FLORIDA DEPARTMENT OF Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, FL 32399

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Noah Valenstein
Secretary

December 21, 2020

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

RE: Belmore State Forest – Lease No. 4482

Dear Mr. Rowell:

On **December 11, 2020**, the Acquisition and Restoration Council (ARC) recommended approval of the **Belmore State Forest** management plan. Therefore, Division of State Lands, Office of Environmental Services (OES), acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the **Belmore State Forest** management plan. The next management plan update is due December 11, 2030.

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.

Conditional 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,

Deborah Burr
Office of Environmental Services
Division of State Lands

TEN-YEAR LAND MANAGEMENT PLAN

FOR THE

BELMORE STATE FOREST

CLAY COUNTY

PREPARED BY THE

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

FLORIDA FOREST SERVICE

APPROVED ON

December 11, 2020

TEN-YEAR LAND MANAGEMENT PLAN

FOR THE

BELMORE STATE FOREST

Approved by:

Erin Albury, Director
Florida Forest Service

1/19/21
Date

James Roberts, Chief
Forest Management Bureau

1-19-21
Date

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

LEAD AGENCY: Florida Department of Agriculture and Consumer Services (FDACS), Florida Forest Service
COMMON NAME: Belmore State Forest
LOCATION: Clay County
ACREAGE TOTAL: 12,262.30 acres (more or less)

Historical Natural Communities	Approximate Acreage
Mesic Flatwoods	5,917
Wet Flatwoods	2,569
Sandhill	1,152
Baygall	1,010
Floodplain Swamp	570
Bottomland Forest	453

Historical Natural Communities	Approximate Acreage
Dome Swamp	319
Depression Marsh	126
Upland Mixed Flatwood	59
Wet Prairie	52
Scrubby Flatwoods	27
Upland Hardwood Forest	7

TIITF LEASE AGREEMENT NUMBER: 4482
SJRWMD LEASE AGREEMENT NUMBER: BOT Contract # 9548 and SJRWMD Contract # 14718
USE: Single ___ Multiple __X__

MANAGEMENT AGENCY	RESPONSIBILITY
FDACS, 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
Department of State, Division of Historical Resources	Historical & Archaeological Resource Management

DESIGNATED LAND USE: Multiple-Use State Forest
SUBLEASES: None
ENCUMBRANCES: Multiple, See II.D.6
TYPE ACQUISITION: Florida Forever and Save Our Rivers programs
UNIQUE FEATURES: Ravine mosaic created by Ates Creek and its tributary, Devil's Den Creek
ARCHAEOLOGICAL / HISTORICAL: Three (3) known sites
MANAGEMENT NEEDS: Ecosystem Restoration
ACQQUISITION NEEDS: 14,576 Additional Acres
SURPLUS ACREAGE: None
PUBLIC INVOLVEMENT: 2014 and 2019 Land Management Reviews, Management Plan Advisory Group and Public Hearing, FDEP Acquisition and Restoration Council Public Hearing, and local liaison panel

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

ARC Approval Date: ________________________ TIITF Approval Date: _________________________

Comments:

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I. Introduction

Belmore State Forest (BSF) is located in northeastern Florida, in southern Clay County. The forest is approximately 15 miles west of Green Cove Springs and 27 miles southwest of Orange Park. The forest is comprised of two tracts, the Satsuma Tract in the north and the Ates Creek Tract to the south. Many natural communities can be found on BSF including sandhills, mesic flatwoods, baygalls, wet flatwoods and floodplain forests; each with unique plants, animals, and physical characteristics.

The Ates Creek Tract of BSF was acquired in June 2004 under the Florida Forever Program, specifically the Northeast Florida Timberlands and Watershed Reserve Project. The Satsuma Tract was purchased in April 2009 by the St. Johns River Water Management District (SJRWMD) using Forest Legacy Stewardship funds. The Florida Forest Service has management responsibility for all tracts of BSF.

The natural communities are managed by the Florida Forest Service (FFS) using a combination of timber harvesting, reforestation, prescribed fire, and invasive species eradication. The FFS uses prescribed fire to maintain wildlife habitat and reduce heavy fuel loads. BSF features numerous seepage streams, blackwater drainages, and creeks that have created a ravine mosaic. Ates Creek and its tributary, Devil's Den Creek, are examples of such hydrologic features.

Wild turkey, white-tailed deer, hawks, and song birds are just a few of the species that can be found on the forest. BSF is also home to several imperiled species, including gopher tortoise, Sherman's fox squirrel, Florida black bear, and American alligator.

The forest is open during daylight hours for hiking, bicycling, horseback riding, and wildlife viewing. The current network of unpaved roads is ideal for these activities, and a trail system is being planned to improve these activities, along with plans to provide overnight primitive camping areas. Coot's Shanty Recreation Area on the Ates Creek Tract provides an ideal location for picnicking as well as a good place to begin hiking the forest. BSF is open to regulated hunting and fishing under the direction of the Florida Fish and Wildlife Conservation Commission (FWC). We encourage non-hunting recreationists to check the Belmore Wildlife Management Area regulations and season dates before visiting BSF. BSF's Satsuma Tract is an Operation Outdoor Freedom (OOF) program site and provides recreational opportunities to wounded veterans.

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 BSF 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 BSF 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; and
- Provide research and educational opportunities related to natural resource management.

This management plan is provided according to requirements of Sections 253.034, 259.032, and 373, Florida Statutes, 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 BSF 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 BSF 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 in 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 2008, there have been many events, developments, and accomplishments. Among the most noteworthy have been the following:

- Since 2008, the following restoration occurred: 43,560 bare root longleaf pine (*Pinus palustris*) on 90 acres; 191,918 containerized longleaf pine on 289 acres.
- Over 57,675 visitors have come to BSF in the past 10 years.
- Over 9,100 acres were managed with prescribed fire.
- Forest staff and FWC have planted 13.5 acres of food plots.
- Over 2,300 acres of timber have been harvested; this has been predominately thinning with some clear-cuts.
- Five species research projects were conducted on BSF.
- In 2013, FNAI completed an updated inventory and natural community mapping project on the Satsuma Tract.
- In 2016, FNAI completed an updated forest inventory and natural community mapping project on the Ates Creek Tract.
- Forest staff graded 127 miles of roads.
- Forest staff mowed 540 miles of interior roads.
- Forest staff repaired 23 miles of roads.
- Forest staff constructed 3 miles of new road.
- Forest staff repaired 2 existing bridges twice (secondary repairs for hurricane recovery)
- Forest staff installed/replaced 50 culverts.
- Forest staff installed 5 low water crossings.
- Forest staff has maintained 35 miles of state forest boundaries.
- FFS staff planned and facilitated 6 turkey and 14 deer OOF hunts on BSF since November 2013 giving 94 disabled veterans a distinctive recreational experience.

C. Goals / Objectives for the Next Ten-Year Period

The following goals and objectives provide direction and focus management resources for the next ten-year planning period. Funding, agency program priorities, and the potential for wildfire during the planning period will determine the degree to which these objectives can be met. Management activities on BSF during this management period must serve to conserve, protect, utilize, and enhance the natural and historical resources and manage resource-based public outdoor recreation, which is compatible with the conservation and protection of this forest. 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, timber harvesting, prescribed burning, restoration, and timber stand improvement activities and goals. (Ongoing Goal)

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 forest inventory and updating stand descriptions 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) according to established criteria in the State Forest Handbook. (Ongoing Goal)

Performance Measures:

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

➢ GOAL 2: Public Access and Recreational Opportunities

Objective 1: Maintain current recreation areas and develop additional public access and recreational opportunities that are compatible with multiple-use management. Maintain and update the Five-Year Outdoor Recreation Plan annually. Continue to evaluate future recreation opportunities on BSF. (Ongoing Goal)

Performance Measures:

- Number of visitor opportunities per day.
- Establish new and maintain current recreational facilities as funding and manpower allows.
- Annual updates to the Five-Year Outdoor Recreation Plan completed.

Objective 2: Assess additional public access and recreational opportunities. (Short Term Goal)

Performance Measure: Number of additional visitor opportunities.

Objective 3: 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 (canoe vendors, hunters, trail hikers, military, organized equestrian groups, etc.), environmental groups, and other public / private entities to establish communication and seek constructive feedback regarding the management of BSF. (Ongoing Goal)

Performance Measures:

- Liaison group remains organized.
- Meetings continue twice per year.

Objective 4: Maintain cooperation with Florida Fish and Wildlife Conservation Commission (FWC) to develop specific hunting season quotas; bag limits and address hunting issues to be agreed upon at annual cooperator meeting between FFS and FWC. (Ongoing Goal)

Performance Measures:

- Participation in annual WMA rule change meeting.
- Updated rules posted in all kiosks on BSF.

Objective 5: Maintain and continue the BSF Volunteer Program. Recruit additional volunteers as needed to assist with implementation of various forest programs. (Ongoing Goal)

Performance Measures:

- Number of volunteers
- Number of volunteer hours.

- **GOAL 3: Habitat Restoration and Improvement**

Objective 1: Utilize prescribed fire and timber harvesting 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 Goal)

Performance Measure: Number of acres restored.

Objective 2: Continue efforts to remove off-site planted pine and sand pine from sandhill community types and reforest with longleaf pine. (Ongoing Goal)

Performance Measures:

- Number of acres of off-site and sand pine harvested through clear-cut or selective harvests.
- Number of acres of longleaf pine planted.
- Number of acres with restoration underway. Restoration includes prescribed burning.

- **GOAL 4: Fire Management**

Objective 1: The BSF currently contains approximately 8,842 acres of fire dependent communities. In order to achieve an average fire return interval of three (3) to seven (7) years across the forest, approximately 1,263 to 2,947 acres must be prescribed burned annually. Currently, FFS staff estimates 3,785 acres at BSF are within the desired fire rotation. (Ongoing Goal)

Performance Measure: Number of acres burned during the dormant and growing seasons, and number of acres burned within target fire return interval.

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

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

Objective 3: Reduce the threat of wildfire within the Wildland Urban Interface on BSF and the surrounding community through a comprehensive mitigation strategy that includes evaluating vegetative fuels near residential areas and identifying potential fuel reduction projects. (Long Term Goal)
Performance Measures:

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

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

Objective 1: In cooperation with the FWC, develop a Wildlife Management Strategy that addresses fish and wildlife species for BSF, with emphasis on imperiled species and associated management prescriptions for their habitats. (Long Term Goal)
Performance Measures:

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

Objective 2: In consultation with FWC, implement survey and monitoring protocols, where feasible, for listed and rare species. (Long Term Goal)
Performance Measures:

- Number of species for which monitoring is ongoing.
- Number of new occurrence records.
- Updated shapes/coverages of listed populations using GPS and GIS.

- **GOAL 6: Non-Native Invasive Species Maintenance and Control**

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

- Total number of acres identified and successfully treated.
- Annual updates of the Five-Year Ecological Plan completed.
- Continue to maintain BSF invasive database for maintaining and updating invasive information annually.

Objective 2: Continue to maintain relationships with FWC for locating, identifying, and controlling non-native feral hogs that exist on all tracts of BSF. (Ongoing Goal)
Performance Measures:

- Continue to incorporate hog hunting to control populations.
- Hire FWC trappers when needed.

- **GOAL 7: 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 Goal)
  Performance Measure: Number of recorded sites.

  Objective 2: Monitor recorded sites and send updates to the DHR Florida Master Site File as needed. (Ongoing Goal)
  Performance Measures:
  - Number of sites monitored.
  - Reports submitted to DHR.

  Objective 3: Maintain at least one qualified staff member as an archaeological site monitor. (Ongoing Goal)
  Performance Measure: Number of local staff trained.

- **GOAL 8: Hydrological Preservation and Restoration**

  Objective 1: Conduct or obtain a site assessment / study to identify potential hydrologic restoration needs. (Long Term Goal)
  Performance Measure: Assessment conducted.

  Objective 2: Protect water resources during management activities through the implementation of Silviculture Best Management Practices (BMPs) that are applicable to BSF and may include, but are not limited to forest roads, construction of pre-suppression firelines, timber stand improvement activities, sinkholes, etc. (Ongoing Goal)
  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 Goal)
  Performance Measure: Total number of roads, firelines, and trails closed, rehabilitated, and/or restored.

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

  Objective 1: BSF staff, along with help from volunteers and/or user groups, will continue maintenance of 3 parking areas and 54 miles of primary, secondary, and tertiary roads. (Ongoing Goal)
  Performance Measure: Number of existing facilities, miles of roads and trails maintained.

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

2. Legal Description and Acreage

The BSF is comprised 12,262.30 acres, more or less. See Table 1.

BSF is located in south-central Clay County, Florida, approximately 15 miles west of Green Cove Springs, Florida. The Ates Creek Tract is located in all or part of Sections 11, 12, 13, 14, 23-27, 34-36, Township 7 South, Range 24 East; Sections 1-2, 11-14, Township 8 South, Range 24 East, Clay County, Florida. The Satsuma Tract is located 7 miles northwest of the Ates Creek Tract and is in all or parts of Sections 4-9, 16, 17, Township 6 South, Range 24 East, Clay County, Florida. Forest boundaries are identified on the boundary map, Exhibit B and tract maps, Exhibit E.

Table 1. BSF Acreage by Funding Source

	Funding Source	Acres
FF	Florida Forever	8,736.71
SOR	Save Our Rivers via SJRWMD	3,525.59

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 BSF Forestry Station Office, Florida Department of Environmental Protection (FDEP), and the FFS State Office in Tallahassee.

3. Proximity to Other Public Resources

Lands managed by state, federal, or local government for conservation of natural or cultural resources that are located within approximately 20 miles of the BSF are included in Exhibit F as well as the Table 2 below:

Table 2. Nearby Public Conservation Land and Easements

Tract	Agency	Distance
Etoniah Creek State Forest	FFS	2 miles South
Camp Blanding	FDMA	2 miles West
Mike Roess Goldhead Branch State Park	DRP	5 miles South
Bayard Conservation Area	SJRWMD	10 miles East

Tract	Agency	Distance
Black Creek Ravines Conservation Area	SJRWMD	12 miles North
Jennings State Forest	FFS	20 miles NW
Raiford Wildlife Management Area	FWC	20 miles NW
Branan Field Wildlife and Environmental Area	FWC	20 miles North

DRP – Florida Department of Environmental Protection, Division of Recreation and Parks
FFS – Florida Forest Service FWC – Florida Fish and Wildlife Conservation Commission
FDMA – Florida Department Military Affairs SJRWMD – St. Johns River Water Management District

4. Property Acquisition and Land Use Considerations

The Ates Creek Tract of BSF contains 8,736 acres (Table 3) and was purchased with Florida Forever funds under the Northeast Florida Timberlands and Watershed Reserve Project. Two-hundred (200) of the 8,736 acres was partially funded through a cooperative agreement between the DEP and the Florida National Guard, pursuant to the National Defense Authorization Act.

The Satsuma Tract of BSF is comprised of approximately 3,525 acres in western Clay County and is part of the Northeast Florida Timberlands and Watershed Reserve Project. See Table 3.

Table 3. Parcel Acquisition

Parcel Name	Deed Date	Lease Date	Lease No.	Funding Source	County	Acres
Dallas Pension Fund	6/24/2004	03/16/2005	4482	Florida Forever	Clay	8,736.71
Bull Creek North	N/A	4/3/2009	FDACS# 14718	Save Our Rivers	Clay	3,525.59

B. Management Authority, Purpose and Constraints

1. Purpose for Acquisition / Management Prospectus

Management is conducted by FDACS, 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 BSF.

The primary mission of the FFS in managing BSF is to protect the watershed of the Upper Black Creek and the surrounding uplands of the forest through a stewardship ethic to assure these resources will be available for future generations.

Revenue derived from timber sales is used to offset incurred expenses, capital improvements, and other personal services (OPS).

Staffing consists of one Forester. Additional resource planning, administrative function, and work project coordination support is provided by a Forest Area Supervisor. Personnel and equipment are utilized from the Jacksonville District. The Forest Area Supervisor, a Senior Ranger, and five (5) Forest Rangers have offices at the Penny Farms Work Center and assist with management activities at BSF.

Multiple-use management for BSF 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; and
- 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 Internal Improvement Trust Fund holds fee simple title to the 8,736.71 acres of BSF. Pursuant to Section 259.032(9)(e), Florida Statutes, staff recommended that the Board of Trustees designate the FDACS, FFS as the managing agency for this site. Two-hundred acres of BSF was partially funded through a cooperative agreement between the Department of Environmental Protection (DEP) and the National Guard Bureau, pursuant to the National Defense Authorization Act.

3. Designated Single or Multiple-Use Management

BSF 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 4482 and FDACS#14718.

Multiple-use includes, but is not limited to, 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 of these resources and giving consideration to the relative values of the various resources. Local demands, acquisition objectives, and other factors influence the array of uses that are compatible with and allowed on any specific area of the forest. This management approach is believed to provide for the greatest public benefit, by allowing compatible uses while protecting overall forest health, native ecosystems, and the functions and values associated with them.

4. Revenue Producing Activities

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

- Timber Harvests – Timber harvests on BSF will be conducted on a regular basis to improve forest health, promote wildlife habitat, restore plant communities, and provide other benefits.
- Recreation Fees – Fees are currently not collected for day use activities though future fee areas are possible.
- Apiary Leases – Apiary leases will be issued to local vendors as space allows.

5. **Conformation to State Lands Management Plan**
   Management of the forest under the multiple-use concept complies with the State Lands Management Plan and provides optimum balanced public utilization of the property. Specific authority for the FFS's management of public land is derived from Chapters 253, 259, and 589, Florida Statutes.

6. **Legislative or Executive Constraints**
   There are no known legislative or executive constraints specifically directed toward BSF.

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

C. Capital Facilities and Infrastructure

1. **Property Boundaries Establishment and Preservation**
   BSF boundary lines, 29 miles total, are managed by state forest personnel in accordance with the guidelines of the State Forest Handbook. There are 19 gates on BSF that require periodic maintenance. The state forest boundary lines are to be maintained by periodic clearing, repainting and reposting, and placement of state forest boundary signs by FFS personnel.

2. **Improvements**
   Buildings present on the BSF include:
   - **a.** Office Building – 2,000 square feet
   - **b.** Employee Residence (House) – 1,000 square feet
   - **c.** Employee Residence (Trailer) – 1,450 square feet
   - **d.** Pump shed and storage building – 500 square feet
   - **e.** Pole Barn – 7,000 square feet
   - **f.** Four kiosks
   - **g.** Picnic pavilion – 700 square feet

3. **On-Site Housing**
   There are two residences located on BSF on the Satsuma Tract.

   FFS may establish additional on-site housing (mobile / manufactured home) on BSF if deemed necessary to alleviate security and management issues. The need and feasibility specific for the state forest will be evaluated and established if considered appropriate by the District Manager and approved by the FFS Director. Prior to the occurrence of any ground disturbing activity for the purpose of establishing on-site housing, a notification will be sent to the DHR and Florida Natural Areas Inventory (FNAI) for review and recommendations. This type of

housing will not exceed three homes per location with the possibility of more than one on-site housing location occurring if considered necessary by the District Manager and approved by the FFS Director.

4. Operations Infrastructure

a. Operations Budget

For Fiscal Year 2018-2019, the total annual budget for BSF was $221,457. This amount includes salaries, expenses, contractual services, and OPS. A summary budget for BSF is contained in Exhibit W. Implementation of any of the activities within this management plan is contingent on available funding, other resources, and other statewide priorities.

b. Equipment

Equipment assigned to the BSF includes a pick-up truck, a farm tractor, mowing deck, grade-all, and an ATV (4-wheeler). Three medium dozers with transports and a type-6 engine stationed at BSF headquarters are not directly assigned to BSF but 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 BSF, with an office at the Penny Farms Work Center. Additionally, a Forest Area Supervisor, a Senior Ranger, and five Forest Rangers have offices at the Penney Farms Work Center and assist with management activities at BSF.

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 Resource Administrator. Forest operations, such as road maintenance, prescribed burning, etc., are the responsibility of FFS Jacksonville District fire control 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, pivot irrigation, sewage treatment facilities, linear facilities, sustainable agriculture, off highway vehicle use, 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

There are numerous parcels of land immediately adjacent to the property that should be acquired as they are essential to the management of the property. The FFS will work with these property owners, on a willing seller basis, to acquire these parcels. Highest emphasis for purchase should be given to privately owned property adjacent the boundaries of BSF. Property to acquire adjacent to the Ates Creek Tract includes the Reinhold Tract to the north

and northeast, the Bear Bay Timber CO LLC to the north, containing both the South Fork of Black Creek and Ates Creek, and the Highbrighton Partners West LLC and Lake Charles Naval property to the east. Purchasing additional land, within the optimal management boundary would facilitate restoration, protection, maintenance, and management of the natural resources on BSF. See Exhibit C.

The acquisition of additional land within the optimal management boundary would serve to facilitate the restoration and protection of the natural resources found on BSF. The land adjacent to the Ates Creek Tract on the northern and eastern borders should be considered for acquisition. Parcels have been identified as desirable for acquisition as additions to this state forest. Parcels are currently being managed in timber and are described below:

- Reinhold Tract - 653 acres
- Bear Bay Timber Tract – 2,033 acres
- Highbrighton Partners West LLC – 1,500 acres
- Lake Charles Naval – 4,075 acres
- Redshirt Farms – 967 acres
- Connor Stevens w/trustee – 304 acres
- Timber Row Crop – 629 acres
- 1621 Venture II – 161 acres

3. Surplus Land Assessment

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

The evaluation of BSF by FFS has determined that all portions of the area are being managed and operated for the original purposes of acquisition, as well as, center on the multiple-use concept, as defined in sections 589.04(3) and 253.034(2)(a) F.S. Implementation of this concept will utilize and conserve state forest resources in a harmonious and coordinated combination that will best serve the people of the state of Florida. Therefore, no portion of the BSF is recommended for potential 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 Clay County for review and compliance with their local comprehensive plans. See Exhibit U.

6. Utility Corridors and Easements

Currently, there are no established utility corridors on BSF. Florida Power and Light has an established power line utility corridor parallel to the eastern boundary of the Ates Creek Tract of BSF.

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 BSF 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 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 4482 and FDACS#14718. 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 an established Wildlife Management Area on BSF.

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.

2. **Law Enforcement**

Primary law enforcement responsibilities will be handled by law enforcement officers from FWC. Rules governing the use of BSF 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. FWC does not currently have an officer dedicated to patrolling and enforcement on BSF. This task is shared among three Clay County officers who also patrol and enforce laws on properties and waterways outside of BSF.

The Office of Agricultural Law Enforcement (OALE) will assist with open burning and wildfire investigations as needed. Additional assistance is provided by the Clay County Sheriff's Offices as needed.

Special rules under Chapter 5I-4 of the Florida Administrative Code were promulgated for FDACS, Florida Forest Service, to manage the use of state lands and better control traffic, camping, and other uses in BSF.

3. **Wildland Fire**

The FFS has the primary responsibility for prevention, detection, and suppression of wildfires wherever they may occur. The FFS shall provide leadership and direction in the evaluation, coordination, allocation of resources, and monitoring of wildfire management and protection (Florida Statute 590.01). The FFS also has the responsibility of authorizing prescribed burns (F.S. 590.02 (1i)).

4. **Public and Local Government Involvement**

This plan has been prepared by FFS and will be carried out primarily by the FFS. 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 reviews of management plan implementation in 2014 and 2019. See Exhibit T. The review teams' recommendations were addressed in this plan, as appropriate.

This plan was developed with input from the BSF Management Plan Advisory Group and was reviewed at a public hearing on August 25, 2020. 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.

5. **Volunteers**

Volunteers are important assets to BSF. 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.

6. **Friends of Florida State Forest**

Friends of Florida State Forests Inc. (FFSF) is a Direct Support Organization (DSO) of the FFS. FFSF supports management activities and projects on Florida's state forests. FFSF is established by Florida statute, supports programs within Florida's state forests, and is governed

by a board of directors representing all areas of the state. Through community support, FFSF assists the FFS to expand opportunities for recreation, environmental education, fire prevention, and forest management within Florida's state forests.

The FFSF program is referenced in Chapter 589.012 of the Florida Statutes. For more information visit: www.floridastateforests.org.

III. Archaeological/Cultural Resources and Protection

A. Past Uses

Past uses of BSF include timber management, naval stores production, cattle grazing, agriculture, and hunting. The land was previously owned by several businesses and families since the early 1900's. These businesses and families included Emmadine Farms, Foremost Properties Incorporated, O.J. Murrhee, Sylvia Gilman, Gilman Paper Company, Gilman Timberlands Management, and Dallas Police & Fire Pension Fund. Prior to state acquisition, most of BSF was leased to hunt clubs.

The earliest known commercial operations to occur on the Satsuma Tract involved the commercial production of camphor. Camphor tree farms were operated from the mid- 1800's to early 1900's on approximately 11,000 acres of central Clay County. Oils derived from camphor trees were employed in the medical field as well as being a key component in mothball production. The production of camphor from a natural source was conducted until the 1920's when these oils could be artificially produced.

Historical records show that the naval stores industry had a major presence in northeastern Florida. Principal products associated with the naval stores industry included tar, pitch, turpentine, and rosin, which were used for waterproofing the rigging and hulls of early wooden sailing ships. Evidence suggests that some level of the naval stores industry occurred on the Satsuma Tract as multiple trees with "cat faces" have been observed along the creeks and drains. To the extent this practice occurred is not known at this time, as most of the property has been cut over through past timber operations.

Pine timber management has been the most recent use of this property as confirmed by aerial photography dating back to 1943. Slash pine, identified as the primary species grown on the property, is currently regenerated through even-age management.

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 two (2) previously recorded archaeological sites, one (1) historic cemetery, and one (1) historic bridge found at the designated area for BSF (Table 4). Currently, there are no known sites listed in the National Register of Historic Places on BSF.

Table 4. Historical Sites on BSF

Site ID	Site Name	Site Type
CL01356	Sand Pine Road Bridge*	Bridge
CL01357	Degan Homestead Grave Site	Cemetery

Site ID	Site Name	Site Type
CL01358	Degan Homestead	Archaeological sites
CL01548	Bull Creek	Archaeological sites

* Bridge removed in 2019

See Exhibit H for a complete list of archaeological sites and bridge removal approval.

C. Ground Disturbing Activities

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

D. Survey and Monitoring

Currently, four (4) local FFS staff are trained by DHR as archaeological site monitors. FFS will pursue opportunities for training additional personnel. 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. FFS will consult with public lands archaeologists at DHR to determine any protection measures that might be required for sites with existing or potential threats.

Any known archaeological and historical sites will be identified on maps to aid state forest 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

The primary objective of the FFS in managing BSF is to protect the Black Creek watershed and surrounding uplands of the forest through a stewardship ethic to assure these resources will be available for future generations. Currently, there are no known soil or erosion problems present on BSF. 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 BSF's waterbodies and their associated water quality and native plants and animals. All forest management activities relating to timber harvesting

practices will comply with the latest Silvicultural BMP's publication for public lands. Copies of this publication are available upon request from FFS.

BSF 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 BSF was obtained from the United States Department of Agriculture Natural Resources Conservation Service (NRCS). BSF contains 40 different soils. The predominant soils listed for the Ates Creek Tract by the NRCS include: Leon fine sand, Sapelo fine sand, Pottsburg fine sand, and Pelham fine sand. Predominant soils listed for Satsuma Tract include: Sapelo fine sand, Ridgewood fine sane, Pottsburg fine sand, Osier fine sand, and Meadowbrook sand. Detailed information on all soils present on the state forest may be found in Exhibit J.

2. Soil Protection

Currently, there are no major or significant soil erosion problems at BSF. 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 BSF 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 BSF.

1. Resources

Belmore State Forest plays an important role in the protection of the Black Creek / Lower St. John's River Watershed by providing a recharge area free from future development pressures. Several water systems originate and flow through the forest including Ates, Devil's Den and Bull Creeks. These creeks, along with their many tributaries, not only help to provide clean water for the citizens of Florida, they also help to provide a natural environment ideal for native flora, fauna, and outdoor recreation. FFS will coordinate with SJRWMD and the DEP, as necessary, on activities pertaining to water resource protection and management.

2. Water Classification

The Florida Department of Environmental Protection, Standards Development Section reports all surface waters on or adjacent to BSF are classified as Class-III-recreation,

propagation, and maintenance of a healthy population of fish and wildlife. (Rule 62-302.400, Florida Administrative Code). Class III waters is the statewide default classification. See Exhibit K.

3. Water Protection

The acquisition and management of this public land had among its objectives to optimize ecological restoration, protect and manage existing natural resources, and facilitate sensible public use. Concern over a continuous usable source of fresh water requires emphasis on protecting this vital resource. Water resource protection measures, at a minimum, will be accomplished using BMPs as described in the most current version of Silviculture Best Management Practices Manual.

4. Swamps, Marshes, and Other Wetlands

BSF contains six (6) historic wetland community types. Dome swamp, floodplain swamp, bottomland forest, baygall, wet prairie, and depression marshes occur throughout the forest. Maintenance of these wetland communities is a high priority and will be accomplished through prescribed fire and a cautious avoidance of activities that would threaten the natural hydrology of these areas.

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.

Where applicable, BSF, with assistance from the FFS Hydrology Section, will pursue funding to develop and implement wetland restoration projects. Additionally, cooperative research among FFS, other state agencies, and the federal government will 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 and will follow the latest edition of the FFS's Silviculture Best Management Practices Manual.

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

BSF resides in the Lower St. Johns River Basin Main Stem BMAP. It was developed as part of the Department'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 management actions and adaptive management approach described in the BMAP will address Total Phosphorous (TP) reductions, and the process will continue until the TMDL is attained. 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. Rare, Threatened, and Endangered Species

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

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

Scientific Name	Common Name	FNAI Global Rank	FNAI State Rank	Federal Status	State Status
Gopherus polyphemus	Gopher tortoise	G3	S3	C	ST
Phidippus workman	Workman's jumping spider	G2G3	S2S3	N	N
Procambarus pictus	Black Creek crayfish	G2	S2	N	ST
Sciurus niger niger	Southeastern fox squirrel	G5T~~3~~5	S3	N	~~SSC~~N
Ursus americanus floridanus	Florida black bear	G5T2	S2	N	N
Calydorea coelestina	Bartram's ixia	G2G3	S2S3	N	E
Chimarra florida	Floridian finger-net caddisfly	G4	S3S4	N	N
Cordulegaster sayi	Say's spiketail	G3	S3	N	N
Hartwrightia floridana	Hartwrightia	G2	S2	N	T
Lithobates capito	Gopher frog	G3	S3	N	N
Litsea aestivalis	Pondspice	G3?	S2	N	E
Mustela frenata olivacea	Southeastern weasel	G5T4	S3?	N	N
Peucaea aestivalis	Bachman's sparrow	G3	S3	N	N
Podomys floridanus	Florida mouse	G3	S3	N	N
Rhynchospora thornei	Thorne's beaksedge	G3	S1S2	N	N
Rudbeckia nitida	St. John's black-eyed Susan	G3	S2	N	E

Federal Status (USFWS): LNE= 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. See Exhibit M. Documented species are listed in Table 5. Documented habitat includes: Baygall, Bottomland Forest, Depression Marsh, Dome Swamp, Floodplain Swamp, Mesic Flatwoods, Pine Plantation, Sandhill, Wet Flatwoods, 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 BSF. See Exhibit M.

c. Land Acquisition Projects

The Ates Creek Tract was acquired in 2004 under the Northeast Florida Timberlands Project of the Florida Forever Program. The Satsuma Tract was acquired in 2009 through the St. Johns River Water Management District's Forest Legacy Program. See Exhibit G.

Other Florida Forever Projects within Clay County include: Etoniah / Cross Florida Greenway and Camp Blanding-Raiford Greenway. However, the additional Florida Forever projects in Clay County are not within the same Section, Township, and Range as BSF. See Exhibit S.

3. Florida Fish and Wildlife Conservation Commission

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. See Exhibit N.

Other findings by the FWC include:

a. The property is located adjacent to or within multiple Strategic Habitat Conservation Areas for Florida black bear, red-cockaded woodpecker, and eastern indigo snake.
b. BSF is located within an area of moderate Species Richness.
c. Multiple Priority Wetlands are located on and in close proximity to BSF.

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.

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 forest. The FWC Gopher Tortoise Species Management Plan provides beneficial resource guidelines for habitat management and monitoring of the gopher tortoise. For reference, the FWC Gopher Tortoise Species Management Plan can be accessed at this web address:
http://myfwc.com/wildlifehabitats/managed/gopher-tortoise/management-plan/.

The FWC recommends referencing the FWC's Black Creek crayfish (*Procambarus pictus*) Conservation Measures and Permitting Guidelines, as well as utilizing this information as a resource to guide management in and around Black Creek. For reference, the Black Creek crayfish conservation measures can be accessed at this web address: https://myfwc.com/media/11560/black-creek-crayfish-guidelines.pdf, and further information can be found in the Florida Forestry Wildlife Best Management Practices for State Imperiled Species.

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 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 BSF. 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.

BSF has a Wildlife Management Area (WMA), which is known as the BSF Wildlife Management Area (BSFWMA). Management of this area will be directed to the production of biological diversity and species composition consistent with existing natural community types. Such communities will be restored and/or maintained through habitat management. All biological resources will be managed to maintain diversity.

BSF is home to a diversity of species, including an abundance of white-tailed deer (*Odocoileus virginianus*) and wild turkey (*Meleagris gallopavo*). Hunting is regulated by permit only (during archery, muzzleloading, general gun, and spring turkey), thus the reason why it remains a high-quality area. BSF also supports a moderate population of wild hogs (*Sus scrofa*). Hunter harvest pressure on wild hogs is able to control this population at the current time.

However, if habitat destruction occurs on a wide spread basis, nuisance trapping may be needed to reduce the herd size.

Belmore State Forest provides habitat for a number of different species of wildlife. More common species include: wild turkey (*Meleagris gallopavo*), red shouldered hawk (*Buteo lineatus*), bobcat (*Lynx rufus*), rabbit (*Sylvilagus* spp.), coyote (*Canis latrans*), white tailed deer (*Odocoileus virginianus*), southeastern fox squirrel (*Sciurus niger*), and bobwhite quail (*Colinus virginianus*).

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. <u>Survey and Monitoring</u>

FFS will implement species-specific management plans developed by FWC and other agencies as appriopriate. 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.

a. Gopher Tortoise

Surveys for gopher tortoise burrows have been conducted by FFS and FWC staff intermittently, as needed. All surveys are done in cooperation with FWC. Surveys have been completed in upcoming timber sale areas. Burrow activity status and locations are maintained in a GIS data base.

b. Florida Black Bear

FFS will continue to cooperate with FWC to implement FWC's state-wide Florida Black Bear Management Plan, with an emphasis on establishing and maintaining connectivity.

c. Black Creek Crayfish

FFS will continue to cooperate with FWC to document and monitor the status of the Black Creek crayfish on BSF. FFS will encourage FWC and other researchers of Black Creek crayfish to conduct surveys as needed.

d. Listed Plant Species

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

e. Other Rare Biota Surveys

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

Most of the isolated BSF wetlands have received a cursory biological survey, with rare and significant plant and animal species observed and documented. Assistance to FWC for gopher tortoise burrow commensal monitoring will be offered as appropriate.

During routine management activities, incidental sightings of rare animals and plants are GIS

mapped by FFS staff. All rare species data is collected and sent to FNAI twice 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 BSF.

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

Unique natural features found on BSF include seepage streams, blackwater creeks, and bottomland forests.

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 BSF 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 BSF 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:

- Florida Black Bear Survey (2012)
- Florida Mouse Survey (2012)
- Black creek crayfish survey (2014)
- Spatial and temporal distributions of biting midges (2017)
- Forked bluecurls (*Trichostema dichotomum*) plant research study (2018)

I. Ground Disturbing Activities

Although the FFS's approach to handling ground disturbing activities is identified in other sections of this plan, the FFS's overall approach to this issue is summarized here. FFS recognizes the importance of managing and protecting sensitive resources and will take steps to ensure that such resources are not adversely impacted by ground disturbing activities. 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, their placement will be reviewed by state forest field staff to avoid sensitive areas. For ground disturbing activities such as construction of buildings, parking lots, and new roads, the FFS will consult with FNAI, DHR, SJRWMD, and the Acquisition and Restoration Council (ARC), as appropriate.

V. Public Access and Recreation

The primary recreation objective is to provide the public with dispersed outdoor recreational activities that are dependent on the natural environment. FFS will continue to promote and encourage public access and recreational use by the public while protecting resources and practicing multiple-use management. Recreation activities available on BSF include hiking, hunting, fishing, nature study, biking, and horseback riding.

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

1. Roads

There is road access to the Ates Creek Tract of the BSF for the public on the north and south ends of the tract. Interior forest roads are composed of sand, lime rock, and clay, and have a variety of classifications. Seventeen named roads totaling 18 miles in length provide access to most of the forest. There are approximately 54 miles of road closed to public vehicle access; however, existing roads and firelines offer hiking, off-road biking, and equestrian access. See Exhibit D. Any plans for the establishment of new roads will be reviewed by the FFS, DHR, and the Acquisition and Restoration Council (ARC).

2. Recreation areas

Coot's Shanty Recreation Area on the Ates Creek Tract provides an ideal location for picnicking as well as a good place to begin hiking the forest. The Huckleberry Recreation Area serves as a parking lot for hunters and equestrian use. On the Satsuma Tract, the Hunt Camp Recreation Area provides a parking area for equestrian riders and hiking on the road system.

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. Any specific plans will be incorporated into the Five-Year Outdoor Recreational Plan on file at BSF.

1. **Public Access and Parking**
   Within this ten-year planning cycle, the potential for new parking and forest access points will be evaluated and considered for use. In addition, current parking and forest access points will continually to be evaluated for updates and improvements.
2. **Recreational Trails**
   Suitable locations are being explored for additional hiking trails. The construction, maintenance, and improvements of nature and hiking trails is on-going. There are plans for both linear and loop hiking and/or horse trails on both BSF tracts. Trailheads will be located at current and future recreational areas. Options for interpretive signage will be evaluated based on use.
3. **Camping**
   The need for primitive campsites on BSF is being evaluated. Primitive camp sites and camp zones will be evaluated/installed as trails and additional recreational areas are completed. Campsites will be equipped with fire rings, and in some cases, a picnic table and vault restroom where appropriate or necessary.
4. **Environmental Education**
   At this time, only self-guided tours are available. If a need is determined in the future, BSF may implement an environmental education program which may include guided tours, additional self-guided tours, and hands-on events.
5. **Bird Watching**
   A birding checklist for BSF may be developed in the future. FFS will work with FWC to evaluate the development of a checklist for eBird on BSF.
6. **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 Florida Forest Service will handle permitting requests for recreational activities. All planned recreational activities and features to be evaluated/installed are contingent upon the availability of necessary funding, equipment and manpower.

C. Hunter Access

The Florida Fish and Wildlife Conservation Commission manages hunting on the Ates Creek Tract of BSF. Hunting season dates, limits, and methods are established annually by FWC, in cooperation with FFS. BSFWMA regulations are updated annually and are identified in the current WMA brochure provided online by FWC at https://myfwc.com/hunting/wma-brochures/north-central/belmore/. Hunting on the Satsuma Tract is limited specifically to specialty outdoor opportunities for wounded American veterans through the Operation Outdoor Freedom program.

Operation Outdoor Freedom may host multiple events on BSF. These events will involve all aspects of outdoor recreation activities including, but not limited to, hunting, fishing, hiking, camping, clay shooting, and any other activity that is developed as an outdoor activity for wounded veterans. The supporting personnel will include state and private volunteers and any support personnel necessary for the operation, support, or funding of such events. Events can be recreational, fundraising, or planning in nature. The OOF program's needs may include the

upgrading of existing or construction of new facilities for lodging and recreation of participants, logistical, and operational needs of the program. On- and off-site fundraising for the benefit of OOF may occur to assist in these efforts and will be performed under the coordination and consistent with the guidelines of the Friends of Florida State Forests, Inc.

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

D. Education

FFS may create partnerships with local K-12 schools and/or universities for the purpose of the development and implementation of educational opportunities on BSF. Once developed, the Five-Year Outdoor Recreation Plan may provide more insight to management activities as they pertain to future educational opportunities BSF may provide to the public.

VI. Forest Management Practices

A. Prescribed Fire

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

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

A Fire History spreadsheet detailing the recent history of prescribed burns and wildfires at BSF is available in Exhibit O.

FFS has five (5) tractor / plow units and one (1) unmanned fire tower located in Clay County. Additional support is available from Baker and Bradford Counties. Personnel and equipment stationed at BSF will be used for pre-suppression practices, establishment of firebreaks, rehabilitation of existing firelines, construction of new firelines, maintenance of perimeter firebreaks, and prescribed burning.

The annual forest prescribed burning program produces multiple benefits. The purposes of prescribed burning on BSF are to facilitate forest management operations; enhance wildlife and listed species habitat; decrease fuel loading; enhance public safety; and restore, maintain, and protect all native ecosystems, ecotones, and their ecological processes. FFS personnel are responsible for planning and implementing the annual prescribed burn program for BSF, which will consist of growing and dormant season burns. An update to the Five-Year Prescribed Burning Management Plan is developed each year by FFS staff. All burns conducted on BSF are 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 BSF are estimated to have

occupied approximately 9,638 acres and to have burned at approximately 3 to 7-year intervals. Current fire dependent communities encompass 8,842 acres. Some historically non-fire dependent communities, such as Upland Hardwood Forest, are in a fire dependent current condition (pine plantation). Concurrently, some historically fire dependent communities have been altered through past land use practices, which inhibits the ability to meet objectives with prescribed fire alone. Based on current conditions and management objectives, BSF will plan for 1,263 to 2,947 acres to be prescribed burned annually. Meeting prescribed fire goals will be largely dependent on weather conditions, available personnel, and statewide emergency situations such as wildfires, hurricanes, and other natural disaster response and relief. Currently it is estimated that approximately 3,785 acres of BSF 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 BSF. The plan will provide guidelines in regard to wildfire suppression and prescribed fire management. It will specify burn units, burn unit prescriptions, appropriate fire return intervals, and fire suppression planning. The plan may be reviewed and amended as necessary.

