FLORIDA DEPARTMENT OF
Environmental Protection

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

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

August 30, 2018

Mr. Alan Davis
Florida Forest Service
Department of Agriculture and Consumer Services
3125 Conner Boulevard, Room 236
Tallahassee, Florida 32399-1650

RE: Matanzas State Forest - Lease No. 4441 and 4469

Dear Mr. Davis:

On **August 24, 2018**, the Acquisition and Restoration Council (ARC) recommended approval of the **Matanzas State Forest** management plan. Therefore, Division of State Lands, Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the **Matanzas State Forest** management plan. The next management plan update is due August 24, 2028.

Pursuant to s. 253.034(5)(a), F.S., each management plan is required to "describe both short-term and long-term management goals, and include measurable objectives to achieve those goals. Short-term goals shall be achievable within a 2-year planning period, and long-term goals shall be achievable within a 10-year planning period." Upon completion of short-term goals, please submit a signed letter identifying categories, goals, and results with attached methodology to the Division of State Lands, Office of Environmental Services.

Pursuant to s. 259.032(8)(g), F.S., by July 1 of each year, each governmental agency and each private entity designated to manage lands shall report to the Secretary of Environmental Protection, via the Division of State Lands, on the progress of funding, staffing, and resource management of every project for which the agency or entity is responsible.

Pursuant to s. 259.036(2), F.S., management areas that exceed 1,000 acres in size, shall be scheduled for a land management review at least every 5 years.

Pursuant to s. 259.032, F.S., and Chapter 18-2.021, F.A.C., management plans for areas less than 160 acres may be handled in accordance with the negative response process. This process requires small management plans and management plan amendments be submitted to the Division of State Lands for review, and the Acquisition and Restoration Council (ARC) for public notification. The Division of State Lands will approve these

plans or plan amendments submitted for review through delegated authority unless three or more ARC members request the division place the item on a future council meeting agenda for review. To create better efficiency, improve customer service, and assist members of the ARC, the Division of State Lands will notice negative response items on Thursdays except for weeks that have State or Federal holidays that fall on Thursday or Friday. The Division of State Lands will contact you on the appropriate Friday to inform you if the item is approved via delegated authority or if it will be placed on a future ARC agenda by request of the ARC members.

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

Sincerely,

Raymond V. Spaulding
Chief, Office of Environmental Services
Division of State Lands
Department of Environmental Protection

TEN-YEAR LAND MANAGEMENT PLAN

FOR THE

MATANZAS STATE FOREST

ST. JOHNS COUNTY

PREPARED BY THE

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

FLORIDA FOREST SERVICE

APPROVED ON

TEN-YEAR LAND MANAGEMENT PLAN

FOR THE

MATANZAS STATE FOREST

Approved by:

Jim Karels, Director
Florida Forest Service

9/7/18
Date

John Sabo, Chief
Field Operations

9/7/18
Date

TEN-YEAR LAND MANAGEMENT PLAN
MATANZAS STATE FOREST
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LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

LEAD AGENCY: Florida Department of Agriculture and Consumer Services, Florida Forest Service
COMMON NAME: Matanzas State Forest
LOCATION: St. Johns County
ACREAGE TOTAL: 4,699.73 acres (more or less)

Historical Natural Communities	Approximate Acreage
Basin Marsh	6
Depression Marsh	37
Mesic Flatwoods	2,297
Salt Marsh	307
Scrubby Flatwoods	383
Wet Flatwoods	214

Historical Natural Communities	Approximate Acreage
Basin Swamp	1,032
Dome Swamp	139
Mesic Hammock	252
Scrub	21
Unconsolidated Substrate	1

TIITF LEASE AGREEMENT NUMBER: 4441 and 4469
USE: Single ___ Multiple _X_____

MANAGEMENT AGENCY	RESPONSIBILITY
Florida DACS, Florida Forest Service	General Forest Resource Management
Florida Fish and Wildlife Conservation Commission	Wildlife Resources & Laws
St. Johns River Water Management District	Water Resource Protection & Restoration
Division of Historical Resources	Historical & Archaeological Resource Management
Guana-Tolomato-Matanzas National Estuarine Research Reserve	Water Resource Protection

DESIGNATED LAND USE: Multiple-Use State Forest
SUBLEASES: None
ENCUMBRANCES: None
TYPE ACQUISITION: Florida Forever programs
UNIQUE FEATURES: Two and one-half miles of undeveloped salt marsh along the Matanzas River, and Cedar Creek that flows along the southern half of Matanzas State Forest.
ARCHAEOLOGICAL / HISTORICAL: Six (6) known sites
MANAGEMENT NEEDS: Restoration and maintenance of native ecosystems through prescribed burning, hardwood control, off-site pine harvests and/or reforestation with native species. Non-native invasive species control. Timber management to promote a healthier forest and timber production. Restore and maintain the hydrological function of the forest. Develop and maintain recreational trails and facilities. Maintain signage and fire brakes on forest boundary. Maintain the prescribed fire program on the forest. Forest inventory maintenance. Road repair and maintenance.
ACQQUISITION NEEDS: Parcels in Optimal Management Boundary
SURPLUS ACREAGE: None
PUBLIC INVOLVEMENT: 2010 and 2015 Land Management Reviews, Management Plan Advisory Group and Public Hearing, DEP Acquisition and Restoration Council Public Hearing, Matanzas Liaison Panel, Board of County Commissioners of St. Johns County, and Equestrian groups.

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

ARC Approval Date: ______________________ BTIITF Approval Date: ______________________

Comments: ____

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I. Introduction

The Matanzas State Forest (MaSF) was acquired in 2003 from Rayonier Timberlands as part of the Northeast Florida Blueways Project. Since the initial purchase in 2003, two (2) additional parcels have been added to MaSF. The largest of these parcels is 20-acres and it links MaSF to Moses Creek Conservation Area. MaSF currently is comprised of 4,699 acres and is located in southeast St. Johns County on the Matanzas River. MaSF is designated for multiple use management and is managed by the Florida Forest Service (FFS) as part of the state forest system. The MaSF is managed for timber, wildlife, natural resource-based recreation, and ecological restoration.

MaSF is part of a 16,000-acre conservation corridor located along the western shore of the Matanzas River. This corridor begins in the north with Moses Creek, (managed by the St. Johns River Water Management District), and continuing south through MaSF into Faver-Dykes State Park (managed by the Florida Department of Environmental Protection), Pellicer Creek Conservation Area, and Flagler County's Princess Place Preserve.

The natural community types found on MaSF include basin marsh, basin swamps, depression marshes, dome swamps, salt marsh, mesic hammocks, mesic flatwoods, scrub, scrubby flatwoods, wet flatwoods, and xeric hammock. Approximately 75% of MaSF is comprised of upland pine plantations, ranging in age from 14 to 32 years old. One of the MaSF more notable features is the two and a half miles of undeveloped salt marsh located along the Matanzas River. Significant wildlife species sighted on the forest include the wood stork, bald eagle, gopher tortoise, and sandhill crane.

The major recreational activities enjoyed at MaSF include camping, hiking, horseback riding, off road bicycling, hunting, fishing, scouting, and birding.

A. General Mission and Management Plan Direction

The primary mission of the 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 MaSF 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, and that is consistent with the purpose for which the forest was acquired. Multiple-use management for MaSF 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 water resources and the health of associated wetland and aquatic communities;
- 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, and was prepared utilizing guidelines outlined in Section 18-2.021 of the Florida Administrative Code. It is not an annual work plan or detailed operational plan but provides general guidance for the management of MaSF for the next ten-year period and outlines the major concepts that will guide management activities on the forest.

B. Past Accomplishments

A compilation of management activities and public use on MaSF has been completed monthly and is available from the forest manager. A table has been prepared for this plan that summarizes the accomplishments for each of the past ten years [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.

Since the approval of the previous management plan in 2007, there have been many events, developments, and accomplishments. Among the most noteworthy have been the following:

- Renovation of the Dupont Forestry Station residence for MaSF personnel headquarters was completed in 2007-2008.
- The entrance parking and kiosk at Double Gate Road was established in 2009-2010.
- A Master Trail workshop was held in 2009-2010 and a conceptual Master Trail Plan developed from the input to guide the future development of hiking, biking, and equestrian trails.
- Entrance and exit signs were constructed.
- The Cedar Creek Campground with four (4) primitive camping sites was established in 2009-2010.
- The Matanzas Group Camp was established in 2014-2015.
- A plan for the 3.68-mile Flatwoods/Marsh Trail and associated parking/trailhead areas was approved in 2016-2017.
- FFS staff completed the parking area for the Flatwoods/Marsh Trail in 2017.
- State Forest Awareness events have been held on MaSF each year during the 10-year period for public information about benefits and opportunities on the forest.
- Over 35,000 visitors have come to MaSF in the past 10 years.
- Over 5,500 overnight visits have been logged at the primitive campground facilities on the forest.
- A total of over 535 acres have been treated for non-native invasive species on MaSF.
- The creation of MaSF Geodatamodel and shapefiles have been updated annually for state forest attributes.
- Over 2,300 acres were managed with prescribed fire on MaSF.
- Seven (7) wildfires were extinguished on MaSF burning 443 acres total.

- Initiated biannual brown headed nuthatch and Bachman's sparrow surveys in the spring of 2005.
- Continued FWC effort to conduct biannual surveys of painted bunting starting in 2015.
- Forest Inventory – 10% of forested land acreage between 2007-2016 that included new inventory and re-inventoried stands; Total acres – 7,416 acres inventoried.
- Over 1,855 acres of timber have been harvested on MaSF; this has been predominately first thinning of slash pine plantations. Total Revenue – $966,107
- FFS staff mowed 137 miles of interior roads.
- FFS staff graded 15 miles of roads.
- FFS staff repaired 8.6 miles of roads.
- FFS staff installed/replaced 15 culverts.
- FFS staff installed two (2) low water crossings.
- FFS staff have maintained 18 miles of state forest boundaries.
- Camping enhancements to Cedar Creek Primitive Campground and Matanzas Group Camp, including equipment and signage.
- In 2017, FNAI completed an inventory and natural community mapping project on entire state forest.
- In 2017, FNAI updated the natural community descriptions for MaSF.
- Since 2016, FFS staff has completed routine survives for Brown Headed Nut Hatches, Bachman Sparrows and Painted Buntings.

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, weather conditions, staffing availability, agency program priorities, and the potential for wildfire during the ten-year period will determine the degree to which these objectives can be met. Management activities on MaSF during this time 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 the forest. The majority 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 short-term goals, long-term goals, or ongoing goals. Short-term goals are goals that are achievable within a two-year planning period, and long-term goals 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 Management Plan including reforestation, harvesting, prescribed burning, restoration, and timber stand improvement activities and goals. (Ongoing Objective)

Performance Measures:

- Annual updates of the Five-Year Silviculture Management Plan completed.

- Continued implementation of the Five-Year Silviculture Management Plan (acres treated).

Objective 2: Continue to implement the FFS process for conducting stand descriptions and forest inventory including a GIS database containing forest stands, roads, and other attributes (including but not limited to: rare, threatened, and endangered species, archaeological resources, non-native invasive species locations, and historical areas). (Ongoing Objective)
Performance Measures:
- Complete GIS database and re-inventory all attributes as required by FFS procedures.
- Number of acres inventoried.

Objective 3: Conduct forest inventory updates each year according to established criteria in the State Forest Handbook. (Ongoing Objective)
Performance Measure: Number of acres inventoried annually.

➢ **<u>GOAL 2</u>: Public Access and Recreational Opportunities**
Objective 1: Maintain existing public access and recreational opportunities for the public users. (Ongoing Objective)
Performance Measure: Number of visitor opportunities per day.

Objective 2: Continue to assess more recreational opportunities on MaSF.
Performance Measures:
- Opportunities assessed. (Short Term Objective)
- Recreation increased. (Long Term Objective)

Objective 3: Continue to safely integrate human use into MaSF, 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 Recreation Plan completed.

Objective 4: Continue to involve and meet with the liaison panel. The panel consists of a mix of local residents, community leaders and special interest group representatives (Audubon, hunters, trail hikers, adjacent landowners, organized equestrian groups, etc.), environmental groups, and other public / private entities to establish communication and seek constructive feedback regarding the management of MaSF. (Ongoing Objective)
Performance Measures:
- Liaison group remains organized.
- Meetings continue.

Objective 5: Enlist 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.

Objective 6: Assess the need for equestrian trails and additional equestrian parking areas.
Performance Measures:

- Equestrian trails and parking evaluated. (Short Term Objective)
- Equestrian trails and parking installed. (Long Term Objective)

- **<u>GOAL 3</u>: Habitat Restoration and Improvement**

Objective 1: 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 it has been eliminated or heavily impacted from historical land use. (Long Term Objective)
Performance Measure: Number of acres restored.

- **<u>GOAL 4</u>: Fire Management**

Objective 1: The MaSF currently contains approximately 3,089 acres of fire dependent communities. MaSF staff will conduct natural community improvement on the forest annually. To achieve the desired average fire return interval across the forest, approximately 720 to 1,440 acres will be prescribed burned annually. Currently, FFS staff estimates 1,111 acres at MaSF are within the desired fire return interval. (Ongoing Objective)
Performance Measures:

- Number of acres burned during the dormant and growing seasons, and number of acres burned within target fire return interval.
- Number of acres with restoration underway. This restoration would include prescribed burning.

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 MaSF and the Wildland Urban Interface surrounding the forest, through a comprehensive mitigation strategy that includes evaluating vegetative fuels near residential areas and identifying potential fuel reduction projects. (Long Term Objective)
Performance Measures:

- Evaluation complete.
- Should the evaluation determine that fuel reduction is necessary, number of projects underway.

- **<u>GOAL 5</u>: Listed and Rare Species Habitat Maintenance, Enhancement, Restoration, or Population Restoration**

Objective 1: In cooperation with the Florida Fish and Wildlife Conservation Commission,

develop a Wildlife Management Strategy that addresses fish and wildlife species for MaSF, 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 MaSF.

Objective 2: In consultation with FWC, implement survey and monitoring protocols, where feasible, for listed and rare species. (Long Term Objective)
Performance Measure: Number of species for which monitoring is ongoing.

- **<u>GOAL 6</u>: Non-Native Invasive Species Maintenance and Control**

Objective 1: Continue to follow and annually update the Five-Year Ecological Plan for MaSF, specifically 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.

- **<u>GOAL 7</u>: Cultural and Historical Resources**

Objective 1: Ensure all known sites are recorded in the 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 monitor. (Ongoing Objective)
Performance Measure: Number of local staff trained.

- **<u>GOAL 8</u>: Hydrological Preservation and Restoration**

Objective 1: Review the hydrological site assessment done in 2008 to identify any hydrological restoration projects that still need to be completed. (Long Term Objective)
Performance Measure: Review of assessment conducted and needed restoration projects identified and completed.

Objective 2: Protect water resources during management activities through the implementation of Silviculture Best Management Practices (BMPs) that are applicable to MaSF and may include, but not limited to, forest roads, construction of pre-suppression firelines, etc. (Ongoing Objective)
Performance Measure: Percent compliance with state lands BMPs.

Objective 3: 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: Total number of roads, firelines, and trails closed, rehabilitated, and/or restored.

- **GOAL 9: Capital Facilities and Infrastructure**

Objective 1: MaSF staff, along with help from volunteers and/or user groups, will continue maintenance of a parking area and 26 miles of primary, secondary, and service roads. (Ongoing Objective)
Performance Measure: The number of existing facilities and miles of roads 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. The entire boundary will be reworked at minimum every five years including 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 each year.
- 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 Matanzas State Forest.

2. Legal Description and Acreage

The MaSF is comprised 4,699.73 acres, more or less.

MaSF is located approximately ten miles south of St. Augustine in the southeastern portion of St. Johns County, Florida. MaSF is situated north of Faver-Dykes State Park and south of Moses Creek Conservation Area. The forest is bounded to the west by U.S. Highway 1 and to the east by the Intracoastal Waterway (Matanzas River).

The boundaries and the major parcels are identified in [Exhibit B]. The state forest is located in sections 4, 5, 8, 9, 10, 15, 16, 17, 20 & 21; Grants 37, 38, 39 & 47 of Township 9 South, Range 30 East.

Table 1. MaSF Acreage by Funding Source

	FUNDING SOURCE	ACRES
FF	Florida Forever	4,699.73

A complete legal description of lands owned by the Board of Trustees of the Internal Improvement Trust Fund (TIITF) and the St. Johns River Water Management District (SJRWMD) is on record at the MaSF Forestry Station Office, Florida Department of Environmental Protection (DEP), 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 MaSF are included in [Exhibit F] as well as the table below:

Table 2. Nearby Public Conservation Land and Easements

TRACT	AGENCY	DISTANCE
Moses Creek Conservation Area	SJRWMD	Adjacent to the north
Faver-Dykes State Park	DRP	Adjacent to the south
Fort Matanzas National Monument	NPS	½ mile southeast
Pellicer Creek Corridor Conservation Area	SJRWMD	4 miles south
Princess Place Preserve	Flagler County	4 miles south
Washington Oaks Garden State Park	DRP	6 miles southeast
Anastasia State Park	DRP	8 miles north
Castillo de San Marcos National Monument	NPS	10 miles north
Fort Mose Historic State Park	DRP	12 miles north
Deep Creek Conservation Area	SJRWMD	14 miles west
Twelve Mile Swamp Conservation Area	SJRWMD	14 miles north
Watson Island State Forest	FFS	15 miles northwest
GTMNERR- Guana River Site	DRP	15 miles north
Turnball Creek Mitigation Area	St. Johns County	17 miles northwest
Guana Tolomato Matanzas National Estuarine Research Reserve	DRP	20 miles north
Stokes Landing Conservation Area	SJRWMD	20 miles north
Deep Creek State Forest	FFS	22 miles north
Guana River Wildlife Management Area	FWC	22 miles north

DRP – Florida Department of Environmental Protection, Division of Recreation and Parks
FWC – Florida Fish and Wildlife Conservation Commission FFS – Florida Forest Service
SJRWMD – St. Johns River Water Management District NPS – U.S. National Park Service

4. Property Acquisition and Land Use Considerations

MaSF, is currently comprised of 4,699 acres, the initial acquisition was completed in 2003. Since then, additional parcels have been acquired. The Gonzalez/Corral and Soddano parcels were acquired with Florida Forever funds. MaSF is owned by the State of Florida and managed by the FFS in cooperation with the FWC and SJRWMD. The FFS manages public land for multiple uses, including timber management, outdoor recreation, and wildlife management and conservation. These parcels are assigned to the FFS for management under Lease Agreement #4441 and 4469.

Table 3. Parcel Acquisition

Parcel Name	Deed Date	Lease Date	Acres (County)
Rayonier Timberlands	04/07/2003	06/08/2004	4,668.33 (St. Johns)
Soddano	05/24/2004	03/11/2005	11.37 (St. Johns)
Gonzalez/Corral	12/19/2003	03/11/2005	20.03 (St. Johns)

B. Management Authority, Purpose and Constraints

1. Purpose for Acquisition / Management Prospectus

MaSF was acquired as part of the Northeast Florida Blueways Project. The forest was identified for acquisition by the SJRWMD to protect a regionally significant wood stork rookery, water resource, and ecological functions; and is recognized as a shared acquisition project with the Florida Forever acquisition program.

The management of MaSF is conducted by The Florida Department of Agriculture and Consumer Services, FFS, with assistance, as warranted, from other agencies. FFS is the manager of forest resources, recreation, water resource protection, watershed protection, and land use planning on MaSF.

Multiple-use management for MaSF will be accomplished through the integration of 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 water resources and the health of associated wetland and aquatic communities;
- Provide research and educational opportunities related to natural resource management.

2. Degree of Title Interest Held by the Board

The Board of Trustees of the TIITF holds fee simple title. The SJRWMD holds a portion of the fee simple title on part of MaSF.

3. Designated Single or Multiple-Use Management

MaSF is managed under a multiple-use concept by the FFS, under the authority of Chapters 253 and 589, Florida Statutes. The FFS is the lead managing agency as stated in TIITF Management Lease Numbers 4441 and 4469.

Multiple use is the harmonious and coordinated management of timber, recreation, conservation of fish and wildlife, forage, archaeological and historic sites, habitat and other biological resources, or water resources so that 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 forest health, native ecosystems and the functions and values associated with them.

4. Revenue Producing Activities

Numerous activities on MaSF 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 MaSF include, but are not limited to:

- Timber Harvests – Timber harvests on MaSF will be conducted to improve forest health, promote wildlife habitat, restore plant communities, and reduce fuel loads in the forest. All timber harvesting activities will be based on the timber management protocol outlined in the State Forest Handbook.
- Recreation Fees – Fees are currently collected for primitive camping.
- Miscellaneous Fees – Other fees that may be collected on MaSF are firewood collection, palm frond harvesting, and stick wood harvesting.

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 589, 259 and 253, Florida Statutes.

6. Legislative or Executive Constraints

There are no Florida Statutes specifically directed toward management of MaSF.

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

A Memorandum of Agreement (MOA) between the Florida Department of Environmental Protection (DEP), Office of Coastal and Aquatic Managed Areas (CAMA) and the Florida Department of Agriculture and Consumer Services, FFS for the cooperative management of the Guana Tolomato Matanzas National Estuarine Research Reserve (GTMNERR) was executed on September 27, 2004 (FDACS Contract Number 009260). The area, under the agreement, is comprised of the National Estuarine Research Reserve (NERR), and the Guana, Tolomato, and Matanzas (GTM) River systems. The purpose of the MOA was to help protect this estuarine ecosystem through promotion of research and education, while allowing public access in compliance with the environmental needs of the area (Department of Environmental Protection, 2004). This is a coordinated attempt between local, state, and federal governments to address the problem of current and potential degradation of coastal areas brought about by competition and competing demands for these resources. These parcels are assigned to the FFS for management under Lease Agreement #4441 and #4469.

C. Capital Facilities and Infrastructure

1. Property Boundaries Establishment and Preservation

MaSF has over 24 miles of boundaries which were marked and posted as part of the initial acquisition survey. 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

There are no buildings present on MaSF. Other improvements include: three (3) kiosks, two (2) portlets with enclosures, and Double Gate Road entrance parking area with fence enclosure.

See [Exhibit E] for a map of the improvements at MaSF.

3. On-Site Housing

There are no residences located on MaSF.

FFS may establish on-site housing (mobile / manufactured home) on MaSF 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 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 2015-2016, the total annual budget for MaSF was $118,246.00. This amount includes salaries, expenses, contractual services, and OPS. A summary budget for MaSF is contained in [Exhibit W]. Implementation of any of the activities within this management plan is contingent on availability of available funding, other resources, and other statewide priorities.

b. Equipment

Equipment assigned to the MaSF includes: a pick-up truck, a service truck, a farm tractor, mowing deck, bat wing mower, box blade, root rake with grapple, auger, rototiller, aerator chopper, and an ATV (4-wheeler). Two (2) type-2 dozers with transports and a type-6 engine are stationed at DuPont Forestry Station, but are not directly assigned to MaSF. They are available for resource management activities when not engaged in wildfire suppression or private landowner assistance.

c. Staffing

A Forester is the only staff assigned to MaSF, with an office at the DuPont Forestry Station. Also stationed at the DuPont Forestry Station is a Senior Forest Ranger and three (3) Forest Rangers. Additionally, a Forest Area Supervisor, a Senior Forest Ranger, and three (3) Forest Rangers are located at the Bakersville Forestry Station and assist with management activities on MaSF when needed.

The Forester will work to achieve the goals outlined in this management plan. Resource management activities, such as timber cruising, planning, and sale administration, etc., are the responsibility of the Forester under the direction of the Forestry Supervisor II and the Forest Resource Administrator. Forest operations such as road maintenance, prescribed burning, etc., are the responsibility of the FFS Bunnell District operations personnel under the direction of the Forest Area Supervisor.

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.

2. Additional Land Needs

Various parcels should be considered for acquisition. Highest emphasis for acquisition should be given to privately owned property (inholdings) within the boundaries of MaSF, also properties that would facilitate restoration, protection, maintenance, and

management of the natural resources on MaSF are included in the Optimal Management Boundary map. [Exhibit C]

3. Surplus Land Assessment

It is the assessment of FFS staff that, at this time, all of the property within MaSF is suitable and necessary for the management of MaSF and none should be declared surplus.

4. Adjacent Conflicting Uses

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

Residential development of adjacent property and adjoining state roads may hinder 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 St. Johns County for review and compliance with their local comprehensive plans [Exhibit U].

6. Utility Corridors and Easements

The following are reservations or easements on MaSF:

a) Florida Power and Light Company (FP&L) has a large electric transmission power line that runs north to south through the center of the tract and bisects the forest into two sections.
b) TowerCom East Coast, LLC has an easement for a cellular tower that was constructed in 2004 adjacent to FP&L power line in the northern portion of the property.
c) Ingress-egress access easements pertaining to a forty-acre parcel (Lane), and an eighty-acre parcel (Pringle).
d) Florida Inland Navigational Department has a recorded easement on Smith Grade Road to access their spoil site (SP-1) along the Matanzas River.
e) State Wide Paving Inc. has a 60-foot ingress-egress easement on Dupont Grade Road.
f) The Department of Transportation has a 30-foot-wide drainage easement in the Cedar Creek area.

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. FFS does not consider MaSF 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), to minimize habitat fragmentation, to limit disruption of management activities, including prescribed burns, and to 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 St. Johns River Water Management District (SJRWMD). Requests for linear facility uses will be handled according to the Governor and the Cabinet's linear facilities policy.

E. Agency & 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 Leases numbered 4441 and 4469. Pursuant to the management lease, the lead managing agency may enter into further agreements or to subleases on any part of the forest.

FWC has law enforcement responsibilities, enforces hunting regulations, cooperatively sets hunting season dates with FFS, and conducts other wildlife management activities with input from FFS. FWC has established a Wildlife Management Area on the St. Johns Tract of MaSF.

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

The SJRWMD will be consulted and involved in matters relating to water resources as appropriate, as recommended in the 2015 Land Management Review (LMR).

2. Law Enforcement

Primary law enforcement responsibilities will be handled by law enforcement officers from FWC. Rules governing the use of MaSF are stated in Chapter 5I-4 of the Florida Administrative Code. FWC will enforce fish and wildlife regulations and provide assistance in enforcing state forest rules. The FWC has an officer dedicated to patrol of and enforcement on the MaSF.

The Office of Agricultural Law Enforcement (OALE) will assist with open burning and wildfire investigations as needed. The St. Johns County and Flagler County Sheriff's Offices provide additional assistance as needed. In light of the current statewide budget limitations, FFS feels that law enforcement is adequate on MaSF.

Special rules under Chapter 5I-4 of the Florida Administrative Code were promulgated for Department of Agriculture and Consumer Services, FFS, to manage the use of state lands and better control traffic, camping, and other uses in MaSF.

3. Public and Local Government Involvement

This plan has been prepared by FFS and will be carried out primarily by that agency. FFS responds to public involvement through liaison panels, 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 two (2) reviews of management plan implementation in 2010 and 2015 [Exhibit T]. The review teams' recommendations were addressed in this plan, as appropriate.

The plan was developed with input from the MaSF Management Plan Advisory Group and was reviewed at a public hearing on April 11, 2018. A summary of the advisory group's meetings and discussions, as well as written comments received on the plan, are included in [Exhibit V]. The Acquisition and Restoration Council (ARC) public hearing and meeting serve as an additional forum for public input and review of the plan.

4. Volunteers

Volunteers are important assets to MaSF. Depending upon the type of volunteer service needed, volunteer activities may be one-time events or long-term recurring projects and routine maintenance. Additional volunteer recruitment will be encouraged to assist with other activities to further the FFS's mission.

5. 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 Friends of Florida State Forests program is referenced in Chapter 589.012 of the Florida Statutes. For more information visit: www.floridastateforests.org

III. Archaeological/Cultural Resources and Protection

A. Past Uses

Prior to state ownership, MaSF was intensively managed for pine timber production by Rayonier Timberlands. Rayonier leased this property for hunting and cattle grazing many years before the state purchase of this property. MaSF is rich in archaeological significance. There is evidence of numerous Native American settlements, as well as remains of more recent activity, such as naval stores operations and turpentine camps. The FFS began managing this parcel in 2003 when MaSF was created from the Matanzas Marsh Northeast Florida Blueway Florida Forever project. The forest protects the last remaining undisturbed salt marsh within the Guana-Tolomato-Matanzas National Estuarine Research Reserve.

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 are five (5) previously recorded archeological sites and one (1) Standing Structure on MaSF.

Table 4. Archeological Sites on MaSF

SITE ID	SITE NAME	SITE TYPE
SJ03152	DOG STATION	Campsite (Prehistoric)
SJ03154	CEDAR LANDING	Prehistoric shell midden
SJ03155	CEDAR CREEK	Building remains
SJ03156	HAMILTON	Prehistoric shell midden
SJ03484	LUCKY STRIKE	Specialized site for procurement of raw materials
SJ04272	8400 US 1 SOUTH	Standing Structure

See [Exhibit H] for a complete list of all historical sites on MaSF.

C. Ground Disturbing Activities

Representatives of DHR and Florida Natural Areas Inventory will be consulted prior to the initiation of any proposed significant ground disturbing activity by FFS or any other public agency. 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” [Exhibit I] and will comply with all appropriate provisions of Section 267.061(2) Florida Statutes. 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, one (1) local and three (3) district FFS staff are trained by DHR as archaeological resource monitors. FFS will pursue opportunities for getting additional personnel trained. FFS will consult with public lands archaeologists at DHR as necessary to determine an appropriate priority and frequency of monitoring at each of the listed sites, as well as any protection measures that might be required. All archaeological and historical

sites within the state forest will be monitored at least annually. FFS field staff will monitor the listed sites to note condition and any existing or potential threats.

As information becomes available, and as staffing allows, any known archaeological and historical sites will be identified on maps to aid state forest and law enforcement personnel in patrolling and protecting sites. Applicable surveys will be conducted by FFS staff or others during the process of planning and implementing multiple-use management activities. FFS personnel will remain alert for any environmentally significant resources 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

MaSF was created from the Matanzas Marsh Northeast Florida Blueway Florida Forever Project. The forest protects one of the last remaining undeveloped salt marsh sites within the Guana-Tolomato-Matanzas National Estuarine Research Reserve. Management activities will be executed in a manner to minimize soil erosion. 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 MaSF water bodies and their associated water quality, discharge, and native plants and animals. All forest management activities relating to timber harvesting practices will comply with the BMP's for public lands. Copies of this publication are available upon request from FFS.

MaSF falls within the jurisdiction of the SJRWMD. FFS will coordinate with SJRWMD and/or DEP, 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 MaSF was obtained from the United States Department of Agriculture Natural Resources Conservation Service (NRCS). MaSF consists of 34 different soil types. The predominant soils listed by the NRCS include: Myakka fine sands, Immokalee fine sand, St. Johns fine sand, Cassia fine sand, and Pomona fine sand. Detailed information on all soils present on the state forest may be found in [Exhibit J].

2. Soil Protection

Currently, there are no known soil erosion problems at MaSF. 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 Best Management Practices Manual.

B. Water Resources

The water resources on MaSF 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 L] for map of the water resources at MaSF.

1. Resources

Cedar Creek is the only flowing waterway through the forest. This creek flows from west to east into the tidal flow of the Matanzas River (Intracoastal Waterway.) A Florida DOT drainage ditch constructed in the 1940's traverses part of the forest which accommodates storm water from US Highway 1 west of the forest and contributes surface water to this creek. Two (2) borrow pits are also located on MaSF. In that regard, all silvicultural activities conducted near water resource features will be in compliance with Florida's Silviculture Best Management Practices Manual (BMPs).

2. Water Classification

The Florida Department of Environmental Protection, Standards Development Section reports there are no Outstanding Florida Waters in or immediately adjacent to the state forest. Most surface waters on the site are classified as Class III waters, which is the statewide default classification. The easternmost portion of the site either lies immediately adjacent to or includes some waters classified as Class II waters. [See Exhibit K]

3. Water Protection

The water resources on MaSF perform essential roles in the protection of water quality, groundwater recharge, flood control, and aquatic habitat preservation. Maintenance and restoration of native ecosystems is a high management priority. Properly managing the soil, water, and watershed resources of this forest are an integral part of accomplishing this objective. 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. All silvicultural activities, including timber harvesting and reforestation, will be conducted in accordance with Florida's Silviculture BMPs Manual and/or other appropriate measures as deemed necessary by the FFS's Forest Management Bureau. FFS may pursue funding opportunities to conduct a comprehensive hydrologic assessment as appropriate, recommended in the 2015 Land Management Review (LMR).

The MaSF falls within the jurisdiction of SJRWMD, and water resource protection will be coordinated with this district. The FFS, through its Forest Management Bureau, will work with the SJRWMD to monitor levels and quality of ground and surface water resources, as appropriate. Any activities requiring WMD permits will be handled accordingly.

See [Exhibit L] for a map of the water resources at MaSF.

Water resource protection measures, at a minimum, will be accomplished using the most current version of the Silviculture Best Management Practices (BMPs) manual.

4. Swamps, Marshes, and Other Wetlands

The eastern boundary of MaSF is a salt marsh community associated with the Matanzas River (Intracoastal Waterway.) This area has not been disturbed and is maintained in its natural state. The forest also contains other smaller isolated wetlands and strands of wetlands including basin swamps, dome swamps, and depression marshes, while the higher elevations within the swamp are occupied by pine islands. The transition area (ecotone) from the upland forest to the forested wetlands may host a variety of rare, threatened, or endangered species depending on the occurrence of fire and the presence of planted pines. Whenever possible, these areas should be allowed to burn with the surrounding uplands areas, the construction of fire lines within these areas should be minimized, and planted pine stocking reduced from these areas during timber harvesting operations. Maintaining the integrity of the wetlands natural community is a high priority.

Cautious avoidance of activities that would threaten natural hydrology is vital. If it is necessary to conduct forestry activities, such as salvage timber sales in the wetland areas, tracked or low ground pressure equipment will be used. All reforestation activities conducted in wetland areas will follow the guidelines set in Florida's BMP Manual. Natural regeneration will be the preferred reforestation method.

The Florida Audubon Society has designated an Important Bird and Biodiversity Area (IBA) along the marsh on the eastern boundary of MaSF. The Audubon's IBA program was created in response to a continued loss of habitat, and the subsequent reduction in Florida's birdlife. The IBA program will assist other agencies in identifying areas that are the most important to maintaining bird populations. The main goal is to protect the habitats of rare species, as well as to "keep common birds common." In addition, the IBA program will provide essential information for state land management agencies to properly manage habitats for birds, including the use of prescribed fire and limiting human intrusion during the nesting season. The program will also result in the compilation of bird lists for most or all sites selected.

5. Wetlands Restoration

Wetland restoration objectives on the state forest include erosion control; restoration of hydrology and/or hydroperiod, 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 wetland 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.

The 2008 hydrological site assessment of MaSF completed by Tom Gilpin identified 23 wetland restoration actions to be taken. Since the assessment, twelve (12) culverts have been replaced, three (3) new culverts have been installed, and three (3) culverts have been cleaned. In addition, four (4) low water crossings were constructed. FFS will continue to review any remaining projects from the assessment and complete them as appropriate.

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

Wetlands restoration will be coordinated with the SJRWMD. Any activities requiring permits from the water management district will be handled accordingly.

6. <u>Florida Department of Environmental Protection Basin Management Action Plans (BMAP)</u>

Currently, the MaSF doesn't reside in an active BMAP.

Basin Management Action Plans are 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 was developed as part of DEP's TMDL Program, and represents the collaborative efforts of stakeholders to identify current and planned management actions to achieve pollutant load reductions required by the TMDL.

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.

C. Wildlife Resources

1. Threatened and Endangered Species

The intent of FFS is to manage MaSF 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 will be used, as necessary, to protect or increase rare, threatened, and endangered species and species of special concern, as applicable for both plants and animals.

Table 5. Endangered or Threatened Species Documented on MaSF

Scientific Name	Common Name	FNAI Global Rank	FNAI State Rank	Federal Status	State Status
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Egretta caerulea	Little Blue Heron	G5	S4	N	ST
Mycteria americana	Wood Stork	G4	S2	LT	FT
Pandion haliaetus	Osprey	G5	S3S4	N	SSC*
Lilium catesbaei	Catesby's Lily	G4	S4	N	LT

*** STATUS/RANK KEY**

Federal Status (USFWS): LE= Listed Endangered, LT= Listed Threatened, N= Not currently listed, 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.

State Status (FWC): Animals: FE = Listed as Endangered Species at the Federal level by the USFWS, FT = Listed as Threatened Species at the Federal level by the USFWS, 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 FWC, SSC = Listed as Species of Special Concern by the FWC, N = Not currently listed, nor currently being considered for listing.

Plants: 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 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.

FNAI Global Rank: G1= Critically Imperiled, G2 = Imperiled, G3= Very Rare, G4= Apparently Secure, G5= Demonstrably Secure, GNR = Element not yet ranked (temporary), G#? = Tentative rank, T#= Taxonomic Subgroup; numbers have same definition as G#'s.

FNAI State Rank: S1= Critically Imperiled, S2= Imperiled, S3= Very Rare, S4= Apparently Secure, S5 = Demonstrably secure in Florida, S#?= Tentative Rank.

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. FNAI has reported the following:

a. Element Occurrences

The Florida Natural Inventories reports several documented Element Occurrences of rare or endangered species within the vicinity of the property. [Exhibit M] Documented species are listed in Table 5.

