpurascens*), bottlebrush threeawn (*Aristida spiciformis*), lopsided Indiangrass (*Sorghastrum secundum*), witchgrasses (*Dichanthelium* spp.), beaksedges, queensdelight (*Stillingia sylvatica*), narrowleaf silkgrass (*Pityopsis graminifolia*), and Curtiss' dropseed (*Sporobolus curtissii*).

The ecotone between mesic flatwoods and wetland communities is an important area for many rare species and is maintained with frequent, low intensity, growing season fires.

Current Conditions:

Mesic flatwoods is currently represented only on small isolated islands in the tidal marsh. The extensive historic natural stands of mesic flatwoods have all been converted to pine plantations. No intact mesic flatwoods were sampled during the course of this survey. The previous FNAI report from 2007 reported the mesic flatwoods on the islands to be of fair quality due to fire exclusion resulting in high fuel loads and abundant hardwood species. The canopy included red bay (*Persea borbonia*), slash pine, pond pine, loblolly pine, water oak, and live oak. The subcanopy included red cedar, red bay, slash pine, water oak, and live oak. Tall shrubs were titi, gallberry, sweetgum, rusty staggerbush (*Lyonia ferruginea*), coastalplain staggerbush, wax myrtle, red bay, swamp bay, myrtle oak (*Quercus myrtifolia*), saw palmetto, and deerberry.

(*Vaccinium stamineum*). Short shrubs were dominated by saw palmetto, and also include dwarf pawpaw (*Asimina pygmaea*), common persimmon, blue huckleberry, gallberry, rusty staggerbush, fetterbush, red bay, and highbush blueberry. Herbaceous groundcover included broomsedge bluestem (*Andropogon virginicus*), sawgrass, witchgrass, fireweed, Elliott's milkpea (*Galactia elliottii*), bracken fern, and marsh fern (*Thelypteris palustris* var. *pubescens*).

Fire Regimes:

Mesic flatwoods require repeated applications of growing season fires on a 2 to 4-year cycle.

Management Needs:

The existing remnants of mesic flatwoods should first be burned during the non-growing season to reduce fuel loads. Then frequent growing-season fires would help increase herbaceous species and minimize hardwood encroachment.

I. Mesic Hammock

Description:

Mesic hammock is a well-developed evergreen hardwood and/or palm forest on soils that are rarely inundated. Mesic hammock typically has a closed canopy of live oak with cabbage palm generally common in the canopy and subcanopy. Southern magnolia (*Magnolia grandiflora*) and pignut hickory (*Carya glabra*) may be occasional in the subcanopy. The shrubby understory may be dense or open, tall or short, and is typically composed of a mix of saw palmetto, American beautyberry (*Callicarpa americana*), American holly (*Ilex opaca*), gallberry, sparkleberry, common persimmon, highbush blueberry, wild olive (*Osmanthus americanus*), and Carolina laurelcherry (*Prunus caroliniana*). The groundcover is often sparse or patchy and includes a variety of herbaceous species including witchgrass, and woodsgrass (*Oplismenus hirtellus*).

Current Conditions:

Mesic hammock at FCSF occurs in the fire shadow of wetlands and higher terraces above blackwater streams. It may also develop as a result of fire suppression in other natural communities, especially mesic flatwoods. The canopy is composed of live oak, water oak, pignut hickory, sweetgum, laurel oak, southern magnolia, and cabbage palm. Shrub heights are variable and include cabbage palm, rusty staggerbush, fringe tree (*Chionanthus virginicus*) wax myrtle, red bay, American beautyberry, saw palmetto, and sparkleberry. The groundcover is sparse to moderate and patchy. Dominant species are slender woodoats and bracken fern.

Fire Regimes:

Fire is infrequent in mesic hammock. In most cases, leaf litter and mesic conditions impede fires throughout the year.

Management Needs:

Management in mesic hammocks should be focused on prevention of non-native species. Typical prescribed burns in the adjacent flatwoods should naturally extinguish along the hammock edge. Firebreaks should be discouraged to allow development of a natural ecotone and to help minimize invasion by weedy or non-native species.

J. Salt Marsh

Description:

Salt marsh is a wetland dominated by salt-tolerant herbs in intertidal zones found along coastlines of low wave energy. The vegetation is primarily wide expanses of needle rush (*Juncus roemerianus*) and saltmarsh cordgrass (*Spartina alternifolia*), with less frequent but locally abundant big cordgrass (*Spartina cynosuroides*) and the less salt tolerant sawgrass. Woody plant encroachment is minimal.

Current Conditions:

Sawgrass dominates the upper reaches of the salt marsh. These areas have woody plant encroachment, probably due to a lack of fire. The open canopy is dominated by young red maple, with occasional red cedar and loblolly pine. Shrubs are primarily wax myrtle, false indigobush, groundsel tree, Virginia willow, and sawtooth blackberry. The vine eastern poison ivy is common. Other herbaceous plants are soft rush, royal fern, bulltongue arrowhead, and sand cordgrass.

The needle rush and sand cordgrass portion of the salt marsh was not sampled during the course of this survey. The previous FNAI report from 2007 reported the salt marsh (as estuarine tidal marsh) was restricted to the east end of the forest adjacent to the Nassau River. The salt marsh was dominated by wide expanses of needle rush and saltmarsh cordgrass. Other abundant but less frequent herbs were big cordgrass and the less salt tolerant sawgrass.

Fire Regimes:

The sawgrass dominated area is thought to have historically burned on roughly a 5-year cycle similar to deep water floodplain marsh.

Management Needs:

No active management is needed in the areas dominated by needle rush and saltmarsh cordgrass due to the regular inundation by salt water. Fire exclusion in the sawgrass dominated area allows undesirable encroachment of trees and shrubs. Fires maintain an open herbaceous community by restricting the encroachment of woody plants. Fire should be used to reduce or eliminate woody vegetation.

K. Wet Flatwoods (including wet prairie)

Description:

Wet flatwoods is a poorly drained, open-canopy forest of uneven-aged pines, sparse to absent subcanopy, few tall shrubs, and a dense groundcover of hydrophytic herbs and low shrubs. The canopy and subcanopy are longleaf pine, slash pine, loblolly or pond pine. Shrubs are primarily gallberry and saw palmetto. Other shrubs include fetterbush, wax myrtle, highbush blueberry, and shiny blueberry. Herbs include blue maidencane (*Amphicarpum muhlenbergianum*), wiregrass, cinnamon fern, beaksedges, and Virginia chain fern.

Current Conditions:

Pine plantation currently covers almost all of the once extensive historic wet flatwoods at FCSF. No intact wet flatwoods were sampled during the course of this survey. The previous FNAI report from 2007 reported the wet flatwoods to occur only in small isolated pockets. Their

quality was rated as poor due to silvicultural activities and fire exclusion. Canopy species included slash pine and loblolly pine. The subcanopy included red maple, dahoon, swamp tupelo, swamp bay, and cabbage palm. The shrubs were dahoon, wax myrtle, and swamp bay. The herbaceous species were purple bluestem, spadeleaf, sawgrass, velvet witchgrass (*Dichanthelium scoparium*), Virginia iris, cinnamon fern, royal fern, longleaf panicum, and sugarcane plumegrass.

Fire Regimes:

Wet flatwoods require repeated applications of growing season fires on a 2 to 5-year cycle.

Management Needs:

The remnants of wet flatwoods should first be burned during the non-growing season to reduce fuel loads. Then frequent growing-season fires would help increase herbaceous species and minimize hardwood encroachment.

L. Managed Community Types

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

1. Pine Plantation

Description:

Pine plantations mapped at FCSF occur on historic bottomland forest, dome swamp, mesic flatwoods, and wet flatwoods. The historic natural community should be the basis for the Desired Future Conditions for each area of pine plantation.

Current Conditions:

Practically all of the former pine flatwoods (primarily mesic flatwoods with a smaller component of wet flatwoods) at FCSF have been converted to planted stands of off-site pines (pine plantation). The pine plantations show much variation in tree age class, the severity of bedding, history of prescribed fire, and the amount and condition of any native vegetation. Previous intensive logging is evident in the 1943 historical photographs. Most plantations were roller chopped and bedded to where little original groundcover remains. The normally dominant wiregrass is rare. The lack of a natural groundcover can make it difficult to distinguish between mesic and wet flatwoods in areas where they intergrade.

Recent restoration efforts by the FFS have utilized thinning of the planted pine canopy and prescribed burning. Longleaf pine has been planted in some areas following clearcutting. A few areas remain fire suppressed with heavy fuel loads and thick shrub layers resulting in a sparse and weedy herbaceous groundcover.

In an effort to document progress toward restoration of the natural communities (mostly wet and mesic flatwoods) pine plantations were divided into three Site Condition classes:

Restoration - 0, Restoration - 1, and Restoration - 2. These classes are defined in the first section of this document.

The following is a composite list of vegetation recorded from all pine plantations visited on FCSF. The canopy has an even-aged, dense stands of slash pine or loblolly pine. The subcanopy includes shorter pines, red maple, loblolly bay, dahoon, red cedar, sweetgum, southern magnolia, sweetbay, swamp tupelo, red bay, swamp bay, laurel oak (*Quercus hemisphaerica*), swamp laurel oak, water oak, live oak, and Chinese tallow.

The shrubs include red maple, titi, common persimmon, loblolly bay, dahoon, myrtle-leaved holly, gallberry, sweetgum, rusty staggerbush, sweetbay, wax myrtle, swamp tupelo, wild olive, red bay, swamp bay, slash pine, laurel oak, swamp laurel oak, water oak, live oak, winged sumac (*Rhus copallinum*), Chinese tallow, saw palmetto, and highbush blueberry. Short shrubs add dwarf pawpaw, groundsel tree, tarflower, American beautyberry, blue huckleberry, roundpod St. John's wort (*Hypericum cistifolium*), peelbark St. John's wort, St. Andrew's cross (*Hypericum hypericoides*), fourpetal St. John's wort (*Hypericum tetrapetalum*), coastalplain staggerbush, fetterbush, runner oak (*Quercus pumila*), sawtooth blackberry, sand blackberry (*Rubus cuneifolius*), southern dewberry (*Rubus trivialis*), bluestem palmetto, Elliott's blueberry (*Vaccinium elliotii*), shiny blueberry, deerberry, and southern arrowwood (*Viburnum dentatum*).

The herbaceous groundcover includes shortspike bluestem (*Andropogon brachystachyus*), bushy bluestem, purple bluestem, broomsedge bluestem, threeawn (*Aristida* sp.), wiregrass, oneflower honeycomb-head (*Balduina uniflora*), clustered sedge, spadeleaf, partridge pea (*Chamaecrista fasciculata*), slender woodoats, tread softly (*Cnidoscolus stimulosus*), rabbitbells (*Crotalaria rotundifolia*), needleleaf witchgrass (*Dichanthelium aciculare*), woolly witchgrass (*Dichanthelium scabriusculum*), witchgrass, poor joe (*Diodia teres*), spikerush (*Eleocharis* sp.), tall elephantsfoot (*Elephantopus elatus*), fireweed, tenangle pipewort, button rattlesnakemaster (*Eryngium yuccifolium*), dogfennel (*Eupatorium capillifolium*), yankeeweed (*Eupatorium compositifolium*), Mohr's thoroughwort (*Eupatorium mohrii*), roundleaf thoroughwort (*Eupatorium rotundifolium*), slender flattop goldenrod, Elliott's milkpea, soft rush, Carolina redroot, whitehead bogbutton (*Lachnocaulon anceps*), southern bogbutton (*Lachnocaulon beyrichianum*), pineland pinweed (*Lechea sessiliflora*), shortleaf gayfeather (*Liatris tenuifolia*), seaside primrosewillow (*Ludwigia maritima*), hairy primrosewillow (*Ludwigia pilosa*), foxtail clubmoss, partridgeberry (*Mitchella repens*), clustered mille grains (*Oldenlandia uniflora*), cinnamon fern (*Osmunda cinnamomea*), beaked panicum (*Panicum anceps*), maidencane, warty panicgrass, Florida paspalum (*Paspalum floridanum*), bahiagrass (*Paspalum notatum*), thin paspalum (*Paspalum setaceum*), rosy camphorweed, combleaf mermaidweed (*Proserpinaca pectinata*), bracken fern, blackroot (*Pterocaulon pycnostachyum*), pale meadowbeauty (*Rhexia mariana*), beaksedge, sugarcane plumegrass, woolgrass (*Scirpus cyperinus*), nutrush (*Scleria* sp.), whip nutrush (*Scleria triglomerata*), pinebarren goldenrod (*Solidago fistulosa*), queen's delight, Elliott's aster (*Symphyotrichum elliotii*), wavyleaf noseburn (*Tragia urens*), bog white violet (*Viola lanceolata*), netted chain fern, Virginia chain fern, tall yellow-eyed grass (*Xyris platylepis*), and yellow-eyed grass (*Xyris* sp.).

Fire Regimes:

Some pine plantations may require a more active restoration approach such as timber harvesting to return to the ideal community structure. In cases where desirable vegetation structure exists, prescribed fire should be used frequently to prevent hardwood encroachment and encourage herbaceous growth. In more areas where woody encroachment prevents safe and effective burning, mechanical removal of hardwoods may first be necessary.

Management Needs:

In stands where the intent is to improve wildlife habitat and drive the system toward the former natural community, continued thinning and frequent prescribed fire is necessary. Removal of bedding is not recommended unless intensive groundcover restoration is planned. Groundcover restoration would require seeding or plugging (small areas) to establish wiregrass and other species that are characteristic of the former mesic and wet flatwoods and important fine fuel for prescribed fire. Most of these characteristic native grasses will not re-establish themselves once removed from a site during site preparation for planting.

2. Pasture - Improved**Description:**

Improved pasture (299 acres) on historic mesic flatwoods occurs near the west end of the site on the south side of Five Mile Road.

Current Conditions:

This fenced pasture is dominated by bahiagrass and Bermuda grass (*Cynodon dactylon*). Other herbaceous species are common carpetgrass (*Axonopus fissifolius*), spadeleaf, dogfennel, manyflower marshpennywort, chamber bitter (*Phyllanthus urinaria*), and licoriceweed (*Scoparia dulcis*).

Fire Regimes:

Not a fire dependent community.

Management Needs:

Improved pastures have undergone enormous alteration from the natural state. Intensive groundcover restoration and pine plantings would be needed if the goal is to return these to mesic or wet flatwoods communities. Currently the improved pastures are part of the cattle leases on the forest and are maintained by cattle grazing, mowing, and non-native plant control.

M. Other Altered Landcover Types**Description:**

Ruderal or altered landcover types are areas where the natural community has been overwhelmingly altered as a result of human activity. (This does not include pine plantation and pasture, which is described in a separate section of this report.)

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

condition.

Current Conditions:

Altered landcover types on FCSF are impoundment/artificial pond, canal and ditches, roads, and clearings.

Artificial pond occurs at the southwest corner of the site near the south end of Camp Ground Road. This depression appears to be a borrow pit with some vegetation resembling a depression marsh. The herbaceous groundcover species include lemon bacopa (*Bacopa caroliniana*), dogfennel, manyflower marshpennywort, soft rush, and bulltongue arrowhead.

Clearing/regeneration is represented by parking areas and wildlife food plots.

Road is represented by a network of limerock, sand, and grass roads located throughout the forest.

Fire Regimes:

Recommended fire regimes are listed under each historic community section.

Management Needs:

Maintain as necessary.

VIII. References

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IX. Glossary of Abbreviations

ARC.....	Acquisition and Restoration Council
ARM.....	Archaeological Resource Management
BMP.....	Best Management Practices
CAMA	Office of Coastal and Aquatic Managed Areas
CARL	Conservation and Recreation Lands
COJ	City of Jacksonville
DHR.....	Division of Historical Resources
DRP	Division of Recreation and Parks
DSO	Direct Support Organization
F.A.C.	Florida Administrative Code
FCSF.....	Four Creeks State Forest
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FFS	Florida Forest Service
FNAI.....	Florida Natural Areas Inventory
F.S.	Florida Statutes
FWC	Florida Fish and Wildlife Conservation Commission
NPS.....	National Park Service
NRCS.....	Natural Resources Conservation Service
OALE	FDACS Office of Agricultural Law Enforcement
OFW	Outstanding Florida Waters
SJRWMD	St. Johns River Water Management District
SFI	Sustainable Forestry Initiative
TIITF	Trustees of the Internal Improvement Trust Fund, Board of
WMA.....	Wildlife Management Area

FOUR CREEKS STATE FOREST
2022 LAND MANGEMENT PLAN

EXHIBITS

Exhibit A

Ten-Year Management Accomplishment Summary

Four Creeks State Forest
10-Year Accomplishments Summary

Site Preparation	Burning	Acres	131
Planting	Slash Bareroot	No.	203,211
		Acres	260
Seedling survival checks	Planting Checks	Acres	131
Timber Stand Improvement	Herbicide	Acres	131
Timber Sales	Marking	Acres	338
	Cruising	Acres	2,303
	Harvest	Acres	3,266
		Tons	170,280
Timber Inventory	Inventory Update	Acres	15,987
	New Inventory	Acres	2,596
	Plots	Acres	734
Invasive Control	Chinese Tallow	Acres	2,577
	Japanese Climbing Fern	Acres	75
	Tropical Soda Apple	Acres	2
	Melaleuca	Acres	1
	Cogon Grass	Acres	<1
Fire	Wildfire	No.	4
		Acres	34
	Prescribed Burning	No.	62
		Acres	12,288
Recreation	Day Use Estimated Forest Visitors	No.	218,118
	Overnight Primitive Camping	No.	420
	Commercial Vendor Permits	No.	10
Roadwork	Roads Graded	Miles	77
	Roads Rebuilt	Miles	43
	Culverts Installed	No.	42
	Low Water Crossing	No.	3
	Other	No.	1

Boundary Maintenance	Maintenance/Marking	Miles	76
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I&E Activities	Programs/Tours	No.	7
	Radio/TV Articles	No.	2

Other Activities	Archaeological Sites Monitored	No.	1
	Water Turnouts Constructed	No.	7
	Recreation/Infrastructure	Days	106

Exhibit B

Location/Boundary Map



Florida Forest Service

Four Creeks State Forest

Boundary Map

Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum

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Revised May 2020 at the last of the Florida Forest Service Inventory from the US Army Corps of Engineers



LEGEND

Four Creeks State Forest

0.5 0.25 0 0.5 1 Miles



Map Month/Year: July 2020

0 500 1,000 1,500 2,000 2,500 3,000 3,500 4,000 Yards

Exhibit C

Optimal Management Boundary Map



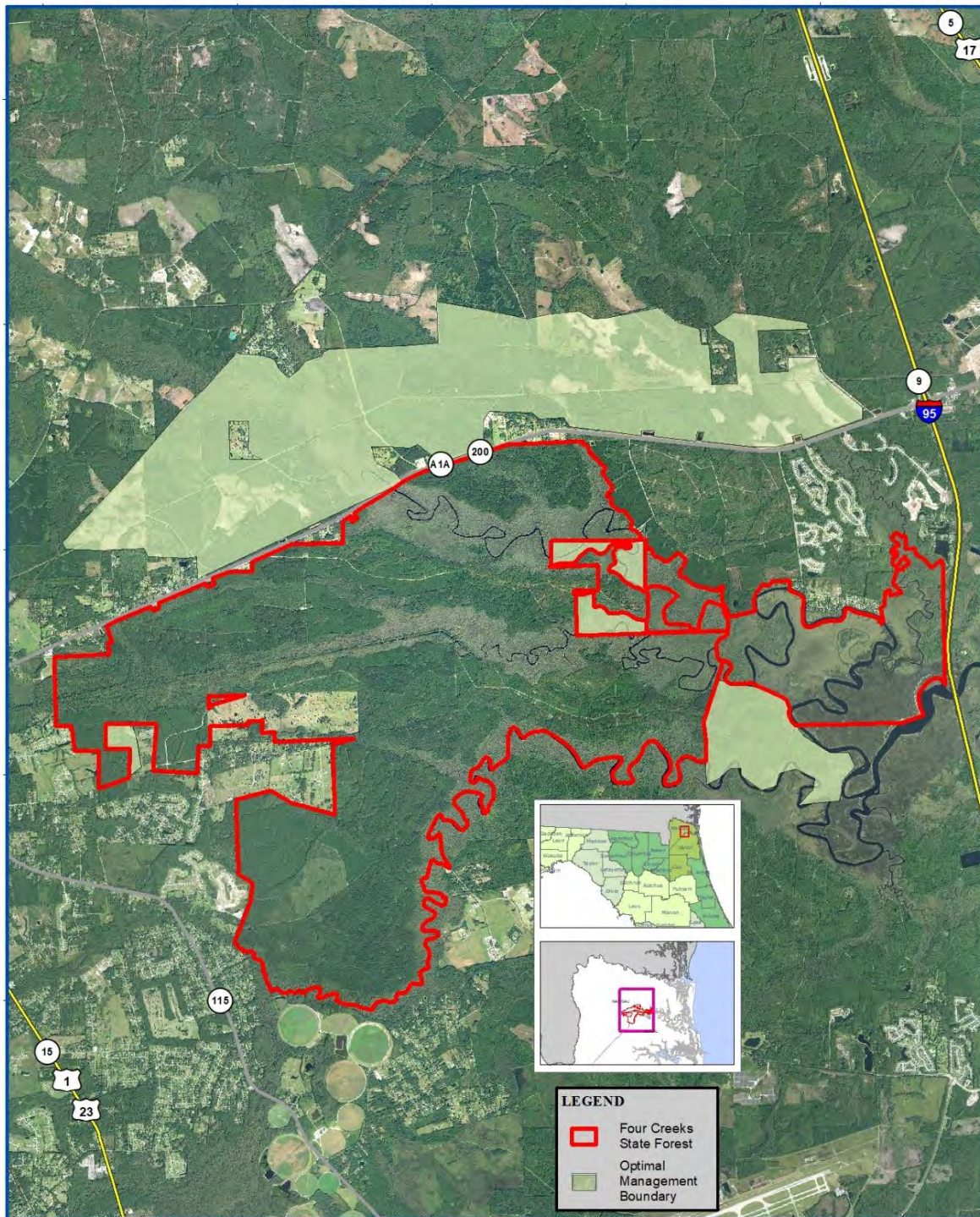
Florida Forest Service

Four Creeks State Forest Optimal Management Boundary Map

Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum

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Managed Area Boundary: Courtesy of the Florida Natural Areas Inventory, Florida Department of Natural Resources, from the US Army Corps of Engineers.



0.5 0.25 0 0.5 1 Miles



Map Month/Year: August 2020

1,000 500 0 1,000 2,000 3,000 4,000 Yards

Exhibit D

Facilities, Recreation, and Improvements Map



Florida Forest Service

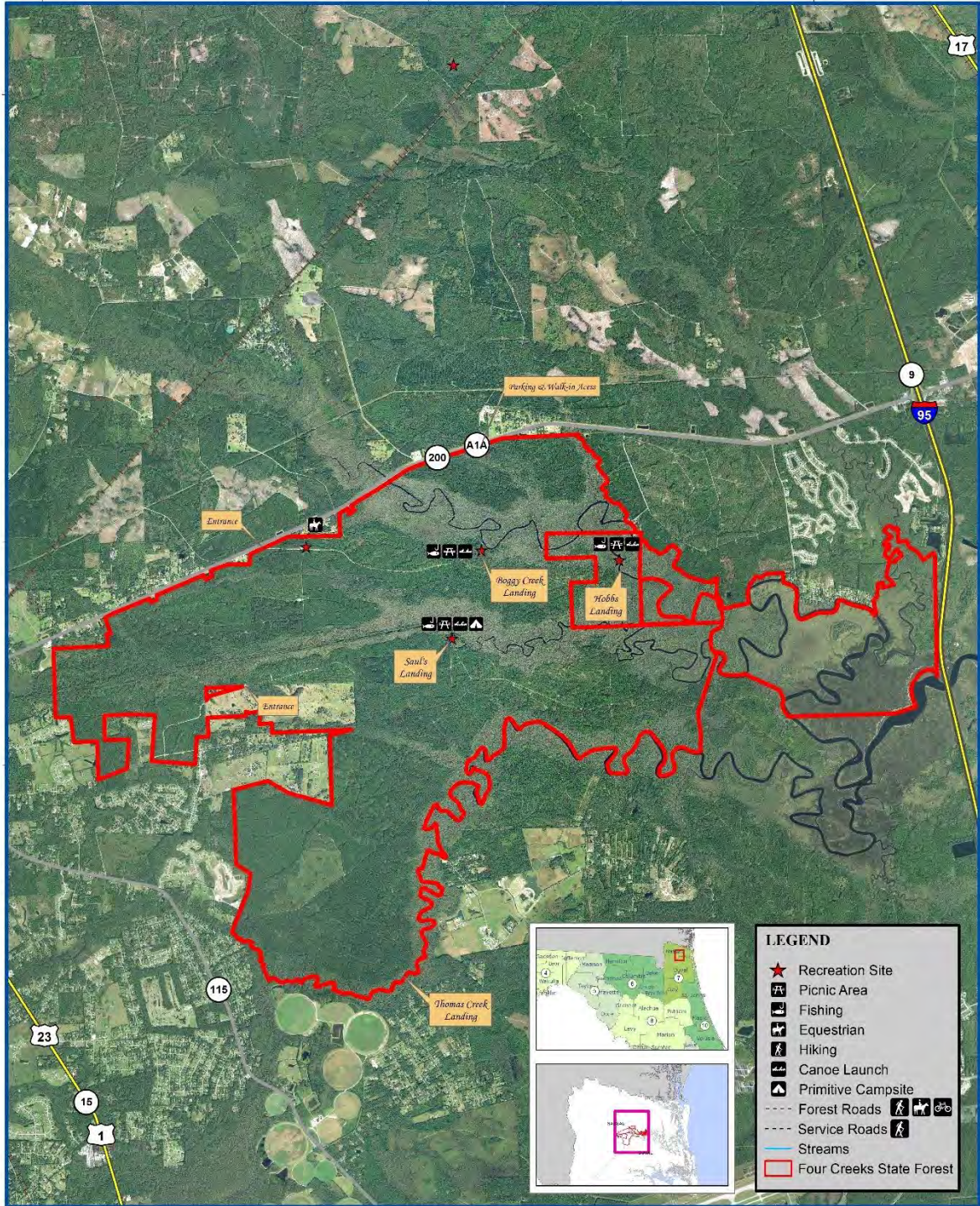
Four Creeks State Forest

Facilities, Recreation and Improvements Map

Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum

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Map Month/Year: September 2019

Exhibit E

Road Map



Florida Forest Service

Four Creeks State Forest

Road Map

Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum

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Revised May 2019 at the last of the Florida Forest Service inventory from the US Army Corps of Engineers