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

a. Prescribed Fire: Prescribed fire is the most important land management tool, both ecologically and economically, for managing vegetation and natural communities and perpetuating existing wildlife populations in Florida. Forest operation records and staff experience should be combined with the FNAI inventory and assessment (Satsuma Tract in 2013, and Ates Creek Tract in 2016) to identify areas that may require mechanical or chemical treatments in conjunction with prescribed fire to restore a more natural vegetative structure.

b. Burn Unit Plans: Each prescribed fire will be conducted in accordance with FFS regulations and state law (Rule Chapter 5I-2 F.A.C., Chapter 590 F.S.) and have a burn unit plan (or prescription). Each prescription will contain, at a minimum, the information, 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 for higher burn acreages. Consideration should be given to rotating burn units between dormant and growing season burns over time. Fire return intervals for a burn unit are recommended to fall within the natural, historic range for the dominant natural community or communities within a given burn unit.

Based upon available species survey data, burn units within a prescription that have listed wildlife species shall explicitly state their presence and any restrictions or requirements relative to prescribed burning in proximity to these species or habitats. These may include

time of year, pre-burn preparation, fire return intervals, and other burn parameters.

B. Wildfires, Prevention, Fire / Prescribed Fire Strategies

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

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

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

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

1. Suppression Strategies

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

a. Contain and Control is defined as a suppression strategy where a fire is restricted to a certain area by using existing natural or constructed barriers that stop the 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.

a. Direct Suppression is defined as a suppression strategy where aggressive suppression tactics are used to establish firelines around a fire to halt its spread and to extinguish all hotspots. This alternative is used whenever there is a threat to human life, property, private lands, and/or critical natural or cultural resources. This strategy should also be used when the total district fire load dictates that crews not be involved with individual fires for any longer than absolutely necessary.

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

2. Smoke Management

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

3. Fire Breaks and Firelines

A system of permanent fire breaks is maintained around and within the boundaries of BSF to guard against fires escaping from and entering the forest. Such fire breaks will consist of natural barriers, roads, trails, permanent grass strips and where appropriate, well maintained

harrowed lines. All pre-suppression fire breaks will meet the established Silvicultural Best Management Practices (BMP) criteria.

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

4. Sensitive Areas

BSF 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 BSF. 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 BSF, efforts in this regard will continue to identify communities at risk and to make contact with their representatives.

6. Adjacent Neighbor Contacts

At this time, there have not been any neighbors requesting pre-burn notification. Requesting neighbors would be 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 and habitat. Based on the evaluations, decisions will be made on timber salvage operations. 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, and timber harvesting for the purposes of generating revenue, improving stand viability, forest health, wildlife, and ecological restoration and maintenance is critical to the silvicultural objectives on the state forest.

1. Strategies

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

a. To restore and maintain forest health and vigor through timber harvesting, prescribed burning, and reforestation, both naturally and artificially, with species native to the site.

b. To create, through natural regeneration, uneven-aged, and even-aged management, a forest with both young and old growth components that yields sustainable economic, ecological, and social benefits.

2. Silvicultural Operations

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

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

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

All silvicultural activities, including timber harvesting and reforestation, will meet or exceed the standards in FFS's Silviculture Best Management Practices (BMPs) and 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 BSF will be re-inventoried annually to provide an accurate estimation of the standing timber and to ensure that stands will be managed sustainably.

Timber / forestry resources available on the property include loblolly, longleaf, sand pine and slash pines, and pond cypress.

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

FFS employees continually monitor the forest for non-native invasive species while conducting management activities. FFS will locate, identify, and apply control measures with the intent to eradicate or control non-native invasive species. See Exhibit P.

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

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

FFS will enlist support from FWC in efforts to control non-native invasive animals. Feral hogs (*Sus scrofa*) have been present on some tracts of BSF in the past 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 BSF through trapping and hunting if necessary.

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

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

Scientific Name	Common Name	Treatment Strategy	Acres Impacted	Increasing /Decreasing
Sapium sebiferum	Chinese tallow tree	Spot Treatment with herbicide	Scattered plants	Stable
Sesbania punicea	Purple sesban	Spot Treatment with herbicide	Scattered plants	Stable
Lygodium japonicum	Japanese climbing fern	Spot Treatment with herbicide	Scattered plants	Stable
Imperata cylindrica	Cogongrass	Spot Treatment with herbicide	Scattered plants	Stable
Panicum repens	Torpedo grass	Spot Treatment with herbicide	Scattered plants	Stable

E. Insects, Disease and Forest Health

Currently, there are no significant insect or disease problems on BSF. 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 Clay 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 BSF, 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 BSF. 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 Y.

F. Use of Private Land Contractors

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

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

VII. Proposed Management Activities for Natural Communities

In 2013 and 2016, FNAI completed an inventory and natural community mapping project on the Satsuma and Ates Creek Tracts of BSF, respectively, and a historic natural community type map was created as illustrated in Exhibit R. Current natural communities and cover types can be found in Exhibit Q.

Table 7. Natural and Managed Community Types

Natural Community Type	Historic acres*	Current acres*	Acres in Restoration*
Baygall	1,011	1,045	
Bottomland Forest	453	437	
Depression Marsh	102	57	
Dome Swamp	342	228	
Floodplain Swamp	570	559	
Mesic Flatwoods	5,917	2,080	2,080
Pine Plantation	0	6,828	
Sandhill	1,152	59	59
Scrubby Flatwoods	27	0	
Upland Hardwood Forest	7	2	
Upland Mixed Woodland	59	0	
Wet Flatwoods	2,570	82	82
Wet Prairie	52	0	
Other Altered Landcover Types**	0	885	
TOTAL	12,262	12,262**	2,221

* Note rounding errors exist

** See Table 8

Table 8. Other Altered Landcover Types Found on BSF

Altered Landcover Type*	Current Acres Mapped
Borrow Area	7
Clearing/Regeneration	680
Developed	3
Ditched	16
Road	140
Successional Hardwood Forest	39
TOTAL	885

*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 prescribed burning and other operational plans across the forest. Strategies may include thinning of pine plantations, mowing or chopping in areas of heavy fuel buildup, application of both dormant and growing season fires, and/or the use of herbicides to control hardwoods and/or hardwood sprouting. 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. Prescribed fire frequency and timing is generally adjusted depending upon the conditions of the specific area.

Table 9. Prescribed Fire Interval Guide on BSF

Habitat Type	Historic Fire Return Intervals**	BSF Fire Frequency Goal (Local)	Comments
Baygall	Varies	2-5	Ecotones burned per frequency of adjacent upland habitat type. Interior portions of this community type will have longer return intervals.
Depression Marsh	Varies	2-5	Ecotones burned per frequency of adjacent upland habitat type. Interior portions of this community type will have longer return intervals.
Dome Swamp	Varies	3-5	Ecotones burned per frequency of adjacent upland habitat type. Interior portions of this community type will have longer return intervals.
Floodplain Swamp	N/A	N/A	Not a fire dependent community.
Mesic Flatwoods*	Varies	2-5	Depends on pine species, density, age, and fuel conditions.
Pine Plantation	Varies	1-7	Historically the Pine Plantation community type was sandhill, mesic or wet flatwoods. Will burn using historical community type

Habitat Type	Historic Fire Return Intervals**	BSF Fire Frequency Goal (Local)	Comments
			definition when and where it is appropriate based on stand characteristics, timeline in relation to harvesting.
Sandhill*	1-3	1-3	Frequent low intensity fire within the growing season to reduce hardwood competition and perpetuate pines and grasses.
Scrubby Flatwoods	5 - 15	5 - 8	Return intervals in general will match surrounding community types. Fire is important in maintaining ecotones.
Upland Hardwood Forest	Varies	3-5	Burns based on the frequency of surrounding forest types.
Upland Mixed Woodland	Varies	3 - 5	Ecotones burned per frequency of adjacent upland habitat type. Interior portions of this community type will have longer return intervals.
Wet Flatwoods*	5-7	2-7	Depends on pine species, density, age, and fuel conditions. In general, wet flatwoods are transition communities sandwiched between mesic flatwoods, basin, and dome swamps. Burning usually aligns with mesic flatwoods.
Wet Prairie	2-3	2-3	

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

The following community descriptions, existing condition descriptions, and management recommendations are taken from a 2013 and 2016 FNAI mapping project report and the Guide to the Natural Communities of Florida (FNAI 2010), as well as from the knowledge and experience gained by FFS during forest inventory efforts and routine field work on BSF.

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

A. Baygall

Description:

Baygall is a closed canopy evergreen forest that can develop on slopes with seepage from surrounding uplands or in basins where high water tables maintain saturated conditions. Soils are acidic and generally composed of peat. Characteristic canopy trees of baygalls include loblolly bay (*Gordonia lasianthus*), sweetbay (*Magnolia virginiana*), swamp bay (*Persea palustris*), pond pine (*Pinus serotina*), and slash pine (*Pinus elliottii*). Common shrubs and small trees include fetterbush (*Lyonia lucida*), wax myrtle (*Myrica cerifera*), large gallberry (*Ilex coriacea*), and highbush blueberry (*Vaccinium corymbosum*). A dense overstory and low light levels typically limits herbaceous plants to Virginia chain fern (*Woodwardia virginica*), beaksedges (*Rhynchospora* spp.), sedges (*Carex* spp.), sphagnum moss (*Sphagnum* spp.), Carolina redroot

(*Lachnanthes caroliniana*), and cinnamon fern (*Osmunda cinnamomea*). Epiphytes are infrequent to absent. Vines may include laurel greenbrier (*Smilax laurifolia*) and muscadine (*Vitis rotundifolia*).

Current Conditions:
Baygall occurs throughout BSF in scattered depressions within mesic and wet flatwoods communities, along creeks and drains, and downhill from the large sandhill found at the south end. Most are in good condition, but some have been impacted by road crossings, past logging, and firebreaks around the edges. The canopy trees are dominated by loblolly bay, sweetbay, and slash pine, with fewer red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), swamp tupelo (*Nyssa biflora*), and water oak (*Quercus nigra*). The subcanopy has shorter loblolly bay, sweetgum, sweetbay, and swamp tupelo. The tall shrubs include loblolly bay, Florida hobblebush (*Agarista populifolia*), titi (*Cyrilla racemiflora*), large gallberry, gallberry (*Ilex glabra*), coastalplain staggerbush (*Lyonia fruticosa*), fetterbush, sweetbay, wax myrtle, swamp tupelo, swamp bay, swamp azalea (*Rhododendron viscosum*), saw palmetto (*Serenoa repens*), highbush blueberry, and possumhaw (*Viburnum nudum*). Short shrubs are predominantly loblolly bay and fetterbush with the other tall shrubs present in fewer numbers. Dominant herbaceous species are cinnamon fern, sphagnum moss, and Virginia chain fern, and to a lesser degree viviparous spikerush (*Eleocharis vivipara*), Carolina redroot, and beaksedge. The vines cat greenbrier (*Smilax glauca*), laurel greenbrier, and muscadine are common to abundant.

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

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

B. Bottomland Forest

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

spectabilis), cinnamon fern, and Virginia chain fern. Vines are common and consist of rattan vine (*Berchemia scandens*), poison ivy (*Toxicodendron radicans*), peppervine (*Ampelopsis arborea*), catbriers (*Smilax* spp.), and climbing hydrangea (*Decumaria barbara*).

Current Conditions:
Bottomland forest occurs in BSF along the creek drainages and edges of floodplain swamp. Many areas along the larger creeks are in good condition but most of the smaller riparian corridors have been disturbed by channelization of the creeks and planting of pines. The canopy is often closed and consists of mature red maple, sweetgum, sweetbay, swamp tupelo, slash pine, loblolly pine (*Pinus taeda*), swamp laurel oak, and live oak (*Quercus virginiana*). The subcanopy has younger canopy species plus American hornbeam, green ash, and water oak. The open tall shrub layer has Florida hobblebush, titi, sweetgum, sweetbay, wax myrtle, swamp bay, water oak, mountain azalea (*Rhododendron canescens*), swamp azalea, saw palmetto, and highbush blueberry. The short shrubs include American beautyberry (*Callicarpa americana*), gallberry, coastal doghobble (*Leucothoe axillaris*), fetterbush, and bluestem palmetto. The herbaceous layer is dominated by slender woodoats, with less frequent clustered sedge (*Carex glaucescens*), switchcane (*Arundinaria gigantea*), variable witchgrass (*Dichanthelium commutatum*), witchgrass (*Dichanthelium* spp.), goldenclub (*Orontium aquaticum*), cinnamon fern, royal fern, lizard's tail, netted chain fern (*Woodwardia areolata*), and Virginia chain fern. Vines include trumpet creeper (*Campsis radicans*), saw greenbrier (*Smilax bona-nox*), eastern poison ivy, and muscadine.

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

Management Needs:
Restoration projects should focus on removing stands of planted pines and moving the mounds of dirt resulting from channelizing many of the smaller creeks.

C. Depression Marsh

Description:
Depression marsh is an isolated, non-forested wetland basin imbedded in a pyrogenic matrix community such as pine flatwoods or upland pine. The vegetation is typically arranged in concentric zones related to the length of hydroperiod and depth of flooding. Depression marsh often burns with the surrounding landscape and is seasonally inundated. The deepest zones may have a peat substrate and a continuous layer of sphagnum moss, while shallower zones have a sandy substrate. Depression marshes are distinguished from basin marshes principally by their landscape position which subjects them to more frequent fires.

Trees are generally sparse or absent. The herbaceous layer is moderate to dense, especially where fire frequency and woody plant mortality is high. Typical species include graminoids such as maidencane (*Panicum hemitomon*) and sawgrass (*Cladium jamaicense*), flag species such as pickerelweed (*Pontederia cordata*) and bulltongue arrowhead (*Sagittaria lancifolia*), and floating aquatics such as white waterlily (*Nymphaea odorata*). Peelbark St. John's wort (*Hypericum fasciculatum*) frequently forms a zone around the edge of the marsh along with herbs such as beaksedges, Elliott's yellow-eyed grass (*Xyris elliottii*), blue maidencane (*Amphicarpum muhlenbergianum*), fringed yellow-eyed grass (*Xyris fimbriata*), pipeworts (*Eriocaulon* sp.), and Baldwin's spikerush (*Eleocharis baldwinii*).

Current Conditions:
Depression marsh is represented by small wetlands scattered throughout BSF. Many of them have been disturbed by the planting of pine plantation or vehicle rutting and ditching. The canopy consists of slash pine and the subcanopy has loblolly bay, dahoon, and swamp tupelo. Shrubs are common buttonbush, loblolly bay, fetterbush, and wax myrtle. The herbaceous layer is dominated by maidencane, and also includes big carpetgrass (*Axonopus furcatus*), viviparous spikerush, tenangle pipewort (*Eriocaulon decangulare*), Carolina redroot, white waterlily, beaksedge, sand cordgrass (*Spartina bakeri*), sphagnum moss, and Virginia chain fern. The vine laurel greenbrier is infrequent.

Fire Regimes:
Frequency of fire in depression marshes is dependent on the fire return interval of the surrounding community. Fire is important in limiting hardwood encroachment and peat buildup.

Management Needs:
Management of the depression marsh community should focus on the removal of planted pines and allowing fires from the surrounding communities to burn into the marsh and extinguish naturally. Firebreaks around the perimeter should be avoided as they may damage the herbaceous ecotone.

D. <u>Dome Swamp</u>

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

The desired future condition of dome swamp is a mature canopy dominated by pond cypress (*Taxodium ascendens*) and swamp tupelo, with an open subcanopy and shrub layer. The herbaceous layer is sparse to dense and becomes denser with greater frequency of fire and the resulting mortality of shrub and woody plant species. The herbaceous ecotones are dominated by wiregrass (*Aristida stricta*) and also include species of beaksedges, yellow-eyed grasses (*Xyris* spp.), Carolina redroot, netted chain fern, Virginia chain fern, sandweed, and hooded pitcher plant (*Sarracenia minor*).

Current Conditions:
The dome swamps of BSF have been disturbed by past logging of the cypress trees, planting of pine trees, and fire exclusion. Firebreaks occasionally ring the perimeter and are connected to ditches that traverse the surrounding flatwoods. Many of the dome swamps now resemble depression marshes due to past logging where only a few scattered mature canopy trees remain within the wetland basin. The density of hardwood trees appears to be related to the fire and logging history. Domes have a lower density of hardwoods if they have burned more frequently or had higher intensity fires. Canopy and subcanopy trees are swamp tupelo, slash pine, and pond cypress. Shrub species consists of myrtle dahoon (*Ilex myrtifolia*), fetterbush, swamp bay, gallberry, highbush blueberry, and wax myrtle. Herb density is highly variable due to fire

frequency and intensity, and degree of disturbance from cypress timber operations. The herbaceous groundcover includes beaksedges, cinnamon fern, tenangle pipewort, yellow-eyed grass, fox club moss (*Lycopodium alopecuroides*), sphagnum (*Sphagnum* spp.), and Virginia chain fern. The vine laurel greenbrier is common. Dome swamps with an intact perimeter ecotone have the short shrub sandweed and additional herb species like blue maidencane, umbrellasedge (*Fuirena scirpoidea*), dwarf sundew (*Drosera brevifolia*), and hooded pitcher plant.

Fire Regimes:
Fire is essential for the maintenance of dome swamps. Without periodic fire, hardwood invasion and peat accumulation can cause the dome swamp to succeed to shrub bog or baygall. Fire frequency is greatest at the periphery of a dome swamp, where a normal fire cycle might be as short as 3 to 5 years. In contrast, fires may occur as infrequently as every 100 years in the wetter interior portions.

Management Needs:
At BSF, restoration efforts should focus on the herbaceous ecotones surrounding dome swamps. This will entail the removal of planted pines, the application of frequent prescribed fire, and the removal of firebreaks and ditches. Burning into dome swamps during years of normal precipitation when the swamps are inundated will help reduce hardwood tree density.

E. Floodplain Swamp

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

Current Conditions:
Floodplain swamp borders Ates Creek at the south end of the Ates Creek Tract of BSF. The existing conditions are very similar to the desired future conditions with mature trees in the canopy and an intact understory. The canopy is dominated by bald cypress, red maple, sweetgum, swamp tupelo, and swamp laurel oak. The subcanopy has younger canopy species plus dahoon and titi. The shrub layer is fairly open and contains common buttonbush, sweet pepperbush, titi, dahoon, Virginia willow, fetterbush, swamp tupelo, swamp bay, and highbush blueberry. The herbaceous groundcover contains a variety of species including purple bluestem (*Andropogon glomeratus* var. *glaucopsis*), clustered sedge, slender woodoats, woolly witchgrass (*Dichanthelium scabriusculum*), cinnamon fern, beaksedge, sphagnum moss, netted chain fern, and Virginia chain fern. Vines are fairly common and include laurel greenbrier, coral greenbrier, and muscadine. Southern needleleaf is an occasional epiphyte.

Fire Regimes:
Floodplain swamps rarely burn and only under extreme drought conditions.

Management Needs:
The maintenance of natural hydrologic regimes is critical to the health of floodplain swamps. Disturbances such as timber harvesting or hydrological alterations such as road causeways and channelization should be avoided.

F. Mesic Flatwoods (Restoration Area)

Description:
Mesic flatwoods are forests of southern yellow pines; in many cases longleaf pine (*Pinus palustris*). Slash pine is present but is usually more frequent in wetter areas (wet flatwoods). There is little to no subcanopy and very few tall shrubs. A dense groundcover of herbs grows between an open layer of short shrubs. Common shrubs include gallberry, saw palmetto, coastalplain staggerbush, wax myrtle, running oak (*Quercus elliottii*), dwarf live oak (*Quercus minima*), tarflower (*Bejaria racemosa*), dwarf huckleberry (*Gaylussacia dumosa*), blue huckleberry (*Gaylussacia frondosa* var. *tomentosa*), and shiny blueberry (*Vaccinium myrsinites*). Herbaceous species include wiregrass, arrowfeather threeawn (*Aristida purpurascens*), bottlebrush threeawn (*Aristida spiciformis*), lopsided Indiangrass (*Sorghastrum secundum*), witchgrasses, beaksedges, queen's delight (*Stillingia sylvatica*), narrowleaf silkgrass (*Pityopsis graminifolia*), and Curtiss' dropseed (*Sporobolus curtissii*).

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

Current Conditions:
Mesic flatwoods is documented in restoration sites throughout BSF, principally where the stands have been thinned at least once and have been managed with fire. However, much of the extensive historic natural stands of mesic flatwoods have been converted to pine plantation. One restoration site in particular, off-site trees were clear cut and planted with longleaf pine and seeded with groundcover species obtained off-site. The canopy has a few remaining younger mature slash pines. The subcanopy has planted longleaf pine up to 5 meters tall. The sparse tall shrub layer has infrequent swamp bay and water oak. The short shrubs are short longleaf pines, gallberry, dwarf live oak, saw palmetto, and shiny blueberry. The planted herbaceous groundcover includes purple bluestem, wiregrass, witchgrass, Mohr's thoroughwort (*Eupatorium mohrii*), slender flattop goldenrod (*Euthamia caroliniana*), eastern milkpea (*Galactia regularis*), rough hedgehyssop (*Gratiola hispida*), whitehead bogbutton (*Lachnocaulon anceps*), coastalplain staggerbush, narrowleaf silkgrass, blackroot (*Pterocaulon pycnostachyum*), beaksedge, and Curtiss' dropseed. The remaining restoration mesic flatwoods sites have been thinned at least once, and have an overstory of slash pine, with otherwise similar understory components.

Fire Regimes:
Mesic flatwoods require repeated applications of prescribed fire on a 2 to 4-year cycle.

Management Needs:
The restoration areas resemble the mesic flatwoods community type but are at different stages of

restoration. A prescribed fire regime using frequent fire would help increase herbaceous species and minimize hardwood encroachment. Stands are being considered for thinning as needed.

G. Pine Plantation

Description:

Pine plantations mapped at BSF occur on historic baygall, bottomland forest, dome swamp, mesic flatwoods, sandhill, and wet flatwoods. The historic natural community should be the basis for the desired future condition for each area of pine plantation.

Current Conditions:

Pine plantations are areas altered by silvicultural activities. These include lands where either 1) planted pines are having or will have an ongoing detrimental effect on native groundcover, 2) the history of planted pines has damaged groundcover to the point where further restoration beyond thinning and burning is required, and/or 3) the method of site preparation (e.g. bedding) has severely impacted groundcover. At BSF, there is much variation in the severity of bedding, age class of trees, history of prescribed fire, and the presence and condition of any remnant native vegetation. Practically all of the mesic flatwoods and wet flatwoods have been converted to pine plantation. Pine plantations on historic mesic and wet flatwoods sites have even-aged, dense stands of slash pine. Many of the pine plantations suffer from fire exclusion with heavy fuel loads and thick shrub layers, resulting in a sparse and weedy herbaceous groundcover.

Species composition in pine plantations indicative of mesic conditions are listed first. Subcanopy trees are sweetgum, slash pine, laurel oak, water oak, and live oak. Shrubs are rusty staggerbush (*Lyonia ferruginea*), coastalplain staggerbush, wild olive (*Osmanthus americanus*), black cherry (*Prunus serotina*), laurel oak, winged sumac (*Rhus copallinum*), saw palmetto, sparkleberry, shiny blueberry, deerberry (*Vaccinium stamineum*), dwarf pawpaw (*Asimina pygmea*), tarflower, and American beautyberry. Herbaceous groundcover species include partridge pea (*Chamaecrista fasciculata*), tread softly (*Cnidoscolus stimulosus*), rabbitbells (*Crotalaria rotundifolia*), tall elephantsfoot (*Elephantopus elatus*), Elliott's milkpea (*Galactia elliottii*), eastern milkpea, partridgeberry (*Mitchella repens*), bahiagrass (*Paspalum notatum*), and bracken fern (*Pteridium aquilinum*).

Species composition changes in pine plantation are indicative of wetter conditions. Subcanopy are red maple, loblolly bay, dahoon, swamp tupelo, and pond pine. Shrubs are switchcane, loblolly bay, swamp tupelo, swamp bay, swamp laurel oak, and highbush blueberry, and bluestem palmetto. Herbaceous groundcover species include blue maidencane, bushy bluestem, purple bluestem, clustered sedge, spadeleaf (*Centella asiatica*), slender woodoats, woolly witchgrass, poor joe (*Diodia teres*), Baldwin's spikerush, tenangle pipewort, Carolina redroot, whitehead bogbutton, cinnamon fern, royal fern, maidencane, pickerelweed, narrowfruit horned beaksedge (*Rhynchospora inundata*), millet beaksedge, woolgrass (*Scirpus cyperinus*), sphagnum moss, netted chain fern, Virginia chain fern, and Elliott's yellow-eyed grass. The vine is laurel greenbrier.

Fire Regimes:

Recommended fire regimes are listed under each historic community section. Returning prescribed fire to unthinned plantations must be undertaken with caution. Applying prescribed fire after the first thinning is preferred. Some pine plantations may require a more active restoration approach to return to the ideal community structure. In some cases where community structure is

still intact but somewhat overgrown, prescribed fire alone can be used for restoration. In more extreme cases, where woody encroachment prevents safe and effective burning, mechanical or chemical treatment of hardwoods may be necessary, quickly followed by prescribed burning.

Management Needs:
Return a more natural fire regime to the pine plantations that are historically flatwoods after thinning. In areas of good quality groundcover, especially where wiregrass is present, avoid using herbicides when planting pines to reduce shrub and grass competition. Prescribed burning before planting to reduce competition could be a viable alternative to the more costly and time-consuming application of herbicides. Prescribed burning priority should be given to areas of higher quality groundcover by using frequent growing-season fires to encourage herbaceous species, especially wiregrass, to reproduce naturally. Groundcover can be partially restored by thinning slash pine stands and sparsely planting longleaf pine and/or frequent burning, although some planting of perennial grasses such as *wiregrass* may be required.

H. <u>Sandhill</u> (Restoration Area)
Description:
North Florida sandhills are forests of longleaf pine trees, typically with a subcanopy of deciduous oaks, turkey oak (*Quercus laevis*) and or sand post oak (*Quercus margaretta*), with a fairly dense ground cover of herbs. The shrub layer is open and low in stature. The herbaceous groundcover consists primarily of wiregrass mixed with other grasses and forbs such as pineywoods dropseed (*Sporobolus junceus*), narrowleaf silkgrass, bracken fern, queen's delight, anisescented goldenrod (*Solidago odora*), wild indigo (*Baptisia* spp.), milk peas (*Galactia* spp.), whitetop aster (*Aster tortifolius*), tall ironweed (*Vernonia angustifolia*), summer farewell (*Dalea pinnata*), greeneyes (*Berlandiera pumila*), gayfeather (*Liatris* spp.), pinweeds (*Lechea* spp.), and frostweeds (*Helianthemum* spp.). Patches of open sand are occasional.

Current Conditions:
Presently, sandhill only occurs at the southernwestern end of the Ates Creek Tract of BSF, though more sandhill acreage historically occurred along the southern portions of the tract. Almost all had been converted to dense sand pine (*Pinus clausa*) plantation. A small part has undergone restoration by clearcutting, planting with longleaf pine, and prescribed burning. The following strata accounts pertain to this restoration area. The canopy is dominated by planted longleaf pine. Other trees are sand pine, sand live oak (*Quercus geminata*), laurel oak, bluejack oak (*Quercus incana*), turkey oak, and sand post oak (*Quercus margaretta*). The shrubs are younger tree species plus common persimmon (*Diospyros virginiana*), gallberry, rusty staggerbush, coastalplain staggerbush, wax myrtle, black cherry, Chapman's oak (*Quercus chapmanii*), myrtle oak (*Quercus myrtifolia*), winged sumac, sand blackberry (*Rubus cuneifolius*), saw palmetto, sparkleberry, shiny blueberry, and deerberry, woolly pawpaw (*Asimina incana*), blue huckleberry, St. Andrew's cross (*Hypericum hypericoides*), gopher apple (*Licania michauxii*), pricklypear (*Opuntia humifusa*), and Adam's needle (*Yucca filamentosa*). The herbaceous groundcover includes fringed bluestar (*Amsonia ciliata*), broomsedge bluestem (*Andropogon virginicus*), chalky bluestem (*Andropogon virginicus* var. *glaucus*), arrowfeather threeawn, bottlebrush threeawn, wiregrass, ovateleaf Indian-plantain (*Arnoglossum ovatum*), wild indigo, Ware's hairsedge (*Bulbostylis warei*), spurred butterfly pea (*Centrosema virginianum*), partridge pea, Florida alicia (*Chapmannia floridana*), a lichens (*Cladina evansii, Cladina subtenuis.* and *Cladonia leporina*), tread softly, rabbitbells, silver croton (*Croton argyranthemus*), Michaux's croton (*Croton michauxii*), flatsedge (*Cyperus*

sp.), needleleaf witchgrass (*Dichanthelium aciculare*), yankeeweed (*Eupatorium compositifolium*), slender flattop goldenrod, Elliott's milkpea, eastern milkpea, Deckert's pinweed (*Lechea deckertii*), thin paspalum (*Paspalum setaceum*), narrowleaf silkgrass, bracken fern, blackroot, snoutbean (*Rhynchosia* sp.), beaksedge (*Rhynchospora* sp.), little bluestem (*Schizachyrium scoparium*), woolgrass), whip nutrush (*Scleria triglomerata*), sweet goldenrod, queen's delight, and scurf hoary-pea (*Tephrosia chrysophylla*). Vines are yellow jessamine (*Gelsemium sempervirens*), earleaf greenbrier (*Smilax auriculata*), and muscadine.

Aside from the restoration area described above, no other areas historically containing sandhill on either tract meet the desired forest condition. Along with the rest of the uplands, sandhill habitat has been converted to dense stands of planted pines or recently clear-cut stands of pines prior to acquisition. The dominant overstory species in the sandhill habitat is slash pine, and in some areas planted longleaf and sand pine. The dense pine stands on several of the historic sandhills have been recently clear-cut. Typical midstory species include turkey oak and sand live oak. The understory is generally shaded and sparse with low shrub cover, high litter cover, and little to no bare sand. Evidence of bedding is common throughout the sandhill habitat. Shrubs present include chinquapin (*Castanea pumila*), common persimmon, sand pine, sand live oak, bluejack oak, turkey oak, sand post oak, winged sumac, bigflower pawpaw (*Asimina obovata*), netted pawpaw (*Asimina reticulata*), dwarf huckleberry, gopher apple, and saw palmetto. Groundcover species include broomsedge bluestem (*Andropogon virginicus*), wiregrass, Florida Indian-plantain, coastalplain chaffhead, lichen, witchgrass, centipede grass (*Eremochloa ophiuroides*), yankeeweed, bahiagrass, thin paspalum, bracken fern, blackroot, and whip nutrush. Lichens, high densities indicate fire suppression, are common and include reindeer lichens (*Cladina evansii* and *C. subtenuis*). Epiphytes are absent. Vines are common in some of the historic sandhill polygons and consist of Elliott's milkpea, yellow jessamine, earleaf greenbrier, cat greenbrier, and muscadine.

Fire Regimes:
Fire should be applied to this community every 1 to 3 years. Variability in the season, frequency, and intensity of fire is important for preserving species diversity, since different species in the community flourish under different fire regimes.

Management Needs:
Further restoration of the historic sandhill is mainly dependent on the removal of the densely planted slash and sand pine canopies, and frequent prescribed burns. FFS may consider seeding or transplanting of wiregrass and other herbs to facilitate burns through these areas. During management activities, every effort should be made to protect the existing gopher tortoise population.

I. Scrubby Flatwoods

Description:
Scrubby flatwoods are characterized as open canopy forests of pine trees with a shrub dominated understory and numerous areas of bare sand. Scrubby flatwoods can occur along slightly elevated relict sandbars and dunes, along creeks and streams, or downslope from a more xeric community such as sandhill. Because the sandy soil can be more than a meter deep and drains rapidly, scrubby flatwoods normally do not flood even under extremely wet conditions.

Scrubby flatwoods are relatively open-canopy forests of longleaf pine. There is little or no subcanopy but a dense ground cover of herbs and shrubs. The understory is a mosaic of moderately dense, scrubby, shrub patches and open areas of herbs and bare sand. Typical shrubs are saw palmetto, Chapman's oak (*Quercus chapmannii*), myrtle oak (*Quercus myrtifolia*), sand live oak, rusty staggerbush, coastalplain staggerbush, shiny blueberry, and huckleberry (*Gaylussacia* spp.). The herbaceous layer typically consists primarily of wiregrass, along with sandyfield beaksedge (*Rhynchospora megalocarpa*), gayfeather, and bracken fern. Epiphytes are infrequent and may include Spanish moss (*Tillandsia usneoides*) and ball moss (*Tillandsia recurvata*). Vines are scattered and may include earleaf greenbriar.

Current Conditions:
There were four scrubby flatwoods historic polygons identified on BSF, although their delineation is inexact because of the natural gradation between scrubby flatwoods and drier mesic flatwoods and sandhill. The soil series associated with historic scrubby flatwoods includes Centenary, Ridgewood, Pottsburg, and Newnan fine sands. Currently the scrubby flatwoods habitats on the Satsuma Tract have planted slash pine canopies. Laurel oak and water oak are common in the sub-canopy layer. The shrub layer is often dense and contains some of the following species: Chapman's oak, sand live oak, bluejack oak, myrtle oak (*Quercus myrtifolia*), saw palmetto, sparkleberry, shiny blueberry, and deerberry. Herbs are sparse and include lichens (*Cladina evansii* and *Cladina subtenuis*), yankeeweed, bracken fern, and blackroot. Although infrequent, pineywoods dropseed, wiregrass, and butterflyweed (*Asclepias tuberosa*) were observed in the historic scrubby flatwoods. Epiphytes are uncommon and vine cover is variable. Yellow jessamine is common.

Fire Regimes:
Fires likely swept across flatwoods every 1 to 8 years in summer, when thunderstorms generate numerous lightning strikes. Such fires are essential for maintaining the structure of the flatwoods, preventing hardwood encroachment from bordering hammock or baygall, and reducing weedy competition. Scrubby flatwoods do not burn as often as mesic flatwoods due to the general incombustibility of the oak litter. Natural fire frequency was likely every 5 to 15 years with most burns occurring during late spring and early summer (April-June).

Management Needs:
Reduce the pine canopy density and return a more natural fire regime to pine plantations that were historically flatwoods. In areas with good quality ground cover, especially where wiregrass is present, avoid using herbicides to reduce shrub and grass competition when planting pines (if the latter is deemed necessary). Use of prescribed fire to reduce competition prior to planting could be a viable alternative to the more costly and time-consuming application of herbicides. Priority should be given to burning areas of higher quality groundcover, using frequent growing-season fires to encourage herbaceous species (when applicable), especially wiregrass, to reproduce naturally. With restoration, these areas may become seed sources for future reseeding projects.

J. Upland Hardwood Forest

Description:
Upland hardwood forest develops on relatively nutrient rich mesic soils in areas sheltered from periodic fires. The closed canopy is comprised of deciduous and evergreen tree species that are

largely intolerant of fire. This community is most often associated with hilly topography, ravines, slopes, and rises within floodplains or bottomland forest.

Upland hardwood forests are comprised of a diverse assemblage of hardwood canopy trees. Pine trees may be present but are not typically dominant. Northeast Florida upland hardwood forests often have canopy trees that include southern magnolia (*Magnolia grandiflora*), pignut hickory (*Carya glabra*), sweetgum, swamp chestnut oak, bluff oak (*Quercus austrina*), laurel oak, white ash (*Fraxinus americana*), spruce pine (*Pinus glabra*), and Carolina basswood (*Tilia Americana* var. *caroliniana*). Some characteristic subcanopy species include American holly (*Ilex opaca*), eastern hophornbeam (*Ostrya virginiana*), and Florida dogwood (*Cornus florida*). Upland hardwood forest shrubs may include American witchhazel (*Hamamelis virginiana*), red buckeye (*Aesculus pavia*), and horse sugar (*Symplocos tinctoria*). The groundcover is often sparse because of shading from the canopy but can be somewhat diverse. Often present is partridgeberry and sarsaparilla vine (*Smilax pumila*).

Current Conditions:
There was only one polygon delineated as upland hardwood forest on BSF. The community occurred predominantly on the Ridgewood fine sand soil series. Currently, the majority of the area has been converted to pine plantation and only a narrow strip along the bottomland forest community remains. However, upland hardwood forest may have occurred in a few more limited locations on the tract but separating the signature of this community type on the historic aerial photographs from bottomland forest and upland mixed woodland is very difficult. Some characteristic upland hardwood forest species were observed in other locations on the tract where uplands grade into the bottomland forest, but the areas were generally not large enough to delineate a polygon (i.e., less than 0.5 acre). The small remnant of upland hardwood forest was the only location on the tract where a large amount of trash was observed that had been dumped over what appears to be a several year period.

The upland hardwood forest that remains has a canopy composition of pignut hickory, sweetgum, tuliptree (*Liriodendron tulipifera*), and southern magnolia. The sub-canopy contains sweetgum, and black cherry. Some of the dominant shrubs include horse sugar, American beautyberry, and saw palmetto. Herbs, epiphytes, and vines were all very sparse.

Fire Regimes:
Fire frequency is suspected to be very limited within this community type. Fire may "crawl" downslope periodically but likely naturally extinguishes before moving entirely through the understory of the community.

Management Needs:
Removing the dense stands of planted pine that occur on the historic upland hardwood forest may allow for species characteristic of the community to colonize the full extent of the area formerly occupied. Prescribed fire should not be started within the community but allowed to enter from adjacent pyrogenic communities and naturally extinguish.

K. Upland Mixed Woodland

Description:
Upland mixed woodlands are made up of primarily deciduous hardwood trees with a closed to

partially open canopy. Upland mixed woodland soils are typically loamy, well drained, and are never inundated. The partially-closed canopy maintains relatively high humidity levels and thus fires are not as frequent as in sandhill or flatwoods communities. This community type typically occurs between sandhill and hardwood-dominated communities such as upland hardwood forest or bottomland forest.

Future conditions for the upland mixed woodland should have a canopy that includes mockernut hickory (*Carya alba*), pignut hickory, southern magnolia, longleaf pine, southern red oak (*Quercus falcata*), sand post oak, laurel oak, and a subcanopy of younger canopy species. The shrub species composition is as variable as the canopy and includes devil's walkingstick (*Aralia spinosa*), sand live oak, laurel oak, water oak, sparkleberry, and deerberry. Herbs are generally sparse due to the closed canopy and dense shrub layer. Species may include partridgeberry, sweet goldenrod, and sarsaparilla vine. Epiphytes are infrequent to occasional and include Spanish moss. Vines are infrequent and may include Florida spinypod (*Matelea floridana*), earleaf greenbriar and poison ivy.

Current Conditions: There were four upland mixed woodland polygons delineated on the historic map of BSF. However, three of these areas are currently designated successional hardwood forest and the remaining area is in pine plantation. The historic community gradually graded into bottomland forest or upland hardwood forest downslope and sandhill upslope. The soil series most frequently associated with the upland mixed woodland included Albany, Ortega, Ridgewood, and Blanton fine sands. It is very difficult to differentiate bottomland forest from upland mixed woodland on historic aerial photographs. There may be more upland mixed woodland on the tract than was identified during this project.

There is evidence of past timber harvesting within the community and the remaining canopy is now dominated by loblolly pine, laurel oak, water oak, slash pine, and live oak. In a few locations mockernut hickory can still be found in the canopy. Taxonomic elements in the sub-canopy layer of the upland mixed woodland community included mockernut hickory, American holly, sweetgum, southern magnolia, laurel oak, and water oak. Tall and short shrubs include mockernut hickory, pignut hickory, chinquapin, flowering dogwood, hawthorn (*Crataegus* sp.), sweetgum, black cherry, southern red oak, sand live oak, laurel oak, American beautyberry, needle palm (*Rhapidophyllum hystrix*), saw palmetto, and deerberry. Herbs were infrequent and included Florida Indian-plantain (*Arnoglossum floridanum*), slender woodoats, witchgrass, and partridgeberry. Vines are occasional and include yellow jessamine, cat greenbrier, and muscadine.

Fire Regimes: The historic fire interval within this community type is largely unknown. Given the typical canopy species composition it is likely that periodic fires entered the community from adjacent pyrogenic community types. On BSF, allowing prescribed fire from adjacent sandhill communities to enter the mixed woodland forest and naturally extinguish is likely sufficient to help maintain the community.

Management Recommendations: The high density of laurel and water oak currently dominating the canopy in most areas may need to be reduced in order for other typical canopy species to reestablish. The upland mixed woodland polygon that is currently pine plantation may need to have the slash pine canopy removed and possibly have scattered longleaf pine planted on the site.

Allow fires from adjacent pyrogenic communities to naturally extinguish within the upland mixed woodland community.

L. Wet Flatwoods

Description:

Wet flatwoods are characterized by relatively open-canopy forests of scattered pine trees with a thick shrubby understory and very sparse ground cover, or a fire-maintained, sparse understory and dense ground cover of hydrophytic herbs. Wet flatwoods exist on relatively flat, poorly drained land. The soils are generally 0.3 to 1 meter (ca.1 to 3 ft) of acidic sands overlying an organic hardpan or clay layer. The hardpan substantially reduces the percolation of water below and above its surface, and therefore wet flatwoods can be inundated for 1 or more months per year. Wet flatwoods often grade into basin swamps and mesic flatwoods.

Current Conditions:

All historic wet flatwoods on BSF are presently planted as pine plantation. However, an 82-acre stand in the northeastern portion of the Ates Creek Tract has been identified as Restoration Wet Flatwoods, as is has been thinned and treated with prescribed fire. See the pine plantation description above for current conditions.

Fire Regimes:

Historically, the fire return interval in wet flatwoods is 3 to 10 years. However, in areas of heavy fire exclusion and/or densely planted slash or loblolly pine, mechanical vegetation removal and/or a more frequent fire interval may need to be applied for initial restoration after thinning. Reduce the pine canopy density and return a more natural fire regime to pine plantations that were historically flatwoods. In areas with good quality ground cover, especially where wiregrass is present, avoid using herbicides to reduce shrub and grass competition when planting pines (if the latter is deemed necessary). Use of prescribed fire to reduce competition prior to planting could be a viable alternative to the more costly and time-consuming application of herbicides. Priority should be given to burning areas of higher quality groundcover, using frequent growing-season fires to encourage herbaceous species, especially wiregrass, to reproduce naturally. With restoration, these areas may become seed sources for future reseeding projects.