Documented habitat includes: Basin Marsh, Basin Swamp, Depression Marsh, Dome Swamp, Mesic Flatwoods, Mesic Hammock, Pine Plantation, Salt Marsh, Scrub, Scrubby Flatwoods, Unconsolidated Substrate, Wet Flatwoods, Xeric Hammock, and Other Altered Landcover Types

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 MaSF. See [Exhibit M] for more information.

c. Land Acquisition Projects
This site appears to be located within the Northeast Florida Blueway – Phase II and adjacent to the Matanzas to Ocala Conservation Corridor Florida Forever Projects. These are part of the State of Florida's Conservation and Recreation Lands Acquisition Program.

Other Florida Forever Projects within St. Johns County include: St. Johns River Blueway, however, the additional Florida Forever project in St. Johns County is not within the same Section, Township, and Range as MaSF. [Exhibit G]

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 any expansions or alterations are made to any facilities.

3. <u>Florida Fish and Wildlife Conservation Commission</u>

The Florida Fish and Wildlife Conservation Commission, 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. [Exhibit N]

Other findings by the FWC include:

a. The property is located adjacent to and within multiple Strategic Habitat Conservation Areas
b. MaSF is located within an area of Species Richness.
c. Multiple Priority Wetlands are located on and in close proximity to MaSF.
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. [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 your reference, the FWC Gopher Tortoise Species Management Plan can be accessed at this web address: http://myfwc.com/wildlifehabitats/managed/gopher-tortoise/management-plan/

The FWC recommends the review of management guidelines in FWC's published Species Action Plans for the management of imperiled, rare, and focal bird species. The FWC Species Action Plans provide beneficial resource guidelines for habitat management and monitoring of the respective species. For your reference, the FWC Species Action Plans can be accessed at this web address: http://myfwc.com/wildlifehabitats/imperiled/species-action-plans/

4. Game Species and Other Wildlife

Wildlife management will play an important role in the management of resources on MaSF. 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.

MaSF provides habitat for a number of different species of wildlife. More common species include: wild turkey (*Meleagris gallaparvo*), red shouldered hawk (*Buteo lineatus*), bobcat (*Lynx rufus*), rabbit (*Sylvilagus* sp.), coyote (*Canis latrans*), white-tailed deer (*Odocoileus virginianus).*

Wildlife openings and food plots will be established and maintained in accordance with the FFS State Forest Handbook. Currently no planted food plots are established on MaSF. However, several logging decks and openings created during the 2009 wildfire serve as permanent openings maintained by prescribed burning. 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 things as snag management and retention.

5. Survey and Monitoring

FFS may implement species-specific management plans developed by FWC and other agencies. FFS will cooperate with FWC and other agencies in the development of new management plans and monitoring protocols, as necessary. Such plans will be consistent with rule and statute promulgated for the management of such species. Continued biological surveys will be conducted to determine locations and relative abundance of these species.

Species-specific monitoring plans that have been implemented to date include painted bunting, Bachman's sparrow, and brown-headed nuthatch. While no other species-specific monitoring plans have been implemented, information gathered may be used to prioritize stands for habitat improvement projects.

a. Painted Bunting, Bachman's Sparrow, Brown-Headed Nuthatch

Monitoring protocols are utilized for bi-annual surveys of painted bunting, Bachman's sparrow, and brown-headed nuthatch. The painted bunting survey was initiated by

FWC in 2013 and monitored by FFS subsequently (2015, 2017). Bachman's sparrow and brown-headed nuthatch surveys are conducted during alternate years (2014, 2016 to date). Survey data is shared with FWC.

b. Listed Plant Species

All known locations of listed or rare flora are GIS mapped and location data are shared with FNAI. Catesby lily has been documented on MaSF; a survey conducted in November 2016 identified three (3) plants.

c. Other Rare Biota Surveys

Surveys are conducted as time and staffing allow. High quality plant communities continue to have ad hoc surveys for both invasive weeds and listed plants.

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

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 or dunes occur on the MaSF.

F. Mineral Resources

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

G. Unique Natural Features and Outstanding Native Landscapes

The undisturbed salt marsh lands are regionally significant, and an important contributor to the abundant birdlife found on MaSF. A portion along the Matanzas River has been designated as an IBA.

MaSF has a continuous gradient of plant communities from scrubby flatwoods to salt marshes. The estuarine tidal marshes and mesic hammocks along the Matanzas River are particularly notable for their ecological, archaeological, and aesthetic values. MaSF plays a significant role for these ecosystems in protecting the regional estuarine environment.

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 considered on MaSF 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 MaSF 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:

- Exotic Ticks – Suzanne Edwards de Vargas, Research Technician, Florida Field Station, Southeastern Cooperative Wildlife Disease Study, College of Veterinary Medicine, University of Georgia, July 2011.
- Deer Breeding Chronology Collection Survey, FWC, April 2013.
- Magnetotelluric (MT) Geophysical Survey, USGS, November 2014.
- Genetic structure of the statewide Florida mouse population, FWC, December 2014.
- Population diversity of the fungus-growing ant *Trachymyrmex septentrionalis,* University of Connecticut, Department of Molecular and Cell Biology, May 2016.
- Strontium isotope dating of prehistoric canoes, University of Oxford, School of Archaeology, March 2017.
- Spatial and temporal distributions of biting midges (*Culicoides spp.*), Department of Entomology and Nematology, IFAS Florida Medical Entomology Laboratory, June 2017.

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 ground disturbing activities do not adversely impact such resources. This includes areas such as known sensitive species locations; archaeological, fossil, and historical sites; ecotones, and wetlands.

When new pre-suppression firelines, recreational trails, or other low-impact recreational site enhancements are necessary, state forest field staff will review their placement 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. Recreation activities available on MaSF include birding, bicycling, camping, nature study, hiking, horseback riding, hunting, and fishing.

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

A wide variety of recreational opportunities are available at MaSF. Hiking, horseback riding, biking, birding, and nature study can be enjoyed using existing service roads. See [Exhibit E] for a map of the Facilities and Improvements.

1. Access to MaSF is available to recreational users through an entrance off US Highway 1 with a parking area and kiosk. Dispersed recreation is encouraged from the parking area, which serves as the trail head for hiking, horseback riding, and bicycling. Vehicle access to the forest is by day use permit. Ten (10) roads are open to the public for vehicle access. All others are open to hiking, biking, and horseback riding unless otherwise posted.
2. Currently, MaSF's interior road system and firebreaks provide trails for hikers, off-road bicyclists, and horseback riders.
3. A primitive camp area, Cedar Creek Campground, with four (4) sites is located on the north side of Cedar Creek Landing as a drive-up camping area. Camp sites are equipped with picnic tables, fire rings, and grills; and a port-o-let is available within the camp area. Payment for camping at campsite #1 is required via "Iron Ranger" and guests must call, register, and receive a gate combination by phone prior to occupying a site. Reservations for camping at the other campsites can be made through the Campground Reservation System.
4. A group camping area is located on the northeast portion of the forest in a cleared area with scattered live oaks and other hardwoods. This area currently is equipped with three (3) wooden benches, one (1) fire ring, three (3) picnic tables, and a port-o-let. Reservations for camping at this location can be made by contacting the MaSF forester.
5. A small parking area on Evans Road was completed in 2017 to serve as a trailhead for the Flatwoods/Marsh trail that is currently under development.

B. Planned

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 relative activities will be evaluated. Any specific plans will be incorporated into the Five-Year Outdoor Recreational Plan on file at MaSF.

1. **Public Access and Parking**
   A walk/ride-in entrance is being considered on SR 206 between Moses Creek Conservation Area and MaSF. This will be used for equestrian and other non-motorized activities. An alternate parking location at the north end of Forest Trail 22 adjacent to Cypress Point Road under the power lines may also be considered to allow horse, bike, or walk-in access only. An interior parking area to accommodate larger truck/trailer units and day-users at a central location in the forest has been proposed for a location along Longleaf Road near the intersection with Pop Burney Road.

2. **Recreational Trails**
   A conceptual master plan to include equestrian, hiking, and bike trails was developed with stakeholder input from a FFS Recreational Trails Workshop held in June 2010 and included linkages with adjacent public lands. The St. Johns County Master Trail Plan to connect State Road 206 to the multi-county River to Sea Trail may provide another opportunity for external linkage via the Gonzales parcel where a future trailhead might be located.

   In the future, several roads may be closed to vehicles to allow for multi-use trails while additional trails may be made at a later date. A 3.68-mile hiking trail was approved in 2017 and is currently being developed to traverse the mesic hammock community and upland pine flatwoods. Equestrian, hiking, and bike trails will eventually link MaSF to Moses Creek Conservation Area to the north and Faver-Dykes State Park to the south. A multi-use connector trail has been proposed to link the Double Gate entrance parking area to Smith Grade Road. A self-guided auto-trail would increase the user's awareness of activities on the forest using a current "loop" of roads through the forest.

3. **Equestrian Trails**
   FFS may work with local equestrian organizations to evaluate the need for additional equestrian parking and trail opportunities.

4. **Camping**
   A vaulted toilet system could be utilized to replace a port-a-let located at the Cedar Creek Campground if funds become available. Additional campsites may be considered.

5. **Environmental Education**
   Staff will provide the public with educational and interpretive opportunities. The current goal is to offer at least two (2) interpretive programs per year in addition to current fire prevention efforts. Additional opportunities to increase public awareness will include the use of kiosks, brochures, interpretive wayside exhibits, and field trips on the forest when appropriate. Partnerships with local groups will be encouraged to promote forest awareness.

6. **Bird Watching**
   A birding checklist for MaSF may be developed in the future.

7. Equestrian, Hunter, and Hiker Education

There is a need for education of some user groups concerning refuse and debris. FFS will evaluate the best methods for communicating concerns and solutions to these user groups.

The FFS will handle permitting requests for recreational activities.

8. Fishing

FFS may assess existing ponds for fishing.

C. Hunter Access

The Florida Fish and Wildlife Conservation Commission manages hunting in the MaSF. Hunting season dates, limits, and methods are established annually by FWC, in cooperation with FFS.

Non-hunting recreation users are encouraged to check the Wildlife Management Area regulations and season dates before visiting MaSF.

D. Education

FFS may create partnerships with local K-12 schools and/or universities for the development and implementation of educational opportunities on MaSF. MaSF has two (2) liaison meetings each year to educate the panel members of accomplishments and planned activities. Two (2) awareness programs are held each year and promoted through the St. Johns County Parks newsletter.

VI. Forest Management Practices

A. Prescribed Fire

Prescribed fire is one of the most important forest management tools used on MaSF. It is used to help restore the forest ecosystem that was heavily impacted by past land uses. Once the forest ecosystems have been restored, prescribed fire is used to maintain forest ecosystems in a more natural state. This is accomplished by reducing hazardous fuel loads, reducing the number of woody plants, stimulating the growth of native herbaceous plants, and promoting the regeneration of native pines.

FFS utilizes a fire management program on state forests that includes prescribed burning, wildfire prevention, detection, and suppression. This program will be developed and implemented by the FFS's Bunnell District and is detailed in the Five-Year Prescribed Burning Management Plan. The emphasis of the fire management plan on MaSF will be the reduction of fuel loading on the state forest, and the shift from dormant season burning to growing season burning, wildfire prevention, and education to help reduce wildfire occurrence on the forest. A Fire History spreadsheet detailing the recent history of prescribed fire and wildfires on the MaSF is available in [Exhibit O].

The purposes of prescribed burning on MaSF are to enhance wildlife habitat, decrease hazardous fuel loads, enhance public safety, and restore and maintain native ecosystems.

FFS personnel are responsible for planning and implementing the prescribed fire program on MaSF. This program will consist of both short term and long-term goals. The short-term goals are to reduce the hazardous fuel loads and establish a burn rotation in the fire dependent communities on MaSF. The long-term goal is to transition from dormant season burning to growing season burning and to maintain the appropriate fire return intervals. This prescribed fire program is outlined in the Five-Year MaSF Management Plan. All burns conducted on MaSF will be executed by Florida Certified Prescribed Burn Managers in accordance with F.S.-590.125 and F.A.C. 5I-2.

According to FNAI, historic fire dependent natural communities on MaSF occupy approximately 3,097 acres. These communities have a fire return interval of 1 to 19 years, depending on the community. Due to past silvicultural activities, the fire dependent nature of many communities has been altered. Currently, it is estimated that 3,089 acres of fire dependent communities are present on MaSF. Based on the current fire dependent community acres and the burn interval for each community, MaSF will develop a prescribed burning program that will encompass between 720 to 1,440 acres per year. The main goal of this program will be to establish and maintain a natural fire return interval within the fire dependent communities on MaSF. Meeting this goal is largely dependent on weather conditions, the fuel loading of communities, current silvicultural activities, and the availability of certified personnel. U.S. Route 1 and State Road A1A make prescribed fire more difficult on MaSF, along with making growing season burning more difficult, due to the sea breeze blowing smoke on U.S. Route 1. As additional acres are burned within the proper fire return interval, the ability to meet this goal will become easier. Currently, it is estimated that 1,111 acres of MaSF are within the desired fire return interval.

1. **Fire Management**
   FFS will develop a fire management plan that will serve as a working tool and an informational document for MaSF. The plan will provide guidelines regarding 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 MaSF 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 one of the most important land management tools, both ecologically and economically, for managing vegetation and natural communities within MaSF. Forest operation records and staff experience should be combined with the FNAI inventory and assessment (2017) to identify areas that may require mechanical 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, as 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. 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 Bunnell 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:

1) Protection of human lives
2) Protection of property
3) Protection of natural resources

All procedures regarding wildfire will follow the FFS Fire Manual and the MaSF Fire Management Plan.

1. Suppression Strategies

If a wildfire occurs on MaSF there are two (2) alternative suppression strategies as defined below:

a. Contain 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 fires 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. Control 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 on MaSF. Prescribed burns must pass the smoke screening procedure and be conducted by a certified burner. If smoke threatens to cause a safety hazard, then immediate suppression action will be taken.

3. Fire Breaks and Firelines

A system of permanent fire breaks will be established around and within the boundaries of MaSF to guard against fires escaping from or entering the forest. Such fire breaks will consist of natural barriers, roads, trails, permanent grass strips, and maintained harrowed lines. All pre-suppression fire breaks will meet the established Silvicultural BMPs 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 bulldozed 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. Plow and bulldozed lines will be rehabilitated and BMPs implemented as soon as practical after the fire is suppressed.

4. Sensitive Areas

MaSF has 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 MaSF. 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 prevention statewide. Specifically, in the area adjacent to or nearby MaSF, FFS staff have made efforts to create defensible spaces between MaSF and adjacent homes. Along with creating

defensible spaces around MaSF efforts will be made to identify communities around MaSF at risk and to provide information on Firewise Communities.

6. Adjacent Neighbor Contacts

The staff at MaSF 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 wildfire and prescribed burn on the state forests to assess impacts on timber resources and habitat. These evaluations will be used to help improve the burning program by providing feedback to the burn managers. They will also allow FFS staff to monitor the long-term effects of different fire intensities on MaSF. A historical fire record for all fires and prescribed burns will be maintained. This will be accomplished using the burn plans in the Forester's files and through the maintenance of GIS data. These records are intended to provide data for future management decisions.

C. Sustainable Forestry & Silviculture

Timber is a valuable economic and ecological resource for the State of Florida. Timber is harvested from MaSF for a variety of reasons. Some of these reasons include generating revenue to help offset the cost of forest management, to improve forest health, reduce hazardous fuel loads, improve wildlife habitat, and ecological restoration. Timber harvesting is a critical tool used on MaSF to meet the silvicultural and ecological objectives outlined in this management plan.

1. Strategies

The following strategies will apply to silvicultural practices on MaSF:

- **a.** A long-term silvicultural plan that's based on the forest management strategies outlined in the State Forest Handbook will be developed. This plan will balance the need for ecological restoration, public use, and timber production on MaSF. The main goal of this plan will be to maintain forest health through prescribed burning, selective timber harvesting, and reforestation.
- **b.** To create a more natural forest, by promoting both uneven-aged, and even-aged management, portions of the existing pine plantations within MaSF may be managed as uneven-aged stands. These stands will be thinned to promote forest health. As these stands reach maturity, a group selection harvest strategy may be utilized to create small scale openings. These openings will be replanted in longleaf or slash pine, where appropriate. Other stands may be harvested at the appropriate age to help meet future budget needs and reforested with native pines. By using this strategy, the current even age monoculture of planted slash pine can be eliminated.

2. Silvicultural Operations

The main goal of silvicultural operations on MaSF is to improve forest health, wildlife habitat, ecological restoration, and economical sustainability. Past silvicultural

activities on MaSF have negatively impacted the ecosystems of the forest by creating a monoculture of planted slash pine. The silvicultural strategies outlined in this plan are intended to reduce the impacts of past silvicultural activities and to create a heathier, more balanced forest. Current slash pine plantations will be thinned and harvested in a manner to break up the monoculture nature of the MaSF. In areas where it is appropriate, longleaf pine will be planted to replace the existing slash pine. Both mechanical and herbicide treatments may be necessary to control woody competition and to re-establish desired natural species of both the overstory and ground cover. 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 extreme fuel loads and urban interface issues, prescribed fire may not always be the best method to use. In these circumstances, 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.

All silvicultural activities, including timber harvesting and reforestation, will meet, or exceed the standards in FFS's Silviculture BMPs, the State Forest Handbook, and will follow the Five-Year Silviculture Management 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 (10) percent of MaSF forest will be re-inventoried annually to provide an accurate estimation of the standing timber volume, timber growth rates, and overall health of the forest. This information is then used in the development of long-term management strategies for the forest and to track forest health over time.

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.

D. Non-Native Invasive Species Control

During the daily routines, FFS employees continually monitor the forest for non-native invasive species. When infestations are discovered, FFS personnel will locate, identify, and apply appropriate control measures with the intent to eradicate or control non-native invasive plant species on or near to MaSF.

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 MaSF GIS database and are monitored and treated annually as funding permits. The GIS database is updated as new infestations are discovered.

Adjacent landowners who have invasive species that are threatening to invade MaSF will be contacted and educated on the need to control these species. In some cases, FFS personnel will treat invasive species on adjacent lands, with the written permission from the land owner. The transportation of invasive plant species from adjacent lands onto MaSF is also of high concern to the FFS. To help reduce the transportation of invasive plant material, all equipment used on MaSF is required to be thoroughly washed before it can be used on the forest.

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 MaSF

Scientific Name	**Common Name**	**Treatment Strategy**	**Acres Impacted**	**Increasing /Decreasing**
Albizia julibrissin	Mimosa	Spot Treatment with herbicide	Scattered plants	Stable
Sapium sebiferum	Chinese tallow tree	Spot Treatment with herbicide	Scattered plants	Increasing
Lantana camara	Lantana	Spot Treatment with herbicide	Scattered plants	Stable
Lygodium japonicum	Japanese climbing fern	Spot Treatment with herbicide	Scattered plants	Decreasing
Imperata cylindrica	Cogon grass	Spot Treatment with herbicide	Scattered plants	Stable
Panicum repens	Torpedo grass	Spot Treatment with herbicide	Scattered plants	Stable
Dioscorea bulbifera	Air potato	Spot Treatment with herbicide	Scattered plants	Stable
Melia azedarach	Chinaberry	Spot Treatment with herbicide	Scattered plants	Stable
Urena lobata	Caesar's weed	Spot Treatment with herbicide	Scattered plants	Stable
Sesbania punicea	Purple sesban	Spot Treatment with herbicide	Scattered plants	Stable
Solanum viarum	Tropical soda apple	Spot Treatment with herbicide	Scattered plants	Stable
Arundo donax	Giant-reed	Spot Treatment with herbicide	Scattered plants	Stable
Schinus terebinthifolius	Brazilian pepper	Spot Treatment with herbicide	Scattered plants	Increasing
Ardisia crenata	Coral ardisia	Spot Treatment with herbicide	Scattered plants	Decreasing
Lygodium microphyllum	Old World Climbing Fern	Spot Treatment with herbicide	Scattered plants	Decreasing

Scientific Name	Common Name	Treatment Strategy	Acres Impacted	Increasing /Decreasing
Cinnamonum camphora	Camphor	Spot Treatment with herbicide	Scattered plants	Decreasing
Pseudosasa japonica	Arrow Bamboo	Spot Treatment with herbicide	Scattered plants	Stable

FFS will enlist support from FWC in efforts to control non-native invasive animals. Feral hogs (*Sus scrofa*) are present on MaSF, but are not known 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 hog removal on MaSF through trapping and hunting if necessary.

E. Insects, Disease, and Forest Health

Currently, there are no insect or disease problems on MaSF. In the event of an outbreak of any disease or insects, consultation with the Forest Management Bureau's Forest Health Section will be sought to formulate an appropriate and effective response.

In compliance with Section 388.4111, Florida Statutes 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 agencies in St. Johns County will be notified of the approval of this plan documenting this designation. See [Exhibit X].

As a result, prior to conducting any arthropod control activities on MaSF, 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 MaSF. 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 X].

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. Site prep
3. Tree planting
4. Timber harvesting
5. Biological assessments and mapping
6. Road building\maintenance

VII. Proposed Management Activities for Natural Communities

In 2017, FNAI completed an inventory and natural community mapping project on MaSF and a historic natural community map was created [Exhibit R]. Current natural communities and cover types can be found in [Exhibit Q].

Table 7. Natural Communities / Historical & Current Conditions

Historic Natural Community Type (acres)	Historic Natural Community (acres)	Current Habitat Condition Status (acres*)				
		Intact and/or Desired Conditions Exist	Restoration Community (in progress)	Successional Hardwood Forest	Pine Plantations	Altered Other **
Basin Marsh	6	6			0	
Basin Swamp	1,032	993		6	98	3.5
Depression Marsh	37	34			9	0.1
Dome Swamp	139	133			34	0.2
Mesic Flatwoods	2,297	15	1,686		500	60.4
Mesic Hammock	252	195			5	0.5
Salt Marsh	307	307			1	
Scrub	21	0			0	
Scrubby Flatwoods	383	0	227		137	18.6
Unconsolidated Substrate	1	1			0	
Wet Flatwoods	214	23	172		9	10.7
TOTAL	4,689	1,707	2,085	6	793	94

* Note rounding errors exist in "Current" category totals
** See Table 8

Table 8. Other Altered Landcover Types Found on MaSF

Altered Landcover Type*	Current Acres Mapped
Artificial Pond	11
Road	37
Successional Hardwood Forest	6
Clearing/regeneration	11
Utility Corridor	29
TOTAL	94

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

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 timber harvesting, prescribed burning, and other operational plans across the forest. Strategies may include thinning of pine plantations, fuel reduction mowing or chopping in areas of heavy fuel loading, application

of both dormant and growing season fires, and/or the use of herbicides to control hardwoods and woody vegetation. Fire return intervals are included as a guide (Table 9) and may vary depending upon specific conditions. The intention is to use prescribed fire in a manner and frequency that will attain the desired goals.

Table 9. Prescribed Fire Interval Guide on MaSF

Habitat Type	Historic Fire Return Intervals**	MaSF Fire Frequency Goal (Local)	Comments
Basin Marsh	Varies	2 - 4	Fire intervals in basin marshes are highly variable, with natural fires more possible at the end of the dry season.
Basin Swamp	Varies	Varies	Fire intervals in basin swamps are highly variable.
Depression Marsh	1 - 10	1 - 10	Depends on water levels in the marsh and when neighboring communities burn.
Dome Swamp	3 – 5	3 - 5	The interior of large dome swamps may burn less frequently because of standing water or soil saturation.
Mesic Flatwoods *	2 – 4	2 - 4	Repeated applications of growing season fires on a 2-4-year cycle are critical to preserving high quality flatwoods.
Mesic Hammock	Varies	Varies	In most cases leaf litter and mesic conditions retard fires throughout the year.
Pine Plantation	Varies	2 - 4	Depends on amount of remnant groundcover and historic community.
Salt Marsh	Varies	Varies	
Scrub	6 - 19	6 - 19	Scrub fire regimes are highly variable, depending on landscape settings and dominant vegetation.
Scrubby Flatwoods *	3 - 15	5-8	Sparse groundcover and incombustible scrub oak leaf litter may reduce the occurrence of fires leading to a slightly longer average fire return interval than is the case for mesic flatwoods.
Unconsolidated Substrate	N/A	N/A	No active management is necessary for unconsolidated substrates.
Wet Flatwoods *	3 - 10	3 - 5	
Xeric Hammock	Varies	Varies	When fire does occur, it is nearly always catastrophic and may convert xeric hammock into another community type.
Other Altered Landcover Types	N/A	N/A	How ruderal areas should be managed depends on the specific site under consideration.

* Includes restoration community acreage / ** As determined by FNAI

The following community descriptions, existing condition descriptions, and management recommendations are taken from a 2017 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 staff during forest inventory efforts and routine field work on MaSF.

A. Basin Marsh

Description:

Basin marshes are depressional, non-forested wetlands that are typically large and/or embedded in a non-pyrogenic community and thus are not heavily influenced by frequent fires in the surrounding landscape. This type of marsh often develops in large solution depressions. The soils are generally acidic, nutrient-poor peats overlying an impervious soil layer. This community type is dominated by herbs or occasionally shrubs that can withstand inundation for most or all the year.

Grasses and sedges such as soft rush (*Juncus effusus solutus*), needle rush (*Juncus roemerianus*), maidencane (*Panicum hemitomon*), and sand cordgrass (*Spartina bakeri*) dominate the vegetative cover in all but the deepest areas of marsh where species such as sawgrass (*Cladium jamaicense*) or pickerelweed (*Pontederia cordata*) may be present. Trees are sparse, usually only occupying higher areas in the marsh or around the edge. These can include typical swamp species such as pond cypress (*Taxodium ascendens*), swamp tupelo (*Nyssa sylvatica* var. *biflora*), red maple (*Acer rubrum*), loblolly bay (*Gordonia lasianthus*), swamp bay (*Persea palustris*), sweetbay (*Magnolia virginiana*), or slash pine (*Pinus elliottii*).

Basin marshes at MaSF are found as a few lower areas in the narrow basin swamps that are apparently unforested in the 1942 aerial photographs, having a smoother signature than the surrounding forested wetlands. Because the basins at Matanzas are often very narrow strips, these marshes may have been exposed to more influence from fire in adjacent uplands than typical basin marshes.

Current Conditions:

The basin marshes at MaSF remain relatively unchanged from the historic extent and condition. Some edges appear to be slightly encroached by planted slash pines (*Pinus elliottii*). The marshes are dominated by graminoids and a few woody species – bushy bluestem (*Andropogon glomeratus*), woolly witchgrass (*Dichanthelium scabriusculum*), tenangle pipewort (*Eriocaulon decangulare*), soft rush (*Juncus effusus* ssp. *solutus*), wax myrtle (*Myrica cerifera*), and coastalplain willow (*Salix caroliniana*).

Fire Regimes:

Fire intervals in basin marshes are highly variable, with natural fires more possible at the end of the dry season. Dense sawgrass and maidencane marshes will burn even when there is standing water. Frequency of fire varies depending on the hydrology of the marsh and its exposure to fire from surrounding areas. Because the basin marshes at MaSF occur in relatively narrow bands, the natural fire return interval may be somewhat shorter than for typical basin marshes.

Management Needs:

Natural fires are presumed to have rarely burned across the deep marshes on the property; they likely extinguished just within shallow peripheral areas or the adjacent ecotonal hardwood areas. Restoring historic hydrological regimes and applying fire to adjacent

uplands (where appropriate) is a recommended focus for forest management. Occasional fires within the basin marshes are necessary to remove encroaching woody vegetation and reduce the buildup of organic soils. Removing feral hogs (*Sus scrofa*) is desirable in areas where these animals are impacting basin marshes and other wetlands.

B. Basin Swamp

Description:

Basin swamps are forested depressions that are typically large and/or embedded in a non-pyrogenic community and thus are not heavily influenced by frequent fires in the surrounding landscape. The soils are generally acidic, nutrient-poor peats overlying an impervious soil layer. This community type is dominated by hydrophytic trees and shrubs that can withstand inundation for most or all of the year, including bald (or pond) cypress (*Taxodium distichum*) and/or swamp tupelo (*Nyssa sylvatica* var. *biflora*). Slash pine (*Pinus elliottii*) may infrequently be found on hummocks within the swamp. Basin swamps have variable shrub layers and sparse to dense herbaceous species cover. A mature canopy is usually closed and dominated by pond cypress, swamp tupelo, slash pine, and to a lesser extent, red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanicus*), diamond-leaved oak (*Quercus laurifolia*), loblolly bay (*Gordonia lasianthus*), swamp bay (*Persea palustris*), and sweetbay (*Magnolia virginiana*). In most cases, shrubs do not form a dense layer below the canopy or in the ecotones of the swamps, but are typically scattered throughout the swamp. In densely forested portions of basin swamps, herbs are sparse. Epiphytes and vines may be common.

Basin swamps on MaSF have developed in narrow coastal swales that drain the ancient dune ridges. The swamp becomes more like a floodplain swamp in the area that outflows into the Matanzas River near Cedar Landing. Small areas of hammock occur throughout the basin swamp along ecotones and in higher areas. The swamps appear on the 1942 aerial photographs, as a darker, more textured signature than the adjacent pine flatwoods.

Current Conditions:

The basin swamps on MaSF are impacted mainly by conversion of uplands to planted slash pine stands. These pine plantations are often planted into the edges of basin swamps, and firebreaks placed around many swamps prevent a natural ecotone between uplands and wetlands. Ditches through the property artificially drain the swamp systems which make them more susceptible to damage from wildfires.

MaSF basin swamps typically have a canopy dominated by pond cypress (*Taxodium ascendens*) and swamp tupelo (*Nyssa sylvatica* var. *biflora*). The subcanopy is dominated by red maple (*Acer rubrum*), dahoon holly (*Ilex cassine*), loblolly bay (*Gordonia lasianthus*), swamp bay (*Persea palustris*), green ash (*Fraxinus pennsylanica*), American elm (*Ulmus americana*) and occasionally slash pine (*Pinus elliottii*). On the upland edges of the swamps, pignut hickory (*Carya glabra*) and other mesic hammock species may occur. The shrub layer is denser in the shallower areas and typically consists of wax myrtle (*Myrica cerifera*), fetterbush (*Lyonia lucida*), buttonbush (*Cephalanthus occidentalis*), highbush blueberry (*Vaccinium corymbosum),* Virginia willow (*Itea virginica*), and uncommonly, St. John's wort (*Hypericum* spp.). Sparse herbs include Virginia chain fern

(*Woodwardia virginica*), netted chain fern (*Woodwardia areolata*), royal fern (*Osmunda regalis*), sawgrass (*Cladium* spp.), yellow-eyed grass (*Xyris* spp.), lizard's tail (*Saururus cernuus*), and hatpins (*Eriocaulon* spp.). Wood Storks (*Mycteria americana*) are currently nesting colonially in this natural community at MaSF.

A small amount of hydric hammock vegetation is an included natural community type within the basin swamps on MaSF. The hydric hammock vegetation has a well-developed hardwood and cabbage palm forest with diverse understory shrubs and groundcover species. Hardwoods include live oak (*Quercus virginiana*), red maple, and water oak (*Quercus nigra*). Common subcanopy and shrub species include cabbage palm (*Sabal palmetto*), swamp bay, dahoon (*Ilex cassine*), possumhaw (*Viburnum nudum*), and buttonbush. Common vines include wild grape (*Vitis* spp.), greenbriar (*Smilax* spp.), poison ivy (*Toxicodendron radicans*), and yellow jessamine (*Gelsemium sempervirens*). The herbaceous layer is sparse, and includes species such as woodoats (*Chasmanthium laxum*), cinnamon fern (*Osmunda cinnamomea*), wild iris (*Iris hexagona*), and beaksedges (*Rhynchospora* spp.).

Baygalls, which are dense stands of evergreen trees and shrubs in seepage areas or depressions, are occasionally found included within the basin swamps and marshes of MaSF and sometimes regenerating within pine plantations on wetter, lower portions of slopes. The dominant canopy species include loblolly bay, red maple, sweetbay (*Magnolia virginiana*), and swamp bay. The shrub layer consists of tall gallberry (*Ilex coriacea*), wax myrtle, blue huckleberry (*Gaylussacia frondosa*), fetterbush, highbush blueberry, and dahoon. The sparse herbaceous ground cover includes cinnamon fern, Virginia chain fern, netted chain fern, redroot (*Lachnanthes caroliana*), and sphagnum moss.

Fire Regimes:
Fire intervals in basin swamps are highly variable. The lowest portions of basin swamps rarely, if ever, burn. Graminoid-dominated ecotones often burn in conjunction with the adjacent uplands, and these may burn as frequently as every 2 to 5 years.

Fire is more frequent in cypress dominated swamps, and may be absent or rare in hardwood swamps. Slash pine, pond pine, and cypress can establish in these areas immediately after a fire, benefiting from ample sunlight and available bare mineral soils; they are also tolerant of moderate fires once past a certain size, thus systems dominated by these two species may have been subjected to fires, every 10-20 years.

Management Needs:
The edges of basin swamps often have graminoid-dominated ecotones that burn with the adjacent uplands. These ecotones can be very important habitat for rare plants and animals. On MaSF these ecotones have been disturbed by past silvicultural activities; however, restoring fire to the uplands and allowing these ecotones to burn should help the recovery of the graminoid edges of the basin swamps. Future prohibition of heavy equipment to avoid rutting and soil disturbance is also recommended in these ecotones. Some existing ditches and plowlines, if they interfere with the movement of fire across the ecotone, may require restoration.

Infrequent low intensity ground fires within basin swamps are necessary to maintain the cypress component. Swamp tupelo and other hardwoods dominate areas that burn less often. If hydrology has been altered (i.e. ditches/canals), normal hydroperiod should be restored if possible, since shortened hydroperiods can also allow devastating fire to enter, potentially altering the community. Heavy equipment causes rutting that will alter the micro-hydrology of the ecotone; use of heavy equipment, if necessary, should be limited to dry seasons. This community is thought to be very stable as long as hydrological conditions and water quality are maintained**.**

C. Depression Marsh

Description:

Depression marshes are isolated, non-forested wetland basins that are imbedded in a pyrogenic matrix community such as pine flatwoods or sandhill. The soil is usually acidic sand with deepening peat towards the center. These marshes typically have concentric zones of vegetation related to the length of hydroperiod and depth of flooding. Depression marshes are distinguished from basin marshes principally by their landscape position which subjects them to more frequent fires.

Depression marshes at MaSF are very small, rounded wetlands occurring in pine flatwoods. On the 1942 aerial photographs, depression marshes appear as darker smooth circular patches set into the flatwoods which are a lighter gray. The presence of a cypress canopy can be difficult to determine on the historic aerial, so dome swamps and depression marshes may appear very similar to one another.

Current Conditions:

Most depression marshes at MaSF have been disturbed by past silvicultural operations, and small areas have been planted with slash pine (*Pinus elliottii*). Feral hog digging and other ground disturbances from silviculture have contributed to a weedy groundcover in many marshes.

Depression marshes at MaSF are mostly dominated by broomsedge (*Andropogon virginicus*), a weedy species that replaces characteristic native herb species following ground disturbance. Less disturbed depression marshes are dominated by maidencane (*Panicum hemitomon*), cordgrasses (*Spartina bakeri* and *S. patens*), purple bluestem (*Andropogon glomeratus* var. *glaucopsis*), cinnamon fern (*Osmunda cinnamomea*), and Virginia chain fern (*Woodwardia virginica*). Other common herbaceous plants found here are pipeworts (*Eriocaulon* spp.), yellow-eyed grasses (*Xyris* spp.), sundews (*Drosera* spp.), beaksedges (commonly *Rhynchospora fascicularis* and *R. miliacea*), and a diversity of milkworts (*Polygala* spp.). Many of the depression marshes had some component of dome swamp either regenerating or encroaching into the marsh. Woody species such as black gum (*Nyssa sylvatica* var. *biflora*), dahoon holly (*Ilex cassine*), wax myrtle (*Myrica cerifera*), loblolly pine (*Pinus taeda*), and gallberry (*Ilex glabra*) are often found around the edges of marshes.

Fire Regimes:
Fire is an important factor in maintaining a depression marsh. Without fire, shrubs and trees can encroach and peat can accumulate. Fire frequency is generally greater around the edges of the marsh and least toward the center of the marsh. Depression marshes likely burned irregularly every 1 to 10 years depending on water levels in the marsh and when neighboring communities burned. Fires generally occurred early (April-June) in the lightning season when water was low and surrounding communities were dry.

Management Needs:
Feral hog damage in this natural community is the most severe of any of the natural communities at MaSF. Control of feral hogs, in addition to restoration of natural fire regime, will be important for restoration of this highly diverse natural community.

Prescribed burns in adjacent uplands should be allowed to burn into depression marshes. Early growing season burns are recommended to control shrub encroachment. If the hydrology has been altered, natural hydrology should be restored if possible. This can be accomplished by blocking or filling canals/ditches and redesigning trails or roads to avoid altering the hydrology. Soil disturbance in the marsh and surrounding ecotone should be avoided.

D. Dome Swamp

Description:
Dome swamps are isolated, shallow, forested wetland basins that are imbedded in a pyrogenic matrix community such as pine flatwoods. These swamps often have domed profiles resulting from smaller trees growing around the edges and larger trees growing in the interior. Dome swamps have peat soils that are thickest toward the center and are generally underlain with acidic soils. Dome swamps are distinguished from basin swamps principally by their often more circular shape, smaller size, and higher historical fire frequency due to landscape position.