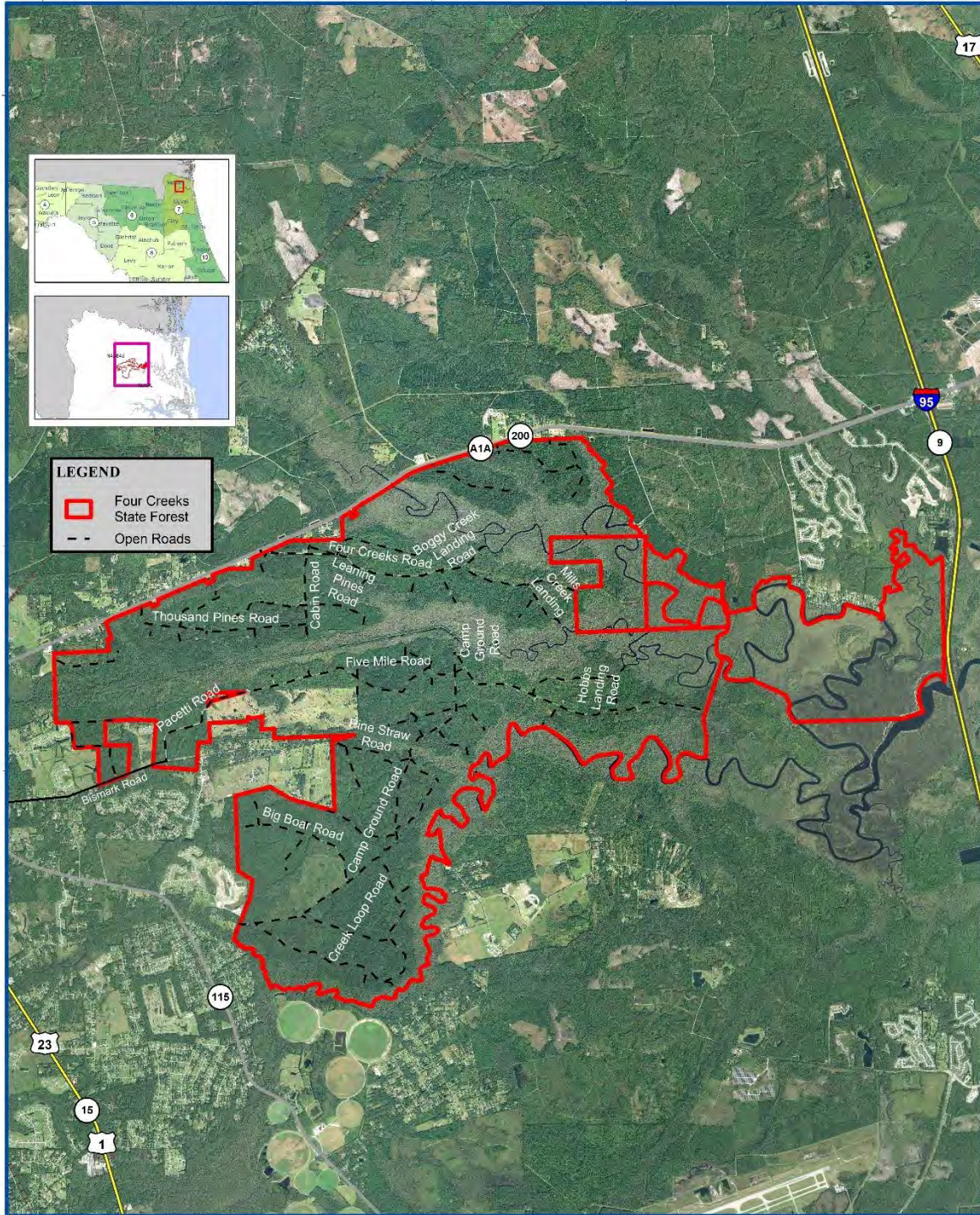


Exhibit F

Proximity to Significant Managed Lands



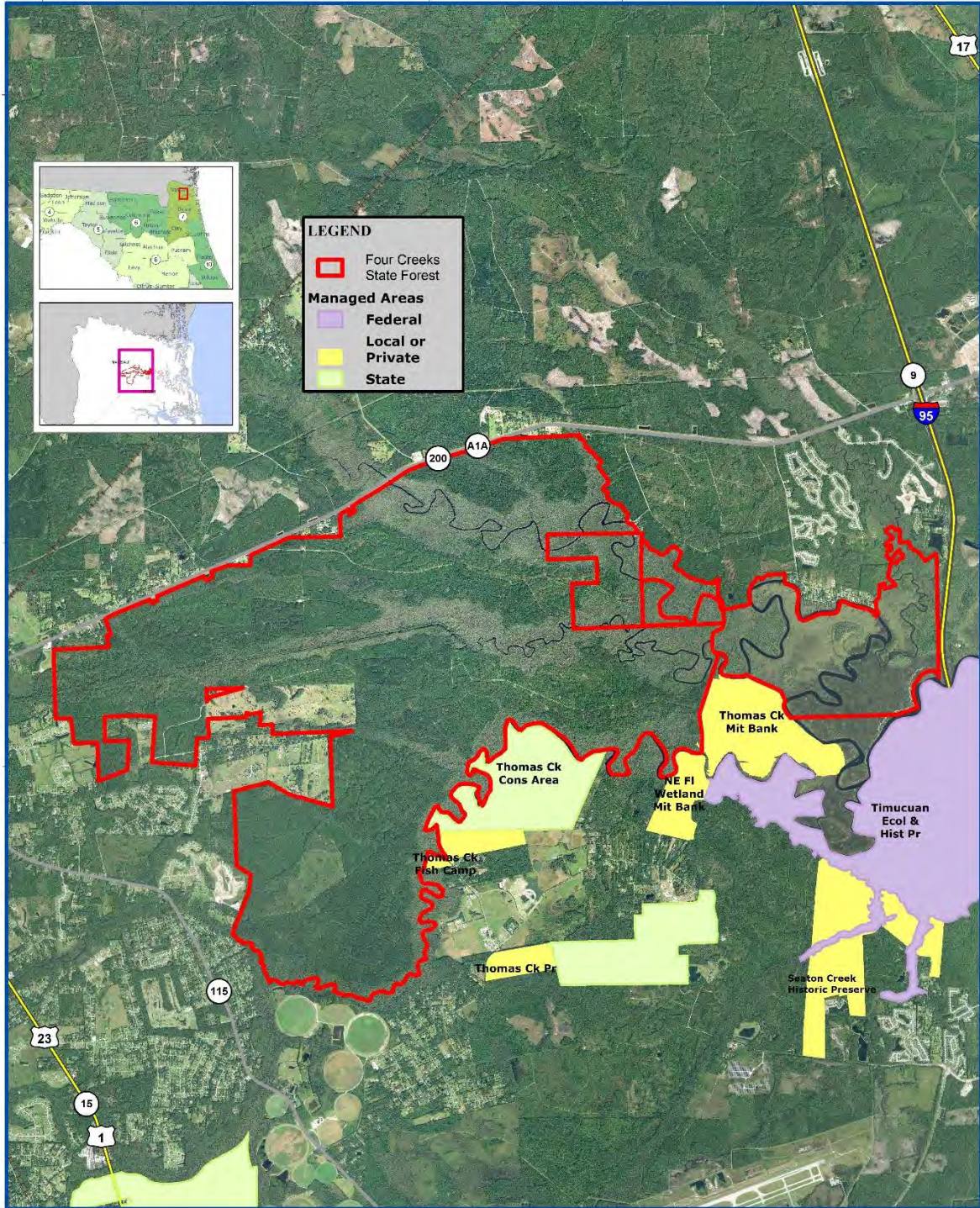
Florida Forest Service

Four Creeks State Forest

Proximity to Significant Managed Lands

Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum

DISCLAIMER:
This map was prepared by the Florida Forest Service, a division of the Florida Department of Natural Resources. It is not intended to be used for any purpose other than general information. The Florida Forest Service does not warrant the accuracy or completeness of the information contained herein. The Florida Forest Service is not responsible for any errors or omissions in this map. The Florida Forest Service is not responsible for any damages or injuries resulting from the use of this map. The Florida Forest Service is not responsible for any claims, damages, or liabilities arising from the use of this map. The Florida Forest Service is not responsible for any claims, damages, or liabilities arising from the use of this map.



0.5 0.25 0 0.5 1
Miles



Map Month/Year: November 2019

0 1,000 2,000 3,000 4,000
Yards

Exhibit G

Department of State Report on Archaeological and Historical Sites



This record search is for informational purposes only and does NOT constitute a project review. This search only identifies resources recorded at the Florida Master Site File and does NOT provide project approval from the Division of Historical Resources. Contact the Compliance and Review Section of the Division of Historical Resources at 850-245-6333 for project review information.

May 14, 2019

Patti Anderson
OPS Land Management Planner
Florida Forest Service
Florida Department of Agriculture and Consumer Services
(850) 681-5889
E-mail: Patricia.Anderson@FreshFromFlorida.com

Re: Four Creeks State Forest

In response to your inquiry of May 14, 2019, the Florida Master Site File lists no archaeological sites but one resource group found at the designated area of the **Four Creeks State Forest** in Nassau County, Florida

When interpreting the results of our search, please consider the following information:

- This search area may contain *unrecorded* archaeological sites, historical structures or other resources even if previously surveyed for cultural resources.
- Because vandalism and looting are common at Florida sites, we ask that you limit the distribution of location information on archaeological sites.
- While many of our records document historically significant resources, the documentation of a resource at the Florida Master Site File does not necessarily mean the resource is historically significant.
- Federal, state and local laws require formal environmental review for most projects. This search **DOES NOT** constitute such a review. If your project falls under these laws, you should contact the Compliance and Review Section of the Division of Historical Resources at 850-245-6333.

Please do not hesitate to contact us if you have any questions regarding the results of this search.

Sincerely,

Eman M. Vovsi, Ph.D.
Florida Master Site File
Eman.Vovsi@DOS.MyFlorida.com

**Cultural Resource Roster**

SiteID	Type	Site Name	Address	Additional Info	SHPO Eval	NR Status
NA01247	RG	Italia	Italia	Mixed District		

Exhibit H

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 September 2019)

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 at:
<https://dos.myflorida.com/historical/preservation/compliance-and-review/regulations-guidelines/>

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, 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, certain information must be submitted for comments and recommendations. The minimum review documentation requirements can be found at:
https://dos.myflorida.com/media/31392/minimum_review_documentation_requirements.pdf

* * *

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

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

Email: Robin.Jackson@DOS.MyFlorida.com
Phone: (850) 245-6496
Toll Free: (800) 847-7278
Fax: (850) 245-6439

Exhibit I

Soil Types Map and Descriptions



Florida Forest Service

Four Creeks State Forest

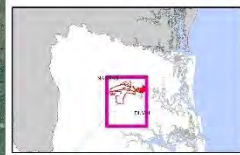
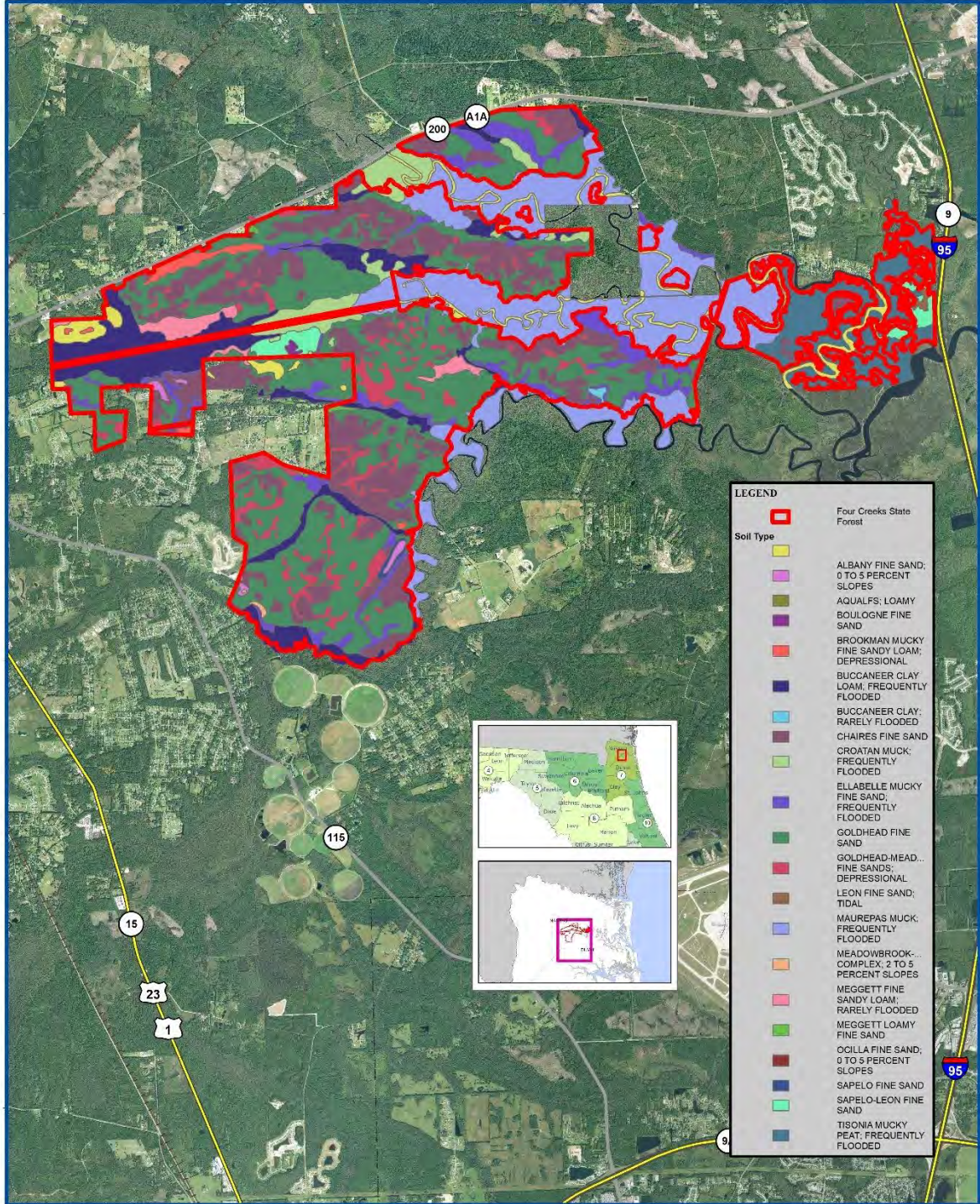
Soils Map

Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum

DISCLAIMER:
This map was prepared by the Florida Forest Service, using data provided by the Florida Department of Transportation, the Florida Department of Environmental Protection, and the United States Geological Survey. The Florida Forest Service is not responsible for any errors or omissions in this map. The user assumes all liability for any use of this map.

Managed Area boundaries courtesy of
the Florida Department of Transportation
from the US Army Corps of Engineers

81° 00' 00"



LEGEND

- Four Creeks State Forest
- Soil Type**
- ALBANY FINE SAND; 0 TO 5 PERCENT SLOPES
- AQUALFS; LOAMY
- BOULOGNE FINE SAND
- BROOKMAN MUCKY FINE SANDY LOAM; DEPRESSIONAL
- BUCCANEER CLAY LOAM; FREQUENTLY FLOODED
- BUCCANEER CLAY; RARELY FLOODED
- CHAIRES FINE SAND
- CROATAN MUCK; FREQUENTLY FLOODED
- ELLABELLE MUCKY FINE SAND; FREQUENTLY FLOODED
- GOLDHEAD FINE SAND
- GOLDHEAD-MEAD... FINE SANDS; DEPRESSIONAL
- LEON FINE SAND; TIDAL
- MAUREPAS MUCK; FREQUENTLY FLOODED
- MEADOWBROOK... COMPLEX; 2 TO 5 PERCENT SLOPES
- MEGGETT FINE SANDY LOAM; RARELY FLOODED
- MEGGETT LOAMY FINE SAND
- OCILLA FINE SAND; 0 TO 5 PERCENT SLOPES
- SAPELO FINE SAND
- SAPELO-LEON FINE SAND
- TISONIA MUCKY PEAT; FREQUENTLY FLOODED

0.5 0.25 0 0.5 1 Miles



Map Month/Year: September 2019

0 500 1,000 2,000 3,000 4,000 Yards

Map Unit Description (Brief, Generated)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, provide information on the composition of map units and properties of their components.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated)

Nassau County, Florida

Map Unit: 11—Chaires fine sand

Component: Chaires (91%)

The Chaires component makes up 91 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during May, June, July, August. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Goldhead, depressional (3%)

Generated brief soil descriptions are created for major soil components. The Goldhead, depressional soil is a minor component.

Component: Meadowbrook, depressional (2%)

Generated brief soil descriptions are created for major soil components. The Meadowbrook, depressional soil is a minor component.

Component: Ocilla (2%)

Generated brief soil descriptions are created for major soil components. The Ocilla soil is a minor component.

Component: Meggett (2%)

Generated brief soil descriptions are created for major soil components. The Meggett soil is a minor component.

Map Unit: 13—Goldhead fine sand**Component:** Goldhead, non-hydric (50%)

The Goldhead, non-hydric component makes up 50 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during March, April, May, June, July, August. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Goldhead, hydric (43%)

The Goldhead, hydric component makes up 43 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during March, April, May, June, July, August. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Blanton (2%)

Generated brief soil descriptions are created for major soil components. The Blanton soil is a minor component.

Component: Meggett (1%)

Generated brief soil descriptions are created for major soil components. The Meggett soil is a minor component.

Component: Ocilla (1%)

Generated brief soil descriptions are created for major soil components. The Ocilla soil is a minor component.

Component: Chaires (1%)

Generated brief soil descriptions are created for major soil components. The Chaires soil is a minor component.

Component: Ellabelle (1%)

Generated brief soil descriptions are created for major soil components. The Ellabelle soil is a minor component.

Component: Leefield (1%)

Generated brief soil descriptions are created for major soil components. The Leefield soil is a minor component.

Map Unit: 15—Buccaneer clay, frequently flooded**Component: Buccaneer (94%)**

The Buccaneer component makes up 94 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of clayey marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is very high. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, June, July, August, September. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 6w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Croatan (3%)

Generated brief soil descriptions are created for major soil components. The Croatan soil is a minor component.

Component: Meggett (3%)

Generated brief soil descriptions are created for major soil components. The Meggett soil is a minor component.

Map Unit: 16—Ellabelle mucky fine sand, frequently flooded

Component: Ellabelle (91%)

The Ellabelle component makes up 91 percent of the map unit. Slopes are 0 to 2 percent. This component is on drainageways on marine terraces on coastal plains. The parent material consists of sandy and loamy marine or fluvial deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is frequently flooded. It is frequently ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, June, July, August, September. Organic matter content in the surface horizon is about 15 percent. Nonirrigated land capability classification is 6w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Kingsferry (3%)

Generated brief soil descriptions are created for major soil components. The Kingsferry soil is a minor component.

Component: Meggett (3%)

Generated brief soil descriptions are created for major soil components. The Meggett soil is a minor component.

Component: Goldhead, hydric (3%)

Generated brief soil descriptions are created for major soil components. The Goldhead, hydric soil is a minor component.

Map Unit: 19—Leon fine sand, tidal

Component: Leon, tidal (95%)

The Leon, tidal component makes up 95 percent of the map unit. Slopes are 0 to 2 percent. This component is on tidal marshes on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 8. This soil meets hydric criteria. The soil has a moderately saline horizon within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Arents (3%)

Generated brief soil descriptions are created for major soil components. The Arents soil is a minor component.

Component: Tisonia (2%)

Generated brief soil descriptions are created for major soil components. The Tisonia soil is a minor component.

Map Unit: 22—Sapelo-Leon fine sand

Component: Sapelo, non-hydric (54%)

The Sapelo, non-hydric component makes up 54 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during May, June, July, August. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Leon, non-hydric (29%)

The Leon, non-hydric component makes up 29 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during May, June, July, August. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Sapelo, hydric (5%)

The Sapelo, hydric component makes up 5 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during May, June, July, August. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Leon, hydric (5%)

The Leon, hydric component makes up 5 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during May, June, July, August. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Albany (3%)

Generated brief soil descriptions are created for major soil components. The Albany soil is a minor component.

Component: Goldhead, depressional (2%)

Generated brief soil descriptions are created for major soil components. The Goldhead, depressional soil is a minor component.

Component: Meadowbrook, depressional (2%)

Generated brief soil descriptions are created for major soil components. The Meadowbrook, depressional soil is a minor component.

Map Unit: 23—Ocilla fine sand, 0 to 5 percent slopes**Component:** Ocilla (94%)

The Ocilla component makes up 94 percent of the map unit. Slopes are 0 to 5 percent. This component is on rises on coastal plains, marine terraces, knolls on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 21 inches during March, April, May, June, July, August. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Chaires (3%)

Generated brief soil descriptions are created for major soil components. The Chaires soil is a minor component.

Component: Goldhead, non-hydric (3%)

Generated brief soil descriptions are created for major soil components. The Goldhead, non-hydric soil is a minor component.

Map Unit: 25—Maurepas muck, frequently flooded**Component:** Maurepas (86%)

The Maurepas component makes up 86 percent of the map unit. Slopes are 0 to 1 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of woody organic material. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is low. This soil is frequently flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September. Organic matter content in the surface horizon is about 60 percent. Nonirrigated land capability classification is 8. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Croatan (5%)

Generated brief soil descriptions are created for major soil components. The Croatan soil is a minor component.

Component: Evergreen (5%)

Generated brief soil descriptions are created for major soil components. The Evergreen soil is a minor component.

Component: Rutlege (4%)

Generated brief soil descriptions are created for major soil components. The Rutlege soil is a minor component.

Map Unit: 28—Tisonia mucky peat, tidal**Component: Tisonia, tidal (98%)**

The Tisonia, tidal component makes up 98 percent of the map unit. Slopes are 0 to 1 percent. This component is on tidal marshes on marine terraces on coastal plains. The parent material consists of organic material over clayey alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is high. This soil is very frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 53 percent. Nonirrigated land capability classification is 8. This soil meets hydric criteria. The soil has a strongly saline horizon within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 4 within 30 inches of the soil surface.

Component: Maurepas (1%)

Generated brief soil descriptions are created for major soil components. The Maurepas soil is a minor component.

Component: Kingsland (1%)

Generated brief soil descriptions are created for major soil components. The Kingsland soil is a minor component.

Map Unit: 32—Aqualfs, loamy**Component: Aqualfs, loamy (98%)**

The Aqualfs, loamy component makes up 98 percent of the map unit. Slopes are 2 to 5 percent. This component is on rises on coastal plains on marine terraces. The parent material consists of loamy mine spoil or earthy fill. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during June, July, August, September. This soil does not meet hydric criteria.

Component: Aqualfs (2%)

Generated brief soil descriptions are created for major soil components. The Aqualfs soil is a minor component.

Map Unit: 33—Goldhead-Meadowbrook fine sands, depressional

Component: Goldhead, depressional (64%)

The Goldhead, depressional component makes up 64 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Meadowbrook, depressional (27%)

The Meadowbrook, depressional component makes up 27 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Croatan (9%)

Generated brief soil descriptions are created for major soil components. The Croatan soil is a minor component.

Map Unit: 34—Croatan muck, frequently flooded

Component: Croatan (87%)

The Croatan component makes up 87 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of organic material over loamy marine or fluvial deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during March, April, May, June, July, August. Organic matter content in the surface horizon is about 43 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Ellabelle (4%)

Generated brief soil descriptions are created for major soil components. The Ellabelle soil is a minor component.

Component: Leon, non-hydric (3%)

Generated brief soil descriptions are created for major soil components. The Leon, non-hydric soil is a minor component.

Component: Kingsferry (3%)

Generated brief soil descriptions are created for major soil components. The Kingsferry soil is a minor component.

Component: Goldhead, hydric (3%)

Generated brief soil descriptions are created for major soil components. The Goldhead, hydric soil is a minor component.

Map Unit: 36—Boulogne fine sand

Component: Boulogne (98%)

The Boulogne component makes up 98 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during March, April, May, June, July, August. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Ridgewood (1%)

Generated brief soil descriptions are created for major soil components. The Ridgewood soil is a minor component.

Component: Hurricane (1%)

Generated brief soil descriptions are created for major soil components. The Hurricane soil is a minor component.

Map Unit: 37—Meggett loamy fine sand

Component: Meggett (83%)

The Meggett component makes up 83 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of clayey fluviomarine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during March, April, May, June, July, August. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Buccaneer (6%)

Generated brief soil descriptions are created for major soil components. The Buccaneer soil is a minor component.

Component: Brookman, depressional (6%)

Generated brief soil descriptions are created for major soil components. The Brookman, depressional soil is a minor component.

Component: Goldhead, hydric (5%)

Generated brief soil descriptions are created for major soil components. The Goldhead, hydric soil is a minor component.

Map Unit: 38—Meggett fine sandy loam, rarely flooded

Component: Meggett (93%)

The Meggett component makes up 93 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of clayey fluviomarine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is high. This soil is rarely flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during February, March, April, May, June, July, August, September. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Brookman, depressional (3%)

Generated brief soil descriptions are created for major soil components. The Brookman, depressional soil is a minor component.

Component: Goldhead, hydric (2%)

Generated brief soil descriptions are created for major soil components. The Goldhead, hydric soil is a minor component.

Component: Buccaneer (2%)

Generated brief soil descriptions are created for major soil components. The Buccaneer soil is a minor component.

Map Unit: 40—Brookman mucky fine sandy loam, depressional

Component: Brookman, depressional (90%)

The Brookman, depressional component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of clayey marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is moderate. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September. Organic matter content in the surface horizon is about 15 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Croatan (5%)

Generated brief soil descriptions are created for major soil components. The Croatan soil is a minor component.

Component: Goldhead, hydric (5%)

Generated brief soil descriptions are created for major soil components. The Goldhead, hydric soil is a minor component.

Map Unit: 46—Buccaneer clay, rarely flooded

Component: Buccaneer (92%)

The Buccaneer component makes up 92 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of clayey marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is very high. This soil is rarely flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, June, July, August, September. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 6w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Meggett (8%)

Generated brief soil descriptions are created for major soil components. The Meggett soil is a minor component.

Map Unit: 51—Albany fine sand, 0 to 5 percent slopes

Component: Albany (86%)

The Albany component makes up 86 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 21 inches during May, June, July, August. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Leefield (2%)

Generated brief soil descriptions are created for major soil components. The Leefield soil is a minor component.

Component: Hurricane (2%)

Generated brief soil descriptions are created for major soil components. The Hurricane soil is a minor component.

Component: Leon, non-hydric (2%)

Generated brief soil descriptions are created for major soil components. The Leon, non-hydric soil is a minor component.

Component: Ocilla (2%)

Generated brief soil descriptions are created for major soil components. The Ocilla soil is a minor component.

Component: Sapelo, non-hydric (2%)

Generated brief soil descriptions are created for major soil components. The Sapelo, non-hydric soil is a minor component.

Component: Blanton (2%)

Generated brief soil descriptions are created for major soil components. The Blanton soil is a minor component.

Component: Meadowbrook, hydric (2%)

Generated brief soil descriptions are created for major soil components. The Meadowbrook, hydric soil is a minor component.

Map Unit: 54—Sapelo fine sand

Component: Sapelo, non-hydric (85%)

The Sapelo, non-hydric component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during May, June, July, August. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 4w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Sapelo, hydric (5%)

The Sapelo, hydric component makes up 5 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during May, June, July, August. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Goldhead, depressional (3%)

Generated brief soil descriptions are created for major soil components. The Goldhead, depressional soil is a minor component.

Component: Albany (3%)

Generated brief soil descriptions are created for major soil components. The Albany soil is a minor component.

Component: Meadowbrook, depressional (2%)

Generated brief soil descriptions are created for major soil components. The Meadowbrook, depressional soil is a minor component.

Component: Leon, non-hydric (2%)

Generated brief soil descriptions are created for major soil components. The Leon, non-hydric soil is a minor component.

Map Unit: 55—Meadowbrook-Goldhead-Meggett complex, 2 to 5 percent slopes

Component: Meadowbrook (41%)

The Meadowbrook component makes up 41 percent of the map unit. Slopes are 2 to 5 percent. This component is on valley sides on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during March, April, May, June, July, August. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Goldhead (31%)

The Goldhead component makes up 31 percent of the map unit. Slopes are 2 to 5 percent. This component is on valley sides on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during March, April, May, June, July, August. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Meggett (22%)

The Meggett component makes up 22 percent of the map unit. Slopes are 2 to 5 percent. This component is on valley sides on marine terraces on coastal plains. The parent material consists of clayey fluviomarine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during March, April, May, June, July, August. Organic matter content in the surface horizon is about 5 percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Albany (2%)

Generated brief soil descriptions are created for major soil components. The Albany soil is a minor component.

Component: Boulogne (2%)

Generated brief soil descriptions are created for major soil components. The Boulogne soil is a minor component.

Component: Sapelo, non-hydric (1%)

Generated brief soil descriptions are created for major soil components. The Sapelo, non-hydric soil is a minor component.

Component: Chaires (1%)

Generated brief soil descriptions are created for major soil components. The Chaires soil is a minor component.

Map Unit: 99—Water**Component:** Water (100%)

Generated brief soil descriptions are created for major soil components. The Water is a miscellaneous area.

Data Source Information

Soil Survey Area: Nassau County, Florida

Survey Area Data: Version 18, Sep 10, 2018

Exhibit J

Florida Department of Environmental Protection
Outstanding Florida Waters



FLORIDA DEPARTMENT OF Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Noah Valenstein
Secretary

January 10, 2019

Ms. Patti Anderson
Florida Forest Service Land Management Plan Coordinator
Florida Department of Agriculture and Consumer Services
3125 Conner Boulevard, Suite I-262, Mail Stop C-25
Tallahassee, FL 32399-1650

RE: Four Creeks State Forest

Dear Ms. Anderson:

Thank you for your inquiry regarding the surface water quality classifications of waters on and near Four Creeks State Forest in Nassau and Duval Counties. There are no waters on or near the site listed as exceptions to Class III in subparagraphs 62-302.400(17)(b)16. and 45., Florida Administrative Code (F.A.C.); therefore, all of the surface waters on or adjacent to the site are classified as Class III waters (Fish Consumption; Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife), which is the statewide default classification under subsection 62-302.400(15), F.A.C.

As requested, we also checked to see if there are any Outstanding Florida Waters (OFWs) near the state forest. According to subsection 62-302.700(9), FAC, two OFWs are adjacent to, or near the state forest. These are the Nassau Valley State Reserve OFW (62-302.700(9)(e)9., F.A.C.) and the Timucuan Ecological and Historic Preserve (subsection 62-302.700(9)(k)2., F.A.C.). While there are several other parcels on, adjacent, or nearby that are considered conservation lands at a Federal, State or Local level (according to the Florida Natural Areas Inventory Managed Areas data layer), these have not been designated as OFWs beyond what is described above.

If you have any questions or need additional information, please feel free to contact me at the letterhead address (mail station 6511), by phone at 850-245-8427, or via E-mail at Janet.Klemm@FloridaDEP.gov.

Sincerely,

A handwritten signature in cursive script, appearing to read "J Klemm".