Management Needs:

Return a more natural fire regime to the pine plantations that are historically wet flatwoods. In areas of good quality groundcover, especially where wiregrass is present, avoid using herbicides when planting pines to reduce shrub and grass competition. Prescribed burning before planting to reduce competition could be a viable alternative to the more costly and time-consuming application of herbicides. Prescribed burning priority should be given to areas of higher quality groundcover by using frequent growing-season fires to encourage herbaceous species, especially wiregrass, to reproduce naturally. Groundcover can be partially restored by thinning slash pine stands and sparsely planting longleaf pine **l**ongleaf pine and/or frequent burning, although some planting of perennial grasses such as *wiregrass* may be required.

Prescribed burning should be applied to pine plantations in historical wet flatwoods on a 2 to 5-year cycle after first thinning, with return intervals increasing with fuel reduction. This will reduce woody encroachment, sustain herbaceous species, and aid in prevention of catastrophic wildfires.

M. Wet Prairie

Description:

Wet prairies are hydric communities of low flatlands that typically have little to no canopy, are dominated by hydrophytic grasses and herbs, and are maintained by frequent fires. In north Florida wet prairie often fringes dome swamps and depression marshes.

Wet prairies should have little tree cover. Tree species that may be found in wet prairies include slash pine, pond pine, and longleaf pine. Shrubs should be a minor component of the ground layer and include species such as gallberry, fetterbush, wicky (*Kalmia hirsuta*), myrtleleaf St. John's-wort (*Hypericum myrtifolium*), and wax myrtle. Herbs should comprise the majority of the ground layer, with wiregrass being the most abundant. Other species that should be found include yellow-eyed grasses, witchgrasses, Virginia chain fern, beaksedges, asters (*Aster* spp.), milkworts (*Polygala* spp.), blue maidencane, fewflower milkweed (*Asclepias lanceolata*), yellow colicroot (*Aletris lutea*), small butterwort (*Pinguicula pumila*), rushes (*Juncus* spp.), netted chain fern, and meadowbeauties (*Rhexia* spp.). Epiphytes should be absent. Vines should be absent to infrequent.

Current Conditions:

The soil series associated with historic wet prairie on the tract included Meadowbrook sand, Osier, Pottsburg, Sapelo, and Leon fine sands. Currently on BSF, the areas that were formerly wet prairie have been bedded and planted with dense stands of slash pine. The subcanopy consists of red maple and laurel oak. Current shrubs include common buttonbush, wax myrtle, highbush blueberry, and myrtle-leaved holly (*Ilex cassine* var. *myrtifolia*). Some of the observed groundcover includes chalky bluestem, spadeleaf, flatsedge, witchgrass, Carolina redroot, beaksedge, grassy arrowhead (*Sagittaria graminea*), sphagnum moss, Virginia chain fern, Richard's yellow-eyed grass (*Xyris jupicai*), and yellow-eyed grass (*Xyris* sp.).

Fire Regimes:

Fires likely occurred every 2 to 4 years and were ignited by lightning storms during the late spring and early summer. Fire management in wet prairies is vital for sustaining a rich diversity of herbaceous species.

Management Recommendations:

Management activities for wet prairies should focus on removing the planted pines, avoiding heavy machinery disturbance, and implementing a frequent prescribed burning schedule to increase herbaceous species diversity. Any management activity in wet prairies should be done with care to minimize soil disturbance. At the same time, many of the soils within the historic wet prairies on the Satsuma Tract have been disturbed (i.e., bedded) to the point it may not be possible to establish conditions that favor the wet prairie community. A community more similar to wet flatwoods may develop with the thinning of the planted pines and frequent application of prescribed fire.

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. Successional hardwood forest, pine plantation, and restoration natural communities are described in separate sections of this report.

The ruderal areas 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:
Ruderal areas on BSF comprise 127 acres of road. Roads ≥5 meters wide are delineated on the current natural community map.

Fire Regimes: N/A

Management Needs:
It may not be practical or desirable to restore some of the ruderal habitats (e.g., developed land, roads, parking lots, etc.) to the historic natural community. Native trees and shrubs should be used in landscaping, and these areas should be monitored for invasive exotic plants. For abandoned fields and pastures, planting longleaf pine will improve the condition of the community, but because of intensive past use, groundcover restoration would be a long-term and potentially costly project.

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). 2013. Guide to the natural communities of Florida: 2010 Edition. Florida Natural Areas Inventory, Tallahassee, Florida.

Florida Natural Areas Inventory (FNAI). 2016. 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 Practice
BOT.....Board of Trustees
BSF .....Belmore State Forest
DHR .....Division of Historical Resources
DRP.....Division of Recreation and Parks
FAC.....Florida Administrative Code
FDACS.....Florida Department of Agriculture and Consumer Services

FDEP.....Department of Environmental Protection
FDMA.....Florida Department of Military Affairs
FFS.....Florida Forest Service
FNAI.....Florida Natural Areas Inventory
FS.....Florida Statute
FWC.....Florida Fish and Wildlife Conservation Commission
GIS.....Geographic Information System
NRCS.....Natural Resources Conservation Service
SJRWMD.....St. Johns River Water Management District
OALE.....DACS Office of Agricultural Law Enforcement
OOF.....Operation Outdoor Freedom
OPS.....Other Personnel Service
SOR.....Save Our Rivers
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
WMA.....Wildlife Management Area

BELMORE STATE FOREST
2020 LAND MANAGEMENT PLAN

EXHIBITS

Exhibit A

Ten Year Management Accomplishments Summary

Belmore State Forest

10-Year Accomplishments

Site Preparation	Chop Single Pass	Acres	110
	Chop Double Pass	Acres	62
	Disk/Raking	Acres	110
	Burning	Acres	62
	Mowing	Acres	32
	Herbicide	Acres	42
Planting	Longleaf Bareroot	No.	43,560
		Acres	90
	Longleaf Containerized	No.	191,918
		Acres	289
Seedling survival checks	Planting Checks	Acres	287
Timber Stand Improvement	Herbicide	Acres	94
Timber Sales	Marking	Acres	1,012
	Cruising	Acres	2,089
	Harvest	Acres	2,019
Timber Inventory	Inventory Update	Acres	13,888
	Plots	No.	894
Invasive Control	Japanese Climbing Fern	Acres	12
	Purple Sesban	Acres	5
	Chinese Tallow	Acres	3
	Natal Grass	Acres	2
	Cogon Grass	Acres	1
Fire	Wildfire	No.	2
		Acres	34
	Prescribed Burning	Acres	8,640
Recreation	Day Use	No.	107,449
Roadwork	Roads Constructed	Miles	3
	Roads Graded	Miles	110
	Roads Rebuilt	Miles	21

	Roads Mowed	Miles	30
	Culverts Installed	No.	50
	Bridges Repaired	No.	10
	Low Water Crossing	No.	5

Boundary Maintenance	Maintenance/Marking	Miles	31

I&E Activities	Programs/Tours	No.	65
	Radio/TV Articles	No.	3
	Education/Research	No.	3
	Fairs	No.	17
	Liason Panel Meeting	No.	1
	Training Sessions	No.	32

Other Activities	Apiary Permits	No.	16
	Hogs Trapped	No.	3

Exhibit B

Boundary Map

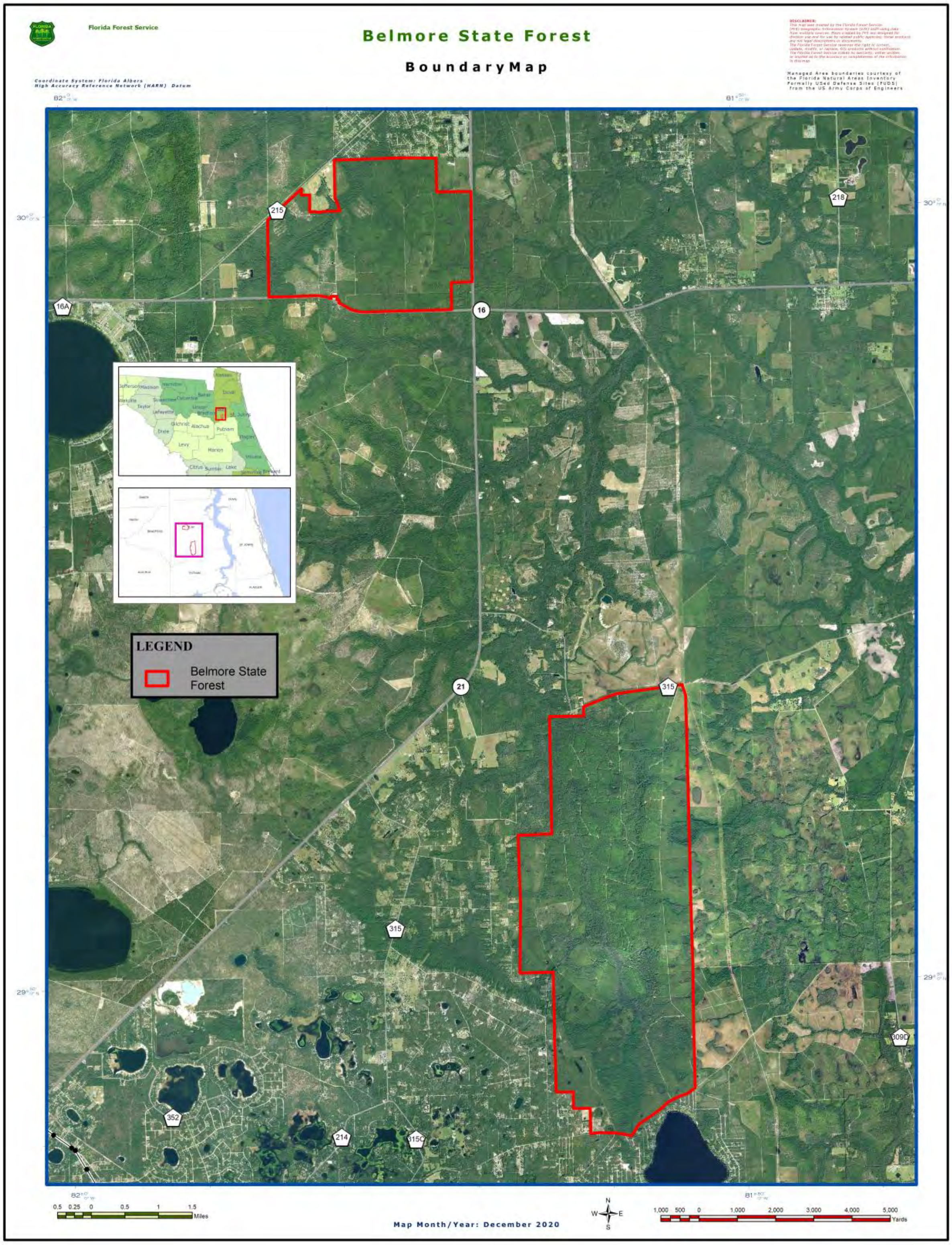

Florida Forest Service
Belmore State Forest
BoundaryMap
DISCLAIMER:
Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum
Managed Area boundaries courtesy of
the Florida Natural Areas Inventory
Formally USed Defense Sites (FUDS)
from the US Army Corps of Engineers
215
218
16A
16
21
315
315
309D
352
214
315C
LEGEND
Belmore State Forest
Miles
Yards
Map Month/Year: December 2020

Exhibit C

Optimal Management Boundary Map

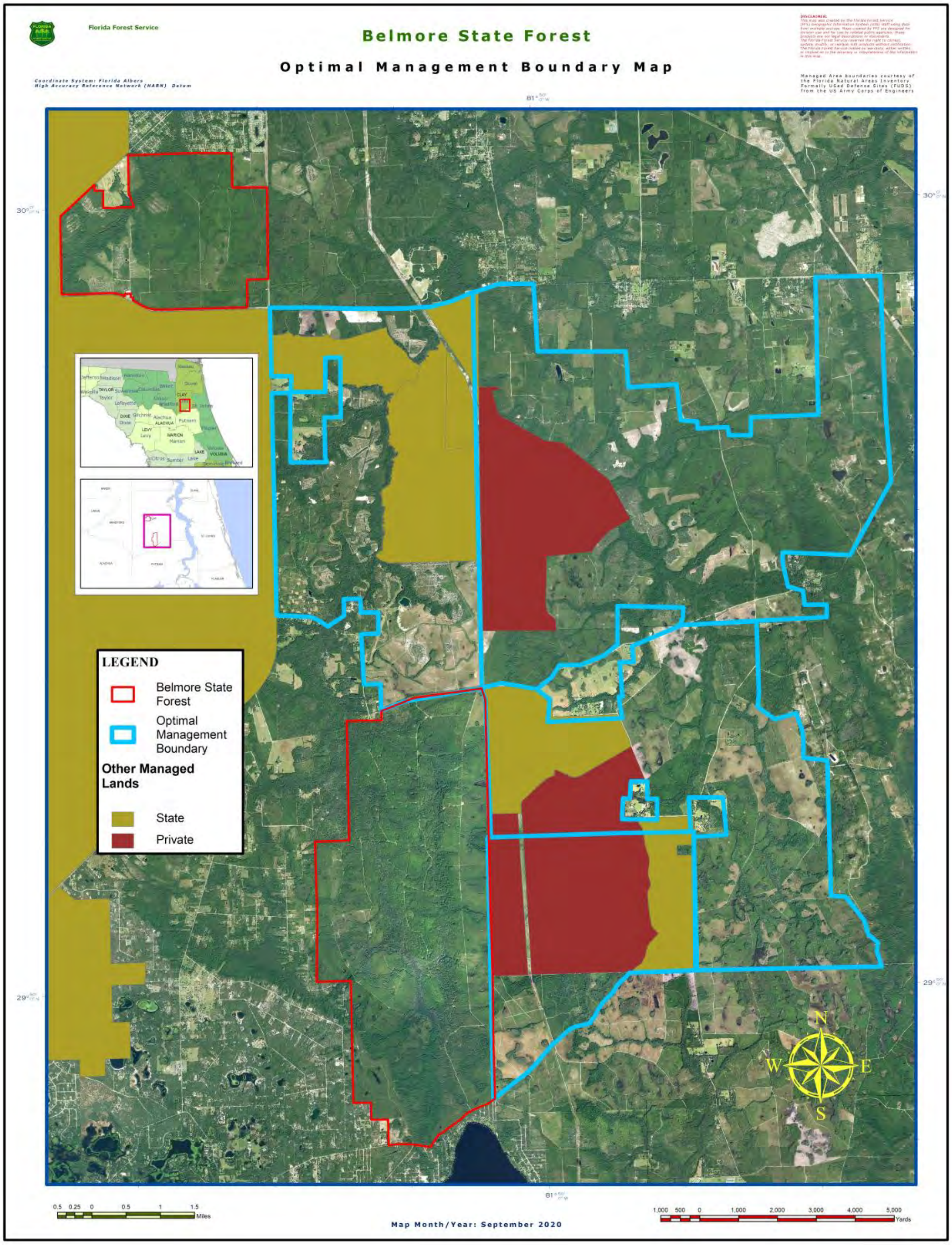

Florida Forest Service
Belmore State Forest
Optimal Management Boundary Map
Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum
DISCLAIMER:
Managed Area boundaries courtesy of
the Florida Natural Areas Inventory
Formally USed Defense Sites (FUDS)
from the US Army Corps of Engineers
LEGEND
Belmore State Forest
Optimal Management Boundary
Other Managed Lands
State
Private
N
W
E
S
0.5 0.25 0 0.5 1 1.5
Miles
Map Month/Year: September 2020
1,000 500 0 1,000 2,000 3,000 4,000 5,000
Yards

Exhibit D

Facilities, Recreation, and Improvements

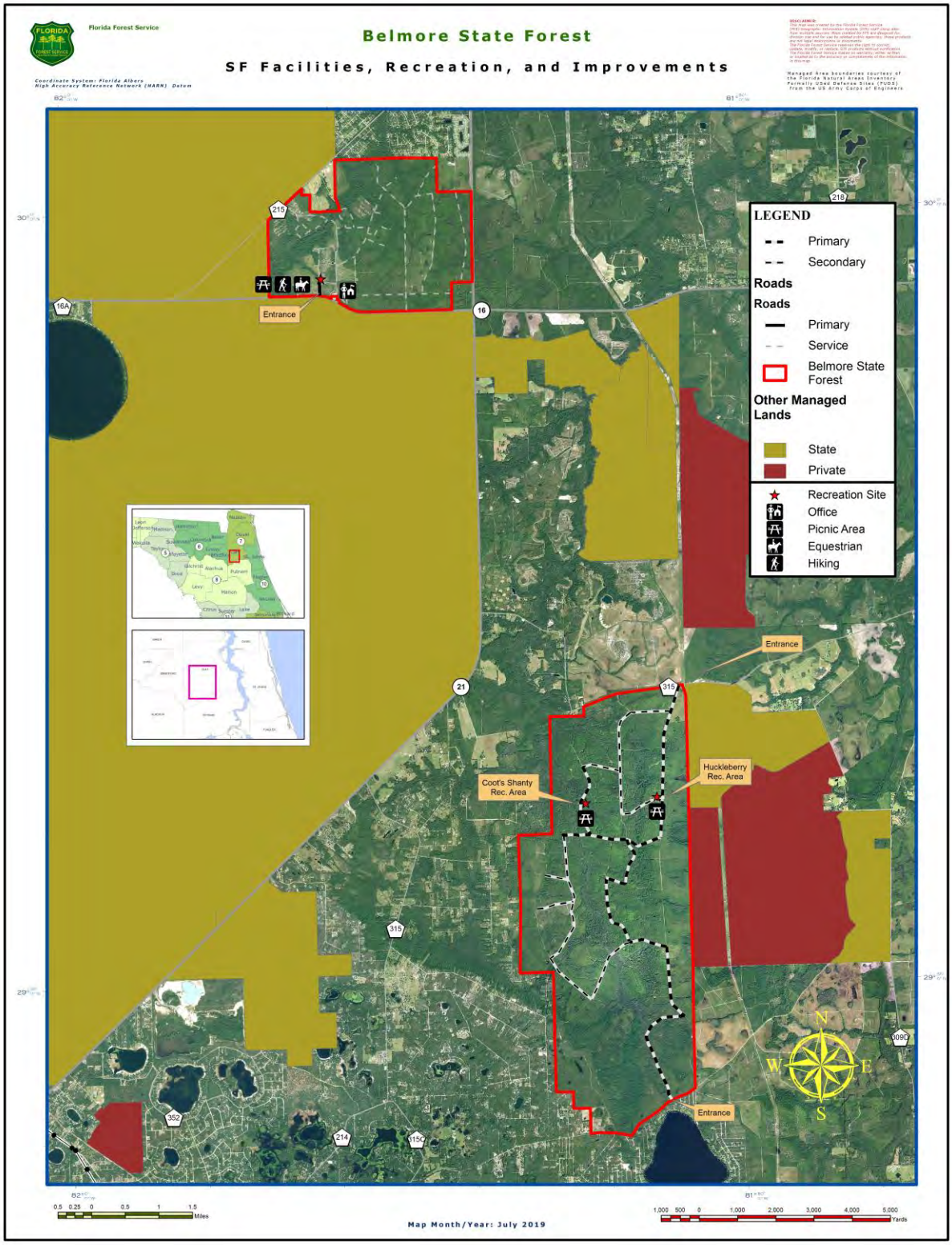

Florida Forest Service
Belmore State Forest
SF Facilities, Recreation, and Improvements
Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum
Managed Area boundaries courtesy of the Florida Natural Areas Inventory
Formally Used Defense Sites (FUDS) from the US Army Corps of Engineers
LEGEND
Primary
Secondary
Roads
Roads
Primary
Service
Belmore State Forest
Other Managed Lands
State
Private
Recreation Site
Office
Picnic Area
Equestrian
Hiking
Entrance
Entrance
Entrance
Coot's Shanty Rec. Area
Huckleberry Rec. Area
N
S
E
W
0.5 0.25 0 0.5 1 1.5 Miles
1,000 500 0 1,000 2,000 3,000 4,000 5,000 Yards
Map Month/Year: July 2019

Exhibit E

Tract Maps
Ates Creek and Satsuma

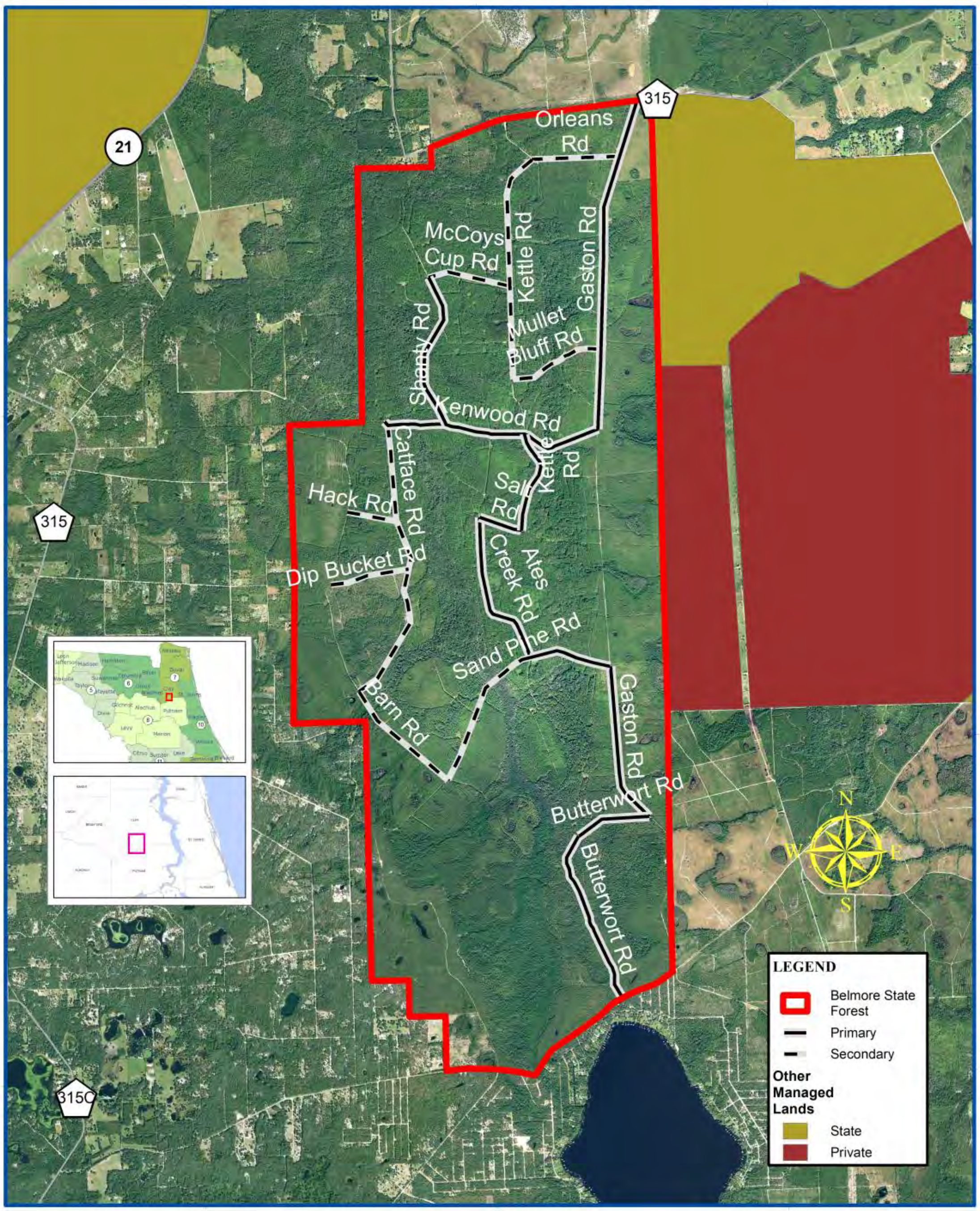
Florida Forest Service

Belmore State Forest

Ates Creek Tract Road Map

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

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



0.5 0.25 0 0.5 Miles

1,000 500 0 1,000 2,000 Yards

Map Month/Year: July 2019

Florida Forest Service

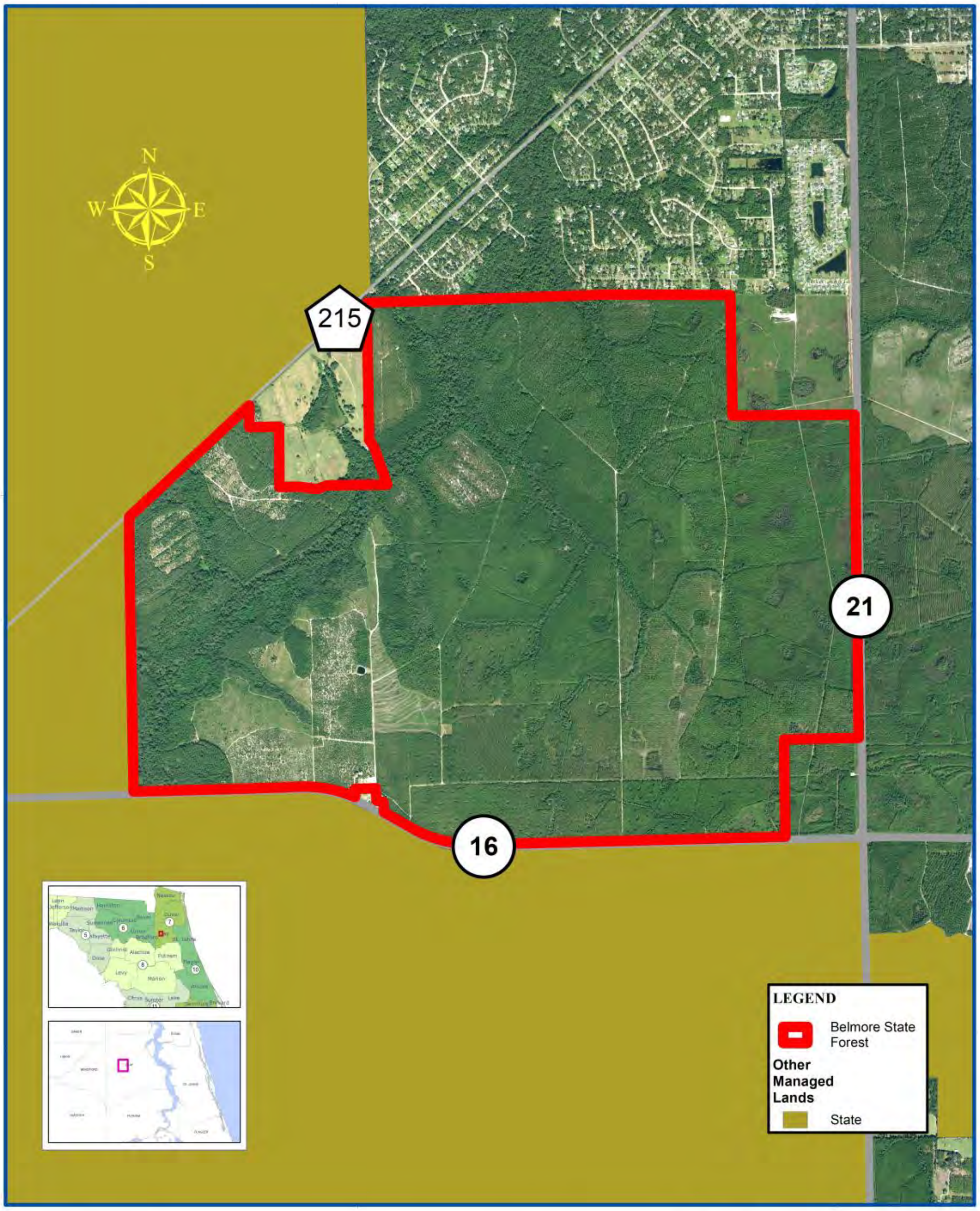
Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum

Belmore State Forest

Satsuma Tract

DISCLAIMER:
This map was created by the Florida Forest Service (FFS) Geographic Information Systems (GIS) staff using data from multiple sources. Maps created by FFS are designed for division use and for use by related public agencies; these products are not legal descriptions or documents.
The Florida Forest Service reserves the right to correct, update, modify, or replace, GIS products without notification.
The Florida Forest Service makes no warranty, either written or implied as to the accuracy or completeness of the information in this map.

Managed Area boundaries courtesy of the Florida Natural Areas Inventory
Formally USed Defense Sites (FUDS) from the US Army Corps of Engineers



0.5 0.25 0 Miles

1,000 500 0 1,000 Yards

Map Month/Year: July 2019

Exhibit F

Proximity to Significant Managed Lands

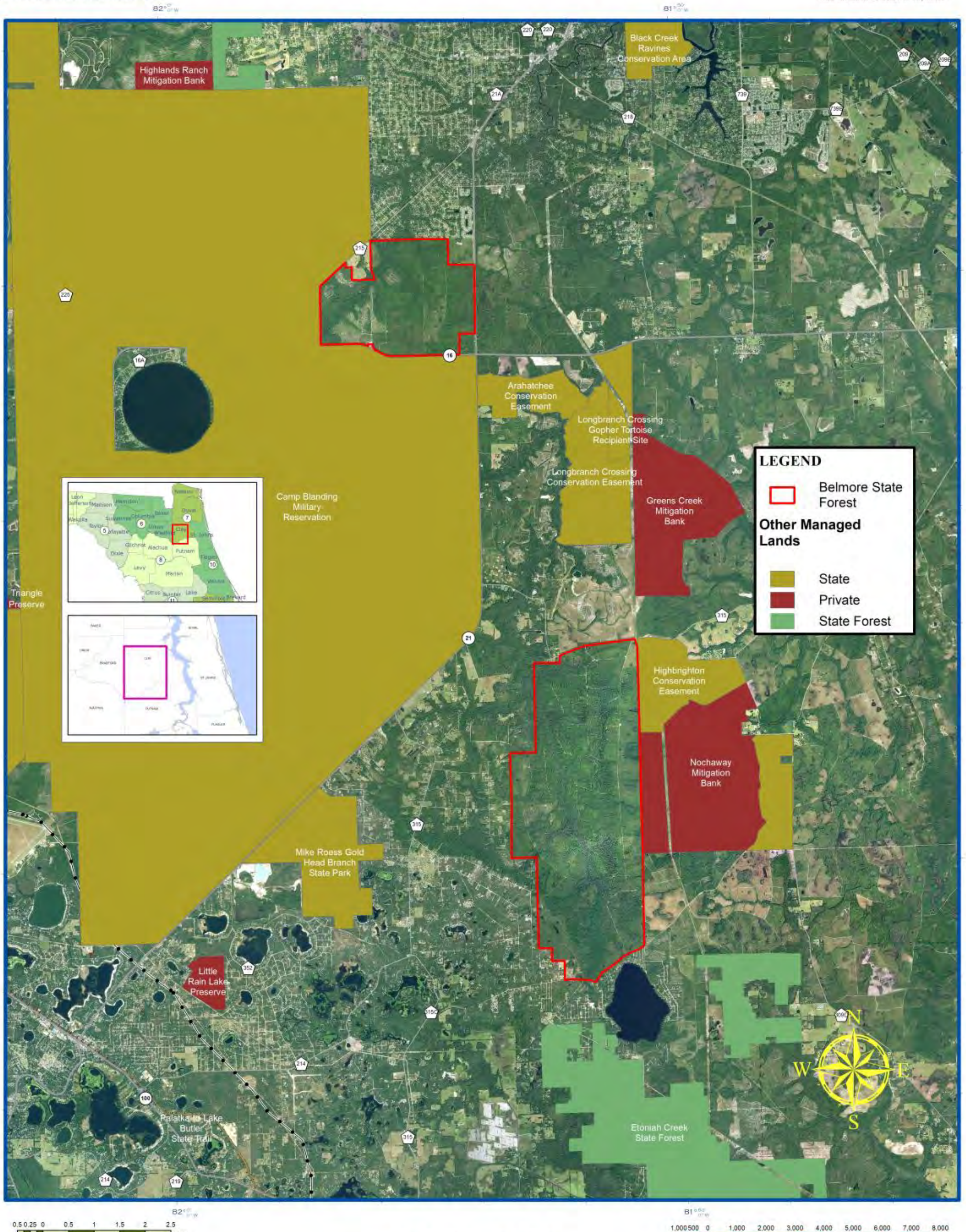
Florida Forest Service

Belmore State Forest

Proximity to Significant Managed Lands

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

Managed Area boundaries courtesy of
the Florida Natural Areas Inventory
Formally USed Defense Sites (FUDS)
from the US Army Corps of Engineers



Map Month/Year: July 2019

Exhibit G

Florida Forever Projects

Northeast Florida Timberlands and Watershed Reserve

Clay, Duval and Nassau Counties
Partnerships and Regional Incentives

Project-at-a-Glance

Placed on List	*2002*
Project Area (GIS acres)	*146,348*
Acres Acquired (GIS)	*62,619**
at a Cost of	*$141,087,558**
Acres Remaining (GIS)	*83,729*

**Includes acreage and expenditures by the City of Jacksonville, JEA and SJRWMD.*

Purpose for State Acquisition

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

Manager(s)

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

General Description

This project describes a northeast-southwest diagonal along the west side of Duval County, stretching from the Nassau River north of Jacksonville to Trail Ridge in Clay County, near the town of Lawtey. Another section of the project makes a north-south connection about 12 miles long, between the Camp Blanding Military Reservation and the Etoniah Creek State Forest. About 75 percent of this land is used, or has been used, for silviculture. It also includes mesic flatwoods, cypress and hardwood swamp, sandhills and associated plant communities.

Public Use

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

Acquisition Planning

On December 6, 2001, the Acquisition & Restoration Council (ARC) recommended the Northeast Florida Timberlands and Watershed Reserve project for Group A of the Florida Forever (FF) 2002 Priority list. This fee-simple and less-than-fee acquisition, located in Clay, Duval and Nassau Counties, and sponsored by The Nature Conservancy (TNC), the City of Jacksonville, and the St. Johns River Water Management District (SJRWMD), consisted of approximately 132,450 acres, more than 150 landowners, and a 2001 taxable value of $50,158,195. The following 37 ownerships were identified as essential: Gilman, Jackson, Carter, Owen, Nemours, Miller, Bostiwick, Klieg, Bullock, 1st Bank & Trust, Rayonier, International Paper, Motes, Boyd, South Regional Industrial Realty, East Fiftone Partners, Monticello Drugs, St. Joe, Barnett Bank Trustee, Anheuser-Busch, Inc., Travelers Ins., Foster, Tison, Castleton, Wright, Buck, Logan, Higgenbotham, Betz, Ogilvie, Milne, Kaleel & Roberts, Grey, Sythe, Pharr, Wilkinson, and Helmer. On June 6, 2003, the ARC approved a 506-acre addition, known as the Norfolk Southern property, to the project boundary in Duval County. The fee-simple acquisition, sponsored by TNC, consisted of a single owner, Southern Region Industrial Realty Inc., and had a 2002 taxable value of $408,700. On December 5, 2003, the ARC approved a 7,043-acre addition, known as the Four Creeks Forest tract, to the project boundary in Nassau County. The fee-simple acquisition, sponsored by the SJRWMD, consisted of one landowner, Rayonier Timberlands Operating Co. LP, and a 2002 taxable value of $1,478,838.

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

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

On February 16, 2007, the ARC approved a fee-simple, 2,665-acre addition to the Bull Creek portion of the project boundary. It was sponsored by the SJRWMD, consisted of one landowner, 1621 Venture II LLC, nine parcels, and a taxable value of $445,189. The FFS will manage these essential parcels. After the most recent boundary change in 2007, the project had a combined, historic, estimated tax assessed value of $30,699,048.

On November 5, 2010 DSL purchased 15 acres (Rayonier Forest Resources, L.P.--$18,108 with FF funds) for FFS to manage. On April 25, 2011, 3.95 acres in Four Creeks State Forest/Pacett) were donated (valued $2,925). FFS to manage.

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

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

ARC also voted to add a parcel to the Northeast Florida Timberlands and Watershed Reserve during the August 2018 meeting. This parcel, also an inholding in the Four Creeks State Forest, was described as

61 acres in Nassau County, near Highway A1A, but FNAI concluded it was 52 acres because some of the property is already within the project boundary.

The tax assessed value for the remaining acres to be acquired in this project per property appraiser information (2017) is $1,069,923,950.

Coordination

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

Management Policy Statement

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

Management Prospectus

Qualifications for state designation

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

Manager

FFS is recommended to be the lead managing agency.

Conditions affecting intensity of management

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

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

Once the core areas of the project are acquired and assigned to the FFS, initial public access will be provided for diverse, low-intensity outdoor recreation activities. Initial and intermediate management

efforts will concentrate on site security, public and resource management access, prescribed burns, reforestation, and restoration activity.

Revenue-generating potential

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

Cooperators in management activities

The FFS will cooperate with, and seek the assistance of, other state agencies, local government agencies, other interested parties as appropriate, and with the Florida Natural Areas Inventory (FNAI). The FFS intends to coordinate with the Florida Fish and Wildlife Conservation Commission (FWC) regarding game and non-game management activity and related public use of the property.

Northeast Florida Timberlands and Watershed Reserve Table 1

Project-at-a-Glance	Data
Placed on List	2002
Project Area (GIS acres)	146,348
Acres Acquired (GIS)	62,619*
at a Cost of	$141,087,558*
Acres Remaining (GIS)	83,729

**Includes acreage and expenditures by the City of Jacksonville, JEA and SJRWMD.*

Northeast Florida Timberlands and Watershed Reserve Table 2

North Florida Timberlands and Watershed Reserve Northeast Florida Timberlands and Watershed Reserve FNAI Elements	Score
Red-cockaded Woodpecker	G3/S2
Gopher Tortoise	G3/S3
Eastern Indigo Snake	G3/S3
Swallow-tailed Kite	G5/S2
Florida Black Bear	G5T4/S4
Florida toothache grass	G2/S2
hartwrightia	G2/S2
variable-leaf crownbeard	G2/S2
Thorne's beaksedge	G3/S1S2
giant orchid	G2G3/S2
Bartram's ixia	G2G3/S2S3
nightflowering wild petunia	G3?/S2

There are 22 rare species associated with the project.

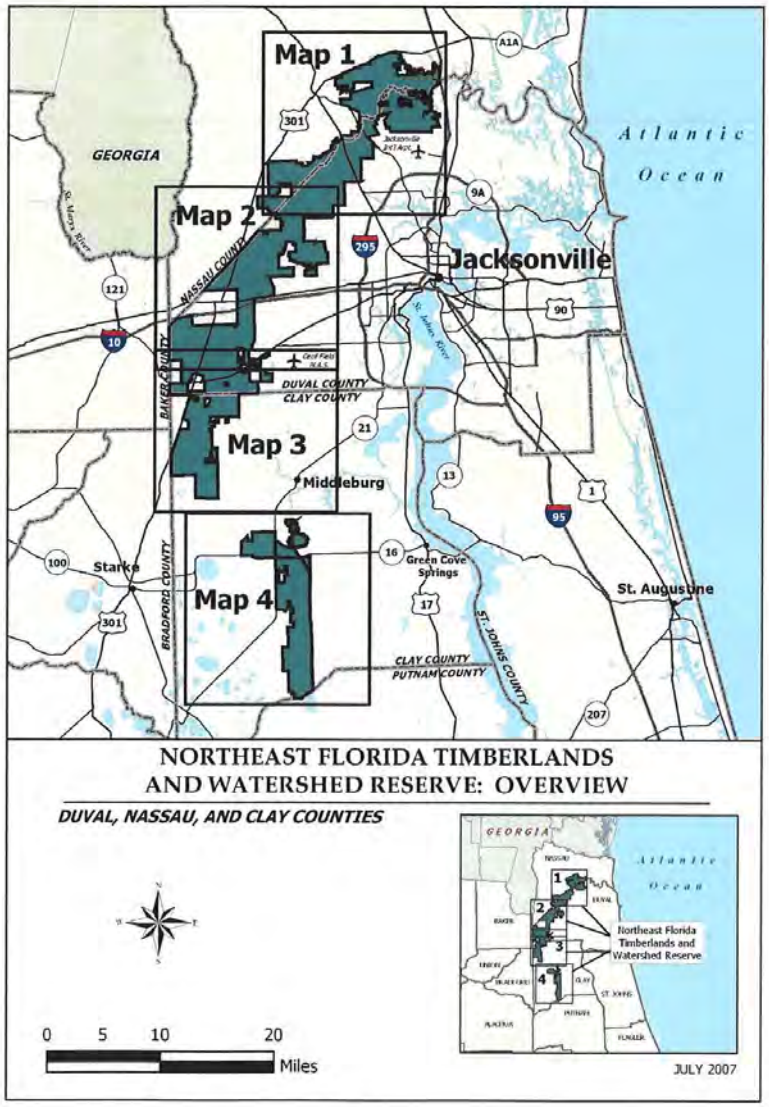
Northeast Florida Timberlands and Watershed Reserve Table 3

Management Cost Summary: FWC	
Source of Funds	CARL
Salary (4 FTEs)	$154,357
Expense	$620,000
OCO	$148,075
Total	$887,007

Map(s): Northeast Florida Timberlands and Watershed Reserve

Map(s): Northeast Florida Timberlands and Watershed Reserve

Northeast Florida Timberlands and Watershed Reserve



Map 175

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.

February 7, 2018

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

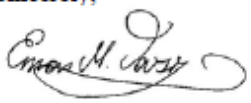
In response to your inquiry of February 7, 2018, the Florida Master Site File lists two archeological sites, one cemetery and one historic bridge found at the managed area of Belmore State Forest, Clay County.

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

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

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

Sincerely,



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

AR=2
SS=0
CM=1
RG=0
BR=1
Total=4

Cultural Resource Roster

SiteID	Type	Site Name	Address	Additional Info	SHPO Eval	NR Status
CL01356	BR	Sand Pine Road Bridge	Sand Pine Road/Ates Creek	1952 - FDOT #710089		
CL01357	CM	Degan Homestead Grave Site		Established 1890, Graves = 1		
CL01358	AR	Degan Homestead	Belmore (Unincorporated)			
CL01548	AR	Bull Creek				

FLORIDA DEPARTMENT of STATE

RICK SCOTT
Governor

KEN DETZNER
Secretary of State

Mr. Frank Burley
1337 Long Horn Road
Middleburg, Florida 32068

September 28, 2018

RE: DHR Project File No.: 2018-4766
Project: *Sand Pine Road Bridge Removal – Belmore State Forest*
County: Clay

Dear Mr. Burley:

Our office reviewed the referenced project in accordance with Chapter 267, *Florida Statutes*, and implementing state regulations, for possible effects on historic properties listed, or eligible for listing, in the *National Register of Historic Places*, or otherwise of historical, architectural or archaeological value.