The mature canopy is dominated by pond cypress (*Taxodium ascendens*) and/or swamp tupelo (*Nyssa sylvatica* var. *biflora*) and may also have a mixture of bay species such as sweetbay (*Magnolia virginiana*) as well as a midstory of scattered tall shrubs including dahoon (*Ilex cassine*), fetterbush (*Lyonia lucida*), wax myrtle (*Myrica cerifera*), and swamp bay (*Persea palustris*). The herbaceous layer is sparse in the interior, becoming denser on the edges, and dominated by various hydrophytic herbs. Species composition and hydroperiods are similar to basin swamps, but generally with fewer shrubs and greater herbaceous cover and diversity. Dome swamps usually have a diverse herbaceous ecotone with the surrounding pine dominated community, created through frequent fires that extinguish naturally along the edge of the dome.

Dome swamps at MaSF are small, rounded wetlands occurring in pine flatwoods. On the 1942 aerial photographs, dome swamps appear as darker, textured, circular patches set into the flatwoods which are a lighter gray. The presence of a cypress canopy can be difficult to determine on the historic aerial, so dome swamps and depression marshes may appear very similar to one another.

Current Conditions:
Most dome swamps at MaSF have been disturbed by past silvicultural operations, and small areas have been planted with slash pine (*Pinus elliottii*). Feral hog digging and firebreaks are also an ongoing disturbance in many swamps. Many dome swamps at MaSF have been cut and have cypress stumps or appear very similar to depression marshes.

Dominant canopy species in dome swamps on MaSF are pond cypress (*Taxodium ascendens*), swamp tupelo (*Nyssa sylvatica* var. *biflora*), with some slash pine (*Pinus elliottii*) and loblolly pine (*Pinus taeda*). Subcanopy trees consist of dahoon (*Ilex cassine*), loblolly bay (*Gordonia lasianthus)*, and red maple (*Acer rubrum*). Shrubs are more common in the shallower areas and typically consist of wax myrtle (*Myrica cerifera*), fetterbush (*Lyonia lucida*), swamp bay (*Persea palustris*), buttonbush (*Cephalanthus occidentalis*), highbush blueberry (*Vaccinium corymbosum*), and Virginia willow (*Itea virginica*). Herbaceous species include Virginia chain fern (*Woodwardia virginica*), netted chain fern (*Woodwardia areolata*), royal fern (*Osmunda regalis*), sawgrass (*Cladium* spp.), blue maidencane (*Amphicarpum muhlenbergianum*), yellow-eyed grasses (*Xyris* spp.), and hatpins (*Eriocaulon* spp.). In deeper portions of the domes, arrowhead (*Sagittaria graminea*) and pickerel weed (*Pontederia cordata*) may be found.

Fire Regimes:
Fire is essential for the maintenance of dome swamps, limiting hardwood encroachment and peat buildup while encouraging herbaceous growth. The fire frequency is greatest at the periphery of the dome swamp where a normal fire cycle might be as short as 3 to 5 years. The interior of large dome swamps may burn less frequently as a result of standing water or soil saturation.

Management Needs:
Like basin swamps, dome swamps often have graminoid ecotones that are important for rare plants and animals; at MaSF, these ecotones have been disturbed by past silvicultural practices and a lack of fire. Restoration of these ecotones will require frequent prescribed fire, and prohibition of heavy equipment to avoid rutting and soil disturbance. Some existing ditches and plowlines, if they interfere with the movement of fire across the ecotone, may require restoration.

Prescribed fires from neighboring flatwoods should be allowed to burn into dome swamps and extinguish naturally at the ecotone or burn through the swamp, as conditions permit. Fires maintain diverse ecotones and interior herbaceous cover. If hydrology has been altered (i.e. ditches/canals), normal hydroperiods should be restored if possible. This can be accomplished by blocking or filling ditches/canals and redesigning trails to avoid altering the hydrology. Change in hydrology can promote invasion of mesic species, which can eventually allow hardwoods to replace cypress and swamp tupelo.

E. Mesic Flatwoods (Including restoration areas)

Description:

Mesic flatwoods are forests of even and uneven-aged longleaf pine (*Pinus palustris*). Slash pine (*Pinus elliottii*) is present more frequently in transitions to adjacent wetlands or on more calcareous soils. There is little or no subcanopy and tall shrub layer other than pine recruitment. The shrub layer is moderately dense with an average height that does not generally exceed four feet. Typical species include saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), tarflower (*Bejaria racemosa*), coastalplain staggerbush (*Lyonia fruticosa*), wax myrtle (*Myrica cerifera*), winged sumac (*Rhus copallinum*), netted pawpaw (*Asimina reticulata*), running oak (*Quercus elliottii*), dwarf live oak (*Quercus minima*), shiny blueberry (*Vaccinium myrsinites*), and a diversity of other low shrubs. Herb cover is also moderately dense and dominated by grasses which may carry frequent fires, especially wiregrass (*Aristida stricta* var. *beyrichiana*). Herbaceous species diversity is high in good quality mesic flatwoods. Vines occur rarely. Community types embedded within mesic flatwoods include dome swamp, basin swamp, depression marshes, wet flatwoods, and hydric hammocks.

At MaSF, mesic flatwoods once occurred over the majority of the uplands. The physical terrain is relatively flat with moderately well-to-poorly drained acidic sands (such as Myakka fine sands). In the historic map, the mesic flatwoods areas may have inclusions of scrubby flatwoods and wet flatwoods vegetation. These areas were typically too small or fragmented to map, or historic aerial photography signature too ambiguous to allow clear distinction between these inclusions and the mesic flatwoods. Mesic flatwoods appear on the 1942 aerial photographs as a medium gray, mostly smooth signature with darker trees dotted across the landscape.

Current Conditions:

All historic mesic flatwoods on MaSF were converted to slash pine (*Pinus elliottii*) plantation decades ago. Few longleaf pines remain. Slash pines are planted in bedded rows, and the historic herbaceous groundcover is highly reduced by shading and fire exclusion. However, recent management activities, as well as some severe wildfires, have thinned some of the thick pine stands and are allowing light to reach the groundcover and promote a more natural shrub and herb layer. As these stands are brought into a more frequent fire return interval, structure and composition should begin to resemble natural mesic flatwoods. Stands that have been thinned by logging or wildfire are designated as "restoration" mesic flatwoods on the current natural community map.

Mesic flatwoods on MaSF typically have a canopy of slash pine, sometimes with an encroaching sub canopy of red maple (*Acer rubrum*), loblolly bay (*Gordonia lasianthus*), dahoon (*Ilex cassine*), American holly (*Ilex opaca*), swamp bay (*Persea palustris*), or water oak (*Quercus nigra*). The shrub layers may be tall and overgrown, although reduced in thinned rows. Typical species are saw palmetto (*Serenoa repens*), fetterbush (*Lyonia lucida*), gallberry (*Ilex glabra*), yaupon (*Ilex vomitoria*), staggerbush (*Lyonia fruticosa*), wax myrtle (*Myrica cerifera*), shiny blueberry (*Vaccinium myrsinites*), dwarf huckleberry (*Gaylussacia dumosa*), and dwarf live oak (*Quercus minima*). Common vines include wild grape (*Vitis* spp.), greenbrier (*Smilax* spp.), and sensitive brier (*Mimosa quadrivalvis*). The

ground layer of herbaceous species includes wiregrass (*Aristida stricta*) only in the best examples. Other species found include bottlebrush threeawn (*Aristida spiciformis*), bluestem (*Andropogon* spp.), narrowleaf silkgrass (*Pityopsis graminifolia*), bracken fern (*Pteridium aquilinum*), tall elephantsfoot (*Elephantopus elatus*), witchgrass (*Dichanthelium* spp.), lopsided indiangrass (*Sorghastrum secundum*), lovegrass (*Eragrostis* spp.), milkwort (*Polygala* spp.), and blackroot (*Pterocaulon pycnostachyum*).

Fire Regimes:
Mesic flatwoods depend on frequent, low-intensity fires to maintain a diverse herbaceous layer and provide mineral soils for longleaf pine regeneration. Repeated applications of growing season fires on a 2-4 year cycle are critical to preserving high quality flatwoods.

Management Needs:
Management goals for mesic flatwoods should focus on thinning harvests and frequent prescribed fires. More sunlight reaching the forest floor will promote the growth of beneficial herbaceous ground cover. Timing of fires should ideally be during the early lightning season or as close to this period as possible. Roller chopping may be limited in areas where it will negatively impact native species. Although chopping may reduce shrub cover in problem areas, it also reduces wiregrass cover and increases weedy species that are less likely to carry a fire.

The use of plowed firebreaks and other practices that disturb the soil should be minimized; existing roads and wetlands should be used for firebreaks whenever possible. New ground disturbances should be avoided to prevent elimination of the natural groundcover and establishment of weedy species. Depth of plowed firebreaks should be minimized to prevent hydrologic alteration within the surrounding community.

In areas with little remaining natural vegetation, the planted pines should be thinned. Groundcover restoration should focus on increasing wiregrass abundance. FFS may consider seeding or transplanting of wiregrass to facilitate burning through these areas.

F. Mesic Hammock

Description:
Mesic hammocks are closed canopy forests dominated by oaks and palms with a mixture of other mesic temperate hardwood species in the canopy. They occur on moderately poorly drained soils in areas that receive infrequent fire because of topographic influences (e.g., leeward sides of water bodies, wetland slopes). These hammocks are drier than hydric hammocks, and often have a moderate to dense cover of saw palmetto (*Serenoa repens*). The many oaks support an abundance of epiphytes.

At MaSF, hammocks were historically found in the transition to basin swamps and salt marsh, mostly on the east side of the property. These hammocks have evident large oaks on the 1942 aerial photographs, although the exact location of transition to fire maintained flatwoods is difficult to determine from these photographs.

Current Conditions:
Mesic hammocks on MaSF are impacted by partial conversion to planted slash pine (*Pinus elliottii*) stands, as well as clearing of the understory and oaks that is evident even in the 1942 aerial photographs. Remaining hammocks, however, are likely similar to the historic condition.

This is a mature, densely canopied forest on well-drained sands. Canopy and subcanopy species include live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), red cedar (*Juniperus virginiana*), cabbage palm (*Sabal palmetto*), basswood (*Tilia americana*), and southern magnolia (*Magnolia grandiflora*). Oaks are often covered with epiphytes such as resurrection fern (*Pleopeltis polypodioides* var. *michauxiana*) and Spanish moss (*Tillandsia usneoides*). Common shrubs and small trees include saw palmetto (*Serenoa repens*), yaupon (*Ilex vomitoria*), Carolina indigo (*Indigofera caroliniana*), red mulberry (*Morus rubra*), swamp dogwood (*Cornus foemina*), and beautyberry (*Callicarpa americana*), and smallflower paw (*Asimina parviflora*). Herbaceous species are sparse, and include coastal bedstraw (*Galium hispidulum*), stinging nettle (*Cnidoscolus stimulosus*), panic grass (*Panicum* spp.), slender woodoats (*Chasmanthium laxum*), cutgrass (*Leersia virginica*), various nutrushes (*Scleria* spp.), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), witchgrasses (*Dichanthelium* spp.), and beaksedges (*Rhynchospora* spp.). Vines include wild grape (*Vitis* spp.), greenbriar (*Smilax* spp.), poison ivy (*Toxicodendron radicans*), and yellow jessamine (*Gelsemium sempervirens*).

Fire Regimes:
Fire is infrequent in mesic hammock. In most cases leaf litter and mesic conditions retard fires throughout the year.

Management Needs:
Management in mesic hammocks should be focused on removal of invasive plant species. Feral hogs should also be controlled. The oak mast produced by hammocks attracts feral hogs, which can cause serious soil and vegetation disturbance. Prescribed burns in the adjacent flatwoods should be allowed to naturally extinguish along the hammock edge. Firebreaks should be discouraged to allow a development of a natural ecotone and to help minimize invasion by weedy or invasive species.

G. Pine Plantation

Description:
See natural community descriptions.

Current Conditions:
Planted stands of slash pine (*Pinus elliottii*) presently make up the majority of the upland areas in MaSF. The plantations occupy former pine flatwoods, but were also planted in swamp and marsh edges as well as areas of scrub and mesic hammock. Prior to acquisition by the state, these areas had been subjected to intensive site preparation techniques such as bedding and double roller-chopping and in many areas tire rutting damage to the soil surface due to these activities is evident.

Most of the older pine plantations on MaSF still retain the shrub species that historically dominated the areas, but have lost much of the herbaceous species, particularly wiregrass, that likely once thrived there. These dense pine plantations typically have very shrubby or vine-dominated understory vegetation with dense needle duff. Fetterbush (*Lyonia lucida*) is dominant throughout the plantations. Other shrub species such as saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), and shiny blueberry (*Vaccinium myrsinites*), and swamp bay (*Persea palustris*) are found in areas that were historically mesic and wet flatwoods. Saw palmetto, rusty staggerbush (*Lyonia ferruginea*), and scrubby oaks (*Quercus myrtifolia*, *Q. geminata*, *Q. chapmanii*) dominate the higher elevations that were historically scrubby flatwoods and scrub. Vines can be common and include wild grape (*Vitis* spp.), greenbrier (*Smilax* spp.), and poison ivy (*Toxicodendron radicans*). The herbaceous layer is often weedy, typically dominated by broomsedge, witchgrasses (*Dichanthelium* spp.), and bracken fern (*Pteridium aquilinum*). Occasional small clumps of wiregrass occur, but are rare. When restoration activities such as thinning and burning take place, many of these plantations will begin to resemble, at least in structure, the historic landscape. Frequent prescribed fires, particularly in the warm season months (March through June), will help restore the herbaceous groundcover particularly in locations where remnant vegetation persists.

Fire Regimes:
See natural community descriptions. Historic pyrogenic communities may require more frequent fire after thinning pines than is typical for the historic natural community in order to reduce the thick shrub cover.

Management Needs:
Thinning of the pine stands will promote more herbaceous cover in the understory. Planting of the appropriate native pine species in former flatwoods areas would also be beneficial. In areas of good quality groundcover, especially where wiregrass is present, herbicide use should be limited when planting pines to reduce shrub and grass competition. In most areas, no further planting of native species should be necessary unless wiregrass is completely missing from the herbaceous layer. Frequent prescribed burns will be necessary to move the community towards a more natural structure and composition.

For pine plantations in former mesic hammock communities, the pine canopy is needed to continue shading the understory, which should be allowed to gradually regenerate with hardwood species.

H. Salt Marsh

Description:
Salt marsh is a largely herbaceous community that occurs in the portion of the coastal zone affected by tides and seawater and protected from large waves, either by the broad, gently sloping topography of the shore, by a barrier island, or by location along a bay or estuary. Salt marsh may have distinct zones of vegetation, each dominated by a single species of grass or rush. Saltmarsh cordgrass (*Spartina alterniflora*) dominates the seaward edge and borders of tidal creeks, areas most frequently inundated by the tides. Needle rush (*Juncus*

roemerianus) dominates higher, less frequently flooded areas. A border of salt-tolerant shrubs, such as groundsel tree (*Baccharis halimifolia*), saltwater falsewillow (*Baccharis angustifolia*), marshelder (*Iva frutescens*), and christmasberry (*Lycium carolinianum*) often marks the transition to upland vegetation or low berms along the seaward marsh edge. High salinity areas are dominated by species such as saltwort (*Batis maritima*), perennial glasswort (*Sarcocornia ambigua*), annual glasswort (*Salicornia bigelovii*), and bushy seaside oxeye (*Borrichia frutescens*), or short grasses, such as saltgrass (*Distichlis spicata*), seashore paspalum (*Paspalum vaginatum*), and shoregrass (*Monanthochloe littoralis*).

At MaSF, salt marshes are found as a band along the Matanzas River on the eastern side of the property and also connect to freshwater drainages just downstream of forested wetlands in the Cedar Landing area.

Current Conditions:
Salt marshes at MaSF are likely similar to historic conditions. These marshes are dominated by needle rush (*Juncus roemerianus*) and smooth cordgrass (*Spartina alterniflora*), with patches of glasswort (*Salicornia ambigua*), saltwort (*Batis maritima*), and seashore dropseed (*Sporobolus virginicus*). Tall shrubs of red cedar (*Juniperus virginiana*) and cabbage palm (*Sabal palmetto*) occur along the fringes and higher areas of the marsh.

Fire Regimes:
While there are no data on natural fire frequency in salt marshes, fires probably occurred sporadically, either by spreading from nearby uplands or from lightning strikes in the marsh itself. Needle rush re-sprouts vigorously after fire but, if burned on an annual basis, declines and is replaced by upland species.

Management Needs:
Prescribed burns have traditionally been used in salt marshes to provide tender shoots as food and cover resources for wildlife and also to decrease the possibility of wildfires. Fire should be used with caution in marshes so as not to cause destructive peat fires or adversely affect rare bird or other species dependent on the marsh habitat for nesting and foraging.

I. Scrub

Description:
Scrub is generally found on sandy, acidic, well-drained soils. There may or may not be a canopy of sand pine (*Pinus clausa*). Both the tall and short shrub layers are moderate to dense and dominated by scrub oaks: sand live oak (*Quercus geminata*), Chapman's oak (*Quercus chapmanii*), and myrtle oak (*Quercus myrtifolia*). The overall height is below 6 feet, and patches of bare sand are common. A diversity of other xerophytic shrubs may be present. The herbaceous layer, though sparse, consists primarily of sandyfield beaksedge (*Rhynchospora megalocarpa*). Vines are infrequent.

Scrub occurred historically on MaSF on sandy rises in the southeastern portion of the property. Scrub appears on the 1942 historic aerial photographs as a mostly treeless mottled gray and white area that is slightly rougher in texture than the nearby flatwoods.

Current Conditions:
Historic scrub areas at MaSF have been partially converted to stands of planted slash pine (*Pinus elliottii*) with a scrubby understory. The remainder has developed a canopy of sand live oak (*Quercus geminata*) due to past fire exclusion, and is now classified as xeric hammock. The understory of these areas contains a mix of scrub oaks – sand live oak (*Quercus geminata*), Chapman's oak (*Quercus chapmanii*), and myrtle oak (*Quercus myrtifolia*) – and other shrubs.

Fire Regimes:
Scrub fire regimes are highly variable, depending on landscape settings and dominant vegetation. Current scientific research suggests oak-dominated scrub would have naturally burned every 6 to 19 years. More frequent fires maintain optimal shrub heights for scrub jay habitat. Scrub fires are often high intensity and require careful application.

Management Needs:
Restore scrub by removing or thinning planted slash pine and sand live oak. Allow fire from adjacent mesic flatwoods and scrubby flatwoods to burn into the scrub. A fire prescription targeting the scrub should be considered if the scrub does not burn after a number of years.

Care should be exercised to limit disturbance to the vegetative groundcover and gopher tortoise burrows. Mechanical treatments may be used only if necessary to burn safely or achieve desired conditions. Although chopping may reduce shrub cover in problem areas, it can also reduce native groundcover and increases weedy species.

J. <u>Scrubby Flatwoods</u> (Including restoration areas)
Description:
Scrubby flatwoods are a well-drained pine-dominated community intermediate between scrub and mesic flatwoods. These communities are characterized by scattered pine trees with a sparse shrubby understory and areas of open white sand. The vegetation consists of a combination of scrub and mesic flatwoods species.

Scrubby flatwoods have a tree canopy of longleaf pine (*Pinus palustris*) and/or slash pine (*Pinus elliottii*) growing over a shrub stratum dominated by scrub species such as sand live oak (*Quercus geminata),* rusty staggerbush (*Lyonia ferruginea*), Chapman's oak (*Quercus chapmanii*), and myrtle oak (*Quercus myrtifolia*) mixed with typical mesic flatwoods species including saw palmetto (*Serenoa repens*), and a diversity of other low mesic shrubs. The herbaceous groundcover is patchy and usually has some wiregrass (*Aristida stricta* var. *beyrichiana*), and a mix of other herbs. Vines are occasional.

Areas of scrubby flatwoods were historically widespread on MaSF. These are slightly higher in elevation than mesic flatwoods and occur on the ridges between the ancient coastal swales. Scrubby flatwoods appear in the 1942 aerial photographs as a medium to light gray area with a small amount of texture and more open white sand than in adjacent mesic flatwoods.

Current Conditions:
All historic scrubby flatwoods on MaSF were converted to slash pine (*Pinus elliottii*) or sand pine (*Pinus clausa*) plantation decades ago. Few longleaf pines remain. The historic understory is highly reduced by shading and fire exclusion. However, recent management activities, as well as some severe wildfires, have thinned or cleared some of the thick pine stands and are allowing light to reach the groundcover and promote a more natural shrub and herb layer. As these stands are brought into a more frequent fire return interval, structure and composition should begin to resemble natural scrubby flatwoods. Stands that have been thinned or cleared through logging or wildfire are designated as "restoration" scrubby flatwoods on the current natural community map.

The canopy and subcanopy of scrubby flatwoods on MaSF is dominated by planted off-site slash pine and sand pine. The understory is dominated by scrub oaks (*Q. geminata, Q. chapmanii, Q. myrtifolia*), rusty staggerbush (*Lyonia ferruginea*), wild olive (*Osmanthus americanus*), gallberry (*Ilex glabra*), yaupon (*Ilex vomitoria*), red bay (*Persea borbonia*), fetterbush (*Lyonia lucida*), pricklypear (*Opuntia humifusa*), shiny blueberry (*Vaccinium myrsinites*), deerberry (*Vaccinium stamineum*), and tarflower (*Bejaria racemosa*), along with saw palmetto (*Serenoa repens*). Grasses and herbs such as wiregrass (*Aristida stricta*), sandyfield beaksedge (*Rhynchospora megalocarpa*), bracken fern (*Pteridium aquilinum*), and wild pennyroyal (*Piloblephis rigida*) are sparse, and wiregrass is rarely found.

Fire Regimes:
Scrubby flatwoods natural fire regime ranges from 3 – 15 years, and prescribed fire regimes generally range from 3 - 8 years. In MaSF, scrubby flatwoods likely burned along with the adjacent mesic flatwoods. Sparse groundcover and incombustible scrub oak leaf litter may reduce the occurrence of fires leading to a slightly longer average fire return interval than is the case for mesic flatwoods. Variability in season and frequency of prescribed fires should produce a mosaic of burned and unburned patches desirable for maintaining high biotic diversity in this community.

Management Needs:
Fire from adjacent mesic flatwoods should be allowed to burn into the scrubby flatwoods. A fire prescription targeting the scrubby flatwoods should be considered if this natural community does not burn after repeated fires in the adjacent mesic flatwoods. If the scrubby flatwoods are invaded by undesirable hardwoods, a hot summer burn would be best.

K. Unconsolidated Substrate

Description:
Estuarine unconsolidated substrate is a mineral based natural community generally characterized as expansive, relatively open areas of subtidal, intertidal, and supratidal zones which lack dense populations of sessile plant and animal species. Unconsolidated substrates are unsolidified material and include coralgal, marl, mud, mud/sand, sand or shell. This community may support a large population of infaunal organisms as well as a

variety of transient planktonic and pelagic organisms (e.g., tube worms, sand dollars, mollusks, isopods, amphipods, burrowing shrimp, and an assortment of crabs).

At MaSF, there is a small, presumably tidally influenced pond in the salt marsh bordering the Matanzas River. This pond is evident in the 1942 aerial photographs.

Current Conditions:
Existing conditions for this tidal pond are probably similar to the historic condition.

Fire Regimes:
N/A

Management Needs:
No active management is necessary for unconsolidated substrates.

L. <u>Wet Flatwoods</u> (Including restoration areas)

Description:
Wet flatwoods are characterized of pines on frequently saturated soils. These may have a thick shrubby understory and very sparse groundcover, or a fire maintained, sparse understory and a dense groundcover of hydrophytic herbs and shrubs. Vegetation may be very similar to mesic flatwoods, but often with little or no saw palmetto and more wetland species such as blue maidencane (*Amphicarpum muhlenbergianum*), Virginia chain fern (*Woodwardia virginica*)**,** yellow eyed grass (*Xyris* spp.), and Carolina redroot (*Lachnanthes caroliniana*). The canopy is typically longleaf pine (*Pinus palustris*) or slash pine (*Pinus elliottii*).

On MaSF, wet flatwoods historically occurred throughout the forest, usually as transitional areas between mesic flatwoods and basin swamp. Larger extent wet flatwoods are present on the northwestern portion of the forest, but these are part of a mosaic of wet and mesic pine flatwoods.

Wet flatwoods are slightly darker in appearance than mesic flatwoods in the 1942 aerial photographs, and some appear to have a somewhat denser canopy than the adjacent mesic flatwoods.

Current Conditions:
Most historic wet flatwoods on MaSF were converted to slash pine (*Pinus elliottii*) plantation decades ago. Slash pines are planted in bedded rows, and the historic herbaceous groundcover is highly reduced by shading and fire exclusion. However, recent management activities, as well as some severe wildfires, have thinned some of the thick pine stands and are allowing light to reach the groundcover and promote a more natural shrub and herb layer. As these stands are brought into a more frequent fire return interval, structure and composition should begin to resemble natural wet flatwoods. Stands that have been thinned or cleared through logging or wildfire are designated as “restoration” wet flatwoods on the current natural community map.

At MaSF, three canopy pine species (*Pinus elliottii*, *P. taeda*, and *P. palustris*) were found in wet flatwoods. Water oak (*Quercus nigra*), sweetgum (*Liquidambar styraciflua*), and swamp laurel oak (*Quercus laurifolia*) are occasional. Subcanopy species include swamp bay (*Persea palustris*), persimmon (*Diospyros virginiana*), and dahoon holly (*Ilex cassine*). Shrubs consist of wax myrtle (*Myrica cerifera*), loblolly bay (*Gordonia lasianthus*), gallberry (*Ilex glabra*), St. John's Wort (*Hypericum* spp.), and to a lesser extent, saw palmetto (*Serenoa repens*). The herbaceous layer includes blue maidencane (*Amphicarpum muhlenbergianum*), Virginia chain fern (*Woodwardia virginica*), yelloweyed grass (*Xyris* spp.), Carolina redroot (*Lachnanthes caroliana*), wood sage (*Teucrium canadense*), rose gentians (*Sabatia* spp.) and meadow beauties (*Rhexia* spp.). Hooded pitcher plants (*Sarracenia minor*) occur at MaSF on the ecotone of this natural community and wetlands.

Fire Regimes:
Historically, natural fires may have occurred every 3 to 10 years in wet flatwoods communities. For management purposes, prescribed fires may be more advisable on a 2 to 4-year cycle. This reduces woody encroachment, sustains herbaceous species, and aids in preventing heavy fuel loads that can lead to catastrophic wildfires.

Management Needs:
Management goals for the historic wet flatwoods at MaSF should focus on thinning the planted slash pines and following a frequent prescribed fire regime. Timing of fires should ideally be during the early lightning season or as close to this period as possible. Roller chopping may be used in areas to facilitate the safe and effective use of prescribed fire.

The use of plowed firebreaks and other practices that disturb the soil should be minimized; existing roads and wetlands should be used for firebreaks whenever possible. New ground disturbances should be avoided to prevent elimination of the natural groundcover and establishment of weedy species. Depth of plowed firebreaks should be minimized to prevent hydrologic alteration within the surrounding community.

In areas with little remaining natural vegetation, the planted pines may be thinned. Groundcover restoration may focus on practices that will increase wiregrass abundance. FFS may consider seeding or transplanting of wiregrass to facilitate burning through these areas.

M. Xeric Hammock

Description:
Xeric hammock is characterized as a scrubby, closed-canopied forest dominated by sand live oak (*Quercus geminata*) with little understory other than saw palmetto (*Serenoa repens*). It is often considered an advanced successional stage of scrub or sandhill. The exact vegetation composition depends on the original community from which it developed.

Xeric hammock at MaSF currently occupies an area of historic scrub and likely developed as a result of long term fire exclusion.

Current Conditions:
The single xeric hammock at MaSF seems to have developed in response to fire exclusion in scrub. In addition to the canopy of sand live oak (*Quercus geminata*), other common species in the subcanopy and shrub layers include American holly (*Ilex opaca*), rusty staggerbush (*Lyonia ferruginea*), wild olive (*Osmanthus americanus*), southern magnolia (*Magnolia grandiflora*), red bay (*Persea borbonia*), Chapman's oak (*Quercus chapmanii*), laurel oak (*Quercus hemisphaerica*), myrtle oak (*Quercus myrtifolia*), saw palmetto (*Serenoa repens*), and shiny blueberry (*Vaccinium myrsinites*). Resurrection fern (*Pleopeltis polypodioides* var. *michauxiana*) and Spanish moss (*Tillandsia usneoides*) grow epiphytically on the sand live oaks.

Fire Regimes:
The sparsity of herbs and the relatively incombustible oak litter preclude most fires from entering xeric hammock. When fire does occur, it is nearly always catastrophic and may convert xeric hammock into another community type. Xeric hammock only develops on sites that have been protected from fire for 30 or more years.

Management Needs:
If the goal is to return current xeric hammock to scrub or sandhill, measures should be taken to introduce fire into the hammock. This may also require other measures to reduce oak dominance such as mechanical removal or herbicide treatment.

N. Other Altered Landcover Types

Description:
Altered landcover types are areas where the natural community has been overwhelmingly altered as a result of human activity. Pine plantation and restoration natural communities are described in separate sections of this report.

The altered landcover types described in this section are often not appropriate areas for restoration. If restoration is desired, 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 MaSF include artificial ponds, clearing/regeneration, roads, successional hardwood forest, and utility corridor.

Artificial pond (11 acres) – There are two (2) artificial ponds mapped on the west side of MaSF. One is very clearly a dug pond, while the other appears to be a lower area that is not evident on the 1942 aerial photographs.

Clearing/regeneration (11 acres) – There are numerous clearings, mostly logging decks associated with recent pine thinning operations. These areas may be managed as wildlife openings.

Road (37 acres) – MaSF has a network of limerock roads and other vehicle trails. Roads ≥5 meters wide are delineated on the current natural community map and adjacent ditches are included with the road.

Successional hardwood forest (6 acres) – These are areas of former flatwoods that have experienced significant fire exclusion that has led to a dominance of weedy canopy hardwoods, particularly laurel oak (*Quercus hemisphaerica*) and sweetgum (*Liguidambar styraciflua*). This community may be very similar to mesic hammock, and the two may intergrade.

Utility corridor (29 acres) – A powerline right of way running north/south bisects MaSF.

Fire Regimes:
N/A

Management Needs:
How human altered cover types should be managed depends on the site under consideration. These areas may be useful for placement of support facilities, or may be targeted for restoration of the historic natural community. Successional hardwood forests may benefit from increased fire and removal of canopy hardwoods. Other clearings in flatwoods or prairies may require intensive groundcover restoration. It may not be practical or desirable to restore some of the altered landcover types (e.g., developed land, roads, etc.) to the historic natural community.

VIII. References

Florida Department of State, Division of Historical Resources. Revised 2013. Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Lands. Department of the State, Division of Historical Resources. Tallahassee, Florida.

Florida Department of Agriculture and Consumer Services. Revised 2008. Silviculture Best Management Practices (BMPs) for Florida. Florida Department of Agriculture and Consumer Services, Florida Forest Service.

Florida Department of Agriculture and Consumer Services.. State Forest Handbook. Florida Department of Agriculture and Consumer Services, Florida Forest Service.

Florida Natural Areas Inventory (FNAI). 2010. Guide to the natural communities of Florida: 2010 Edition. Florida Natural Areas Inventory, Tallahassee, Florida.

IX. Glossary of Abbreviations

ARC .....Acquisition and Restoration Council
BMP .....Best Management Practices
BMAP .....Basin Management Action Plan
CARL.....Conservation and Recreation Lands
DACS.....Department of Agriculture and Consumer Services

DEP.....Department of Environmental Protection
DHR.....Division of Historical Resources
DRP.....Division of Recreation and Parks
EPA.....Environmental Protection Agency
FFS.....Florida Forest Service
FNAI.....Florida Natural Areas Inventory
FWC.....Florida Fish and Wildlife Conservation Commission
IBA.....Important Bird and Biodiversity Area
LMR.....Land Management Review
NRCS.....Natural Resources Conservation Service
SJRWMD.....St. Johns River Water Management District
OALE.....DACS Office of Agricultural Law Enforcement
OFW.....Outstanding Florida Water
P2000.....Preservation 2000
TIITF.....Board of Trustees of the Internal Improvement Trust Fund
TMDL.....Total Maximum Daily Load
USFS.....United States Forest Service
USFWS.....United States Fish and Wildlife Service
MaSF.....Matanzas State Forest
WMA.....Wildlife Management Area

MATANZAS STATE FOREST
2018 LAND MANAGEMENT PLAN

EXHIBITS

Exhibit A

Ten Year Management Accomplishment Summary

MATANZAS STATE FOREST

10 YEAR ACCOMPLISHMENT REPORT

		ACTIVITIES		TOTAL
Timber Inventory		Inventory update	acres	2,873
		New Inventory	acres	4,543
Site Preparation	1	Chop Single Pass	Acres	8
	5	Burn	Acres	40
Exotic Species Control	1	Air Potato	Acres	3.18
	2	Brazilian pepper	Acres	1.31
	3	Caesar's Weed	Acres	0.12
	4	Camphor	Acres	0.71
	5	Chinaberry	Acres	3.00
	6	Chinese Tallow	Acres	500.20
	7	Cogon grass	Acres	2.30
	8	Coral ardisia	Acres	7.15
	9	Japanese climbing fern	Acres	1.32
	10	Lantana	Acres	0.20
	11	Purple sesban	Acres	5.35
	12	Torpedo grass	Acres	9.90
	13	Tropical soda apple	Acres	0.00
Timber Stand Improvement		Mechanical Treatments		
	1	Mowing		131
	2	Walkdown/Between Rows	Acres	177
	3	Chopping	Acres	781
Timber Sales	1	Marking	acres	9
	2	Cruising	acres	2,237
	3	Harvest	acres	1,855
	4	Revenue	dollars	966,107
Recreation	1	Day Use - sign in	No.	35,463
	2	Overnight - Primitive(#Xnights)	No.	5,502
	3	Horse Permits	No.	4
Fire	1	Wildfire	No.	7
	2	Wildfire	Acres	443
	3	Prescribed Burning	Acres	2,348
Roads	1	Roads Graded	Miles	15.4
	2	Roads mowed	Miles	137
	3	Roads Rebuilt	Miles	8.6
	4	Culverts Installed	No.	15

Boundary Maint.	1	Maintenance/Marking	Miles	18
	2	Perimeter Firebreaks plowed/harrowed	Miles	21

	1	Programs/Tours	No.	14
I&E Activities	2	Radio - TV - Articles	No.	3

Other Activities	1	Dupont Forestry Station residence renovated for MaSF office headquarters		
	2	Enter/Exit Signs installed	No.	2
	3	Entrance Parking & Kiosk installed	No.	1
	4.	Established Group Camp	No.	1
	5	Hiking Trail route & trailhead plan approved	No.	1