Janet Klemm
Environmental Specialist
DEP Water Quality Standards Program

Exhibit K

Water Resources Map

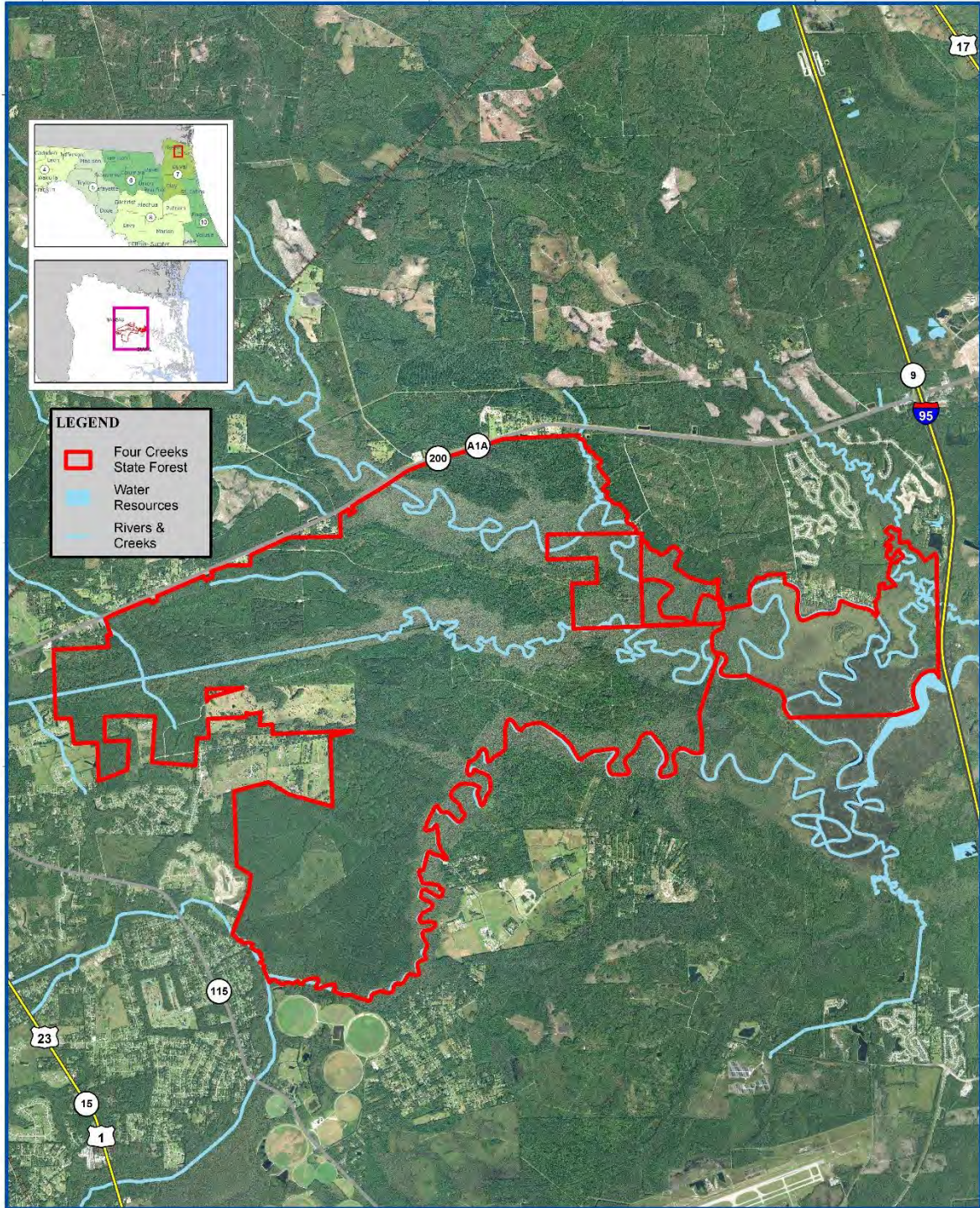


Florida Forest Service

Four Creeks State Forest Water Resources Map

Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum

DISCLAIMER:
This map was prepared by the Florida Forest Service, and is not intended to be used for any purpose other than general information. It is not a legal document and should not be used for any legal purpose. The Florida Forest Service is not responsible for any errors or omissions in this map. The Florida Forest Service is not responsible for any damages or losses resulting from the use of this map. The Florida Forest Service is not responsible for any claims or liabilities resulting from the use of this map. The Florida Forest Service is not responsible for any claims or liabilities resulting from the use of this map.



0.5 0.25 0 0.5 1
Miles



Map Month/Year: September 2019

1,000 500 0 1,000 2,000 3,000 4,000
Yards

Exhibit L

Florida Natural Areas Inventory Managed Area Tracking Record



FLORIDA Natural Areas INVENTORY

Element Occurrences

- Animals
- Plants
- Communities
- Other
- Data Sensitive

Point Indicates General
Vicinity of Element

U.S. Fish & Wildlife Service
Scrub Jay Survey 1992-96

Conservation Lands

- Federal
- State
- Local
- Private

Land Acquisition Projects

- Florida Forever
- Board of Trustees Projects
- State Aquatic Preserves
- FNAI Rare Species
- Habitat
- FNAI Biodiversity Matrix
- Square Mile Units

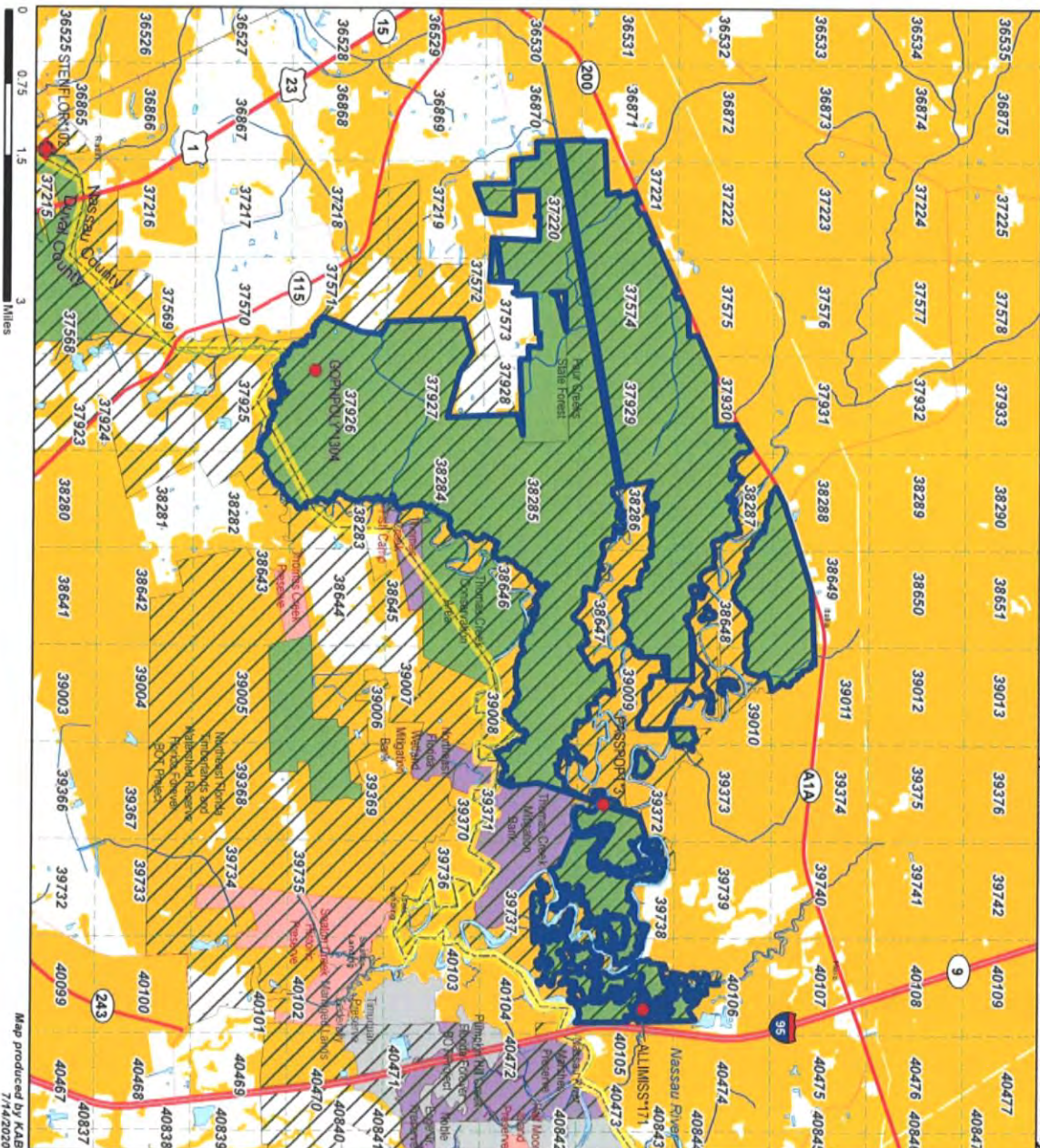
- County Boundary
- Roads
- Water

NOTE
This map contains environmentally
sensitive information. Please do not
distribute or publish without prior
consent from FNAI. Map should not
be interpreted without accompanying
documents.

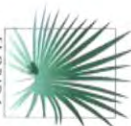
Four Creeks State Forest

Site boundaries are approximate.

Nassau County



Map produced by KAB
7/14/2020



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CLIP v4.0 Resource Priorities

Biodiversity Resource Category

- Priority 1 - highest
- Priority 2
- Priority 3
- Priority 4
- Priority 5

Landscape Resource Category

- Priority 1 - highest
- Priority 2
- Priority 3
- Priority 4
- Priority 5

Surface Water Resource Category

- Priority 1 - highest
- Priority 2
- Priority 3
- Priority 4
- Priority 5

Aggregated CLIP Priorities

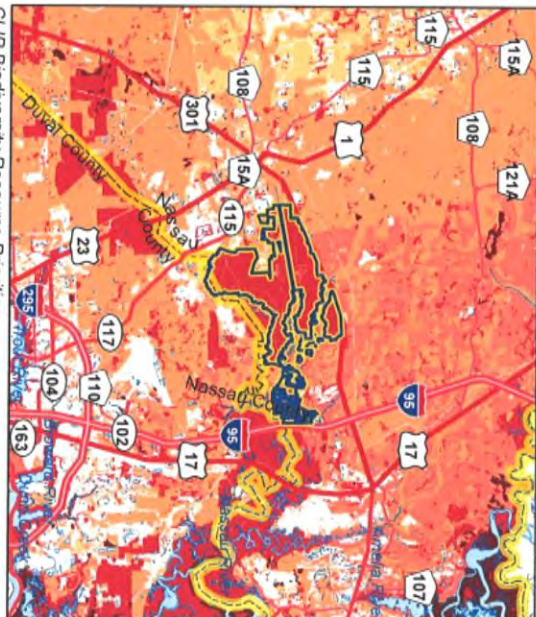
- Priority 1 - highest
- Priority 2
- Priority 3
- Priority 4
- Priority 5
- Site Boundary

Map should not be interpreted without accompanying documents.

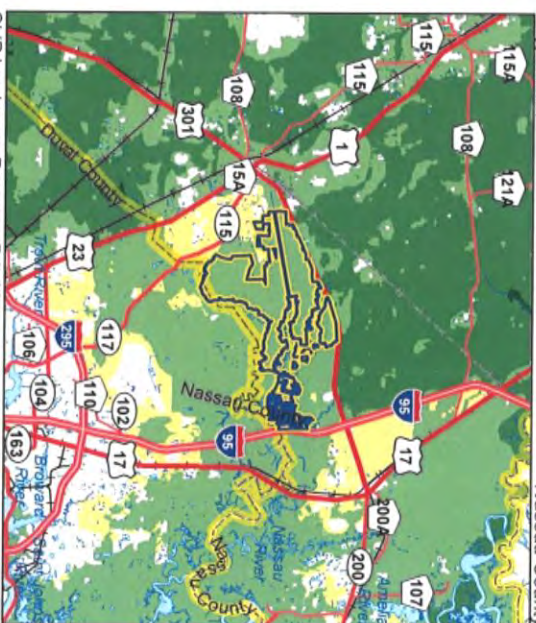
Critical Lands and Waters Identification Project (CLIP) is a cooperative effort between the FSU Florida Natural Areas Inventory, UF Center for Landscape Conservation Planning, and FL Fish & Wildlife Conservation Commission, with funding from FL Dept of Environmental Protection and US Fish & Wildlife Service.

Four Creeks State Forest

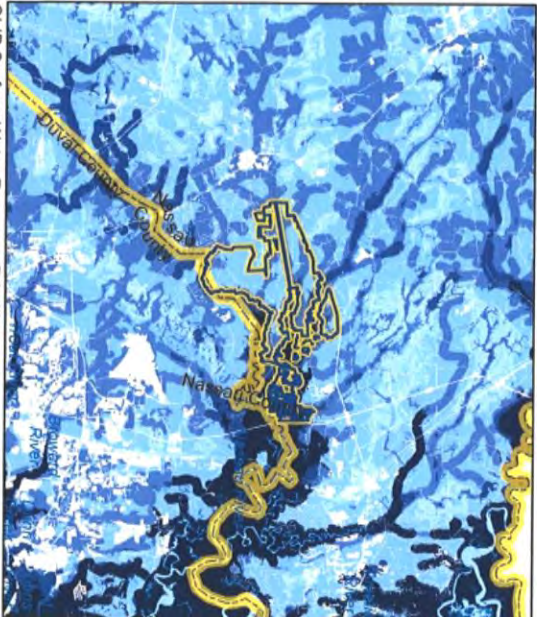
Site boundaries are approximate.



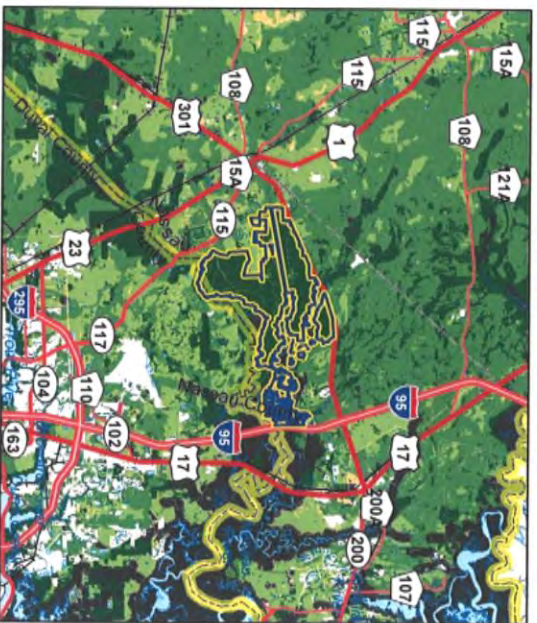
CLIP Biodiversity Resource Priorities



CLIP Landscape Resource Priorities



CLIP Surface Water Resource Priorities



CLIP Aggregated Resource Priorities



Map produced by KAB
7/14/2020



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FLORIDA
Natural Areas
INVENTORY

Florida Natural Areas Inventory
Managed Area Element Summary
Four Creeks State Forest



SCIENTIFIC NAME	COMMON NAME	Global rank	State rank	Federal status	State status
REPTILES					
<i>Gopherus polyphemus</i>	Gopher Tortoise	G3	S3	C	ST
BIRDS					
<i>Passerina ciris</i> pop. 1	Painted Bunting, eastern population	G5T3	S1S2	N	N

Note: Summary includes all documented and likely species occurrence records currently in the FNAI database.



Florida Natural Areas Inventory

Managed Area Element Summary

Four Creeks State Forest



SCIENTIFIC NAME	COMMON NAME	Global rank	State rank	Federal status	State status
-----------------	-------------	-------------	------------	----------------	--------------

Using a ranking system developed by NatureServe and the Natural Heritage Program Network, the Florida Natural Areas Inventory assigns two ranks for each element. The global rank is based on an element's worldwide status; the state rank is based on the status of the element in Florida. Element ranks are based on many factors, the most important ones being estimated number of Element Occurrences (EOs), estimated abundance (number of individuals for species; area for natural communities), geographic range, estimated number of adequately protected EOs, relative threat of destruction, and ecological fragility.

FNAI GLOBAL ELEMENT RANK

- G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
- G2 = Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
- G3 = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
- G4 = Apparently secure globally (may be rare in parts of range).
- G5 = Demonstrably secure globally.
- GH = Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker).
- GX = Believed to be extinct throughout range.
- GXC = Extirpated from the wild but still known from captivity or cultivation.
- G#? = Tentative rank (e.g., G2?).
- G#G# = Range of rank; insufficient data to assign specific global rank (e.g., G2G3).
- G#T# = Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1).
- G#Q = Rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q).
- G#T#Q = Same as above, but validity as subspecies or variety is questioned.
- GU = Unrankable; due to a lack of information no rank or range can be assigned (e.g., GUT2).
- GNA = Ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).
- GNR = Element not yet ranked (temporary).
- GNRTNR = Neither the element nor the taxonomic subgroup has yet been ranked.

FNAI STATE ELEMENT RANK

- S1 = Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
- S2 = Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
- S3 = Either very rare and local in Florida (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
- S4 = Apparently secure in Florida (may be rare in parts of range).
- S5 = Demonstrably secure in Florida.
- SH = Of historical occurrence in Florida, possibly extirpated, but may be rediscovered (e.g., ivory-billed woodpecker).
- SX = Believed to be extirpated throughout Florida.
- SU = Unrankable; due to a lack of information no rank or range can be assigned.
- SNA = State ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).
- SNR = Element not yet ranked (temporary).

FEDERAL LEGAL STATUS

Note: Summary includes all documented and likely species occurrence records currently in the FNAI database.



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Florida Natural Areas Inventory

Managed Area Element Summary

Four Creeks State Forest



Legal status information provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant federal agency.

Definitions derived from U.S. Endangered Species Act of 1973, Sec. 3. Note that the federal status given by FNAI refers only to Florida populations and that federal status may differ elsewhere.

C = Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.
LE = Endangered: species in danger of extinction throughout all or a significant portion of its range.
LE, LT = Species currently listed endangered in a portion of its range but only listed as threatened in other areas
LE, PDL = Species currently listed endangered but has been proposed for delisting.
LE, PT = Species currently listed endangered but has been proposed for listing as threatened.
LE, XN = Species currently listed endangered but tracked population is a non-essential experimental population.
LT = Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.
SAT = Treated as threatened due to similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.
SC = Not currently listed, but considered a "species of concern" to USFWS.

STATE LEGAL STATUS

Provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant state agency.

Animals: Definitions derived from "Florida's Endangered Species and Species of Special Concern, Official Lists" published by Florida Fish and Wildlife Conservation Commission, 1 August 1997, and subsequent updates.

FE = Listed as Endangered Species at the Federal level by the U. S. Fish and Wildlife Service
FT = Listed as Threatened Species at the Federal level by the U. S. Fish and Wildlife Service
F(XN) = Federal listed as an experimental population in Florida
FT(S/A) = Federal Threatened due to similarity of appearance
ST = State population listed as Threatened by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future. (ST* for *Ursus americanus floridanus* (Florida black bear) indicates that this status does not apply in Baker and Columbia counties and in the Apalachicola National Forest. ST* for *Neovison vison* pop.1 (Southern mink, South Florida population) indicates that this status applies to the Everglades population only.)
SSC = Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species. (SSC* indicates that a species has SSC status only in selected portions of its range in Florida. SSC* for *Pandion haliaetus* (Osprey) indicates that this status applies in Monroe county only.)
N = Not currently listed, nor currently being considered for listing.

Plants: Definitions derived from Sections 581.011 and 581.185(2), Florida Statutes, and the Preservation of Native Flora of Florida Act, 5B-40.001. FNAI does not track all state-regulated plant species; for a complete list of state-regulated plant species, call Florida Division of Plant Industry, 352-372-3505 or see: <http://www.doacs.state.fl.us/pi/>.

LE = Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant



Florida Natural Areas Inventory
Managed Area Element Summary
Four Creeks State Forest



to the U.S. Endangered Species Act.

LT = Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered.

N = Not currently listed, nor currently being considered for listing.



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FLORIDA
Natural Areas
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FNAI ELEMENT OCCURRENCE REPORT on or near

Four Creeks State Forest



Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	Observation Date	Description	EO Comments
ALLMISS*171	Alligator mississippiensis	American Alligator	G5	S4	SAT	FT(S/A)	2007-04-23	2007-04-23: estuarine tidal marsh (F07FNA10FLUS).
GOPHPOL.V*1304	Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST	2009-01-22	State Forest. 2009-01-22: roadside, along unpaved forest road in pine plantation that was historically mesic flatwoods (F07FNA10FLUS). PNDNES03FLUS).
PASSPOPT*13	Passerina ciris pop. 1	Painted Bunting, eastern population	G5T3	S1S2	N	N	2007-04-24	2007-04-24: Ruderal roadside through wet flatwoods with heavy road and forestry operations disturbance (F07FNA10FLUS).



Florida Natural Areas Inventory

Aggregated Biodiversity Matrix Report



Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Documented					
<i>Alligator mississippiensis</i>	American Alligator	G5	S4	SAT	FT(S/A)
<i>Gopherus polyphemus</i>	Gopher Tortoise	G3	S3	C	ST
<i>Passerina ciris</i> pop. 1	Painted Bunting, eastern population	G5T3	S1S2	N	N
Likely					
<i>Drymarchon couperi</i>	Eastern Indigo Snake	G3	S3	T	FT
Mesic flatwoods		G4	S4	N	N
<i>Mycteria americana</i>	Wood Stork		S2	T	FT
Scrub		G2	S2	N	N
Potential					
<i>Acipenser oxyrinchus oxyrinchus</i>	Atlantic Sturgeon	G3T3	S1	E	FE
<i>Ammospiza maritima macgillivraii</i>	Macgillivray's Seaside Sparrow	G4T3	S2	N	N
<i>Asclepias viridula</i>	southern milkweed	G2	S2	N	T
<i>Balduina atropurpurea</i>	purple honeycomb-head		S1	N	E
<i>Calopogon multiflorus</i>	many-flowered grass-pink	G2G3	S2S3	N	T
<i>Cistothorus palustris griseus</i>	Worthington's Marsh Wren	G5T3	S2	N	ST
<i>Coreopsis integrifolia</i>	ciliate-leaf tickseed	G1G2	S1	N	E
<i>Corynorhinus rafinesquii</i>	Rafinesque's Big-eared Bat	G3G4	S1	N	N
<i>Ctenium floridanum</i>	Florida toothache grass	G2	S2	N	E
<i>Dryobates borealis</i>	Red-cockaded Woodpecker	G3	S2	E	FE
<i>Litsea aestivalis</i>	pondspice	G3?	S2	N	E
<i>Matelea floridana</i>	Florida spiny-pod	G2	S2	N	E
<i>Neovison vison lutescens</i>	Atlantic Salt Marsh Mink	G5T3	S3	N	N
<i>Notophthalmus perstriatus</i>	Striped Newt	G2G3	S2	N	N
<i>Peucaea aestivalis</i>	Bachman's Sparrow	G3	S3	N	N
<i>Pteroglossaspis ecrinata</i>	giant orchid	G2G3	S2	N	T
<i>Pycnanthemum floridanum</i>	Florida mountain-mint	G3	S3	N	T
<i>Rhynchospora thornei</i>	Thorne's beaksedge		S1S2	N	N
<i>Rudbeckia nitida</i>	St. John's blackeyed susan		S2	N	E
<i>Sciurus niger niger</i>	Southeastern Fox Squirrel	G5T5	S3	N	N
<i>Sideroxylon alachuense</i>	silver buckthorn	G1	S1	N	E
<i>Trichechus manatus</i>	West Indian Manatee	G2	S2	T	FT
<i>Verbesina heterophylla</i>	variable-leaf crownbeard		S2	N	E

Definitions: Documented - Rare species and natural communities documented on or near this site.
 Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
 Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
 Potential - This site lies within the known or predicted range of the species listed.

Elements and Element Occurrences

An **element** is any exemplary or rare component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave, or other ecological feature.

An **element occurrence (EO)** is an area of land and/or water in which a species or natural community is, or was, present. An EO should have practical conservation value for the Element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location.

Element Ranking and Legal Status

Using a ranking system developed by NatureServe and the Natural Heritage Program Network, the Florida Natural Areas Inventory assigns two ranks for each element. The global rank is based on an element's worldwide status; the state rank is based on the status of the element in Florida. Element ranks are based on many factors, the most important ones being estimated number of Element Occurrences (EOs), estimated abundance (number of individuals for species; area for natural communities), geographic range, estimated number of adequately protected EOs, relative threat of destruction, and ecological fragility.

FNAI GLOBAL ELEMENT RANK

- G1** = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
- G2** = Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
- G3** = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
- G4** = Apparently secure globally (may be rare in parts of range).
- G5** = Demonstrably secure globally.
- GH** = Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker).
- GX** = Believed to be extinct throughout range.
- GXC** = Extirpated from the wild but still known from captivity or cultivation.
- G#?** = Tentative rank (e.g., G2?).
- G#G#** = Range of rank; insufficient data to assign specific global rank (e.g., G2G3).
- G#T#** = Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1).
- G#Q** = Rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q).
- G#T#Q** = Same as above, but validity as subspecies or variety is questioned.
- GU** = Unrankable; due to a lack of information no rank or range can be assigned (e.g., GUT2).
- GNA** = Ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).
- GNR** = Element not yet ranked (temporary).
- GNRTNR** = Neither the element nor the taxonomic subgroup has yet been ranked.

FNAI STATE ELEMENT RANK

- S1** = Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
- S2** = Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
- S3** = Either very rare and local in Florida (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
- S4** = Apparently secure in Florida (may be rare in parts of range).
- S5** = Demonstrably secure in Florida.
- SH** = Of historical occurrence in Florida, possibly extirpated, but may be rediscovered (e.g., ivory-billed woodpecker).
- SX** = Believed to be extirpated throughout Florida.
- SU** = Unrankable; due to a lack of information no rank or range can be assigned.
- SNA** = State ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).
- SNR** = Element not yet ranked (temporary).

FEDERAL LEGAL STATUS

Legal status information provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant federal agency.

Definitions derived from U.S. Endangered Species Act of 1973, Sec. 3. Note that the federal status given by FNAI refers only to Florida populations and that federal status may differ elsewhere.

C = Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.

E = Endangered: species in danger of extinction throughout all or a significant portion of its range.

E, T = Species currently listed endangered in a portion of its range but only listed as threatened in other areas

E, PDL = Species currently listed endangered but has been proposed for delisting.

E, PT = Species currently listed endangered but has been proposed for listing as threatened.

E, XN = Species currently listed endangered but tracked population is a non-essential experimental population.

T = Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.

PE = Species proposed for listing as endangered

PS = Partial status: some but not all of the species' infraspecific taxa have federal

PT = Species proposed for listing as threatened

SAT = Treated as threatened due to similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.

SC = Not currently listed, but considered a "species of concern" to USFWS.

STATE LEGAL STATUS

Provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant state agency.

Animals: Definitions derived from "Florida's Endangered Species and Species of Special Concern, Official Lists" published by Florida Fish and Wildlife Conservation Commission, 1 August 1997, and subsequent updates.

C = Candidate for listing at the Federal level by the U. S. Fish and Wildlife Service

FE = Listed as Endangered Species at the Federal level by the U. S. Fish and Wildlife Service

FT = Listed as Threatened Species at the Federal level by the U. S. Fish and Wildlife Service

FXN = Federal listed as an experimental population in Florida

FT(S/A) = Federal Threatened due to similarity of appearance

ST = State population listed as Threatened by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.

SSC = Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species. (SSC* for *Pandion haliaetus* (Osprey) indicates that this status applies in Monroe county only.)

N = Not currently listed, nor currently being considered for listing.

Plants: Definitions derived from Sections 581.011 and 581.185(2), Florida Statutes, and the Preservation of Native Flora of Florida Act, 5B-40.001. FNAI does not track all state-regulated plant species; for a complete list of state-regulated plant species, call Florida Division of Plant Industry, 352-372-3505 or see: <http://www.doacs.state.fl.us/pi/>.

E = Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act.

T = Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered.

N = Not currently listed, nor currently being considered for listing.

Element Occurrence Ranking

FNAI ranks of quality of the element occurrence in terms of its viability (EORANK). Viability is estimated using a combination of factors that contribute to continued survival of the element at the location. Among these are the size of the EO, general condition of the EO at the site, and the conditions of the landscape surrounding the EO (e.g. an immediate threat to an EO by local development pressure could lower an EO rank).

A = Excellent estimated viability
A? = Possibly excellent estimated viability
AB = Excellent or good estimated viability
AC = Excellent, good, or fair estimated viability
B = Good estimated viability
B? = Possibly good estimated viability
BC = Good or fair estimated viability
BD = Good, fair, or poor estimated viability
C = Fair estimated viability
C? = Possibly fair estimated viability
CD = Fair or poor estimated viability
D = Poor estimated viability
D? = Possibly poor estimated viability
E = Verified extant (viability not assessed)
F = Failed to find
H = Historical
NR = Not ranked, a placeholder when an EO is not (yet) ranked.
U = Unrankable
X = Extirpated

*For additional detail on the above ranks see: <http://www.natureserve.org/explorer/eorankguide.htm>

FNAI also uses the following EO ranks:

H? = Possibly historical
F? = Possibly failed to find
X? = Possibly extirpated

The following offers further explanation of the H and X ranks as they are used by FNAI:

The rank of H is used when there is a lack of recent field information verifying the continued existence of an EO, such as (a) when an EO is based only on historical collections data; or (b) when an EO was ranked A, B, C, D, or E at one time and is later, without field survey work, considered to be possibly extirpated due to general habitat loss or degradation of the environment in the area. This definition of the H rank is dependent on an interpretation of what constitutes "recent" field information. Generally, if there is no known survey of an EO within the last 20 to 40 years, it should be assigned an H rank. While these time frames represent suggested maximum limits, the actual time period for historical EOs may vary according to the biology of the element and the specific landscape context of each occurrence (including anthropogenic alteration of the environment). Thus, an H rank may be assigned to an EO before the maximum time frames have lapsed. Occurrences that have not been surveyed for periods exceeding these time frames should not be ranked A, B, C, or D. The higher maximum limit for plants and communities (i.e., ranging from 20 to 40 years) is based upon the assumption that occurrences of these elements generally have the potential to persist at a given location for longer periods of time. This greater potential is a reflection of plant biology and community dynamics. However, landscape factors must also be considered. Thus, areas with more anthropogenic impacts on the environment (e.g., development) will be at the lower end of the range, and less-impacted areas will be at the higher end.