It is the opinion of this office that the proposed project will have no adverse effect on historic properties listed, or eligible for listing, on the *National Register of Historic Places.*

If you have any questions, please contact Deena Woodward, Community Assistance Consultant, by email at *Deena.Woodward@dos.myflorida.com*, or by telephone at 850.245.6425 or 800.847.7278.

Sincerely,

Jason Aldridge
For

Timothy A. Parsons, Ph.D.
Director, Division of Historical Resources
& State Historic Preservation Officer

Exhibit I

Management Procedures for Archeological Sites and Historical Sites and Properties on State Owned or Controlled Lands

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties
(revised September 2019)

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

A. General Discussion

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

B. Agency Responsibilities

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

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

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

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

C. Statutory Authority

Statutory Authority and more in-depth information can be found at:
https://dos.myflorida.com/historical/preservation/compliance-and-review/regulations-guidelines/

D. Management Implementation

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

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

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

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

E. Minimum Review Documentation Requirements

In order to have a proposed project reviewed by the Division, certain information must be submitted for comments and recommendations. The minimum review documentation requirements can be found at:
https://dos.myflorida.com/media/31392/minimum_review_documentation_requirements.pdf

* * *

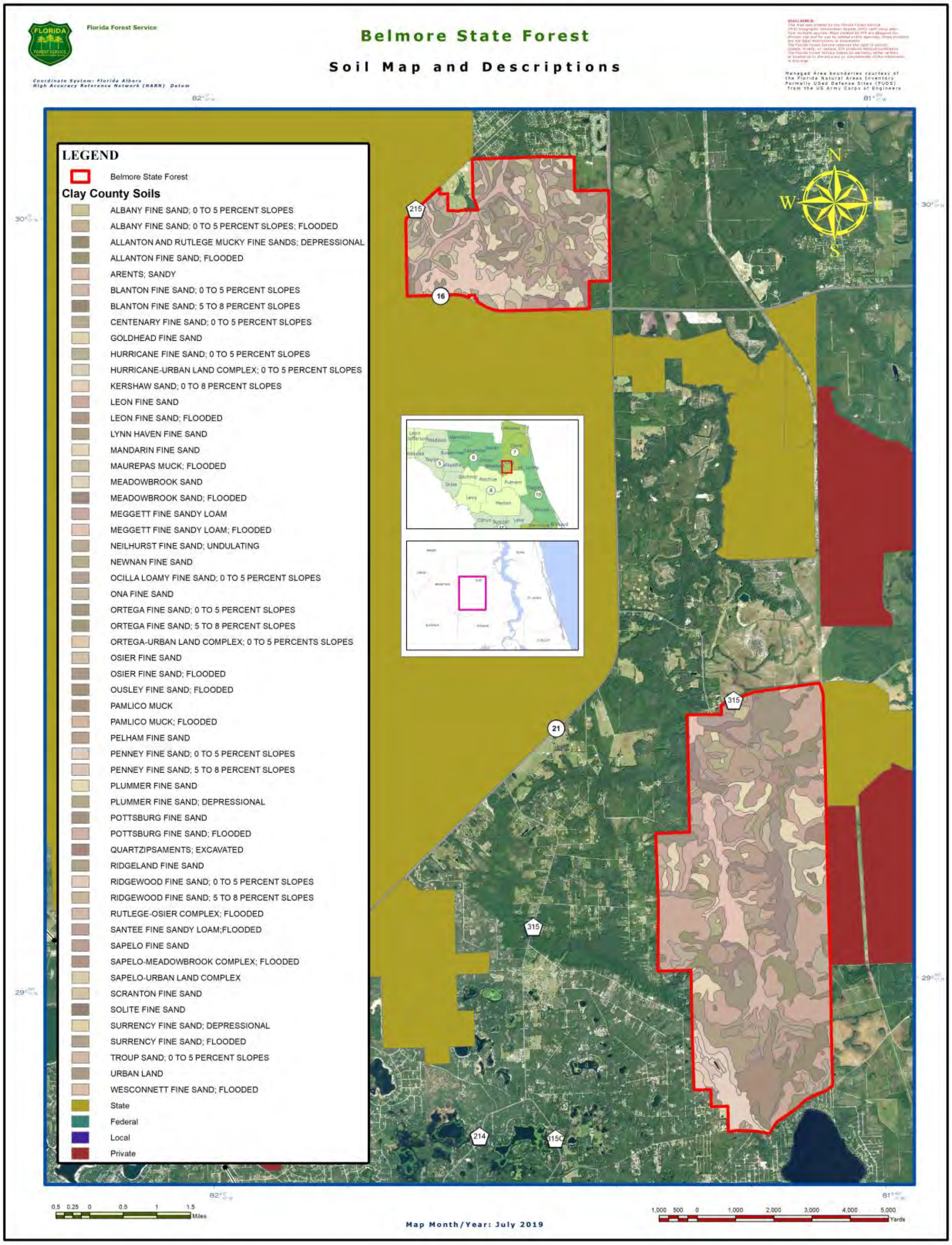
Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

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

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

Exhibit J

Soil Maps and Descriptions



Florida Forest Service
Belmore State Forest
Soil Map and Descriptions
Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum
Managed Area boundaries courtesy of
the Florida Natural Areas Inventory
Formally Used Defense Sites (FUDS)
from the US Army Corps of Engineers
LEGEND
Belmore State Forest
Clay County Soils
ALBANY FINE SAND; 0 TO 5 PERCENT SLOPES
ALBANY FINE SAND; 0 TO 5 PERCENT SLOPES; FLOODED
ALLANTON AND RUTLEGE MUCKY FINE SANDS; DEPRESSIONAL
ALLANTON FINE SAND; FLOODED
ARENTS; SANDY
BLANTON FINE SAND; 0 TO 5 PERCENT SLOPES
BLANTON FINE SAND; 5 TO 8 PERCENT SLOPES
CENTENARY FINE SAND; 0 TO 5 PERCENT SLOPES
GOLDHEAD FINE SAND
HURRICANE FINE SAND; 0 TO 5 PERCENT SLOPES
HURRICANE-URBAN LAND COMPLEX; 0 TO 5 PERCENT SLOPES
KERSHAW SAND; 0 TO 8 PERCENT SLOPES
LEON FINE SAND
LEON FINE SAND; FLOODED
LYNN HAVEN FINE SAND
MANDARIN FINE SAND
MAUREPAS MUCK; FLOODED
MEADOWBROOK SAND
MEADOWBROOK SAND; FLOODED
MEGGETT FINE SANDY LOAM
MEGGETT FINE SANDY LOAM; FLOODED
NEILHURST FINE SAND; UNDULATING
NEWNAN FINE SAND
OCILLA LOAMY FINE SAND; 0 TO 5 PERCENT SLOPES
ONA FINE SAND
ORTEGA FINE SAND; 0 TO 5 PERCENT SLOPES
ORTEGA FINE SAND; 5 TO 8 PERCENT SLOPES
ORTEGA-URBAN LAND COMPLEX; 0 TO 5 PERCENTS SLOPES
OSIER FINE SAND
OSIER FINE SAND; FLOODED
OUSLEY FINE SAND; FLOODED
PAMLICO MUCK
PAMLICO MUCK; FLOODED
PELHAM FINE SAND
PENNEY FINE SAND; 0 TO 5 PERCENT SLOPES
PENNEY FINE SAND; 5 TO 8 PERCENT SLOPES
PLUMMER FINE SAND
PLUMMER FINE SAND; DEPRESSIONAL
POTTSBURG FINE SAND
POTTSBURG FINE SAND; FLOODED
QUARTZIPSAMENTS; EXCAVATED
RIDGELAND FINE SAND
RIDGEWOOD FINE SAND; 0 TO 5 PERCENT SLOPES
RIDGEWOOD FINE SAND; 5 TO 8 PERCENT SLOPES
RUTLEGE-OSIER COMPLEX; FLOODED
SANTEE FINE SANDY LOAM;FLOODED
SAPELO FINE SAND
SAPELO-MEADOWBROOK COMPLEX; FLOODED
SAPELO-URBAN LAND COMPLEX
SCRANTON FINE SAND
SOLITE FINE SAND
SURRENCY FINE SAND; DEPRESSIONAL
SURRENCY FINE SAND; FLOODED
TROUP SAND; 0 TO 5 PERCENT SLOPES
URBAN LAND
WESCONNETT FINE SAND; FLOODED
State
Federal
Local
Private
N
S
W
E
215
16
315
21
315
214
315C
0.5 0.25 0 0.5 1 1.5
Miles
1,000 500 0 1,000 2,000 3,000 4,000 5,000
Yards
Map Month/Year: July 2019

Soil Map—Clay County, Florida, and Putnam County Area, Florida
(Belmore SF - Ates Creek Tract)

Map Scale: 1:62,900 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 500 1000 2000 3000

Feet
0 3000 6000 12000 18000

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 scales ranging from 1:15,800 to 1:24,000.

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: Clay County, Florida
Survey Area Data: Version 15, Sep 11, 2018

Soil Survey Area: Putnam County Area, Florida
Survey Area Data: Version 16, Sep 11, 2018

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Nov 13, 2014—Nov 12, 2017

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

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Albany fine sand, 0 to 5 percent slopes	26.8	0.3%
2t2v1	Cassia fine sand	282.1	3.2%
3	Hurricane fine sand, 0 to 5 percent slopes	313.9	3.6%
4	Ocilla loamy fine sand, 0 to 5 percent slopes	79.1	0.9%
5	Penney fine sand, 0 to 5 percent slopes	3.0	0.0%
6	Mandarin fine sand, 0 to 2 percent slopes	367.9	4.2%
7	Centenary fine sand, 0 to 5 percent slopes	13.6	0.2%
8	Sapelo fine sand	868.2	9.9%
9	Leon fine sand, 0 to 2 percent slopes	1,616.8	18.5%
10	Ortega fine sand, 0 to 5 percent slopes	62.7	0.7%
11	Allanton and Rutlege mucky fine sands, depressional	297.7	3.4%
12	Surrency fine sand, depressional	8.5	0.1%
13	Meggett fine sandy loam	183.7	2.1%
17	Plummer fine sand	105.4	1.2%
18	Ridgewood fine sand, 0 to 5 percent slopes	49.6	0.6%
22	Pelham fine sand, 0 to 2 percent slopes	577.7	6.6%
27	Pamlico muck	420.2	4.8%
29	Rutlege-Osier complex, frequently flooded	141.0	1.6%
31	Pottsburg fine sand	635.0	7.3%
34	Penney fine sand, 5 to 8 percent slopes	102.3	1.2%
38	Surrency fine sand, frequently flooded	86.8	1.0%
39	Meadowbrook sand, frequently flooded	454.3	5.2%
46	Plummer fine sand, depressional	84.2	1.0%
47	Newnan fine sand	156.1	1.8%
49	Sapelo-Meadowbrook frequently flooded, complex	59.8	0.7%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
50	Leon fine sand, frequently flooded	291.9	3.3%
51	Pottsburg fine sand, occasionally flooded	77.9	0.9%
52	Meggett fine sandy loam, frequently flooded	379.0	4.3%
56	Kershaw sand, 0 to 8 percent slopes	272.8	3.1%
58	Allanton fine sand, frequently flooded	405.6	4.6%
59	Lynn Haven fine sand	252.4	2.9%
60	Ridgeland fine sand	8.1	0.1%
64	Ona fine sand	44.3	0.5%
99	Water	4.4	0.1%
Subtotals for Soil Survey Area		**8,734.7**	**100.0%**
Totals for Area of Interest		**8,736.8**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Candler fine sand, 0 to 5 percent slopes	0.4	0.0%
3	Myakka-Myakka, wet, fine sands, 0 to 2 percent slopes	1.0	0.0%
5	Placid fine sand, frequently ponded, 0 to 1 percent slopes	0.1	0.0%
6	Tavares fine sand, 0 to 5 percent slopes	0.5	0.0%
16	Adamsville sand, 0 to 2 percent slopes	0.0	0.0%
45	Astatula fine sand, 0 to 8 percent slopes	0.0	0.0%
Subtotals for Soil Survey Area		**2.1**	**0.0%**
Totals for Area of Interest		**8,736.8**	**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–Clay County, Florida							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
1—Albany fine sand, 0 to 5 percent slopes	9,250						
		85	Albany	Series	0.0	3.0	5.0
2t2v1—Cassia fine sand	5,035						
		80	Mandarin	Series	0.0	1.0	2.0
3—Hurricane fine sand, 0 to 5 percent slopes	30,900						
		85	Hurricane	Series	0.0	3.0	5.0
4—Ocilla loamy fine sand, 0 to 5 percent slopes	3,555						
		85	Ocilla	Series	0.0	3.0	5.0
5—Penney fine sand, 0 to 5 percent slopes	26,500						
		85	Penney	Series	0.0	3.0	5.0
6—Mandarin fine sand, 0 to 2 percent slopes	14,265						
		92	Mandarin	Series	0.0	0.5	2.0
7—Centenary fine sand, 0 to 5 percent slopes	8,300						
		85	Centenary	Series	0.0	3.0	5.0
8—Sapelo fine sand	18,180						
		60	Sapelo, non-hydric	Series	0.0	1.0	2.0
		20	Sapelo, hydric	Series	0.0	1.0	2.0
9—Leon fine sand, 0 to 2 percent slopes	43,100						
		89	Leon, non-hydric	Series	0.0	1.0	2.0
10—Ortega fine sand, 0 to 5 percent slopes	23,000						
		85	Ortega	Series	0.0	3.0	5.0

Component Legend–Clay County, Florida							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
11—Allanton and Rutlege mucky fine sands, depressional	7,500						
		45	Allanton	Series	0.0	0.8	2.0
		35	Rutlege	Series	0.0	0.8	2.0
12—Surrency fine sand, depressional	2,210						
		80	Surrency	Series	0.0	0.5	1.0
13—Meggett fine sandy loam	6,450						
		85	Meggett	Series	0.0	1.0	2.0
17—Plummer fine sand	2,485						
		65	Plummer, non-hydric	Series	0.0	1.0	2.0
		20	Plummer, hydric	Series	0.0	1.0	2.0
18—Ridgewood fine sand, 0 to 5 percent slopes	9,860						
		85	Ridgewood	Series	0.0	3.0	5.0
22—Pelham fine sand, 0 to 2 percent slopes	8,250						
		75	Pelham	Series	0.0	0.5	2.0
27—Pamlico muck	3,365						
		80	Pamlico	Series	0.0	0.5	1.0
29—Rutlege-Osier complex, frequently flooded	23,800						
		50	Rutlege	Series	0.0	1.0	2.0
		40	Osier	Series	0.0	1.0	2.0
31—Pottsburg fine sand	16,520						
		70	Pottsburg, non-hydric	Series	0.0	1.0	2.0
		10	Pottsburg, hydric	Series	0.0	1.0	2.0
34—Penney fine sand, 5 to 8 percent slopes	3,420						
		85	Penney	Series	5.0	7.0	8.0
38—Surrency fine sand, frequently flooded	1,575						
		85	Surrency	Series	0.0	1.0	2.0
39—Meadowbrook sand, frequently flooded	5,320						
		80	Meadowbrook, hydric	Series	0.0	1.0	2.0
		5	Meadowbrook, non-hydric	Series	0.0	1.0	2.0
46—Plummer fine sand, depressional	1,180						
		85	Plummer	Series	0.0	0.8	2.0

Component Legend–Clay County, Florida							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
47—Newnan fine sand	4,460						
		80	Newnan	Series	0.0	1.0	2.0
49—Sapelo-Meadowbrook frequently flooded, complex	1,410						
		45	Sapelo	Series	0.0	1.0	2.0
		35	Meadowbrook	Series	0.0	1.0	2.0
50—Leon fine sand, frequently flooded	2,050						
		50	Leon, hydric	Series	0.0	1.0	2.0
		30	Leon, non-hydric	Series	0.0	1.0	2.0
51—Pottsburg fine sand, occasionally flooded	1,595						
		80	Pottsburg	Series	0.0	1.0	2.0
52—Meggett fine sandy loam, frequently flooded	1,740						
		80	Meggett	Series	0.0	1.0	2.0
56—Kershaw sand, 0 to 8 percent slopes	14,800						
		90	Kershaw	Series	0.0	4.0	8.0
58—Allanton fine sand, frequently flooded	7,995						
		80	Allanton	Series	0.0	1.0	2.0
59—Lynn Haven fine sand	3,290						
		80	Lynn haven	Series	0.0	1.0	2.0
60—Ridgeland fine sand	2,250						
		80	Ridgeland	Series	0.0	1.0	2.0
64—Ona fine sand	2,700						
		60	Ona, non-hydric	Series	0.0	1.0	2.0
		20	Ona, hydric	Series	0.0	1.0	2.0
99—Water	32,700						
		100	Water	Miscellaneous area			

Component Legend–Putnam County Area, Florida							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
1—Candler fine sand, 0 to 5 percent slopes	29,650						
		90	Candler	Series	0.0	3.0	5.0

Component Legend–Putnam County Area, Florida							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
3—Myakka-Myakka, wet, fine sands, 0 to 2 percent slopes	49,200						
		75	Myakka	Series	0.0	1.0	2.0
		15	Myakka, wet	Series	0.0	1.0	2.0
5—Placid fine sand, frequently ponded, 0 to 1 percent slopes	8,530						
		80	Placid	Series	0.0	0.5	1.0
6—Tavares fine sand, 0 to 5 percent slopes	20,000						
		85	Tavares	Series	0.0	3.0	5.0
16—Adamsville sand, 0 to 2 percent slopes	6,490						
		92	Adamsville	Series	0.0	1.0	2.0
45—Astatula fine sand, 0 to 8 percent slopes	12,250						
		90	Astatula	Series	0.0	4.0	8.0

Data Source Information

Soil Survey Area: Clay County, Florida
Survey Area Data: Version 15, Sep 11, 2018

Soil Survey Area: Putnam County Area, Florida
Survey Area Data: Version 16, Sep 11, 2018

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)

Clay County, Florida

Map Unit: 1—Albany fine sand, 0 to 5 percent slopes

Component: Albany (85%)

The Albany component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 21 inches during June, July, August, September. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3e. 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: Ocilla (3%)

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

Component: Hurricane (3%)

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

Component: Ridgewood (3%)

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

Component: Blanton (3%)

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

Component: Meadowbrook, non-hydric (3%)

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

Map Unit: 2t2v1—Cassia fine sand

Component: Mandarin (80%)

The Mandarin component makes up 80 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 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 30 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: Centenary (5%)

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

Component: Leon, non-hydric (5%)

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

Component: Hurricane (5%)

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

Component: Ortega (5%)

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

Map Unit: 3—Hurricane fine sand, 0 to 5 percent slopes

Component: Hurricane (85%)

The Hurricane component makes up 85 percent of the map unit. Slopes are 0 to 5 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 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 July, August. 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: Centenary (3%)

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

Component: Blanton (3%)

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

Component: Albany (3%)

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

Component: Mandarin (2%)

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

Component: Ortega (2%)

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

Component: Leon, non-hydric (2%)

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

Map Unit: 4—Ocilla loamy fine sand, 0 to 5 percent slopes

Component: Ocilla (85%)

The Ocilla component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on rises on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 21 inches during June, July, August, September, October, November. 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: Pelham, non-hydric (4%)

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

Component: Albany (4%)

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

Component: Blanton (4%)

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

Component: Plummer, non-hydric (3%)

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

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

Component: Penney (85%)

The Penney component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of 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 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 2 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: Blanton (4%)

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

Component: Albany (4%)

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

Component: Centenary (4%)

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

Component: Ortega (3%)

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

Map Unit: 6—Mandarin fine sand, 0 to 2 percent slopes

Component: Mandarin (92%)

The Mandarin component makes up 92 percent of the map unit. Slopes are 0 to 2 percent. This component is on rises, Lower 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 24 inches during January, February, March, April, 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.

Component: Leon (5%)

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

Component: Centenary (1%)

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

Component: Rutlege (1%)

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

Component: Ortega (1%)

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

Map Unit: 7—Centenary fine sand, 0 to 5 percent slopes

Component: Centenary (85%)

The Centenary component makes up 85 percent of the map unit. Slopes are 0 to 5 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 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 51 inches during June, July, August, September. Organic matter content in the surface horizon is about 2 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: Blanton (4%)

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

Component: Albany (4%)

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

Component: Ortega (4%)

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

Component: Ridgewood (3%)

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

Map Unit: 8—Sapelo fine sand

Component: Sapelo, non-hydric (60%)

The Sapelo, non-hydric component makes up 60 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 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: Sapelo, hydric (20%)

The Sapelo, 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 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: Leon, non-hydric (4%)

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

Component: Albany (4%)

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

Component: Plummer, non-hydric (3%)

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

Component: Meadowbrook, non-hydric (3%)

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

Component: Rutlege (3%)

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

Component: Newnan (3%)

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

Map Unit: 9—Leon fine sand, 0 to 2 percent slopes

Component: Leon, non-hydric (89%)

The Leon, non-hydric component makes up 89 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on lower coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is 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, November, December. 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 0 within 30 inches of the soil surface.

Component: Leon, hydric (5%)

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

Component: Mandarin (3%)

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

Component: Mascotte (3%)

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

Map Unit: 10—Ortega fine sand, 0 to 5 percent slopes

Component: Ortega (85%)

The Ortega component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of 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 51 inches during January, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 2 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: Albany (3%)

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

Component: Centenary (3%)

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

Component: Blanton (3%)

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

Component: Ridgewood (2%)

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

Component: Hurricane (2%)

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

Component: Penney (2%)

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

Map Unit: 11—Allanton and Rutlege mucky fine sands, depressional

Component: Allanton (45%)

The Allanton component makes up 45 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 high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 15 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Rutlege (35%)

The Rutlege component makes up 35 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 and/or fluviomarine 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 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 15 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Surrency (5%)

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

Component: Plummer, non-hydric (5%)

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

Component: Leon, non-hydric (5%)

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

Component: Sapelo, non-hydric (5%)

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

Map Unit: 12—Surrency fine sand, depressional

Component: Surrency (80%)

The Surrency 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 sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 6 percent. Nonirrigated land capability classification is 6w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Meggett (3%)

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

Component: Plummer, non-hydric (3%)

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

Component: Rutlege (3%)

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

Component: Pelham, non-hydric (3%)

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

Component: Sapelo, non-hydric (3%)

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

Component: Leon, hydric (3%)

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

Component: Santee (2%)

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

Map Unit: 13—Meggett fine sandy loam

Component: Meggett (85%)

The Meggett 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 clayey fluviomarine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is high. This soil is not 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 4 percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Goldhead, non-hydric (8%)

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

Component: Pelham, non-hydric (7%)

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

Map Unit: 17—Plummer fine sand

Component: Plummer, non-hydric (65%)

The Plummer, non-hydric 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 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 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: Plummer, hydric (20%)

The Plummer, 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 4 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: Pelham, non-hydric (4%)

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

Component: Osier, non-hydric (4%)

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

Component: Albany (4%)

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

Component: Sapelo, non-hydric (3%)

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

Map Unit: 18—Ridgewood fine sand, 0 to 5 percent slopes

Component: Ridgewood (85%)

The Ridgewood component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy 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 27 inches during July, August. 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: Osier, non-hydric (3%)

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

Component: Albany (3%)

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

Component: Ortega (3%)

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

Component: Hurricane (3%)

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

Component: Plummer, non-hydric (3%)

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

Map Unit: 22—Pelham fine sand, 0 to 2 percent slopes

Component: Pelham (75%)

The Pelham component makes up 75 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods, lower 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 9 inches during January, February, March, April, May, June, July, August, September, October. Organic matter content in the surface horizon is about 1 percent. This component is in the R153AY004FL North Florida Flatwoods ecological site. 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: Unnamed (13%)

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

Component: Albany (6%)

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

Component: Surrency (3%)

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

Component: Meggett (3%)

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

Map Unit: 27—Pamlico muck

Component: Pamlico (80%)

The Pamlico 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 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 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 February, March, April, May, June, July, August, September, October. Organic matter content in the surface horizon is about 50 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: Rutlege (5%)

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

Component: Surrency (5%)

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

Component: Osier, hydric (5%)

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

Component: Leon, non-hydric (5%)

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

Map Unit: 29—Rutlege-Osier complex, frequently flooded

Component: Rutlege (50%)

The Rutlege component makes up 50 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of sandy marine deposits and/or fluviomarine 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 frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 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: Osier (40%)

The Osier component makes up 40 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of sandy alluvium. 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 frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 4 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: Maurepas (5%)

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

Component: Pamlico (5%)

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

Map Unit: 31—Pottsburg fine sand

Component: Pottsburg, non-hydric (70%)

The Pottsburg, non-hydric 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 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 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: Pottsburg, hydric (10%)

The Pottsburg, hydric component makes up 10 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 4 inches during June, 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: Hurricane (4%)

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

Component: Leon, non-hydric (4%)

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

Component: Osier, hydric (3%)

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

Component: Plummer, non-hydric (3%)

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

Component: Rutlege (3%)

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

Component: Ridgewood (3%)

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

Map Unit: 34—Penney fine sand, 5 to 8 percent slopes

Component: Penney (85%)

The Penney component makes up 85 percent of the map unit. Slopes are 5 to 8 percent. This component is on ridges 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 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 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: Blanton (4%)

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

Component: Albany (4%)

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

Component: Centenary (4%)

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

Component: Ortega (3%)

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

Map Unit: 38—Surrency fine sand, frequently flooded

Component: Surrency (85%)

The Surrency 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. 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 June, July, August, September, October. Organic matter content in the surface horizon is about 6 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: Osier, non-hydric (3%)

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

Component: Pelham, non-hydric (3%)

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

Component: Pamlico (3%)

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

Component: Plummer, hydric (2%)

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

Component: Rutlege (2%)

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

Component: Santee (2%)

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

Map Unit: 39—Meadowbrook sand, frequently flooded

Component: Meadowbrook, hydric (80%)

The Meadowbrook, hydric 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. 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 frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 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: Pamlico (5%)

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

Component: Rutlege (5%)

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

Component: Surrency (5%)

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

Component: Meadowbrook, non-hydric (5%)

The Meadowbrook, non-hydric component makes up 5 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of 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 frequently 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 2 percent. Nonirrigated land capability classification is 6w. 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.

Map Unit: 46—Plummer fine sand, depressional

Component: Plummer (85%)

The Plummer 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 and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during February, March, April, May, June, July, August, September, October. Organic matter content in the surface horizon is about 6 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: Pelham, non-hydric (4%)

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

Component: Rutlege (4%)

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

Component: Pamlico (4%)

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

Component: Surrency (3%)

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

Map Unit: 47—Newnan fine sand

Component: Newnan (80%)

The Newnan component makes up 80 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 somewhat 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 24 inches during July, August. Organic matter content in the surface horizon is about 3 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: Sapelo, non-hydric (4%)

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

Component: Leon, non-hydric (4%)

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

Component: Hurricane (4%)

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

Component: Albany (4%)

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

Component: Mandarin (4%)

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

Map Unit: 49—Sapelo-Meadowbrook frequently flooded, complex

Component: Sapelo (45%)

The Sapelo component makes up 45 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 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: Meadowbrook (35%)

The Meadowbrook component makes up 35 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of 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 frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 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: Pamlico (7%)

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

Component: Rutlege (7%)

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

Component: Surrency (6%)

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

Map Unit: 50—Leon fine sand, frequently flooded

Component: Leon, hydric (50%)

The Leon, hydric component makes up 50 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of 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 very low. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 4 inches during June, July, August, September. Organic matter content in the surface horizon is about 2 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: Leon, non-hydric (30%)

The Leon, non-hydric component makes up 30 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of 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 very low. Shrink-swell potential is low. This soil is frequently 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 6w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Sapelo (4%)

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

Component: Ona, non-hydric (4%)

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

Component: Lynn Haven (4%)

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

Component: Mandarin (4%)

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

Component: Pottsburg (4%)

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

Map Unit: 51—Pottsburg fine sand, occasionally flooded

Component: Pottsburg (80%)

The Pottsburg component makes up 80 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 occasionally 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: Plummer, non-hydric (3%)

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

Component: Leon, non-hydric (3%)

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

Component: Hurricane (3%)

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

Component: Lynn Haven (3%)

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

Component: Osier, non-hydric (3%)

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

Component: Leon, hydric (3%)

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

Component: Rutlege (2%)

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

Map Unit: 52—Meggett fine sandy loam, frequently flooded

Component: Meggett (80%)

The Meggett 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. The parent material consists of clayey fluviomarine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is high. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, June, July, August, September, 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: Meadowbrook, non-hydric (5%)

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

Component: Plummer, non-hydric (5%)

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

Component: Goldhead, hydric (5%)

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

Component: Pelham, hydric (5%)

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

Map Unit: 56—Kershaw sand, 0 to 8 percent slopes

Component: Kershaw (90%)

The Kershaw component makes up 90 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 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 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: Ortega (4%)

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

Component: Penney (3%)

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

Component: Troup (3%)

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

Map Unit: 58—Allanton fine sand, frequently flooded

Component: Allanton (80%)

The Allanton 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. 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 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 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: Pottsburg, non-hydric (4%)

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

Component: Lynn Haven (4%)

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

Component: Rutlege (4%)

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

Component: Surrency (4%)

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

Component: Osier, non-hydric (4%)

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

Map Unit: 59—Lynn Haven fine sand

Component: Lynn Haven (80%)

The Lynn Haven component makes up 80 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 June, 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: Leon, non-hydric (4%)

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

Component: Pottsburg, non-hydric (4%)

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

Component: Rutlege (4%)

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

Component: Osier, non-hydric (4%)

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

Component: Allanton (4%)

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

Map Unit: 60—Ridgeland fine sand

Component: Ridgeland (80%)

The Ridgeland component makes up 80 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 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 24 inches during July, August. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Hurricane (4%)

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

Component: Centenary (4%)

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

Component: Mandarin (3%)

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

Component: Ona, hydric (3%)

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

Component: Leon, non-hydric (3%)

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

Component: Ridgewood (3%)

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

Map Unit: 64—Ona fine sand

Component: Ona, non-hydric (60%)

The Ona, non-hydric component makes up 60 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 8 inches during June, July, August. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Ona, hydric (20%)

The Ona, 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 moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 4 inches during June, 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: Osier, non-hydric (3%)

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

Component: Leon, non-hydric (3%)

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

Component: Lynn Haven (3%)

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

Component: Pottsburg, non-hydric (3%)

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

Component: Allanton (3%)

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

Component: Osier, hydric (3%)

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

Component: Rutlege (2%)

Generated brief soil descriptions are created for major soil components. The Rutlege 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.

Putnam County Area, Florida

Map Unit: 1—Candler fine sand, 0 to 5 percent slopes

Component: Candler (90%)

The Candler 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. The parent material consists of eolian deposits and/or sandy and loamy 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 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 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: Tavares (4%)

Generated brief soil descriptions are created for major soil components. The Tavares 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: Millhopper (3%)

Generated brief soil descriptions are created for major soil components. The Millhopper 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: Placid, fine sand ponded (5%)

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

Component: EauGallie (5%)

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

Component: Basinger (5%)

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

Map Unit: 5—Placid fine sand, frequently ponded, 0 to 1 percent slopes

Component: Placid (80%)

The Placid 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 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 frequently ponded. A seasonal zone of water saturation is at 3 inches during January, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 6 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 (7%)

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

Component: Myakka (5%)

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

Component: Gentry (3%)

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

Component: Samsula (3%)

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

Component: Felda (2%)

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

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

Component: Tavares (85%)

The Tavares component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of 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. Organic matter content in the surface horizon is about 2 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 (5%)

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

Component: Apopka (4%)

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

Component: Narcoossee (3%)

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

Component: Zolfo (3%)

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

Map Unit: 16—Adamsville sand, 0 to 2 percent slopes

Component: Adamsville (92%)

The Adamsville component makes up 92 percent of the map unit. Slopes are 0 to 2 percent. This component is on knolls on flatwoods 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 34 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: Riviera (4%)

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

Component: Narcoossee (4%)

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

Map Unit: 45—Astatula fine sand, 0 to 8 percent slopes

Component: Astatula (90%)

The Astatula component makes up 90 percent of the map unit. Slopes are 0 to 8 percent. This component is on ridges 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 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 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: Tavares (7%)

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

Component: Apopka (3%)

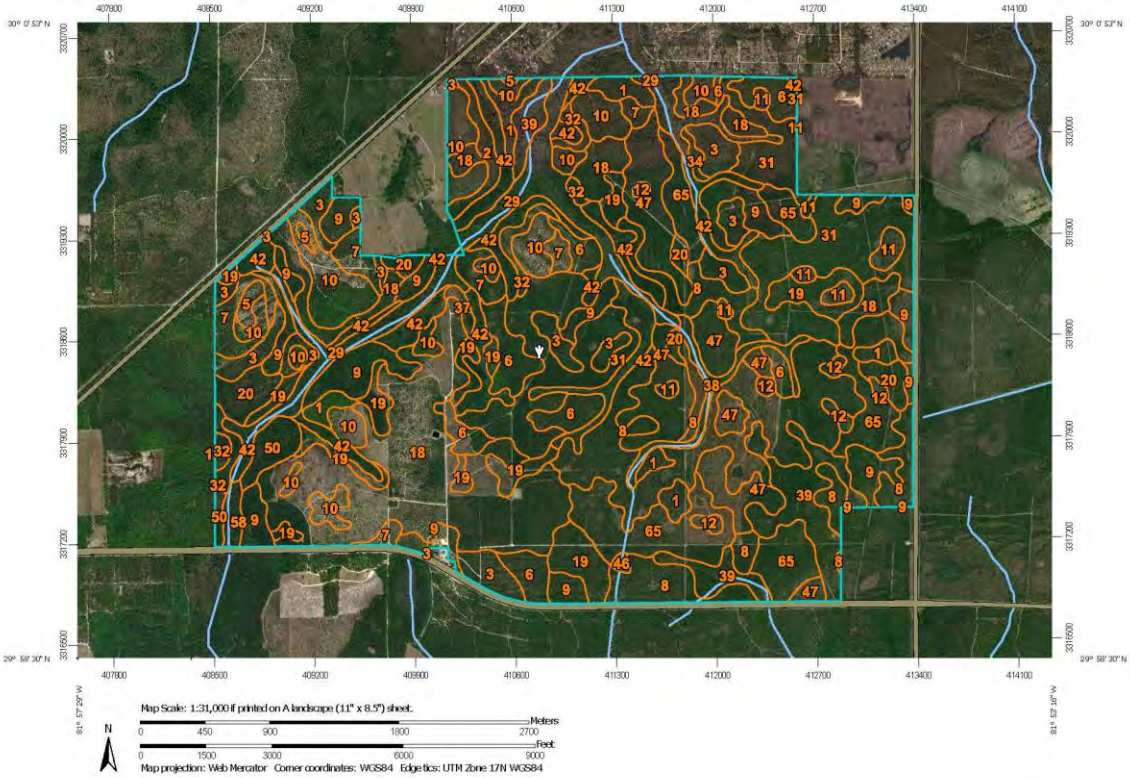
Generated brief soil descriptions are created for major soil components. The Apopka soil is a minor component.

Data Source Information

Soil Survey Area: Clay County, Florida
Survey Area Data: Version 15, Sep 11, 2018

Soil Survey Area: Putnam County Area, Florida
Survey Area Data: Version 16, Sep 11, 2018

Soil Map—Clay County, Florida
(Belmore SF -Satsuma Tract)



Map Scale: 1:31,000 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 450 900 1800 2700

Feet
0 1500 3000 6000 9000

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 1:24,000.

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: Clay County, Florida
Survey Area Data: Version 15, Sep 11, 2018

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

Date(s) aerial images were photographed: Mar 13, 2011—Nov 12, 2017

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

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Albany fine sand, 0 to 5 percent slopes	67.9	1.9%
2	Blanton fine sand, 0 to 5 percent slopes	22.3	0.6%
3	Hurricane fine sand, 0 to 5 percent slopes	143.7	4.1%
5	Penney fine sand, 0 to 5 percent slopes	12.6	0.4%
6	Mandarin fine sand, 0 to 2 percent slopes	139.2	4.0%
7	Centenary fine sand, 0 to 5 percent slopes	84.6	2.4%
8	Sapelo fine sand	390.1	11.1%
9	Leon fine sand, 0 to 2 percent slopes	224.3	6.4%
10	Ortega fine sand, 0 to 5 percent slopes	209.7	6.0%
11	Allanton and Rutlege mucky fine sands, depressional	34.2	1.0%
12	Surrency fine sand, depressional	24.4	0.7%
18	Ridgewood fine sand, 0 to 5 percent slopes	476.4	13.5%
19	Osier fine sand	154.8	4.4%
20	Scranton fine sand	63.0	1.8%
29	Rutlege-Osier complex, frequently flooded	151.8	4.3%
31	Pottsburg fine sand	334.3	9.5%
32	Blanton fine sand, 5 to 8 percent slopes	31.8	0.9%
34	Penney fine sand, 5 to 8 percent slopes	5.7	0.2%
37	Ridgewood fine sand, 5 to 8 percent slopes	7.0	0.2%
38	Surrency fine sand, frequently flooded	33.5	1.0%
39	Meadowbrook sand, frequently flooded	134.4	3.8%
42	Osier fine sand, occasionally flooded	269.3	7.6%
46	Plummer fine sand, depressional	3.2	0.1%
47	Newnan fine sand	214.5	6.1%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
50	Leon fine sand, frequently flooded	32.8	0.9%
58	Allanton fine sand, frequently flooded	13.0	0.4%
65	Meadowbrook sand	245.1	7.0%
Totals for Area of Interest		**3,523.7**	**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–Clay County, Florida							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
1—Albany fine sand, 0 to 5 percent slopes	9,250						
		85	Albany	Series	0.0	3.0	5.0
2—Blanton fine sand, 0 to 5 percent slopes	6,455						
		80	Blanton	Series	0.0	3.0	5.0
3—Hurricane fine sand, 0 to 5 percent slopes	30,900						
		85	Hurricane	Series	0.0	3.0	5.0
5—Penney fine sand, 0 to 5 percent slopes	26,500						
		85	Penney	Series	0.0	3.0	5.0
6—Mandarin fine sand, 0 to 2 percent slopes	14,265						
		92	Mandarin	Series	0.0	0.5	2.0
7—Centenary fine sand, 0 to 5 percent slopes	8,300						
		85	Centenary	Series	0.0	3.0	5.0
8—Sapelo fine sand	18,180						
		60	Sapelo, non-hydric	Series	0.0	1.0	2.0
		20	Sapelo, hydric	Series	0.0	1.0	2.0
9—Leon fine sand, 0 to 2 percent slopes	43,100						
		89	Leon, non-hydric	Series	0.0	1.0	2.0
10—Ortega fine sand, 0 to 5 percent slopes	23,000						
		85	Ortega	Series	0.0	3.0	5.0
11—Allanton and Rutlege mucky fine sands, depressional	7,500						
		45	Allanton	Series	0.0	0.8	2.0
		35	Rutlege	Series	0.0	0.8	2.0

Component Legend–Clay County, Florida							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
12—Surrency fine sand, depressional	2,210						
		80	Surrency	Series	0.0	0.5	1.0
18—Ridgewood fine sand, 0 to 5 percent slopes	9,860						
		85	Ridgewood	Series	0.0	3.0	5.0
19—Osier fine sand	5,850						
		70	Osier, non-hydric	Series	0.0	1.0	2.0
		15	Osier, hydric	Series	0.0	1.0	2.0
20—Scranton fine sand	1,600						
		70	Scranton, non-hydric	Series	0.0	1.0	2.0
		15	Scranton, hydric	Series	0.0	1.0	2.0
29—Rutlege-Osier complex, frequently flooded	23,800						
		50	Rutlege	Series	0.0	1.0	2.0
		40	Osier	Series	0.0	1.0	2.0
31—Pottsburg fine sand	16,520						
		70	Pottsburg, non-hydric	Series	0.0	1.0	2.0
		10	Pottsburg, hydric	Series	0.0	1.0	2.0
32—Blanton fine sand, 5 to 8 percent slopes	1,400						
		80	Blanton	Series	5.0	7.0	8.0
34—Penney fine sand, 5 to 8 percent slopes	3,420						
		85	Penney	Series	5.0	7.0	8.0
37—Ridgewood fine sand, 5 to 8 percent slopes	1,085						
		85	Ridgewood	Series	5.0	7.0	8.0
38—Surrency fine sand, frequently flooded	1,575						
		85	Surrency	Series	0.0	1.0	2.0
39—Meadowbrook sand, frequently flooded	5,320						
		80	Meadowbrook, hydric	Series	0.0	1.0	2.0
		5	Meadowbrook, non-hydric	Series	0.0	1.0	2.0
42—Osier fine sand, occasionally flooded	2,860						
		55	Osier, non-hydric	Series	0.0	1.0	2.0
		30	Osier, hydric	Series	0.0	1.0	2.0

Component Legend–Clay County, Florida							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
46—Plummer fine sand, depressional	1,180						
		85	Plummer	Series	0.0	0.8	2.0
47—Newnan fine sand	4,460						
		80	Newnan	Series	0.0	1.0	2.0
50—Leon fine sand, frequently flooded	2,050						
		50	Leon, hydric	Series	0.0	1.0	2.0
		30	Leon, non-hydric	Series	0.0	1.0	2.0
58—Allanton fine sand, frequently flooded	7,995						
		80	Allanton	Series	0.0	1.0	2.0
65—Meadowbrook sand	3,635						
		70	Meadowbrook, non-hydric	Series	0.0	1.0	2.0
		15	Meadowbrook, hydric	Series	0.0	1.0	2.0

Data Source Information

Soil Survey Area: Clay County, Florida
Survey Area Data: Version 15, Sep 11, 2018

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)

Clay County, Florida

Map Unit: 1—Albany fine sand, 0 to 5 percent slopes

Component: Albany (85%)

The Albany component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 21 inches during June, July, August, September. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 3e. 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: Ocilla (3%)

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

Component: Hurricane (3%)

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

Component: Ridgewood (3%)

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

Component: Blanton (3%)

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

Component: Meadowbrook, non-hydric (3%)

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

Map Unit: 2—Blanton fine sand, 0 to 5 percent slopes

Component: Blanton (80%)

The Blanton component makes up 80 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is 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 65 inches during June, July, August, September. 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: Albany (5%)

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

Component: Ortega (5%)

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

Component: Penney (5%)

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

Component: Ocilla (5%)

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

Map Unit: 3—Hurricane fine sand, 0 to 5 percent slopes

Component: Hurricane (85%)

The Hurricane component makes up 85 percent of the map unit. Slopes are 0 to 5 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 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 July, August. 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: Centenary (3%)

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

Component: Blanton (3%)

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

Component: Albany (3%)

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

Component: Mandarin (2%)

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

Component: Ortega (2%)

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

Component: Leon, non-hydric (2%)

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

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

Component: Penney (85%)

The Penney component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of 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 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 2 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: Blanton (4%)

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

Component: Albany (4%)

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

Component: Centenary (4%)

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

Component: Ortega (3%)

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

Map Unit: 6—Mandarin fine sand, 0 to 2 percent slopes

Component: Mandarin (92%)

The Mandarin component makes up 92 percent of the map unit. Slopes are 0 to 2 percent. This component is on rises, Lower 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 24 inches during January, February, March, April, 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.