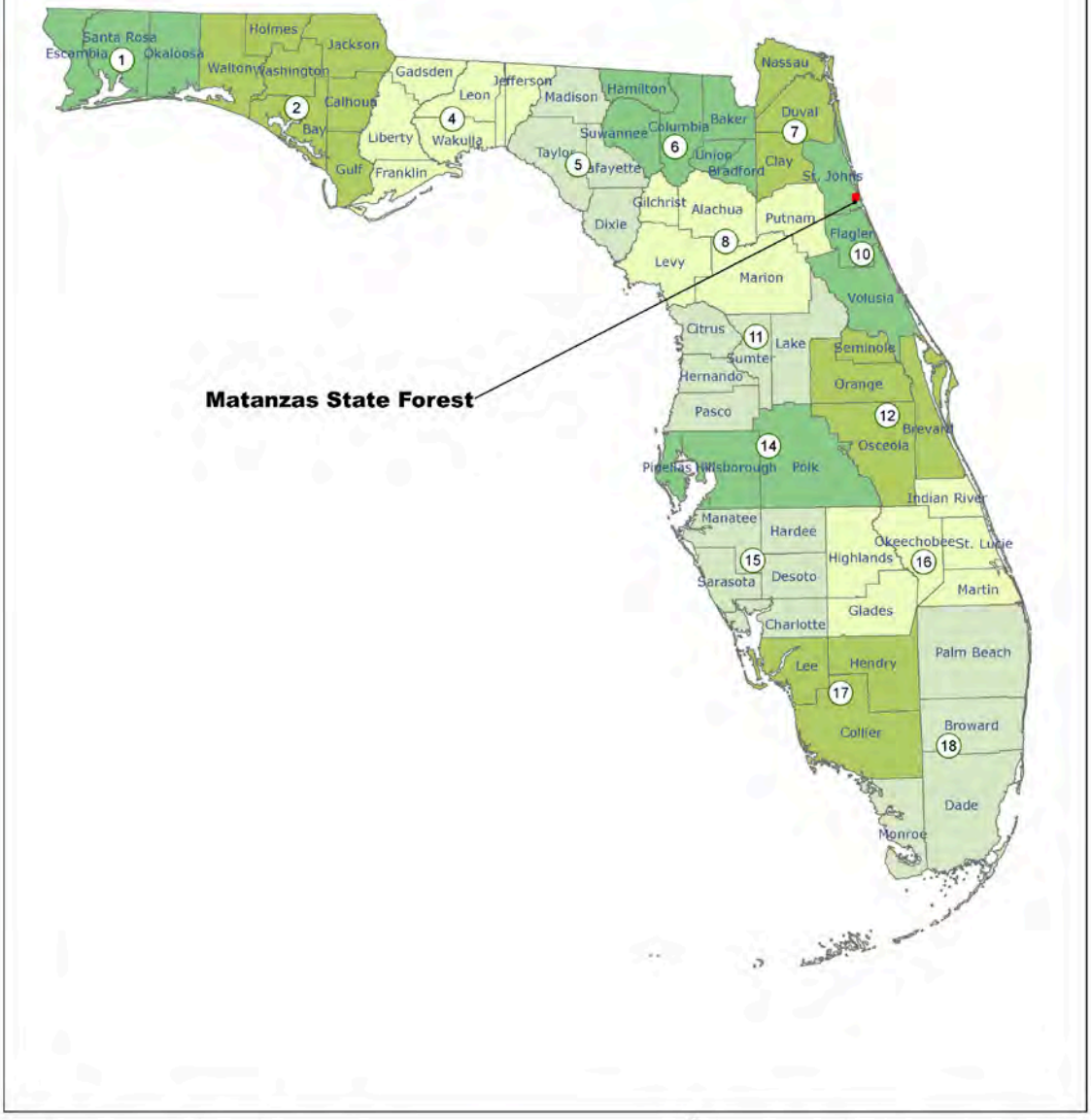
Exhibit B

Location/Boundary Maps

Florida Forest Service

Matanzas State Forest

Location Map



0 20 40 80 120 160 Miles

N W E S

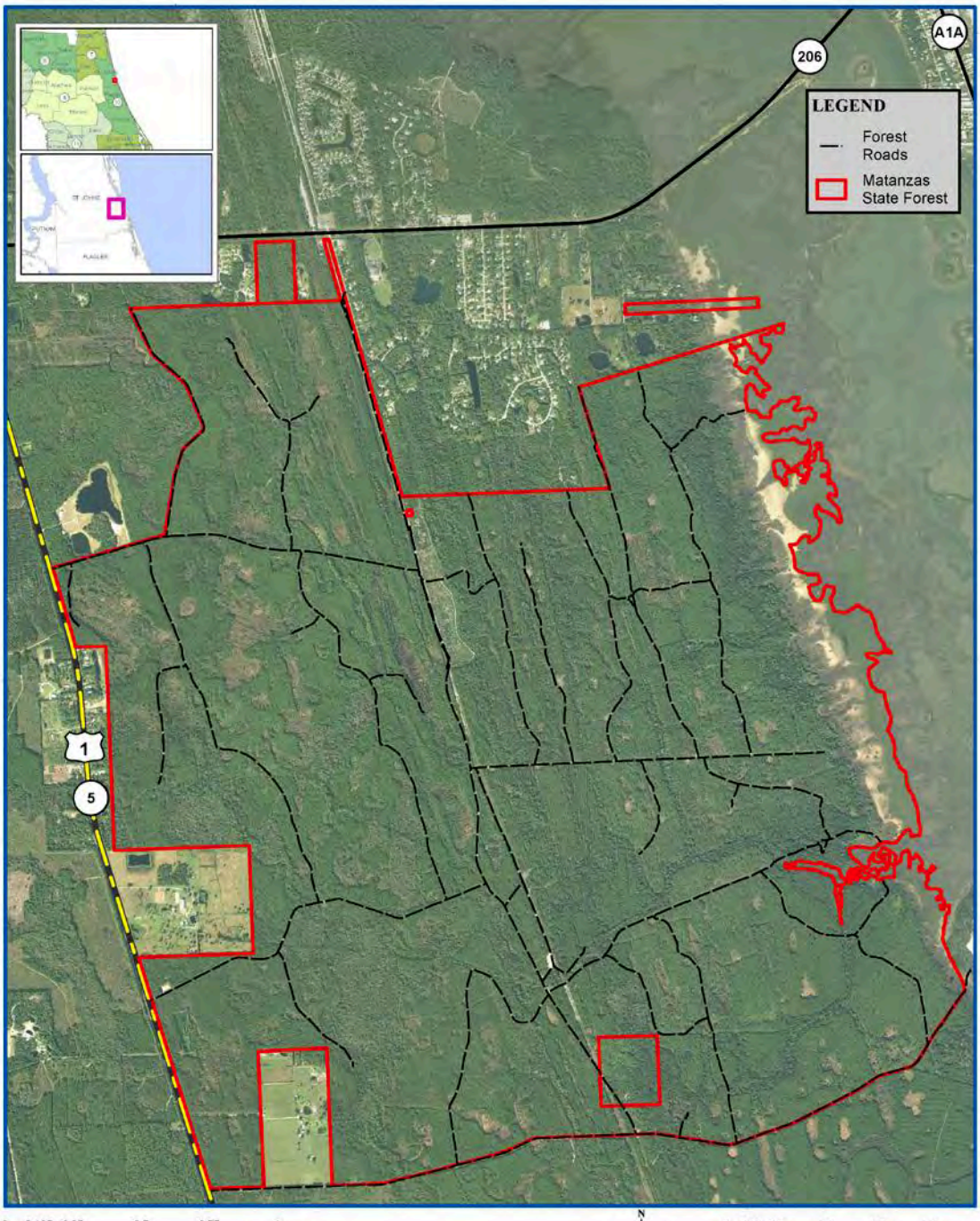
0 25 50 100 150 200 Kilometers

Map Month/Year: December 2017

Florida Forest Service

Matanzas State Forest

Boundary Map



0 0.125 0.25 0.5 0.75 1 Miles

0 0.15 0.3 0.6 0.9 1.2 Kilometers

Map Month/Year: November 2017

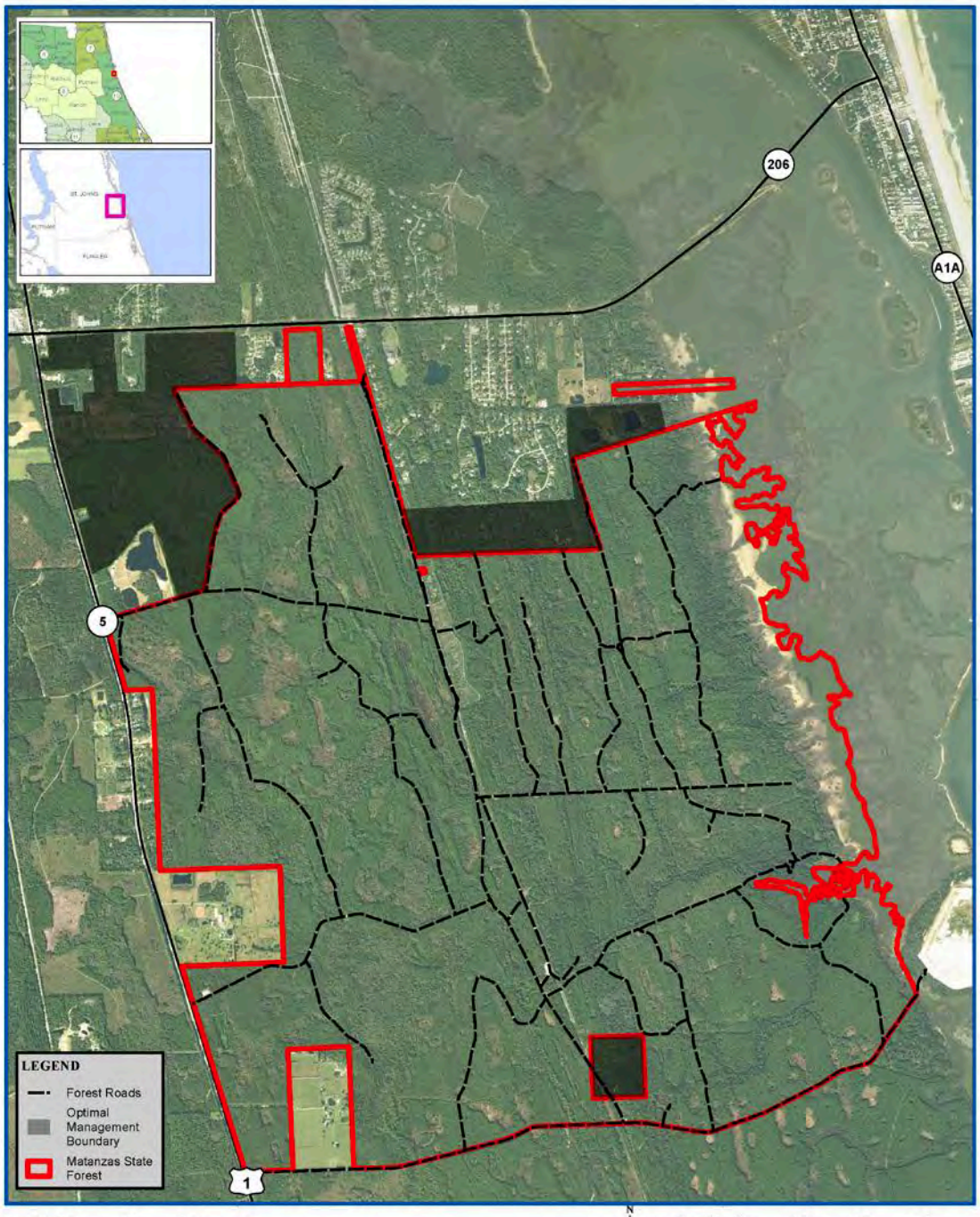
Exhibit C

Optimal Management Boundary Map

Florida Forest Service

Matanzas State Forest

Optimal Mangement Boundary Map



0 0.125 0.25 0.5 0.75 1 Miles

0 0.2 0.4 0.8 1.2 1.6 Kilometers

Map Month/Year: November 2017

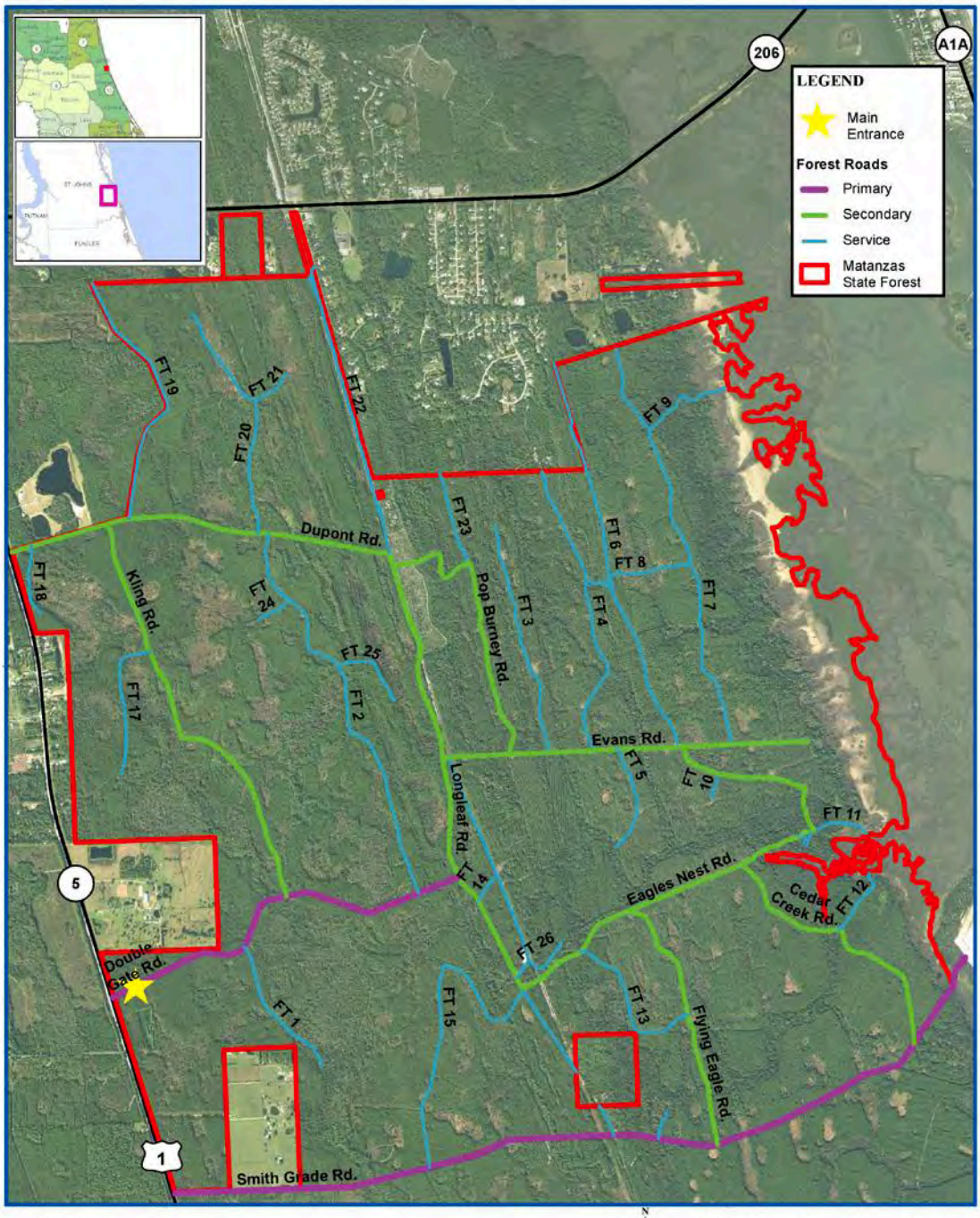
Exhibit D

Road Map

Florida Forest Service

Matanzas State Forest

Roads Map



0 0.125 0.25 0.5 0.75 1 Miles

Map Month/Year: November 2017

N W E S

0 0.15 0.3 0.6 0.9 1.2 Kilometers

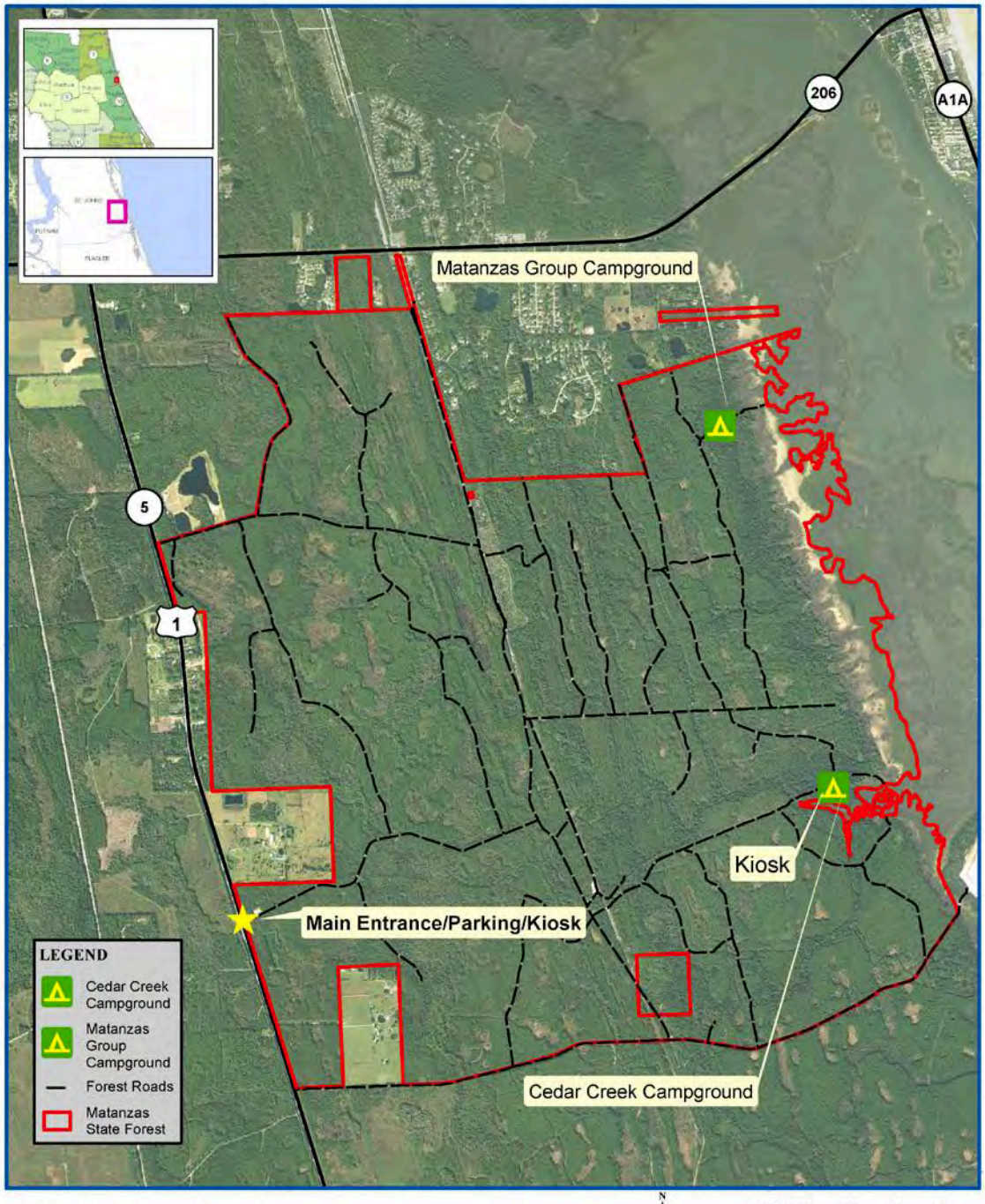
Exhibit E

Current/Planned Facilities, Recreation, and Improvements

Florida Forest Service

Matanzas State Forest

Current - Facilities, Recreation, and Improvements Map

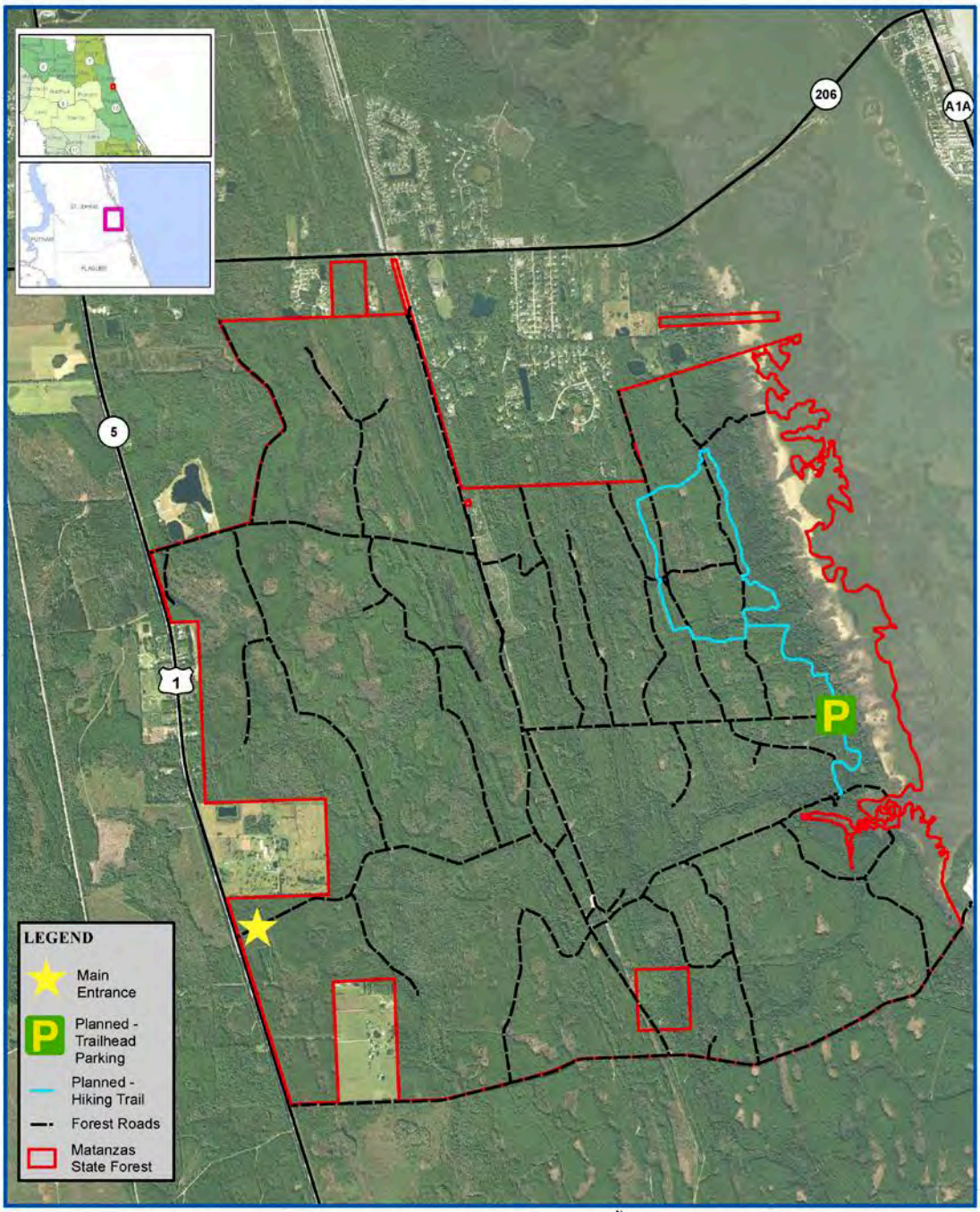


Map Month/Year: November 2017

Florida Forest Service

Matanzas State Forest

Planned - Facilities, Recreation, and Improvements Map



Map Month/Year: November 2017

Exhibit F

Proximity to Significant Managed Lands

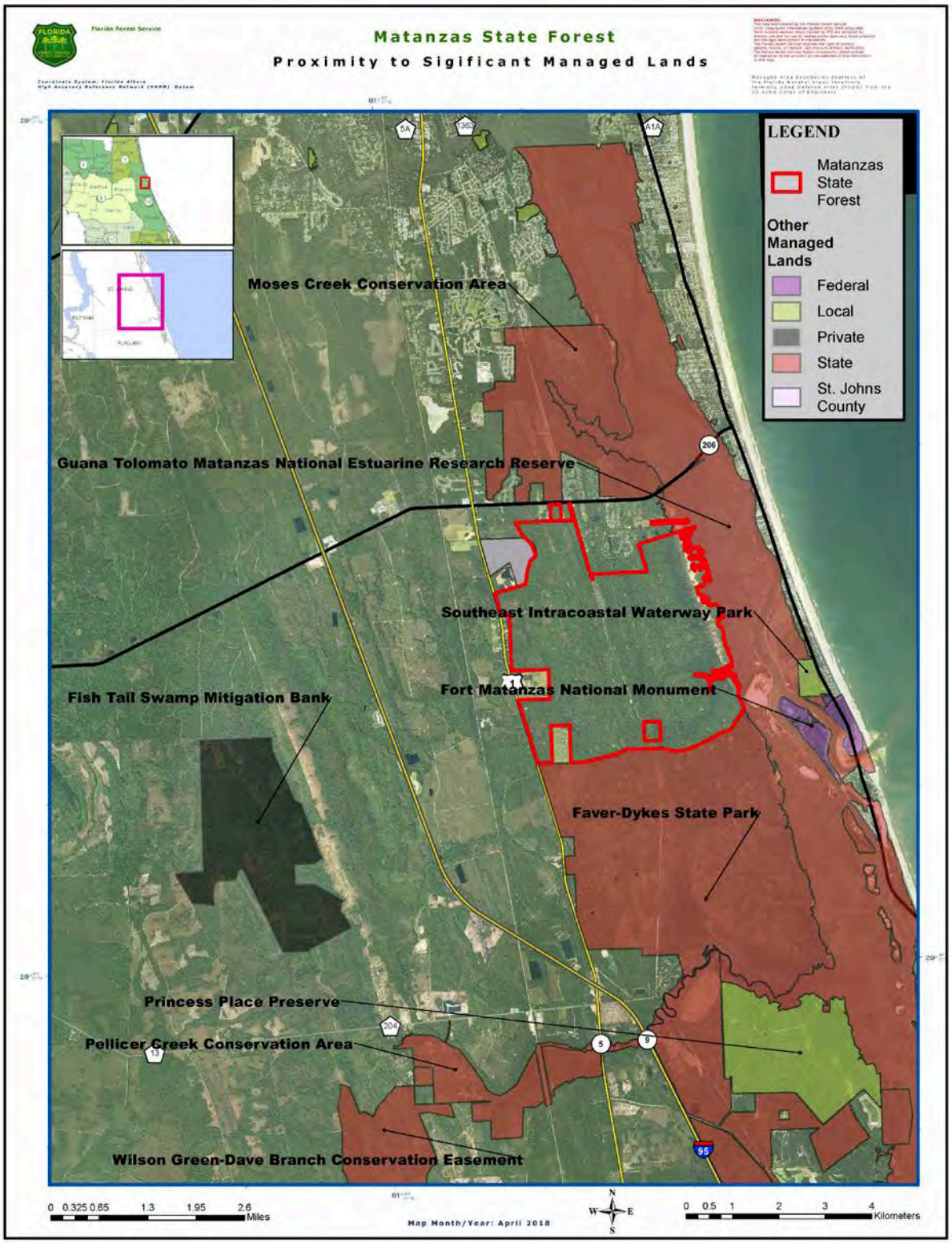

Florida Forest Service
Matanzas State Forest
Proximity to Sigificant Managed Lands
LEGEND
Matanzas State Forest
Other Managed Lands
Federal
Local
Private
State
St. Johns County
Moses Creek Conservation Area
Guana Tolomato Matanzas National Estuarine Research Reserve
Southeast Intracoastal Waterway Park
Fort Matanzas National Monument
Fish Tail Swamp Mitigation Bank
Faver-Dykes State Park
Princess Place Preserve
Pellicer Creek Conservation Area
Wilson Green-Dave Branch Conservation Easement
0 0.325 0.65 1.3 1.95 2.6 Miles
0 0.5 1 2 3 4 Kilometers
Map Month/Year: April 2018

Exhibit G

Florida Forever Projects

Matanzas to Ocala Conservation Corridor

Flagler, Putnam and St. Johns Counties **Less-Than-Fee**

Purpose for State Acquisition

Acquiring a less-than-fee interest over the 110,382 acres of the Matanzas to Ocala Conservation Corridor would enhance the connections of at least 15 conservation lands and conservation easements in this region of Florida, preserve natural areas for wildlife biodiversity, and protect surface waters and wetlands in this area, ensuring an adequate water supply for the current and the future needs of the natural systems and for the citizens of the state. Much of this land is silvicultural land, and this corridor would preserve these lands in an agricultural use. As a wildlife corridor among other conservation lands, the Matanzas to Ocala Conservation Corridor would help the long-term survival of larger and wide-ranging wildlife such as the Florida black bear and other wildlife species, both rare and common.

The Florida Forever Measures Evaluation identifies how much of the area would contribute to the Florida Forever goals, with 100 percent of the area contributing to surface-water protection. Some 99 percent of the area would help aquifer recharge, 45 percent of the area would preserve functional wetlands, 40 percent of the area would preserve natural floodplain functions, and 97 percent of the area would preserve ecological greenways. This project meets the requirements of the 2014 Amendment One constitutional initiative.

Matanzas to Ocala Conservation Corridor
FNAI Elements

Florida Black Bear	G5T2/S2
Gopher Tortoise	G3/S3
Swallow-tailed Kite	G5/S2
Lake-side Sunflower	G1G2/S1S2
Celestial Lily	G2/S2
Florida Beargrass	G3/S3
Nodding Pinweed	G3/S3
Bachman's Sparrow	G3/S3
Florida Mountain-mint	G3/S3
Bald Eagle	G5/S3

10 rare species are associated with the project

There are currently two approved Developments of Regional Impact (DRI), totaling 10,000 acres, and eight other developments, totaling 20,000 acres, that are within the boundary of this conservation corridor. Development of these projects with their related roads and infrastructure would impact the ability of the Matanzas to Ocala Conservation Corridor to function as a viable wildlife corridor.

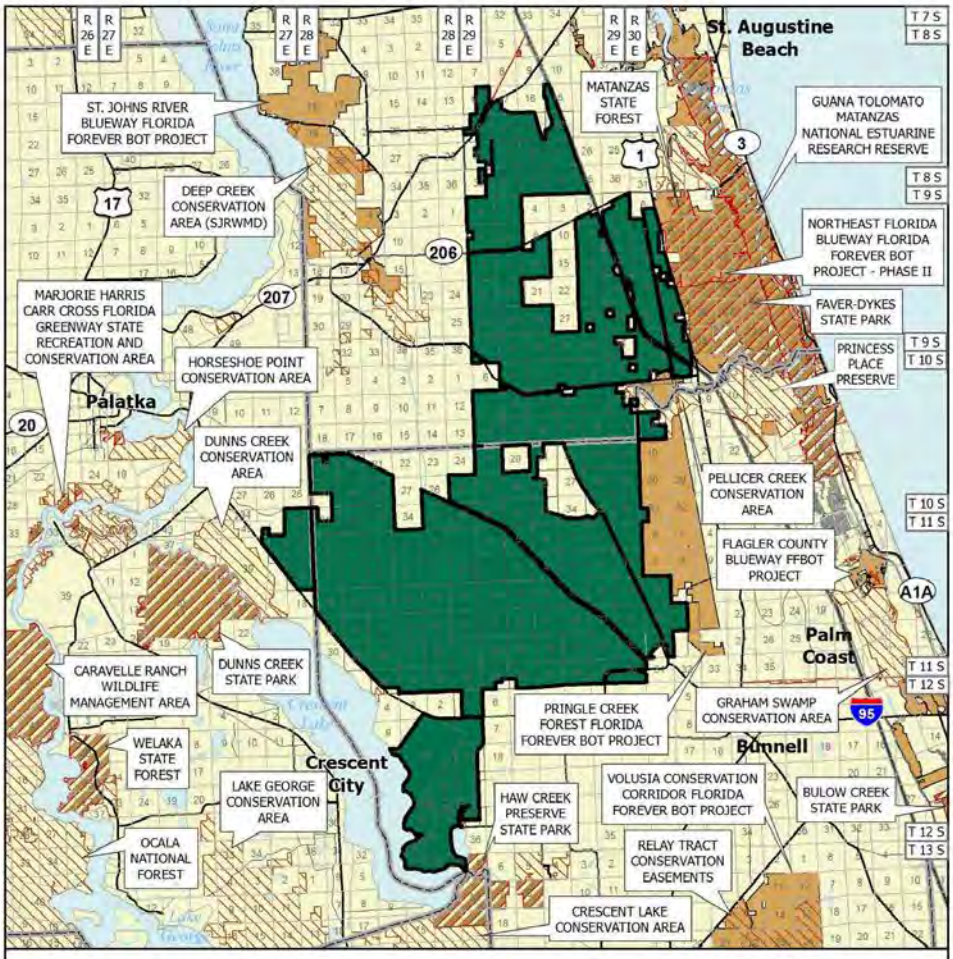
Manager

As a less-than-fee property, the land would be managed by the landowners with periodic visits from the staff of the Division of State Lands to ensure that they conditions the owners agreed to are being met. There is a possibility that some of the parts of this area could be acquired in fee-simple.

General Description

The Matanzas to Ocala Conservation Corridor has 19 different landowners in Flagler, Putnam and St. Johns counties. It is in the Eastern Flatwoods physiographic district described as coastal lowlands, with flatwoods and swamps on silty sand soils. The land stretches from State Road 100 in Flagler and Putnam counties on the southwest end, east to US Highway 1 in St. Johns County and to Interstate Highway 95 on the northeast side. It is basically one contiguous piece with several

Placed on List	**2016**
Project Area (GIS Acres)	**110,328**
Acres Acquired (GIS)	**0**
at a Cost of	**$0**
Acres Remaining (GIS)	**110,328**
with Estimated (Tax Assessed) Value of	**$21,223,436**



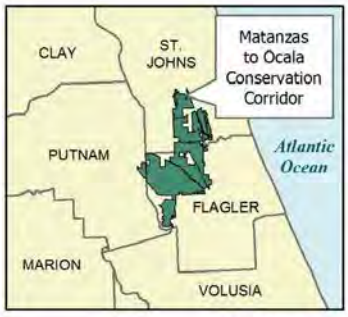
MATANZAS TO OCALA CONSERVATION CORRIDOR

FLAGLER, PUTNAM, AND ST. JOHNS COUNTIES

- Florida Forever BOT Project Boundary
- Other Florida Forever BOT Projects
- State Owned Lands
- Other Conservation Lands

N
W
E
S

0 3 6 12
Miles



DECEMBER 2015

outparcels. There are several public conservation lands on the boundaries of this project, including the Matanzas State Forest, the Faver-Dykes State Park, the Pellicer Creek Conservation Area, and at the southern end, the Haw Creek Preserve State Park. The Pringle Creek Forest Florida Forever project and the Northeast Florida Blueway Florida Forever project also abut this project, on the eastern side.

Historically this was a mix of mesic and wet pine flatwoods. Currently the trees on this land are mainly stands of slash pine up to 40 years old, with understory that ranges from heavily wooded with shrubs to no understory in areas where the pines are bedded. Commercial pine plantations account for about half of the acreage. Natural uplands are about 5 percent of the project, with small patches of wet and mesic flatwoods. Other areas have scrub, scrubby flatwoods and sandhill terrain.

Wetland communities make up the majority of natural communities on the property, about 40 percent of the area. Vegetation is generally dominated by bald cypress or swamp tupelo, with other wetland trees and shrubs. Isolated wetlands are abundant throughout the property. Dome swamps dominated by pond cypress (*Taxodium ascendens*) and open depression marshes are common within the pine plantation and flatwoods uplands. Several natural lakes occur on the property, with the largest in the southeast quarter – Speckled Perch Lake, Black Lake, and Tank Lake. These are in a higher, more xeric portion of the property. Baygall vegetation dominated by loblolly bay (*Gordonia lasianthus*) and slash pine surrounding these lakes indicates the increased seepage originating from the xeric uplands.

Public Use

The project is planned to be a less-than-fee acquisition, which would limit the ability of the state to provide public use. However, the project proposal has suggested recreational uses hosted by the landowners once the state acquires and precludes the rights to use the property for more intensive uses. Some parts of the property could be acquired in fee-simple to augment the adjoining and existing public lands, in which case the acquired land would be managed by the agency already managing those adjacent lands.

Acquisition Planning

This Less-than-Fee project was sponsored in a proposal by the Conservation Trust of Florida, and was presented to the Acquisition and Restoration Council at the October 16, 2015 meeting.

Coordination

There are no partners in the acquisition at this time.

Management Prospectus

The Office of Environmental Services of the Division of State Lands is tasked with ensuring the oversight of the conservation easement on this project. If any of the lands in this project are acquired in fee-simple, they would be managed according to the management plans of the associated public conservation land.

Northeast Florida Blueway

Duval, Flagler and St. Johns Counties **Climate Change Lands**

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 – helps to maintain shoreline plant communities on the Tolomato & Matanzas rivers, benefiting the manatees that spend the warm season in these water; (2) Increase the amount of open space available in urban areas – serves as a vital connection in the Statewide System of Greenways and Trails; (3) Increase natural resource-based public recreation and educational opportunities – offers many resource-based recreation opportunities both directly and indirectly: fishing, canoeing, bicycling, and camping, to name a few; (4) Protect, restore, and maintain the quality and natural functions of land, water, and wetland systems of the state – connectivity with other areas contribute to ongoing governmental efforts to protect and restore the regional land and water; and (5) Increase the amount of forestland available for sustainable management of natural resources – areas observed within the Rayonier property that are capable of producing pine timber products have been site prepared and planted.

Manager

The City of Jacksonville, the Florida Forest Service (FFS) of the Department of Agriculture and Consumer Services (DACS), and the Division of Recreation and Parks (DRP) of the Department of Environmental Protection (DEP).

Northeast Florida Blueway FNAI Elements	
Manatee	G2/S2
Florida Black Bear	G5T2/S2
Gopher Tortoise	G3/S3
Wood Stork	G4/S2
Yellow Hibiscus	G4G5/S2
Roseate Spoonbill	G5/S2
American Oystercatcher	G5/S2
Eastern Diamondback Rattlesnake	G4/S3
Least Tern	G4/S3
Bald Eagle	G5/S3
Osprey	G5/S3S4
Little Blue Heron	G5/S4
16 rare species are associated with the project	

General Description

This project is composed of many publicly and privately owned uplands and wetlands along both sides of the Intracoastal Waterway, the Tolomato and Matanzas rivers and selected tributaries, from the Duval County line south to the Flagler County line. Marshlands, open water, and small islands of shrub and hammock vegetation are 92 percent of the public lands. The intention of the project is to connect existing natural areas and greenspace to form a conservation lands corridor along the north-south waterway. It is adjacent to the following managed areas: Guana Tolomato Matanzas National Estuarine Research Reserve (several WMD Conservation Areas included therein), Faver-Dykes State Park, Guana River State Park, Deep Creek State Forest, and Ft. Matanzas National Monument.

Public Use

This project would support primitive camping opportunities with canoeing and kayaking taking place within the waterway and associated creeks. Some of the larger parcels may have potential for archaeological interpretation and nature study trails, depending on the ability of the public to gain access. The DRP proposes to manage the St. Johns County portion north of Faver-Dykes State Park and south of a haul road between US

Placed on List	**2001**
Project Area (GIS Acres)	**27,917**
Acres Acquired (GIS)	**15,801***
at a Cost of	**$32,438,430****
Acres Remaining (GIS)	**12,116**
Estimated (Tax Assessed) Value of	**$30,059,986**

***Acquisition Includes lands owned by public entities and NGOs.**

****Money spent includes funds spent by the Board of Trustees (current) and acquisition partners (requires updating).**

Highway 1 and a spoil site on the Matanzas River. This section of the project contains about 5,000 acres. As a part of Faver-Dykes State Park, hunting would not be allowed. The property would expand the quality and quantity of recreational activity at the park including bicycling, hiking, horseback riding, camping (RV and primitive camping), environmental education, and picnicking.