The rank of X is assigned to EOs for which there is documented destruction of habitat or environment, or persuasive evidence of eradication based on adequate survey (i.e., thorough or repeated survey efforts by one or more experienced observers at times and under conditions appropriate for the Element at that location).

Exhibit M

Florida Fish and Wildlife Conservation Commission Listed Species Occurrence Records



**Florida Fish
and Wildlife
Conservation
Commission**

Commissioners
Robert A. Spottswood
Chairman
Key West

Michael W. Sole
Vice Chairman
Tequesta

Joshua Kellam
Palm Beach Gardens

Gary Lester
Oxford

Gary Nicklaus
Jupiter

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Office of the
Executive Director
Eric Sutton
Executive Director

Thomas H. Eason, Ph.D.
Assistant Executive Director

Jennifer Fitzwater
Chief of Staff

Division of Habitat and
Species Conservation
Kipp Frohlich
Director

(850) 488-3831
(850) 921-7793 FAX

*Managing fish and wildlife
resources for their long-term
well-being and the benefit
of people.*

620 South Meridian Street
Tallahassee, Florida
32399-1600
Voice: 850-488-4676

Hearing/speech-impaired:
800-955-8771 (T)
800 955-8770 (V)

MyFWC.com

May 27, 2019

Patti Anderson
Land Planning Coordinator
Florida Forest Service
3125 Conner Boulevard
Tallahassee, FL
32399

Dear Patti Anderson:

This letter is in response to your request for listed species occurrence records and critical habitats for your project Four Creeks located in Duval County, Florida. Records from The Florida Fish and Wildlife Conservation Commission's database indicate that listed species occurrence data and critical habitats are located within the project area. Records of Ironcolor shiner, Florida black bear, and painted bunting were found on the property. The Florida Fish and Wildlife Conservation Commission's database indicates that no Strategic Habitat Conservation Areas (SHCA) occur within the property boundaries, although the property itself is surrounded by SHCA.

This letter and attachments should not be considered as a review or an assessment of the impact upon threatened or endangered species of the project site. It provides FWC's most current data regarding the location of listed species and their associated habitats.

Our SHCA recommendations are intended to be used as a guide. Land development and ownership in Florida is ever-changing and priority areas identified as SHCA might already have been significantly altered due to development or acquired into public ownership. Onsite surveys, literature reviews, and coordination with FWC biologists remain essential steps in documenting the presence or absence of rare and imperiled species and habitats within the project area.

Our fish and wildlife location data represents only those occurrences recorded by FWC staff and other affiliated researchers. It is important to understand that our database does not necessarily contain records of all listed species that may occur in a given area. Also, data on certain species, such as gopher tortoises, are not entered into our database on a site-specific basis.

Therefore, one should not assume that an absence of occurrences in our database indicates that species of significance do not occur in the area.

The Florida Natural Areas Inventory (FNAI) maintains a separate database of listed plant and wildlife species, please contact FNAI directly for specific information on the location of element occurrences within the project area.

Because FNAI is funded to provide information to public agencies only, you may be required to pay a fee for this information. County-wide listed species information can be located at their website (<http://www.fnai.org>).

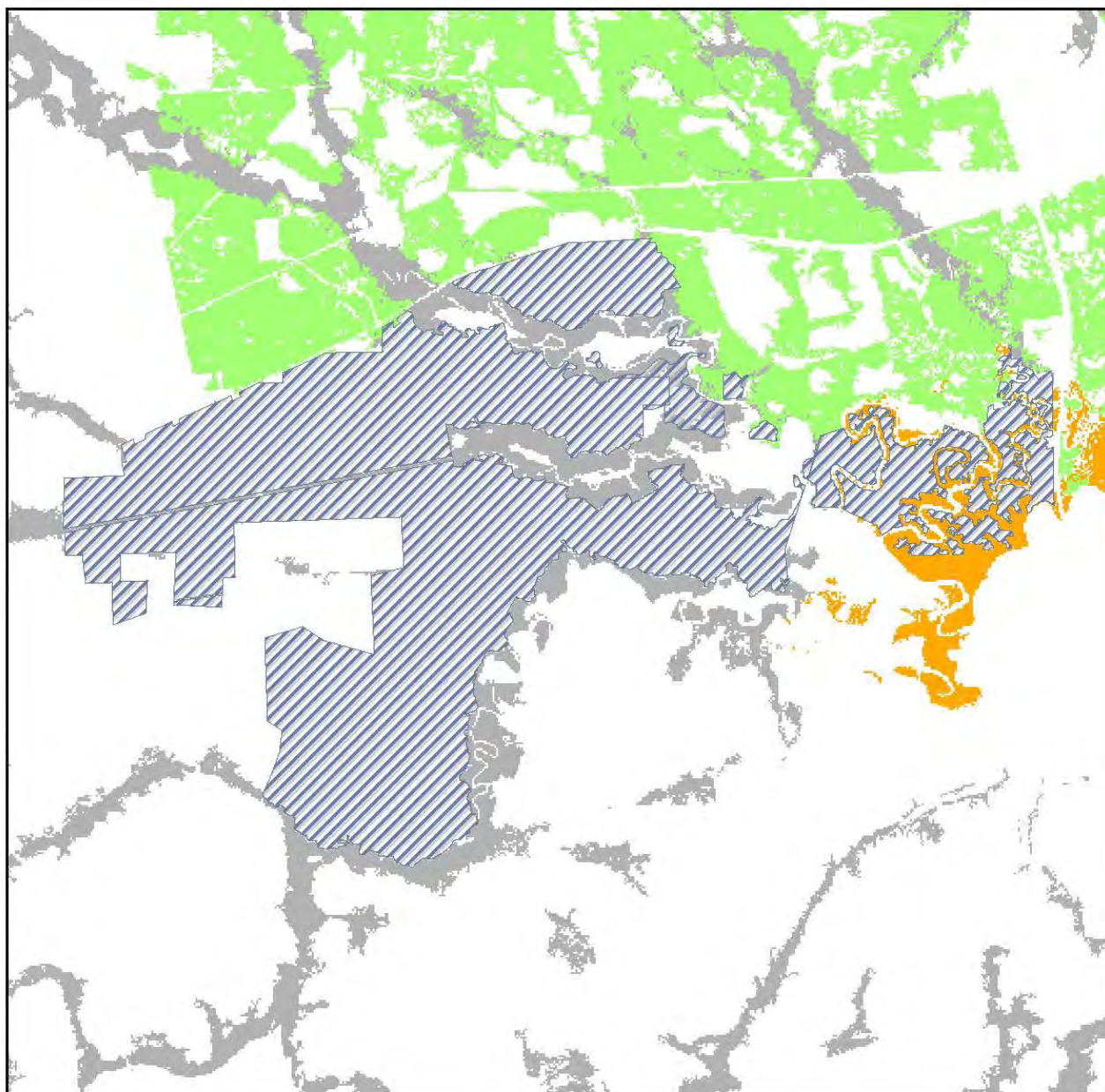
Please credit the Florida Fish and Wildlife Conservation Commission in any publication or presentation of these data. If you have any questions or further requests, please contact me at (850) 488-0588 or gisrequests@myfwc.com.

Sincerely,



Eva Salinas
Research Assistant

ES
2019_6326_FourCreeks
Enclosures



Four Creeks

Prioritized SHCA's

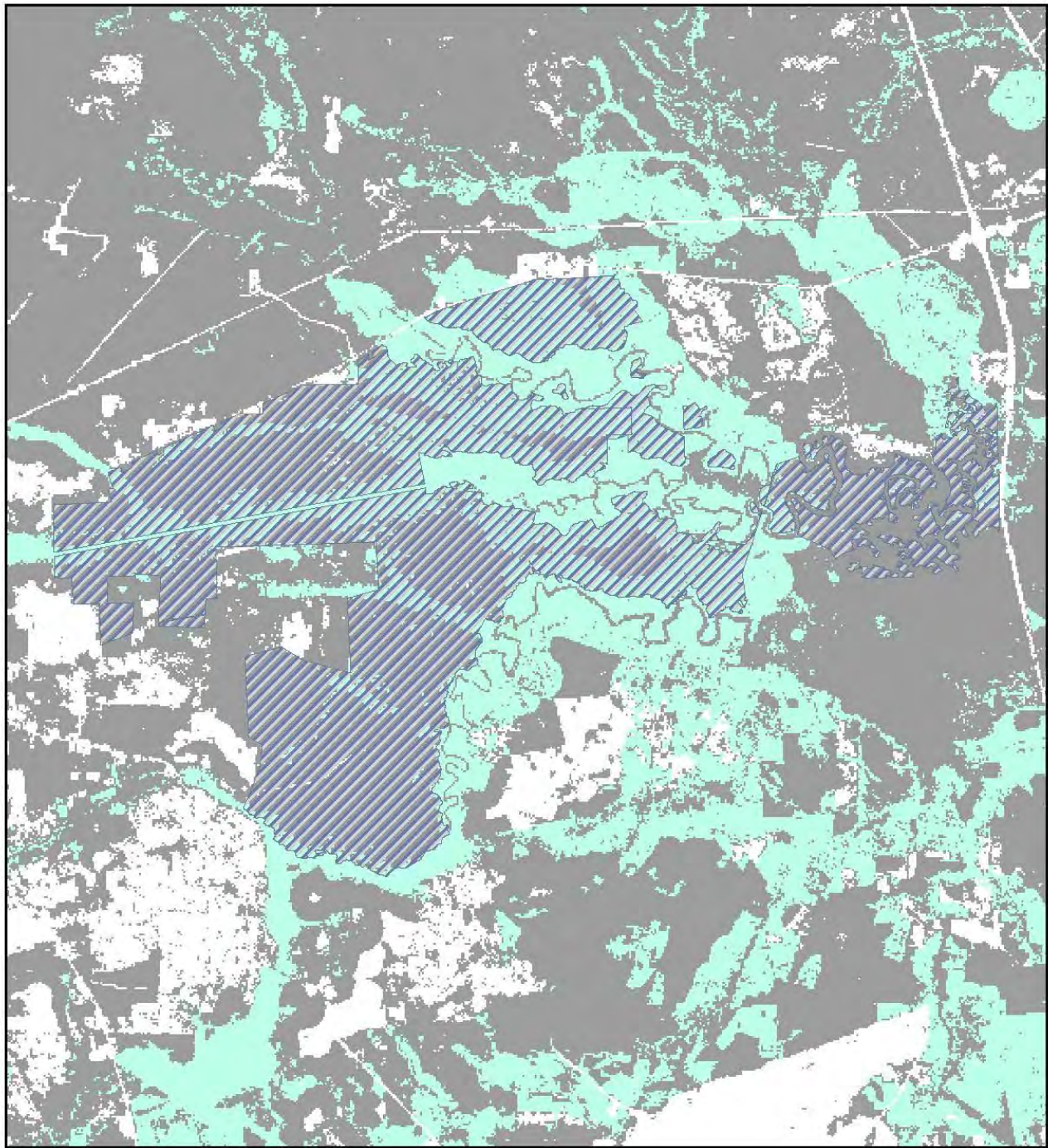


The prioritized SHCA map identifies 5 classes of SHCA based upon Heritage ranking criteria developed by The Nature Conservancy, the Natural Heritage Program Network, and the Florida Natural Areas Inventory. There are 2 possible ranks used to prioritize a species' SHCA: 1) the global rank based on a species worldwide status, and 2) the state rank based upon the species status in Florida. The state and global ranks are based upon many factors such as known occurrence locations, estimated abundance, range, amount of habitat currently protected, perceived levels of threats towards the species, and ecological fragility.



Florida Fish and Wildlife
Conservation Commission
MyFWC.com

FWC ID: 2019_6439 July 13, 2020

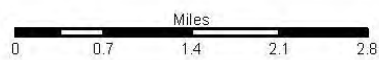


Four Creeks

Species Richness

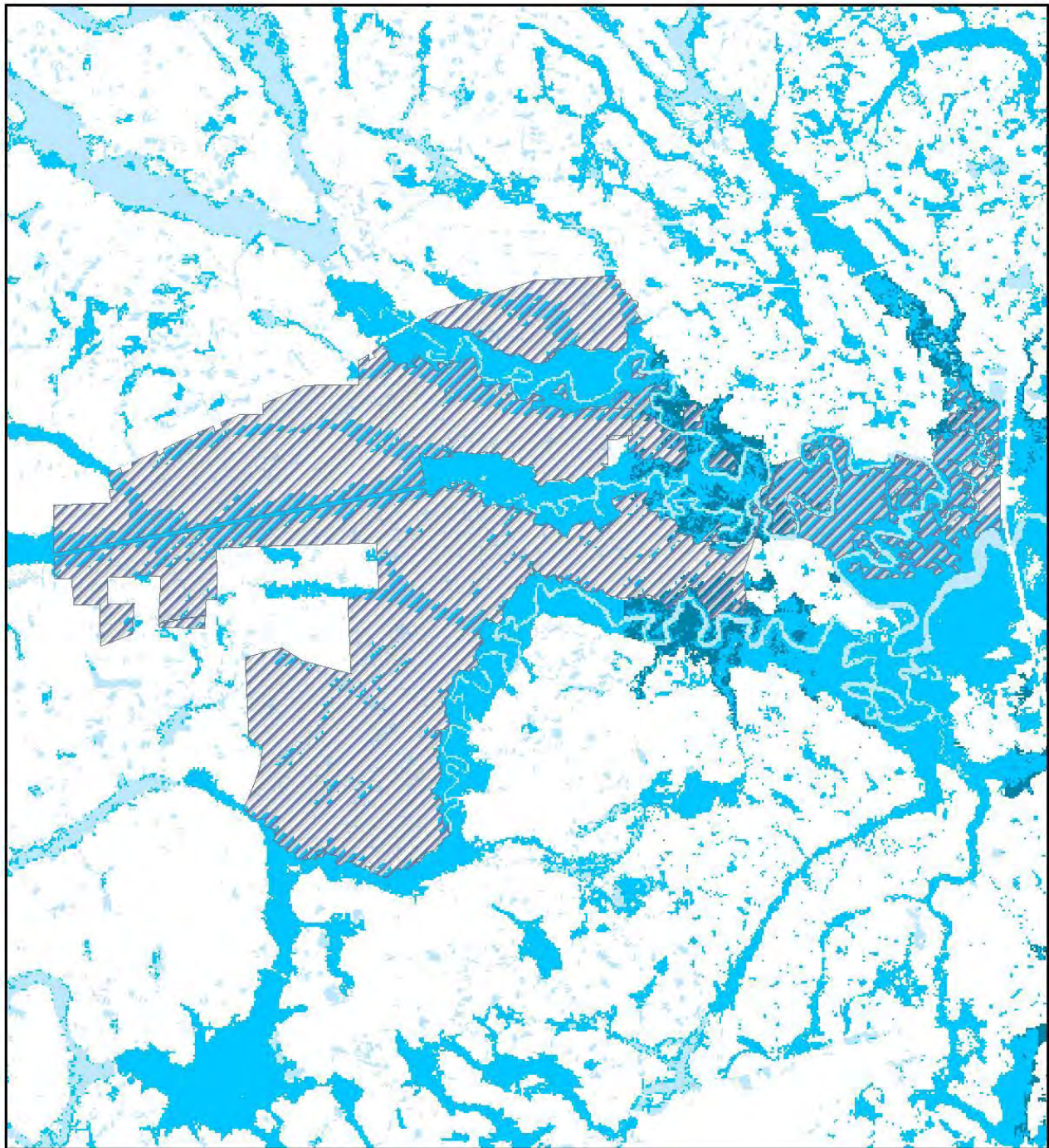


1-3 4-6 7-9 10-13



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Conservation Commission
MyFWC.com

FWC ID: 2019_6439 July 13, 2020



Four Creeks

Priority Wetlands

- 1-3 Species, Wetlands habitat
- 4-6 Species, Wetlands habitat
- 7-9 Species, Wetlands habitat
- 10-11 Species, Wetlands habitat



Florida Fish and Wildlife
Conservation Commission
MyFWC.com

FWC ID: 2019_6439 July 13, 2020

Exhibit N

Fire History

Four Creeks State Forest Burn Acres by Fiscal Year

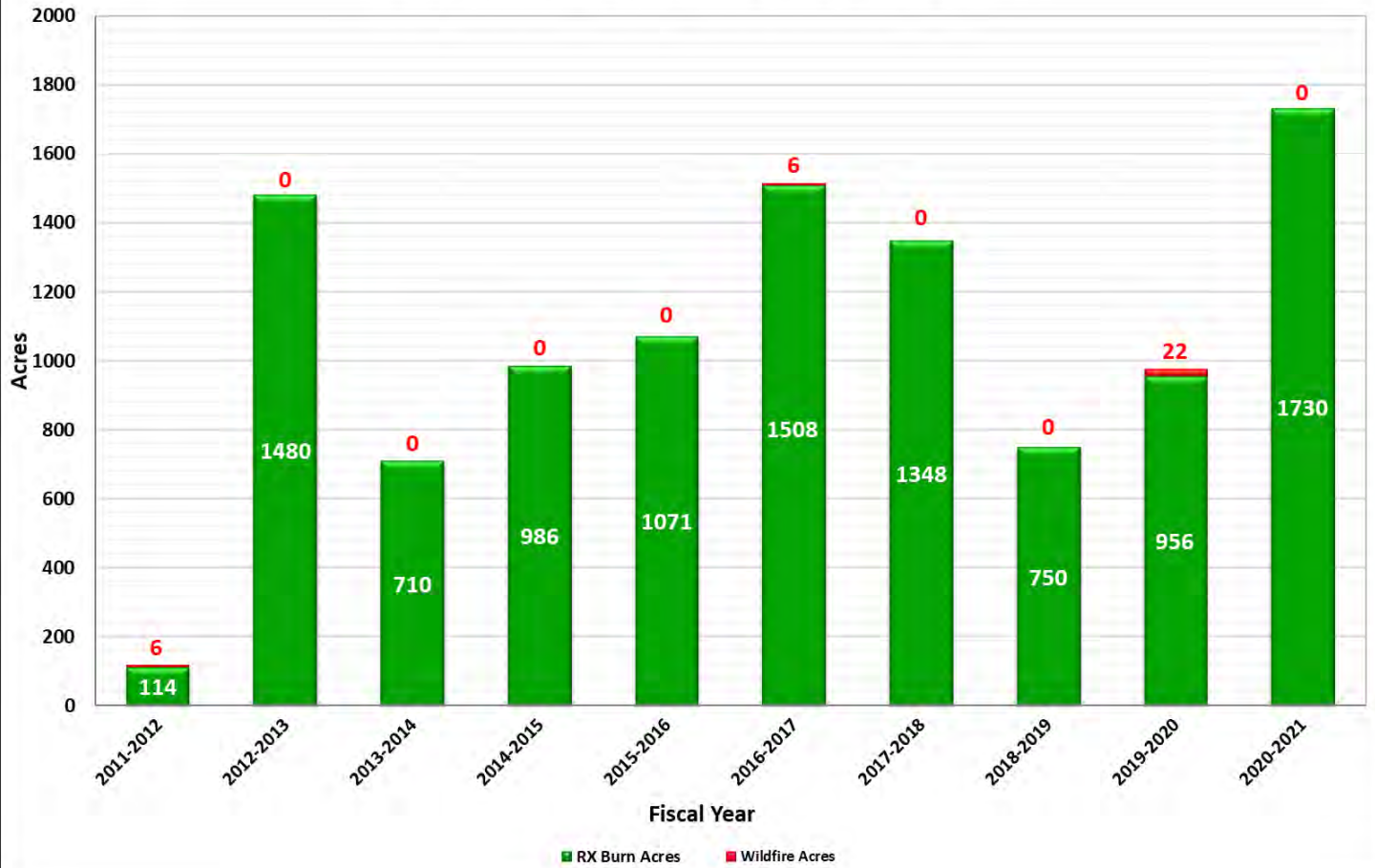


Exhibit O

Non-Native Invasive Species Map

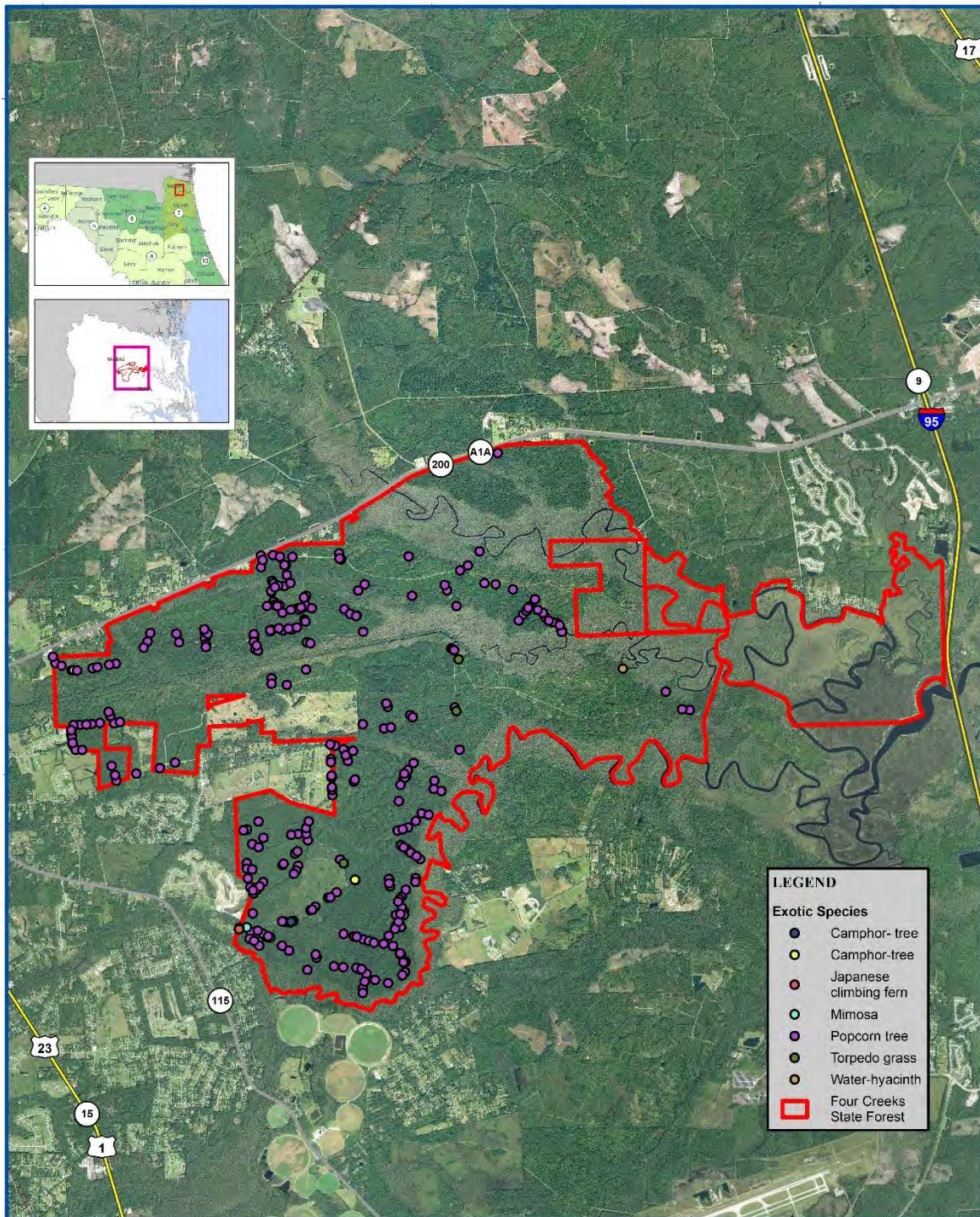


Four Creeks State Forest
Non-Native Invasive Species Map

Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum

[illegible]

Managed Area boundaries courtesy of the Florida Natural Areas Inventory formerly listed Defense Sites (RLDN) from the US Army Corps of Engineers



Map Month/Year: September 2019

Exhibit P

Current Natural Communities Map



Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum

DISCUSSION: This study was approved by The Phoenix Parks District (PPD) Government Information System (GIS) and using data from various sources, these sources by PPD are designed to protect user data for use as required public purposes. These processes are not input dependent on location in the PPD. The PPD's former location system was a paper map and a computer, which was used to produce a digital map of the PPD's former location and its history. The data was collected as the user log in, completion of the Geography 10101010.

Managed Area boundaries courtesy of the Florida Natural Areas Inventory. Formerly Used Defense Sites (UDSs) from the US Army Corps of Engineers.

LEGEND

-
- Four Creeks
-
- State Forest

Current Natural Communities

-  basin swamp
-  baygall
-  blackwater stream
-  borrow area
-  bottomland forest
-  canal/ditch
-  clearing
-  dome swamp
-  floodplain marsh
-  floodplain swamp
-  hydric hammock
-  impoundment... pond
-  mesic flatwoods
-  mesic hammock
-  pasture - improved
-  pine plantation
-  salt marsh
-  wet flatwoods



Map Month/Year: September 2019

Exhibit Q

Historic Natural Communities Map



Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum

[illegible]

Managed Area boundaries courtesy of the Florida Natural Area Inventory, formerly titled Defense Sites (DSIS) from the US Army Corps of Engineers

LEGEND

- 
- Four Creeks State Forest

Historic Natural Communities

-  basin swamp
-  baygall
-  blackwater stream
-  borrow area
-  bottomland forest
-  canal/ditch
-  clearing
-  dome swamp
-  floodplain marsh
-  floodplain swamp
-  hydric hammock
-  impoundment... pond
-  mesic flatwoods
-  mesic hammock
-  pasture - improved
-  pine plantation
-  salt marsh
-  wet flatwoods



Map Month/Year: September 2019

Exhibit R

Management Prospectus

2021 Florida Forever Five-Year Plan

***Northeast Florida Timberlands and
Watershed Reserve***

Summary of Recommendations and Status
as of
December 2020



Division of State Lands
Florida Department of Environmental Protection



Northeast Florida Timberlands and Watershed Reserve

Partnerships & Regional Incentives Project
Clay, Duval, Nassau

Project-at-a-Glance

Year Added to Priority List	2002
Project Acres	147,431
Acquired Acres	71,004
Cost of Acquired Acres	\$141,546,558
Remaining Project Acres	76,427
2019 Assessed Value of Remaining Acres	\$1,106,101,849

Purpose for State Acquisition

Public acquisition of this project will contribute to the following Florida Forever goals: (1) Increase the protection of Florida's biodiversity at the species, natural community, and landscape levels – known to harbor four FNAI-listed species of vascular flora and four rare animals; (2) Increase the amount of open space available in urban areas – conserve spaces suitable for greenways or outdoor recreation that are compatible with conservation purposes; (3) Increase natural resource-based public recreation and educational opportunities – camping, picnicking, nature appreciation, hiking, and horseback riding are possible; and (4) Protect, restore, and maintain the quality and natural functions of land, water, and wetland systems of the state – 75-80 percent of land is disturbed with restoration a primary objective.

Manager(s)

Florida Forest Service/FFS of the Florida Department of Agriculture and Consumer Services. The City of Jacksonville is manager for the 172-acre Jacksonville-Baldwin Rail Trail.

General Description

This project describes a northeast-southwest diagonal along the west side of Duval County, stretching from the Nassau River north of Jacksonville to Trail Ridge in Clay County, near the



town of Lawtey. Another section of the project makes a north-south connection about 12 miles long, between the Camp Blanding Military Reservation and the Etoniah Creek State Forest. About 75 percent of this land is used, or has been used, for silviculture. It also includes mesic flatwoods, cypress and hardwood swamp, sandhills and associated plant communities.

FNAI Element Occurrence Summary

<u>FNAI Elements</u>	<u>Score</u>
Red-cockaded woodpecker	G3/S2
Eastern indigo snake	G3/S2?
Gopher tortoise	G3/S3
Swallow-tailed kite	G5/S2
Florida black bear	G5T4/S4
Florida toothache grass	G2/S2
variable-leaf crownbeard	G2/S2
hartwrightia	G2/S2
giant orchid	G2G3/S2
Thorne's beaksedge	G3/S1S2
Painted Bunting, eastern population	G5T3/S1S2
Bartram's ixia	G2G3/S2S3

23 rare species are associated with the project

Public Use

The FFS will promote recreation and environmental education in the natural environment. There is a possibility of an intermediate and long-term need for some type of developed recreation facilities. If such facilities are developed, the use of low-impact, rustic facilities will be stressed. If an organized recreation area is desired, it will be assessed and evaluated to minimize any possible adverse effects on the natural environment. Unnecessary roads, firelines and hydrological disturbances will be abandoned and/or restored to the greatest extent practical.

Acquisition Planning

2001

On December 6, 2001, the Acquisition and Restoration Council (ARC) recommended the Northeast Florida Timberlands and Watershed Reserve project for Group A of the Florida Forever (FF) 2002 Priority list. This fee-simple and less-than-fee acquisition, located in Clay, Duval and Nassau Counties, and sponsored by The Nature Conservancy (TNC), the City of Jacksonville, and the St. Johns River Water Management District (SJRWMD), consisted of approximately 132,450 acres, more than 150 landowners, and a 2001 taxable value of \$50,158,195.