Component: Leon (5%)

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

Component: Centenary (1%)

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

Component: Rutlege (1%)

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

Component: Ortega (1%)

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

Map Unit: 7—Centenary fine sand, 0 to 5 percent slopes

Component: Centenary (85%)

The Centenary component makes up 85 percent of the map unit. Slopes are 0 to 5 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 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 51 inches during June, July, August, September. Organic matter content in the surface horizon is about 2 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: Blanton (4%)

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

Component: Albany (4%)

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

Component: Ortega (4%)

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

Component: Ridgewood (3%)

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

Map Unit: 8—Sapelo fine sand

Component: Sapelo, non-hydric (60%)

The Sapelo, non-hydric component makes up 60 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 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: Sapelo, hydric (20%)

The Sapelo, 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 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: Leon, non-hydric (4%)

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

Component: Albany (4%)

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

Component: Plummer, non-hydric (3%)

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

Component: Meadowbrook, non-hydric (3%)

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

Component: Rutlege (3%)

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

Component: Newnan (3%)

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

Map Unit: 9—Leon fine sand, 0 to 2 percent slopes

Component: Leon, non-hydric (89%)

The Leon, non-hydric component makes up 89 percent of the map unit. Slopes are 0 to 2 percent. This component is on flatwoods on lower coastal plains. The parent material consists of sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is 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, November, December. 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 0 within 30 inches of the soil surface.

Component: Leon, hydric (5%)

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

Component: Mandarin (3%)

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

Component: Mascotte (3%)

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

Map Unit: 10—Ortega fine sand, 0 to 5 percent slopes

Component: Ortega (85%)

The Ortega component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of 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 51 inches during January, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 2 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: Albany (3%)

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

Component: Centenary (3%)

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

Component: Blanton (3%)

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

Component: Ridgewood (2%)

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

Component: Hurricane (2%)

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

Component: Penney (2%)

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

Map Unit: 11—Allanton and Rutlege mucky fine sands, depressional

Component: Allanton (45%)

The Allanton component makes up 45 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 high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 15 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Rutlege (35%)

The Rutlege component makes up 35 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 and/or fluviomarine 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 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 15 percent. Nonirrigated land capability classification is 7w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Surrency (5%)

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

Component: Plummer, non-hydric (5%)

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

Component: Leon, non-hydric (5%)

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

Component: Sapelo, non-hydric (5%)

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

Map Unit: 12—Surrency fine sand, depressional

Component: Surrency (80%)

The Surrency 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 sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 6 percent. Nonirrigated land capability classification is 6w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Meggett (3%)

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

Component: Plummer, non-hydric (3%)

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

Component: Rutlege (3%)

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

Component: Pelham, non-hydric (3%)

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

Component: Sapelo, non-hydric (3%)

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

Component: Leon, hydric (3%)

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

Component: Santee (2%)

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

Map Unit: 18—Ridgewood fine sand, 0 to 5 percent slopes

Component: Ridgewood (85%)

The Ridgewood component makes up 85 percent of the map unit. Slopes are 0 to 5 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy 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 27 inches during July, August. 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: Albany (3%)

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

Component: Ortega (3%)

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

Component: Hurricane (3%)

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

Component: Plummer, non-hydric (3%)

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

Component: Osier, non-hydric (3%)

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

Map Unit: 19—Osier fine sand

Component: Osier, non-hydric (70%)

The Osier, non-hydric 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 alluvium. 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 June, July, August, September, October, November. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 5w. 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: Osier, hydric (15%)

The Osier, 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 alluvium. 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 3 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 4 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: Albany (3%)

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

Component: Leon, non-hydric (3%)

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

Component: Hurricane (3%)

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

Component: Plummer, non-hydric (2%)

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

Component: Rutlege (2%)

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

Component: Ridgewood (2%)

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

Map Unit: 20—Scranton fine sand

Component: Scranton, non-hydric (70%)

The Scranton, non-hydric 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 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 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 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: Scranton, hydric (15%)

The Scranton, 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 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 3 inches during July, August. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Leon, hydric (3%)

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

Component: Osier, non-hydric (2%)

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

Component: Ona, non-hydric (2%)

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

Component: Plummer, non-hydric (2%)

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

Component: Sapelo, non-hydric (2%)

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

Component: Rutlege (2%)

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

Component: Ridgewood (2%)

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

Map Unit: 29—Rutlege-Osier complex, frequently flooded

Component: Rutlege (50%)

The Rutlege component makes up 50 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of sandy marine deposits and/or fluviomarine 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 frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 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: Osier (40%)

The Osier component makes up 40 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of sandy alluvium. 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 frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 4 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: Maurepas (5%)

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

Component: Pamlico (5%)

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

Map Unit: 31—Pottsburg fine sand

Component: Pottsburg, non-hydric (70%)

The Pottsburg, non-hydric 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 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 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: Pottsburg, hydric (10%)

The Pottsburg, hydric component makes up 10 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 4 inches during June, 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: Hurricane (4%)

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

Component: Leon, non-hydric (4%)

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

Component: Osier, hydric (3%)

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

Component: Plummer, non-hydric (3%)

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

Component: Rutlege (3%)

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

Component: Ridgewood (3%)

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

Map Unit: 32—Blanton fine sand, 5 to 8 percent slopes

Component: Blanton (80%)

The Blanton component makes up 80 percent of the map unit. Slopes are 5 to 8 percent. This component is on ridges on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is 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 39 inches during June, July, August, September. 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: Albany (5%)

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

Component: Ocilla (5%)

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

Component: Ridgewood (5%)

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

Component: Meadowbrook, non-hydric (5%)

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

Map Unit: 34—Penney fine sand, 5 to 8 percent slopes

Component: Penney (85%)

The Penney component makes up 85 percent of the map unit. Slopes are 5 to 8 percent. This component is on ridges 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 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 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: Blanton (4%)

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

Component: Albany (4%)

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

Component: Centenary (4%)

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

Component: Ortega (3%)

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

Map Unit: 37—Ridgewood fine sand, 5 to 8 percent slopes

Component: Ridgewood (85%)

The Ridgewood component makes up 85 percent of the map unit. Slopes are 5 to 8 percent. This component is on ridges 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 27 inches during July, August. 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: Osier, non-hydric (3%)

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

Component: Hurricane (3%)

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

Component: Plummer, non-hydric (3%)

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

Component: Albany (3%)

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

Component: Ortega (3%)

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

Map Unit: 38—Surrency fine sand, frequently flooded

Component: Surrency (85%)

The Surrency 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. 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 June, July, August, September, October. Organic matter content in the surface horizon is about 6 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: Osier, non-hydric (3%)

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

Component: Pelham, non-hydric (3%)

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

Component: Pamlico (3%)

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

Component: Plummer, hydric (2%)

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

Component: Rutlege (2%)

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

Component: Santee (2%)

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

Map Unit: 39—Meadowbrook sand, frequently flooded

Component: Meadowbrook, hydric (80%)

The Meadowbrook, hydric 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. 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 frequently flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 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: Pamlico (5%)

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

Component: Rutlege (5%)

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

Component: Surrency (5%)

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

Component: Meadowbrook, non-hydric (5%)

The Meadowbrook, non-hydric component makes up 5 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of 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 frequently 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 2 percent. Nonirrigated land capability classification is 6w. 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.

Map Unit: 42—Osier fine sand, occasionally flooded

Component: Osier, non-hydric (55%)

The Osier, non-hydric component makes up 55 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of sandy alluvium. 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 occasionally 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 4 percent. Nonirrigated land capability classification is 5w. 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: Osier, hydric (30%)

The Osier, hydric component makes up 30 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of sandy alluvium. 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 occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 4 inches during June, July, August, September, October, November. Organic matter content in the surface horizon is about 4 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: Maurepas (3%)

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

Component: Pamlico (3%)

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

Component: Pelham, non-hydric (3%)

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

Component: Plummer, non-hydric (2%)

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

Component: Rutlege (2%)

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

Component: Surrency (2%)

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

Map Unit: 46—Plummer fine sand, depressional

Component: Plummer (85%)

The Plummer 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 and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during February, March, April, May, June, July, August, September, October. Organic matter content in the surface horizon is about 6 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: Pelham, non-hydric (4%)

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

Component: Rutlege (4%)

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

Component: Pamlico (4%)

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

Component: Surrency (3%)

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

Map Unit: 47—Newnan fine sand

Component: Newnan (80%)

The Newnan component makes up 80 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 somewhat 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 24 inches during July, August. Organic matter content in the surface horizon is about 3 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: Sapelo, non-hydric (4%)

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

Component: Leon, non-hydric (4%)

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

Component: Hurricane (4%)

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

Component: Albany (4%)

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

Component: Mandarin (4%)

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

Map Unit: 50—Leon fine sand, frequently flooded

Component: Leon, hydric (50%)

The Leon, hydric component makes up 50 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of 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 very low. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 4 inches during June, July, August, September. Organic matter content in the surface horizon is about 2 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: Leon, non-hydric (30%)

The Leon, non-hydric component makes up 30 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains on marine terraces on coastal plains. The parent material consists of 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 very low. Shrink-swell potential is low. This soil is frequently 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 6w. This soil does not meet hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Sapelo (4%)

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

Component: Ona, non-hydric (4%)

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

Component: Lynn Haven (4%)

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

Component: Mandarin (4%)

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

Component: Pottsburg (4%)

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

Map Unit: 58—Allanton fine sand, frequently flooded

Component: Allanton (80%)

The Allanton 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. 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 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 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: Pottsburg, non-hydric (4%)

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

Component: Lynn Haven (4%)

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

Component: Rutlege (4%)

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

Component: Surrency (4%)

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

Component: Osier, non-hydric (4%)

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

Map Unit: 65—Meadowbrook sand

Component: Meadowbrook, non-hydric (70%)

The Meadowbrook, non-hydric 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 10 inches during 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: Meadowbrook, hydric (15%)

The Meadowbrook, 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 low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 4 inches during July, August, September, October. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria. There are no saline horizons within 30 inches of the soil surface. The soil has a maximum sodium adsorption ratio of 1 within 30 inches of the soil surface.

Component: Albany (4%)

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

Component: Pelham, non-hydric (4%)

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

Component: Osier, hydric (4%)

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

Component: Sapelo, non-hydric (3%)

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

Data Source Information

Soil Survey Area: Clay County, Florida
Survey Area Data: Version 15, Sep 11, 2018

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

February 6, 2018

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: Belmore State Forest (including Satsuma Tract)

Dear Mr. Davis:

Thank you for your inquiry regarding the surface water quality classifications on and near Belmore State Forest (including Satsuma Tract) in Clay County. There are no Outstanding Florida Waters (OFW) located within or adjacent to Belmore State Forest. All of the surface waters in the state forest are classified as Class III waters (subparagraph 62-302.400(17)(b)10., FAC), which is the statewide default classification.

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 R. 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 Map

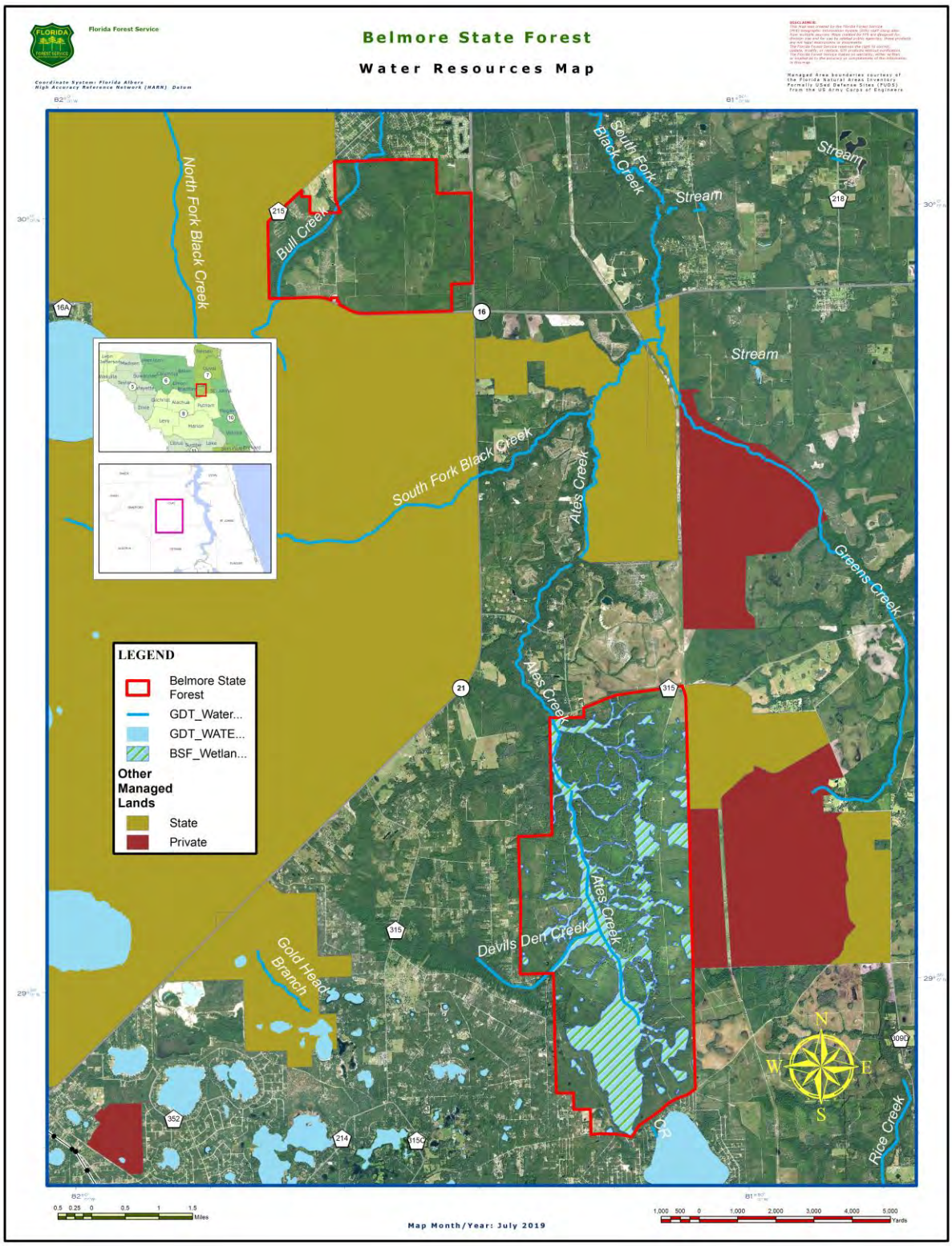

Florida Forest Service
Belmore State Forest
Water Resources Map
Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum
North Fork Black Creek
Bull Creek
South Fork Black Creek
Stream
Stream
Stream
South Fork Black Creek
Ates Creek
Ates Creek
Ates Creek
Greens Creek
Devils Den Creek
Gold Head Branch
Rice Creek
LEGEND
Belmore State Forest
GDT_Water...
GDT_WATE...
BSF_Wetlan...
Other Managed Lands
State
Private
N
W
E
S
Map Month/Year: July 2019
Miles
Yards

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

February 12, 2018

Alan Davis
Fl. Dept. of Agriculture and Consumer Services
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:	Belmore State Forest
Date Received:	02/07/2018
Location:	Clay County

Based on the information available, this site appears to be located in a significant region of natural areas and habitat for several rare species. Special consideration should be taken 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 several element occurrences mapped in the vicinity of the study area (see enclosed map and element occurrence table). 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.

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. Extirpated element occurrences will be marked with an 'X' following the occurrence label on the enclosed map.

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.

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.

Florida Resources and Environmental Analysis Center

Institute of Science and Public Affairs

The Florida State University

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.

Managed Areas

Portions of the site appear to be located within the Belmore State Forest, managed by the FL Dept. of Agriculture and Consumer Services, Florida Forest Service.

The Managed Areas data layer shows public and privately managed conservation lands throughout the state. Federal, state, local, and privately managed conservation lands are included.

Land Acquisition Projects

This site appears to be located within the Northeast Florida Timberlands and Watershed Reserve Florida Forever BOT, which is part of the State of Florida's Conservation and Recreation Lands land acquisition program. For more information on this Florida Forever Project, 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.

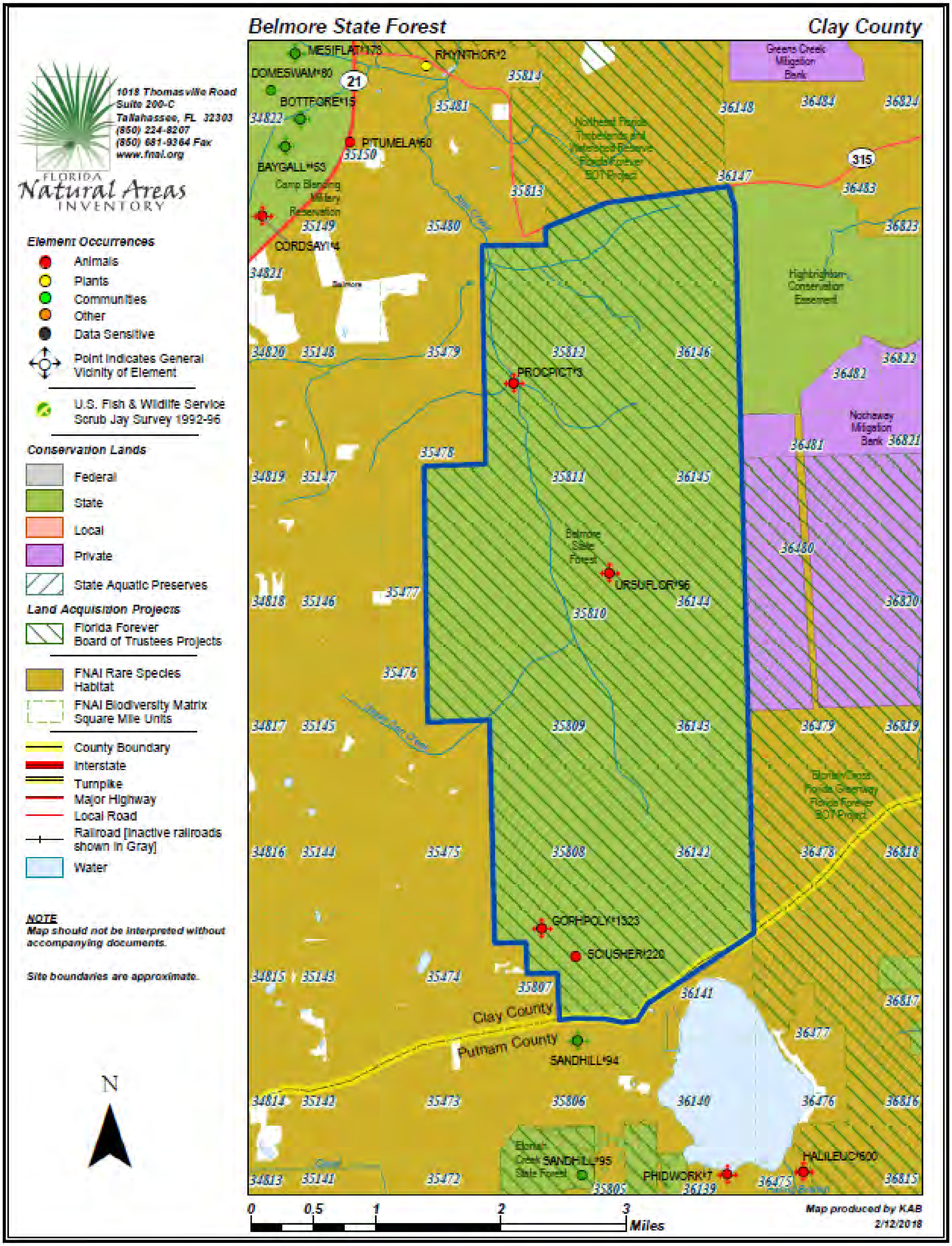
This report is made available at no charge due to funding from the Florida Department of Environmental Protection, Division of State Lands.

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

Sincerely,

Kerri Brinegar

Kerri Brinegar
GIS / Data Services
Encl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FLORIDA
Natural Areas
INVENTORY
Element Occurrences
Animals
Plants
Communities
Other
Data Sensitive
Point Indicates General Vicinity of Element
U.S. Fish & Wildlife Service Scrub Jay Survey 1992-96
Conservation Lands
Federal
State
Local
Private
State Aquatic Preserves
Land Acquisition Projects
Florida Forever Board of Trustees Projects
FNAI Rare Species Habitat
FNAI Biodiversity Matrix Square Mile Units
County Boundary
Interstate
Turnpike
Major Highway
Local Road
Railroad [inactive railroads shown in Gray]
Water
NOTE
Map should not be interpreted without accompanying documents.
Site boundaries are approximate.
N
MESIFLAT*176
RHYNTHOR*2
DOMESWAM*80
21
BOTTFORE*15
PITUMELA*60
BAYGALL*53
Camp Blanding Military Reservation
CORDSAYI*4
Greens Creek Mitigation Bank
Northeast Florida Timberlands and Watershed Reserve Florida Forever BOT Project
315
Highbrighton Conservation Easement
Belmore
PROCPICT*3
Nochaway Mitigation Bank
Belmore State Forest
URSUFLOR*96
Etonian Grass Florida Greenway Florida Forever BOT Project
GORHPOLY*1323
SCIUSHER*220
Clay County
Putnam County
SANDHILL*94
Etonia Creek State Forest
SANDHILL*95
PHIDWORK*7
HALILEUC*600
35814
35481
34822
35150
36148
36484
36824
35813
36147
36483
35149
35480
36823
34821
34820
35148
35479
35812
36146
36822
36482
35478
36481
36821
34819
35147
35811
36145
36480
34818
35146
35477
35810
36144
36820
35476
34817
35145
35809
36143
36479
36819
34816
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35808
36142
36478
36818
34815
35143
35474
35807
36141
36817
36477
34814
35142
35473
35806
36140
36476
36816
34813
35141
35472
35805
36139
36475
36815
0
0.5
1
2
3
Miles
Map produced by KAB
2/12/2018

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FLORIDA Natural Areas INVENTORY

FNAI ELEMENT OCCURRENCE REPORT on or near

Belmore State Forest Southern Tract

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
GOPHPOLY*1131	*Gopherus polyphemus*	Gopher Tortoise	G3	S3	C	ST	2011-06	2004-04-28: Landscape of mostly sandhill with small inclusions of mesic flatwoods, scrub, and xeric hammock. Disturbances include fire suppression and woody encroachment. Associated species include Pinus clausa, Quercus geminata, Quercus laevis, Serenoa	2011-06: FNAI staff observed a total of 178 active, 80 inactive, and 172 abandoned tortoise burrows in 664 acres (18%) of transects within 3,658 acres of potential gopher tortoise habitat in the western tract (except for very southeastern corner) of Eton
GOPHPOLY*1323	*Gopherus polyphemus*	Gopher Tortoise	G3	S3	C	ST	2010-10	2011: extensive portion cleared with the stated goal of sandhill restoration (F11FNA05FLUS). 2006-03-28: former sandhill with heavy disturbance from sand pine and slash pine plantations (F06FNA11FLUS). 2005-12-07: Sandhill with disturbances from forest	2010-10: D. Hipes observed a total of 40 active, 11 inactive, and 35 abandoned tortoise burrows in 108 acres (20%) of transects within 549 acres of potential gopher tortoise habitat in the southern tract of Belmore SF (F11FNA05FLUS). 2006-03-28: J. Surd
PHIDWORK*7	*Phidippus workmani*	Workman's Jumping Spider	G2G3	S2S3	N	N	1994-04-08	1994-04-08: turkey oak/wiregrass ecosystem (B04EDW01FLUS).	1994-04-08: G.B Edward and colleagues collected 1 immature. It was reared to a female(B04EDW01FLUS): (specimen was deposited in FSCA).
PROCPICT*3	*Procambarus pictus*	Black Creek Crayfish	G2	S2	N	ST	1993-08	Dendritic blackwater stream system tributary to St. Johns River. Species occurs principally in cool, steep-gradient, tannic-stained creeks (A79FRA01FLUS), although also in some clear seepage tributaries (F93HIP01FLUS). Occupies headwater streams as well	Species is widespread and generally abundant in undisturbed streams throughout the Black Creek drainage. 1993: D. Hipes recorded the species at 10 sampling sites within both North and South Forks on Camp Blanding (F93HIP01FLUS). 1990: R. Brody caught s
SANDHILL*94	Sandhill		G3	S2	N	N	2004	No general description given	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1991) (U05FNA02FLUS). Partially gridded Sandhill with a few homes.
SANDHILL*95	Sandhill		G3	S2	N	N	2004-04-20	No general description given	EO on site.
SCIUSHER*220	*Sciurus niger shermani*	Sherman's Fox Squirrel	G5T3	S3	N	SSC	2006-03-28	2006-03-28: Sandhill with heavy disturbance from forestry operations (F06FNA11FLUS).	2006-03-28: One animal seen commuting (F06FNA11FLUS).

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FNAI ELEMENT OCCURRENCE REPORT on or near

Belmore State Forest Southern Tract

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
URSUFLOR96	*Ursus americanus floridanus*	Florida Black Bear	G5T2	S2	N	N	2010-09-04	Large area of sand pine and oak scrub, mesic flatwoods, sandhill, depression marshes and hardwood swamps, pine plantation; regular harvesting of sand pine (U05SIM01FLUS). 2010/09/04: (UNDFNA02FLUS). on path near the edge of hardwood hammock and succ	2012: Estimated population of 729-1056 (U05SIM01FLUS); This EO represents the Primary and Secondary Bear Ranges for the Ocala population. Primary is the FWC-designated core area that represents breeding range and contains documented evidence of reproduct

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Florida Natural Areas Inventory

Aggregated Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Documented					
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Likely					
Cordulegaster sayi	Say's Spiketail	G3	S3	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	LT	FT
Mesic flatwoods		G4	S4	N	N
Procambarus pictus	Black Creek Crayfish	G2	S2	N	ST
Sandhill		G3	S2	N	N
Sandhill upland lake			S2	N	N
Upland hardwood forest		G5	S3	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Potential					
Agrimonia incisa	Incised Groove-bur	G3	S2	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Amoglossum diversifolium	Variable-leaved Indian-plantain	G2	S2	N	T
Asclepias viridula	Southern Milkweed		S2	N	T
Asplenium heteroresiliens	Wagner's Spleenwort		S1	N	N
Balduina atropurpurea	Purple Honeycomb-head		S1	N	E
Brickellia cordifolia	Flyr's Brickell-bush	G3	S2	N	E
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
Conradina etonia	Etonia Rosemary	G1	S1	LE	E
Ctenium floridanum	Florida Toothache Grass	G2	S2	N	E
Digitaria gracillima	Longleaf Fingergrass	G1	S1	N	N
Gymnopogon chapmanianus	Chapman's Skeletongrass	G3	S3	N	N
Hartwrightia floridana	Hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake		S2	N	N
Linum westii	West's Flax	G1	S1	N	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Litsea aestivalis	Pondspice	G3?	S2	N	E
Matelea floridana	Florida Spiny-pod	G2	S2	N	E
Monotropsis reynoldsiae	Pygmy Pipes	G1	S1	N	E
Myotis austroriparius	Southeastern Bat	G4	S3	N	N
Nemastylis floridana	Celestial Lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker		S2	LE	FE
Podomys floridanus	Florida Mouse		S3	N	N
Pycnanthemum floridanum	Florida Mountain-mint		S3	N	T
Rhododendron chapmanii	Chapman's Rhododendron	G1	S1	LE	E
Rhynchospora thornei	Thorne's Beaksedge	G3	S1S2	N	N
Rudbeckia nitida	St. John's Blackeyed Susan		S2	N	E
Salix floridana	Florida Willow	G2	S2	N	E
Sideroxylon alachuense	Silver Buckthorn	G1	S1	N	E
Verbesina heterophylla	Variable-leaf Crownbeard	G2	S2	N	E

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

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Florida Natural Areas Inventory

Aggregated Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing

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

Elements and Element Occurrences

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

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

Element Ranking and Legal Status

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

FNAI GLOBAL ELEMENT RANK

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

FNAI STATE ELEMENT RANK

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

FEDERAL LEGAL STATUS

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

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

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

STATE LEGAL STATUS

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

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

C = Candidate for listing at the Federal level by the U. S. Fish and Wildlife Service
FE = Listed as Endangered Species at the Federal level by the U. S. Fish and Wildlife Service
FT = Listed as Threatened Species at the Federal level by the U. S. Fish and Wildlife Service
FXN = Federal listed as an experimental population in Florida
FT(S/A) = Federal Threatened due to similarity of appearance
ST = State population listed as Threatened by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.
SSC = Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species. (SSC* for Pandion haliaetus (Osprey) indicates that this status applies in Monroe county only.)
N = Not currently listed, nor currently being considered for listing.

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

E = Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act.
T = Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered.
N = Not currently listed, nor currently being considered for listing.

Element Occurrence Ranking

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

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

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

FNAI also uses the following EO ranks:

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

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

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

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

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February 12, 2018

Alan Davis
Fl. Dept. of Agriculture and Consumer Services
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:	Belmore State Forest Satsuma Tract
Date Received:	02/06/2018
Location:	Clay County

Based on the information available, this site appears to be located in a significant region of natural areas and habitat for several rare species. Special consideration should be taken 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 several element occurrences mapped in the vicinity of the study area (see enclosed map and element occurrence table). 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.

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. Extirpated element occurrences will be marked with an 'X' following the occurrence label on the enclosed map.

*Several of the species and natural communities tracked by the Inventory are considered **data sensitive**. Occurrence records for these elements contain information that we consider sensitive due to collection pressures, extreme rarity, or at the request of the source of the information. The Element Occurrence Record has been labeled "Data Sensitive." We request that you not publish or release specific locational data about these species or communities without consent from the Inventory. If you have any questions concerning this please do not hesitate to call.*

Likely and Potential Rare Species

Florida Resources and Environmental Analysis Center
Institute of Science and Public Affairs
The Florida State University

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.

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.

Managed Areas

Portions of the site appear to be located within the Belmore State Forest, managed by the FL Dept. of Agriculture and Consumer Services, Florida Forest Service.

The Managed Areas data layer shows public and privately managed conservation lands throughout the state. Federal, state, local, and privately managed conservation lands are included.

Land Acquisition Projects

This site appears to be located within the Northeast Florida Timberlands and Watershed Reserve Florida Forever BOT, which is part of the State of Florida's Conservation and Recreation Lands land acquisition program. For more information on this Florida Forever Project, 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.

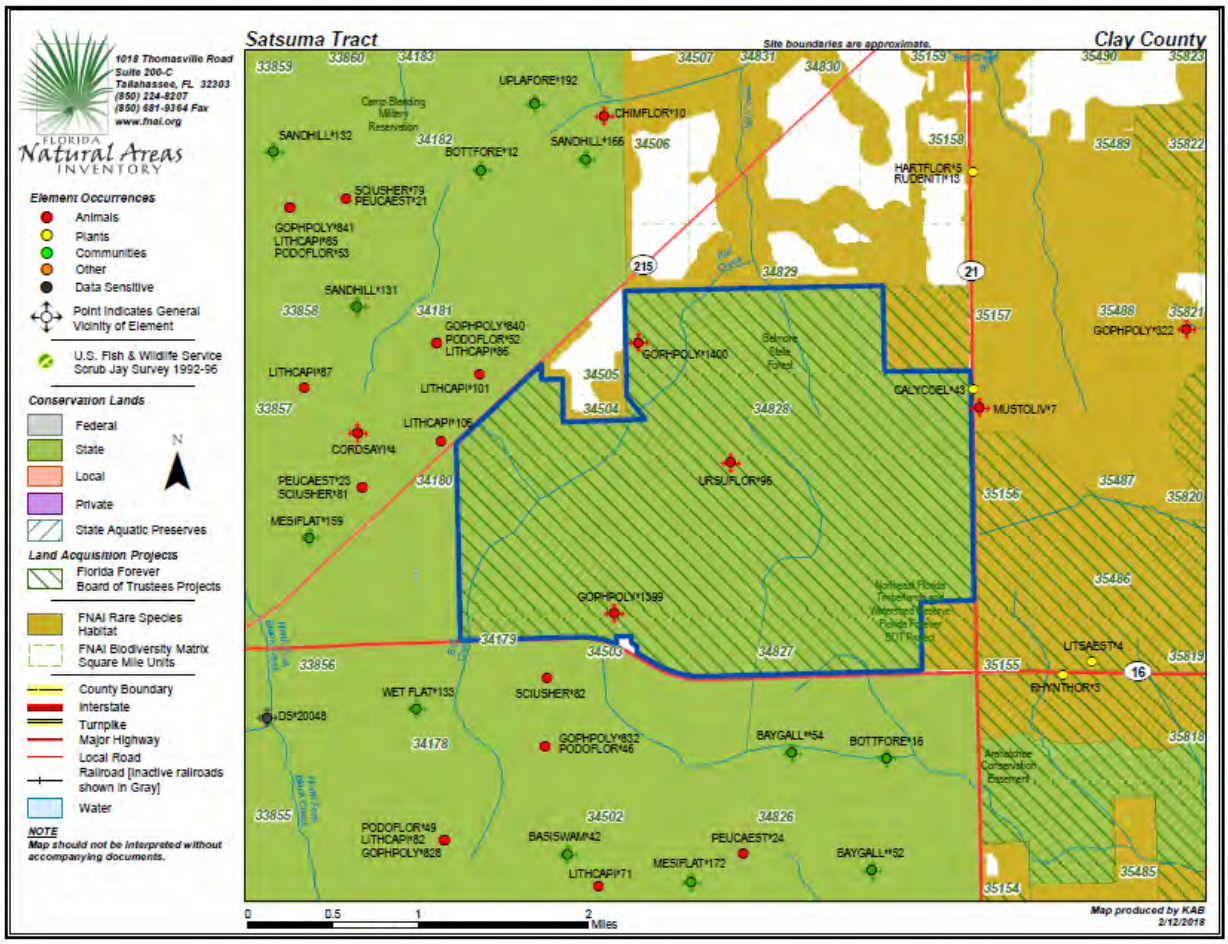
Thank you for your use of FNAI services. If I can be of further assistance, please contact me at (850) 224-8207 or at kbrinegar@fnai.fsu.edu.

Sincerely,

Kerri Brinegar

Kerri Brinegar
GIS / Data Services

Encl


Satsuma Tract
Site boundaries are approximate.
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FLORIDA Natural Areas INVENTORY
Element Occurrences
Animals
Plants
Communities
Other
Data Sensitive
Point Indicates General Vicinity of Element
U.S. Fish & Wildlife Service Scrub Jay Survey 1992-96
Conservation Lands
Federal
State
Local
Private
State Aquatic Preserves
Land Acquisition Projects
Florida Forever Board of Trustees Projects
FNAI Rare Species Habitat
FNAI Biodiversity Matrix Square Mile Units
County Boundary
Interstate
Turnpike
Major Highway
Local Road
Railroad [inactive railroads shown in Gray]
Water
NOTE
Map should not be interpreted without accompanying documents.
N
UPLAFORE*192
CHIMFLOR*10
SANDHILL*132
SANDHILL*166
BOTTFORE*12
HARTFLOR*5
RUDENTI*13
SCIUSHER*79
PEUCAEST*21
GOPHPOLY*841
LITHCAPI*85
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GOPHPOLY*840
PODOFLOR*52
LITHCAPI*86
GOPHPOLY*1400
GOPHPOLY*322
LITHCAPI*87
LITHCAPI*101
GALYCOEL*43
MUSTOLIV*7
LITHCAPI*106
CORDSAYI*4
URSUFLOR*95
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SCIUSHER*81
MESIFLAT*159
GOPHPOLY*1399
UTSAEST*4
RHYNTHOR*3
WET FLAT*133
SCIUSHER*82
DS*20048
GOPHPOLY*832
PODOFLOR*46
BAYGALL*54
BOTTFORE*16
PODOFLOR*49
LITHCAPI*82
GOPHPOLY*828
BASISWAM*42
PEUCAEST*24
BAYGALL*52
MESIFLAT*172
LITHCAPI*71
Belmore State Forest
Northeast Florida Timberlands and Watershed Reserve Florida Forever BOT Project
Apalachicola Conservation Easement
215
21
16
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Miles
Map produced by KAB
2/12/2018

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BASISWAM*42	Basin swamp		G4	S3	N	N	2004	Site is surrounded by pine plantation.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1995-04-10) (U05FNA02FLUS). Canopy of Taxodium ascendens (25%) and Pinus elliottii (25%). Subcanopy dominated by Gordonia lasianthus (30% coverage). Tall
BAYGALL*48	Baygall		G4	S4	N	N	2004	Much of the area surrounding the site is in slash pine plantation. The small areas of mesic flatwoods and sandhill are fire suppressed.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1994-11-03) (U05FNA02FLUS). Mainstem of North Fork Black Creek: Canopy coverage of pond pine (Pinus serotina) is 25%. There is a sub-canopy of Gordonia la
BAYGALL*52	Baygall		G4	S4	N	N	2004	Site is surrounded by a 2 year old seed-tree-cut pine plantation.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1995-02-14) (U05FNA02FLUS). Canopy of Pinus serotina and Gordonia lasianthus (25% coverage). Subcanopy of Gordonia lasianthus and Persea palustris (20% co
BAYGALL*54	Baygall		G4	S4	N	N	2004	This site is contiguous with a bottomland forest in the eastern portion of the site. The area surrounding the site is in pine plantation. A relatively undisturbed basin swamp borders the site at the northwest end.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1995-02-15) (U05FNA02FLUS). Canopy of Pinus serotina (25% coverage). The subcanopy is dominated by Gordonia lasianthus and Persea palustris (30% coverage)
BAYGALL*55	Baygall		G4	S4	N	N	2004	This site is bordered by several high quality natural communities along South Fork Black Creek. Much of the area to the south of the site is within the Impact Area and is relatively undisturbed.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1995-03-21) (U05FNA02FLUS). Canopy coverage is 25% dominated by Pinus taeda. Other portions of the site are dominated by Pinus serotina. The sub-canopy co
BOTTFORE*12	Bottomland forest		G4	S3	N	N	2004	Site is surrounded by mildly to moderately disturbed upland mixed forest. The mesic flatwoods above Whiskey Creek have been clearcut (1992). The uplands surrounding much of the rest of the site are in a natural state.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1994-10-05) (U05FNA02FLUS). Pinus taeda is emergent from the canopy of Liquidambar styraciflua, Quercus laurifolia, Quercus nigra and Quercus michauxii. T

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BOTTFORE*13	Bottomland forest		G4	S3	N	N	2004	Site is bordered by a narrow to broad undisturbed baygall (pond pine). Pine plantation is generally present on the mesic flatwoods above the baygall. Natural mesic flatwoods is spotty.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1994-11-03) (U05FNA02FLUS). Pinus taeda are emergent from the canopy (2-5% coverage). Canopy coverage is 75% dominated by Quercus laurifolia, Nyssa biflor
BOTTFORE*16	Bottomland forest		G4	S3	N	N	2004	The uplands adjacent to this site have been severely fire suppressed and have grown up in laurel oak. The rest of the surrounding area is in pine plantation.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1995-02-14) (U05FNA02FLUS). The canopy is dominated by Quercus laurifolia, Liquidambar styraciflua, Acer rubrum and Magnolia virginiana (50% coverage). Th
CALYCOEL*43	*Calydorea coelestina*	Bartram's ixia	G2G3	S2S3	N	E	1988-06-18	MOWED ROAD SHOULDER WITH DROSERA BREVIFOLIA, POLYGALA RAMOSA, ALETRIS OBOVATA, SARRACENIA MINOR, ADJACENT TO PINE FLATWOODS.	50-100 INDIVIDUALS; MOSTLY IN FRUIT.
CHIMFLOR*10	*Chimarra florida*	Floridian Finger-net Caddisfly	G4	S3S4	N	N	1996-07-02	1996-07-02: No description given (U06RAS01FLUS).	1996-07-02: Three specimens were collected on 1996-07-02 using ultraviolet light (U06RAS01FLUS).
CORDSAYI*4	*Cordulegaster sayi*	Say's Spiketail	G3	S3	N	N	2000 – 2001	2000-2001: Various habitats are present here (A06GRE01FLUS).	2000-2001: This species was collected and identified (A06GRE01FLUS).
DS*20048	*Data Sensitive Element*	Data Sensitive	G1	S1	E	E	1998	Data Sensitive	Data Sensitive
GOPHPOLY*1399	*Gopherus polyphemus*	Gopher Tortoise	G3	S3	C	ST	2010-10	2010-10: pine plantation and clearcut pine plantation on former sandhill (F11FNA05FLUS).	2010-10: D. Hipes observed a total of 13 active, 3 inactive, and 13 abandoned tortoise burrows in 42 acres (20%) of transects within 212 acres of potential gopher tortoise habitat in the northern tract of Belmore SF, east of Bull Creek (F11FNA05FLUS); th
GOPHPOLY*1400	*Gopherus polyphemus*	Gopher Tortoise	G3	S3	C	ST	2010-10	2010-10: pine plantation and clearcut pine plantation on former sandhill (F11FNA05FLUS).	2010-10: D. Hipes observed a total of 31 active, 5 inactive, and 21 abandoned tortoise burrows in 37 acres (23%) of transects within 161 acres of potential gopher tortoise habitat in the northern tract of Belmore SF, west of Bull Creek (F11FNA05FLUS); th

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GOPHPOLY*322	*Gopherus polyphemus*	Gopher Tortoise	G3	S3	C	ST	1994-04-10	SANDPINE PLANTED SANDHILL.	AREA RUFUS STRATTON HAS PULLED TORTOISES IN THE PAST (PNDDIE01). 1994-04-10: 3 BURROWS OBSERVED 6S, 24E SEC. 24 AND 25 (F94HIP02).
GOPHPOLY*828	*Gopherus polyphemus*	Gopher Tortoise	G3	S3	C	ST	1993-06-24	SANDHILL; OVERSTORY DOMINATED BY TURKEY OAK WITH SCATTERED LONGLEAF PINE. AREAS HAVE MODERATE TO GOOD HERBACEOUS GROUND COVER.	1993 SPRING SURVEY BY HIPES: 31 BURROWS IN 15.28 ACRES AT TRANSECT (=2.03 BURROWS/ACRE). ESTIMATED 361.5 TORTOISES (CONVERSION FACTOR OF .614 USED).
GOPHPOLY*832	*Gopherus polyphemus*	Gopher Tortoise	G3	S3	C	ST	1998	SLASH PINE/TURKEY OAK SANDHILL. THERE IS LITTLE OR NO HERBACEOUS VEGETATION IN AREAS WITH PLANTED SLASH PINE. THE AREA IS SURROUNDED BY PLANTED SLASH PINE FLATWOODS.	1998: At least one active burrow observed; no survey conducted (F98HIP02FLUS). 1993 SPRING SURVEY BY HIPES: CA. 100 AC. OF HABITAT, ESTIMATED 91 INDIVIDUALS USING 0.614 BURROW-TO-TORTOISE CORR. FACTOR, BASED ON DENSITY ESTIMATE OF 1.48 BURROWS/AC (9.43
GOPHPOLY*840	*Gopherus polyphemus*	Gopher Tortoise	G3	S3	C	ST	1998	SANDHILL WITH LONGLEAF PINE/TURKEY OAK OVERSTORY WITH WIREGRASS GROUND COVER; GROUND COVER IS PATCHY AND SPARSE IN PLACES.	1998: At least one active burrow observed; no survey conducted (F98HIP02FLUS). 1993 SPRING SURVEY BY HIPES: ESTIMATED 233.1 INDIVIDUALS IN 305.5 ACRES (USING TRANSECT DATA AND APPLYING 0.614 BURROW-TO-TORTOISE CORRECTION FACTOR); DENSITIES ARE 1.5 AND 0
HARTFLOR*5	*Hartwrightia floridana*	hartwrightia	G2	S2	N	T	1987-09-26	Acid seepage area rich in sphagnum and carnivorous plants, full sun. Seepage slope dominants include pond pine, slash pine, loblolly bay and swamp bay.	59 plants in one of multiple population areas (20 by 100 meters); 25% of plants flowering 1979-10-12, 75% in rosette form; plants appear to be in general drainage area from different sources.
LITHCAPI*101	*Lithobates capito*	Gopher Frog	G3	S3	N	N	1998-04-22	Depression marsh (30 X 30 m) with dense cover of Panicum. Pond is shallow and fills only with heavy rains. Pond surrounded by slash pine plantation.	1998: 2 tadpoles captured (f98hip02flus). 1994: Chorus of 15-30 frogs calling 3 nights following heavy rain (f93hip01flus).