The FFS proposes to manage the remainder of the project under a multiple-use management regime consistent with the State Forest system. A portion of the project will become part of the Deep Creek State Forest, managed for multiple uses including, but not limited to, timber management and restoration, low impact recreational opportunities, and protecting archeological and historic sites.

Acquisition Planning

On January 25, 2001, the Acquisition & Restoration Council (ARC) added the Northeast Florida Blueway – Phase I project to Group A of the Florida Forever (FF) 2001 Priority list. This fee-simple acquisition, located in Duval County and known as Pablo Creek, was sponsored by the City of Jacksonville (Preservation Project Jacksonville). It consisted of approximately 6,943 acres, multiple owners (private & public), and a 1998 taxable value of $15,700,000 on the 4,867 acres in private ownerships. The entire project was designated as essential.

On December 6, 2001, the ARC approved Phase II, also known as Tolomato & Matanzas Rivers, to the project boundary. The fee-simple addition in St. Johns County consisted of approximately 27,929 acres, multiple owners (private & public), and a 2001 taxable value of $18,610,780 on the 17,834 acres in private ownerships. St. Johns County sponsored this addition. The essential parcels were designated as Rayonier Timberlands, Ponce de Leon Resort, Flagler Development, Roberts, Rayland, Wadsworth, and Swan Development.

On August 15, 2003, the ARC approved two additions to the project boundary. The Office of Coastal & Aquatic Managed Areas (CAMA) sponsored a 20.26-acre addition with a single owner, Jacoby Development Inc., two parcels, and a 2002 taxable value of $2,955,714. This fee-simple addition, located in St. Johns County, was added to Phase II. St. Johns County sponsored a 70-acre addition with a single owner,

Marine Park Properties, LLC, multiple parcels, and a 2002 taxable value of $8,400,000. This fee-simple addition is located in Flagler County. On October 13, 2006, the ARC approved a redesign of the project boundary. A total of 2,000 acres no longer suitable for conservation were removed from the project, 180 in Duval County and 1,820 in St. Johns County, reducing the total project size to 32,564 acres. The updated total includes lands in public ownership and acres acquired. Previous project area estimates did not include lands in public ownership.

On December 9, 2011, ARC placed this project in the Climate Change Lands list of projects.

Coordination

The City of Jacksonville is an acquisition partner in Phase I, in Duval County. The city has contacted FEMA and they may contribute $250,000 towards acquisition. Florida Communities Trust has already contributed acquisition funds with the City for several parcels, the SJRWMD has purchased some conservation easements and the Jacksonville Transportation Authority has mitigation funds to contribute towards acquisition. The Trust for Public Land will be the intermediary for negotiations.

Portions of Phase II, in St. Johns County, will likely be acquired through other conservation programs. St. Johns County, the Florida Communities Trust Program and the St. Johns River Water Management District (SJRWMD) may be partners on portions of the project.

Management Policy Statement

To conserve and protect environmentally unique and irreplaceable lands that contain native, relatively unaltered flora and fauna representing a natural area unique to, or scarce within, a region of the state or a larger geographic area. To conserve and protect significant habitat for native species or endangered and threatened species. To conserve, protect, manage, or restore important ecosystems, landscapes, and forests, in order to enhance or protect significant surface water, coastal, recreational, timber, fish or wildlife resources. Finally, to preserve significant archaeological or historical sites.

NORTHEAST FLORIDA BLUEWAY: OVERVIEW

DUVAL, ST. JOHNS, AND FLAGLER COUNTIES

0 5 10 20
Miles

MARCH 2016

Management Prospectus

Qualifications for State Designation The lands in Phase I are rapidly disappearing as Duval County grows. The Preservation Project, the city's land acquisition program, seeks to protect and preserve the existing habitat and waterway as it exists today. It is the goal of the City of Jacksonville to manage this project to conserve, protect or restore important ecosystems while providing opportunities for natural-resource-based recreation. The City of Jacksonville proposes to manage the lands in accordance with the standards of the Acquisition and Restoration Council.

Phase II is of a size and diversity that makes it desirable for use and management as a state forest. Management by the FFS as a state forest is contingent upon acquiring fee simple title to the parcels of interest to FFS. The portion of the project of interest for management by the DRP is largely disturbed land that has been managed for silviculture. While much restoration work will be required over time, the quality of the property when restored will make it suitable for state park purposes.

Manager The City of Jacksonville will manage that portion of the project within Duval County. The DRP proposes to manage that portion of the Northeast Florida Blueway – Phase II project, approximately 5,000 acres, lying north of Faver-Dykes State Park, south of a haul road from US 1 to a spoil site on the Matanzas River, east of US 1 and west of the Matanzas River. The Florida Forest Service (FFS) proposes to manage the Rayonier parcel north of the spoil haul road (approximately 4,000 acres) plus two additional parcels, one adjoining Deep Creek State Forest and an adjoining Florida Natural Areas Inventory Addition (approximately 2,500 acres).

Conditions affecting intensity of management

Initial management efforts of Phase I by the City of Jacksonville will concentrate on site security, resource inventory, removing trash, and having limited public access to the property. Steps will be taken to ensure that the public is provided appropriate access while simultaneously protecting sensitive resources. Intensive restoration will be needed on the portion of Phase II managed by DRP to restore natural communities disturbed by timber operations. Intensity of restoration will be dictated by study of the site. Any immediate action, such as prescribed burning, would increase the early intensity of management. The lands bordering the river are in relatively good shape and will not require intensive management.

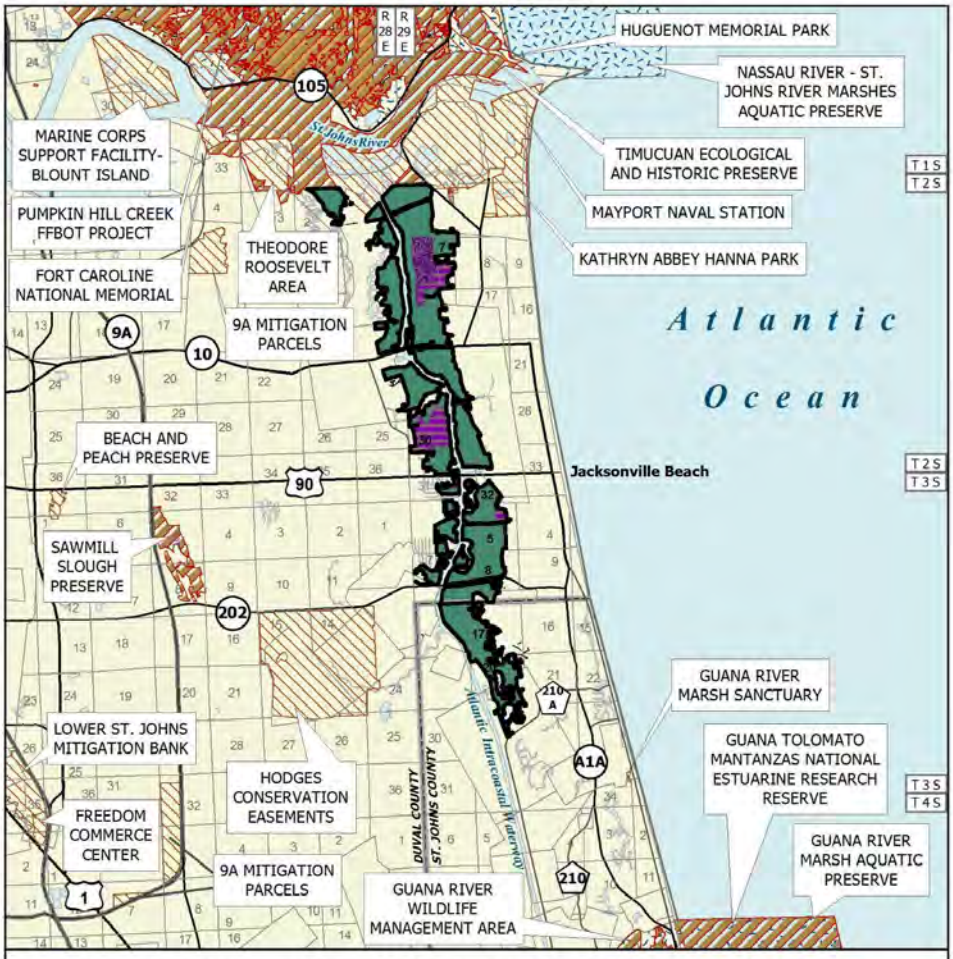
The portions of Phase II managed by FFS can be restored with the help of carefully prescribed fires and hydrologic restoration. The use of fire must be carefully applied because of the fuel load and type of fuel in this forest system. An inventory of the forest roads in this area would determine which stay open for public use, which would be used for management, and which would be closed.

Timetable for implementing management, and provisions for security and protection of infrastructure Jacksonville's land-acquisition program, Preservation Project Jacksonville, will be responsible for developing and implementing the management plans for Phase I. The Preservation Project set aside $950,000 to hire a program manager to develop and implement management plans. As properties are acquired, the City will first inventory natural resources and develop a plan to protect and restore resources, including removing invasive and exotic species, before developing access plans. The DRP plans for its portion of Phase II that, upon fee title acquisition, public access will be provided for low-intensity, non-facility outdoor recreation. Within the first year after acquisition, management will concentrate on site security, natural and cultural resource protection, and developing a plan for long-term public use and resource management.

The FFS timetable for management of the remainder of Phase II also provides initial public access for diverse, low-intensity outdoor recreation. Management would be carried out by the FFS Bunnell District until additional personnel were available for resource management and restoration activity. Initial and intermediate management will concentrate on site security, public and resource management access, prescribed fire, reforestation, and removing trash.

Revenue-generating potential Phase II, the portion to be added to Faver Dykes State Park, will not initially make any significant revenue for the DRP. After acquiring and adding the land to Faver- Dykes State Park, it will probably be several years before significant public use facilities are developed. The amount of revenue generated will depend on the nature and extent of public use and facilities developed. The FFS plans to conduct timber sales as needed to improve or maintain desirable ecosystems. These sales will primarily be from merchantable pine stands and provide a variable revenue depending on a variety of factors. The condition of the timber stands on the property is such that the revenue generating potential is expected to be moderate.

Cooperators in management activities Although not required, the City of Jacksonville commits to



NORTHEAST FLORIDA BLUEWAY: MAP 1 OF 3

DUVAL AND ST. JOHNS COUNTIES

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

0 1.25 2.5 5 Miles

MARCH 2016

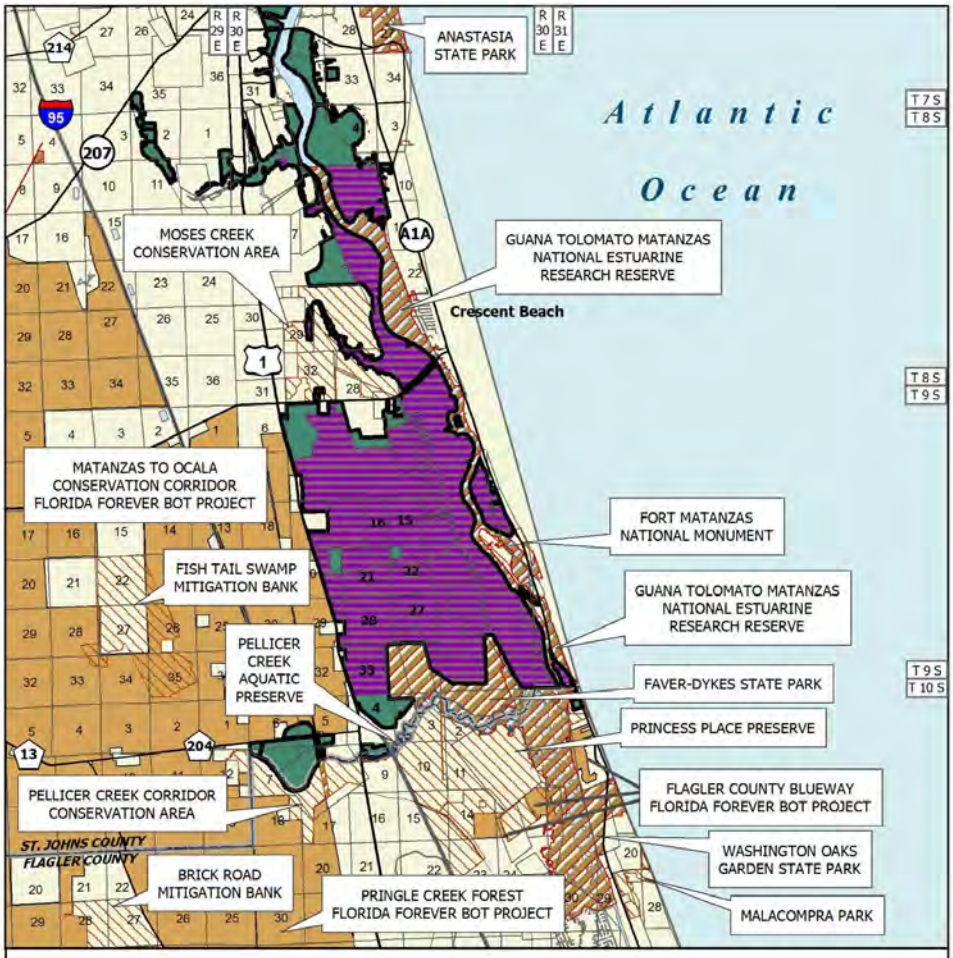
NORTHEAST FLORIDA BLUEWAY: MAP 2 OF 3

ST. JOHNS COUNTY

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

0 1.25 2.5 5 Miles

MARCH 2016



NORTHEAST FLORIDA BLUEWAY: MAP 3 OF 3

ST. JOHNS AND FLAGLER COUNTIES

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

0 1.25 2.5 5 Miles

MARCH 2016

submitting management plans for city-controlled properties in the Blueway to the Acquisition and Restoration Council for review and comment, even though properties may have been acquired with other sources. Doing so will ensure that the Preservation Project takes a system-wide approach to managing Blueway properties.

In Phase II, DRP will consult other federal, state, and local government agencies, as appropriate, to further resource management, recreational and educational opportunities and developing the property for state park purposes. FFS plans to cooperate with, and seek the assistance of, local government entities, interested parties as appropriate and the Florida Natural Areas Inventory. The FFS also intends to coordinate the recreational use of the Rayonier parcel with the DRP because of the potential for a recreation trail on the eastern portion of the property. The FFS will work with the Florida Fish and Wildlife Conservation Commission (FWC) in game and non-game management and related public use of the property.

The Blueway also includes a substantial amount of property owned by other government agencies. It is not the intent that the City or State acquire these properties. However, it is hoped that the Blueway boundary will be the catalyst for a voluntary, joint management approach to publicly owned lands within the corridor. Other agencies that own lands within the Blueway include the U.S. Navy, the National Park Service, Florida Inland Navigation District, the cities of Jacksonville Beach and Atlantic Beach, the City of Jacksonville, the Jacksonville Electric Authority and the St. Johns River Water Management District.

Management Cost Summary
Phase I Management Costs and Sources of Revenue:

Projected annual cost (FY 2001):	
Management plans	**$ 200,000**
Security:	**$ 25,000**
Invasion/exotics control:	**$ 25,000**
One-time capital outlay	**$2,500,000**
TOTAL	**$2,750,000**

The DRP has made general management estimates that would be adjusted based on approval of a unit management plan. Costs for fencing are included. Restoration costs are estimated at $500 per acre, and until further study, the total of acres to be restored is not known.

Phase II Management Cost Summary/DRP:

Category	**Startup**	**Recurring**
Source of Funds:	**CARL**	**CARL**
Salary	**$0**	**$29,000**
OPS	**$15,000**	**$8,000**
Expense	**$18,000**	**$12,000**
OCO	**$28,000**	**$0**
FCO	**$20,000**	**$0**
TOTAL	**$81,000**	**$49,000**

The FFS anticipates that revenue funding will come from the CARL Trust Fund. Budget needs for interim management are estimated as follows:

Phase II Management Cost Summary/FFS

Salary (3 FTE's)	**$79,518**
Expense	**$215,000**
OCO	**$37,800**
TOTAL:	**$333,318**

Updated April 13, 2016

Exhibit H

Department of State Report on Archeological Sites 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.

July 20, 2017

Florida Master Site File

Alan L. Davis
Land Planning Coordinator
Florida DA&CS
3125 Conner Boulevard
Tallahassee, FL 32399-1650
E-mail: Alan.Davis@freshfromflorida.com

Re: Matanzas State Forest

In response to your inquiry of July 17, 2017, the Florida Master Site File lists five archeological sites and one standing structure found at the designated area for Matanzas Forest, St.-Johns 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

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

Florida Master Site File

AR=5
SS=1
CM=0
RG=0
BR=0
Total=6

Cultural Resource Roster

SiteID	Type	Site Name	Address	Additional Info	SHPO Eval	NR Status
SJ03152	AR	DOG STATION	SUMMER HAVEN		Insufficient Info	
SJ03154	AR	CEDAR LANDING				
SJ03155	AR	CEDAR CREEK		Human Remains May Be Present		
SJ03156	AR	HAMILTON				
SJ03484	AR	LUCKY STRIKE	SUMMER HAVEN		Not Eligible	
SJ04272	SS	8400 US 1 SOUTH		c1925 Frame Vernacular		

Exhibit I

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 March 2013)

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:
http://www.flheritage.com/preservation/compliance/guidelines.cfm

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:
http://www.flheritage.com/preservation/compliance/docs/minimum_review_documentation_requirements.pdf .

* * *

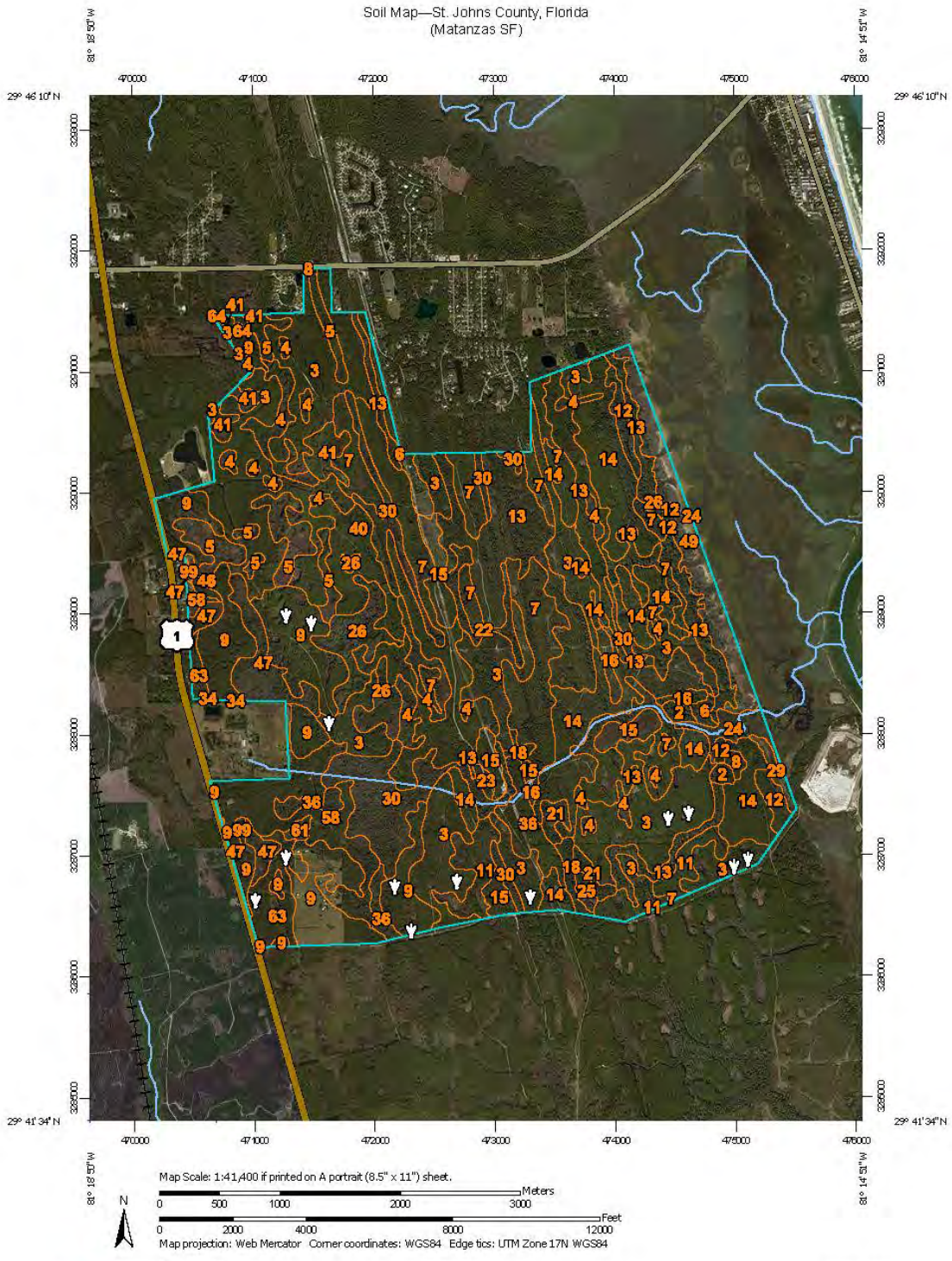
Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

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

Phone: (850) 245-6425
Toll Free: (800) 847-7278
Fax: (850) 245-6435

Exhibit J

Soil Maps and Descriptions


Soil Map—St. Johns County, Florida
(Matanzas SF)
81° 18' 50" W
81° 14' 51" W
29° 46' 10" N
29° 41' 34" N
470000
471000
472000
473000
474000
475000
476000
3295000
3296000
3297000
3298000
3299000
3300000
3301000
3302000
Map Scale: 1:41,400 if printed on A portrait (8.5" x 11") sheet.
Meters
0 500 1000 2000 3000
Feet
0 2000 4000 8000 12000
N
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: St. Johns County, Florida
Survey Area Data: Version 15, Sep 28, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 1, 1999—Dec 13, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

St. Johns County, Florida (FL109)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
2	Astatula fine sand, 0 to 8 percent slopes	15.7	0.3%
3	Myakka-Myakka, wet, fine sands, 0 to 2 percent slopes	975.5	20.5%
4	Myakka fine sand, frequently ponded, 0 to 1 percent slopes	147.6	3.1%
5	St. Johns fine sand, depressional	134.7	2.8%
6	Tavares fine sand, 0 to 5 percent slopes	40.3	0.8%
7	Immokalee fine sand	559.3	11.7%
8	Zolfo fine sand	7.8	0.2%
9	Pomona fine sand	441.9	9.3%
11	Smyrna-Smyrna, wet, fine sand, 0 to 2 percent slopes	82.3	1.7%
12	Ona-Ona, wet, fine sand, 0 to 2 percent slopes	49.8	1.0%
13	St. Johns fine sand	523.7	11.0%
14	Cassia fine sand, 0 to 2 percent slopes	446.7	9.4%
15	Pomello fine sand, 0 to 5 percent slopes	97.4	2.0%
16	Orsino fine sand, 0 to 5 percent slopes	25.1	0.5%
18	Floridana fine sand, frequently flooded	21.9	0.5%
21	Wabasso fine sand, 0 to 2 percent slopes	27.3	0.6%
22	Manatee fine sandy loam, frequently flooded	32.9	0.7%
23	Pacla fine sand, 0 to 8 percent slopes	7.1	0.1%
24	Pellicer silty clay loam, frequently flooded	33.3	0.7%
25	Parkwood fine sandy loam, frequently flooded	9.9	0.2%
26	Samsula muck, frequently ponded, 0 to 1 percent slopes	106.1	2.2%
29	Satellite fine sand	13.8	0.3%
30	Wesconnett fine sand, frequently flooded	232.4	4.9%

St. Johns County, Florida (FL109)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
34	Tocoi fine sand	0.5	0.0%
36	Riviera fine sand, frequently flooded	85.3	1.8%
40	Pottsburg fine sand	87.8	1.8%
41	Tomoka muck	53.4	1.1%
46	Holopaw fine sand	5.0	0.1%
47	Holopaw fine sand, frequently flooded	101.2	2.1%
49	Moultrie fine sand, frequently flooded	135.0	2.8%
58	EauGallie fine sand	171.9	3.6%
61	Riviera fine sand, depressional, 0 to 1 percent slopes	7.3	0.2%
63	Placid fine sand	74.0	1.6%
64	Ellzey fine sand	2.6	0.1%
99	Water	4.9	0.1%
Totals for Area of Interest		4,761.6	100.0%

Component Legend

This report presents general information about the map units and map unit components in the selected area. It shows map unit symbols and names and the components in each map unit. It also shows the percent of the components in the map units, the kind of component, and the slope range of each component.

Report—Component Legend

Component Legend–St. Johns County, Florida							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
2—Astatula fine sand, 0 to 8 percent slopes	5,500						
		85	Astatula	Series	0.0	4.0	8.0
3—Myakka-Myakka, wet, fine sands, 0 to 2 percent slopes	39,870						
		75	Myakka	Series	0.0	1.0	2.0
		15	Myakka, wet	Series	0.0	1.0	2.0
4—Myakka fine sand, frequently ponded, 0 to 1 percent slopes	2,370						
		85	Myakka	Series	0.0	0.5	1.0
5—St. Johns fine sand, depressional	5,610						
		85	St. johns, depressional	Series	0.0	1.0	2.0
6—Tavares fine sand, 0 to 5 percent slopes	8,230						
		90	Tavares	Series	0.0	3.0	5.0
7—Immokalee fine sand	20,230						
		70	Immokalee, nonhydric	Series	0.0	1.0	2.0
		20	Immokalee, hydric	Series	0.0	1.0	2.0
8—Zolfo fine sand	7,440						
		90	Zolfo	Taxadjunct	0.0	1.0	2.0
9—Pomona fine sand	32,020						
		70	Pomona, nonhydric	Series	0.0	1.0	2.0
		20	Pomona, hydric	Series	0.0	1.0	2.0
11—Smyrna-Smyrna, wet, fine sand, 0 to 2 percent slopes	10,660						
		76	Smyrna, non-hydric	Series	0.0	1.0	2.0
		20	Smyrna, hydric	Series	0.0	1.0	2.0

Component Legend–St. Johns County, Florida							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
12—Ona-Ona, wet, fine sand, 0 to 2 percent slopes	5,570						
		75	Ona	Series	0.0	1.0	2.0
		12	Ona, wet	Series	0.0	1.0	2.0
13—St. Johns fine sand	10,130						
		60	St. johns, hydric	Series	0.0	1.0	2.0
		30	St. johns, nonhydric	Series	0.0	1.0	2.0
14—Cassia fine sand, 0 to 2 percent slopes	4,660						
		80	Cassia	Series	0.0	1.0	2.0
15—Pomello fine sand, 0 to 5 percent slopes	4,450						
		95	Pomello	Series	0.0	2.5	5.0
16—Orsino fine sand, 0 to 5 percent slopes	2,380						
		90	Orsino	Series	0.0	3.0	5.0
18—Floridana fine sand, frequently flooded	4,975						
		80	Floridana, frequently flooded	Series	0.0	1.0	2.0
21—Wabasso fine sand, 0 to 2 percent slopes	2,975						
		85	Wabasso	Series	0.0	1.0	2.0
22—Manatee fine sandy loam, frequently flooded	3,430						
		85	Manatee	Series	0.0	1.0	2.0
23—Paola fine sand, 0 to 8 percent slopes	1,480						
		85	Paola	Series	0.0	4.0	8.0
24—Pellicer silty clay loam, frequently flooded	17,135						
		90	Pellicer	Series	0.0	0.5	1.0
25—Parkwood fine sandy loam, frequently flooded	5,480						
		90	Parkwood	Series	0.0	1.0	2.0
26—Samsula muck, frequently ponded, 0 to 1 percent slopes	4,390						
		85	Samsula	Series	0.0	0.5	1.0
29—Satellite fine sand	1,675						
		90	Satellite	Series	0.0	1.0	2.0

Component Legend–St. Johns County, Florida							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
30—Wesconnett fine sand, frequently flooded	5,500						
		90	Wesconnett	Series	0.0	1.0	2.0
34—Tocoi fine sand	20,575						
		65	Tocoi, nonhydric	Series	0.0	1.0	2.0
		20	Tocoi, hydric	Series	0.0	1.0	2.0
36—Riviera fine sand, frequently flooded	26,530						
		85	Riviera, frequently flooded	Series	0.0	1.0	1.0
40—Pottsburg fine sand	3,175						
		70	Pottsburg, nonhydric	Series	0.0	1.0	2.0
		20	Pottsburg, hydric	Series	0.0	1.0	2.0
41—Tomoka muck	4,990						
		80	Tomoka	Series	0.0	0.6	1.0
46—Holopaw fine sand	16,800						
		70	Holopaw, nonhydric	Series	0.0	1.0	2.0
		15	Holopaw, hydric	Series	0.0	1.0	2.0
47—Holopaw fine sand, frequently flooded	9,710						
		90	Holopaw, frequently flooded	Series	0.0	1.0	2.0
49—Moultrie fine sand, frequently flooded	1,775						
		90	Moultrie	Series	0.0	0.6	1.0
58—EauGallie fine sand	5,985						
		70	Eaugallie, nonhydric	Series	0.0	1.0	2.0
		15	Eaugallie, hydric	Series	0.0	1.0	2.0
61—Riviera fine sand, depressional, 0 to 1 percent slopes	4,590						
		85	Riviera, depressional	Series	0.0	0.5	1.0
63—Placid fine sand	9,205						
		85	Placid	Series	0.0	1.0	2.0
64—Ellzey fine sand	6,170						
		60	Ellzey, nonhydric	Series	0.0	1.0	2.0
		30	Ellzey, hydric	Series	0.0	1.0	2.0
99—Water	34,220						
		100	Water	Miscellaneous area			

Data Source Information

Soil Survey Area: St. Johns County, Florida
Survey Area Data: Version 15, Sep 28, 2016

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)

St. Johns County, Florida

Map Unit: 2—Astatula fine sand, 0 to 8 percent slopes

Component: Astatula (85%)

The Astatula component makes up 85 percent of the map unit. Slopes are 0 to 8 percent. This component is on ridges on marine terraces on coastal plains, knolls on marine terraces on coastal plains. The parent material consists of eolian or sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is excessively drained. Water movement in the most restrictive layer is very 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. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 6s. 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: Tavares (5%)

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

Component: Paola (5%)

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

Component: Orsino (5%)

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

Map Unit: 3—Myakka-Myakka, wet, fine sands, 0 to 2 percent slopes

Component: Myakka (75%)

The Myakka component makes up 75 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods, 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 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. 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: Myakka, wet (15%)

The Myakka, wet component makes up 15 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods, 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 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 June, July, August, September. 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: Basinger (5%)

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

Component: EauGallie, non-hydric (4%)

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

Component: Placid, depressional (1%)

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

Map Unit: 4—Myakka fine sand, frequently ponded, 0 to 1 percent slopes

Component: Myakka (85%)

The Myakka component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions 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 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, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 4 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: Basinger (5%)

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

Component: Placid (4%)

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

Component: Anclote (3%)

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

Component: Floridana (2%)

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

Component: Samsula (1%)

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

Map Unit: 5—St. Johns fine sand, depressional

Component: St. Johns, depressional (85%)

The St. Johns, depressional component makes up 85 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 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, October, November, December. Organic matter content in the surface horizon is about 4 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: Myakka, depressional (8%)

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

Component: Wesconnett (7%)

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

Map Unit: 6—Tavares fine sand, 0 to 5 percent slopes

Component: Tavares (90%)

The Tavares component makes up 90 percent of the map unit. Slopes are 0 to 5 percent. This component is on hills on marine terraces on coastal plains. The parent material consists of eolian or sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is 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 57 inches during June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 3s. 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: Candler (4%)

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

Component: Adamsville (3%)

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

Component: Cassia (2%)

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

Component: Zolfo (1%)

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

Map Unit: 7—Immokalee fine sand

Component: Immokalee, nonhydric (70%)

The Immokalee, nonhydric component makes up 70 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains, rises 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 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, October, November. Organic matter content in the surface horizon is about 3 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: Immokalee, hydric (20%)

The Immokalee, hydric component makes up 20 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 low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during 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: Myakka, nonhydric (3%)

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

Component: Pottsburg, nonhydric (3%)

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

Component: Smyrna, nonhydric (2%)

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

Component: Wesconnett (2%)

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

Map Unit: 8—Zolfo fine sand

Component: Zolfo (90%)

The Zolfo component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces on coastal plains, rises 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 somewhat 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 33 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 1 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: Adamsville (4%)

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

Component: Ona, nonhydric (3%)

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

Component: Immokalee, nonhydric (3%)

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

Map Unit: 9—Pomona fine sand

Component: Pomona, nonhydric (70%)

The Pomona, nonhydric component makes up 70 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 July, August, September. Organic matter content in the surface horizon is about 3 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: Pomona, hydric (20%)

The Pomona, hydric component makes up 20 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 6 inches during July, August, September. 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: Myakka, nonhydric (2%)

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

Component: Wesconnett (2%)

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

Component: EauGallie, nonhydric (2%)

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

Component: St. Johns, hydric (2%)

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

Component: Bakersville (2%)

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

Map Unit: 11—Smyrna-Smyrna, wet, fine sand, 0 to 2 percent slopes

Component: Smyrna, non-hydric (76%)

The Smyrna, non-hydric component makes up 76 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 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. Organic matter content in the surface horizon is about 7 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 0 within 30 inches of the soil surface.

Component: Smyrna, hydric (20%)

The Smyrna, hydric component makes up 20 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 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 June, July, August, September. Organic matter content in the surface horizon is about 7 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 0 within 30 inches of the soil surface.

Component: Basinger, depressional (2%)

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

Component: EauGallie, hydric (1%)

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

Component: Pomona, non-hydric (1%)

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

Map Unit: 12—Ona-Ona, wet, fine sand, 0 to 2 percent slopes

Component: Ona (75%)

The Ona component makes up 75 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 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 January, February, March, April, May, June, July, August, September, October, November, December. 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: Ona, wet (12%)

The Ona, wet component makes up 12 percent of the map unit. Slopes are 0 to 2 percent. This component is on sloughs 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 low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 8 inches during July, August, September. 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: Myakka (5%)

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

Component: Immokalee (4%)

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

Component: Basinger, hydric (4%)

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

Map Unit: 13—St. Johns fine sand

Component: St. Johns, hydric (60%)

The St. Johns, hydric component makes up 60 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 January, February, March, April, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 4 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: St. Johns, nonhydric (30%)

The St. Johns, nonhydric component makes up 30 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 12 inches during January, February, March, April, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 4 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: Myakka, nonhydric (4%)

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

Component: Smyrna, nonhydric (3%)

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

Component: Ona, hydric (3%)

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

Map Unit: 14—Cassia fine sand, 0 to 2 percent slopes

Component: Cassia (80%)

The Cassia component makes up 80 percent of the map unit. Slopes are 0 to 2 percent. This component is on rises 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 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 18 inches during January, July, August, September, October, November, December. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6s. 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: Myakka (7%)

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

Component: Pomello (6%)

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

Component: Satellite (4%)

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

Component: Jonathan (3%)

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

Map Unit: 15—Pomello fine sand, 0 to 5 percent slopes

Component: Pomello (95%)

The Pomello component makes up 95 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges, 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 moderately well 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 33 inches during July, August, September, October, November. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6s. 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 0 within 30 inches of the soil surface.

Component: Smyrna (3%)

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

Component: Bulow (1%)

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

Component: Tavares (1%)

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

Map Unit: 16—Orsino fine sand, 0 to 5 percent slopes

Component: Orsino (90%)

The Orsino component makes up 90 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains, knolls on marine terraces on coastal plains. The parent material consists of eolian or sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is very 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 51 inches during June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 4s. 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: Paola (4%)

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

Component: Tavares (3%)

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

Component: Pomello (3%)

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

Map Unit: 18—Floridana fine sand, frequently flooded

Component: Floridana, frequently flooded (80%)

The Floridana, frequently flooded component makes up 80 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains, drainageways 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 low. 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 0 inches during January, February, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 7 percent. Nonirrigated land capability classification is 5w. 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: Holopaw, frequently flooded (10%)

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

Component: Riviera, frequently flooded (10%)

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

Map Unit: 21—Wabasso fine sand, 0 to 2 percent slopes

Component: Wabasso (85%)

The Wabasso component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on flats on marine terraces on coastal plains. The parent material consists of sandy marine deposits over loamy marine deposits. Depth to a root restrictive layer, strongly contrasting textural stratification, is 12 to 63 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 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 June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 2 percent. 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: Riviera (4%)

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

Component: Felda (4%)

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

Component: Basinger (4%)

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

Component: Boca (3%)

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

Map Unit: 22—Manatee fine sandy loam, frequently flooded

Component: Manatee (85%)

The Manatee component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains, drainageways 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 frequently flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during January, February, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 9 percent. Nonirrigated land capability classification is 5w. 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: Parkwood (5%)

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

Component: Bluff (5%)

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

Component: Riviera, frequently flooded (5%)

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

Map Unit: 23—Paola fine sand, 0 to 8 percent slopes

Component: Paola (85%)

The Paola component makes up 85 percent of the map unit. Slopes are 0 to 8 percent. This component is on hills on marine terraces on coastal plains, ridges on marine terraces on coastal plains, knolls on marine terraces on coastal plains, 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 excessively drained. Water movement in the most restrictive layer is very 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. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 0 percent. Nonirrigated land capability classification is 6s. 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: Cassia (5%)

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

Component: Candler (5%)

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

Component: Astatula (5%)

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

Map Unit: 24—Pellicer silty clay loam, frequently flooded

Component: Pellicer (90%)

The Pellicer component makes up 90 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 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 high. Shrink-swell potential is high. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 18 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 65 within 30 inches of the soil surface.