The following 37 ownerships were identified as essential: Gilman, Jackson, Carter, Owen, Nemours, Miller, Bostiwick, Klieg, Bullock, 1st Bank and Trust, Rayonier, International Paper, Motes, Boyd, South Regional Industrial Realty, East Fiftone Partners, Monticello Drugs, St. Joe, Barnett Bank Trustee, Anheuser-Busch, Inc., Travelers Ins., Foster, Tison, Castleton, Wright, Buck, Logan, Higgenbotham, Betz, Ogilvie, Milne, Kaleel and Roberts, Grey, Sythe, Pharr, Wilkinson, and Helmer.

2003

On June 6, 2003, the ARC approved a 506-acre addition, known as the Norfolk Southern property, to the project boundary in Duval County. The fee-simple acquisition, sponsored by TNC, consisted of a single owner, Southern Region Industrial Realty Inc., and had a 2002 taxable value of \$408,700.

On December 5, 2003, the ARC approved a 7,043-acre addition, known as the Four Creeks Forest tract, to the project boundary in Nassau County. The fee-simple acquisition, sponsored by the SJRWMD, consisted of one landowner, Rayonier Timberlands Operating Co. LP, and a 2002 taxable value of \$1,478,838.

2004

On December 3, 2004, the ARC approved a 3,500-acre addition, known as the Bull Creek tract, to the project boundary in Clay County. The fee-simple acquisition, sponsored by the SJRWMD, consisted of one landowner, Ventura LLC, and a taxable value of \$760,646.

2006

On June 30, 2006, the Board of Trustees purchased 1,651 acres within the Florida Forever project boundary.

2007

On February 16, 2007, the ARC approved a fee-simple, 2,665-acre addition to the Bull Creek portion of the project boundary. It was sponsored by the SJRWMD, consisted of one landowner, 1621 Venture II LLC, nine parcels, and a taxable value of \$445,189. The FFS will manage these essential parcels

2010

On November 5, 2010, DSL purchased 15 acres (Rayonier Forest Resources, L.P.--\$18,108 with FF funds) for FFS to manage.



2011

On April 25, 2011, 3.95 acres in Four Creeks State Forest (Pacett) were donated. FFS will manage.

On December 9, 2011, ARC placed this project in the Partnerships and Regional Incentives category of Florida Forever projects.

2018

On February 16, 2018, ARC voted to expand the boundary of the project to include approximately 300 acres in Nassau County (Studdard Tract), a partial inholding within the Four Creeks State Forest.

ARC also voted to add a parcel to the Northeast Florida Timberlands and Watershed Reserve during the August 2018 meeting. This 52-acre parcel in Nassau County is an inholding in the Four Creeks State Forest, near Highway A1A.

Coordination

In 1992, the 172-acre Jacksonville-Baldwin Rail Trail was acquired with Florida Greenways and Trails funds. This trail which meanders through the project is managed by the City of Jacksonville. The SJRWMD is an acquisition partner in areas of the project to help protect the multiple creeks and rivers. The National Guard Bureau through a Memorandum of Agreement (MOA) is an acquisition partner in areas of the project to help buffer and prevent encroachment of Camp Blanding. TNC, City of Jacksonville, Duval County, FCT, and the U.S. Navy are considered partners in this project.

Management Policy Statement

The FFS proposes to manage the project under a multiple-use management regime consistent with the FFS management of the Cary State Forest, the Jennings State Forest and the Cecil Field Conservation Corridor, all of which are adjacent to this project. The acquisition goals and objectives as approved by ARC would include timber management and restoration, low-impact diverse recreation uses, and management of archaeological and historic sites, habitat and other biological resources.



Management Prospectus

Qualifications for state designation

The project's size and diversity make it desirable for use and management as a state forest. Management by the FFS as a state forest is contingent on acquiring fee-simple title to the core parcels adjacent to the existing state forests and to approximately 60 percent of the project.

Manager

FFS is recommended to be the lead managing agency.

Conditions affecting intensity of management

Much of the parcel has been disturbed by past pine plantings and will require restoration work. This area of Florida is experiencing rapid urban growth, so that any prescribed burning to restore the forest will have to be carefully planned. The level of management and the related management costs are expected to initially be high to obtain necessary information to restore and manage portions as a state forest. It is recognized that a portion of the project will be less-than-fee simple. This technique is valuable on the fringes of urban growth because it allows the landowners to manage the property as they have been managing it, and continuing to produce forest products for Florida's economy, while protecting the property from conversion to urban growth.

Timetable for implementing management and provisions for security and protection of infrastructure

Once the core areas of the project are acquired and assigned to the FFS, initial public access will be provided for diverse, low-intensity outdoor recreation activities. Initial and intermediate management efforts will concentrate on site security, public and resource management access, prescribed burns, reforestation, and restoration activity.

Revenue-generating potential

Timber sales will be conducted as needed to improve or to maintain the desirable ecosystem conditions. These sales will primarily take place in the marketable pine stands and will provide a variable source of revenue, depending on a variety of factors. The existing condition of the timber stands on the property is such that the revenue-generating potential is expected to be moderate. Other compatible state forest sources of income will be considered. It is anticipated that management funding will come from the Conservation and Recreation Lands Trust Fund.

Cooperators in management activities

The FFS will cooperate with, and seek the assistance of, other state agencies, local government agencies, other interested parties as appropriate, and with the Florida Natural Areas Inventory

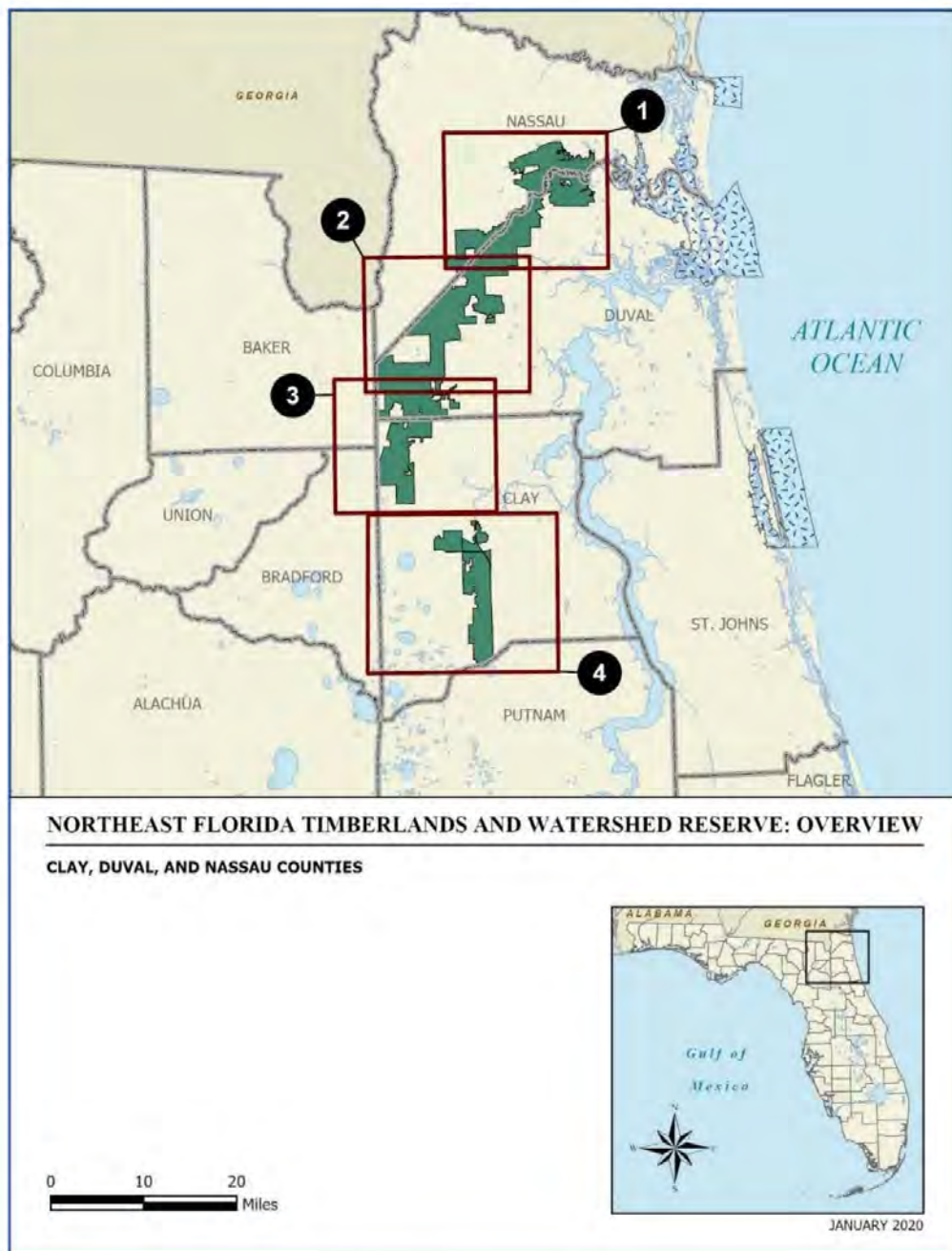


(FNAI). The FFS intends to coordinate with the Florida Fish and Wildlife Conservation Commission (FWC) regarding game and non-game management activity and related public use of the property.

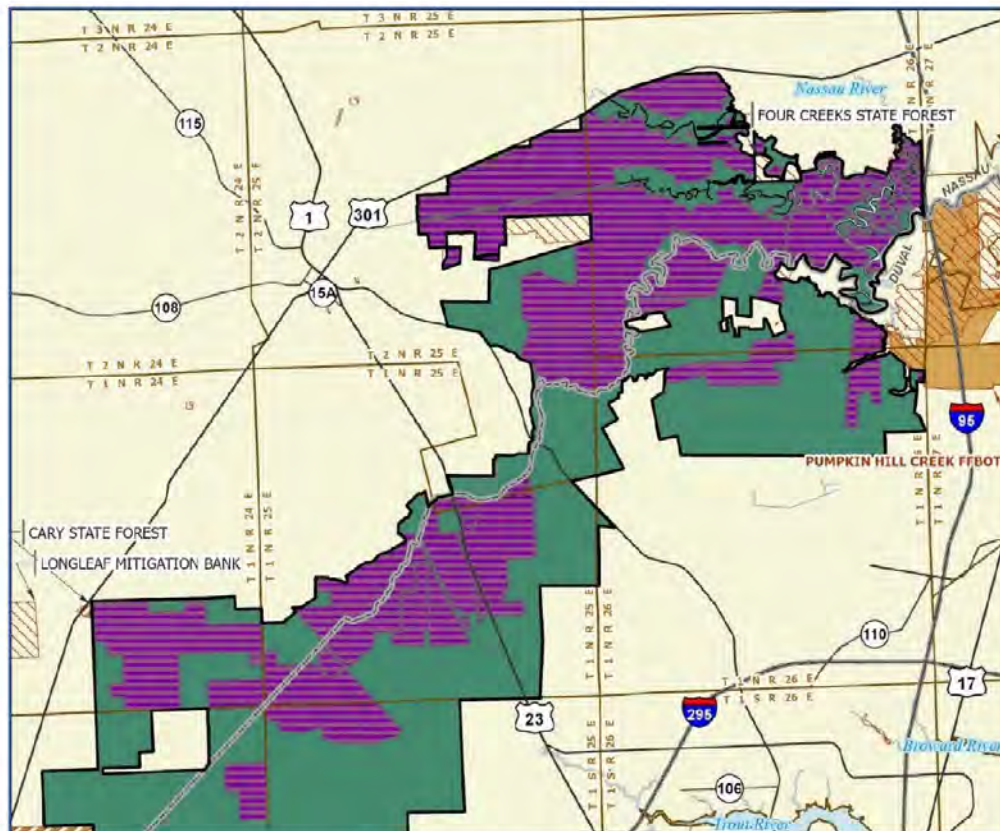
Management Cost Summary

<u>FWC</u>	<u>Cost</u>
Source of Funds	CARL
Salary (4 FTEs)	\$154,357
Expense	\$620,000
OCO	\$148,075
TOTAL	\$887,007

Source: Management Prospectus as originally submitted.



Map 1 : FNAI, January 2021



NORTHEAST FLORIDA TIMBERLANDS AND WATERSHED RESERVE: MAP 1

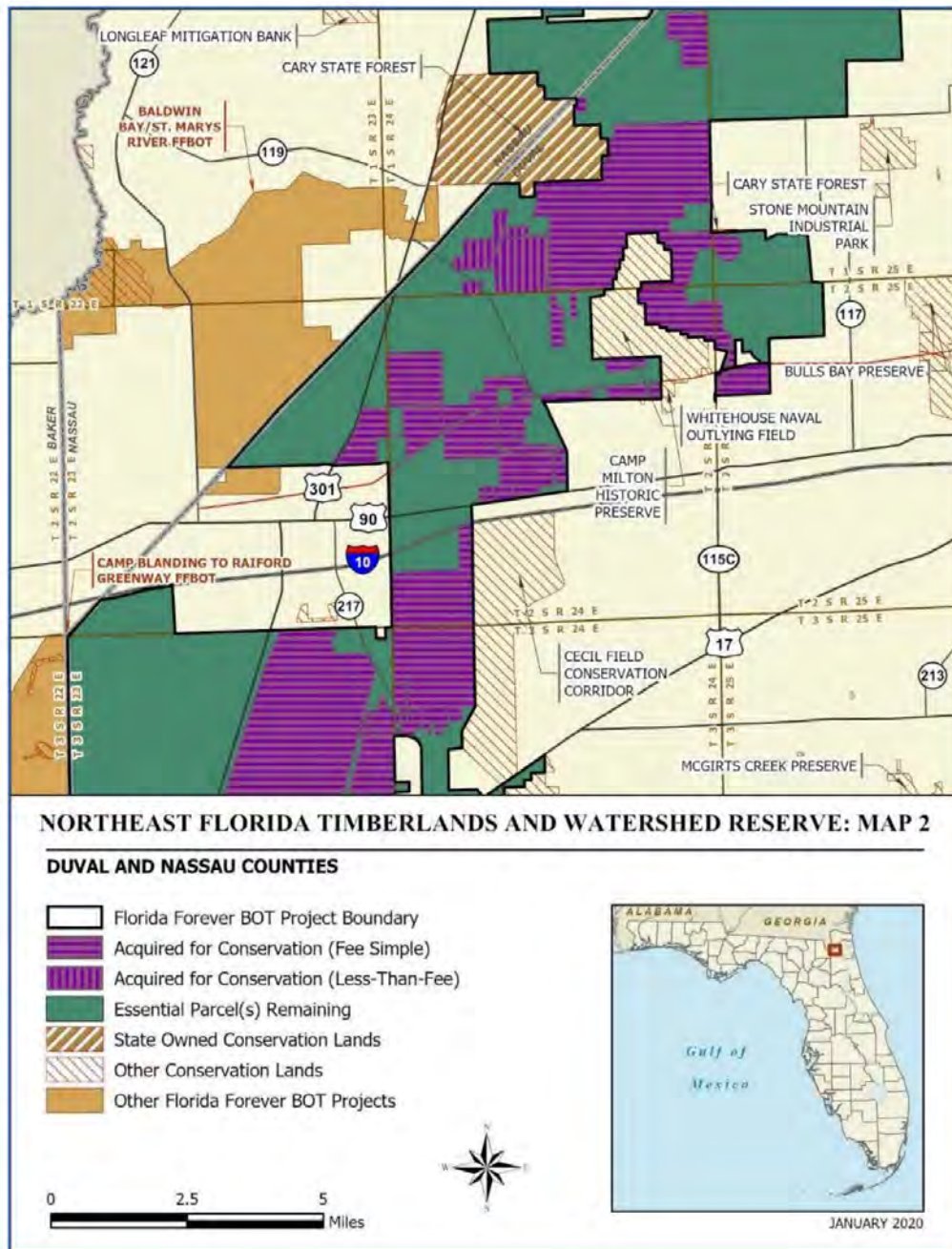
DUVAL AND NASSAU COUNTIES

- Florida Forever BOT Project Boundary
- Acquired for Conservation (Fee Simple)
- Acquired for Conservation (Less-Than-Fee)
- Essential Parcel(s) Remaining
- State Owned Conservation Lands
- Other Conservation Lands
- Other Florida Forever BOT Projects

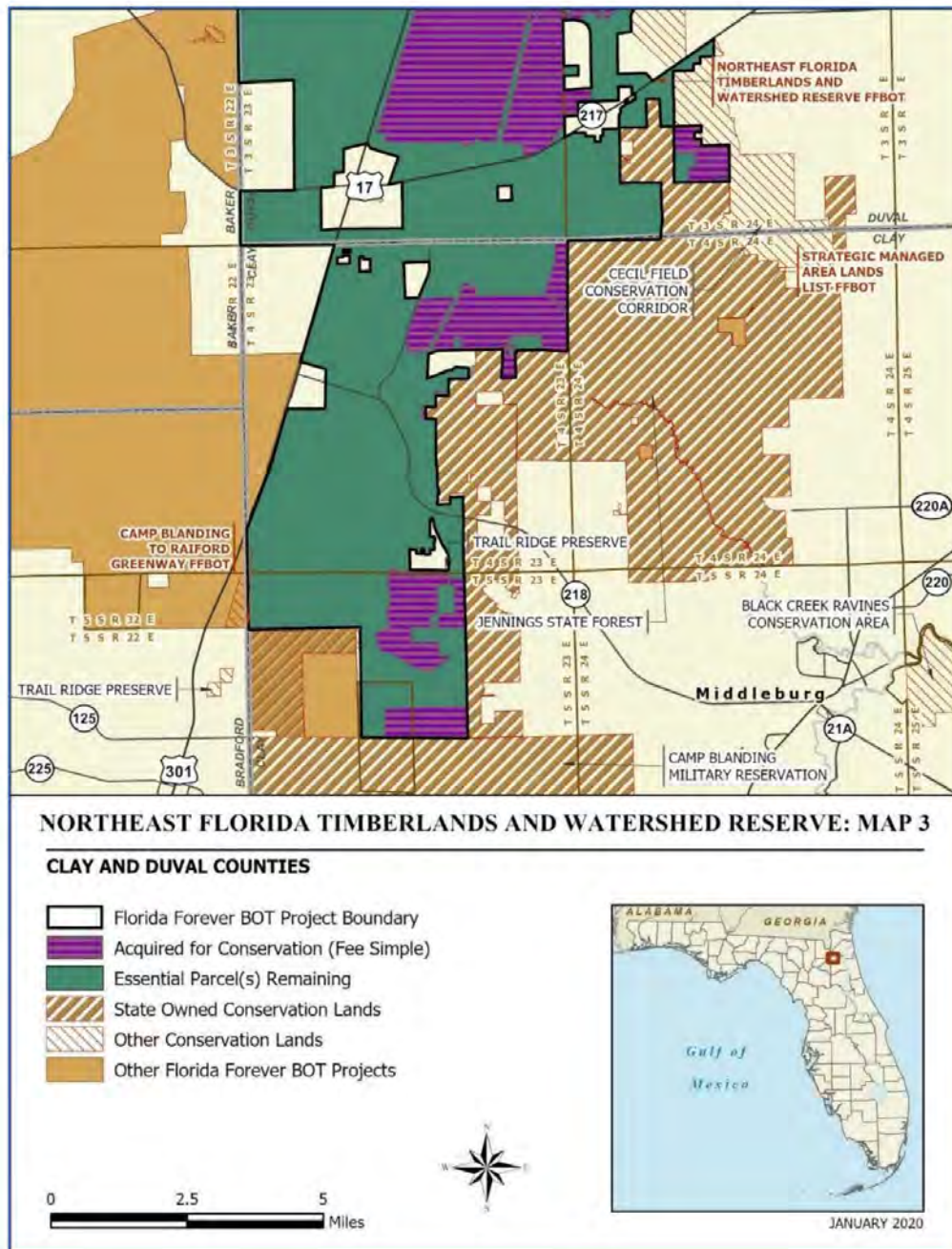


FEBRUARY 2021

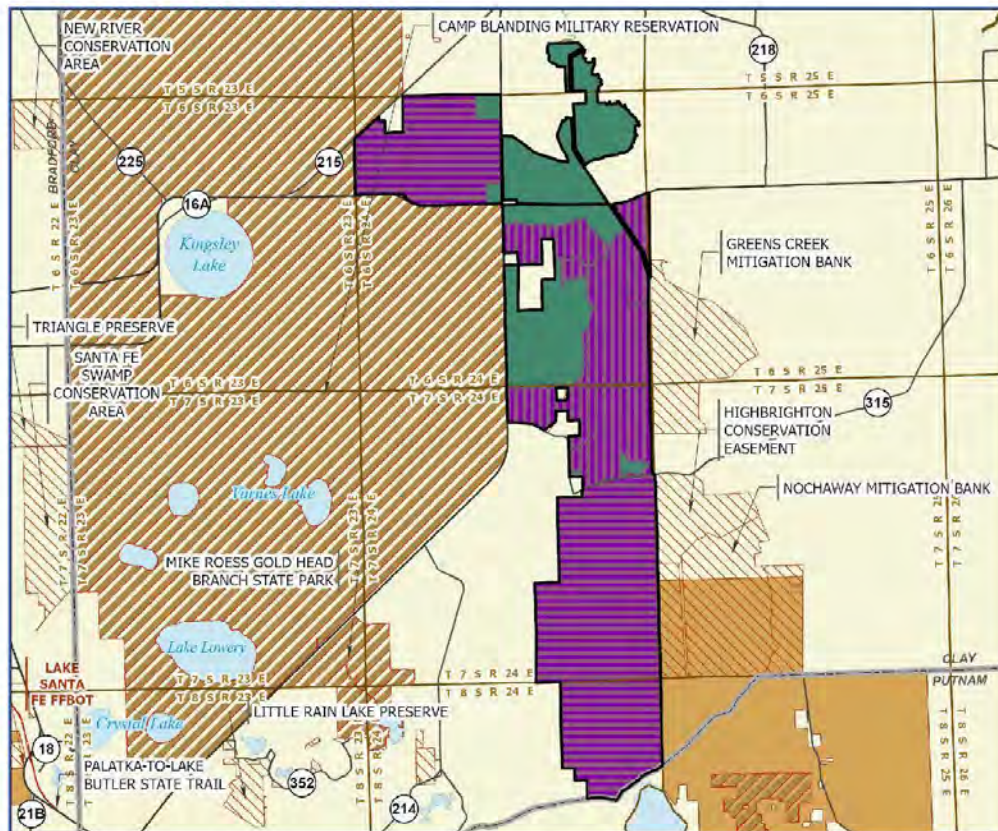
Map 2 : FNAI, January 2021



Map 3 : FNAI, January 2021



Map 4 : FNAI, January 2021



NORTHEAST FLORIDA TIMBERLANDS AND WATERSHED RESERVE: MAP 4

CLAY COUNTY

- Florida Forever BOT Project Boundary
- Acquired for Conservation (Fee Simple)
- Acquired for Conservation (Less-Than-Fee)
- Essential Parcel(s) Remaining
- State Owned Conservation Lands
- Other Conservation Lands
- Other Florida Forever BOT Projects

0 3 6
Miles



JUNE 2020

Map 5 : FNAI, January 2021

Exhibit S

Land Management Reviews (2010, 2014 & 2019)

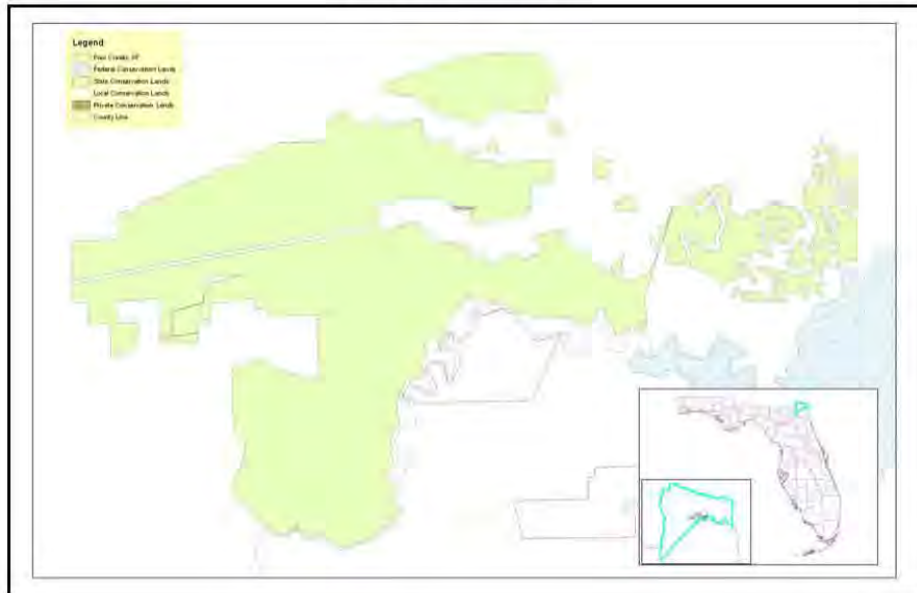
Name of Site: Four Creeks SF

County: Nassau County

Managed by: Department of Agriculture and Consumer Services
Division of Forestry

Acres: 10,221.10 Acres

Review Date: 03/24/10



Review Team Determination

Managed in accordance with
acquisition purpose? Yes =5, No = 0



Management practices, including public access,
in compliance with the management plan? Yes =5, No = 0



Categories	Management Plan Review	Field Review
Natural Communities	0.85	3.35
Listed Species	0.40	2.25
Natural Resource Survey	0.87	2.77
Cultural Resources	1.00	3.20
Prescribed Fire	1.00	3.03
Exotic Species	0.97	3.87
Hydrology	0.50	2.33
Groundwater Monitoring	0.60	3.58
Surface Water Monitoring	0.60	3.33
Resource Protection	1.00	3.00
Adjacent Property Concerns	0.90	3.72
Public Access & Education	0.93	3.36
Management Resources	N/A	3.85
Managed Area Uses	1.00	N/A
Buildings, Equipment, Staff & Funding	N/A	1.65

Consensus Commendations to the Managing Agency

The following commendations resulted from discussion and vote of the review team members.

1. The team commends the Nassau County DOF staff for their prescribed fire program and for using on-site weather measurements to achieve an enhanced prescribed burning window. (VOTE: 5+, 0-)



2. The team commends the Nassau County DOF staff on the quality of their prescribed burns in very difficult fuel loading situations. (VOTE: 5+, 0-)



3. The team commends the Nassau County DOF staff on the proactive invasive plant treatment, particularly with regard to Chinese tallow. (VOTE: 5+, 0-)



4. The team commends the Nassau County DOF staff on the management plan's emphasis on native groundcover restoration and protection. (VOTE: 5+, 0-)



5. The team commends the Nassau County DOF staff on quickly opening the forest for public access. (VOTE: 5+, 0-)



6. The team commends the Nassau County DOF staff on their overall forest management efforts to bring industrial forest lands toward a more natural forest condition. (VOTE: 5+, 0-)



Consensus Recommendations to the Managing Agency

The following recommendations resulted from a discussion and vote of review team members. The management plan must include responses to the recommendations identified below.

1. The team recommends that the Four Creeks State Forest pursue a hydrological assessment including evaluating areas for ditch removal, sheet flow, and general hydrologic restoration. The team suggests this effort include seeking assistance from SJRWMD. This assessment should inform future improvements or alterations to the road system. (VOTE: 5+, 0-)



Managing Agency Response:

2. The team recommends that DOF make treating lygodium a priority. (VOTE: 5+, 0-)



Managing Agency Response:

3. The team recommends that DOF staff develop an ongoing list of plant and animal species observed in the forest. (VOTE: 5+, 0-)



Managing Agency Response:

4. The team recommends that DOF staff conduct surveys for rare fauna, particularly flatwoods salamander. (VOTE: 5+, 0-)



Managing Agency Response:

5. The team recommends that DOF establish protocol for surveying rare plants and groundcover in planted pine to be implemented as stands are thinned and burned. (VOTE: 5+, 0-)

★★★★★

Managing Agency Response:

6. The team recommends that DOF continue its emphasis on prescribed fire and thinning to enhance the growth of native groundcover. (VOTE: 5+, 0-)

★★★★★

Managing Agency Response:

7. The team recommends that DOF maintain the primitive, natural qualities of the Boggy Creek Landing. (VOTE: 5+, 0-)

★★★★★

Managing Agency Response:

8. The team recommends that equipment and funding be increased in order to complete road improvement for planned public access. (VOTE: 5+, 0-)

★★★★★

Managing Agency Response:

Checklist Findings

The following items received high scores on the review team checklist, which indicates that management actions exceeded expectations.

- Natural Communities, specifically mesic flatwoods, wet flatwoods, bottomland hardwoods, estuarine tidal marsh, floodplain swamp, dome swamp, mesic hammock, floodplain marsh, hydric hammock, wet prairie and baygall.
- Natural Resources Survey, specifically listed species or habitat monitoring, other non-game species or habitat monitoring, fire effects monitoring, other habitat management effects monitoring, and invasive species survey/monitoring.
- Cultural Resources, specifically cultural resource survey, protection and preservation.
- Resource Management, specifically area being burned, frequency and quality.
- Non-Native, Invasive & Problem Species, specifically prevention and control of plants, animals, pests/pathogens.
- Hydrologic/Geologic Function, specifically roads/culverts.
- Ground and Surface Water Monitoring, specifically ground water quality and quantity and surface water quality.
- Resource Protection, specifically boundary survey, gates/fencing, signage and law enforcement presence.
- Adjacent Property Concerns, specifically expanding development, smoke management on highway and airport, inholdings/additions, and surplus land determination.
- Public Access & Education, specifically roads, parking, boat access, wildlife, invasive species, habitat management activities, interpretive facilities and signs, recreational opportunities and management of visitor impacts.
- Managed Area Uses, specifically hiking, hunting, fishing, canoeing/kayaking, nature study, bicycling, horseback riding, silviculture and primitive camping.