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LITHCAPI*106	*Lithobates capito*	Gopher Frog	G3	S3	N	N	1994-02-02	Pond 2N8-Depression Marsh (30 X 35 m). Emergent coverage = 30-40% dominated by Panicum. Pond surorunded by Longleaf Pine Flatwoods and adjacent to Sandhill Pond 5N8-Trench (10 X 25 m). Has a narrow ring of Hypericum and Panicum. Pond is 30 m NW of Pond 2	Hipes heard 10-15 individuals calling from pond 2N8 on 2-2-94.
LITHCAPI*82	*Lithobates capito*	Gopher Frog	G3	S3	N	N	1993-10-01	SANDHILL DOMINATED BY TURKEY OAK IN THE NORTHERN PORTION AND BY LONGLEAF PINE/TURKEY OAK IN THE SOUTHERN PORTION. GROUND COVER IS SPARSE UNDER THE TURKEY OAK AND ABUNDANT IN AREAS WITH LONGLEAF PINE.	1993-10-01: HIPES CAUGHT 2 INDIVIDUALS (1 LARGE, 1 MEDIUM SIZE) IN 33 TRAPNIGHTS.
LITHCAPI*86	*Lithobates capito*	Gopher Frog	G3	S3	N	N	1993-10-04	LONGLEAF PINE/TURKEY OAK/SANDPINE SANDHILL WITH SPARSE TO ABUNDANT GROUNDCOVER. PART OF AREA DISTURBED BY TROPPS, PART OF SANDHILL IS PLANTED IN SLASH PINE.	1993-10-04: HIPES CAUGHT TWO INDIVIDUALS IN 36 TRAPNIGHTS AT THE SW END OF SITE.
LITHCAPI*87	*Lithobates capito*	Gopher Frog	G3	S3	N	N	1993-11-06	SEVERAL SHALLOW PONDS CREATED BY RANGE CONSTRUCTION. HERBACEOUS VEGETATION DOMINATED BY PANICUM SPP., XYRIS, AND UNIDENTIFIED GRASSES.	1993-11-06: HIPES HEARD 4-8 INDIVIDUALS CALLING, 6 NIGHTS FOLLOWING HEAVY RAINS.
LITSAEST4	*Litsea aestivalis*	pondspice	G3?	S2	N	E	1982-09-05	1982-09-05: small cypress pond with Gordonia, Lyonia, Persea, and Sphagnum (S82ANDFSFLUS).	1982-09-05: plants growing on "tussocks" in cypress pond with permanent shallow water (S82ANDFSFLUS)
MESIFLAT*159	Mesic flatwoods		G4	S4	N	N	2004	Baygall to the west associated with North Fork Black Creek is relatively undisturbed. Pine plantation is adjacent to the south and east. Cleared mesic flatwoods and fire suppressed sandhill are adjacent to the north.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1994-07-08) (U05FNA02FLUS). Mesic flatwoods unburned for many years (10-20). Canopy (coverage 25-50%) of Pinus palustris. Midstory (25-50% coverage) of Qu

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MESIFLAT*172	Mesic flatwoods		G4	S4	N	N	2004	Site is bordered by large pine plantation on all sides except for a small area of fire suppressed sandhill to the south.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1995-03-28) (U05FNA02FLUS). Canopy of Pinus palustris (25% coverage). Short shrub coverage is 75%, dominated by Serenoa repens, Ilex glabra, Vaccinium myr
MUSTOLIV*7	*Mustela frenata olivacea*	Southeastern Weasel	G5T4	S3?	N	N	1995-12	Upland areas in planted pine. Dome swamps are scattered throughout.	1995-12: One individual DOR; another individual was observed DOR in the same location during 1992(?).
PEUCAEST*23	*Peucaea aestivalis*	Bachman's Sparrow	G3	S3	N	N	1998	MESIC FLATWOODS/SANDHILL DOMINATED BY LONGLEAF PINE IN THE MESIC AREAS AND TURKEY IN THE BETTER DRAINED AREAS. GROUND COVER ABUNDANT THROUGHOUT DOMINATED BY ARISTIDA, SPOROBOLIS, VACCINIUM, RUNNER OAK, PALMETTO, LICANIA, AND CARPHEPHORUS.	1998:hipes heard at least 4 singing along 1 mile of Woodbury Road Flatwoods. 1993-SPRING: HIPES HEARD 10 OR MORE MALES SINGING ON SEVERAL OCCASIONS.
PEUCAEST*24	*Peucaea aestivalis*	Bachman's Sparrow	G3	S3	N	N	1998	FLATWOODS OF WHICH APPROXIMATELY 90% HAS BEEN RECENTLY CLEARCUT AND REPLANTED IN SLASH PINE. THERE ARE FOUR SMALL POCKETS OF LONGLEAF PINE (RCW COLONIES) TOTALING <200. PALMETTO ABUNDANT THROUGHOUT.	1998: 4 males heard singing along tow miles of Wolf Branch Road (F98HIP01FLUS). 1993-SPRING: HIPES HEARD 30-40 MALES SINGING ON SEVERAL OCCASIONS ALONG WOLF BRANCH ROAD. MOST ABUNDANT IN RCW COLONIES.
PODOFLOR*46	*Podomys floridanus*	Florida Mouse	G3	S3	N	N	1993-09-13	SANDHILLS DOMINATED BY TURKEY OAK AND PLANTED SLASH PINE WITH LITTLE HERBACEOUS VEGETATION UNDER THE PINES, AND MODERATE HERBACEOUS GROUND COVER IN THE TURKEY OAK ONLY AREAS. GROUND APPEARS TO HAVE BEEN DISTURBED IN THE PAST.	1993-09-13: HIPES FOUND 2 ADULT MALES AND 1 SUB ADULT FEMALE CAUGHT IN 98 TRAPNIGHTS.

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PODOFLOR*49	*Podomys floridanus*	Florida Mouse	G3	S3	N	N	1993-09-11	SANDHILL DOMINATED BY TURKEY OAK IN THE NORTHERN PORTION AND BY LONGLEAF PINE/TURKEY OAK IN THE SOUTHERN PORTION. GROUND COVER IS SPARSE UNDER THE TURKEY OAK AND ABUNDANT IN AREAS WITH LONGLEAF PINE.	1993-09-11: HIPES CAUGHT 1 ADULT FEMALE AND 2 SUB ADULT MALES TRAPPED IN 94 TRAPNIGHTS.
PODOFLOR*52	*Podomys floridanus*	Florida Mouse	G3	S3	N	N	1993-08-28	LONGLEAF PINE/TURKEY OAK/SANDPINE SANDHILL WITH SPARSE TO ABUNDANT GROUND COVER. PART OF AREA DISTURBED BY DIVUACING, PART OF SANDHILL PLANTED IN SLASH PINE.	1993-08-28: HIPES CAUGHT 3 INDIVIDUALS IN 98 TRAPNIGHTS.
PROCPICT*3	*Procambarus pictus*	Black Creek Crayfish	G2	S2	N	ST	1993-08	Dendritic blackwater stream system tributary to St. Johns River. Species occurs principally in cool, steep-gradient, tannic-stained creeks (A79FRA01FLUS), although also in some clear seepage tributaries (F93HIP01FLUS). Occupies headwater streams as well	Species is widespread and generally abundant in undisturbed streams throughout the Black Creek drainage. 1993: D. Hipes recorded the species at 10 sampling sites within both North and South Forks on Camp Blanding (F93HIP01FLUS). 1990: R. Brody caught s
RHYNTHOR*3	*Rhynchospora thornei*	Thorne's beaksedge	G3	S1S2	N	N	2002-06-26	2002-06-26: MOWN ROADSIDE OPEN TO FULL SUN, WITH VARIABLE-PITCH SLOPE DOWN TO WET DITCH; MANY OF THE PLANTS ARE ON THE SOUTH SIDE OF THE DITCH AT ABOUT MID-SLOPE, WHERE THEY ARE CO-DOMINANT WITH PLANTAGO SPARSIFLORA; OTHER ASSOCIATES INCLUDE R. COLORATA,	2002-06-26: 1000s OF FRUITING CLUMPS, SCATTERED THROUGHOUT. LOCALLY ABUNDANT, BUT NOT A PATCH DOMINANT; R. THORNEI AND R. DIVERGENS ARE VIRTUALLY INDISTINGUISHABLE AT THIS SITE EXCEPT FOR ACHENE LENGTH AND BRISTLE CHARACTERS (U03LEB01FLUS).
RUDBNITI*13	*Rudbeckia nitida*	St. John's blackeyed susan	G3	S2	N	E	1987-09-26	1987: Seepage slope dominated by pond pine, slash pine, loblolly bay, and swamp bay (PNDPEA02FLUS).	1987: 50-100 scattered individuals observed flowering and fruiting (PNDPEA02FLUS).

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SANDHILL*131	Sandhill		G3	S2	N	N	2004	Site is on a ridge separating North Fork Black Creek and Bull Creek, and is a natural link between these two relatively undisturbed systems.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1994-10-31) (U05FNA02FLUS). Sparse canopy of Pinus palustris (5% coverage). There is an open subcanopy of Quercus laevis (30-40% coverage). There is a tal
SANDHILL*166	Sandhill		G3	S2	N	N	2004	Small fire suppressed longleaf pine - turkey oak Sandhill; surrounded by Upland Mixed Forest associated with Bull and Whiskey Creeks.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1994-10-05) (U05FNA02FLUS). 1994-10-05: Fire supressed sandhill with sparse canopy of Pinus palustris (5% coverage, 17m tall) and open subcanopy of Quercu
SCIUSHER*81	*Sciurus niger shermani*	Sherman's Fox Squirrel	G5T3	S3	N	SSC	1993	SANDHILL/MESIC FLATWOODS DOMINATED BY TURKEY OAK IN HIGHER AREAS AND LONGLEAF PINE IN THE MORE MESIC AREAS. GROUND COVER ABUNDANT THROUGHOUT DOMINATED BY ARISTIDA, SPOROBOLIS, VACCINIUM, RUNNER OAK, LICANIA AND CARPHEPHORUS.	1993: HIPES OBSERVED TWO OR MORE INDIVIDUALS ON SEVERAL OCCASIONS THROUGHOUT THE YEAR.
SCIUSHER*82	*Sciurus niger shermani*	Sherman's Fox Squirrel	G5T3	S3	N	SSC	1993	SANDHILL/MESIC FLATWOODS WITH HIGHER SITES DOMINATED BY TURKEY OAK AND MESIC SITES DOMINATED BY SLASH PINE (PLANTED). LONGLEAF PINE ARE SPARSE THROUGHOUT. GROUNDCOVER IS SPARSE DOMINATED BY PANICUM SP.	1993: HIPES OBSERVED ONE OR MORE INDIVIDUALS ON SEVERAL OCCASIONS THROUGHOUT THE YEAR.
UPLAFORE*192	Upland hardwood forest		G5	S3	N	N	2004	The mesic flatwoods surrounding Whiskey Creek have been clearcut. Most of the area surrounding the rest of the site remains somewhat natural. Fire has been suppressed throughout the area altering ecotones between this and adjacent sandhill or mesic flatw	2010: Prior to the 2010 natural community reclassification effort this EO had been known as Upland mixed forest EO number 42 (see U10FNA01FLUS for updated community descriptions). 2004: Update to last obs date was based on interpretation of aerial photog

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FNAI ELEMENT OCCURRENCE REPORT on or near

Belmore State Forest

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
URSUFLOR*96	*Ursus americanus floridanus*	Florida Black Bear	G5T2	S2	N	N	2010-09-04	Large area of sand pine and oak scrub, mesic flatwoods, sandhill, depression marshes and hardwood swamps, pine plantation; regular harvesting of sand pine (U05SIM01FLUS). 2010/09/04: (UNDFNA02FLUS). on path near the edge of hardwood hammock and succ	2012: Estimated population of 729-1056 (U05SIM01FLUS); This EO represents the Primary and Secondary Bear Ranges for the Ocala population. Primary is the FWC-designated core area that represents breeding range and contains documented evidence of reproduct
WET FLAT*133	Wet flatwoods		G4	S4	N	N	2004	Site is surrounded by pine plantation.	2010: Prior to the 2010 natural community reclassification effort this EO had been known as Baygall EO number 47 (see U10FNA01FLUS for updated community descriptions). 2004: Update to last obs date was based on interpretation of aerial photography (previ

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Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Matrix Unit ID: 34179					
Likely					
Cordulegaster sayi	Say's Spiketail	G3	S3	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	LT	FT
Mesic flatwoods		G4	S4	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	FE
Rhododendron chapmanii	Chapman's Rhododendron	G1	S1	LE	E
Sandhill		G3	S2	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Wet flatwoods		G4	S4	N	N
Potential					
Agrimonia incisa	Incised Groove-bur	G3	S2	N	T
Arnoglossum diversifolium	Variable-leaved Indian-plantain	G2	S2	N	T
Asclepias viridula	Southern Milkweed	G2	S2	N	T
Asplenium heteroresiliens	Wagner's Spleenwort	G2	S1	N	N
Balduina atropurpurea	Purple Honeycomb-head	G2	S1	N	E
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	T
Calydorea coelestina	Bartram's Ixia	G2G3	S2S3	N	E
Ctenium floridanum	Florida Toothache Grass	G2	S2	N	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Hartwrightia floridana	Hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Linum westii	West's Flax	G1	S1	N	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Litsea aestivalis	Pondspice	G3?	S2	N	E
Matelea floridana	Florida Spiny-pod	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Podomys floridanus	Florida Mouse	G3	S3	N	N
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	T
Rhynchospora thornei	Thorne's Beaksedge	G3	S1S2	N	N
Rudbeckia nitida	St. John's Blackeyed Susan	G3	S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Sideroxylon alachuense	Silver Buckthorn	G1	S1	N	E
Verbesina heterophylla	Variable-leaf Crownbeard	G2	S2	N	E
Matrix Unit ID: 34180					
Documented					
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Lithobates capito	Gopher Frog	G3	S3	N	N
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Likely					
Baygall		G4	S4	N	N
Cordulegaster sayi	Say's Spiketail	G3	S3	N	N

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Biodiversity Matrix Report

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Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	LT	FT
Mesic flatwoods		G4	S4	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	FE
Sandhill		G3	S2	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Potential					
Agrimonia incisa	Incised Groove-bur	G3	S2	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Arnoglossum diversifolium	Variable-leaved Indian-plantain	G2	S2	N	T
Asclepias viridula	Southern Milkweed	G2	S2	N	T
Asplenium heteroresiliens	Wagner's Spleenwort	G2	S1	N	N
Balduina atropurpurea	Purple Honeycomb-head	G2	S1	N	E
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	T
Calydorea coelestina	Bartram's Ixia	G2G3	S2S3	N	E
Ctenium floridanum	Florida Toothache Grass	G2	S2	N	E
Hartwrightia floridana	Hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Linum westii	West's Flax	G1	S1	N	E
Litsea aestivalis	Pondspice	G3?	S2	N	E
Matelea floridana	Florida Spiny-pod	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Podomys floridanus	Florida Mouse	G3	S3	N	N
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	T
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	T
Rhododendron chapmanii	Chapman's Rhododendron	G1	S1	LE	E
Rhynchospora thornei	Thorne's Beaksedge	G3	S1S2	N	N
Rudbeckia nitida	St. John's Blackeyed Susan	G3	S2	N	E
Sideroxylon alachuense	Silver Buckthorn	G1	S1	N	E
Verbesina heterophylla	Variable-leaf Crownbeard	G2	S2	N	E
Matrix Unit ID: 34181					
Documented					
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Lithobates capito	Gopher Frog	G3	S3	N	N
Podomys floridanus	Florida Mouse	G3	S3	N	N
Likely					
Bottomland forest		G4	S3	N	N
Cordulegaster sayi	Say's Spiketail	G3	S3	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	LT	FT
Mesic flatwoods		G4	S4	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	FE
Procambarus pictus	Black Creek Crayfish	G2	S2	N	ST
Sandhill		G3	S2	N	N
Upland hardwood forest		G5	S3	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Potential					
Agrimonia incisa	Incised Groove-bur	G3	S2	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Amoglossum diversifolium	Variable-leaved Indian-plantain	G2	S2	N	T
Asclepias viridula	Southern Milkweed	G2	S2	N	T
Asplenium heteroresiliens	Wagner's Spleenwort	G2	S1	N	N
Balduina atropurpurea	Purple Honeycomb-head	G2	S1	N	E
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	T
Calydorea coelestina	Bartram's Ixia	G2G3	S2S3	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Ctenium floridanum	Florida Toothache Grass	G2	S2	N	E
Hartwrightia floridana	Hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Linum westii	West's Flax	G1	S1	N	E
Litsea aestivalis	Pondspice	G3?	S2	N	E
Matelea floridana	Florida Spiny-pod	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	T
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	T
Rhododendron chapmanii	Chapman's Rhododendron	G1	S1	LE	E
Rhynchospora thornei	Thorne's Beaksedge	G3	S1S2	N	N
Rudbeckia nitida	St. John's Blackeyed Susan	G3	S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Sideroxylon alachuense	Silver Buckthorn	G1	S1	N	E
Verbesina heterophylla	Variable-leaf Crownbeard	G2	S2	N	E
Matrix Unit ID: 34503					
Documented					
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Likely					
Baygall		G4	S4	N	N
Cordulegaster sayi	Say's Spiketail	G3	S3	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	LT	FT
Mesic flatwoods		G4	S4	N	N
Sandhill		G3	S2	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Potential					
Agrimonia incisa	Incised Groove-bur	G3	S2	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Amoglossum diversifolium	Variable-leaved Indian-plantain	G2	S2	N	T
Asclepias viridula	Southern Milkweed	G2	S2	N	T
Asplenium heteroresiliens	Wagner's Spleenwort	G2	S1	N	N
Balduina atropurpurea	Purple Honeycomb-head	G2	S1	N	E

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Florida Natural Areas Inventory

Biodiversity Matrix Report

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Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	T
Calydorea coelestina	Bartram's Ixia	G2G3	S2S3	N	E
Ctenium floridanum	Florida Toothache Grass	G2	S2	N	E
Hartwrightia floridana	Hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Linum westii	West's Flax	G1	S1	N	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Litsea aestivalis	Pondspice	G3?	S2	N	E
Matelea floridana	Florida Spiny-pod	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	FE
Podomys floridanus	Florida Mouse	G3	S3	N	N
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	T
Rhododendron chapmanii	Chapman's Rhododendron	G1	S1	LE	E
Rhynchospora thornei	Thorne's Beaksedge	G3	S1S2	N	N
Rudbeckia nitida	St. John's Blackeyed Susan	G3	S2	N	E
Sideroxylon alachuense	Silver Buckthorn	G1	S1	N	E
Verbesina heterophylla	Variable-leaf Crownbeard	G2	S2	N	E
Matrix Unit ID: 34504					
Documented					
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Likely					
Cordulegaster sayi	Say's Spiketail	G3	S3	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	LT	FT
Mesic flatwoods		G4	S4	N	N
Sandhill		G3	S2	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Potential					
Agrimonia incisa	Incised Groove-bur	G3	S2	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Amoglossum diversifolium	Variable-leaved Indian-plantain	G2	S2	N	T
Asclepias viridula	Southern Milkweed	G2	S2	N	T
Asplenium heteroresiliens	Wagner's Spleenwort	G2	S1	N	N
Balduina atropurpurea	Purple Honeycomb-head	G2	S1	N	E
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	T
Calydorea coelestina	Bartram's Ixia	G2G3	S2S3	N	E
Ctenium floridanum	Florida Toothache Grass	G2	S2	N	E
Hartwrightia floridana	Hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Linum westii	West's Flax	G1	S1	N	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Litsea aestivalis	Pondspice	G3?	S2	N	E
Matelea floridana	Florida Spiny-pod	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N

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Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Orbexilum virgatum	Pineland Scurfpea	G1	S1	N	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	FE
Podomys floridanus	Florida Mouse	G3	S3	N	N
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	T
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	T
Rhododendron chapmanii	Chapman's Rhododendron	G1	S1	LE	E
Rhynchospora thornei	Thorne's Beaksedge	G3	S1S2	N	N
Rudbeckia nitida	St. John's Blackeyed Susan	G3	S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Sideroxylon alachuense	Silver Buckthorn	G1	S1	N	E
Verbesina heterophylla	Variable-leaf Crownbeard	G2	S2	N	E
Matrix Unit ID: 34505					
Documented					
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Likely					
Cordulegaster sayi	Say's Spiketail	G3	S3	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	LT	FT
Mesic flatwoods		G4	S4	N	N
Procambarus pictus	Black Creek Crayfish	G2	S2	N	ST
Sandhill		G3	S2	N	N
Upland hardwood forest		G5	S3	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Potential					
Agrimonia incisa	Incised Groove-bur	G3	S2	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Arnoglossum diversifolium	Variable-leaved Indian-plantain	G2	S2	N	T
Asclepias viridula	Southern Milkweed	G2	S2	N	T
Asplenium heteroresiliens	Wagner's Spleenwort	G2	S1	N	N
Balduina atropurpurea	Purple Honeycomb-head	G2	S1	N	E
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	T
Calydorea coelestina	Bartram's Ixia	G2G3	S2S3	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Ctenium floridanum	Florida Toothache Grass	G2	S2	N	E
Hartwrightia floridana	Hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Linum westii	West's Flax	G1	S1	N	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Litsea aestivalis	Pondspice	G3?	S2	N	E
Matelea floridana	Florida Spiny-pod	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Orbexilum virgatum	Pineland Scurfpea	G1	S1	N	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	FE

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Podomys floridanus	Florida Mouse	G3	S3	N	N
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	T
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	T
Rhododendron chapmanii	Chapman's Rhododendron	G1	S1	LE	E
Rhynchospora thornei	Thorne's Beaksedge	G3	S1S2	N	N
Rudbeckia nitida	St. John's Blackeyed Susan	G3	S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Sideroxylon alachuense	Silver Buckthorn	G1	S1	N	E
Verbesina heterophylla	Variable-leaf Crownbeard	G2	S2	N	E
Matrix Unit ID: 34827					
Likely					
Baygall		G4	S4	N	N
Cordulegaster sayi	Say's Spiketail	G3	S3	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	LT	FT
Mesic flatwoods		G4	S4	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	FE
Procambarus pictus	Black Creek Crayfish	G2	S2	N	ST
Sandhill		G3	S2	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Potential					
Agrimonia incisa	Incised Groove-bur	G3	S2	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Amoglossum diversifolium	Variable-leaved Indian-plantain	G2	S2	N	T
Asclepias viridula	Southern Milkweed	G2	S2	N	T
Asplenium heteroresiliens	Wagner's Spleenwort	G2	S1	N	N
Balduina atropurpurea	Purple Honeycomb-head	G2	S1	N	E
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	T
Calydorea coelestina	Bartram's Ixia	G2G3	S2S3	N	E
Ctenium floridanum	Florida Toothache Grass	G2	S2	N	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Hartwrightia floridana	Hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Linum westii	West's Flax	G1	S1	N	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Litsea aestivalis	Pondspice	G3?	S2	N	E
Matelea floridana	Florida Spiny-pod	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	T
Rhododendron chapmanii	Chapman's Rhododendron	G1	S1	LE	E
Rhynchospora thornei	Thorne's Beaksedge	G3	S1S2	N	N
Rudbeckia nitida	St. John's Blackeyed Susan	G3	S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Sideroxylon alachuense	Silver Buckthorn	G1	S1	N	E
Verbesina heterophylla	Variable-leaf Crownbeard	G2	S2	N	E

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Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Matrix Unit ID: 34828					
Documented					
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Likely					
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	LT	FT
Mustela frenata olivacea	Southeastern Weasel	G5T4	S3?	N	N
Sandhill		G3	S2	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Potential					
Agrimonia incisa	Incised Groove-bur	G3	S2	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Amoglossum diversifolium	Variable-leaved Indian-plantain	G2	S2	N	T
Asclepias viridula	Southern Milkweed	G2	S2	N	T
Asplenium heteroresiliens	Wagner's Spleenwort	G2	S1	N	N
Balduina atropurpurea	Purple Honeycomb-head	G2	S1	N	E
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	T
Calydorea coelestina	Bartram's Ixia	G2G3	S2S3	N	E
Ctenium floridanum	Florida Toothache Grass	G2	S2	N	E
Hartwrightia floridana	Hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Linum westii	West's Flax	G1	S1	N	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Litsea aestivalis	Pondspice	G3?	S2	N	E
Matelea floridana	Florida Spiny-pod	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Orbexilum virgatum	Pineland Scurfpea	G1	S1	N	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	FE
Podomys floridanus	Florida Mouse	G3	S3	N	N
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	T
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	T
Rhododendron chapmanii	Chapman's Rhododendron	G1	S1	LE	E
Rhynchospora thornei	Thorne's Beaksedge	G3	S1S2	N	N
Rudbeckia nitida	St. John's Blackeyed Susan	G3	S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Sideroxylon alachuense	Silver Buckthorn	G1	S1	N	E
Verbesina heterophylla	Variable-leaf Crownbeard	G2	S2	N	E
Matrix Unit ID: 34829					
Documented					
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Likely					
Cordulegaster sayi	Say's Spiketail	G3	S3	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	LT	FT

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Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Mesic flatwoods		G4	S4	N	N
Mustela frenata olivacea	Southeastern Weasel	G5T4	S3?	N	N
Procambarus pictus	Black Creek Crayfish	G2	S2	N	ST
Sandhill		G3	S2	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Potential					
Agrimonia incisa	Incised Groove-bur	G3	S2	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Amoglossum diversifolium	Variable-leaved Indian-plantain	G2	S2	N	T
Asclepias viridula	Southern Milkweed	G2	S2	N	T
Asplenium heteroresiliens	Wagner's Spleenwort	G2	S1	N	N
Balduina atropurpurea	Purple Honeycomb-head	G2	S1	N	E
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	T
Calydorea coelestina	Bartram's Ixia	G2G3	S2S3	N	E
Ctenium floridanum	Florida Toothache Grass	G2	S2	N	E
Hartwrightia floridana	Hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Linum westii	West's Flax	G1	S1	N	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Litsea aestivalis	Pondspice	G3?	S2	N	E
Matelea floridana	Florida Spiny-pod	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Orbexilum virgatum	Pineland Scurfpea	G1	S1	N	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	FE
Podomys floridanus	Florida Mouse	G3	S3	N	N
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	T
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	T
Rhododendron chapmanii	Chapman's Rhododendron	G1	S1	LE	E
Rhynchospora thornei	Thorne's Beaksedge	G3	S1S2	N	N
Rudbeckia nitida	St. John's Blackeyed Susan	G3	S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Sideroxylon alachuense	Silver Buckthorn	G1	S1	N	E
Verbesina heterophylla	Variable-leaf Crownbeard	G2	S2	N	E
Matrix Unit ID: 35155					
Documented					
Rhynchospora thornei	Thorne's Beaksedge	G3	S1S2	N	N
Likely					
Baygall		G4	S4	N	N
Cordulegaster sayi	Say's Spiketail	G3	S3	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	LT	FT
Mesic flatwoods		G4	S4	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	FE
Procambarus pictus	Black Creek Crayfish	G2	S2	N	ST
Sandhill		G3	S2	N	N

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Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Potential					
Agrimonia incisa	Incised Groove-bur	G3	S2	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Amoglossum diversifolium	Variable-leaved Indian-plantain	G2	S2	N	T
Asclepias viridula	Southern Milkweed	G2	S2	N	T
Asplenium heteroresiliens	Wagner's Spleenwort	G2	S1	N	N
Balduina atropurpurea	Purple Honeycomb-head	G2	S1	N	E
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	T
Calydorea coelestina	Bartram's Ixia	G2G3	S2S3	N	E
Ctenium floridanum	Florida Toothache Grass	G2	S2	N	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Hartwrightia floridana	Hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Linum westii	West's Flax	G1	S1	N	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Litsea aestivalis	Pondspice	G3?	S2	N	E
Matelea floridana	Florida Spiny-pod	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Podomys floridanus	Florida Mouse	G3	S3	N	N
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	T
Rhododendron chapmanii	Chapman's Rhododendron	G1	S1	LE	E
Rudbeckia nitida	St. John's Blackeyed Susan	G3	S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Sideroxylon alachuense	Silver Buckthorn	G1	S1	N	E
Verbesina heterophylla	Variable-leaf Crownbeard	G2	S2	N	E
Matrix Unit ID: 35156					
Likely					
Calydorea coelestina	Bartram's Ixia	G2G3	S2S3	N	E
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	LT	FT
Mesic flatwoods		G4	S4	N	N
Mustela frenata olivacea	Southeastern Weasel	G5T4	S3?	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Potential					
Agrimonia incisa	Incised Groove-bur	G3	S2	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Amoglossum diversifolium	Variable-leaved Indian-plantain	G2	S2	N	T
Asclepias viridula	Southern Milkweed	G2	S2	N	T
Asplenium heteroresiliens	Wagner's Spleenwort	G2	S1	N	N
Balduina atropurpurea	Purple Honeycomb-head	G2	S1	N	E
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	T
Ctenium floridanum	Florida Toothache Grass	G2	S2	N	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Hartwrightia floridana	Hartwrightia	G2	S2	N	T

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Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Linum westii	West's Flax	G1	S1	N	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Litsea aestivalis	Pondspice	G3?	S2	N	E
Matelea floridana	Florida Spiny-pod	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	FE
Podomys floridanus	Florida Mouse	G3	S3	N	N
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	T
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	T
Rhododendron chapmanii	Chapman's Rhododendron	G1	S1	LE	E
Rhynchospora thornei	Thorne's Beaksedge	G3	S1S2	N	N
Rudbeckia nitida	St. John's Blackeyed Susan	G3	S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Sideroxylon alachuense	Silver Buckthorn	G1	S1	N	E
Verbesina heterophylla	Variable-leaf Crownbeard	G2	S2	N	E

Matrix Unit ID: 35157

Documented-Historic

Calydorea coelestina	Bartram's Ixia	G2G3	S2S3	N	E

Likely

Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	LT	FT
Mesic flatwoods		G4	S4	N	N
Mustela frenata olivacea	Southeastern Weasel	G5T4	S3?	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N

Potential

Agrimonia incisa	Incised Groove-bur	G3	S2	N	T
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2T3	S2S3	N	ST
Amoglossum diversifolium	Variable-leaved Indian-plantain	G2	S2	N	T
Asclepias viridula	Southern Milkweed	G2	S2	N	T
Asplenium heteroresiliens	Wagner's Spleenwort	G2	S1	N	N
Balduina atropurpurea	Purple Honeycomb-head	G2	S1	N	E
Calopogon multiflorus	Many-flowered Grass-pink	G2G3	S2S3	N	T
Ctenium floridanum	Florida Toothache Grass	G2	S2	N	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Hartwrightia floridana	Hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Linum westii	West's Flax	G1	S1	N	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Litsea aestivalis	Pondspice	G3?	S2	N	E
Matelea floridana	Florida Spiny-pod	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Notophthalmus perstriatus	Striped Newt	G2G3	S2	C	N
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Picoides borealis	Red-cockaded Woodpecker	G3	S2	LE	FE

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Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Podomys floridanus	Florida Mouse	G3	S3	N	N
Pteroglossaspis ecristata	Giant Orchid	G2G3	S2	N	T
Pycnanthemum floridanum	Florida Mountain-mint	G3	S3	N	T
Rhododendron chapmanii	Chapman's Rhododendron	G1	S1	LE	E
Rhynchospora thornei	Thorne's Beaksedge	G3	S1S2	N	N
Rudbeckia nitida	St. John's Blackeyed Susan	G3	S2	N	E
Sciurus niger shermani	Sherman's Fox Squirrel	G5T3	S3	N	SSC
Sideroxylon alachuense	Silver Buckthorn	G1	S1	N	E
Verbesina heterophylla	Variable-leaf Crownbeard	G2	S2	N	E

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Elements and Element Occurrences

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

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

Element Ranking and Legal Status

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

FNAI GLOBAL ELEMENT RANK

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

FNAI STATE ELEMENT RANK

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

FEDERAL LEGAL STATUS

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

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

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

STATE LEGAL STATUS

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

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

C = Candidate for listing at the Federal level by the U. S. Fish and Wildlife Service
FE = Listed as Endangered Species at the Federal level by the U. S. Fish and Wildlife Service
FT = Listed as Threatened Species at the Federal level by the U. S. Fish and Wildlife Service
FXN = Federal listed as an experimental population in Florida
FT(S/A) = Federal Threatened due to similarity of appearance
ST = State population listed as Threatened by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.
SSC = Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species. (SSC* for Pandion haliaetus (Osprey) indicates that this status applies in Monroe county only.)
N = Not currently listed, nor currently being considered for listing.

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

E = Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act.
T = Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered.
N = Not currently listed, nor currently being considered for listing.

Element Occurrence Ranking

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

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

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

FNAI also uses the following EO ranks:

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

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

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

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

Exhibit N

Florida Fish and Wildlife Conservation Commission Response

Florida Fish and Wildlife Conservation Commission

Commissioners
Brian Yablonski
Chairman
Tallahassee

Aliese 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

2/08/2018

Alan Davis
Land Planning Coordinator
Florida Forest Service

Dear Alan Davis:

This letter is in response to your request for listed species occurrence records and critical habitats for your project Belmore State Forest located in Clay County, Florida. Records from The Florida Fish and Wildlife Conservation Commission's database indicate that listed species occurrence data and critical habitats are located within the project area. Enclosed are 8.5 x 11 maps showing listed species locations, Strategic Habitat Conservation Areas (SHCA) for, prioritized SHCA's, species richness, priority wetlands for listed species, and land cover for the project site and surrounding area.

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

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

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

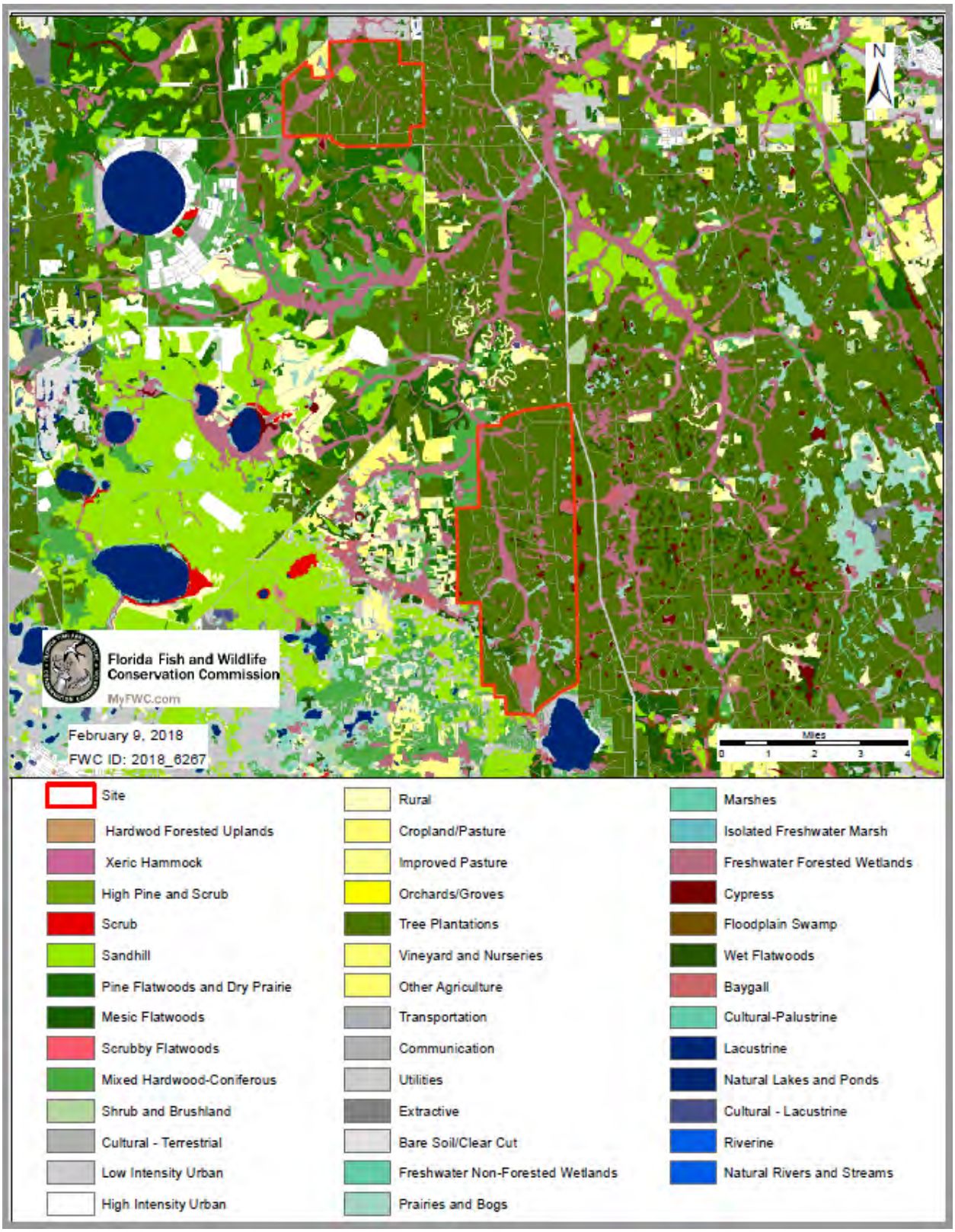
The Florida Natural Areas Inventory (FNAI) maintains a separate database of listed plant and wildlife species, please contact FNAI directly for specific information on the location of element occurrences within the project area.