Component: Durbin (4%)

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

Component: St. Augustine (3%)

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

Component: Tisonia (3%)

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

Map Unit: 25—Parkwood fine sandy loam, frequently flooded

Component: Parkwood (90%)

The Parkwood component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains, drainageways 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 high. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 8 percent. Nonirrigated land capability classification is 5w. This soil meets hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 15 percent. 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: Bluff (4%)

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

Component: Floridana, frequently flooded (3%)

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

Component: Manatee (3%)

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

Map Unit: 26—Samsula muck, frequently ponded, 0 to 1 percent slopes

Component: Samsula (85%)

The Samsula component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of herbaceous organic material over 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 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 3 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 75 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: Kaliga (3%)

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

Component: Basinger, depressional (3%)

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

Component: Myakka, depressional (3%)

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

Component: Sanibel (2%)

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

Component: Floridana, depressional (2%)

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

Component: Anclote (2%)

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

Map Unit: 29—Satellite fine sand

Component: Satellite (90%)

The Satellite component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on interdunal flats on marine terraces on coastal plains, rises 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 somewhat poorly drained. Water movement in the most restrictive layer is very 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 27 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 6s. 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: Fripp (4%)

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

Component: Pompano, nonhydric (3%)

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

Component: Moultrie (3%)

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

Map Unit: 30—Wesconnett fine sand, frequently flooded

Component: Wesconnett (90%)

The Wesconnett component makes up 90 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 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 0 inches during January, February, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 5 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: Bakersville (3%)

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

Component: Myakka, depressional (3%)

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

Component: St. Johns, depressional (2%)

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

Component: Tomoka (2%)

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

Map Unit: 34—Tocoi fine sand

Component: Tocoi, nonhydric (65%)

The Tocoi, nonhydric component makes up 65 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 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 January, February, August, September, October, November, December. 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: Tocoi, hydric (20%)

The Tocoi, hydric component makes up 20 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 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 6 inches during January, February, August, September, October, November. 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: Placid (3%)

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

Component: Pompano, hydric (3%)

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

Component: St. Johns, hydric (3%)

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

Component: Myakka, nonhydric (3%)

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

Component: Ona, nonhydric (3%)

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

Map Unit: 36—Riviera fine sand, frequently flooded

Component: Riviera, frequently flooded (85%)

The Riviera, frequently flooded component makes up 85 percent of the map unit. Slopes are 0 to 1 percent. This component is on flood plains on marine terraces on coastal plains, drainageways 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 low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during July, August, September, October. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 5w. 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: Floridana, frequently flooded (3%)

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

Component: Bluff (3%)

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

Component: Manatee (3%)

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

Component: Holopaw, frequently flooded (3%)

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

Component: Winder, frequently flooded (3%)

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

Map Unit: 40—Pottsburg fine sand

Component: Pottsburg, nonhydric (70%)

The Pottsburg, nonhydric component makes up 70 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 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 12 inches during January, February, March, July, August, September, October, November, December. Organic matter content in the surface horizon is about 3 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: Pottsburg, hydric (20%)

The Pottsburg, hydric component makes up 20 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 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 6 inches during July, August, September, October. 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: Immokalee, nonhydric (4%)

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

Component: Myakka, nonhydric (3%)

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

Component: Smyrna, nonhydric (3%)

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

Map Unit: 41—Tomoka muck

Component: Tomoka (80%)

The Tomoka component makes up 80 percent of the map unit. Slopes are 0 to 1 percent. This component is on depressions on marine terraces on coastal plains. The parent material consists of herbaceous organic material over 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 very high. 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, October, November, December. Organic matter content in the surface horizon is about 90 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: Samsula (10%)

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

Component: Hontoon (10%)

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

Map Unit: 46—Holopaw fine sand

Component: Holopaw, nonhydric (70%)

The Holopaw, nonhydric component makes up 70 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 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 June, July, August, September, October, November. 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: Holopaw, hydric (15%)

The Holopaw, hydric component makes up 15 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 moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 0 inches during July, August, September. 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: Winder (5%)

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

Component: Riviera, hydric (5%)

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

Component: Pompano, hydric (5%)

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

Map Unit: 47—Holopaw fine sand, frequently flooded

Component: Holopaw, frequently flooded (90%)

The Holopaw, frequently flooded component makes up 90 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 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 0 inches during January, February, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 1 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: Floridana, frequently flooded (4%)

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

Component: Myakka, depressional (3%)

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

Component: Riviera, frequently flooded (3%)

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

Map Unit: 49—Moultrie fine sand, frequently flooded

Component: Moultrie (90%)

The Moultrie component makes up 90 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 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 high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 0 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 strongly saline horizon within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 70 within 30 inches of the soil surface.

Component: Pellicer (5%)

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

Component: Tisonia (5%)

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

Map Unit: 58—EauGallie fine sand

Component: EauGallie, nonhydric (70%)

The EauGallie, nonhydric component makes up 70 percent of the map unit. Slopes are 0 to 2 percent. This component is on rises on marine terraces on coastal plains, knolls 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 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, October. 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: EauGallie, hydric (15%)

The EauGallie, hydric component makes up 15 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 low. 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 6 inches during June, July, August, September. 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: Myakka, nonhydric (5%)

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

Component: Wabasso (5%)

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

Component: Riviera, hydric (5%)

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

Map Unit: 61—Riviera fine sand, depressional, 0 to 1 percent slopes

Component: Riviera, depressional (85%)

The Riviera, depressional component makes up 85 percent of the map unit. Slopes are 0 to 1 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 June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 1 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: Chobee, depressional (7%)

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

Component: Wabasso (4%)

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

Component: Tequesta, depressional (4%)

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

Map Unit: 63—Placid fine sand

Component: Placid (85%)

The Placid component makes up 85 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 very 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 0 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 2 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: Floridana, hydric (4%)

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

Component: Ellzey, hydric (4%)

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

Component: Holopaw, hydric (4%)

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

Component: Tocoi, hydric (3%)

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

Map Unit: 64—Ellzey fine sand

Component: Ellzey, nonhydric (60%)

The Ellzey, nonhydric component makes up 60 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces, 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 high. 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, October. 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: Ellzey, hydric (30%)

The Ellzey, hydric component makes up 30 percent of the map unit. Slopes are 0 to 2 percent. This component is on flats on marine terraces, 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 high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 6 inches during June, July, August, September. Organic matter content in the surface horizon is about 2 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: Pompano, hydric (5%)

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

Component: Floridana, hydric (5%)

Generated brief soil descriptions are created for major soil components. The Floridana 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: St. Johns County, Florida
Survey Area Data: Version 15, Sep 28, 2016

Exhibit K

Department of Environmental Protection
Outstanding Florida Waters

Florida Department of Environmental Protection

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

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

July 20, 2017

Mr. Alan L. Davis
Land Planning Coordinator
Florida Forest Service
Florida Department of Agriculture and Consumer Services
The Conner Building
3125 Conner Boulevard, Suite J-237
Tallahassee, Florida 32399-1650

RE: Matanzas State Forest

Dear Mr. Davis:

Thank you for your inquiry regarding the surface water quality classifications on and near Matanzas State Forest in St. Johns County. There are no Outstanding Florida Waters (OFW) in or immediately adjacent to the state forest. However, the site does lie immediately north of Faver-Dykes State Park. The southern portion of the state park has been designated as OFW (subparagraph 62-302.700(9)(c)22., Florida Administrative Code (FAC)), but this area does not lie anywhere close to the state forest. Most surface waters on the site are classified as Class III waters (subparagraph 62-302.400(17)(b)55., FAC), which is the statewide default classification. The easternmost portion of the site either lies immediately adjacent to or includes some waters classified as Class II waters under the rule specified 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 850/245-8429, or via E-mail at Eric.Shaw@dep.state.fl.us.

Sincerely,

Eric Shaw
Environmental Manager
Water Quality Standards Program
Florida Department of Environmental Protection
2600 Blair Stone Road, MS 6511
Tallahassee, FL 32399-2400
Phone: (850) 245-8429
Email: Eric.Shaw@dep.state.fl.us

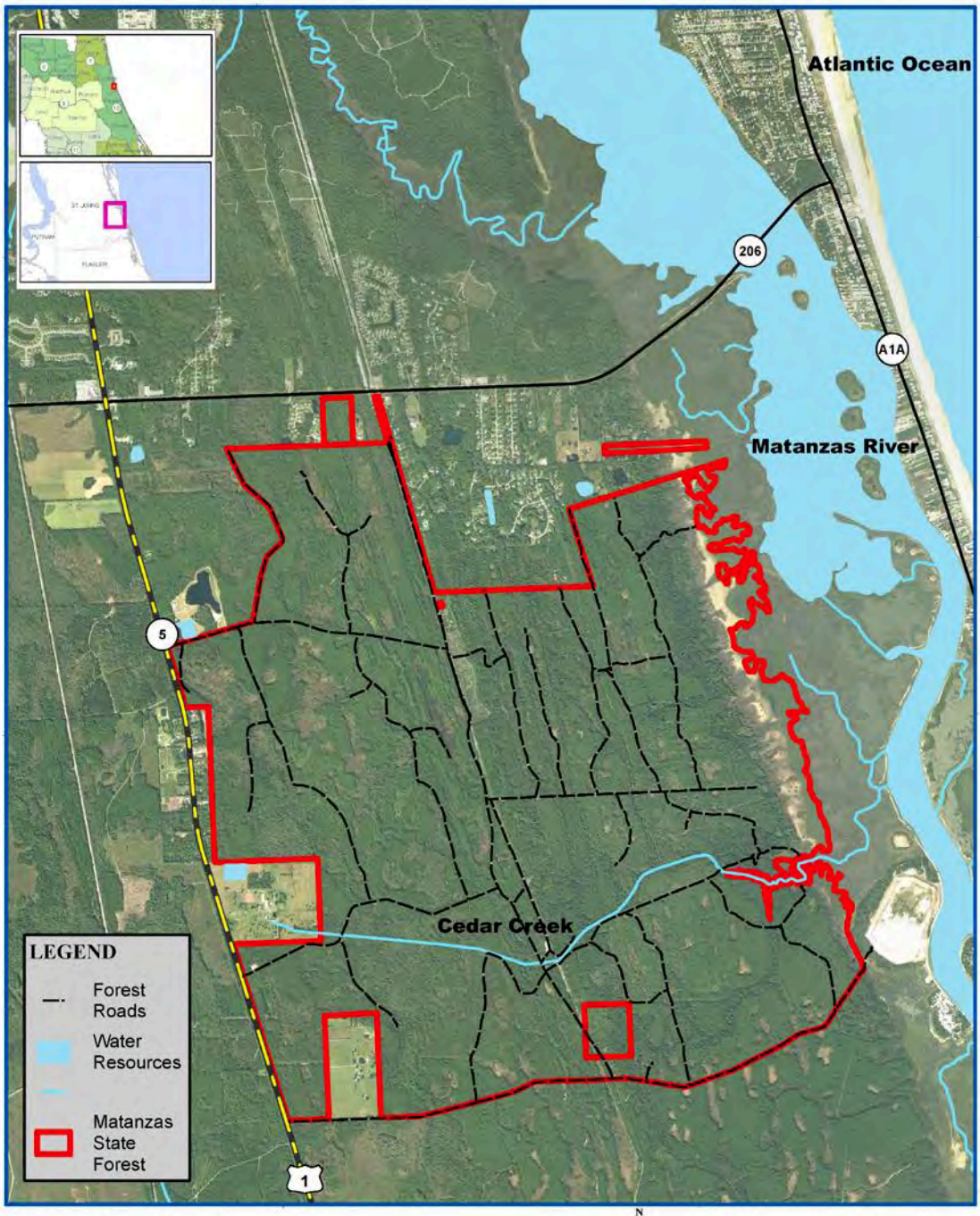
Exhibit L

Water Resources

Florida Forest Service

Matanzas State Forest

Water Resources Map



0 0.125 0.25 0.5 0.75 1 Miles

0 0.225 0.45 0.9 1.35 1.8 Kilometers

Map Month/Year: April 2018

Exhibit M

Florida Natural Areas Inventory
Managed Area Tracking Record

FLORIDA
Natural Areas
INVENTORY

1018 Thomasville Road
Suite 200-C
Tallahassee, FL 32303
850-224-8207
fax 850-681-9364
www.fnai.org

August 9, 2017

Alan Davis
FDACS, Florida Forest Service
3125 Conner Boulevard
Tallahassee, FL 32399

Dear Mr. Davis,

Thank you for requesting information from the Florida Natural Areas Inventory (FNAI). We have compiled the following information for your project area.

Project:	Matanzas State Forest
Date Received:	8/7/2017
Location:	St. Johns County

Based on the information available, this site appears to be located on or very near a significant region of scrub habitat, a natural community in decline that provides important habitat for several rare species within a small area. Additional consideration should be given to avoid and/or mitigate impacts to these natural resources, and to design land uses that are compatible with these resources.

Element Occurrences

A search of our maps and database indicates that we currently have four element occurrences mapped in the vicinity of the study area (see managed area summary report). Please be advised that a lack of element occurrences in the FNAI database is not a sufficient indication of the absence of rare or endangered species on a site.

Federally Listed Species

Our data indicate federally listed species are present on or very near this site (see table for details). This statement should not be interpreted as a legal determination of presence or absence of federally listed species on a property.

The element occurrences data layer includes occurrences of rare species and natural communities. The map legend indicates that some element occurrences occur in the general vicinity of the label point. This may be due to lack of precision of the source data, or an element that occurs over an extended area (such as a wide ranging species or large natural community). For animals and plants, element occurrences generally refer to more than a casual sighting, they usually indicate a viable population of the species. Note that some element occurrences represent historically documented observations which may no longer be extant.

Likely and Potential Rare Species

In addition to documented occurrences, other rare species and natural communities may be identified on or near the site based on habitat models and species range models (see enclosed Biodiversity Matrix Report). These species should be taken into consideration in field surveys, land management, and impact avoidance and mitigation.

Florida Resources and Environmental Analysis Center

Institute of Science and Public Affairs

The Florida State University

Tracking Florida's Biodiversity

FNAI habitat models indicate areas, which based on land cover type, offer suitable habitat for one or more rare species that is known to occur in the vicinity. Habitat models have been developed for approximately 300 of the rarest species tracked by the Inventory, including all federally listed species

FNAI species range models indicate areas that are within the known or predicted range of a species, based on climate variables, soils, vegetation, and/or slope. Species range models have been developed for approximately 340 species, including all federally listed species.

The FNAI Biodiversity Matrix Geodatabase compiles Documented, Likely, and Potential species and natural communities for each square mile Matrix Unit statewide.

Land Acquisition Projects

This site appears to be located within the Northeast Florida Blueway - Phase II, and adjacent to the Matanzas to Ocala Conservation Corridor Florida Forever BOT Projects, which are part of the State of Florida's Conservation and Recreation Lands land acquisition program. A description of these projects can be found at http://www.dep.state.fl.us/lands/FFplan_county.htm. For more information on these Florida Forever Projects, contact the Florida Department of Environmental Protection, Division of State Lands.

Florida Forever Board of Trustees (BOT) projects are proposed and acquired through the Florida Department of Environmental Protection, Division of State Lands. The state has no specific land management authority over these lands until they are purchased.

The Inventory always 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.

Please visit www.fnai.org/trackinglist.cfm for county or statewide element occurrence distributions and links to more element information.

The database maintained by the Florida Natural Areas Inventory is the single most comprehensive source of information available on the locations of rare species and other significant ecological resources. However, the data are not always based on comprehensive or site-specific field surveys. Therefore this information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be substituted for on-site surveys. Inventory data are designed for the purposes of conservation planning and scientific research, and are not intended for use as the primary criteria for regulatory decisions.

Information provided by this database may not be published without prior written notification to the Florida Natural Areas Inventory, and the Inventory must be credited as an information source in these publications. FNAI data may not be resold for profit.

This report is made available at no charge due to funding from the Florida Department of Environmental Protection, Division of State Lands.

Thank you for your use of FNAI services. If I can be of further assistance, please contact me at (850) 224-8207 or at esachs@fnai.fsu.edu.

Sincerely,

Elyse Sachs

Elyse Sachs
GIS / Data Services

Encl

1018 Thomasville Road
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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Managed Area Element Summary

Matanzas State Forest

SCIENTIFIC NAME	COMMON NAME	Global rank	State rank	Federal status	State status
REPTILES					
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
BIRDS					
Egretta caerulea	Little Blue Heron	G5	S4	N	ST
Mycteria americana	Wood Stork	G4	S2	LT	FT
Pandion haliaetus	Osprey	G5	S3S4	N	SSC*

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

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Managed Area Element Summary

Matanzas 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

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FLORIDA
Natural Areas
INVENTORY

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

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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 INVENTORY

Florida Natural Areas Inventory

Aggregated Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Documented					
Dermochelys coriacea	Leatherback Sea Turtle	G2	S2	LE	FE
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Pandion haliaetus	Osprey	G5	S3S4	N	SSC*
Likely					
Caretta caretta	Loggerhead Sea Turtle	G3	S3	LT	FT
Chelonia mydas	Green Sea Turtle		S2S3	LT	FT
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	LT	FT
Haematopus palliatus	American Oystercatcher	G5	S2	N	ST
Mesic flatwoods		G4	S4	N	N
Mycteria americana	Wood Stork		S2	LT	FT
Peromyscus polionotus phasma	Anastasia Island Beach Mouse	G5T1	S1	LE	FE
Scrub		G2	S2	N	N
Sternula antillarum	Least Tern	G4	S3	N	ST
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Potential					
Acipenser oxyrinchus oxyrinchus	Atlantic Sturgeon	G3T3	S1	LE	FE
Asplenium heteroresiliens	Wagner's Spleenwort	G2	S1	N	N
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	T
Calydorea coelestina	Bartram's Ixia		S2S3	N	E
Carex chapmanii	Chapman's Sedge	G3	S3	N	T
Centrosema arenicola	Sand Butterfly Pea	G2Q	S2	N	E
Charadrius melodus	Piping Plover	G3	S2	LT	FT
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Egretta caerulea	Little Blue Heron	G5	S4	N	ST
Eretmochelys imbricata	Hawksbill Sea Turtle	G3	S1	LE	FE
Glandularia maritima	Coastal Vervain		S3	N	E
Gymnopogon chapmanianus	Chapman's Skeletongrass		S3	N	N
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Lechea cernua	Nodding Pinweed	G3	S3	N	T
Litsea aestivalis	Pondspice	G3?	S2	N	E
Lythrum curtissii	Curtiss' Loosestrife	G1	S1	N	E
Matelea floridana	Florida Spiny-pod	G2	S2	N	E
Monotropsis reynoldsiae	Pygmy Pipes	G1	S1	N	E
Nemastylis floridana	Celestial Lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Neovison vison lutensis	Atlantic Salt Marsh Mink	G5T3	S3	N	N
Nolina atopocarpa	Florida Beargrass	G3	S3	N	T
Podomys floridanus	Florida Mouse		S3	N	N
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	T
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	T
Rhynchospora thornei	Thorne's Beaksedge		S1S2	N	N
Rudbeckia nitida	St. John's Blackeyed Susan		S2	N	E
Salix floridana	Florida Willow	G2	S2	N	E
Trichechus manatus	West Indian Manatee		S2	LE, PT	FE

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.

Exhibit N

Florida Fish and Wildlife Conservation Commission Response

Florida Fish and Wildlife Conservation Commission

Commissioners
Brian Yablonski
Chairman
Tallahassee

Allese P. "Liesa" Priddy
Vice Chairman
Immokalee

Ronald M. Bergeron
Fort Lauderdale

Richard Hanas
Oviedo

Bo Rivard
Panama City

Charles W. Roberts III
Tallahassee

Robert A. Spottswood
Key West

Executive Staff
Nick Wiley
Executive Director

Eric Sutton
Assistant Executive Director

Jennifer Fitzwater
Chief of Staff

Fish and Wildlife Research Institute
Gil McRae
Director

(727) 896-8626
(727) 823-0166 FAX

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

Fish and Wildlife Research Institute
100 Eighth Avenue SE
St. Petersburg, Florida 33701-5020
Voice: (727) 896-8626
Fax: (727) 823-0166
Hearing/speech-impaired:
(800) 955-8771 (T)
(800) 955-8770 (V)
MyFWC.com/Research

8/01/2017

Alan L. Davis
Land Planning Coordinator
Florida Forest Service
3125 Conner Boulevard
Tallahassee, FL
32399

Dear Alan Davis:

This letter is in response to your request for listed species occurrence records and critical habitats, Strategic Habitat Conservation Areas (SHCA's), on the following properties: Peace River, Newnans Lake SF, Ross Prairie SF, Matanzas SF, Jennings SF, Tate's Hell SF, and Picayune Strand SF. The Florida Fish and Wildlife Conservation Commission's database indicates that SHCA's for swallow-tailed kite and Cooper's hawk occur in Newnans Lake. SHCA's for Cooper's hawk, scrubjay, and swallow-tailed kite occur in Peace River. SHCA's for the Florida black bear and the striped newt occur in Jennings SF. Enclosed are 8.5 x 11 maps showing prioritized SHCA's, priority wetlands, and species locations for all projects.

** Please note: the SHCAs were developed for the purpose of identifying new areas that may eventually be managed for species conservation. Many public lands were expressly removed from the models and this is why some sites, or portions of sites, have no SHCA. Therefore on maps where there is no visual representation of a SHCA there is a strong possibility that our models would have designated these locations as SHCA had they not already been designated as public or protected lands.

This letter and/or 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. Please note 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.**

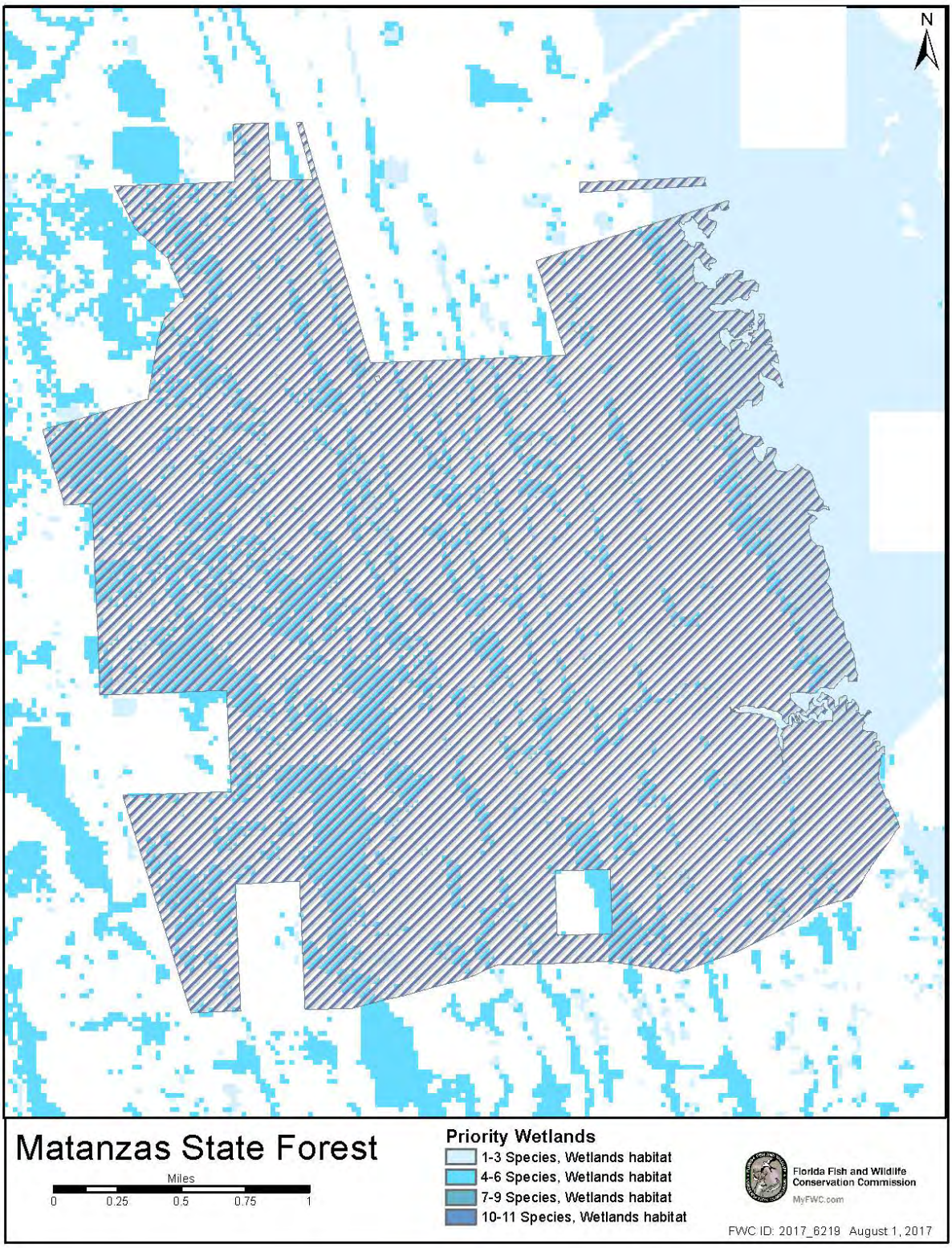
If you have any questions or further requests, please contact me at (850) 488-0588 or gisrequests@myfwc.com

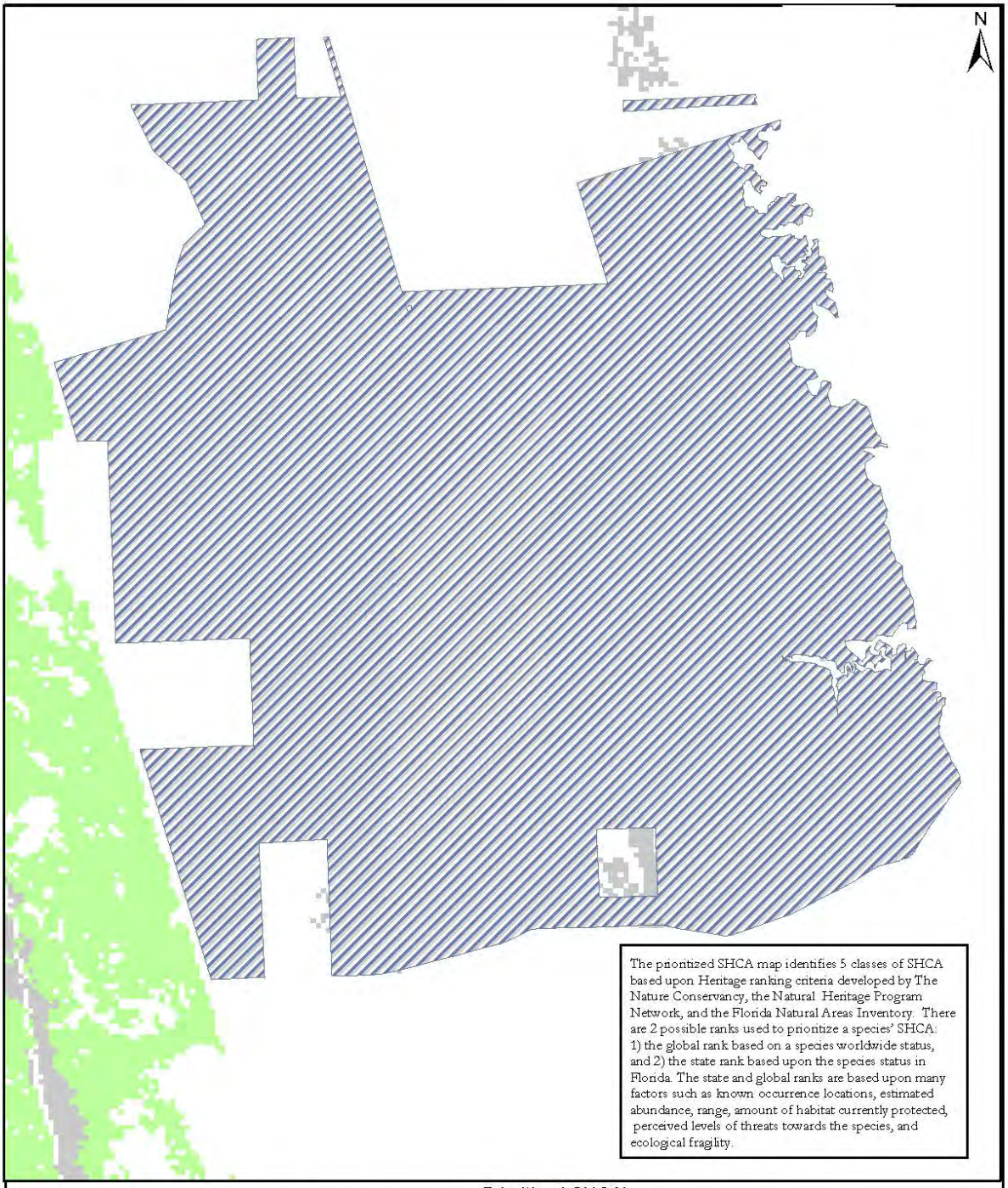
Sincerely,

Eva Salinas

Eva Salinas
Research Assistant

2017_6219
Enclosures


N
Matanzas State Forest
Miles
0
0.25
0.5
0.75
1
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: 2017_6219 August 1, 2017



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.

Matanzas State Forest

Miles

0 0.25 0.5 0.75 1

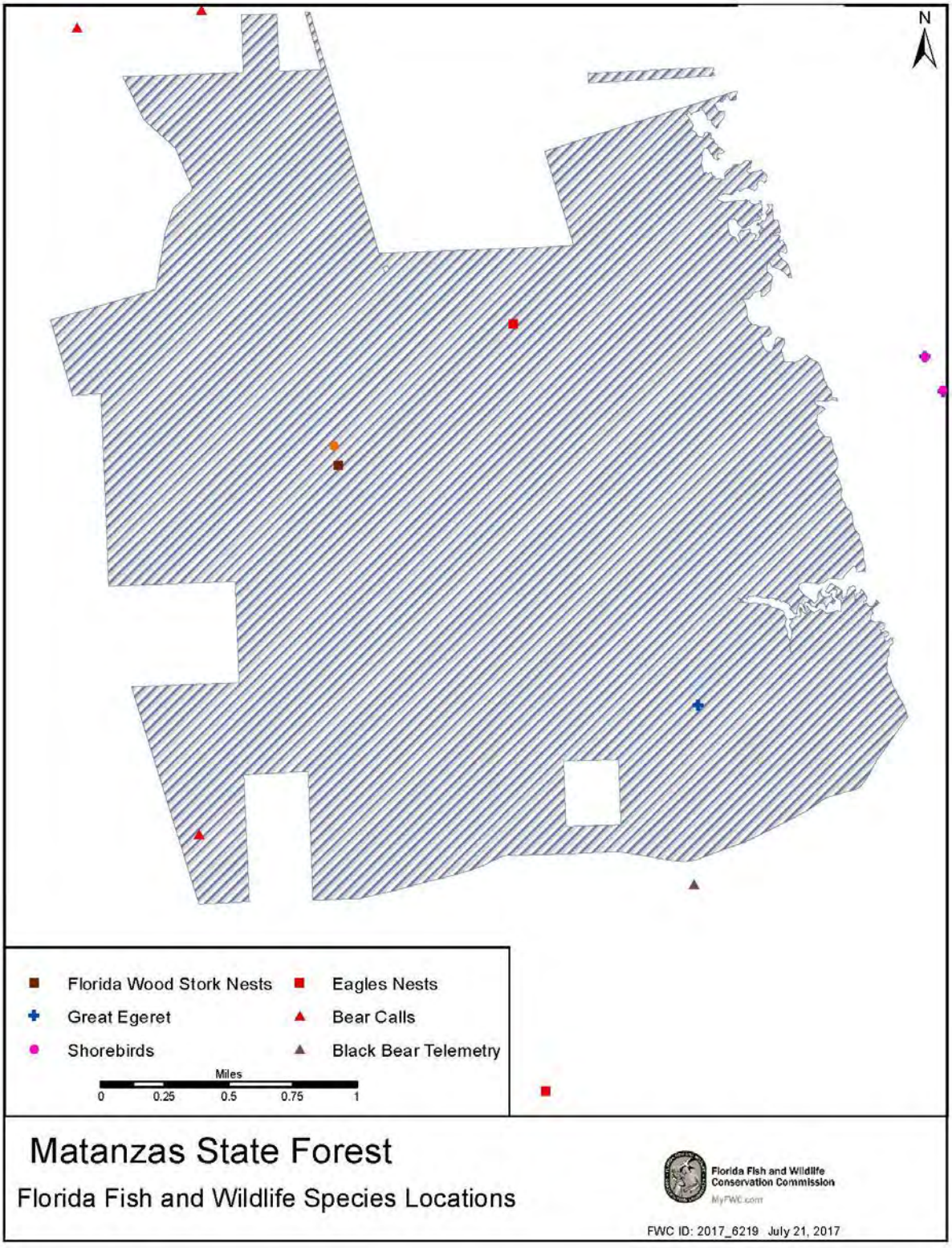
Prioritized SHCA's

Priority 1 Priority 2 Priority 3 Priority 4 Priority 5

Florida Fish and Wildlife Conservation Commission

MyFWC.com

FWC ID: 2017_6219 August 1, 2017

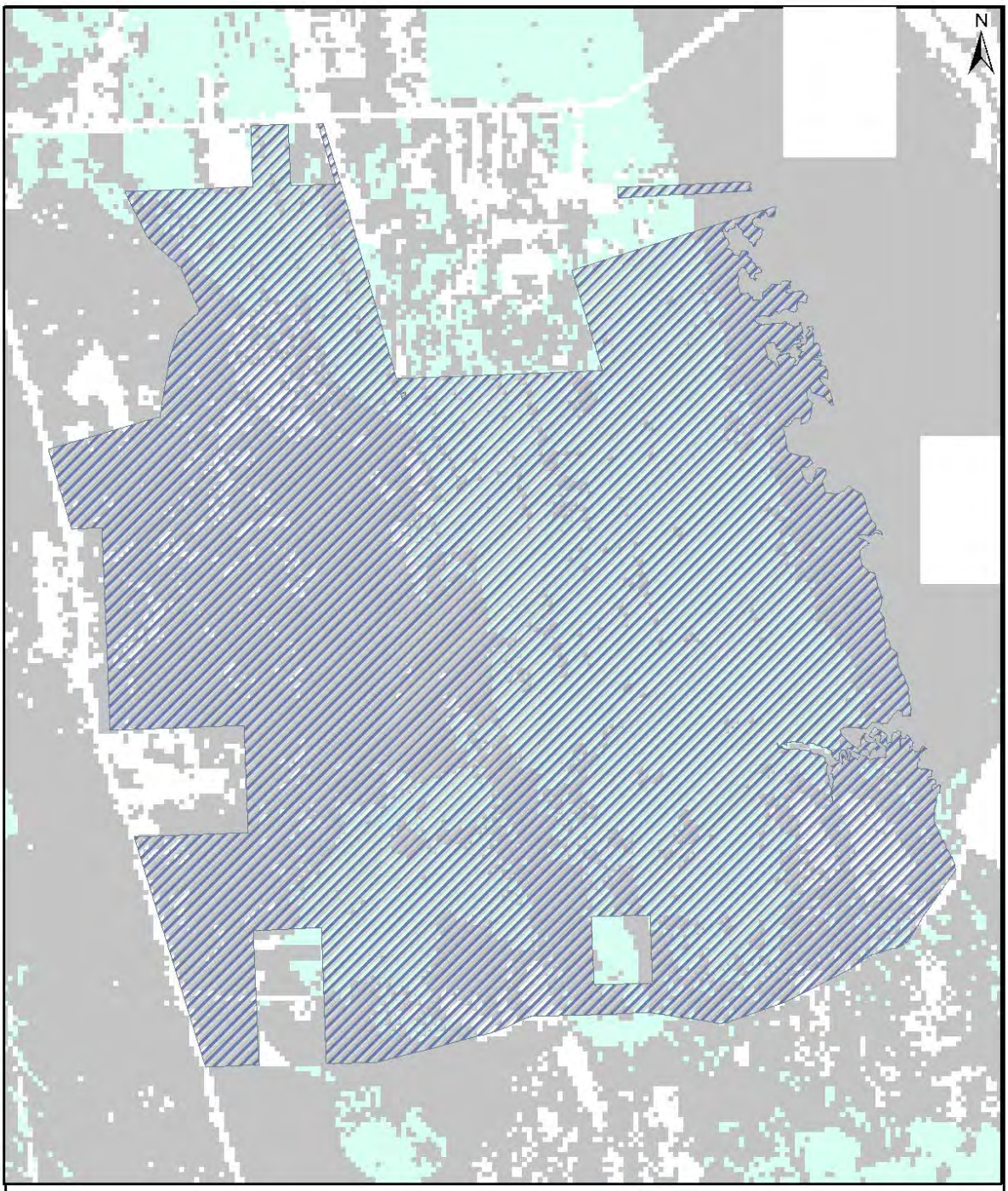


Matanzas State Forest

Florida Fish and Wildlife Species Locations

Florida Fish and Wildlife Conservation Commission
MyFWC.com

FWC ID: 2017_6219 July 21, 2017



Matanzas State Forest

Miles
0 0.25 0.5 0.75 1

Species Richness

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

Florida Fish and Wildlife Conservation Commission
MyFWC.com

FWC ID: 2017_6219 August 7, 2017

Exhibit O

Fire History

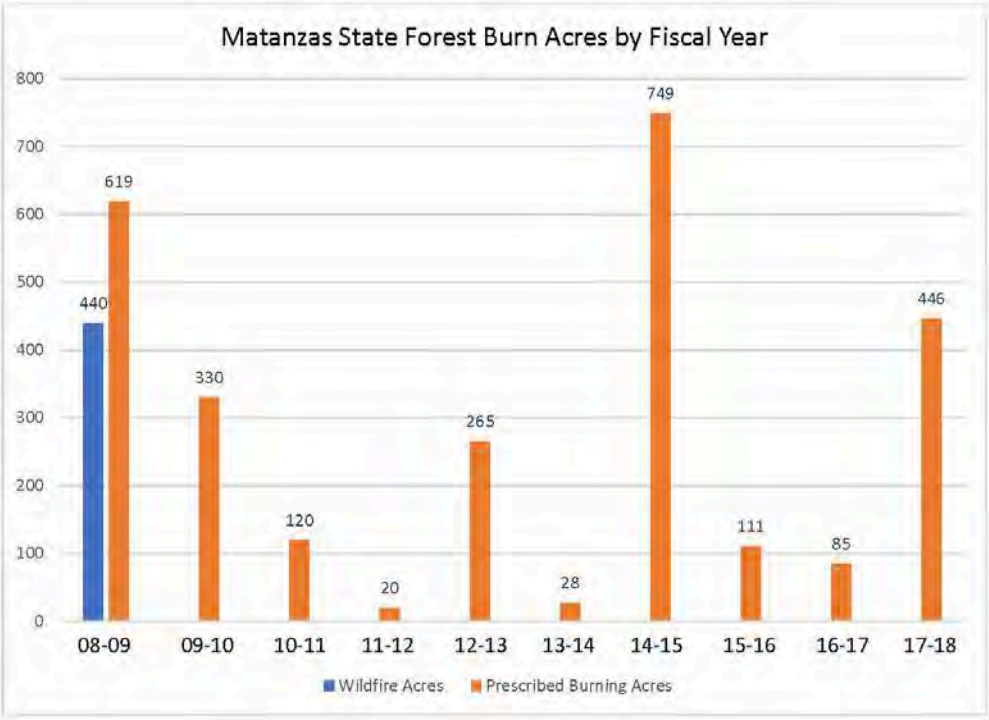

Matanzas State Forest Burn Acres by Fiscal Year
800
700
600
500
400
300
200
100
0
440
619
330
120
20
265
28
749
111
85
446
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
17-18
Wildfire Acres
Prescribed Burning Acres