The following items received low scores on the review team checklist, which indicates that management actions noted during the Field Review (FR) were not considered sufficient (less than 2.5 score on average), or that the text noted in the Management Plan Review (PR) does not sufficiently address this issue (less than .5 score on average.). The management plan must include responses to the checklist items identified below:

1. Discussion in the management plan regarding Natural Communities, specifically Blackwater Stream/Tidal Creek and Depression Marsh (PR). Mesic Flatwoods, Wet Flatwoods, and Wet Prairie (FR).

Managing Agency Response:

2. Discussion in the management plan regarding Listed Species, specifically Plant and Animal Inventory (PR, FR).

Managing Agency Response:

3. Discussion in the management plan regarding Natural Resource Survey, specifically listed species or habitat monitoring, other non-game species or habitat monitoring, and other habitat management effects monitoring (FR).

Managing Agency Response:

4. Discussion in the management plan regarding Resource Management, specifically Frequency (FR).

Managing Agency Response:

5. Discussion in the management plan regarding Hydrologic/Geologic Function, specifically Ditches, Hydro-period Alteration and Water Level Alteration (PR, FR). And Roads/Culverts (FR).

Managing Agency Response:

6. Discussion in the management plan regarding Resource Protection, specifically Law Enforcement Presence (FR).

Managing Agency Response:

7. Discussion in the management plan regarding Adjacent Property Concerns, specifically Alligator Creek (PR).

Managing Agency Response:

8. Discussion in the management plan regarding Infrastructure, specifically Buildings, Equipment Staff, and Funding (FR).

Managing Agency Response:

APPENDIX A:

PLAN REVIEW		1	2	3	4	5	AVERAGE
Natural Communities (I.A)							
Mesic Flatwoods	I.A.1	1	1	1	1	1	1.00
Wet Flatwoods	I.A.2	1	1	1	1	1	1.00
Bottomland Hardwoods	I.A.3	1	1	1	1	1	1.00
Estaurine Tidal Marsh	I.A.4	1	1	1	1	1	1.00
Floodplain Swamp	I.A.5	1	1	1	1	1	1.00
Dome Swamp	I.A.6	1	1	1	1	1	1.00
Mesic Hammock	I.A.7	1	1	1	1	1	1.00
Floodplain Marsh	I.A.8	1	1	1	1	1	1.00
Hydric Hammock	I.A.9	1	1	1	1	1	1.00
Wet Prairie	I.A.10	1	1	1	1	1	1.00
Baygall	I.A.11	1	1	1	1	1	1.00
Blackwater Stream/ Tidal Creek	I.A.12	0	0	0		0	0.00
Depression Marsh	I.A.13	0	0	0		0	0.00
Listed species:Protection & Preservation (I.B)							
Animal Inventory	I.B.1	0	0	0	1	1	0.40
Plant Inventory	I.B.2	0	0	0	1	1	0.40
Natural Resources Survey/Management Resources (I.C)							
Listed species or habitat monitoring	I.C.2	1		0	1	1	0.75
Other non-game species or habitat monitoring	I.C.3	1			1	1	1.00
Fire effects monitoring	I.C.4	1	1	1	1	1	1.00
Other habitat management effects monitoring	I.C.5	1	1	0	0	1	0.60
Invasive species survey / monitoring	I.C.6	1	1	1	1	1	1.00
Cultural Resources (Archeological & Historic sites) (II.A,II.B)							
Cultural Res. Survey	II.A	1	1	1	1	1	1.00
Protection and preservation	II.B	1	1	1	1	1	1.00
Resource Management, Prescribed Fire (III.A)							
Area Being Burned (no. acres)	III.A.1	1	1	1	1	1	1.00
Frequency	III.A.2	1	1	1	1	1	1.00
Quality	III.A.3	1	1	1	1	1	1.00
Non-Native, Invasive & Problem Species (III.E)							
Prevention							
prevention - plants	III.E.1.a	1	1	1	1	1	1.00
prevention - animals	III.E.1.b	1	1	1	1	0	0.80

prevention - pests/pathogens	III.E.1.c	1	1	1		1	1.00
Control							
control - plants	III.E.2.a	1	1	1	1	1	1.00
control - animals	III.E.2.b	1	1	1	1	1	1.00
control - pest/pathogens	III.E.2.c	1	1	1		1	1.00
Hydrologic/Geologic function							
Hydro-Alteration (III.F.1)							
Roads/culverts	III.F.1.a	1	1	1	1	1	1.00
Ditches	III.F.1.b	0	0	0	1	1	0.40
Hydro-period Alteration	III.F.1.c	0	0	0	1	1	0.40
Water Level Alteration	III.F.1.d	0	0	0	0	1	0.20
Ground Water Monitoring (III.F.2)							
Ground water quality	III.F.2.a	1	0	0	1	1	0.60
Ground water quantity	III.F.2.b	1	0	0	1	1	0.60
Surface Water Monitoring (III.F.3)							
Surface water quality	III.F.3.a	1	0	0	1	1	0.60
Resource Protection (III.G)							
Boundary survey	III.G.1	1	1	1	1	1	1.00
Gates & fencing	III.G.2	1	1	1	1	1	1.00
Signage	III.G.3	1	1	1	1	1	1.00
Law enforcement presence	III.G.4	1	1	1	1	1	1.00
Adjacent Property Concerns (III.H)							
Land Use							
Expanding development	III.H.1.a	1	1	1	1	1	1.00
Smoke Management Highway & Airport	III.H.1.b	1	1	1	1	1	1.00
Alligator Creek (or canal)	III.H.1.c	1	0	0		1	0.50
Inholdings/additions	III.H.2	1	1	1	1	1	1.00
Surplus Land Determination	III.H.3	1	1	1	1	1	1.00
Public Access & Education							
Public Access							
Roads	IV.1.a	1	1	1	1	1	1.00
Parking	IV.1.b	1	1	1	1	1	1.00
Boat Access	IV.1.c	1	1	1	1	1	1.00
Environmental Education & Outreach							
Wildlife	IV.2.a	1	1	1	1	0	0.80
Invasive Species	IV.2.b	1	1	1	1	0	0.80
Habitat Management Activities	IV.2.c	1	1	1	1	0	0.80
Interpretive facilities and signs	IV.3	1	1	1	1	1	1.00
Recreational Opportunities	IV.4	1	1	1	1	1	1.00
Management of Visitor Impacts	IV.5		1	1	1	1	1.00
Managed Area Uses							
Existing Uses							
Hiking	VI.A.1	1	1	1	1	1	1.00

Hunting	VI.A.2	1	1	1	1	1	1.00
Fishing	VI.A.3	1	1	1	1	1	1.00
Canoeing/Kayaking	VI.A.4	1	1	1	1	1	1.00
Nature Study	VI.A.5	1	1	1	1	1	1.00
Bicycling	VI.A.6	1	1	1	1	1	1.00
Horseback Riding	VI.A.7	1	1	1	1	1	1.00
Silviculture	VI.A.8	1	1	1	1	1	1.00
Proposed Uses							
Primitive Camping	VI.B.1	1	1	1	1	0	0.80
FIELD REVIEW		1	2	3	4	5	AVERAGE
Natural Communities (I.A)							
Mesic Flatwoods	I.A.1	1	1	1	1	1	1.00
Wet Flatwoods	I.A.2	1	1	1	1	1	1.00
Bottomland Hardwoods	I.A.3	4	5	4	4	4	4.20
Estuarine Tidal Marsh	I.A.4	X	5	5	5	3	4.50
Floodplain Swamp	I.A.5	4	5	5	5	3	4.40
Dome Swamp	I.A.6	1	3	2	5	2	2.60
Mesic Hammock	I.A.7	4	4	4	5	3	4.00
Floodplain Marsh	I.A.8	1	4	4	5	3	3.40
Hydric Hammock	I.A.9		5	5	5	4	4.75
Wet Prairie	I.A.10	1	2	2	5	2	2.40
Baygall	I.A.11	3	5	4	5	3	4.00
Blackwater Stream/ Tidal Creek	I.A.12	4	5	X	X	3	4.00
Depression Marsh	I.A.13	X	X	X	X	X	0.00
Listed species:Protection & Preservation (I.B)							
Animal Inventory	I.B.1	2	1	X	3	3	2.25
Plant Inventory	I.B.2	2	1	X	3	3	2.25
Natural Resources Survey/Management Resources (I.C)							
Listed species or habitat monitoring	I.C.2	2		X	2	2	2.00
Other non-game species or habitat monitoring	I.C.3	2			3	2	2.33
Fire effects monitoring	I.C.4	3	3	X	4	4	3.50
Other habitat management effects monitoring	I.C.5	1	2			3	2.00
Invasive species survey / monitoring	I.C.6	4	4	X	5	3	4.00
Cultural Resources (Archeological & Historic sites) (II.A,II.B)							
Cultural Res. Survey	II.A	3	2	3	5	3	3.20
Protection and preservation	II.B	3	2	3	5	3	3.20
Resource Management, Prescribed Fire (III.A)							
Area Being Burned (no. acres)	III.A1	3	3	3	3	3	3.00
Frequency	III.A.2	1	4	1	1	1	1.50
Quality	III.A.3	4	5		5	4	4.50

Non-Native, Invasive & Problem Species (III.E)							
Prevention							
prevention - plants	III.E.1.a	4	5	4	5	3	4.20
prevention - animals	III.E.1.b	3	5	4	5	3	4.00
prevention - pests/pathogens	III.E.1.c	X	5	4		3	4.00
Control							
control - plants	III.E.2.a	4		4	5	3	4.00
control - animals	III.E.2.b	3		4	4	3	3.50
control - pest/pathogens	III.E.2.c	X		4		3	3.50
Hydrologic/Geologic function Hydro-Alteration (III.E.1)							
Roads/culverts	III.F.1.a	3	2	3	2	2	2.40
Ditches	III.F.1.b	2	2	X	3	2	2.25
Hydro-period Alteration	III.F.1.c	1	3	X	X	3	2.33
Water Level Alteration	III.F.1.d	1	3	X	X	3	2.33
Ground Water Monitoring (III.F.2)							
Ground water quality	III.F.2.a	3	3		5	3	3.50
Ground water quantity	III.F.2.b	X	3		5	3	3.67
Surface Water Monitoring (III.E.3)							
Surface water quality	III.F.3.a	X	2		5	3	3.33
Resource Protection (III.F)							
Boundary survey	III.G.1	3	2	2	5	4	3.20
Gates & fencing	III.G.2	4	4	5	4	4	4.20
Signage	III.G.3	3	2	3	3	3	2.80
Law enforcement presence	III.G.4	2	2	1	2	2	1.80
Adjacent Property Concerns (III.G)							
Land Use							
Expanding development	III.H.1.a	3	4	3	X	3	3.25
Smoke Management Highway & Airport	III.H.1.b	3	5	3	4	4	3.80
Alligator Creek (or canal)	III.H.1.c	3	4	X		3	3.33
Inholdings/additions	III.H.2	4	5	X	5	4	4.50
Public Access & Education							
Public Access							
Roads	IV.1.a	4	2	4	3	2	3.00
Parking	IV.1.b	4	3	4	4	4	3.80
Boat Access	IV.1.c	4	3	3	5	4	3.80
Environmental Education & Outreach							
Wildlife	IV.2.a	4	3	3	4	3	3.40
Invasive Species	IV.2.b	4	3	3	4	3	3.40
Habitat Management Activities	IV.2.c	4	3	3	4	3	3.40
Interpretive facilities and signs	IV.3	3	2	3	4	3	3.00
Recreational Opportunities	IV.4	3	4	3	3	3	3.20
Management of Visitor Impacts	IV.5		4	3	3	3	3.25
Management Resources							
Maintenance							

Waste disposal	V.1.a	5	5	3	5	3	4.20
Sanitary facilities	V.1.b	X	3	3	5	3	3.50
Infrastructure							
Buildings	V.2.a	2	2	4	2	2	2.40
Equipment	V.2.b	1	1	4	2	1	1.60
Staff	V.3	1	1	1	1	2	1.20
Funding	V.4	1	2	1	1	1	1.20

APPENDIX B:

I.A. Natural Communities

- Depression marshes are likely to exist in this forest and are an important amphibian habitat. It will be important to know if they exist on the property.
- Depression marshes may occur and are currently mapped as Dome Swamp. A determination of these community types needs to be addressed.
- Possibly make a note in the next plan that depression marsh might exist. Low condition on Flatwoods pertains to fire maintenance. Doing a good job trying to get on prescribed rotations.
- Most all of the mesic and wet Flatwoods stands have been bedded and planted to slash pine and loblolly pine by the previous landowner. Seventy-five percent of the stands needing densities reduced have been thinned during the last four years. Progress in this area has been excellent. Most of these areas have also been burned as well, however the absence and/or poor condition of native ground cover in most of these Flatwoods pine plantations is the major reason these stands cannot yet be described as being in maintenance condition. Historical depression marshes should be mapped as discovered and identified. Continued efforts to thin and burn more frequently are needed to reduce basal areas and open the canopy over time in all stands to encourage groundcover recovery. This will be a real challenge but some good initial efforts have been taken by DOF staff to begin this process of restoration.
- Additional efforts are needed to address past bedding and tree planting through wet prairies and the edges of the dome swamps. Ditches and then impact on hydrology in these communities will require further assessment before appropriate restoration strategies can be developed.

I.B. Listed Species

- The forest needs to conduct surveys for listed species as habitat quality improves for plant and sooner for listed animals i.e. Flatwoods salamanders and striped newt.
- Recommend more detailed list that pertains to Four Creeks, not just a general list.
- Listed plant and animal surveys are needed. Any incidental staff observations should be documented/mapped in GIS.

I.C. Natural Resources Survey

- Need to start photo plot establishment and monitoring.
- Additional survey and monitoring for listed and non-listed plant/animals is suggested. Keeping a basic list of observations of plants/animals observed is suggested as well. Plan for photo plots are not implemented as of yet. Good recent survey for invasive plants. Extra care is needed to document locations of discovered invasive plants in GIS.

II.A.B. Cultural Resources

- The manager has been trained as an archeological resource manager.

III.A. Resource Management

- Burn program is progressing rapidly toward achieving an ambitious goal.
- Excellent efforts to burn 800 acres per year the past three years. Quality, considering the challenge of burning in tightly planted and often unthinned stands, is excellent. The lack of ground cover on much of the forest may make a 2-4 year burn regime difficult until thinning opens up the pine canopy more. As of yet however, very little of the property has achieved fire maintenance conditions.

III.E. Non-Native, Invasive & Problem Species

- Maybe recommend trapping hogs if hunting control is not sufficient.
- Excellent efforts to treat large areas of Chinese tallow in the bottomland forest harvested prior to state acquisition. Small populations of climbing fern however have not been treated as of yet.

III.F. Hydrologic/Geologic Function

- The plan does not sufficiently address restoration of hydrologic functions including filling of damaged ditches. Utilizing low water crossings where possible. Communication with Timucuan Preserve about this also.
- No information on the canal.
- A road plan has been written. Many sections of the existing road system needs upgrading, culverts, etc. some good progress has been made however on the main section of road on the south

end. Additional assessments of hydrologic and culvert function is needed. Once an assessment is completed a plan is needed that provides a scope of work that prioritizes roads and water crossing impoundments and ditch restoration. Consideration should be given to using low water crossings rather than culverts in wetland areas of roads where access by two wheel drive vehicles is not critical. Recommend DOF seek more information from SJRWMD on ongoing trends from recent monitoring of the rivers here.

III.G. Resource Protection

- May need sovereign land survey for boundary.
- New survey should be done adding state lands.
- Law enforcement support appears to be pretty minimal.

III.H. Adjacent Property Concerns

- Development is at a standstill. A1A retention ponds will have to move one access road.

IV. Public Access & Education

- There are plenty of roads in the forest. Road pass ability is often difficult. Keep Boggy Creek landing as a primitive, underdeveloped site, no picnic tables etc. need more hiking only trails.
- Roads need much improvement for all weather all season access- no new roads needed.
- Roads are sufficient for public access/quality of roads is very poor.
- Close roads when they get too wet. There is adequate public access but quality of roads at this time is hindering access. DOF is doing a good job trying to improve these conditions.
- Opportunities for public access appear to be good at this time. However the poor quality of the roads currently limits the ability of the public to access the forest by vehicle. Beautiful landings along the rivers of this forest, just gorgeous. More efforts are needed to establish recreation trails. No primitive campsites have yet been developed. More state forest identification signage is needed at the forest entrances once highway construction is completed.

V. Infrastructure/Management Resources

- Don't need bathrooms. As far as trash disposal, if they bring it in they need to take it out philosophy. One staff for 13,000 acres is very inadequate. Need road grader dump truck front end loader.
- Need to motor grader for road maintenance as well as a dump truck with a front loader/hoe. Need more than one person on 13,000 acres. Road funding is insufficient especially for a start up budget would be fine on an established property.
- May need restroom facilities onsite once more people start coming in the park.
- One staff member is not adequate for this property. Need more funding to meet management plan needs.
- The staff/equipment building in the plan has not been initiated. A motor grader, front end loader and dump truck are needed to assist with the road progress in this forest. Additional funding is needed to address improvements to public roads on the forest to allow all season access. More biological support is needed to assist in invasive control, plant and animal surveys and restoration of natural groundcover.

2014 Land Management Review Team Report for Four Creeks State Forest

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1. Introduction

Section 259.036, F.S. requires a periodic on-site review of conservation and recreation lands titled in the name of the Board of Trustees to determine (1) whether the lands are being managed for the purposes for which they were acquired and (2) whether they are being managed in accordance with their land management plan adopted pursuant to s. 259.032, F.S. In case where the managed areas exceed 1,000 acres in size, such a review must be scheduled at least every five years. In conducting this review, a statutorily constructed review team "shall 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 or archaeological features. The review shall 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."

The land management review teams are coordinated by the Division of State Lands and consist of representatives from the Division of Recreation and Parks (DEP), the Florida Forest Service (DACS), the Fish and Wildlife Conservation Commission, the local government in which the property is located, the DEP District in which the parcel is located, the local soil and water conservation district, a conservation organization member, and a local private land manager.

Each Land Management Review Report is divided into three sections. Section 1 provides the details of the property being reviewed as well as the overall results of the report. Section 2 provides details of the Field Review, in which the Review Team inspects the results of management actions on the site. Section 3 provides details of the Land Management Plan Review, in which the team determines the extent to which the Management Plan provides for and documents adequate natural and recreational resource protection.

Finally, each report may also contain an Appendix that lists individual team member comments. This is a compilation of feedback, concerns or other thoughts raised by individual team members, but not necessarily indicative of the final consensus reached by the Land Management Review Team.

1.1. Property Reviewed in this Report

Name of Site: Four Creeks State Forest

Managed by: Florida Forest Service

Acres: 13,147

County(ies): Nassau County

Purpose(s) for Acquisition: Timber management and restoration, low-impact diverse recreation uses, and management of archaeological and historic sites, habitat and other biological resources.

Acquisition Program(s): Florida Forever

Original Acquisition Date: 4/27/05

Area Reviewed: Entire Property

Last Management Plan Approval Date: 2/19/10

Review Date: 10/29/14

Agency Manager and Key Staff Present:

- Pat Deren, Resource Administrator
- Jennifer Hart, District Manager
- Noah Wyatt, Recreation Coordinator
- Sam Negaran, Senior Forester

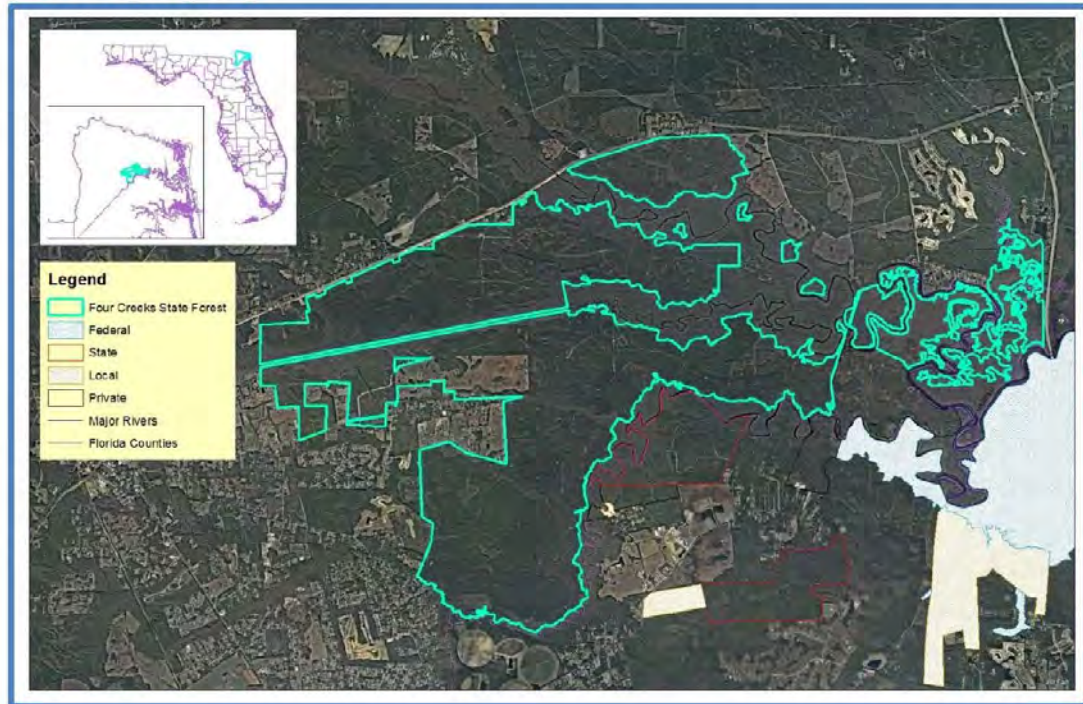
Review Team Members Present (voting)

- DRP: Dan Pearson
- SWCD: Richard Bonner
- FWC: Scotland Talley
- Local gov't:
- FFS: Bill Korn
- Conservation organization: Walter Bryant
- DEP: Mary Gaudios
- Private land manager: Stefanie Nagid

Other Non-Team Members Present (attending)

- Keith Singleton, DEP/DSL
- Aric Larson, DEP/DSL

1.2 Property Map



1.3. Overview of Land Management Review Results

Is the property managed in accordance with the purposes for which it was acquired?

Yes = 7, No = 0

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

Yes = 7, No = 0

Table 1 shows the average scores received for each applicable category of review. *Field Review* scores refer to the adequacy of management actions in the field, while *Management Plan Review* scores refer to adequacy of discussion of these topics in the management plan. Scores range from 1 to 5 with 5 signifying excellence. For a more detailed key to the scores, please see Appendix A.

Table 1: Results at a glance.

Major Land Management Categories	Field Review	Management Plan Review
Natural Communities / Forest Management	3.84	4.08
Prescribed Fire / Habitat Restoration	3.38	4.29
Hydrology	3.58	2.20
Imperiled Species	3.60	3.14
Exotic / Invasive Species	3.67	3.17
Cultural Resources	3.08	3.29
Public Access / Education / Law Enforcement	3.42	3.31
Infrastructure / Equipment / Staffing	2.45	N/A

Color Code (See Appendix A for detail)

Excellent	Above Average	Below Average	Poor
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1.3.1 Consensus Commendations for the Managing Agency

The following commendations resulted from discussion and vote of the review team members:

1. The team commends the FFS for the road improvements and public access opportunities on Four Creeks State Forest. (7+, 0-)
2. The team commends the FFS for introducing growing season fire in the young pine stands and overall efforts to increase fire frequency throughout the forest. (7+, 0-)
3. The team commends the FFS for the professionalism of FFS staff and their demonstrated aggressive dedication. (7+, 0-)
4. The team commends the FFS staff for their efforts to accomplish initial thinning harvests on the majority of the merchantable planted pine. (7+, 0-)
5. The team commends the FFS staff for their initiative with FWC and SJRWMD to treat Chinese tallow in many areas of floodplain swamp and bottomland forest. (7+, 0-)

1.3.2. Consensus Recommendations to the Managing Agency

The following recommendations resulted from a discussion and vote of review team members. The next management plan update should include information about how these recommendations have been addressed:

1. The team recommends that FFS update the natural communities maps to include recent additions of the property with emphasis on known wetland communities, and improve natural community mapping on areas that have previously been mapped. (7+, 0-)

Managing Agency Response: *Agree. At the time of this response, FFS has contacted SJRWMD about possible funding for an updated survey of the natural communities on site. This survey should outline historical as well as current community types.*

2. The team recommends that FFS identify priority listed species on Four Creeks State Forest and develop and implement a monitoring strategy. (7+, 0-)

Managing Agency Response: *FFS, utilizing the State Ecologist for guidance, will seek ways to identify and develop a list of species currently located on Four Creeks State Forest. Based upon the species identified, a monitoring strategy can then be developed. FFS will seek cooperation from partner agencies such as St. Johns River Water Management and Florida Fish and Wildlife Commission for assistance, when appropriate, as outlined in the 10-yr resource plan.*

3. The team recommends that FFS develop a groundcover assessment and restoration plan after growing season burns stimulate remnant groundcover. (7+, 0-)

Managing Agency Response: *Agree. The development of a natural community restoration plan, with an emphasis on ground cover restoration is currently an objective in the ten year plan. The ground cover assessment is recommended after the introduction of growing season fire. It is the goal of FFS to transition from a dormant season rotation to a growing season rotation as soon as it is safely possible, both to the resource and the staff. Current fuel loads prohibit such an introduction on a majority of the property. FFS is working diligently to maintain and improve fire frequency and reduce fuel loading so that growing season fire may be introduced into a portion of these stands by the next review cycle.*

4. The team recommends that FFS assess hydric hammock areas for Chinese tallow infestations. (7+, 0-)

Managing Agency Response: *Agree. FFS continues to monitor and treat infestations of Chinese tallow. As our treatment plans progress, FFS will assess the hydric hammock areas.*

5. The team recommends that FFS continue efforts to assess and improve public recreation sites and opportunities as funding becomes available. (7+, 0-)

Managing Agency Response: Agree. At the time of this response, FFS had recently hired a Recreation Coordinator to guide the development of the recreation program on Four Creeks State Forest. This includes developing long range recreation goals, site plans, improving current facilities, seeking outside funding, building a volunteer base and creating new public recreation facilities.

2. Field Review Details

2.1 Field Review Checklist Findings

The following items received high scores on the review team checklist, which indicates that management actions exceeded expectations.

1. **Natural Communities, specifically hydric hammock and baygall:**
2. **Natural Resources Survey/Monitoring Resources, specifically fire effects monitoring:**
3. **Prescribed Fire, specifically quality:**
4. **Restoration, specifically fire:**
5. **Forest Management, specifically timber inventory, timber harvesting, reforestation/afforestation and site preparation:**
6. **Non-Native, Invasive & Problem Species, control of plants:**
7. **Resource Protection, specifically boundary survey and gates and fencing:**
8. **Public Access and Education, specifically roads:**

2.2. Items Requiring Improvement Actions in the Field

The following items received low scores on the review team checklist, which indicates that management actions noted during the Field Review were not considered sufficient (less than 3.0 score on average). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. **The management plan update should include information on how these items have been addressed:**

1. **The maintenance condition of the Natural Communities, specifically mesic flatwoods, wet flatwoods, bottomland forest and wet prairie, received below average scores. The review team is asked to evaluate, based on their perspective, what percent of the natural community is in maintenance condition. The scores range from 1 to 5, with 1 being 0-20% in maintenance condition, 2 being 21-40%, 3 being 41-60%, 4 being 61-80% and 5 being 81-100%.**

Managing Agency Response: Agree that a large percentage of the mesic and wet flatwoods communities are not in maintenance condition. It should be noted though that over 1,800 acres of the approximately 6,000 acres of flatwoods has received at least one thinning and two prescribed burns. Of the 6,000 acres of flatwoods, only approximately 1,600 acres are estimated to not have seen either treatment. This means that approximately 70% of the flatwoods

communities have had either a prescribed burn or a mechanical thinning or both. FFS will continue to incorporate thinning and prescribed fire in these communities. Updated community mapping will address the locations of historic wet prairie, if any and depression marsh, if any. Should either of these community types still be listed as historically occurring on Four Creeks State Forest, management in either community type will focus on pine removal during silvicultural operations of the surrounding pine plantation.

FFS disagrees on the score for bottomland forest. It is estimated that approximately 50% of the bottomland forest has been impacted by the invasive Chinese tallow, however, that leaves 50% that is not impacted. While there was logging in these communities, it is estimated to occur over 40 years ago on the majority of this community. These habitats have a diverse overstory and a closed canopy, consistent with a mature forest type. Based on the initial review from 2010, bottomland hardwoods scored 4.20. Even considering the slight change in classification (hardwood vs forest), we still believe at least 50% of the hardwood community is in maintenance condition, which would suggest a score of 3 or sufficient.