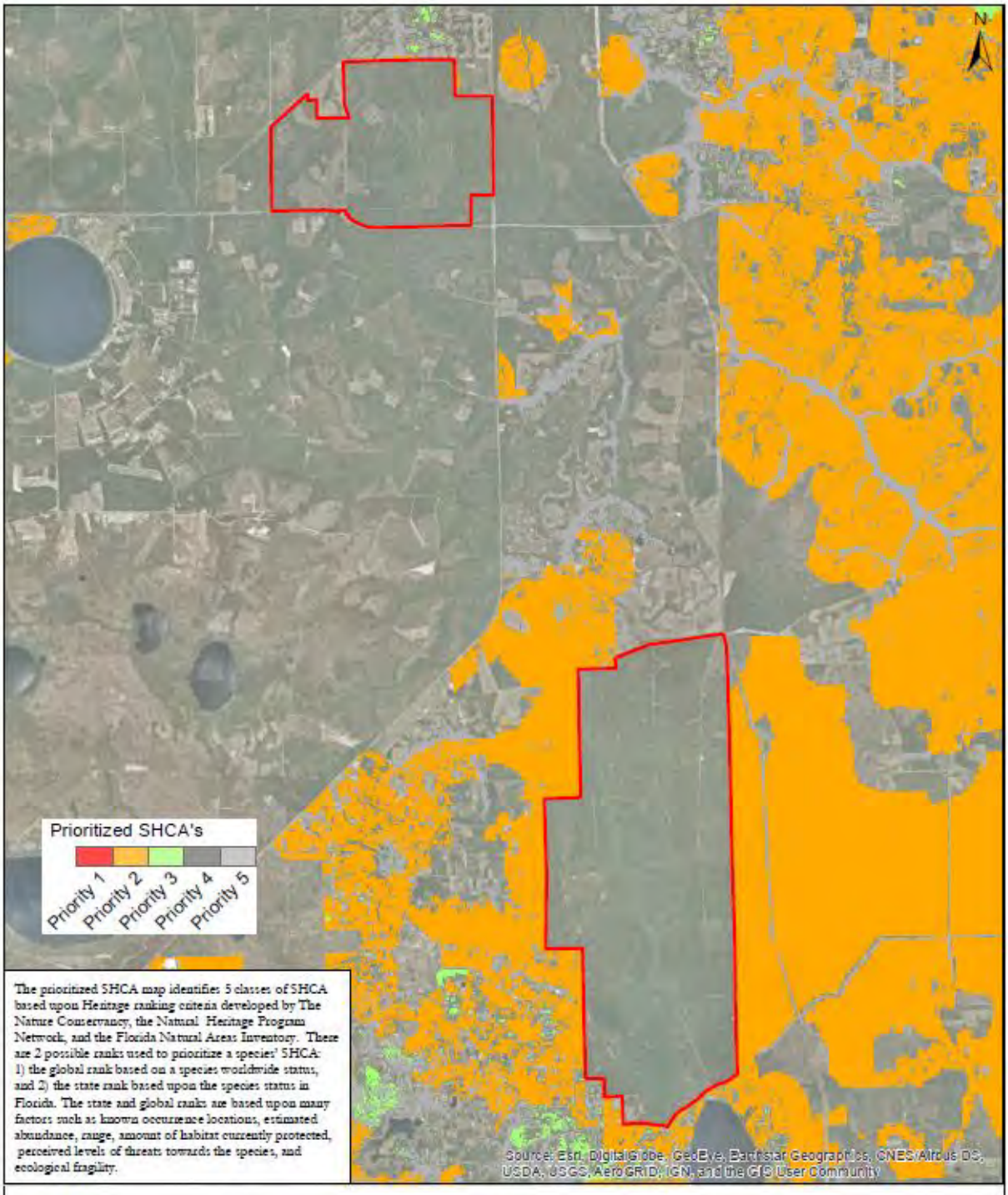
Because FNAI is funded to provide information to public agencies only, you may be required to pay a fee for this information. County-wide listed species information can be located at their website (http://www.fnai.org).

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

Sincerely,

Jamie Pfadt
Research Assistant


N
Florida Fish and Wildlife Conservation Commission
MyFWC.com
February 9, 2018
FWC ID: 2018_6267
Miles
0 1 2 3 4
Site
Hardwod Forested Uplands
Xeric Hammock
High Pine and Scrub
Scrub
Sandhill
Pine Flatwoods and Dry Prairie
Mesic Flatwoods
Scrubby Flatwoods
Mixed Hardwood-Coniferous
Shrub and Brushland
Cultural - Terrestrial
Low Intensity Urban
High Intensity Urban
Rural
Cropland/Pasture
Improved Pasture
Orchards/Groves
Tree Plantations
Vineyard and Nurseries
Other Agriculture
Transportation
Communication
Utilities
Extractive
Bare Soil/Clear Cut
Freshwater Non-Forested Wetlands
Prairies and Bogs
Marshes
Isolated Freshwater Marsh
Freshwater Forested Wetlands
Cypress
Floodplain Swamp
Wet Flatwoods
Baygall
Cultural-Palustrine
Lacustrine
Natural Lakes and Ponds
Cultural - Lacustrine
Riverine
Natural Rivers and Streams



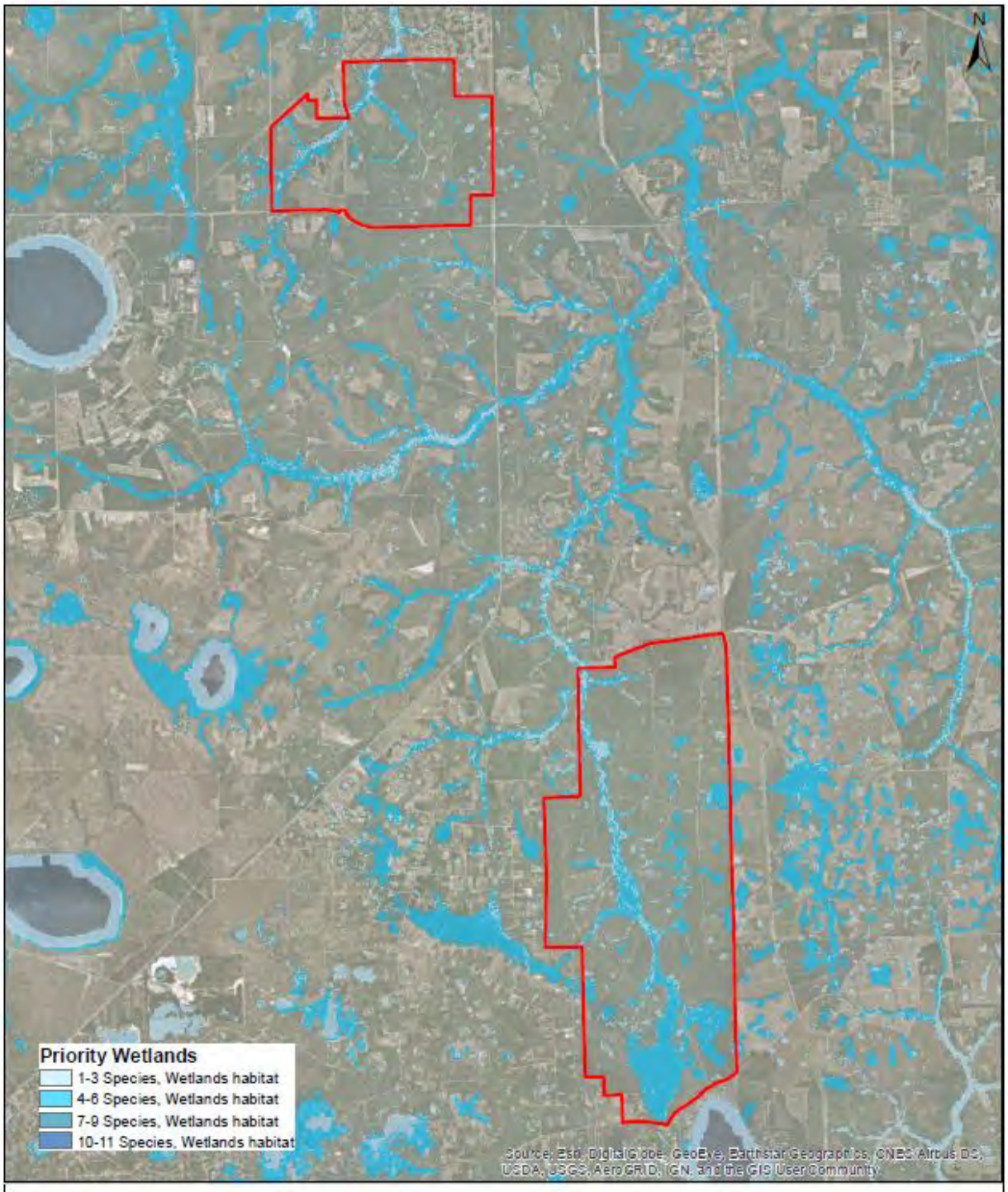
The prioritized SHCA map identifies 5 classes of SHCA based upon Heritage ranking criteria developed by The Nature Conservancy, the Natural Heritage Program Network, and the Florida Natural Areas Inventory. There are 2 possible ranks used to prioritize a species' SHCA: 1) the global rank based on a species 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.

Belmore State Forest

Miles
0 1 2 3 4

Florida Fish and Wildlife Conservation Commission
MyFWC.com

FWC ID: 2018_6267 February 9, 2018



Belmore State Forest

Miles
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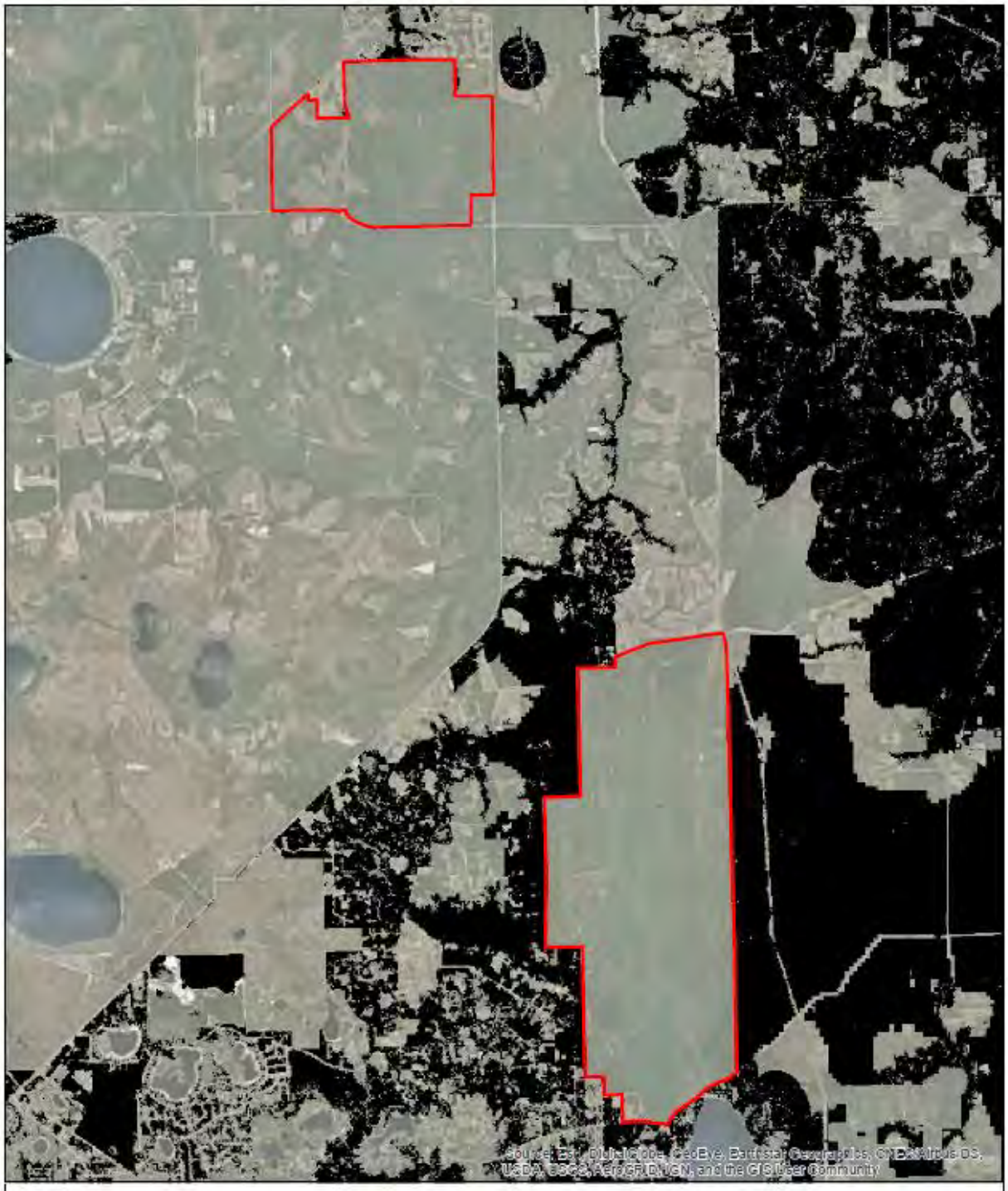
Florida Fish and Wildlife Conservation Commission
MyFWC.com

FWC ID: 2018_6267 February 9, 2018



Belmore State Forest

Strategic Habitat Conservation Areas

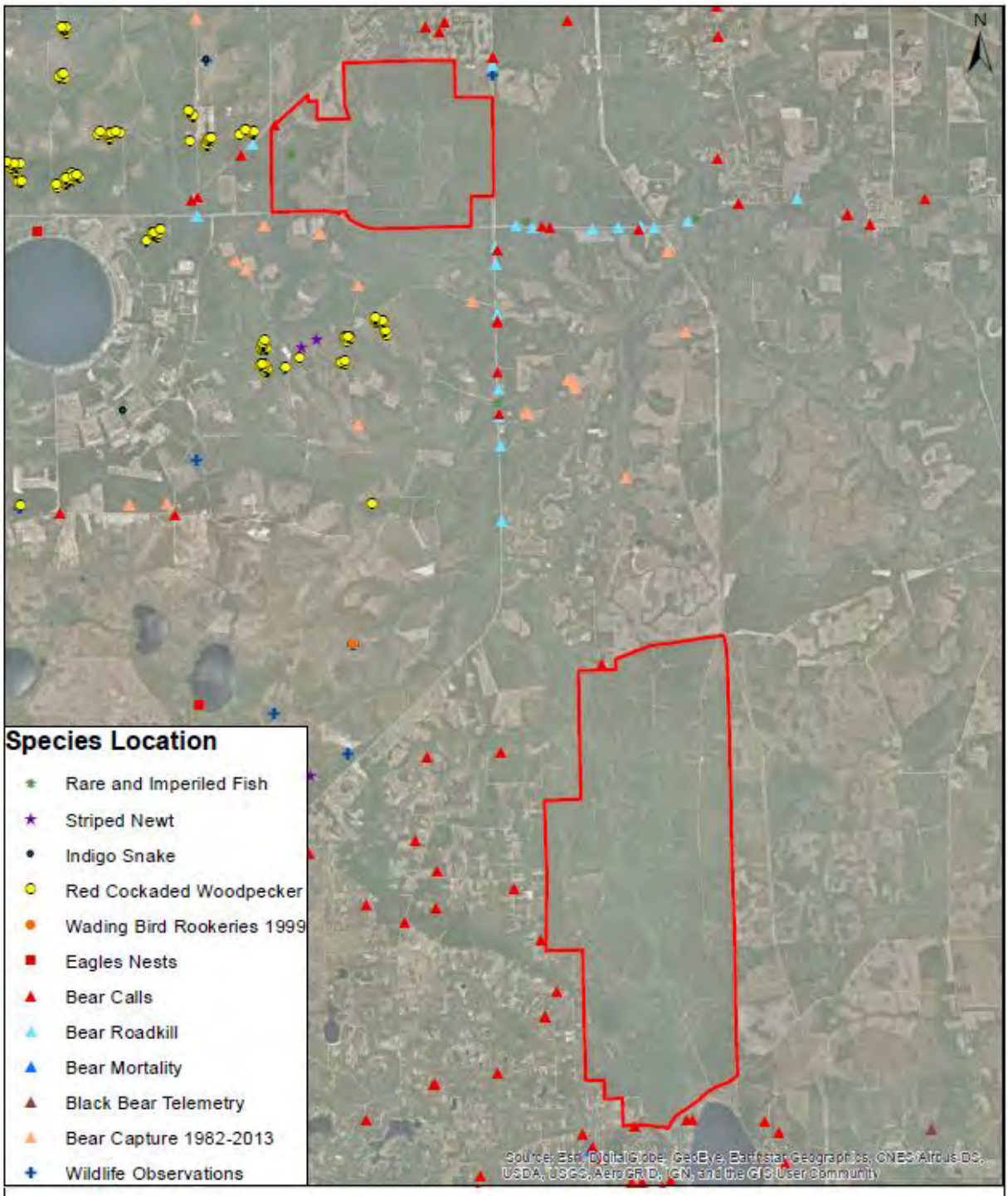
Miles

0 1 2 3 4

Florida Fish and Wildlife Conservation Commission

MyFWC.com

FWC ID: 2018_6267 February 9, 2018

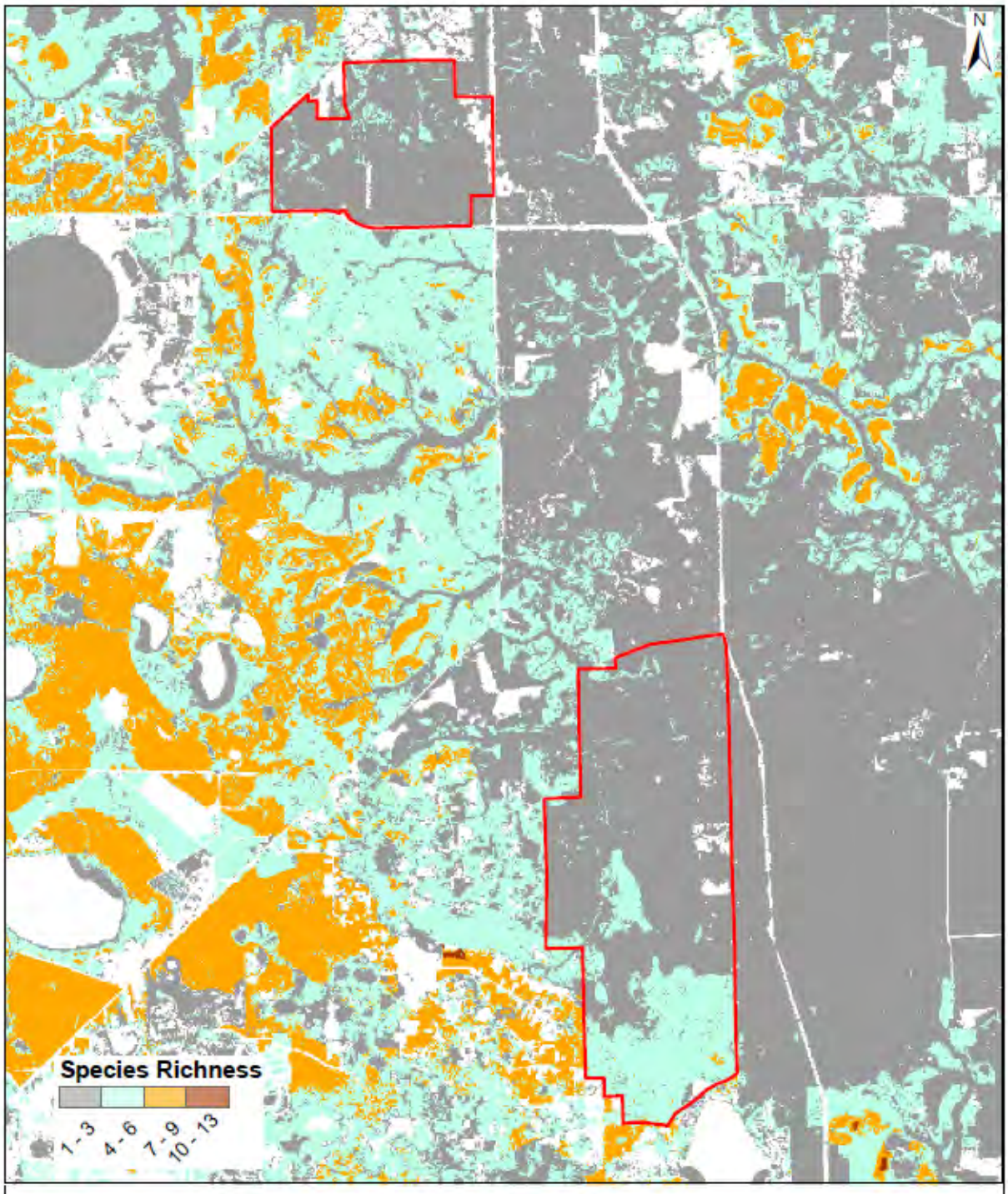


Belmore State Forest

Miles
0 1 2 3 4

Florida Fish and Wildlife Conservation Commission
MyFWC.com

FWC ID: 2018_6267 February 9, 2018

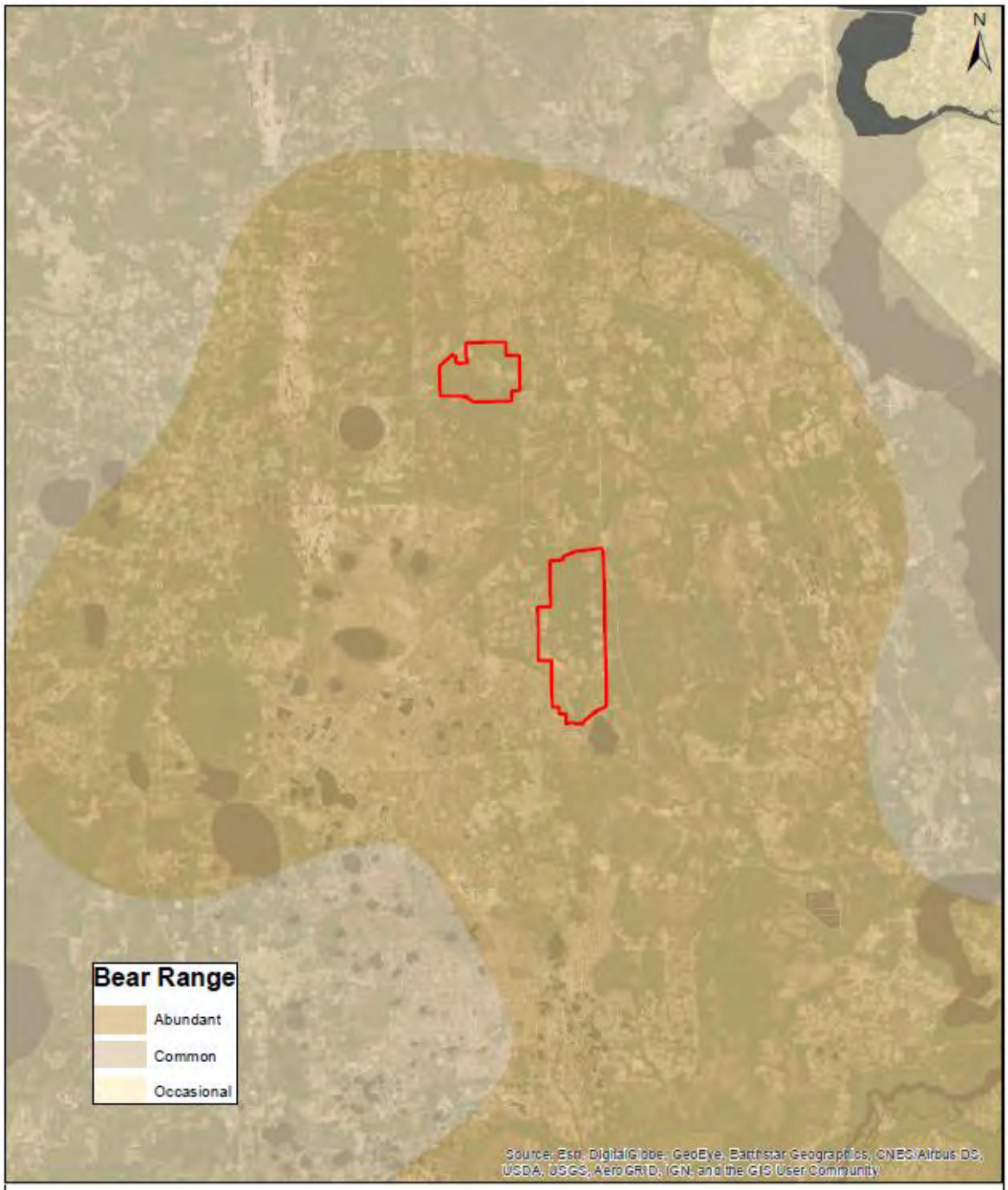


Belmore State Forest

Miles
0 1 2 3 4

Florida Fish and Wildlife Conservation Commission
MyFWC.com

FWC ID: 2018_6267 February 9, 2018



Belmore State Forest

Miles
0 2.5 5 7.5 10

Florida Fish and Wildlife Conservation Commission
MyFWC.com

FWC ID: 2018_6267 February 9, 2018

Exhibit O

Fire History

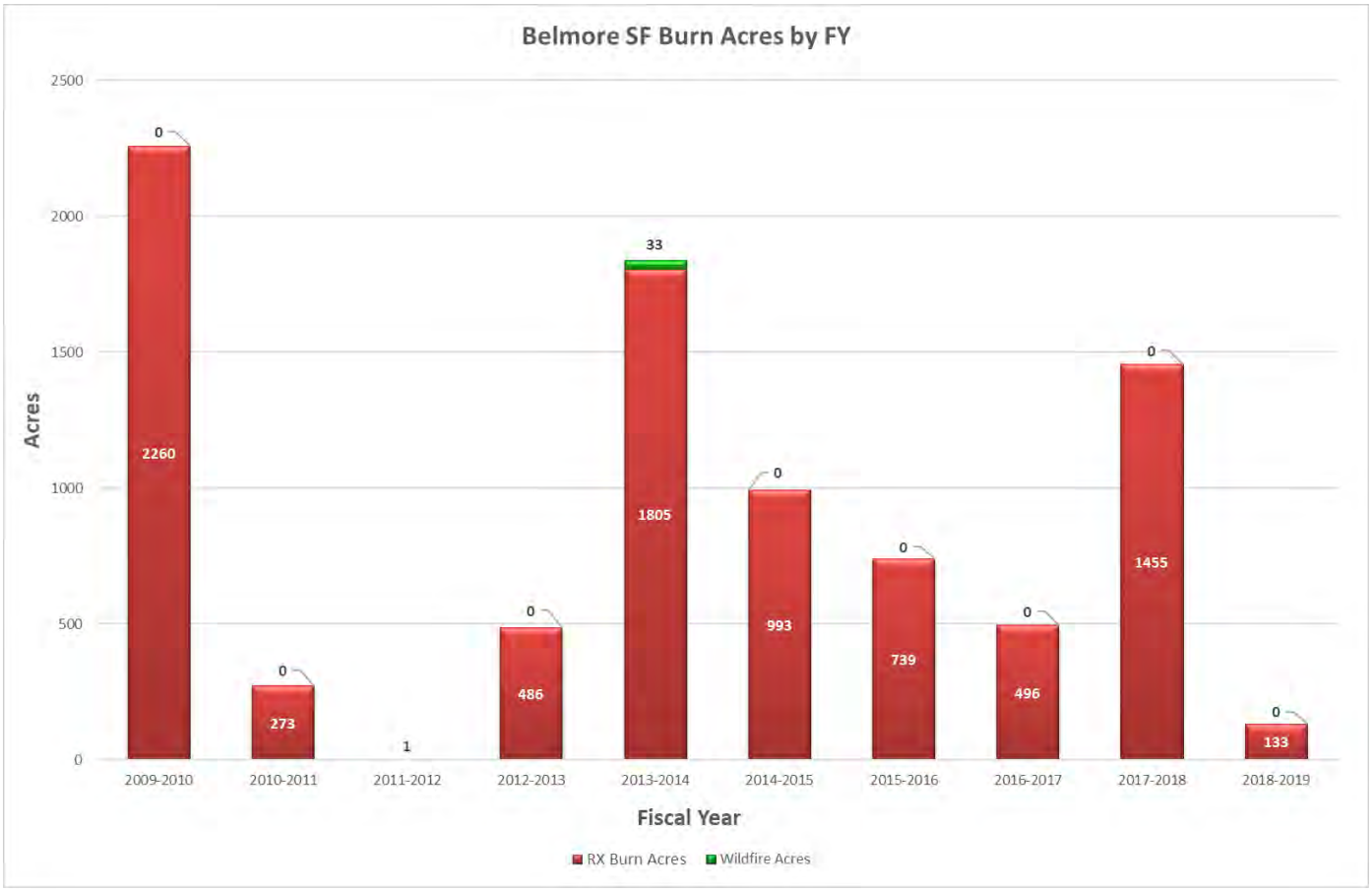

Belmore SF Burn Acres by FY
2500
2000
1500
1000
500
0
Acres
0
2260
0
273
1
0
486
33
1805
0
993
0
739
0
496
0
1455
0
133
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
2016-2017
2017-2018
2018-2019
Fiscal Year
RX Burn Acres
Wildfire Acres

Exhibit P

Non-Native Invasive Species

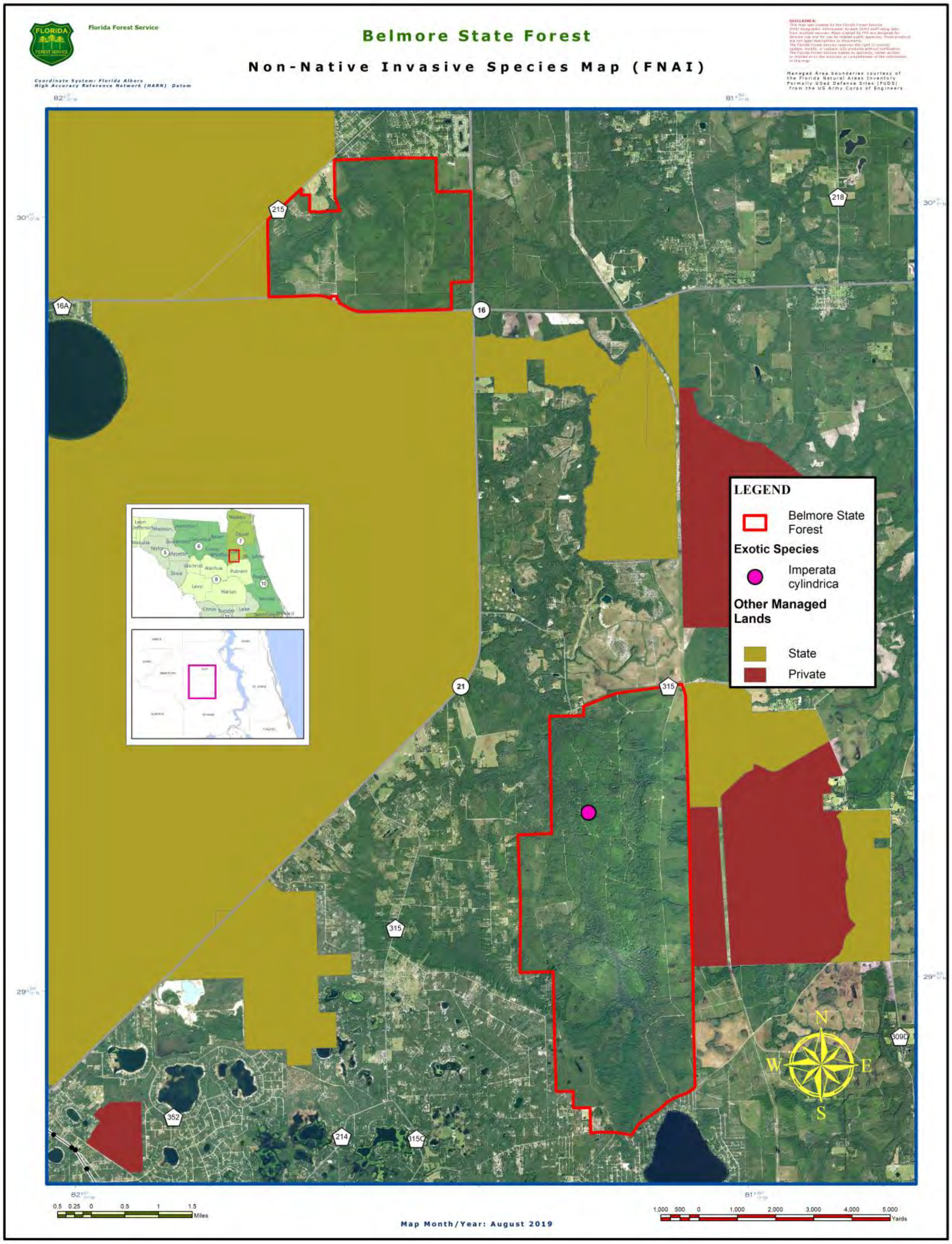

Florida Forest Service
Belmore State Forest
Non-Native Invasive Species Map (FNAI)
Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum
Managed Area boundaries courtesy of
the Florida Natural Areas Inventory
Formally USed Defense Sites (FUDS)
from the US Army Corps of Engineers
LEGEND
Belmore State Forest
Exotic Species
Imperata cylindrica
Other Managed Lands
State
Private
215
16A
16
218
21
315
352
214
315C
309D
N
S
E
W
Miles
Yards
Map Month/Year: August 2019

Exhibit Q

Current Natural Communities

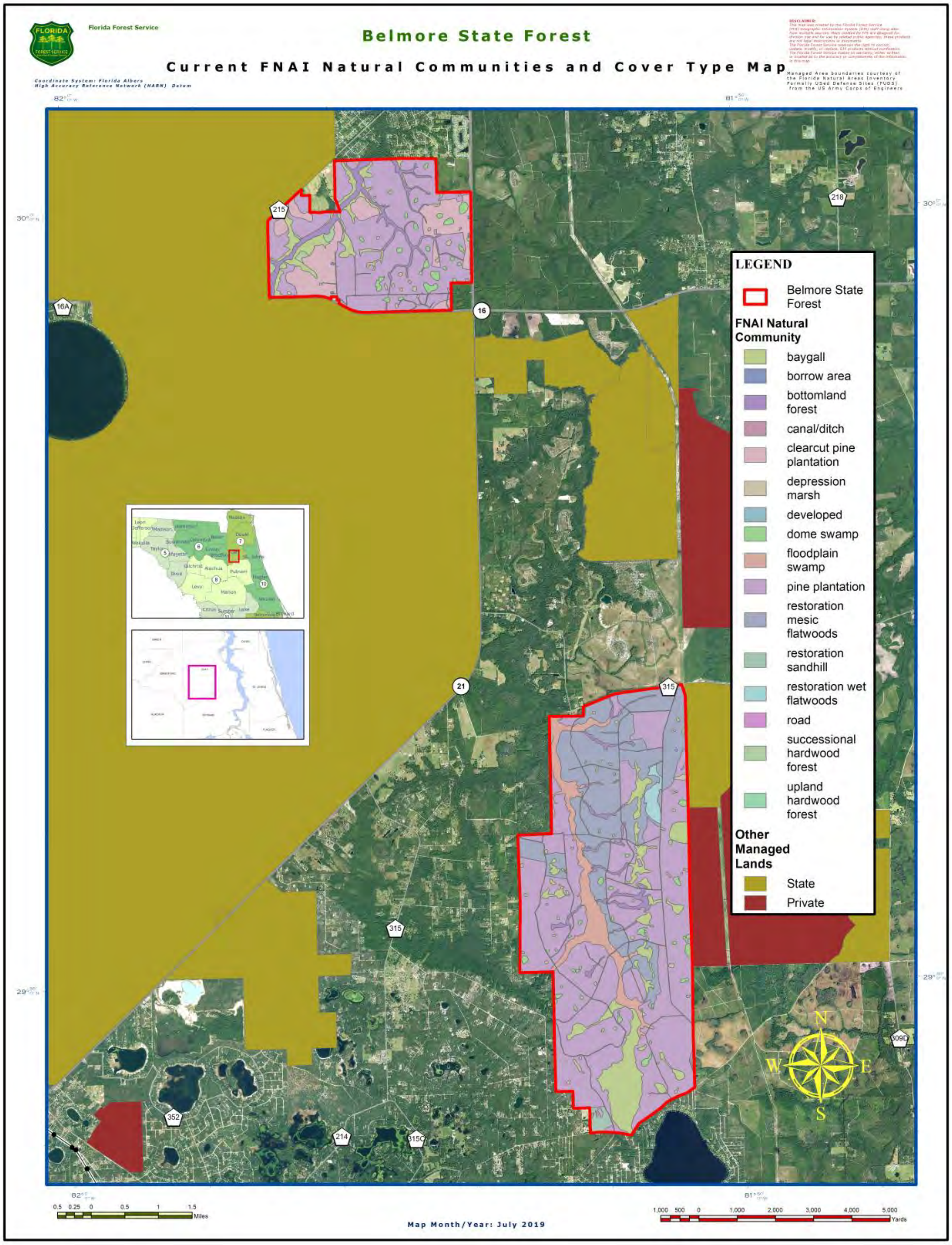

Florida Forest Service
Belmore State Forest
Current FNAI Natural Communities and Cover Type Map
Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum
Managed Area boundaries courtesy of
the Florida Natural Areas Inventory
Formally USed Defense Sites (FUDS)
from the US Army Corps of Engineers
LEGEND
Belmore State Forest
FNAI Natural Community
baygall
borrow area
bottomland forest
canal/ditch
clearcut pine plantation
depression marsh
developed
dome swamp
floodplain swamp
pine plantation
restoration mesic flatwoods
restoration sandhill
restoration wet flatwoods
road
successional hardwood forest
upland hardwood forest
Other Managed Lands
State
Private
215
16A
16
21
315
218
352
214
315C
309D
N
S
E
W
0.5 0.25 0 0.5 1 1.5
Miles
1,000 500 0 1,000 2,000 3,000 4,000 5,000
Yards
Map Month/Year: July 2019

Exhibit R

Historic Natural Communities

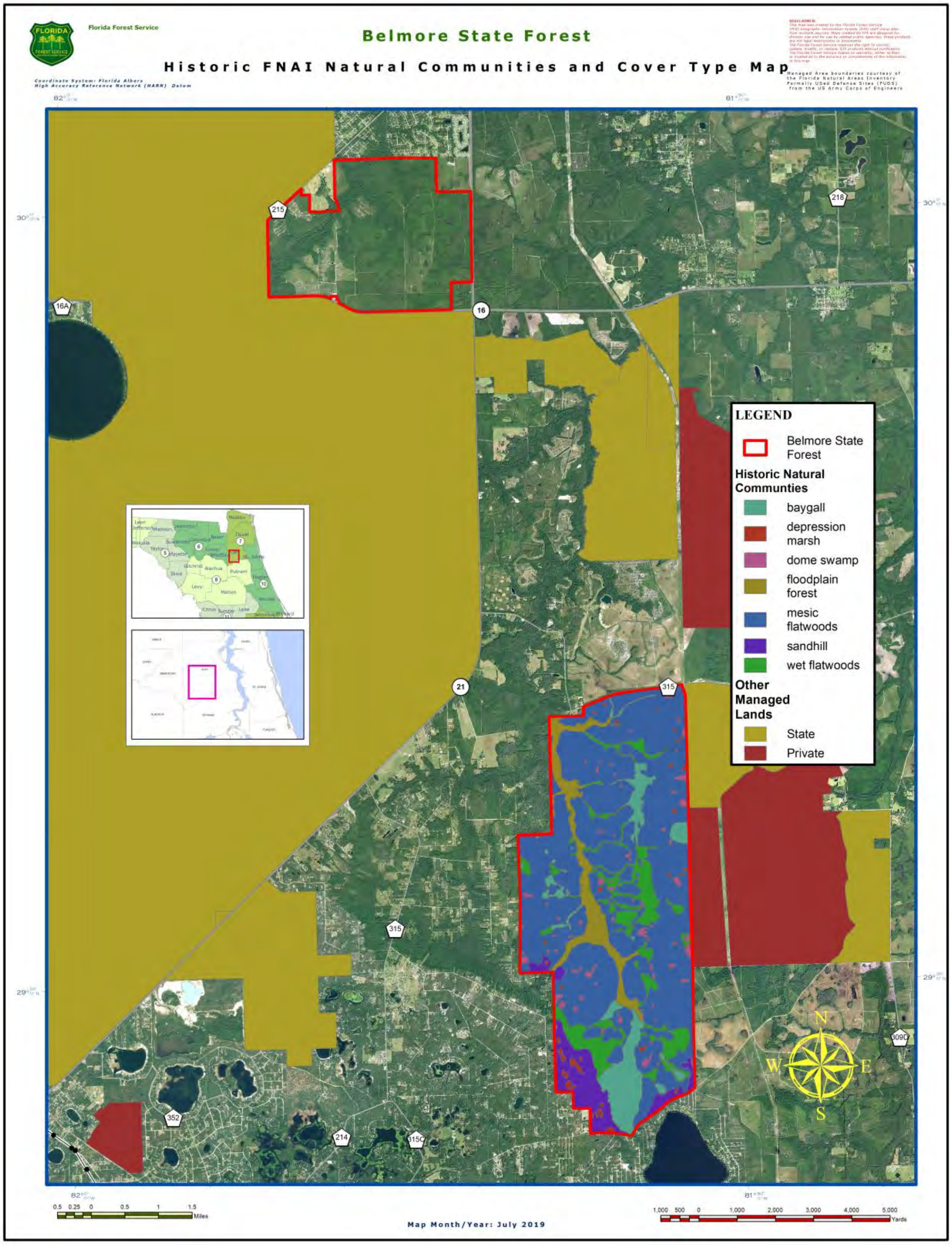

Florida Forest Service
Belmore State Forest
Historic FNAI Natural Communities and Cover Type Map
Coordinate System: Florida Albers
High Accuracy Reference Network (HARN) Datum
Managed Area boundaries courtesy of
the Florida Natural Areas Inventory
Formally USed Defense Sites (FUDS)
from the US Army Corps of Engineers
LEGEND
Belmore State Forest
Historic Natural Communities
baygall
depression marsh
dome swamp
floodplain forest
mesic flatwoods
sandhill
wet flatwoods
Other Managed Lands
State
Private
215
16A
16
218
21
315
352
214
315C
309D
N
S
E
W
0.5 0.25 0 0.5 1 1.5
Miles
1,000 500 0 1,000 2,000 3,000 4,000 5,000
Yards
Map Month/Year: July 2019

Exhibit S

Management Prospectus

Etoniah / Cross Florida Greenway

Citrus, Clay, Levy, Marion and Putnam Counties
Critical Natural Lands

Project-at-a-Glance

Placed on List	*1995**
Project Area (GIS acres)	*92,180*
Acres Acquired (GIS)	*32,186***
at a Cost of	*$20,773,131***
Acres Remaining (GIS)	*59,994*

**Etoniah Creek, Cross Florida Greenways and Cross Florida Greenways Phase II were combined in 1995 to create Etoniah/Cross Florida Greenway. A less-Than-Fee parcel of approximately 18,406 acres was added to the project in 1997.*

*** Includes a donation of 43 acres and acreage acquired and funds spent by the SJRWMD on Plum Creek/Rick Co.*

Purpose for State Acquisition

Though partially logged and planted in pine, the large expanse of flatwoods, sandhills, and scrub in central Putnam County, extending to the Cross Florida Greenway along the Ocklawaha River, is important for the survival of many kinds of wildlife and plants. The Greenway itself is a unique strip of land for recreation and conservation that makes a cross-section of the peninsula from the Withlacoochee River to the St. Johns. The Etoniah/Cross Florida Greenway project will conserve the Putnam County land as well as fill in gaps in the Greenway; ensure that wildlife such as Florida black bear and scrub jays and plants such as the Etoniah rosemary will have areas in which to live; and provide recreation for the public ranging from long-distance hiking trails to fishing, camping, and hunting. This project may also help complete the Florida National Scenic Trail, a statewide non-motorized trail that crosses several Florida Forever project sites.