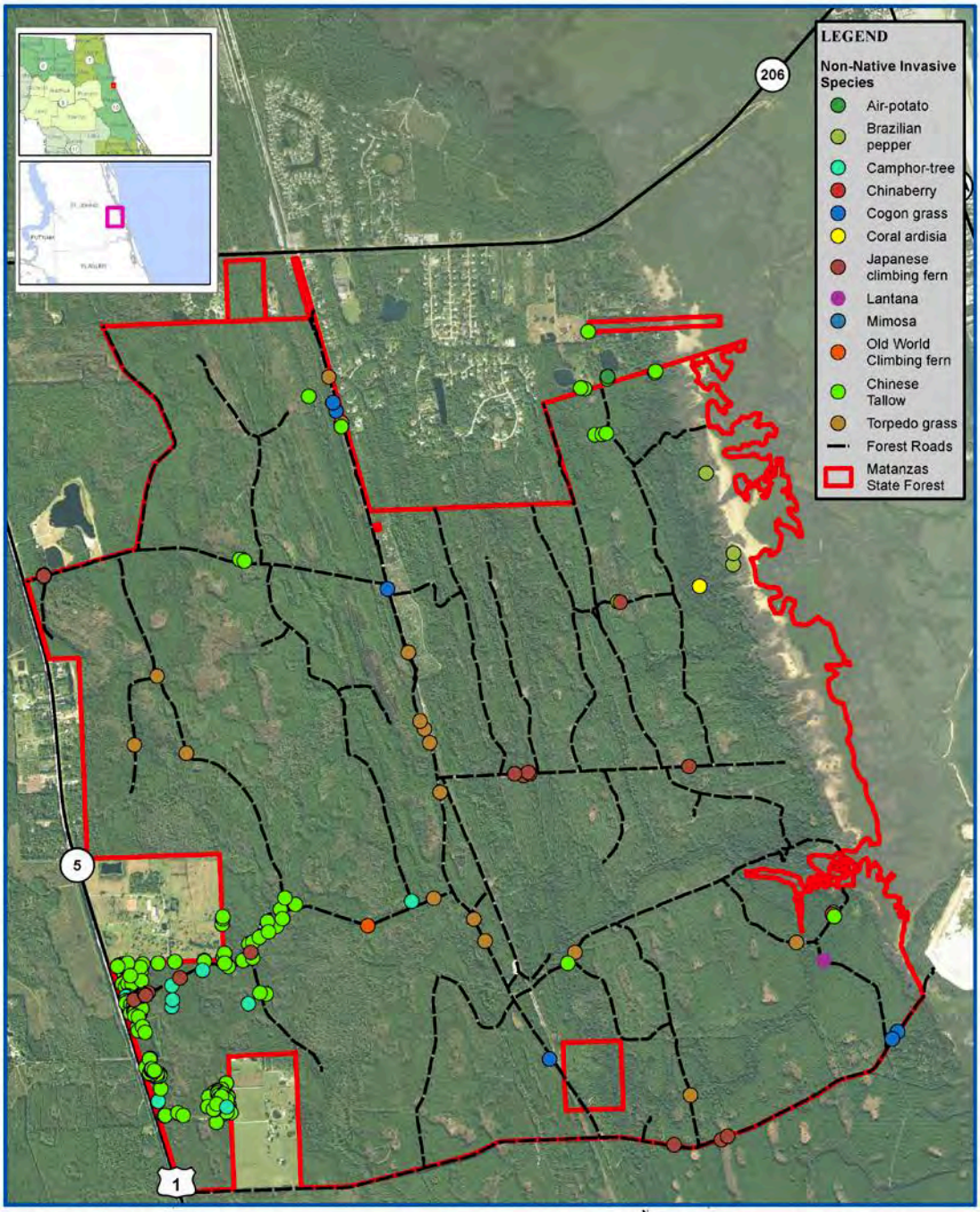
Exhibit P

Non-Native Invasive Species

Florida Forest Service

Matanzas State Forest

Non-Native Invasive Species Map



Map Month/Year: November 2017

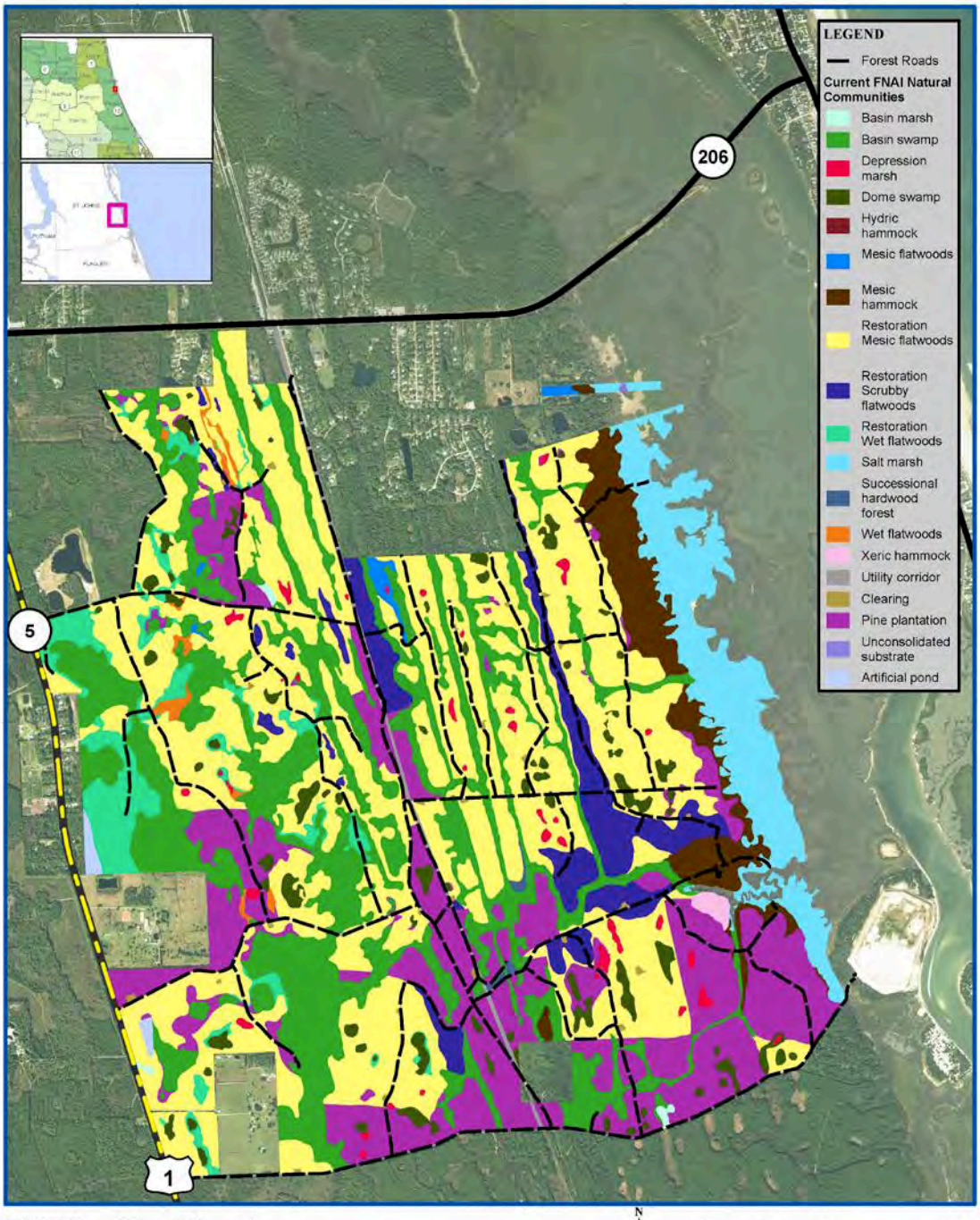
Exhibit Q

Current Natural Communities

Florida Forest Service

Matanzas State Forest

Current FNAI Natural Comunities



0 0.1250.25 0.5 0.75 1 Miles

N W E S

0.8 0.4 0 0.8 Kilometers

Map Month/Year: December 2017

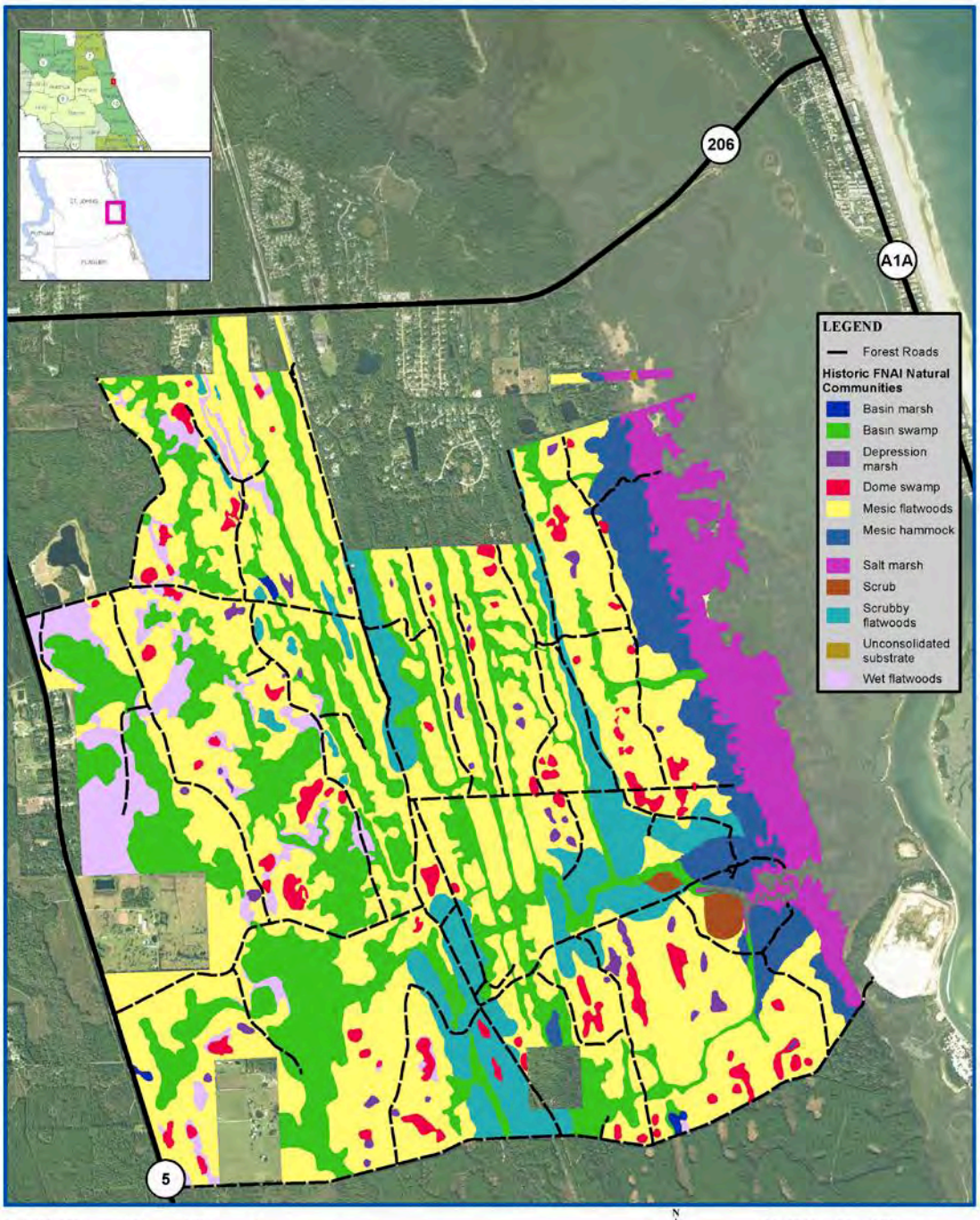
Exhibit R

Historic Natural Communities

Florida Forest Service

Matanzas State Forest

Historic FNAI Natural Communities



0 0.125 0.25 0.5 0.75 1 Miles

N W E S

0 0.125 0.25 0.5 0.75 1 Kilometers

Map Month/Year: December 2017

Exhibit S

Management Prospectus

Northeast Florida Blueway

Duval, Flagler and St. Johns Counties **Climate Change Lands**

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 – helps to maintain shoreline plant communities on the Tolomato & Matanzas rivers, benefiting the manatees that spend the warm season in these water; (2) Increase the amount of open space available in urban areas – serves as a vital connection in the Statewide System of Greenways and Trails; (3) Increase natural resource-based public recreation and educational opportunities – offers many resource-based recreation opportunities both directly and indirectly: fishing, canoeing, bicycling, and camping, to name a few; (4) Protect, restore, and maintain the quality and natural functions of land, water, and wetland systems of the state – connectivity with other areas contribute to ongoing governmental efforts to protect and restore the regional land and water; and (5) Increase the amount of forestland available for sustainable management of natural resources – areas observed within the Rayonier property that are capable of producing pine timber products have been site prepared and planted.

Manager

The City of Jacksonville, the Florida Forest Service (FFS) of the Department of Agriculture and Consumer Services (DACS), and the Division of Recreation and Parks (DRP) of the Department of Environmental Protection (DEP).

Northeast Florida Blueway FNAI Elements	
Manatee	G2/S2
Florida Black Bear	G5T2/S2
Gopher Tortoise	G3/S3
Wood Stork	G4/S2
Yellow Hibiscus	G4G5/S2
Roseate Spoonbill	G5/S2
American Oystercatcher	G5/S2
Eastern Diamondback Rattlesnake	G4/S3
Least Tern	G4/S3
Bald Eagle	G5/S3
Osprey	G5/S3S4
Little Blue Heron	G5/S4
16 rare species are associated with the project	

General Description

This project is composed of many publicly and privately owned uplands and wetlands along both sides of the Intracoastal Waterway, the Tolomato and Matanzas rivers and selected tributaries, from the Duval County line south to the Flagler County line. Marshlands, open water, and small islands of shrub and hammock vegetation are 92 percent of the public lands. The intention of the project is to connect existing natural areas and greenspace to form a conservation lands corridor along the north-south waterway. It is adjacent to the following managed areas: Guana Tolomato Matanzas National Estuarine Research Reserve (several WMD Conservation Areas included therein), Faver-Dykes State Park, Guana River State Park, Deep Creek State Forest, and Ft. Matanzas National Monument.

Public Use

This project would support primitive camping opportunities with canoeing and kayaking taking place within the waterway and associated creeks. Some of the larger parcels may have potential for archaeological interpretation and nature study trails, depending on the ability of the public to gain access. The DRP proposes to manage the St. Johns County portion north of Faver-Dykes State Park and south of a haul road between US

Placed on List	**2001**
Project Area (GIS Acres)	**27,917**
Acres Acquired (GIS)	**15,801***
at a Cost of	**$32,438,430****
Acres Remaining (GIS)	**12,116**
Estimated (Tax Assessed) Value of	**$30,059,986**

***Acquisition Includes lands owned by public entities and NGOs.**

****Money spent includes funds spent by the Board of Trustees (current) and acquisition partners (requires updating).**

Highway 1 and a spoil site on the Matanzas River. This section of the project contains about 5,000 acres. As a part of Faver-Dykes State Park, hunting would not be allowed. The property would expand the quality and quantity of recreational activity at the park including bicycling, hiking, horseback riding, camping (RV and primitive camping), environmental education, and picnicking.

The FFS proposes to manage the remainder of the project under a multiple-use management regime consistent with the State Forest system. A portion of the project will become part of the Deep Creek State Forest, managed for multiple uses including, but not limited to, timber management and restoration, low impact recreational opportunities, and protecting archeological and historic sites.

Acquisition Planning

On January 25, 2001, the Acquisition & Restoration Council (ARC) added the Northeast Florida Blueway – Phase I project to Group A of the Florida Forever (FF) 2001 Priority list. This fee-simple acquisition, located in Duval County and known as Pablo Creek, was sponsored by the City of Jacksonville (Preservation Project Jacksonville). It consisted of approximately 6,943 acres, multiple owners (private & public), and a 1998 taxable value of $15,700,000 on the 4,867 acres in private ownerships. The entire project was designated as essential.

On December 6, 2001, the ARC approved Phase II, also known as Tolomato & Matanzas Rivers, to the project boundary. The fee-simple addition in St. Johns County consisted of approximately 27,929 acres, multiple owners (private & public), and a 2001 taxable value of $18,610,780 on the 17,834 acres in private ownerships. St. Johns County sponsored this addition. The essential parcels were designated as Rayonier Timberlands, Ponce de Leon Resort, Flagler Development, Roberts, Rayland, Wadsworth, and Swan Development.

On August 15, 2003, the ARC approved two additions to the project boundary. The Office of Coastal & Aquatic Managed Areas (CAMA) sponsored a 20.26-acre addition with a single owner, Jacoby Development Inc., two parcels, and a 2002 taxable value of $2,955,714. This fee-simple addition, located in St. Johns County, was added to Phase II. St. Johns County sponsored a 70-acre addition with a single owner,

Marine Park Properties, LLC, multiple parcels, and a 2002 taxable value of $8,400,000. This fee-simple addition is located in Flagler County. On October 13, 2006, the ARC approved a redesign of the project boundary. A total of 2,000 acres no longer suitable for conservation were removed from the project, 180 in Duval County and 1,820 in St. Johns County, reducing the total project size to 32,564 acres. The updated total includes lands in public ownership and acres acquired. Previous project area estimates did not include lands in public ownership.

On December 9, 2011, ARC placed this project in the Climate Change Lands list of projects.

Coordination

The City of Jacksonville is an acquisition partner in Phase I, in Duval County. The city has contacted FEMA and they may contribute $250,000 towards acquisition. Florida Communities Trust has already contributed acquisition funds with the City for several parcels, the SJRWMD has purchased some conservation easements and the Jacksonville Transportation Authority has mitigation funds to contribute towards acquisition. The Trust for Public Land will be the intermediary for negotiations.

Portions of Phase II, in St. Johns County, will likely be acquired through other conservation programs. St. Johns County, the Florida Communities Trust Program and the St. Johns River Water Management District (SJRWMD) may be partners on portions of the project.

Management Policy Statement

To conserve and protect environmentally unique and irreplaceable lands that contain native, relatively unaltered flora and fauna representing a natural area unique to, or scarce within, a region of the state or a larger geographic area. To conserve and protect significant habitat for native species or endangered and threatened species. To conserve, protect, manage, or restore important ecosystems, landscapes, and forests, in order to enhance or protect significant surface water, coastal, recreational, timber, fish or wildlife resources. Finally, to preserve significant archaeological or historical sites.

NORTHEAST FLORIDA BLUEWAY: OVERVIEW

DUVAL, ST. JOHNS, AND FLAGLER COUNTIES

0 5 10 20
Miles

MARCH 2016

Management Prospectus

Qualifications for State Designation The lands in Phase I are rapidly disappearing as Duval County grows. The Preservation Project, the city's land acquisition program, seeks to protect and preserve the existing habitat and waterway as it exists today. It is the goal of the City of Jacksonville to manage this project to conserve, protect or restore important ecosystems while providing opportunities for natural-resource-based recreation. The City of Jacksonville proposes to manage the lands in accordance with the standards of the Acquisition and Restoration Council.

Phase II is of a size and diversity that makes it desirable for use and management as a state forest. Management by the FFS as a state forest is contingent upon acquiring fee simple title to the parcels of interest to FFS. The portion of the project of interest for management by the DRP is largely disturbed land that has been managed for silviculture. While much restoration work will be required over time, the quality of the property when restored will make it suitable for state park purposes.

Manager The City of Jacksonville will manage that portion of the project within Duval County. The DRP proposes to manage that portion of the Northeast Florida Blueway – Phase II project, approximately 5,000 acres, lying north of Faver-Dykes State Park, south of a haul road from US 1 to a spoil site on the Matanzas River, east of US 1 and west of the Matanzas River. The Florida Forest Service (FFS) proposes to manage the Rayonier parcel north of the spoil haul road (approximately 4,000 acres) plus two additional parcels, one adjoining Deep Creek State Forest and an adjoining Florida Natural Areas Inventory Addition (approximately 2,500 acres).

Conditions affecting intensity of management

Initial management efforts of Phase I by the City of Jacksonville will concentrate on site security, resource inventory, removing trash, and having limited public access to the property. Steps will be taken to ensure that the public is provided appropriate access while simultaneously protecting sensitive resources. Intensive restoration will be needed on the portion of Phase II managed by DRP to restore natural communities disturbed by timber operations. Intensity of restoration will be dictated by study of the site. Any immediate action, such as prescribed burning, would increase the early intensity of management. The lands bordering the river are in relatively good shape and will not require intensive management.

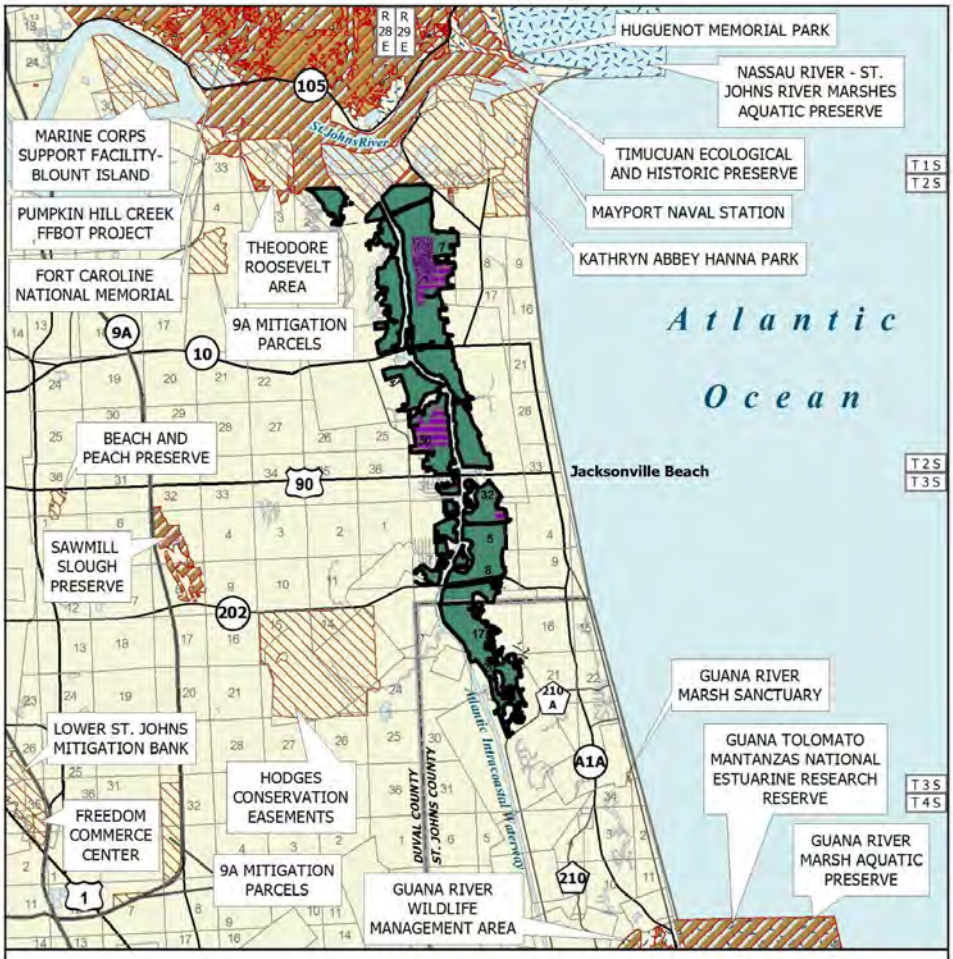
The portions of Phase II managed by FFS can be restored with the help of carefully prescribed fires and hydrologic restoration. The use of fire must be carefully applied because of the fuel load and type of fuel in this forest system. An inventory of the forest roads in this area would determine which stay open for public use, which would be used for management, and which would be closed.

Timetable for implementing management, and provisions for security and protection of infrastructure Jacksonville's land-acquisition program, Preservation Project Jacksonville, will be responsible for developing and implementing the management plans for Phase I. The Preservation Project set aside $950,000 to hire a program manager to develop and implement management plans. As properties are acquired, the City will first inventory natural resources and develop a plan to protect and restore resources, including removing invasive and exotic species, before developing access plans. The DRP plans for its portion of Phase II that, upon fee title acquisition, public access will be provided for low-intensity, non-facility outdoor recreation. Within the first year after acquisition, management will concentrate on site security, natural and cultural resource protection, and developing a plan for long-term public use and resource management.

The FFS timetable for management of the remainder of Phase II also provides initial public access for diverse, low-intensity outdoor recreation. Management would be carried out by the FFS Bunnell District until additional personnel were available for resource management and restoration activity. Initial and intermediate management will concentrate on site security, public and resource management access, prescribed fire, reforestation, and removing trash.

Revenue-generating potential Phase II, the portion to be added to Faver Dykes State Park, will not initially make any significant revenue for the DRP. After acquiring and adding the land to Faver- Dykes State Park, it will probably be several years before significant public use facilities are developed. The amount of revenue generated will depend on the nature and extent of public use and facilities developed. The FFS plans to conduct timber sales as needed to improve or maintain desirable ecosystems. These sales will primarily be from merchantable pine stands and provide a variable revenue depending on a variety of factors. The condition of the timber stands on the property is such that the revenue generating potential is expected to be moderate.

Cooperators in management activities Although not required, the City of Jacksonville commits to



NORTHEAST FLORIDA BLUEWAY: MAP 1 OF 3

DUVAL AND ST. JOHNS COUNTIES

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

0 1.25 2.5 5 Miles

MARCH 2016

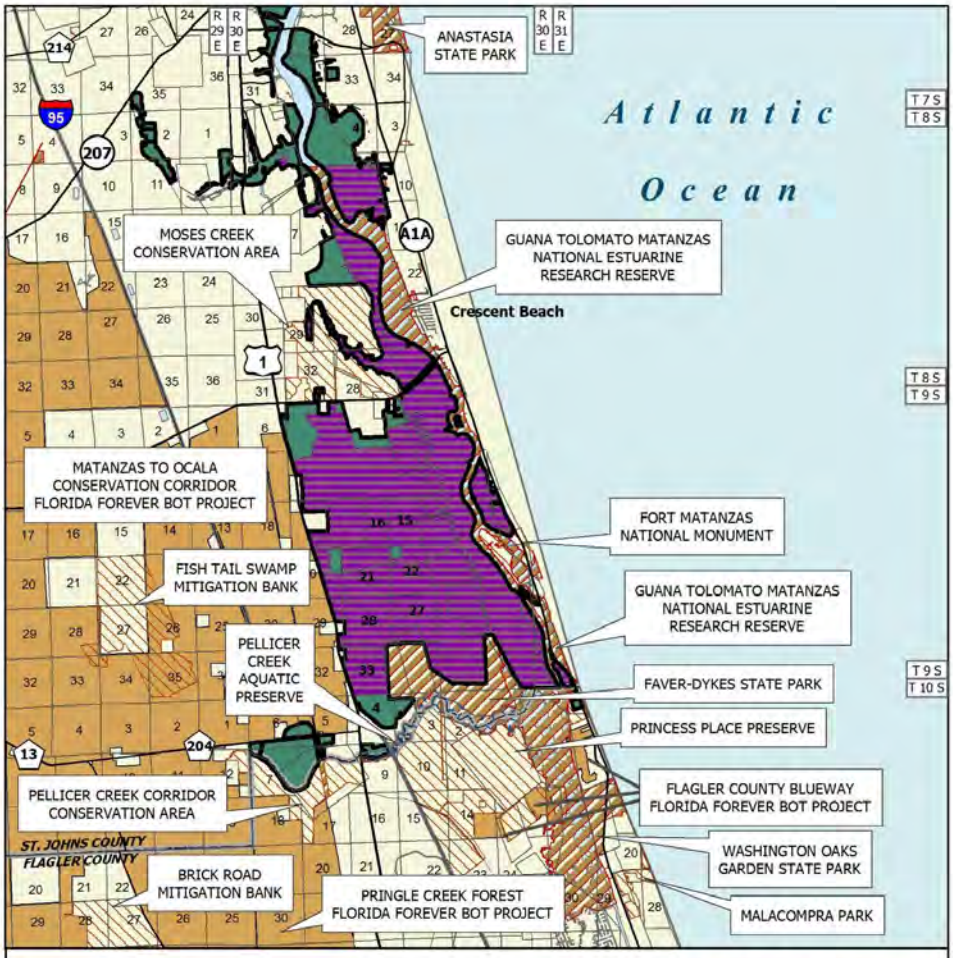
NORTHEAST FLORIDA BLUEWAY: MAP 2 OF 3

ST. JOHNS COUNTY

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

0 1.25 2.5 5 Miles

MARCH 2016



NORTHEAST FLORIDA BLUEWAY: MAP 3 OF 3

ST. JOHNS AND FLAGLER COUNTIES

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

0 1.25 2.5 5 Miles

MARCH 2016

submitting management plans for city-controlled properties in the Blueway to the Acquisition and Restoration Council for review and comment, even though properties may have been acquired with other sources. Doing so will ensure that the Preservation Project takes a system-wide approach to managing Blueway properties.

In Phase II, DRP will consult other federal, state, and local government agencies, as appropriate, to further resource management, recreational and educational opportunities and developing the property for state park purposes. FFS plans to cooperate with, and seek the assistance of, local government entities, interested parties as appropriate and the Florida Natural Areas Inventory. The FFS also intends to coordinate the recreational use of the Rayonier parcel with the DRP because of the potential for a recreation trail on the eastern portion of the property. The FFS will work with the Florida Fish and Wildlife Conservation Commission (FWC) in game and non-game management and related public use of the property.

The Blueway also includes a substantial amount of property owned by other government agencies. It is not the intent that the City or State acquire these properties. However, it is hoped that the Blueway boundary will be the catalyst for a voluntary, joint management approach to publicly owned lands within the corridor. Other agencies that own lands within the Blueway include the U.S. Navy, the National Park Service, Florida Inland Navigation District, the cities of Jacksonville Beach and Atlantic Beach, the City of Jacksonville, the Jacksonville Electric Authority and the St. Johns River Water Management District.

Management Cost Summary
Phase I Management Costs and Sources of Revenue:

Projected annual cost (FY 2001):	
Management plans	**$ 200,000**
Security:	**$ 25,000**
Invasion/exotics control:	**$ 25,000**
One-time capital outlay	**$2,500,000**
TOTAL	**$2,750,000**

The DRP has made general management estimates that would be adjusted based on approval of a unit management plan. Costs for fencing are included. Restoration costs are estimated at $500 per acre, and until further study, the total of acres to be restored is not known.

Phase II Management Cost Summary/DRP:

Category	**Startup**	**Recurring**
Source of Funds:	**CARL**	**CARL**
Salary	**$0**	**$29,000**
OPS	**$15,000**	**$8,000**
Expense	**$18,000**	**$12,000**
OCO	**$28,000**	**$0**
FCO	**$20,000**	**$0**
TOTAL	**$81,000**	**$49,000**

The FFS anticipates that revenue funding will come from the CARL Trust Fund. Budget needs for interim management are estimated as follows:

Phase II Management Cost Summary/FFS

Salary (3 FTE's)	**$79,518**
Expense	**$215,000**
OCO	**$37,800**
TOTAL:	**$333,318**

Updated April 13, 2016

Exhibit T

Land Management Reviews

2015 Land Management Review Team Report for Matanzas State Forest

Table of Contents

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: Matanzas State Forest
Managed by: Department of Agriculture and Consumer Services (FDACS), Florida Forest Service (FFS)
Acres: 4,699.73
County: St. Johns County

Purpose(s) for Acquisition: Matanzas State Forest was acquired as part of the Northeast Florida Blueways Project. The forest was identified for acquisition by the SJRWMD in order to protect a regionally significant wood stork rookery, water resource, and ecological functions; and is recognized as a shared acquisition project with the Florida Forever acquisition program.

Acquisition Program(s): Florida Forever
Area Reviewed: Entire Property

Original Acquisition Date: 04/07/03
Last Management Plan Approval Date: 10/12/07
Review Date: 09/01/15

Agency Manager and Key Staff Present:

- Cathy Lowenstein,
- John Kern
- Todd Hannah
- Matt Kennard
- Gary Carpenter
- Jeff Darr

Review Team Members Present (voting)

- DRP District 3: Chris Matson
- FWC: Justin Ellenberger
- FFS: Doug Longshore
- DEP Northeast District: Allison Cala
- St. Johns SWCD: David Wiles
- St. Johns County: Ryan Mauch
- Conservation organization (FNPS): John Pospisil
- Private land manager (Rayonier): Billy Lipthrott

Other Non-Team Members Present (attending)

- Aric Larson, DEP/DSL
- Paul Ferry, DEP Northeast District
- John Kunzer, FWC/IPMS

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 = 8, No = 0

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

Yes = 8, 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

Table 1: Results at a glance.

Major Land Management Categories	Field Review	Management Plan Review
Natural Communities / Forest Management	3.52	4.45
Prescribed Fire / Habitat Restoration	2.83	4.18
Hydrology	3.55	4.11
Imperiled Species	4.06	4.48
Exotic / Invasive Species	3.76	4.10
Cultural Resources	3.94	4.19
Public Access / Education / Law Enforcement	4.04	4.51
Infrastructure / Equipment / Staffing	3.74	N/A

Color Code (See Appendix A for detail)

Excellent	Above Average	Below Average	Poor

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*.