2. **Natural Resources Survey, specifically listed species or their habitat monitoring, other non-game species or their habitat and other habitat management effects monitoring, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, whether survey and monitoring of the resources or their habitats are sufficient.**

***Managing Agency Response:** Agree. At the time of this response, a listed species survey has not been conducted on Four Creeks State Forest. However, FFS contracted an invasive species survey, completed natural community mapping, and conducts an annual forest inventory on approximately 10% of the land base. Through these surveys, several rare species have been identified and their location is now stored in a GIS database. Surveys for additional listed species and habitat monitoring for these species should be conducted as restoration efforts, predominately prescribed fire, progress.*

3. **Cultural Resources, specifically cultural resource survey, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, whether cultural resources are sufficient.**

***Managing Agency Response:** Agree. FFS requested a cultural resource survey through Division of Historical Resources during the development of the ten-year plan. At the time of this response, DHR is still unable to conduct the survey. FFS will continue to send staff to the Archeological Resource Monitor training as funding and time allow.*

4. **Resource Management, Prescribed Fire, specifically frequency, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, to what degree prescribed fire is accomplished according to the objectives for**

prescribed fire management. The scores range from 1 to 5, with 1 being 0-20% accomplished, 2 being 21-40%, 3 being 41-60%, 4 being 61%-80% and 5 being 81-100%.

Managing Agency Response: Agree. Four Creeks currently has 1,800 acres of the 6,200 acres of fire dependent communities within rotation (have seen two or more prescribed fires since acquisition). However, an additional 2,800 acres have seen at least one prescribed fire. FFS must carefully balance its prescribed fire program with its timber management program. In order to do this, it has been necessary to manage many stands at the longer end of the fire return interval, either to complete the timber sale or to allow fuels (grasses) to recover in order to carry fire after the timber sale is complete. FFS will continue to work towards managing the fire dependent communities with the fire frequency outlined in the resource management plan.

5. **Restoration, specifically species composition, received a below average score. The review team is asked to evaluate, based on their perspective, whether restoration efforts are adequate.**

Managing Agency Response: Agrees. At the time of this response, FFS currently has approximately 1,800 acres within rotation. Transitioning a large industrial forest with heavy fuels and thick pine densities will take significant time. FFS believes that the reintroduction of frequent prescribed fire will encourage the development of a native, herbaceous community with a diverse species composition. FFS has introduced prescribed fire onto approximately 4,600 acres of the 6,200 acres of fire dependent communities. FFS will continue to strive to improve fire frequency as safety and weather allow. FFS will continue to prioritize acreage that is currently in rotation during annual planning.

6. **Resources Protection, specifically law enforcement presence, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, whether resources are sufficient to protect the property.**

Managing Agency Response: Agree. Law enforcement on Four Creeks State Forest is currently handled by FFWCC and Nassau County Sheriff's Office. These officers are spread very thin as they cover large territories, including additional Wildlife Management Areas. Future budget requests should support adding additional personnel to the forest. By adding additional staff, including park rangers, FFS presence will increase, thereby reducing opportunities for damage to the resource through illegal activities, such as vandalism, trespassing and poaching.

7. **Environmental Education & Outreach, specifically related to wildlife, invasive species, interpretive facilities and signs and management of visitor impacts, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, whether environmental education & outreach are sufficient.**

Managing Agency Response: Agree. FFS will continue to work towards improving and installing interpretive facilities and signs that increase our educational education and outreach component as funding allows. At the time of this response FFS had recently hired a district recreation coordinator as well as a new Four Creeks forester. These two positions will be vital in growing our environmental education and outreach program.

8. **Management Resources, specifically sanitary facilities, buildings, equipment, staff and funding, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, whether management resources are sufficient.**

Managing Agency Response: Agree. Four Creeks State Forest has huge recreation potential given its location to major highways and Jacksonville's large population. Currently there are no restrooms, pavilions, or an office on site. Equipment assigned to the forest consists mainly of military federal excess. Future legislative budget requests will include the construction of an office and shop facility. In addition, future budget requests for additional personnel, equipment and funding for facilities will be made through the proper procedures.

2.3. Field Review Checklist and Scores

Field Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Mesic Flatwoods	I.A.1	2	3	2	2	5	2	2		2.57
Wet Flatwoods	I.A.2	2	3	1	2	5	2	2		2.43
Bottomland Forest	I.A.3	3	3	2	2	4	1	3		2.57
Estuarine Tidal Marsh	I.A.4	3	4	4	4	3	2	4		3.43
Floodplain Swamp	I.A.5	4	3	X	4	4	2	4		3.50
Dome Swamp	I.A.6	3	3	X	X	4	2	3		3.00
Mesic Hammock	I.A.7	4	4	5	2	4	4	3		3.71
Floodplain Marsh	I.A.8	3	4	X	1	4	3	4		3.17
Hydric Hammock	I.A.9	4	4	X	X	4	X	4		4.00
Wet Prairie	I.A.10	3	4	1	X	5	2	2		2.83
Baygall	I.A.11	3	4	X	X	5	5	4		4.20
Natural Communities Average Score										3.22
Listed species:Protection & Preservation (I.B)										
Animals	I.B.1	3		2	4	5	4	3		3.50
Gopher Tortoise	I.B.1.a	3	4	3	4	5	4	3		3.71
Plants	I.B.2	4	4	3	3	4	4	3		3.57
Listed Species Average Score										3.60
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	1	2	1	2		1	3		1.67

Other non-game species or their habitat monitoring	I.C.3	1	3	1	2	5	1	3		2.29
Fire effects monitoring	I.C.4	4	3	4	3	5	5	4		4.00
Other habitat management effects monitoring	I.C.5	3	3	1	1	3	3	4		2.57
Invasive species survey / monitoring	I.C.6	4	4	3	3	5	3	4		3.71
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A	X	3	1	2	5	3	2		2.67
Protection and preservation	II.B	X	3	3	2	5	5	3		3.50
Cultural Resources Average Score										3.08
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A1	3	3	3	3	3	3	3		3.00
Frequency	III.A.2	2	3	2	2	2	2	3		2.29
Quality	III.A.3	5	4	4	5	5	5	5		4.71
Resource Management, Prescribed Fire Average Score										3.33
Restoration (III.B)										
Fire	III.B.1	4	4	4	5	5	3	5		4.29
Hydrology	III.B.2	4	2	2	4	5	3	4		3.43
Species Composition	III.B.3	4	2	2	1	3	3	3		2.57
Restoration Average Score										3.43
Forest Management (III.C)										
Timber Inventory	III.C.1	5	4	4	5	5	5	5		4.71
Timber Harvesting	III.C.2	5	5	2	5	5	5	5		4.57
Reforestation/Afforestation	III.C.3	4	3	3	5	5	4	5		4.14
Site Preparation	III.C.4	4	3	4	5	5	5	5		4.43
Forest Management Average Score										4.46
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a	4	4	3	4	5	4	3		3.86
prevention - animals	III.D.1.b	4	3	2	4	4	4	3		3.43
prevention - pests/pathogens	III.D.1.c	4	3	3	4	X	4	3		3.50
Control										
control - plants	III.D.2.a	5	5	3	4	4	4	5		4.29
control - animals	III.D.2.b	4	3	2	4	3	4	4		3.43
control - pest/pathogens	III.D.2.c	4	3	3	4		4	3		3.50
Non-Native, Invasive & Problem Species Average Score										3.67
Hydrologic/Geologic function Hydro-Alteration (III.E.1)										
Roads/culverts	III.E.1.a	5	4	4	3	4	3	4		3.86
Ditches	III.E.1.b	4	3	X	3	4	3	4		3.50
Hydro-period Alteration	III.E.1.c	3	3	X	3	4	3	3		3.17
Hydrologic/Geologic function, Hydro-Alteration Average Score										3.51
Ground Water Monitoring (III.E.2)										
Ground water quality	III.E.2.a	4	3	X	3	5	X	3		3.60
Ground water quantity	III.E.2.b	4	4	X	3	X	4	3		3.60
Ground Water Monitoring Average Score										3.60

Surface Water Monitoring (III.E.3)										
Surface water quality	III.E.3.a	4	4	X	3	5	3	3		3.67
Surface water quantity	III.F.3.b	4	3	X		5	3	3		3.60
Surface Water Monitoring Average Score										3.63
Resource Protection (III.F)										
Boundary survey	III.F.1	4	4	4	5	4	4	4		4.14
Gates & fencing	III.F.2	4	4	3	5	5	3	4		4.00
Signage	III.F.3		4	2		4	3	4		3.40
Law enforcement presence	III.F.4	3	4	2	3	4	2	2		2.86
Resource Protection Average Score										3.60
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.G.1.a	4	3	3	3	X	X	4		3.40
Inholdings/additions	III.G.2	4	4	4	4	X	X	3		3.80
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	5	4	4	4	5	4	4		4.29
Parking	IV.1.b	5	3	2	4	5	4	4		3.86
Boat Access	IV.1.c	5	2	3	4	4	3	4		3.57
Environmental Education & Outreach										
Wildlife	IV.2.a	1	3	X	2	3	4	3		2.67
Invasive Species	IV.2.b	1	3	X	2	4	4	3		2.83
Habitat Management Activities	IV.2.c	1	4	X	2	4	4	3		3.00
Interpretive facilities and signs	IV.3	2	4	1	2	3	3	3		2.57
Recreational Opportunities	IV.4	4	4	4	2	5	3	3		3.57
Management of Visitor Impacts	IV.5	4	4	1	2	4	2	3		2.86
Public Access & Education Average Score										3.25
Management Resources (V.1, V.2, V.3, V.4)										
Maintenance										
Waste disposal	V.1.a	4	3	3	2	X	4	3		3.17
Sanitary facilities	V.1.b	X	3	3	X	X	2	3		2.75
Infrastructure										
Buildings	V.2.a	2	2	2	X	4	3	1		2.33
Equipment	V.2.b	1	2	2	2	4	3	2		2.29
Staff	V.3	2	2	2	1	3	3	2		2.14
Funding	V.4	2	2	2	1	3	2	2		2.00
Management Resources Average Score										2.45

Color Code:

Excellent	Above Average	Below Average	Poor
	Missing Vote	Insufficient Information	

See Appendix A for detail

3. Land Management Plan Review Details

3.1 Items Requiring Improvements in the Management Plan

The following items received low scores on the review team checklist, which indicates that the text noted in the Management Plan Review does not sufficiently address this issue (less than 3.0 score on average.). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The next management plan update should address the checklist items identified below:

1. **Natural Resources Survey and Monitoring Resources, specifically listed species or their habitat monitoring, other non-game species or their habitat monitoring and other habitat management effects monitoring, received below average scores. This is an indication that the management plan does not sufficiently address survey or monitoring.**

***Managing Agency Response:** Disagree. The management plan currently identifies six different objectives specifically related to the survey and monitoring of habitats and rare and/or imperiled species. These objectives cover all aspects of management for these species, including developing a baseline of occurrence, identifying habitats conducive to those species, developing monitoring protocols, revising our current ecological community map to include rare and/or high quality habitats, monitoring protocols, and working with FWC to develop a wildlife management plan that address all appropriate fish and wildlife species, including appropriate imperiled species, their habitats, and their sustainability based on site-specific population data. Natural resource survey and monitoring for listed species, their habitats, other non-game species and habitat effects monitoring are also mentioned in various other parts of the plan, including under Chapter III, Resource section and chapter IV; Management concepts by natural community and proposed management actions.*

2. **Non-native, Invasive & Problem Species, specifically prevention of pests/pathogens, received a below average score. This is an indication that the management plan does not sufficiently address prevention of invasive species.**

***Managing Agency Response:** Agree. The plan currently has two different objectives specifically targeting non-native, invasive species, an additional section devoted to describing FFS policy in regards to non-native, invasive species as well as a section devoted to FFS procedures for insect, disease and forest health. FFS will add additional language as it relates specifically to the prevention of pests and pathogens during the update of the current ten year plan.*

3. **Hydrologic/Geologic function, Hydro-Alteration, specifically ditches and hydro-period alteration, received below average scores. This is an indication that the management plan does not sufficiently address hydrologic and geologic function.**

***Managing Agency Response:** Disagree. The current ten year plan has a goal specific to hydrological preservation and restoration. Under this goal are three separate objectives to ensure the preservation or restoration of the hydrologic function of Four Creeks State Forest,*

including a site assessment (which has since been completed). In addition there is discussion in the resource section under section seven: "swamps, marshes and wetlands" that addresses FFS procedures and philosophy as it relates to hydro-periods alterations and hydrologic function.

Reasonable and practical projects to restore ditches and hydro-period alterations will be implemented during this planning period as funding allows.

4. **Ground Water Monitoring, specifically ground water quality and quantity, received a below average score. This is an indication that the management plan does not sufficiently address ground water quality and quantity.**

Managing Agency Response: Agree. To support the preservation and restoration of hydrologic function, a goal should be developed in the next management plan update that addresses the need for improved ground water monitoring.

5. **Surface Water Monitoring, specifically surface water quality and quantity, received a below average score. This is an indication that the management plan does not sufficiently address surface water quality monitoring.**

Managing Agency Response: Agree. To support the preservation and restoration of hydrologic function, a goal should be developed in the next management plan update that addresses the need for improved surface water monitoring.

6. **Adjacent Property Concerns, specifically expanding development and discussion of potential surplus land determination, received below average scores. This is an indication that the management plan does not sufficiently address adjacent property concerns associated with land use.**

Managing Agency Response: Disagree. The current ten- year plan has extensive discussion in the administrative section under sections five through eight. These sections address additional land needs, adjacent lands, as well as surplus lands. Expanding development into rural lands is not an issue unique to Four Creeks and is discussed in the plan as a justification for the acquisition of additional lands. FFS will consider the recommendation to add more detailed discussion in regards to surplus land determination to the surplus lands section during the next plan update.

7. **Environmental Education and Outreach, specifically related to wildlife, invasive species and interpretive facilities and signs, received below average scores. This is an indication that the management plan does not sufficiently address environmental education and outreach.**

Managing Agency Response: Disagree. The current plan has several objectives specifically addressing environmental education and outreach through the development of a comprehensive public information program which includes the use of interpretive signs (kiosk), informative programs, brochures, etc. FFS will consider the recommendation to add specific topics for environmental education during the update of the next ten year plan.

3.2 Management Plan Review Checklist and Scores

Plan Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Mesic Flatwoods	I.A.1	4	5	5	3	5	2	4		4.00
Wet Flatwoods	I.A.2	4	5	4	3	5	2	3		3.71
Bottomland Forest	I.A.3	4	4	4	3	4	3	4		3.71
Estuarine Tidal Marsh	I.A.4	4	4	3	3	5	3	4		3.71
Floodplain Swamp	I.A.5	4	5	4	3	5	3	4		4.00
Dome Swamp	I.A.6	4	5	4	3	4	3	4		3.86
Mesic Hammock	I.A.7	4	4	4	3		4	4		3.83
Floodplain Marsh	I.A.8	4	4	3	3	4	3	3		3.43
Hydric Hammock	I.A.9	4	4	3	2	4	3	4		3.43
Wet Prairie	I.A.10	4	4	3	3	5	4	3		3.71
Baygall	I.A.11	4	4	4	3	5	4	4		4.00
Natural Communities Average Score										3.76
Listed species: Protection & Preservation (I.B)										
Animals	I.B.1	3	4	2	2	4	4	3		3.14
Gopher Tortoise	I.B.1.a	3	4	2	2	4	4	3		3.14
Plants	I.B.2	3	4	2	2	4	4	3		3.14
Listed Species Average Score										3.14
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	2	4	2	2	2	1	3		2.29
Other non-game species or their habitat monitoring	I.C.3	2	2	2	2		1	3		2.00
Fire effects monitoring	I.C.4	4	4	4	2	4	4	4		3.71
Other habitat management effects monitoring	I.C.5	3	4	1	2	2	4	3		2.71
Invasive species survey / monitoring	I.C.6	4	3	2	2	5	4	3		3.29
Cultural Resources (Archeological & Historic sites) (II.A,II.B)										
Cultural Res. Survey	II.A	3	4	2	2	5	3	2		3.00
Protection and preservation	II.B	4	4	3	2	5	4	3		3.57
Cultural Resources Average Score										3.29
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A.1	4	5	5	3	5	4	4		4.29
Frequency	III.A.2	4	5	5	3	5	4	4		4.29
Quality	III.A.3	4	5	5	3	4	4	4		4.14
Resource Management, Prescribed Fire Average Score										4.24
Restoration (III.B)										
Fire	III.B.1	4	5	5	5	5	4	5		4.71
Hydrology	III.B.2	4	3	4	4	5	4	5		4.14

Species Composition	III.B.3	4	5	4	2	5	4	5		4.14
Restoration Average Score										4.33
Forest Management (III.C)										
Timber Inventory	III.C.1	5	5	5	4	5	4	5		4.71
Timber Harvesting	III.C.2	5	5	3	4	5	4	5		4.43
Reforestation/Afforestation	III.C.3	5	5	2	4	5	4	5		4.29
Site Preparation	III.C.4	5	5	1	4	5	4	5		4.14
Forest Management Average Score										4.39
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.E.1.a	4	3	1	3	5	4	3		3.29
prevention - animals	III.E.1.b	4	3	1	3	3	4	3		3.00
prevention - pests/pathogens	III.E.1.c	4	3	1	3	2	4	3		2.86
Control										
control - plants	III.E.2.a	4	4	2	3	5	4	3		3.57
control - animals	III.E.2.b	4	4	2	3	3	4	3		3.29
control - pest/pathogens	III.E.2.c	4	3	1	3		4	3		3.00
Non-Native, Invasive & Problem Species Average Score										3.17
Hydrologic/Geologic function, Hydro-Alteration (III.E.1)										
Roads/culverts	III.F.1.a	4	4	2	2	3	3	4		3.14
Ditches	III.F.1.b	4	2	1	2	3	3	4		2.71
Hydro-period Alteration	III.F.1.c	3	3	1	2	3	3	3		2.57
Hydrologic/Geologic function, Hydro-Alteration Average Score										2.81
Ground Water Monitoring (III.E.2)										
Ground water quality	III.F.2.a	3	3	1	1	1	1	3		1.86
Ground water quantity	III.F.2.b	3	3	1	1	1	1	3		1.86
Ground Water Monitoring Average Score										1.86
Surface Water Monitoring (III.E.3)										
Surface water quality	III.F.3.a	3	3	1	1	1	1	3		1.86
Surface water quantity	III.F.3.b	3	3	1		1	1	3		2.00
Surface Water Monitoring Average Score										1.93
Resource Protection (III.F)										
Boundary survey	III.G.1	5	3	4	2	4	4	4		3.71
Gates & fencing	III.G.2	5	5	1	1	3	4	4		3.29
Signage	III.G.3	5	5	1	2	2	4	3		3.14
Law enforcement presence	III.G.4	2	4	2	2	4	4	3		3.00
Resource Protection Average Score										3.29
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.H.1.a	3	4	1	1	2	1	3		2.14
Inholdings/additions	III.H.2	4	5	4	2	5	3	4		3.86
Discussion of Potential Surplus Land Determination	III.H.3	3	3	1	1	5	1	3		2.43
Surplus Lands Identified?	III.H.4	3	5	5	5	5	1	3		3.86

Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	4	5	4	3	4	4	4		4.00
Parking	IV.1.b	4	5	3	3	4	4	4		3.86
Boat Access	IV.1.c	4	5	4	3	5	4	3		4.00
Environmental Education & Outreach										
Wildlife	IV.2.a	2	3	1	2	2	4	3		2.43
Invasive Species	IV.2.b	2	3	1	2	5	4	3		2.86
Habitat Management Activities	IV.2.c	2	4	1	2	5	4	3		3.00
Interpretive facilities and signs	IV.3	2	4	3	2	1	4	3		2.71
Recreational Opportunities	IV.4	4	5	4	3	4	4	4		4.00
Management of Visitor Impacts	IV.5	4	5	2	2	2	4	3		3.14
Public Access & Education Average Score										3.33
Managed Area Uses (VI.A, VI.B)										
Existing Uses										
Silviculture	VI.A.3	5	5	5	5	5	4	5		4.86
Hunting	VI.A.4	5	5	5	5	3	4	5		4.57
Fishing	VI.A.5	5	5	5	5	3	3	5		4.43
Hiking	VI.A.6	5	5	5	5	4	4	5		4.71
Canoe/Kayaking	VI.A.7	5	5	5	5	4	4	5		4.71
Equestrian	VI.A.8	5	5	2	5	3	3	5		4.00
Bicycling	VI.A.9	5	5	2	5	3	5	5		4.29
Proposed Uses										
Primitive Camping	VI.B.1	5	5	3	5	3	1	5		3.86

Color Code:

Excellent

Above
Average

Below
Average

Poor

See
Appendix A
for detail

Missing
Vote

Insufficient
Information

Appendix A: Scoring System Detail

Explanation of Consensus Commendations:

Often, the exceptional condition of some of the property's attributes impress review team members. In those instances, team members are encouraged to offer positive feedback to the managing agency in the form of a commendation. The teams develop commendations generally by standard consensus processes or by majority vote if they cannot obtain a true consensus.

Explanation of Consensus Recommendations:

Subsection 259.036(2), F.S., specifically states that the managing entity shall consider the findings and recommendations of the land management review. We ask team members to provide general recommendations for improving the management or public access and use of the property. The teams discuss these recommendations and develop consensus recommendations as described above. We provide these recommendations to the managing agency to consider when finalizing the required ten-year management plan update. We encourage the manager to respond directly to these recommendations and include their responses in the final report when received in a timely manner.

Explanation of Field Review Checklist and Scores, and Management Plan Review Checklist and Scores:

We provide team members with a checklist to fill out during the evaluation workshop phase of the Land Management Review. The checklist is the uniform tool used to evaluate both the management actions and condition of the managed area, and the sufficiency of the management plan elements. During the evaluation workshop, team members individually provide scores on each issue on the checklist, from their individual perspective. Team members also base their evaluations on information provided by the managing agency staff as well as other team member discussions. Staff averages these scores to evaluate the overall conditions on the ground, and how the management plan addresses the issues. Team members must score each management issue 1 to 5: 1 being the management practices are clearly insufficient, and 5 being that the management practices are excellent. Members may choose to abstain if they have inadequate expertise or information to make a cardinal numeric choice, as indicated by an "X" on the checklist scores, or they may not provide a vote for other unknown reasons, as indicated by a blank. If a majority of members failed to vote on any issue, that issue is determined to be irrelevant to management of that property or it was inadequately reviewed by the team to make an intelligent choice. In either case staff eliminated the issue from the report to the manager.

Average scores are interpreted as follows:

Scores 4.0 to 5.0 are *Excellent*

Scores 3.0 to 3.99 are *Above Average*

Scores 2.0 to 2.99 are *Below Average*

Scores 1.0 to 1.99 are considered *Poor*

2019 Land Management Review Team Report for Four Creeks State Forest

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1. Introduction

Section 259.036, F.S. requires a periodic on-site review of conservation and recreation lands titled in the name of the Board of Trustees to determine (1) whether the lands are being managed for the purposes for which they were acquired and (2) whether they are being managed in accordance with their land management plan adopted pursuant to s. 259.032, F.S. In cases where the managed areas exceed 1,000 acres in size, such a review must be scheduled at least every five years. In conducting this review, a statutorily constructed review team “shall 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 or archaeological features. The review shall 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.”

The land management review teams are coordinated by the Division of State Lands and consist of representatives from the Division of Recreation and Parks (DEP), the Florida Forest Service (DACS), the Fish and Wildlife Conservation Commission, the local government in which the property is located, the DEP District in which the parcel is located, the local soil and water conservation district or jurisdictional water management district, a conservation organization member, and a local private land manager.

Each Land Management Review Report is divided into three sections. Section 1 provides the details of the property being reviewed as well as the overall results of the report. Section 2 provides details of the Field Review, in which the Review Team inspects the results of management actions on the site. Section 3 provides details of the Land Management Plan Review, in which the team determines the extent to which the Management Plan provides for and documents adequate natural and recreational resource protection.

Finally, each report may also contain an Appendix that lists individual team member comments. This is a compilation of feedback, concerns or other thoughts raised by individual team members, but not necessarily indicative of the final consensus reached by the Land Management Review Team.

1.1. Property Reviewed in this Report

Name of Site: Four Creeks State Forest

Managed by: Department of Agriculture and Consumer Services, Florida Forest Service

Acres: 10,221

County: Nassau

Purpose(s) for Acquisition: Timber management and restoration, low-impact diverse recreation uses, and management of archaeological and historic sites, habitat and other biological resources.

Acquisition Program(s): Florida Forever

Original Acquisition Date: 4/27/05

Area Reviewed: Entire Property

Last Management Plan Approval Date: 2/19/10

Review Date: 9/18/19

Agency Manager and Key Staff Present:

- Sam Negaran, Manager
- Sam Leneave
- Jennifer B. Hart
- Kirsten Brannon

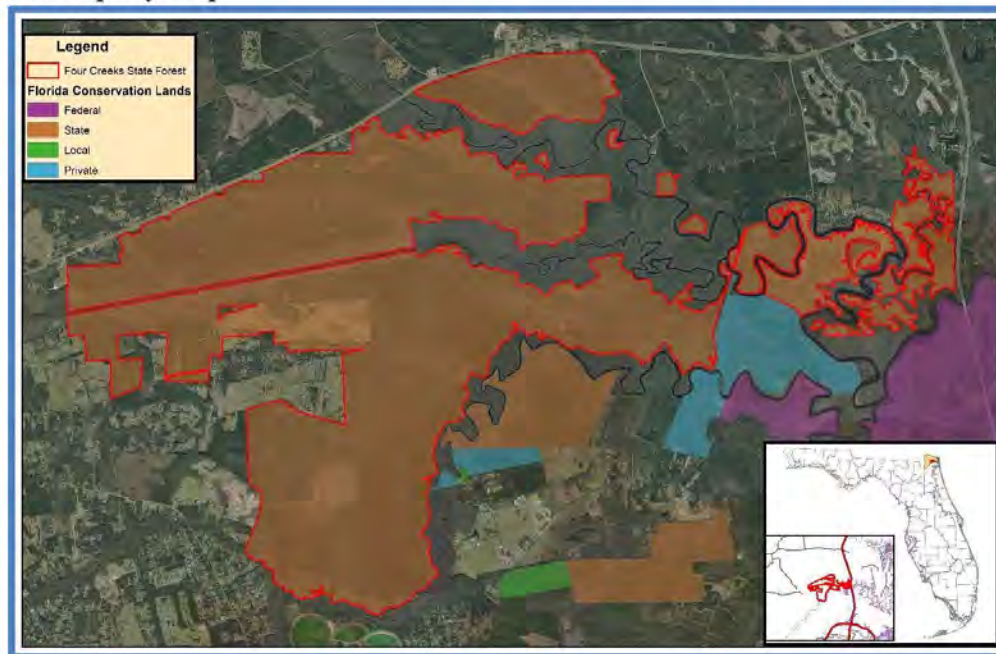
Review Team Members Present (voting)

- Dan Pearson, DRP District
- Local Gov't., None
- Scotland Talley, FWC
- Allison Cala, DEP District
- Heather Schmiede, FFS
- Brian Emanuel, SJRWMD
- Walter Bryant, Cons. Organization
- Private Land Manager, None

Other Non-Team Members Present (attending)

- Keith Singleton, DEP/DSL
- Chris Boever, FWC/IPMS

1.2 Property Map



1.3. Overview of Land Management Review Results

Is the property managed for purposes that are compatible with conservation, preservation, or recreation?

Yes = 6, No = 0

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

Yes = 6, No = 0

Table 1 shows the average scores received for each applicable category of review. *Field Review* scores refer to the adequacy of management actions in the field, while *Management Plan Review* scores refer to adequacy of discussion of these topics in the management plan. Scores range from 1 to 5 with 5 signifying excellence. For a more detailed key to the scores, please see *Appendix A*.

Table 1: Results at a glance.

Major Land Management Categories	Field Review	Management Plan Review
Natural Communities / Forest Management	4.19	4.22
Prescribed Fire / Habitat Restoration	3.86	3.89
Hydrology	3.73	2.85
Imperiled Species	3.60	2.60
Exotic / Invasive Species	3.89	3.51
Cultural Resources	3.50	3.33
Public Access / Education / Law Enforcement	3.85	3.39
Infrastructure / Equipment / Staffing	2.14	N/A

Color Code (See Appendix A for detail)

Excellent	Above Average	Below Average	Poor
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1.3.1 Consensus Commendations for the Managing Agency

The following commendations resulted from discussion and vote of the review team members:

1. The team commends the Florida Forest Service (FFS) for continuing improvement in prescribed fire program. (6+, 0-)
2. The team commends the FFS for significant improvement in access with road improvements and recreation sites. (6+, 0-)
3. The team commends the FFS for significant efforts to control Chinese tallow with the help of SJRWMD and other contributors. (6+, 0-)

1.3.2. Consensus Recommendations to the Managing Agency

The following recommendations resulted from a discussion and vote of review team members. The next management plan update should include information about how these recommendations have been addressed:

1. *The team recommends that the FFS seek to convert OPS biologist to FTE. (6+, 0-)*

Managing Agency Response:

The FFS will continue to request that the biologist position for the Jacksonville district be upgraded to career service. This request is dependent on getting funding through the legislature.

2. *The team recommends that the FFS increase effort to document flora and fauna on this forest particularly listed species. (6+, 0-)*

Managing Agency Response:

The FFS will work to increase documentation of flora and fauna on Four Creeks State Forest.

2. Field Review Details

2.1 Field Review Checklist Findings

The following items received high scores on the review team checklist, which indicates that management actions exceeded expectations.

1. Natural communities, specifically bottomland forest, salt marsh, floodplain swamp, hydric hammock, and basin swamp.
2. Natural resource survey/monitoring resources, specifically fire effects monitoring, other habitat management effects monitoring, and invasive species survey and monitoring.
3. Resource management (prescribed fire), specifically quality.
4. Restoration, specifically flatwoods and sandhill.
5. Forest management, specifically timber inventory, and timber harvesting.
6. Non-native, invasive, and problem species, specifically prevention and control of plants.
7. Hydrologic/geologic function, specifically roads/culverts, and ditches.
8. Resource protection, specifically boundary survey, and law enforcement presence.
9. Adjacent property concerns, land use, specifically inholdings and additions.
10. Public access, specifically roads, and parking.
11. Environmental education and outreach, specifically habitat management activities.

2.2. Items Requiring Improvement Actions in the Field

The following items received low scores on the review team checklist, which indicates that management actions noted during the Field Review were not considered sufficient (less than 3.0 score on average). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The management plan update should include information on how these items have been addressed:

1. *The maintenance condition of the Natural Communities, specifically mesic flatwoods, and wet flatwoods, received below average scores. The review team is asked to evaluate, based on their perspective, what percent of the natural community is in maintenance condition. The scores range from 1 to 5, with 1 being 0-20% in maintenance condition, 2 being 21-40%, 3 being 41-60%, 4 being 61-80% and 5 being 81-100%.*

Managing Agency Response:

These natural communities pose unique management situations in that trying to prescribe burn these areas either poses significant public safety risks or they are isolated pockets with no access. Approximately 66% of the manageable acreage is in maintenance condition. The FFS will continue to explore ways to maintain these areas. The FFS is also working on restoring what is currently typed as pine plantation to a more natural community.

2. *Natural Resources Survey, specifically listed species or their habitat monitoring, and other non-game species or their habitat monitoring, received below average scores. The review team is asked*

to evaluate, based on information provided by the managing agency, whether survey and monitoring of the resources or their habitats are sufficient.

Managing Agency Response:

The FFS will work to increase the level of monitoring for both listed species and other non-game species in the field

3. *Restoration, specifically species composition, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, whether restoration is sufficient.*

Managing Agency Response:

Since acquisition of this property the FFS has thinned approximately 50% of the existing pine plantation. There has also been approximately 9,600 acres of prescribed fire applied to 6,447 acres of uplands. 1,700 acres of Chinese tallow have been treated. Groundcover and midstory species diversity is increasing across the forest due to these efforts. The FFS plans to continue thinning and burning of pine plantations as they become merchantable and fire can safely be introduced to them.

4. *Management Resources, specifically sanitary facilities, buildings, equipment, staff, and funding, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, whether management resources are sufficient.*

Managing Agency Response:

The FFS will continue to submit legislative budget requests for facilities, equipment, staff and funding.

2.3. Field Review Checklist and Scores

Field Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Mesic Flatwoods	I.A.1	2	2	3	2	3	2			2.33
Wet Flatwoods	I.A.2	2	2	3	2	4	3			2.67
Bottomland Forest	I.A.3	4	5	4	5	5	5			4.67
Salt Marsh	I.A.4	4	5	5	5	5	4			4.67
Floodplain Swamp	I.A.5	4	4	4	5	5	4			4.33
Dome Swamp	I.A.6	3	4	4	4	4	4			3.83
Mesic Hammock	I.A.7	2	4	4	3	5	3			3.50
Floodplain Marsh	I.A.8	3	3	4	3	3	3			3.17
Hydric Hammock	I.A.9	5	5	4	5	5	5			4.83
Baygall	I.A.11	3	4	4	3	5	3			3.67
Basin Swamp	I.A.12	3	4	4	3	5	5			4.00

Natural Communities Average Score										3.79
Listed species: Protection & Preservation (I.B)										
Animals	I.B.1	3	3	3	2	4				3.00
Plants	I.B.2	3	3	3	2	4				3.00
Listed Species Average Score										3.00
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	2	3	2	2	3	2			2.33
Other non-game species or their habitat monitoring	I.C.3	3	3	2	2	4	3			2.83
Fire effects monitoring	I.C.4	5	4	4	4	5	5			4.50
Other habitat management effects monitoring	I.C.5	5	3	4	4	4	5			4.17
Invasive species survey / monitoring	I.C.6	5	3	4	4	4	5			4.17
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A	4	3	4	3	4	3			3.50
Protection and preservation	II.B	4	3	4	3	4	3			3.50
Cultural Resources Average Score										3.50
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A.1	3	4	3	3	4	3			3.33
Frequency	III.A.2	5	3	3	3	4	4			3.67
Quality	III.A.3	5	5	5	5	5	5			5.00
Resource Management, Prescribed Fire Average Score										4.00
Restoration (III.B)										
Fire	III.B.1	4	4	x	4		5			4.25
Hydrology	III.B.2	5	3	x	4		3			3.75
Species Composition	III.B.3	4	2	x	2		3			2.75
Plantation to Flatwoods	III.B.4	4	4	4	4	5	4			4.17
Restoration Average Score										3.73
Forest Management (III.C)										
Timber Inventory	III.C.1	5	4	4	5	5	4			4.50
Timber Harvesting	III.C.2	5	4	4	5	5	5			4.67
Forest Management Average Score										4.58
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a	4	3	4	4	4	5			4.00
prevention - animals	III.D.1.b	4	3	4	4	3	4			3.67
prevention - pests/pathogens	III.D.1.c	5	3	4	4	4	3			3.83
Control										
control - plants	III.D.2.a	3	5	4	4	5	5			4.33
control - animals	III.D.2.b	4	3	4	4	4	3			3.67
control - pest/pathogens	III.D.2.c	5	3	4	4	4	3			3.83
Non-Native, Invasive & Problem Species Average Score										3.89
Hydrologic/Geologic function Hydro-Alteration (III.E.1)										
Roads/culverts	III.E.1.a	5	5	4	4	4	4			4.33
Ditches	III.E.1.b	5	4	4	4	4	4			4.17

Hydro-period Alteration	III.E.1.c	5	3	4	4	4	3			3.83
Hydrologic/Geologic function, Hydro-Alteration Average Score										4.11
Ground Water Monitoring (III.E.2)										
Ground water quality	III.E.2.a	3	4	4	3	4	3			3.50
Ground water quantity	III.E.2.b	3	4	4	3	4	3			3.50
Ground Water Monitoring Average Score										3.50
Surface Water Monitoring (III.E.3)										
Surface water quality	III.E.3.a	3	3	4	4	4	3			3.50
Surface water quantity	III.F.3.b	4	3	4	4	4	3			3.67
Surface Water Monitoring Average Score										3.58
Resource Protection (III.F)										
Boundary survey	III.F.1	5	4	4	3	4	4			4.00
Gates & fencing	III.F.2	5	3	4	4	4	3			3.83
Signage	III.F.3	5	3	4	3	4	3			3.67
Law enforcement presence	III.F.4	5	4	4	4	4	5			4.33
Resource Protection Average Score										3.96
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.G.1.a	5	4	3	3	4	3			3.67
Inholdings/additions	III.G.2	5	4	4	4	4	4			4.17
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	3	5	4	4	4	3			3.83
Parking	IV.1.b	5	4	4	3	4	4			4.00
Boat Access	IV.1.c	5	4	4	2	4	4			3.83
Environmental Education & Outreach										
Wildlife	IV.2.a	5	3	3	4		3			3.60
Invasive Species	IV.2.b	5	4	3	4		3			3.80
Habitat Management Activities	IV.2.c	5	4	3	4		4			4.00
Interpretive facilities and signs	IV.3	4	3	4	3		3			3.40
Recreational Opportunities	IV.4	4	4	4	2	4	4			3.67
Management of Visitor Impacts	IV.5	5	3	4	2	4	3			3.50
Public Access & Education Average Score										3.74
Management Resources (V.1, V.2, V.3, V.4)										
Maintenance										
Waste disposal	V.1.a	4	3	3	2	3	3			3.00
Sanitary facilities	V.1.b	2	3	3	1	3	3			2.50
Infrastructure										
Buildings	V.2.a	2	2	2	1	2	3			2.00
Equipment	V.2.b	1	2	2	2	2	1			1.67
Staff	V.3	1	2	2	2	2	1			1.67
Funding	V.4	1	3	2	2	3	1			2.00
Management Resources Average Score										2.14

Color Code:

Excellent

Above
Average

Below
Average

Poor

3. Land Management Plan Review Details

3.1 Items Requiring Improvements in the Management Plan

The following items received low scores on the review team checklist, which indicates that the text noted in the Management Plan Review does not sufficiently address this issue (less than 3.0 score on average.). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The next management plan update should address the checklist items identified below:

1. **Listed Species protection and preservation, animals and plants in general, received below average scores. This is an indication that the management plan does not sufficiently address protection and preservation of listed species.**

Managing Agency Response:

The FFS feels that the management plan adequately addresses this. The plan lists working with FWC to develop a Wildlife Management Plan and to map locations of rare species and environmentally sensitive areas.

2. **Natural Resources Survey and Monitoring Resources, specifically listed species or their habitat monitoring, and other non-game species or their habitat monitoring, received below average scores. This is an indication that the management plan does not sufficiently address survey or monitoring.**

Managing Agency Response:

The FFS feels that the management plan adequately covers this. There are six objectives related to listed species surveying and monitoring. It is also covered in Section III and Section IV of the plan.

3. **Ground Water Monitoring, specifically quality, and quantity, received below average scores. This is an indication that the management plan does not sufficiently address ground water monitoring.**

Managing Agency Response:

The FFS will update future management plans to address ground water monitoring.

4. **Surface Water Monitoring, specifically quality, and quantity, received below average scores. This is an indication that the management plan does not sufficiently address surface water monitoring.**

Managing Agency Response:

The FFS will update future management plans to address surface water monitoring.

5. **Adjacent Property Concerns, specifically discussion of potential surplus land determination, received a below average score. This is an indication that the management plan does not sufficiently address adjacent property.**

Managing Agency Response:

The FFS will update future management plans to show how surplus land is determined.

6. *Public Access, Environmental Education & Outreach, specifically wildlife, invasive species, habitat management activities, and interpretive facilities and signs, received below average scores. This is an indication that the management plan does not sufficiently address public access and education.*

Managing Agency Response:

The FFS feels that this plan adequately addresses this. There are several objectives that address these goals.

3.2 Management Plan Review Checklist and Scores

Plan Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Mesic Flatwoods	I.A.1	5	4	4	4	4	5			4.33
Wet Flatwoods	I.A.2	5	4	4	4	4	5			4.33
Bottomland Forest	I.A.3	5	4	4	3	4	5			4.17
Salt Marsh	I.A.4	5	4	4	3	4	5			4.17
Floodplain Swamp	I.A.5	5	4	4	4	4	5			4.33
Dome Swamp	I.A.6	5	4	4	3	4	5			4.17
Mesic Hammock	I.A.7	5	4	4	3	4	5			4.17
Floodplain Marsh	I.A.8	5	3	4	3	4	4			3.83
Hydric Hammock	I.A.9	5	4	4	3	4	5			4.17
Baygall	I.A.11	5	4	4	3	4	5			4.17
Basin Swamp	I.A.12	1	1	4	1	1				1.60
Natural Communities Average Score										3.95
Listed species: Protection & Preservation (I.B)										
Animals	I.B.1	2	3	3	2	3				2.60
Plants	I.B.2	2	3	3	2	3				2.60
Listed Species Average Score										2.60
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	2	3	2	2	3	4			2.67
Other non-game species or their habitat monitoring	I.C.3	2	3	2	2	3	4			2.67
Fire effects monitoring	I.C.4	5	4	4	3	4	5			4.17
Other habitat management effects monitoring	I.C.5	5	3	3	3	3	4			3.50
Invasive species survey / monitoring	I.C.6	5	4	4	3	3	5			4.00
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A	4	2	3	3	3	4			3.17
Protection and preservation	II.B	4	3	3	3	3	5			3.50
Cultural Resources Average Score										3.33
Resource Management, Prescribed Fire (III.A)										

Area Being Burned (no. acres)	III.A.1	5	4	5	3	4	5			4.33
Frequency	III.A.2	5	4	4	3	4	5			4.17
Quality	III.A.3	5	4	4	3	4	4			4.00
Resource Management, Prescribed Fire Average Score										4.17
Restoration (III.B)										
Fire	III.B.1	5	5		3		5			4.50
Hydrology	III.B.2	2	5		3		4			3.50
Species Composition	III.B.3	2	5		3		3			3.25
Plantation to Flatwoods	III.B.4	1	5	3	3	4	3			3.17
Restoration Average Score										3.60
Forest Management (III.C)										
Timber Inventory	III.C.1	5	5	4	5	4	4			4.50
Timber Harvesting	III.C.2	5	5	4	5	4	4			4.50
Forest Management Average Score										4.50
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.E.1.a	5	3	3	3	4	5			3.83
prevention - animals	III.E.1.b	5	3	3	3	3	4			3.50
prevention - pests/pathogens	III.E.1.c	5	3	3	3	4	3			3.50
Control										
control - plants	III.E.2.a	5	3	3	3	4	5			3.83
control - animals	III.E.2.b	5	3	3	3	3	4			3.50
control - pest/pathogens	III.E.2.c	5	3	3	3	3	3			3.33
Non-Native, Invasive & Problem Species Average Score										3.58
Hydrologic/Geologic function, Hydro-Alteration (III.E.1)										
Roads/culverts	III.F.1.a	5	4	3	4	3	4			3.83
Ditches	III.F.1.b	5	4	3	3	2	4			3.50
Hydro-period Alteration	III.F.1.c	5	3	3	3	3	3			3.33
Hydrologic/Geologic function, Hydro-Alteration Average Score										3.56
Ground Water Monitoring (III.E.2)										
Ground water quality	III.F.2.a	1	2	3	3	3	3			2.50
Ground water quantity	III.F.2.b	1	2	3	3	3	3			2.50
Ground Water Monitoring Average Score										2.50
Surface Water Monitoring (III.E.3)										
Surface water quality	III.F.3.a	1	2	3	3	3	3			2.50
Surface water quantity	III.F.3.b	1	2	3	3	3	3			2.50
Surface Water Monitoring Average Score										2.50
Resource Protection (III.F)										
Boundary survey	III.G.1	5	4	3	3	4	3			3.67
Gates & fencing	III.G.2	5	4	3	3	3	3			3.50
Signage	III.G.3	5	3	3	3	3	3			3.33
Law enforcement presence	III.G.4	5	3	3	3	4	3			3.50
Resource Protection Average Score										3.50
Adjacent Property Concerns (III.G)										

Land Use											
Expanding development	III.H.1.a	5	3	3	3	4	3				3.50
Inholdings/additions	III.H.2	5	4	3	3	4	4				3.83
Discussion of Potential Surplus Land Determination	III.H.3	2	3	2	1	2	3				2.17
Surplus Lands Identified?	III.H.4	4	4	4	5	5	4				4.33
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)											
Public Access											
Roads	IV.1.a	5	4	4	4	4	4				4.17
Parking	IV.1.b	5	4	4	4	3	4				4.00
Boat Access	IV.1.c	5	4	4	4	3	4				4.00
Environmental Education & Outreach											
Wildlife	IV.2.a		3	3	3	2	3				2.80
Invasive Species	IV.2.b		3	3	3	2	3				2.80
Habitat Management Activities	IV.2.c		3	3	3	2	3				2.80
Interpretive facilities and signs	IV.3		3	3	3	2	3				2.80
Recreational Opportunities	IV.4		4	3	3	3	3				3.20
Management of Visitor Impacts	IV.5		3	3	3	3	3				3.00
Public Access & Education Average Score											3.29
Managed Area Uses (VI.A, VI.B)											
Existing Uses											
Silviculture	VI.A.1	5	5	5	5	5	5				5.00
Hunting	VI.A.2	5	5	5	5	5	5				5.00
Fishing	VI.A.3	5	5	5	5	5	5				5.00
Hiking	VI.A.4	3	5	5	5	5	5				4.67
Canoe/Kayaking	VI.A.5	5	5	5	5	5	5				5.00
Equestrian	VI.A.6	4	4	5	4	3	3				3.83
Bicycling	VI.A.7	2	5	5	5	5	5				4.50
Nature Study	VI.A.8	3	5	5	5	5	5				4.67
Proposed Uses											
Primitive Camping	VI.B.1	4	5	5	5	5	5				4.83

Color Code:

Excellent

Above Average

Below Average

Poor

Missing Vote

Insufficient Information

See Appendix A for detail

Appendix A: Scoring System Detail

Explanation of Consensus Commendations:

Often, the exceptional condition of some of the property's attributes impress review team members. In those instances, team members are encouraged to offer positive feedback to the managing agency in the form of a commendation. The teams develop commendations generally by standard consensus processes or by majority vote if they cannot obtain a true consensus.

Explanation of Consensus Recommendations:

Subsection 259.036(2), F.S., specifically states that the managing entity shall consider the findings and recommendations of the land management review. We ask team members to provide general recommendations for improving the management or public access and use of the property. The teams discuss these recommendations and develop consensus recommendations as described above. We provide these recommendations to the managing agency to consider when finalizing the required ten-year management plan update. We encourage the manager to respond directly to these recommendations and include their responses in the final report when received in a timely manner.

Explanation of Field Review Checklist and Scores, and Management Plan Review Checklist and Scores:

We provide team members with a checklist to fill out during the evaluation workshop phase of the Land Management Review. The checklist is the uniform tool used to evaluate both the management actions and condition of the managed area, and the sufficiency of the management plan elements. During the evaluation workshop, team members individually provide scores on each issue on the checklist, from their individual perspective. Team members also base their evaluations on information provided by the managing agency staff as well as other team member discussions. Staff averages these scores to evaluate the overall conditions on the ground, and how the management plan addresses the issues. Team members must score each management issue 1 to 5: 1 being the management practices are clearly insufficient, and 5 being that the management practices are excellent. Members may choose to abstain if they have inadequate expertise or information to make a cardinal numeric choice, as indicated by an "X" on the checklist scores, or they may not provide a vote for other unknown reasons, as indicated by a blank. If a majority of members failed to vote on any issue, that issue is determined to be irrelevant to management of that property or it was inadequately reviewed by the team to make an intelligent choice. In either case staff eliminated the issue from the report to the manager.

Average scores are interpreted as follows:

Scores 4.0 to 5.0 are *Excellent*

Scores 3.0 to 3.99 are *Above Average*

Scores 2.0 to 2.99 are *Below Average*

Scores 1.0 to 1.99 are considered *Poor*

Exhibit T

Compliance with Local Comprehensive Plan

FLORIDA FOREST SERVICE
(850) 681-5800



THE CONNER BUILDING
3125 CONNER BOULEVARD
TALLAHASSEE, FLORIDA 32399-1650

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES
COMMISSIONER NICOLE "NIKKI" FRIED

October 26, 2021

Mr. Thad Crowe, AICP
Nassau County Planning Department
96161 Nassau Place
Yulee, FL 32097
(904) 530-6300
planninginfo@nassaucountyfl.com

RE: Four Creeks State Forest 10-Year Land Management Plan

Dear Mr. Crowe,

Greetings from the Florida Forest Service (FFS). Attached is a copy of the Ten-Year Land Management Plan and Exhibits for Four Creeks State Forest, prepared in accordance with F.S. 253.034. Please review the draft plan at your earliest convenience and reply as to whether the plan is consistent with Nassau County's Comprehensive Plan.

Please address all correspondence concerning the Management Plan on official letterhead to the above mailing address or via e-mail. I can be reached by telephone at (850) 681-5889 or by email at Patricia.Anderson@FDACS.gov if you have any questions.

Thank you for assisting us in managing Four Creeks State Forest resources through a stewardship ethic to ensure they are available for future generations.

Sincerely,

Patti Anderson
FFS Land Management Planner

cc: Kirsten Brannon, FFS Forester

Exhibit U

State Forest Management Plan Advisory Group Summary

Management Plan Advisory Group Public Hearing
Four Creeks State Forest
10-Year Land Management Plan

October 21, 2021

10:30 A.M.

Meeting Minutes

MPAG Members Present:

- | | |
|--------------------|--|
| • Andy Lamborn | Jacksonville District Manager, Florida Forest Service (FFS) |
| • Allan Hallman | Biologist III, Florida Fish and Wildlife Commission |
| • Nicholas Smith | Representative for Heather Venter, St. Johns River WMD |
| • Kyle Caswell | Representative for Dean Woehrle, NCSWD |
| • Ricky Lackey | District Biologist, National Wild Turkey Federation |
| • Keith Wingate | Private Property Owner |
| • Allan MacCurrach | Private Property Owner |
| • Klynt Farmer | Commissioner, Nassau County Board of Commissioners, District 5 |

FFS Staff:

- Alan Davis, Land Planning Coordinator
- Brian Camposano, Forest Management Assistant Bureau Chief
- Kirsten Brannon, Forester
- Sam Negaran, Forestry Resource Administrator
- Rob Chase, Field Operations Consultant
- Patti Anderson, Land Management Planner

Public Meeting Start Time: 10:30 A.M.

- Land Planning Coordinator, Alan Davis opened the meeting by introducing himself and explained the purpose and statutory framework for the Four Creeks State Forest 10-Year Land Management Plan process. He explained that the Plan is not an annual work plan or detailed operational plan but provides general and conceptual guidance for management of Four Creeks State Forest (FCSF) for the next 10-year period.
- Mr. Davis confirmed compliance with the Florida Sunshine Law reminding MPAG members to not discuss the draft outside of the public meetings. He stated that the meetings are open to the public, recorded, and minutes taken.
- Mr. Davis stated both MPAG meetings are open to the public and proper notice was given. The meetings were advertised to the public in the Nassau County Record on September 29, 2021; Florida Administrative Register, FFS webpage, as well as posted at the kiosks on FCSF. The meetings were announced at the Nassau County Board of County Commissioners meeting on October 12, 2021. He noted that the draft goes through various approvals before and after the MPAG meetings but that the Florida Forest Service (FFS) Director is granted final authority on changes to the draft. He described the day's two meetings: The first meeting is informational and provides opportunity for public comment; the 1:00 p.m. Workshop meeting provides opportunity for the MPAG members to discuss the public comments and to share their personal comments on the draft plan. The public is welcome to attend the Workshop, but participation is limited to MPAG members.
- Mr. Davis introduced Brian Camposano who explained the technical logistics and how to use the webinar tools to share comments, then asked if there were any questions. No responses followed.

- Mr. Davis then requested MPAG Member introductions and attendance was noted.
- Mr. Davis asked the advisory group to elect an MPAG chairperson. Andy Lamborn was elected chairperson via negative response to serve at the impending workshop.
- Mr. Davis reiterated the purpose of this meeting is to receive public input which would be discussed in the Workshop. He acknowledged the in-person location and asked the FFS administrators to apprise of any attendees. Ms. Brannon stated that no attendees were present.
- Mr. Davis then introduced Forester Kirsten Brannon who presented the PowerPoint presentation of the 10-Year Plan.
- Mr. Davis requested public comments on the presentation and Plan. No persons from the public were present.
- Mr. Davis then thanked everyone for participating and adjourned the public hearing portion of the meetings.

Public Meeting End Time: 10:56 A.M.

Management Plan Advisory Group Workshop Meeting
Four Creeks State Forest
10-Year Land Management Plan

October 21, 2021

1:00 P.M.

Meeting Minutes

MPAG Members Present:

- | | |
|--------------------|--|
| • Andy Lamborn | Jacksonville District Manager, Florida Forest Service (FFS) |
| • Allan Hallman | Biologist III, Florida Fish and Wildlife Commission |
| • Nicholas Smith | Representative for Heather Venter, St. Johns River WMD |
| • Ricky Lackey | District Biologist, National Wild Turkey Federation |
| • Keith Wingate | Private Property Owner |
| • Allan MacCurrach | Private Property Owner |
| • Klynt Farmer | Commissioner, Nassau County Board of Commissioners, District 5 |

MPAG Members Not Present:

- | | |
|----------------|---|
| • Dean Woerhle | Nassau County Soil and Water Conservation District Board Member |
|----------------|---|

FFS Staff:

- Alan Davis, Land Planning Coordinator
- Brian Camposano, Forest Management Assistant Bureau Chief
- Kirsten Brannon, Forester
- Sam Negaran, Forestry Resource Administrator
- Rob Chase, Field Operations Consultant
- Patti Anderson, Land Management Planner

Workshop Meeting Start Time: 1:00 P.M.

- Land Planning Coordinator, Alan Davis introduced himself and opened the FCSF MPAG Workshop by conducting an MPAG member sound check. He reminded attendees that the purpose of the workshop is to review and discuss the draft and that any edits made to the draft would be presented to the FFS Director for approval. He noted that minutes will be emailed to the MPAG members and will be approved via negative response review. MPAG member appointment will terminate when the final draft is submitted to the Acquisition Restoration Council. Forester Kristen Brannon was available to make proposed changes to the draft throughout the page-by-page review.
- Mr. Davis asked if any MAPG members had comments regarding the public hearing conducted earlier. None followed.
- Mr. Davis and Ms. Brannon proceeded with the page-by-page review. No questions or comments were offered.
- Mr. Davis asked if there were any questions or comments on the exhibits. No responses resulted.
- Mr. Davis noted that the draft will be submitted to the Acquisition and Restoration Council for consideration at the February 2022 meeting. Mr. Davis asked each member to comment on the draft plan. All attending members commented that the plan is satisfactory.
- Mr. Davis thanked everyone for their time and participation and adjourned the meeting.

Workshop Meeting End Time: 1:13 P.M.

Exhibit V

State Forest Summary Budget

	FOUR CREEKS STATE FOREST MGT. ONLY 20-21 EXPENDITURES	Percentages Based on Total Dollar Amount of Expenditures	Assessed Needed Funding Based Upon LMUAC Resource Management
Resource Management	\$ 16,996	25.85%	\$ 66,824.41
Exotic Species Control	\$ 909	2.96%	\$ 7,653.16
Prescribed Burning	\$ 10,280	3.98%	\$ 10,280.06
Cultural Resources Management	\$ 32	0.10%	\$ 270.70
Timber Management	\$ 2,609	8.60%	\$ 21,967.92
Hydrological Management	\$ 161	0.52%	\$ 1,356.26
	\$ -		\$ -
OTHER RESOURCE MANAGEMENT	\$ 3,005	9.78%	\$ 25,296.32
Listed Species Management	\$ -		\$ -
Forest Pest and Disease	\$ -		\$ -
Plant Conservation Program	\$ -		\$ -
State Forest Research Projects	\$ -		\$ -
Boundary Surveys for State Forests	\$ -		\$ -
Other Activities Also Include:	\$ -		\$ -
Liaison Community Meetings / Boundary Line Maintenance / Forest Inventories and Various Other Activities / Wildfire Suppression on State Forests			
			\$ -
Administration	\$ 2,025	6.59%	\$ 17,046.37
Central Office Headquarters	\$ 2,025	6.59%	\$ 17,046.37
District/Regions	\$ -		\$ -
Units/Projects	\$ -		\$ -
	\$ -		\$ -
Support	\$ 10,103	32.90%	\$ 85,056.04
Land Management Planning	\$ 624	2.03%	\$ 5,266.37
Land Management Reviews	\$ 46	0.15%	\$ 385.24
Training/Staff Development	\$ 1,778	5.79%	\$ 14,972.78
Vehicle Purchase	\$ 151	0.48%	\$ 1,272.08
Vehicle Operations and Maintenance	\$ 5,566	18.12%	\$ 46,857.48
	\$ -		\$ -
OTHER SUPPORT	\$ 1,938	6.31%	\$ 16,312.08
State Forest Land Acquisition Support			\$ -
Other Support Activities Also Include:	\$ -		\$ -
Computer Maintenance / Radio Maintenance / Technical Support / Management of Apiary and Cattle Leases / State Forest Leases; Lease Amendments, Easements and Other Various Activities	\$ -		\$ -
			\$ -
Capital Improvements	\$ 6,909	22.50%	\$ 58,166.57
New Facility Construction	\$ 1,481	4.82%	\$ 12,464.82
Facility Maintenance	\$ 5,428	17.68%	\$ 45,701.75
			\$ -
Visitor Services/Recreation	\$ 3,738	12.17%	\$ 31,471.02
Information/Education	\$ 931	3.03%	\$ 7,834.14
Operations	\$ 2,808	9.14%	\$ 23,636.88
			\$ -
Law Enforcement	\$ -	0.00%	\$ -
Total	\$ 30,710.61	100.00%	\$258,552.57

Exhibit W

Arthropod Control Plan Nassau County, Florida



NASSAU COUNTY
BOARD OF COUNTY COMMISSIONERS
96135 Nassau Place, Suite 1
Yulee, Florida 32097

Daniel B. Leeper
Aaron C. Bell
Pat Edwards
Thomas R. Ford
Justin M. Taylor

Dist. No. 1 Fernandina Beach
Dist. No. 2 Amelia Island
Dist. No. 3 Yulee
Dist. No. 4 Bryceville/Hilliard
Dist. No. 5 Callahan/West Yulee

JOHN A. CRAWFORD
Ex-Officio Clerk

MICHAEL S. MULLIN
County Attorney/County Manager

TACO E. POPE, AICP
Assistant County Manager

June 17, 2019

Sam Negaran
Forestry Resource Administrator
Florida Department of Agriculture & Consumer Services
7247 Big Oaks Drive
Bryceville, FL 32009

Dear Ms. Negaran,

In response to your May 20, 2019 letter regarding the need for an Arthropod Control Plan, Nassau County, please be advised that Nassau County does not provide mosquito control services. It is our understanding that this would preclude us from needing a ACP plan.

Should you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in dark ink, appearing to read "Michael S. Mullin".

Michael S. Mullin
County Manager

MM/sr

cc: Taco Pope, Assistant County Manager

(904) 530-6010 or (866)-474-1446

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