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 FFS for well-established camping resources at Matanzas State Forest. (8+, 0-)

2. The team commends FFS for the continued excellent work on road improvements. (8+, 0-)

3. The team commends FFS for increasing state forest signage on U.S. 1. (8+, 0-)

4. The team commends FFS for using a combination of thinning and mechanical treatments to increase the total burnable area. (8+, 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 consider coordinating with area universities for the utilization of graduate students in performing floristic inventories. (8+, 0-)

   Managing Agency Response: *Staff will continue the use of volunteers as available and look into the availability of university students.*

2. The team recommends that FFS consider acquiring additional staff and other management resources to increase treatment and monitoring of invasive plant species. (8+, 0-)

   Managing Agency Response: *FFS recently added assistance of an OPS Park Ranger working as an invasive plant technician (position shared with Volusia area state forests).*

3. The team recommends that FFS consider incorporating a boardwalk/viewing platform in conjunction with the proposed flatwoods hammock trail. (8+, 0-) *FFS staff concurs and will incorporate into the current planning phase.*

   Managing Agency Response:

4. The team recommends that FFS pursue funding opportunities to conduct a comprehensive hydrologic assessment to be used in developing a hydrologic restoration plan. (8+, 0-)

   Managing Agency Response: *Matanzas SF personnel with work with FFS Hydrology Section to address this recommendation during the upcoming management plan update.*

5. The team recommends that FFS coordinate with the appropriate agencies regarding water manipulation activities / water control structures (i.e. installation of flashboards) on the property. (8+, 0-)

   Managing Agency Response: *FFS will continue to coordinate with SJRWMD, DEP, and St. Johns County regarding this type of activity as needed.*

6. The team recommends that FFS coordinate with the appropriate law enforcement agencies in an effort to reduce ATV trespass issues; to include public outreach focusing on ATV impacts to resources. (8+, 0-)

   Managing Agency Response: *FFS staff will continue to coordinate with FWC law enforcement on this issue, reinforce measures aimed at restricting access, and utilize signage, Liaison Committee contacts, etc. to focus public outreach on ATV impacts.*

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 basin swamp, estuarine tidal marsh, maritime hammock, and mesic hammock:**
2. **Listed Species Protection and Preservation; for animals in general, and specifically for wood stork:**
3. **Cultural Resources; specifically protection and preservation:**
4. **Forest management, specifically timber inventory:**
5. **Non-Native, Invasive & Problem Species; specifically control of plants and animals:**
6. **Hydro-alteration; specifically roads/culverts:**
7. **Ground Water Monitoring, specifically for water quality and quantity:**
8. **Resource Protection; specifically boundary survey, gates and fencing, and signage:**
9. **Public Access; specifically roads and parking:**
10. **Environmental Education and Outreach, specifically pertaining to recreational opportunities:**
11. **Management Resources; specifically waste disposal, sanitary facilities, buildings, and equipment:**

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. **Maintenance condition of natural communities, specifically mesic flatwoods, dome swamp, wet flatwoods, and wet prairie, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, what percentage 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: *This is a work in progress as management strategies are in place to thin, burn and remove off-site pine - which will assist in restoring these natural communities over the long term and continuing to increase the acreage considered to be in ecological maintenance condition.*

2. **Resource management, prescribed fire; specifically area being burned and frequency, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, the percentage that has been accomplished according to management objectives.**

   Managing Agency Response: *Prescribed burning acres are expected to increase as on-going thinning and mechanical fuel reduction efforts allow for the re-introduction of fire. The long term goal is to work towards larger burn units where aerial ignition enable landscape scale burning and increase dramatically the number of acres considered to be with the desired fire rotation.*

3. **Restoration; specifically cypress domes, wet prairie, and hydrology, received below average scores. The review team is asked to evaluate, based on their perspective, whether restoration efforts are adequate.**

   Managing Agency Response: *Hydrological function will continue to be assessed and appropriate restoration work will be implemented where appropriate. Staff will continue to use thinning harvests to remove encroaching pines from transition zones and despressional wetlands.*

4. **Hydrologic/Geologic function, specifically ditches and hydro-period alteration, received below average scores. The review team is asked to evaluate, based on information provided by the managing agency, whether consideration of past and present hydrologic and geologic functions is sufficient.**

   Managing Agency Response*: Additional wetland assessment may identify additional opportunities for improving hydrologic/geologic function. On-going timber harvests can be expected to improve altered hydrologic/geologic function over the short run as bedded areas are flattened/eliminated over time.*

5. **Management Resources, specifically 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: *Funding levels for special projects may be expected to continue to improve as Amendment 1 funds are being allotted for equipment, roads, recreation, non-native invasive plant control, etc. In addition, operating expense budget allotments may be re-examined to determine sufficiency and possible adjustment.*

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	2	4	3	1	3	2.43
Basin Swamp	I.A.2	5		5	3	5	4	2	4	4.00
Scrubby Flatwoods	I.A.3	3		3	2	4	3	4	3	3.14
Estuarine Tidal Marsh	I.A.4	5	X	5	5	5	4	4	4	4.57
Maritime Hammock	I.A.5	5	X	5	5	5	4	4	4	4.57
Dome Swamp	I.A.6	4		2	2	3	2	2	4	2.71
Wet Flatwoods	I.A.7	2		2	1	2	3	1	4	2.14
Depression Marsh	I.A.8	3		4	3	4	2	2	4	3.14
Wet Prairie	I.A.9	2	X	1	1	1	3	1	4	1.86
Mesic Hammock	I.A.10	5		5	5	5	3	5	4	4.57
								Natural Communities Average Score		3.31
Listed Species: Protection & Preservation (I.B)										
Animals (in general)	I.B.1	5	5	4	4	4	4			4.33
Wood Stork	I.B.1.a	5	5	4	3	5	3	4	4	4.13
Gopher Tortoise	I.B.1.b	5	5	4	2	X	3	3	4	3.71
								Listed Species Average Score		4.06
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	5	4	3	2	4	4	1	4	3.38
Other non-game species or their habitat monitoring	I.C.3	3	4	3	4	3	3	2	4	3.25
Fire effects monitoring	I.C.4	4	4	4	5	3	5	2	4	3.88
Other habitat management effects monitoring	I.C.5	3	4	4	3	2	4	1	5	3.25
Invasive species survey / monitoring	I.C.6	4	4	4	4	3	4	2	5	3.75
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A	4	4	5	2	5	3	2	4	3.63
Protection and preservation	II.B	5	4	4	2	5	5	4	5	4.25
								Cultural Resources Average Score		3.94
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A1	2	4	2	2	3	3	1	4	2.63
Frequency	III.A.2	2	4	4	2	2	4	1	4	2.88

Quality	III.A.3	4	4	4	4	3	3	1	4	3.38
									Resource Management, Prescribed Fire Average Score	2.96
Restoration (III.B)										
Flatwoods	III.B.1	4	3	5	2	5	3	2	4	3.50
Cypress Domes	III.B.2	4	3	1	2	2	3	2	3	2.50
Wet Prairie	III.B.3	4		1	1	1	3	2	4	2.29
Hydrology	III.B.4	4		1	2	4		1	3	2.50
									Restoration Average Score	2.70
Forest Management (III.C)										
Timber Inventory	III.C.1	4	4	4	3	5	5	4	4	4.13
Timber Harvesting	III.C.2	3	4	5	3	5	5	2	3	3.75
Reforestation/Afforestation	III.C.3		3	4	3		5	1	4	3.33
Site Preparation	III.C.4	4	3	4	3	4	4		4	3.71
									Forest Management Average Score	3.73
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a	4	3	3	3	4	4	4	4	3.63
prevention - animals	III.D.1.b	4	3	4	3	4	5	3	4	3.75
prevention - pests/pathogens	III.D.1.c	4	3	3	3		4	3	4	3.43
Control										
control - plants	III.D.2.a	5	4	3	4	4	5	3		4.00
control - animals	III.D.2.b	4	4	4	4	5	5	4		4.29
control - pest/pathogens	III.D.2.c	4	4	3	4		4	2		3.50
									Non-Native, Invasive & Problem Species Average Score	3.76
Hydrologic/Geologic function Hydro-Alteration (III.E.1)										
Roads/culverts	III.E.1.a	5	4	4	4	4	4	2	5	4.00
Ditches	III.E.1.b	X	2	1	X	4	2	X	5	2.80
Hydro-period Alteration	III.E.1.c	X	3	X	1	3	3	X	4	2.80
Water Level Alteration	III.E.1.d	X	X	X	X	4	X	2	X	3.00
									Hydrologic/Geologic function, Hydro-Alteration Average Score	3.15
Ground Water Monitoring (III.E.2)										
Ground water quality	III.E.2.a	4		5	4	4	X	X		4.25
Ground water quantity	III.E.2.b	4		5	4	X	X	X		4.33
									Ground Water Monitoring Average Score	4.29
Surface Water Monitoring (III.E.3)										
Surface water quality	III.E.3.a	X		3	3	X	5	1	4	3.20
Surface water quantity	III.F.3.b	X		3	3	X	5	1	4	3.20
									Surface Water Monitoring Average Score	3.20
Resource Protection (III.F)										
Boundary survey	III.F.1	5		5	3	5	5	5	5	4.71
Gates & fencing	III.F.2	4		3	3	4	5	4	5	4.00
Signage	III.F.3	4		5	4	5	5	4	5	4.57
Law enforcement presence	III.F.4	3		3	3	4	4	2	5	3.43
									Resource Protection Average Score	4.18

Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.G.1.a	3		3	3	4	3	2	4	3.14
Exotics from Adjacent Residential	III.G.1.b	3		5	3	X	3	4	4	3.67
Inholdings/additions	III.G.2	3		4	3	5	4	2	4	3.57
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	5		5	3	5	5	5	5	4.71
Parking	IV.1.b	4		5	3	4	5	4	4	4.14
Environmental Education & Outreach										
Wildlife	IV.2.a	4		5	3	4	4	3	4	3.86
Invasive Species	IV.2.b	4		4	3	3	2	3	4	3.29
Habitat Management Activities	IV.2.c	4		5	2	3	4	3	4	3.57
Interpretive facilities and signs	IV.3	4		5	2	4	3	3	4	3.57
Recreational Opportunities	IV.4	5		5	3	4	4	3	5	4.14
Management of Visitor Impacts	IV.5	5		4	3	3	4	3	5	3.86
								Public Access & Education Average Score		3.89
Management Resources (V.1, V.2, V.3. V.4)										
Maintenance										
Waste disposal	V.1.a	4	4	5	4		3		5	4.17
Sanitary facilities	V.1.b	4	4	5	4	4	3	3	5	4.00
Infrastructure										
Buildings	V.2.a	5	5	4	4	4	4	4	4	4.25
Equipment	V.2.b	5	5	4	4	4	4	4	4	4.25
Staff	V.3	4	5	4	2	3	3	2	4	3.38
Funding	V.4	3	2	2	3	2	2	2	3	2.38
								Management Resources Average Score		3.74
	Color Code:	Excellent	Above Average	Below Average	Poor					See Appendix A for detail
			Missing Vote	Insufficient Information						

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:

The review team checklist scores did not identify items requiring improvements in the management 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	4	5	5	4	5	5	4	4.50
Basin Swamp	I.A.2	5	4	5	5	5	4	4	4	4.50
Scrubby Flatwoods	I.A.3	4	4	5	5	3	4	5	4	4.25
Estuarine Tidal Marsh	I.A.4	5	5	5	5	4	4		5	4.71
Maritime Hammock	I.A.5	5	5	5	5	5	5	4	4	4.75
Dome Swamp	I.A.6	4	4	5	5	5		4	4	4.43
Wet Flatwoods	I.A.7	4	4	5	5	4	4	4	5	4.38
Depression Marsh	I.A.8	4	4	5	5	5	4	4	4	4.38
Wet Prairie	I.A.9	4	5	5	5	4	4	4	4	4.38
Mesic Hammock	I.A.10	4	5	5	5	5	5	5	5	4.88
									Natural Communities Average Score	4.51
Listed species: Protection & Preservation (I.B)										
Animals (in general)	I.B.1	5	5	5	5	3	5	3		4.43
Wood Stork	I.B.1.a	5	5	5	5	5	5	5	5	5.00
Gopher Tortoise	I.B.1.b	5	5	5	5	3	1	4	4	4.00
									Listed Species Average Score	4.48
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	5	4	5	4	5	4	3	4	4.25
Other non-game species or their habitat monitoring	I.C.3	4	3	3	5	2	3	3	4	3.38
Fire effects monitoring	I.C.4	4	5	5	5	4	5	4	4	4.50
Other habitat management effects monitoring	I.C.5	4	4	4	4	2	3	2	4	3.38
Invasive species survey / monitoring	I.C.6	4	5	4	5	4	5	3	5	4.38
Cultural Resources (Archeological & Historic sites) (II.A,II.B)										
Cultural Res. Survey	II.A	5	4	5	4	5	4	3	4	4.25
Protection and preservation	II.B	5	4	4	4	5	4	3	4	4.13
									Cultural Resources Average Score	4.19
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A.1	4	4	5	5	4	5	5	4	4.50
Frequency	III.A.2	4	4	5	5	4	5	5	4	4.50
Quality	III.A.3	4	4	5	5	4	5	5	5	4.63
									Resource Management, Prescribed Fire Average Score	4.54
Restoration (III.B)										
Flatwoods	III.B.1	5	4	5	5	4	3	5	4	4.38
Cypress Domes	III.B.2	5	5	5	5	1	2	4	4	3.88
Wet Prairie	III.B.3	5		5	5	1	3	4	4	3.86
Hydrology	III.B.4	5		5		1	2	3	3	3.17
									Restoration Average Score	3.82

Forest Management (III.C)										
Timber Inventory	III.C.1	5	5	5	5	4	5	5	4	4.75
Timber Harvesting	III.C.2	5	4	5	5	5	5	4	3	4.50
Reforestation/Afforestation	III.C.3		5	4	5	4	5	4	3	4.29
Site Preparation	III.C.4	4	5	4	5	4	4	3	3	4.00
								Forest Management Average Score		4.38
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.E.1.a	5	4	5	4	4	4	4	4	4.25
prevention - animals	III.E.1.b	5	4	4	4	4	5	3	4	4.13
prevention - pests/pathogens	III.E.1.c	5	4	3	4	2	4	3	4	3.63
Control										
control - plants	III.E.2.a	5	4			4	4	4		4.20
control - animals	III.E.2.b	5	4			4	5	5		4.60
control - pest/pathogens	III.E.2.c	5	4			3	4	3		3.80
								Non-Native, Invasive & Problem Species Average Score		4.10
Hydrologic/Geologic function, Hydro-Alteration (III.E.1)										
Roads/culverts	III.F.1.a	5	4		5	4	5	5	4	4.57
Ditches	III.F.1.b		4	5	5	4	2	3	4	3.86
Hydro-period Alteration	III.F.1.c		4		3	4	3	1	5	3.33
Water Level Alteration	III.F.1.d		4		4	4		2		3.50
								Hydrologic/Geologic function, Hydro-Alteration Average Score		3.82
Ground Water Monitoring (III.E.2)										
Ground water quality	III.F.2.a	4	5		5	4				4.50
Ground water quantity	III.F.2.b	4	5		5	4				4.50
								Ground Water Monitoring Average Score		4.50
Surface Water Monitoring (III.E.3)										
Surface water quality	III.F.3.a		5		4	4		3	4	4.00
Surface water quantity	III.F.3.b		5		4	4		3	4	4.00
								Surface Water Monitoring Average Score		4.00
Resource Protection (III.F)										
Boundary survey	III.G.1	5	5	5	5	5	5	5	5	5.00
Gates & fencing	III.G.2	4	5		5	4	5	5	5	4.71
Signage	III.G.3	5	5		5	4	5	5	5	4.86
Law enforcement presence	III.G.4	5	5		5	4	4	5	5	4.71
								Resource Protection Average Score		4.82
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.H.1.a	4	5	3	5	3	3	4	4	3.88
Exotics from Adjacent Residential	III.H.1.b	4	5	5	5	4	3	3	4	4.13
Inholdings/additions	III.H.2	3	4	5	5	5	4	4	4	4.25
Discussion of Potential Surplus Land Determination	III.H.3	2	4	2	5	1	5	5	2	3.25
Surplus Lands Identified?	III.H.4	4	4	5	5	5	5	5	5	4.75

Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	5	4	5	5	5	5	5	5	4.88
Parking	IV.1.b	5	5	5	5	5	5	5	4	4.88
Environmental Education & Outreach										
Wildlife	IV.2.a	4	4	5	4	3	4	4	4	4.00
Invasive Species	IV.2.b	4	5	4	4	3	2	3	4	3.63
Habitat Management Activities	IV.2.c	4	4	5	4	4	4	3	4	4.00
Interpretive facilities and signs	IV.3	4	4	4	4	4	3	4	4	3.88
Recreational Opportunities	IV.4	4	4	5	4	4	4	4	5	4.25
Management of Visitor Impacts	IV.5	5	4	4	4	3	4	4	5	4.13
								Public Access & Education Average Score		4.20

Managed Area Uses (VI.A, VI.B)										
Existing Uses										
Recreational Trails	VI.A.1	5	5	5	2	4		5	4	4.29
Primitive Camping	VI.A.2	5	5	5	4	5	5	5	4	4.75
Hunting	VI.A.3	5	4	5	4	5	5	5	4	4.63
Environmental Education	VI.A.5	5	4	5	3	3	3	5	3	3.88
Bird Watching	VI.A.6	5	4	5	3	4	3	5	4	4.13
Silviculture	VI.A.7	5	5	5	3	5	5	5	4	4.63
Resource Conservation	VI.A.8	5	4	5	3	5	3	5	4	4.25
Proposed Uses										

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*

Name of Site: Matanzas State Forest **County:** St. Johns County

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

Acres: 4,699.73 Acres
Area Reviewed: Entire Tract

Review Date: 11/30/10 **Management Plan Approval Date:** 10/12/07

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	1.00	3.71
Listed Species	0.87	3.42
Natural Resource Survey	1.00	4.10
Cultural Resources	1.00	4.10
Prescribed Fire	1.00	3.67
Restoration	1.00	4.00
Exotic Species	0.70	3.88
Hydrology	0.75	4.00
Surface Water Monitoring	1.00	4.60
Resource Protection	0.95	3.55
Adjacent Property Concerns	0.75	3.37
Public Access & Education	0.77	3.71
Management Resources	N/A	2.90
Managed Area Uses	1.00	N/A
Buildings, Equipment, Staff & Funding	N/A	2.80

Consensus Commendations to the Managing Agency

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

1. The team commends the FFS staff for establishing a prescribed fire program in all merchantable pine plantations and being creative in using pre-fire mechanical treatments to accomplish this objective. (VOTE: 5+, 0-)

2. The team commends the FFS staff for their efforts to improve forest roads and their installation of several hard bottom crossings. (VOTE: 5+, 0-)

3. The team commends the proactive exotic species control by teaming up with the GTMNERR and adjacent landowners. (VOTE: 5+, 0-)

4. The team commends the FFS for their efforts to restore pine plantations to a more natural flatwoods 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 FFS pursue additional directional roadside signage to improve public awareness of the forest. (VOTE: 5+, 0-)

Managing Agency Response: The recommended signage for State Forests (Entering/Leaving, entrance signage) is in place. DOT will be approached to request additional directional signage such as from CR 206/US 1 and US1/I-95 intersections.

2. The team recommends that FFS pursue their plans to restore wetland ecotones through removal of off-site planted pines as the adjacent stands are thinned. (VOTE: 5+, 0-)

Managing Agency Response: Management staff agrees and plans to include these areas in harvest plans. There is language addressing the need to remove pines in the Wet Prairie section (IV B.9) already included in the current management plan; however additional language addressing this can be incorporated during future management plan revisions.

3. The team recommends that FFS assess the appropriate level of water quality monitoring at the DOT ditch discharge at Black Forest Stables. (VOTE: 5+, 0-)

Managing Agency Response: Management staff will consult with SJRWMD/DEP to determine what is appropriate, and will include this information in the next management plan revision.

Field Review Checklist Findings

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

- Natural Communities, regarding basin swamps, estuarine tidal marsh, maritime hammock, depression marsh and mesic hammocks.

- Listed Species, regarding the animal inventory and wood storks.
- Natural Resource Survey, regarding listed species or habitat monitoring, fire effects monitoring, other habitat management effects and monitoring, and invasive species survey/monitoring.
- Cultural Resources, regarding the cultural resource survey, protection and preservation.
- Resource Management, regarding the frequency and quality of the burns.
- Restoration of Ruderal Areas, regarding the natural communities.
- Non-Native, Invasive & Problem Species, regarding the prevention and control of plants, animals and pests/pathogens.
- Hydrologic Geologic Function, regarding roads, culverts and ditches.
- Surface Water Monitoring, regarding surface water quality.
- Resource Protection, regarding the boundary survey and law enforcement presence.
- Adjacent Property Concerns, regarding inholdings and additions.
- Public Access & Education, regarding roads, parking, wildlife, habitat management activities, interpretive facilities and signs, recreational opportunities and management of visitor impacts.

Items Requiring Improvement Actions 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 .5 score on average.). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The management plan must include responses to the checklist items identified below:

1. Hydrologic/Geologic Function, specifically ditches, with documentation in the management plan.
Managing Agency Response: Findings of the recent Wetland Needs Assessment conducted by the FFS Hydrology section and discussion of the DOT ditch will be included in subsequent Management Plan revisions. Staff will continue to address drainage improvements noted in the WNA via the Five Year Hydrology plan.

2. Adjacent Property Concerns, regarding the discussion of potential surplus land determination, with documentation in the management plan.
Managing Agency Response: State forest staff will make an assessment of potential surplus land and include a summary and any recommendations in the next management plan revision.

3. Discussion in the management plan regarding Public Access & Education, specifically boat access, wildlife and invasive species, with documentation in the management plan.
Managing Agency Response: The next Management Plan revision will address the status of boat access, although only kayak/canoe access is under consideration. Kayak access is currently being evaluated, and is included in the 5 Year Recreation Plan. Efforts for environmental education concerning wildlife have been made via interpretative events on the forest, and for invasive species via adjacent landowner contacts and assistance with encroaching invasive plant infestations. Documentation concerning the continuation of these efforts will also be included in the next Management Plan revision.

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 2.5 score on average). Please note that overall good scores do not preclude specific recommendations by the review team requiring remediation. The management plan must include responses to the checklist items identified below:

1. Management of Natural Communities, specifically wet flatwoods, with documentation in the management plan.

Managing Agency Response: Wet flatwoods stands will be burned and thinned to improve groundcover as per the management plan and five-year harvest schedule in order to move them towards maintenance condition.

2. Increased protection of Listed Species, regarding plant inventory, with documentation in the management plan.
Managing Agency Response: A plant inventory/list will be pursued and included in the next management plan revision.

3. Increased Resource Protection, specifically gates and fencing, with documentation in the management plan.
Managing Agency Response: Fencing costs are included in the current plan's Management Summary (p. 46). Resources to pursue fencing where encroachment is a concern along the north forest boundary in particular will be pursued via annual budget requests.

4. The need for increased Management Resources, specifically waste disposal, staff and funding, including documentation in the management plan.
Managing Agency Response: Waste disposal is not an issue on the forest at current visitation levels. Provision for waste disposal will be reconsidered if visitation and staffing levels indicate it is appropriate. The management plan currently includes documentation concerning staff and funding needs in the Management Summary. Needs will continue to be pursued via annual budget requests and in the Management Plan revision.

Florida Forest Service Manager and Key Staff Present:

- Mike Kuypers
- Chris Kincaid
- Matt Kennard
- David Core
- Cathy Lowenstein
- Gary Carpenter

Exhibit U

Compliance with Local Comprehensive Plan(s)

(Will be inserted once received)

From: Davis, Alan
To: "plandept@sicfl.us"
Subject: Matanzas State Forest
Date: Wednesday, February 14, 2018 3:34:00 PM
Attachments: Draft LMPand Exhibits.pdf

4040 Lewis Speedway
St. Augustine, Florida 32084

Good morning,

Attached is a copy of the Florida Forest Service's **Draft** Ten-Year Land Management Plan for the Matanzas State Forest (MaSF). Please review the plan and reply as to whether the plan is consistent with the St. Johns County Local Comprehensive Plan. If no response is received by March 2, 2018, FFS will assume the Draft Ten-year Land Management Plan for NLSF is consistent with the local comprehensive plan.

Please address all correspondence concerning this matter to me at the below address. I can be reached by telephone at (850) 681-5816 or email at Alan.Davis@freshfromflorida.com if you have any questions or concerns.

Thank you for your attention to this matter.

Sincerely,

Alan Davis
Land Planning Coordinator

Attached: Matanzas State Forest Draft Ten-Year Land Management Plan and Exhibits

cc: Donald King, Forestry Supervisor II
Jeff Darr, Forester

Alan Davis
Land Planning Coordinator
Florida Forest Service
Florida Department of Agriculture and Consumer Services

(850)-681-5816
(850)-681-5801 Fax

Alan.Davis@freshfromflorida.com

The Conner Building
3125 Conner Boulevard, Room 238
Tallahassee, FL 32399-1650

www.FreshFromFlorida.com

Exhibit V

State Forest Management Plan
Advisory Group Summary

Management Plan Advisory Group Organizational Meeting
Matanzas State Forest
10 -Year Land Management Plan

April 11, 2018
10:30 a.m.

Meeting Minutes

MPAG Members Present:

• Anthony Petellat	Florida Forest Service (FFS)
• Justin Ellenberger	Florida Fish and Wildlife Conservation Commission (FWC)
• Heather Venter	St. Johns River Water Management District (SJRWMD)
• Chris Clauson	Florida Department of Environmental Protection (FDEP)
• Paul Waldron	Local Elected Official (St. Johns County Commissioner)
• Scott Lane	Local Private Property Owner
• Ricky Lackey	Local Conservation Organization (N.W.T.F.)

MPAG Members Not Present:

• Chris Wadelton	St. Johns Soil & Water Conservation District

Staff:

- Alan Davis, FFS
- Bill Korn, FFS
- Donald King, FFS
- Jeff Darr, FFS
- Justina Jones, FFS
- Gary Carpenter, FFS
- Kevin Micieli, FFS

Guests:

• Judy Simms	Back Country Horseman, First Coast Chapter
• Linda Matzke	Back Country Horseman, First Coast Chapter
• Peggy Cook	St. Johns County Audubon
• Chris DeVries	St. Johns County Environmental Division

Meeting Start Time: 10:30 a.m.

- Mr. Davis opened the meeting, introduced himself, and continued by explaining the purpose, statutory framework and management plan development process within which MPAG members are called upon to provide input into the draft land management plan.
- Mr. Davis also explained the Sunshine Law's role in the MPAG public hearings and MPAG member appointment timeframe.
- Mr. Davis provided an overview of how the meetings were advertised to the public.
- Mr. Davis stated the MPAG meeting was advertised through local newspaper (The St. Augustine Record), Florida Administrative Weekly, FFS webpage, as well as posted on the kiosk at the entrance to the forest. It was also announced at the St. Johns County Commission meeting on April 3, 2018.

- Mr. Davis provided a rundown of the various approvals the draft land management plan must go through both before and after the MPAG public hearings have occurred.
- Next, everyone in the room introduced themselves and explained what entity or organization they are with, and/or why they have interest in the meeting.
- Mr. Davis explained the notion of consensus and how it relates to the group's determinations. He also explained the fact that the FFS Director is the ultimate decider on any changes made to the draft plan.
- Mr. Davis explained that following a PowerPoint presentation at the public hearing, there would be a question/answer session and they were all welcome to ask questions. During the public hearing, Mr. Davis encouraged MPAG members to listen for the public's ideas/concerns. He advised that at the MPAG Workshop meeting to follow would be an opportunity to share their thoughts on what they'd heard from the public and their ideas on the draft management plan.
- The advisory group all agreed to designate Anthony Petellat as MPAG chair.
- Mr. Davis thanked everyone and adjourned the meeting.

Meeting End Time: 10:40 a.m.

Management Plan Advisory Group Public Hearing
Matanzas State Forest
10 -Year Land Management Plan

April 11, 2018
11:00 a.m.

Meeting Minutes

MPAG Members Present:

• Anthony Petellat	Florida Forest Service (FFS)
• Justin Ellenberger	Florida Fish and Wildlife Conservation Commission (FWC)
• Heather Venter	St. Johns River Water Management District (SJRWMD)
• Chris Clauson	Florida Department of Environmental Protection (FDEP)
• Paul Waldron	Local Elected Official (St. Johns County Commissioner)
• Scott Lane	Local Private Property Owner
• Ricky Lackey	Local Conservation Organization (N.W.T.F.)

MPAG Members Not Present:

• Chris Wadelton	St. Johns Soil & Water Conservation District

Staff:

- Alan Davis, FFS
- Bill Korn, FFS
- Donald King, FFS
- Jeff Darr, FFS
- Justina Jones, FFS
- Gary Carpenter, FFS
- Kevin Micieli, FFS

Guests:

• Judy Simms	Back Country Horseman, First Coast Chapter
• Linda Matzke	Back Country Horseman, First Coast Chapter
• Peggy Cook	St. Johns County Audubon
• Chris DeVries	St. Johns County Environmental Division

Meeting Start Time: 11:00 a.m.

- Mr. Davis introduced Mr. Petellat.
- Mr. Petellat, the MPAG Chairperson, welcomed everyone to the public hearing and thanked everyone for coming.
- MPAG members introduced themselves.
- Mr. Davis thanked everyone for being here and gave a general overview of the purpose of the public hearing.
- Mr. Davis stated at this time, two (2) speaker forms were filled out. He encouraged all visitors to complete a speaker form, which he reminded everyone could be used also to provide FFS with written comments on the plan.

- Mr. Darr welcomed everyone and gave a PowerPoint presentation on the draft plan, the plan included the location of Matanzas State Forest along with boundaries, Florida statutes concerning State Forests, historical data and nine (9) goals and objectives to be accomplished on the forest during the next ten (10) years. The presentation also included the current status of MaSF.
- Mr. Davis thanked Mr. Darr. Mr. Davis then asked FFS staff to the front of the room for a question/Answer session.
- Question - Ms. Simms asked about the possibility of FFS teaching a course on the identification of non-native plants for the public. Mr. Carpenter informed her that IFAS holds those types of classes for the public.
- Question – Ms. Cook wanted to know the exact location of the planned hiking trail. She was concerned that the area was too wet. She asked if any trees would be removed to install the trail. Mr. Darr commented that a portion of the trail would be re-routed around the wet areas and that no trees would be removed.
- With no other questions, Mr. Davis moved to the public input of the meeting by confirming from the Speaker Forms. There were two (2) people wishing to speak during the public hearing phase of the meeting. He asked if there was anyone else.

<u>Speakers (2)</u>:

- Ms. Simms - Would like for equestrians to be able to ride from Faver-Dykes State Park north through MaSF. The Back County Horseman (BCH) First Coast Chapter can apply for grants to help make this possible. Improvements/requesting – signage, clear trails, horses can't walk on rocks that are in road material, can't walk on edge of roads because of ditches, and steep slope, parking area is too small, can't make the turn into the parking lot, would like to have a parking area/trailhead at a different location inside the forest (Pop Burney/Longleaf Roads).
- Ms. Matzke - group's purpose is to establish unpaved horse trails throughout St. Johns County, benefits/impacts (economic) of equestrians were listed. The BCH First Coast Chapter would eventually (long term goal) like to have an endurance competition (ride) from Princess Place to Moses Creek (through MaSF). Benefits (health) to horseback riders were explained. It was mentioned that trails provide an outdoor learning classroom for riders. BCH want to provide assistance to FFS to help get these things accomplished.
- Mr. Davis thanked Ms. Simms and Ms. Matzke for their comments and advised we would look at their concerns during the workshop meeting at 1:30 pm.
- With no other speakers, Mr. Davis thanked everyone for their time, and adjourned the public hearing.

Meeting End Time: 11:43 a.m.

Management Plan Advisory Group Workshop Meeting
Matanzas Lake State Forest
10 -Year Land Management Plan

April 11, 2018
1:30 p.m.

Meeting Minutes

MPAG Members Present:

• Anthony Petellat	Florida Forest Service (FFS)
• Justin Ellenberger	Florida Fish and Wildlife Conservation Commission (FWC)
• Heather Venter	St. Johns River Water Management District (SJRWMD)
• Chris Clauson	Florida Department of Environmental Protection (FDEP)
• Paul Waldron	Local Elected Official (St. Johns County Commissioner)
• Scott Lane	Local Private Property Owner
• Ricky Lackey	Local Conservation Organization (N.W.T.F.)

MPAG Members Not Present:

• Chris Wadelton	St. Johns Soil & Water Conservation District

Staff:

- Alan Davis, FFS
- Bill Korn, FFS
- Donald King, FFS
- Jeff Darr, FFS
- Justina Jones, FFS
- Kevin Micieli, FFS

Meeting Start Time: 1:30 p.m.

- Mr. Davis started the meeting by going over the meeting structure that would take place and specifics regarding staff and member responsibilities regarding the meeting minutes in the coming days/week.
- Mr. Davis declared a "page-by-page" process would be the way the group would be reviewing and commenting on the draft plan today. The notion of "consensus" was also once again discussed.
- Mr. Davis asked the group if they wanted to discuss the concerns expressed in the public meeting by Ms. Simms and Ms. Matzke about equestrian access, parking, and trails.
- Mr. Korn suggested some language.
- Ms. Venter suggested adding the Christmas bird survey and Brown Headed Nuthatch survey in the past accomplishments list. Mr. Korn suggested the language.
- Mr. Lackey commented that the prescribed burn acreages didn't add up when comparing the prescribed burn acreage goals with the fire interval. The group discussed reasons for the difference

in the acreages. Mr. Korn suggested that FFS will work on this. Ms. Venter suggested that this could be explained with a map.

- Ms. Venter - Goal (7) Cultural and Historical Resources – Change wording to say, "maintain number of archaeological monitors" instead of "increase". There was a consensus to remove objective 4.
- Mr. Ellenberger – Goal (8) Hydrological Preservation and Restoration - Mr. Ellenberger asked about the 2008 survey (objective 1) and what had been done since then. There was a consensus to add language – Update to hydrological survey from 2008 to show what has been accomplished.
- Mr. Petellat – page 27- asked about wood storks because during public hearing presentation Mr. Darr stated that the wood storks were no longer present. There was a consensus the sentence about wood storks be removed in section G-unique natural features.
- Mr. Ellenberger asked about camping. Are we going to expand? Section V. Public Access and Recreation, B. Planned, 3. Camping Page 29 - Group discussed obstacles with expanding. There was a consensus the language be changed to: Will evaluate the need for additional campsites.
- Ms. Venter - Page 30 - VI – Forest Management Practices - Section A – Prescribed Fire - Suggested that we need to explain the difficulties/challenges associated with burning (Seabreeze, US1, etc.)
- Mr. Korn - page 48 – Section G – Pine plantation – asked if pine plantations were included in restoration areas, consensus of yes.
- Mr. Korn asked if we considered this a fire dependent community. Page 50 - Salt Marsh – management needs – A consensus suggested wording be changed to "and cover resources for wildlife".
- Mr. Waldron asked if there was an opportunity to open these ponds (11 acres - old borrow pits) up to fishing. There was a consensus language should be added to existing recreation section -FFS will evaluate existing ponds for fishing.
- Mr. Petellat/Ms. Venter – page 54 – Wet Flatwoods – management needs - suggested that wording be changed to: Roller chopping may be used in areas to facilitate the safe and effective use of prescribed fire.
- Mr. Davis asked the group if everyone, as a consensus, was generally good with the plan. All agreed.
- Mr. Davis went around the table to each MPAG Member and asked for their overall general comments and if they had any other issues. They all thought it was a good plan and appreciated the invite to participate.
- Mr. Davis explained the next steps of the process; minutes and cleaning up the plan. He stated the FFS Director would be looking at the plan before it goes to the Acquisition and Restoration Council.
- Mr. Davis thanked everyone for their time and participation, then adjourned the meeting.

Meeting End Time: 3:15 p.m.

Written Comments Received:

1. Mary Farr - Back Country Horseman First Coast Chapter "Matanzas State Forest Long Term Plan Public Comment" document

Exhibit W

State Forest Summary Budget

Matanzas State Forest

	MATANZAS STATE FOREST MGT. ONLY 15-16 EXPENDITURES	Percentages Based on Total Dollar Amount of Expenditures	MaSF Assessed Needed Funding Based Upon LMUAC Resource Management
Resource Management	**$ 18,055**	**25.30%**	**$ 24,358.68**
Exotic Species Control	$ 2,123	3.50%	$ 4,138.61
Prescribed Burning	$ 5,558	4.70%	$
Cultural Resources Management	$ 61	0.10%	$ 118.25
Timber Management	$ 4,853	8.00%	$ 9,459.68
Hydrological Management	$ 425	0.70%	$ 827.72
	$ -		$ -
OTHER RESOURCE MANAGEMENT	$ 5,035	8.30%	$ 9,814.42
Listed Species Management	$ -		$ -
Forest Pest and Disease	$ -		$ -
Plant Conservation Program	$ -		$ -
State Forest Research Projects	$ -		$ -
Boundary Surveys for State Forests	$ -		$ -
Other 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	$ -		$ -
			$ -
Administration	**$ 4,853**	**8.00%**	**$ 9,459.68**
Central Office Headquarters	$ 4,853	8.00%	$ 9,459.68
District/Regions	$ -		$ -
Units/Projects	$ -		$ -
	$ -		$ -
Support	**$ 19,595**	**32.30%**	**$ 22,821.48**
Land Management Planning	$ 1,213	2.00%	$ 2,364.92
Land Management Reviews	$ 243	0.40%	$ 472.98
Training/Staff Development	$ 5,157	8.50%	$ 10,050.91
Vehicle Purchase	$ 485	0.80%	$ 945.97
Vehicle Operations and Maintenance	$ 7,886	13.00%	$ -
	$ -		$ -
OTHER SUPPORT	$ 4,611	7.60%	$ 8,986.70
State Forest Land Acquisition Support			$ -
Other Support Activities Also Include: Computer Maintenance / Radio Maintenance / Technical Support / Management of Apiary and Cattle Leases / State Forest Easements and Other Various Activities	$ -		$ -
			$ -
Capital Improvements	**$ 13,346**	**22.00%**	**$ 26,014.12**
New Facility Construction	$ 3,094	5.10%	$ 6,030.55
Facility Maintenance	$ 10,252	16.90%	$ 19,983.57
			$ -
Visitor Services/Recreation	**$ 7,522**	**12.80%**	**$ 14,662.50**
Information/Education	$ 1,861	3.10%	$ 3,665.63
Operations	$ 5,642	9.30%	$ 10,996.88
			$ -
Law Enforcement	$ -	0.00%	$ -
Total	**$ 60,665**	**100.00%**	**118,246.00**

Exhibit X

Arthropod Control Plans on MaSF

Anastasia Mosquito Control District of St. Johns County

120 EOC Drive, St. Augustine, FL 32092
*Telephone: (904)-471-3107 * Fax (904) 471-3189 * Web: www.amcdsjc.org*

September 25, 2017

Alan Davis
Land Planning Coordinator
Florida Forest Service
Florida Department of Agriculture and Consumer Services

Mr. Alan,

I am writing this letter in response to your email from September 20, 2017. Anastasia Mosquito Control District of St. Johns County does not conduct any mosquito control activates in the Matanzas State Forest.

Sincerely,

Kay Gaines
Operations Manager
Anastasia Mosquito Control District