Manager(s)

The managers are the Florida Forest Service/FFS (Florida Department of Agriculture and Consumer Services) for the Etoniah Creek tract and for the remaining tracts, the Office of Greenways and Trails /OGT, (Florida Department Environmental Protection). FFS will monitor compliance with the terms of any less-than-fee purchase agreement.

General Description

The project consists of a large tract extending north from the Cross Florida Greenway to Clay County, and four smaller tracts designed to fill in gaps in state ownership along the Cross Florida Greenway. The original Etoniah/Cross Florida Greenway project is important for the survival of black bear in northeast Florida. It has many acres of pine plantation and cutover flatwoods, but also high-quality sandhill, a unique white-cedar swamp along Deep Creek, and patches of sand pine scrub near Etoniah Creek that harbor at least a dozen rare species. They include fox squirrel, gopher tortoise, indigo and pine snakes, rare crayfish, and seven rare plants, including the only known site for federally listed Etoniah rosemary. The smaller tracts include high-quality floodplain swamps along the Ocklawaha River; mixed forest land near U.S. 441 south of Ocala; and Inglis Island, disturbed pinelands between the old Cross Florida

Barge Canal and the Withlacoochee River. Eight archaeological sites are known from the project. The greatest threat to the project area is intensive logging, but the uplands on the large tract are suitable for residential development. The smaller sites would lose their value as connectors if developed for residences.

Public Use

The Cross Florida Greenway connectors will form part of a conservation and recreation area; the majority of the large (Etoniah) tract will become a state forest. The various parts of the project will offer opportunities for hiking, hunting, fishing and nature appreciation.

Acquisition Planning

Etoniah Creek

Phase I tracts (essential) include Stokes and Agricola, formerly Deltona (acquired), Union Camp, Manning (acquired) and Interlachen Lake Estates Subdivision. Life-of-the-South (Odom) is also an essential tract. Phase II includes other large ownerships, such as Roberts, as well as other smaller tracts and subdivisions.

Cross Florida Greenway

Phase I (essential) includes the westernmost segment (Deep Creek Corridor) consisting of a portion of the Miller family ownerships and approximately 14 other owners.

Cross Florida Greenway Phase II

The priority tract (essential) within this portion of the project is the Inglis Island site (acquired by the Office of Greenways and Trails).

On July 20, 1994 the Council added 210 acres to the boundaries of the predecessor projects.

On December 7, 1995, the Council approved the addition of 2,664 acres to the project boundary. The addition included lakeshore and lake bottom associated with Rodman Reservoir. A second modification was made to allow the St. Johns River Water Management District (SJRWMD) to acquire, on the State's behalf, a large ownership (Odom) not identified in the original Phase I area. Acquisition of the canal easement areas is also a priority.

On March 15, 1996 the Council approved adding 141 acres to the project boundaries. On December 5, 1996, the Council transferred the Georgia-Pacific ownership (18,146 acres) to the Less-Than-Fee category.

On October 15, 1998, the Council designated as essential an additional 9,870 acres - Georgia-Pacific and seven smaller tracts in a corridor between two already acquired tracts, and portions of the Roberts ownership.

On August 22, 2000, the Acquisition and Restoration Council (ARC) added 2,110 acres (Florida Power ownership along the Cross Florida Greenway State Recreation and Conservation areas) to the project. On January 25, 2001, ARC added 1,543 acres to the project boundary in the Deep Creek area. On May 1, 2001, ARC added 1,110 acres to the boundaries of the project.

On February 25, 2003 the project was added to the Group A list of Florida Forever projects.

On April 13, 2007, the ARC approved a fee-simple, 85- acre addition, known as Foxtrotter Ranch, to the project boundary. It was sponsored by OGT, and consisted of one landowner, Richard Simon, one parcel, and a taxable value of $2,267,908. OGT will manage the site. The house (approximately 2.5 acres) is not included in the addition, however, it may be donated to the state subsequent to acquisition. After this most recent boundary change in 2007, the project had a combined, historic, estimated tax assessed value of $170,079,702.

In June 2008, 1.19 acres of the Harrington ownership were purchased for $15,000 with the FFS Florida Forever funds. FFS will manage this section. In September 2008, the FFS used Florida Forever funds to buy the following acreages: 1.08 acres (Fred Yankee, LLC) for $13,500; 0.87 acres (Goddard) for $23,000; 1.01 acres (Land Reclamation, Inc.) for $15,000; 2.52 acres (Cann) for $23,000; 1.21 acres (Martin) for $14,000; 1.27 acres (Vehoski) for $14,000; and 1 acre (Murray) for $15,000. The DOF will manage all of these parcels. In October 2008, the FFS used Florida Forever funds to buy 1.25 acres (Uttech) for $11,500; 2.5 acres (Lachmansingh) for $25,000; 3.61 acres (Chapman) for $37,500; and 2.53 acres (Thornton) for $23,000. The FFS will manage these parcels. In November 2008, the FFS used Florida Forever funds to buy 1.27 acres (Dubay) for $14,000; 1.24 acres (Hood) for $15,500; 1.25 acres (Contreras) for $14,000; and 1.24 acres (South) for $14,000. FFS will manage these parcels.

On January 21, 2009 SJRWMD purchased 208 acres for $474,363 (Plum Creek/Rick Co.). In October 2009, 1.25 acres were purchased from Margaret Vail for $14,000. In November 2009, 1.25 acres were purchased from Kenneth/Diane Schwing for $15,500. On December 10, 2009, FFS purchased 1.43 acres for $13,500 and will manage this tract.

On November 4, 2010, FFS purchased 106 acres (Moore--$405,000) with Florida Forever funds. FFS will manage this.

On January 3, 2011, FFS purchased 1.29 acres (Williams--$18,000 with FF funds. The FFS will manage this. On May 2, 2011 the FFS purchased 1.25 acres (Cearley-$12,000) in the Cross Florida Greenway portion and will manage it. On August 3, 2011, FFS purchased 3.69 acres (Interlachen Lakes Estates) for $27,500; FFS to manage. On December 9, 2011 ARC recommended a 1,509-acre reduction to the project boundary containing residential development, commercial buildings, and other infrastructure.

On December 9, 2011, ARC placed this project in the Critical Natural Lands category of Florida Forever projects.

On September 21, 2012, the BOT acquired 1.25 acres for $6,000 to be part of the Etoniah Creek State Forest.

On August 24, 2018 ARC members voted to amend the project by adding two parcels, 48 acres, in Putnam County to the project boundary. The addition was proposed by Patrick E. Troxel and is near the town of Satsuma.

The tax assessed value for the remaining acres to be acquired in this project per property appraiser information (2017) is $144,155,578.

Coordination

The SJRWMD was the intermediary in the acquisition of the Manning tract and has provided information and expertise on several other tracts. The Office of Greenways and Trails used additions and inholding funds to acquire Inglis Island. The Division of State Lands will assume the lead on acquisition of the remaining tracts.

Management Policy Statement

The primary goals of management of the Etoniah/Cross Florida Greenway project are: 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 this 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 which local or state regulatory programs cannot adequately protect; and to provide areas, including recreational trails, for natural-resource-based recreation.

Management Prospectus

Qualifications for state designation

The large size, restorable pine plantations, and diversity of the Etoniah Creek portion of this project make it highly desirable for management as a state forest. The Cross Florida Greenway State Recreation and Conservation Area includes scenic and historic rivers, lakes, wetlands, and uplands. It is also near, or contiguous with, many other state-owned lands. The Cross Florida Greenway portion of this project, together with the lands already in the Greenway, has the configuration, location, and the resources to qualify as a state recreation area.

Manager

The FFS proposes to manage the 57,000-acre Etoniah Creek portion of the project and the OGT will manage the remaining lands near the old Cross Florida Barge Canal.

Conditions affecting intensity of management

There are no known major disturbances in the Etoniah Creek portion that will require extraordinary attention, so management intensity is expected to be typical for a state forest. Lands in the Cross Florida Greenway portion are generally moderate-need tracts.

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

Once the core area of the Etoniah Creek portion is acquired, the FFS will provide access to the public for low-intensity, non-facilities-related outdoor recreation. Initial activities will include securing the tract, providing public and fire management accesses, inventorying resources, and removing trash. The FFS will provide access to the public while protecting sensitive resources. The tract's natural resources and threatened and endangered plants and animals will be inventoried to provide the basis for a management

plan. Long-range plans for the Etoniah Creek portion will generally be directed toward restoring disturbed areas to their original conditions, as far as possible, as well as protecting threatened and endangered species. An all-season burning program will use, whenever possible, existing roads, black lines, foam lines and natural breaks to contain fires. Timber management will mostly involve improvement thinning and regeneration harvests. Plantations will be thinned and, where appropriate, reforested with species found in natural ecosystems. Stands will not have a targeted rotation age. Infrastructure will primarily be in disturbed areas and will be the minimum required for management and public access. The FFS will promote environmental education. For the Greenway portion, activities within the first year after acquisition will primarily consist of site security, resource inventory, removal of trash, and resource-management planning. Long-range activities proposed include a multipurpose trail and facilities for public access.

Revenue-generating potential

In the Etoniah Creek portion, the FFS will sell timber as needed to improve or maintain desirable ecosystem conditions. These sales will provide a variable source of revenue, but the revenue-generating potential for this project is expected to be moderate. In the Greenway portion, no revenues are expected to be generated within the first three years after acquisition. However, as the Greenway is developed during its 20-year facility development plan, revenues will be derived from user fees, the sale of products from the lands (limerock berm and timber), and the sale of surplus lands.

Cooperators in management activities

The FFS will cooperate with and seek the assistance of other state agencies, local government entities and interested parties as appropriate. Currently, properties along the Greenway are managed in partnership with Marion County, the Florida Game and Fresh Water Fish Commission, and private individuals for recreational purposes.

Etoniah/Cross Florida Greenway Table 1

Project-at-a-Glance	Data
Placed on List	1995*
Project Area (GIS acres)	92,180
Acres Acquired (GIS)	32,186**
at a Cost of	$20,773,131**
Acres Remaining (GIS)	59,994

**Etoniah Creek, Cross Florida Greenways and Cross Florida Greenways Phase II were combined in 1995 to create Etoniah/Cross Florida Greenway. A less-Than-Fee parcel of approximately 18,406 acres was added to the project in 1997.*

*** Includes a donation of 43 acres and acreage acquired and funds spent by the SJRWMD on Plum Creek/Rick Co.*

Etoniah/Cross Florida Greenway Table 2

Etoniah/Cross Florida Greenway FNAI Elements	Score
Etonia Rosemary	G1/S1
Florida Scrub-Jay	G2/S2
Florida Black Bear	G5T4/S4
Eastern Indigo Snake	G3/S3
Florida Mouse	G3/S3
Gopher Tortoise	G3/S3
Swallow-tailed Kite	G5/S2
Curtiss' loosestrife	G1/S1
Gopher Tortoise Acrolophus Moth	G1/S1
Black Creek Crayfish	G2/S2
Florida spiny-pod	G2/S2
Florida willow	G2/S2

There are 37 rare species associated with the project.

Etoniah/Cross Florida Greenway Table 3a

Management Cost Summary: OGT	Startup	Recurring
Source of Funds	LATF	LATF
Salary	$36,380	$36,380
OPS	$72,660	$72,660
Expense	$62,301	$46,362
OCO	$3,167	$0
FCO	$100,000	$0
Total	$274,508	$185,402

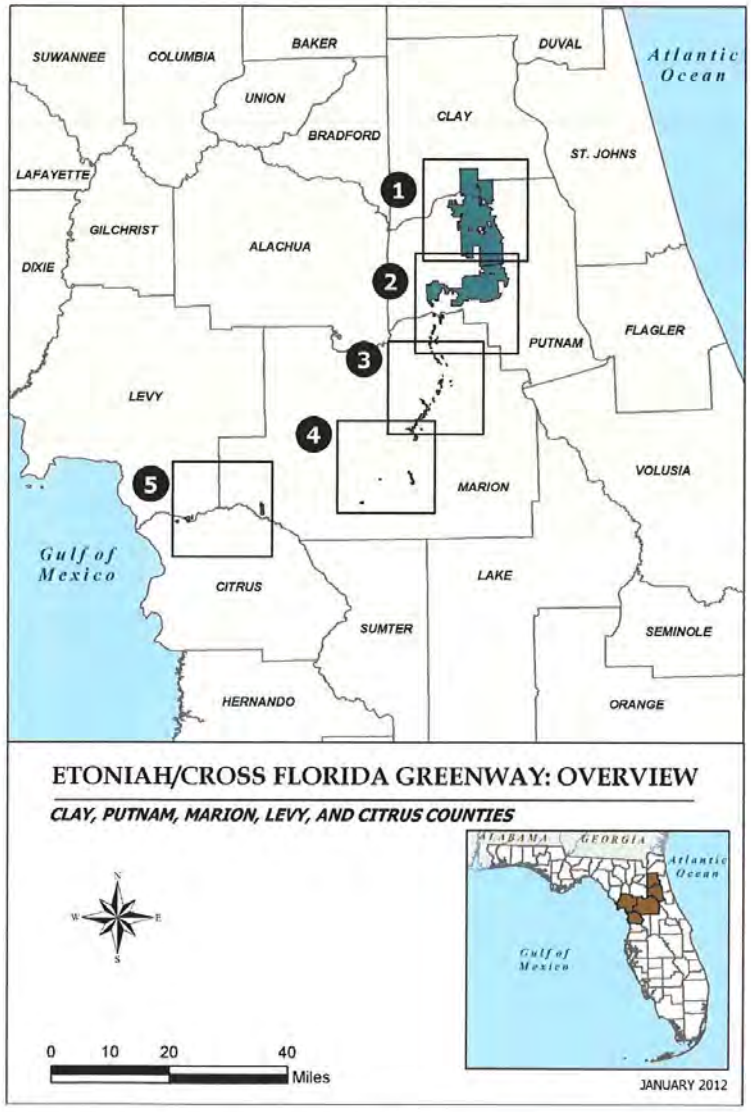
Etoniah/Cross Florida Greenway Table 3b

Management Cost Summary: DOF	1996/97	1997/98
Source of Funds	CARL	CARL
Salary	$45,337	$56,487
OPS	$0	$3,000
Expense	$11,225	$22,825
OCO	$43,320	$50,500
FCO	$0	$0
Total	$99,882	$132,814

Map(s): Etoniah / Cross Florida Greenway4

Map(s): Etoniah / Cross Florida Greenway4

Etoniah / Cross Florida Greenway



Map 63

Camp Blanding-Raiford Greenway

Baker, Bradford and Clay Counties
Critical Natural Lands

Project-at-a-Glance

Placed on List	*2010*
Project Area (GIS acres)	*33,974*
Acres Acquired (GIS)	*1,537*
at a Cost of	*$0*
Acres Remaining (GIS)	*32,437*

Purpose for State Acquisition

The Camp Blanding-Raiford Greenway Florida Forever Project was created at the request of the Office of Greenways and Trails (OGT) of the Department of Environmental Protection (DEP) from a portion of the 2003 Camp Blanding to Osceola Greenway Florida Forever project. Public acquisition of the Camp Blanding-Raiford Greenway (CB-RG) 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 - provide a landscape connector between Camp Blanding on the southeast, the Northeast Florida Timberlands (when acquired) on the east, and Raiford WMA on the south;
(2) Protect, restore, and maintain the quality and natural functions of land, water, and wetland systems of the state - four major blackwater streams from three major river basins originating within the project area, as well as several headwaters and tributaries; and
(3) Increase the amount of forestland available for sustainable management of natural resources. The Florida National Scenic Trail, a cross-Florida hiking and non-motorized trail, is also planned to cross this project. The trail is a congressionally designated national scenic trail.

Manager(s)

The Fish and Wildlife Conservation Commission (FWC) and the Florida Forest Service (FFS) of the Florida Department of Agriculture and Consumer Services will be co-managers.

General Description

The original Camp Blanding-Osceola Greenway was divided to create two projects that maintain ecological connectivity among existing and proposed conservation lands, particularly as it relates to habitat for the Florida black bear. One of the key concepts is to permanently link disconnected habitat for species like the Florida black bear as well as other important focal species. As a result of the redesign, the two projects created are Camp Blanding-Raiford Greenway and Raiford-Osceola Greenway (R-OG). The Camp Blanding-Raiford Greenway project consists of approximately 33,973 acres of land from the northwest corner of Camp Blanding Military Reservation to the southwest tip of Nassau County. It connects several managed areas in Bradford, Clay, and Union Counties, resulting in a contiguous area of more than a half-million acres of publicly owned or managed lands in north-central Florida. It abuts portions of the Northeast Florida Timberlands Florida Forever project. Physiographic features of interest include the Trail Ridge, the eastern boundary of the Cody Scarp, and several large

wetlands that have been ecologically devalued by silvicultural activities or mining. Camp Blanding-Raiford Greenway Florida Forever project will be acquired in fee simple with multiple landowners.

Public Use

This project could have significant natural resource-based public recreational and educational potential if portions of the project were available to the public. All trails throughout the project have potential for being multiple-use trails with hiking, horseback riding, and bicycling. Other recreational opportunities would include camping, picnicking, and hunting. Of the activities mentioned, the 2000 Statewide Comprehensive Outdoor Recreation Plan identifies hunting within the Bradford County portion of the project as having a high need for the year 2005 for the region in which these counties are located.

Acquisition Planning

On December 5, 2003, the Acquisition & Restoration Council (ARC) added the Camp Blanding–Osceola Greenway project to Group A of the Florida Forever 2004 Priority list. This fee-simple and less-than-fee project, sponsored by the Office of Greenways & Trails (OGT) and the Conservation Trust of Florida (CTF), consisted of approximately 153,000 acres, multiple ownerships, and a 2002 taxable value of $28,508,089. The essential parcels were identified as the Plum Creek and Wachovia ownerships.

On October 13, 2006, the ARC approved a redesign to the essential parcels within the project. The number and acreage of essential parcels was revised by removing 106 parcels (64,250 acres) and adding 52 parcels (10,180 acres) which resulted in a declassification of 54,070 acres currently designated essential. The new essential parcel configuration retained a narrower greenway connection between Camp Blanding, Raiford Wildlife Management Area, and the Osceola National Forest.

On June 11, 2010, the ARC approved a redesign of the Camp Blanding-Osceola Greenway Florida Forever project that divided and reduced the expansive project into Camp Blanding-Raiford Greenway (33,973 acres) and Raiford - Osceola Greenway (67,673 acres). After the most recent boundary change in 2010, the Camp Blanding to Raiford Greenway project had a historic, estimated tax assessed value of $92,890,463.

On December 9, 2011, ARC placed this project in the Critical Natural Lands category.

The tax assessed value for the remaining acres to be acquired in this project per property appraiser information (2017) is $50,386,151.

Coordination

Conservation Trust of Florida and OGT are acquisition partners on this project.

Management Policy Statement

Areas of the project purchased in fee-simple will be managed to further the long-term protection of the site's plant and wildlife resources, promote sound stewardship of land, timber and water resources, and provide the public with access and quality recreational opportunities where possible.

Management Prospectus

Qualifications for state designation

The Camp Blanding to Raiford Greenway (CB-RG) Florida Forever project has approximately 33,973 GIS acres in Baker, Bradford, and Clay counties, southwest of Jacksonville, 10 miles east of Lake City, and 16 miles north of Gainesville. The project area ranges from 2 to 6.5 miles wide, and connects and adjoins the Camp Blanding Military Reservation, Osceola National Forest, Northeast Florida Timberlands Florida Forever Project, and the Raiford Wildlife Management Area. The project would provide a landscape linkage of conservation lands of substantial ecological value, a critical component of a conservation corridor extending from central Florida to southeast Georgia. The most widespread community type within the project boundary is mesic flatwoods, of which the majority of acres are in silviculture operations, and a smaller number of acres are in a relatively natural condition. Sandhill communities total only about 230 acres but may have substantial ecological value. The forested wetlands are the least disturbed natural areas. There are several large basin swamps, including (with approximate acreages) Turkey Creek Swamp (7,000 acres) and New River Swamp (4,000 acres). Dome swamps, wet flatwoods, and baygalls represent the remaining 15-20,000 acres. Floodplain swamps extend over approximately 4,000 acres of the joint CB-RG and the Raiford-Osceola Greenway project areas. Several flatwoods lakes are also present and an important blackwater stream, the New River. The Florida Natural Areas Inventory (FNAI) Florida Forever Measures Evaluation indicates that 2 percent of the project area is under-represented natural communities. Imperiled or rare animal species documented to occur on the project include the eastern indigo snake, and the many-lined salamander. Additional imperiled or rare species reported to occur on the combined projects are the swallow-tailed kite, the white ibis, and the wood stork. Among other rare or imperiled species, the project is potential habitat for the Florida black bear and the red-cockaded woodpecker. Natural shorelines and shallow waters of the flatwoods lakes on the project provide habitat for wading birds, waterfowl, and many other aquatic and semi-aquatic animal species. Forested riparian corridors provide a habitat connection to the Santa Fe River floodplain and bottomland forests for species such as the bobcat, Florida black bear, gray fox, river otter and numerous other species of wildlife. A wildlife corridor such as the combined projects (CB-RG and R-OG) provides linkage to larger areas of high ecological value. Such corridors require habitat of sufficient size (optimally a mile or more in width), and quality (natural forested communities), to adequately provide for animal migration. This project provides habitat for Florida black bears and which occur on other public lands in the vicinity (Camp Blanding, Raiford WMA, Ocala National Forest, and the Osceola National Forest/Okefenokee Complex). Substantial populations of white-tailed deer and other game species occur. FNAI classifies 99 percent of the project area as priority 1 critical parcels and potential importance as an ecological greenway. The hooded pitcher plant has been documented to occur within the project boundary.

According to the Florida Fish and Wildlife Conservation Commission (FWC), approximately 53.5 percent of the lands (18,259.2 acres) within the project are within a designated Strategic Habitat Conservation Area (SHCA) for black bear, Florida mouse, and striped newt. The project provides

additional habitat for many focal species, which are indicators of natural communities, and suitable habitat conditions for other wildlife species. Focal species overlap: 1-3 species for 29,916 acres (43.5 percent); 4-6 species 33,264.8 acres (48.4 percent); 7-9 species 2,383.6 acres (3.4 percent); 10-12 species 8.9 acres (0.01 percent) for a total of 31,298 acres or 91.7 percent of the project.

Manager

The FFS and the FWC.

Conditions affecting intensity of management

The CB-RG Greenway consists of medium-need tracts that will require up-front resource management, including frequent use of prescribed fire where appropriate. Approximately 69 percent of the project area has disturbed ground cover due to past silviculture. Consequently, additional effort will be required to restore it to a desired future condition. FWC and FFS propose to work cooperatively to assess site management needs and develop the conceptual management plan (CMP) for the site. Examples of situations that may require cooperative effort include: restoring mesic and wet flatwoods previously managed for timber production, removing or thinning off-site timber species to promote regeneration of native ground covers and appropriate tree species, and reforesting recently harvested areas. As part of the unified management approach, the managing agencies will conduct an historic vegetation analysis to assist in determining appropriate desired future conditions and identify appropriate restoration methods and tools. This effort will help conserve habitats and populations of imperiled or rare species. Other unified management priorities will include protecting and restoring sensitive wetlands, and the identification, control, and follow-up monitoring of exotic species. Restoration methods will also include thinning dense pine stands to decrease canopy cover and facilitate restoring native groundcovers. Protecting and restoring sensitive wetlands on the project would be a priority. It is also possible that recreational trails on the parcels could function as firelines, provide access for prescribed burning equipment, and provide an opportunity for wildlife viewing. Exotic plant species (tung oil tree, air potato, mimosa and others), have been observed in the project area. Air potato and mimosa are listed as Category I (most adversely affecting Florida's ecology) by the Florida Exotic Pest Plant Council; the tung oil tree is listed as Category II (increased abundance in Florida). Although observed infestations appear to pose no imminent threat to the ecological integrity of the project, there would be surveillance for, and removal of, such infestations of exotic invasive species. Due to the presence of imperiled or rare species expected to occur within the proposed project, it is anticipated that resource inventories would be an initial priority under the unified management approach. Environmentally sensitive areas such as erosion-prone sites, listed species habitats, outstanding natural areas, and wetlands, are to be identified during the initial resource inventory to implement appropriate protective measures for each specific area. Such inventories are considered vital to unified management planning efforts directed at facility and infrastructure development, and design and implementation of recreational use programs.

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

During the first year after acquisition, both agencies - operating under the unified management approach - anticipate emphasis on site security, posting boundaries, public access for low-intensity outdoor recreation, fire management, resource inventory, and removing trash. Both managing agencies will meet frequently to coordinate task assignments, and cooperate with, and seek the assistance of other state agencies, local governments, and other appropriate participants as it affects management of the project site. Both agencies will participate in the joint development of a CMP specifying area management goals and objectives. Long-term goals would emphasize ecosystem multiple use management and conserving the site's natural resources including timber, fish and wildlife, and water. These goals would include restoring habitat and hydrology and conserving and protecting listed species of flora and fauna. Following completion of plant community inventory and historic vegetation analysis, quantified vegetation management objectives would be developed pursuant to an objective-based vegetation management process. Where practical, disturbed sites would be restored to conditions expected to occur in naturally functioning ecosystems, including re-establishment of species expected to occur naturally on specific sites. Management would emphasize enhancement of abundance, and spatial distribution of imperiled or rare species. Essential roads would be stabilized to provide all-weather public access and management operations. Programs providing multiple recreational uses would also be implemented. Both agencies will work towards the development of a fire management plan that will apply prescribed burning in a manner that maximizes natural resource protection and enhancement. Whenever possible, existing roads, black lines, foam lines, and natural breaks will be used to contain, and control prescribed and natural fires. Where appropriate, practical, and in pursuit of natural resource management objectives, timber resources will be managed with acceptable silvicultural practices. Thinning timber, introducing prescribed fire and sustainable forestry management practices could provide silvicultural products, ecological benefits and recreational benefits. Archaeological and historic sites would be managed in coordination with the Department of State's Division of Historical Resources (DHR). The DHR lists 12 such sites in the project area. Both agencies will work towards development of a road plan identifying roads to be used for vehicular access by the public, and roads for administrative use. Unnecessary roads, fire lanes, and hydrological disturbances would be abandoned or restored as practical. The road plan would ensure that the public has appropriate access and sensitive resources are protected. Infrastructure development would be the minimum required to serve needs of the public, including provisions for facilities necessary for the security and management of the project area.

Revenue-generating potential

Timber sales would be conducted as needed to improve or maintain desirable ecosystem conditions, under a multiple-use management concept. The FNAI indicates that 63 percent of the project area is available as priorities 1, 2, 3, and 5 for sustainable forestry. However, management would seek to improve the other revenue-generating potential of areas currently serving for forest products production by improving wildlife diversity and resource-based recreation in such areas. Additional revenue would be generated from sales of hunting licenses, fishing licenses, wildlife management area permits, and

other special hunting permits. Some revenues might be realized in the future from recreational user fees and ecotourism activities, if such projects could be economically developed. Fifteen percent of all gross revenues will be returned to the county from which those funds were generated. Both agencies have agreed to a unified management framework whereby all CARL management funds, site generated revenues, and management expenditures are to be evenly divided between the FFS and FWC.

Cooperators in management activities

The two agencies have agreed to a unified management framework whereby all CARL management funds, site generated revenues, and management expenditures are to be evenly divided between the FFS and FWC. The unified managers (FFS and FWC) should cooperate with other state and local governmental agencies, including the Florida Department of Corrections, St. Johns River Water Management District, State Armory Board, Suwannee River Water Management District, and the U. S. Forest Service, in managing the area.

Camp Blanding Raiford Greenway Table 1

Project-at-a-Glance	Data
Placed on List	2010
Project Area (GIS acres)	33,974
Acres Acquired (GIS)	1,537
at a Cost of	$0
Acres Remaining (GIS)	32,437

Camp Blanding Raiford Greenway Table 2

Camp Blanding Raiford Greenway FNAI Elements	Score
Florida Black Bear	G5T4/S4
giant orchid	G2G3/S2
Southeastern Weasel	G5T4/S3?

There are 3 rare species associated with the project.

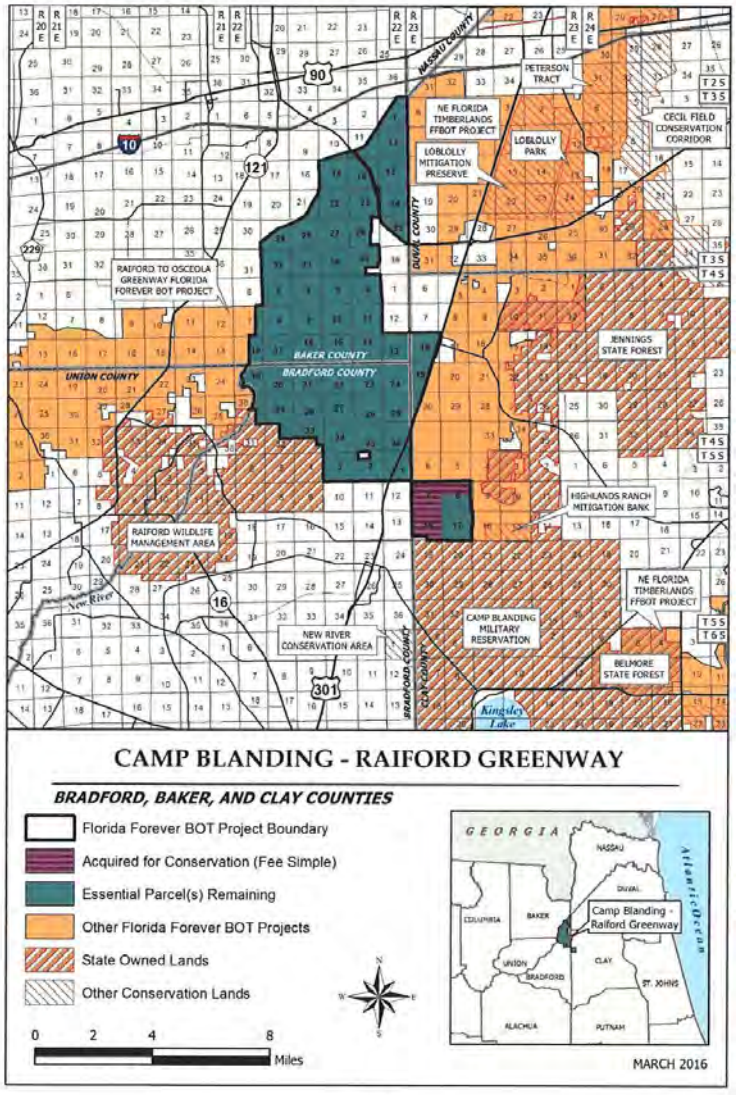
Camp Blanding Raiford Greenway Table 3

Management Cost Summary: FFS & FWC	Startup	Recurring
Source of Funds	CARL	CARL
Resource Management	$1,747,592	$969,434
Administration	$77,713	$10,388
Support	$153,462	$13,047
Capital Improvements	$3,441,310	$323,273
Visitor Services and Recreation	$3,363	$58
Law Enforcement	$42,880	$42,880
Total	$5,436,320	$1,359,080

Map(s): Camp Blanding-Raiford Greenway

Map(s): Camp Blanding-Raiford Greenway

Camp Blanding-Raiford Greenway



Map 31

Exhibit T

Land Management Reviews
2014 and 2019

2014 Land Management Review Team Report for Belmore 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: Belmore State Forest
Managed by: Florida Forest Service
Acres: 8,736.71 **County:** Clay County
Purpose(s) for Acquisition: to protect and manage the unique resources of the forest through a stewardship ethic to assure these resources will be available for future generations.
Acquisition Program(s): Florida Forever **Original Acquisition Date:** 3/16/05
Area Reviewed: Entire Property **Last Management Plan Approval Date:** 10/10/08
Review Date: 10/27/14

Agency Manager and Key Staff Present:

- Shawn Lewandowski, Manager
- Pat Deren, Resource Administrator
- Kevin MacEwen, Forest Area Supervisor
- Frank Burley, Forestry Supervisor II

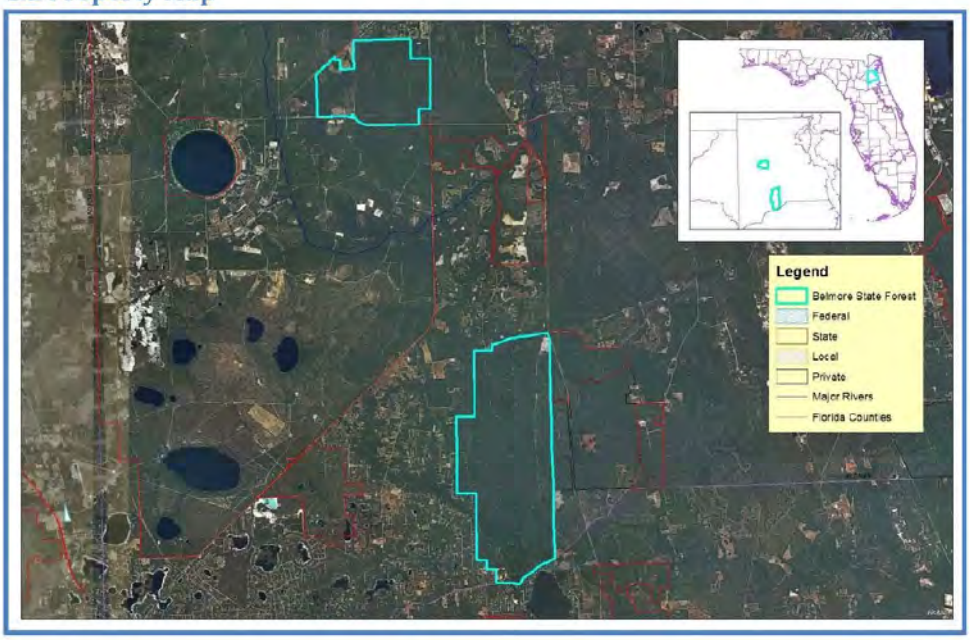
Review Team Members Present (voting)

- DRP: Anne Barkdoll
- FWC: Scotland Talley
- FFS: Bill Korn
- DEP:
- SWCD:
- Local gov't: Karrie Starling
- Conservation organization: Michael Bubb
- Private land manager: Stefanie Nagid

Other Non-Team Members Present (attending)

- Keith Singleton, DEP/DSL
- Aric Larson, DEP/DSL
- George Ashby, observer

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 = 6, No = 0

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

Yes = 6, No = 0

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

Table 1: Results at a glance.

Major Land Management Categories	Field Review	Management Plan Review
Natural Communities / Forest Management	3.65	3.90
Prescribed Fire / Habitat Restoration	3.75	3.78
Hydrology	3.68	2.92
Imperiled Species	3.27	2.71
Exotic / Invasive Species	4.02	3.19
Cultural Resources	3.92	3.47
Public Access / Education / Law Enforcement	3.44	3.52
Infrastructure / Equipment / Staffing	3.24	N/A

Color Code (See Appendix A for detail)

Excellent	Above Average	Below Average	Poor

1.3.1 Consensus Commendations for the Managing Agency

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

1. The team commends the FFS for their excellent burn program. (6+, 0-)
2. The team commends the FFS for their excellent timber management program. (6+, 0-)
3. The team commends the FFS for invasive species control given there is no district biologist to assist on-site staff. (6+, 0-)
4. The team commends FFS staff for progress made in achieving initial thinning harvests throughout the young merchantable pine stands. (6+, 0-)
5. The team commends FFS staff for successful groundcover restoration on a section of mesic flatwoods that re-introduced seed from a nearby state forest donor site. (6+, 0-)
6. The team commends the FFS for the investigation of the town of Belmore and the history of the Degen cultural site. (6+, 0-)

7. The team commends the FFS for an excellent job rehabilitating roads and bridges to improve public access throughout the forest. (6+, 0-)

1.3.2. Consensus Recommendations to the Managing Agency

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

1. The team recommends that the FFS remove off-site pines and procure funding for the reforestation of longleaf pine. (6+, 0-)

   Managing Agency Response: *Agree. The Florida Forest Service agrees that when possible off-site pines reach the age and size required for successful harvest they should be removed with the long term goal of reforestation in mind. The Florida Forest Service recognizes that in some instances it may be beneficial to allow the harvesting of a stand with offsite pine without a reforestation project – allowing the stand to reforest itself with natural regeneration.*

2. The team recommends that the FFS develop a method for assessing remnant native groundcover throughout the forest to guide where native groundcover restoration is needed or where the application of fire may be sufficient. (6+, 0-)

   Managing Agency Response: *Agree. The Florida Forest Service agrees that a method for assessing native groundcover throughout the forest to guide our overall forest management objectives is desired / needed. The Florida Forest Service at the time of this response has already inquired about setting up a series of interagency (Forest Service, Florida Fish and Wildlife Conservation Commission, Florida Park Service, St. Johns Water Management District) bio-blitz events to get a good account of what flora and fauna is on the property. If funding allows a formal FNAI survey of the property should be acquired.*

3. The team recommends that the FFS should re-establish the district biologist position for these forests. (6+, 0-)

   Managing Agency Response: *Agree. The Florida Forest Service agrees that it would be beneficial to re-establish the district biologist position if future funding allows.*

4. The team recommends that FFS evaluate priority listed species occurring on Belmore State Forest and develop monitoring objectives. (6+, 0-)

   Managing Agency Response: *Agree. The Florida Forest Service agrees that an evaluation of priority listed species on the property should be of focus with the goal of developing proper monitoring objectives. The first step in pursuing this recommendation is to get a good baseline survey and assessment of what listed species are present currently. This could be accomplished*

through a series of interagency field surveys of the property as described in the response to Team Recommendation #2.

5. The team recommends that FFS develop plant and animal lists for species actually observed on the forest, and include in the next management plan. (6+, 0-)

   Managing Agency Response: *Agree. The Florida Forest Service agrees that a listing of known plant and animal species actually found on the forest should continue to be developed and updated for inclusion in the next management plan. The Florida Forest Service at the time of this response has already inquired about setting up a series of interagency bio-blitz events (see Team Recommendation #2) to an improved inventory of the flora and fauna present on the property.*

6. The team recommends that FFS should take advantage of opportunities to provide public education / interpretive facilities related to forest restoration. (6+, 0-)

   Managing Agency Response: *Agree. If future funding allows, the Florida Forest Service will pursue this recommendation through public outreach programs and interpretive displays and facilities on the property.*

7. The team recommends that FFS coordinate with Audubon on a formal bird survey now for a baseline list, and then annually for breeding bird surveys and Christmas bird counts. (6+, 0-)

   Managing Agency Response: *Agree. The Florida Forest Service agrees that a formal bird survey in coordination with Audubon (or other local birding professionals / enthusiasts) should be pursued. It is hoped that this could be initiated with the previously mentioned bio-blitzes that are being planned.*

8. The team recommends that FFS expand recreational opportunities, including primitive camping, and that they consider the use of composting toilets. (6+, 0-)

   Managing Agency Response: *Agree. If future funding allows, primitive camping, trails and other recreational activities will be established with the assistance of the district recreation coordinator. Consideration also will be given to using composting toilets where appropriate.*

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 baygall, alluvial forest and blackwater stream (aquatic):**
2. **Natural Resources Survey/Monitoring Resources, specifically fire effects monitoring:**
3. **Cultural Resources, specifically protection and preservation:**

4. **Prescribed Fire, specifically area being burned and quality:**
5. **Restoration, specifically flatwoods:**
6. **Forest Management, specifically timber inventory and timber harvesting:**
7. **Non-Native, Invasive & Problem Species, specifically prevention of plants:**
8. **Hydro-alteration, specifically roads and culverts:**
9. **Resource Protection, specifically boundary survey and gates and fencing:**
10. **Public Access and Education, specifically roads:**

2.2. Items Requiring Improvement Actions in the Field

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

1. **The maintenance condition of the Natural Communities, specifically wet flatwoods, sandhill and depression marsh, received below average scores. The review team is asked to evaluate, based on their perspective, what percent of the natural community is in maintenance condition. The scores range from 1 to 5, with 1 being 0-20% in maintenance condition, 2 being 21-40%, 3 being 41-60%, 4 being 16-80% and 5 being 81-100%.**

   Managing Agency Response: *Agree. Due to the previous industrial use of the forest, the wet flatwoods, sandhill, and depression marsh communities have been commercially impacted and will take time to recover to a maintenance condition. The Florida Forest Service would like to mention that great strides have been made in the management of these communities in relation to the condition they were in at the beginning of this review period. Specifically, portions of Belmore's sandhill communities have undergone harvesting operations to remove offsite species and reforestation with longleaf pine. In addition, mechanical and chemical treatments to reduce oak populations have been performed, a ground cover restoration project, and prescribed fire have all been performed. In addition, wet flatwoods communities have had initial timber operations to reduce basal area while both wet flatwoods and depression marsh communities have also received treatments of prescribed fire.*

2. **Resource Management, Prescribed Fire, specifically frequency, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, to what degree prescribed fire is accomplished according to the objectives for prescribed fire management. The scores range from 1 to 5, with 1 being 0-20% accomplished, 2 being 21-40%, 3 being 41-60%, 4 being 61-80% and 5 being 81-100%.**

   Managing Agency Response: *Agree. The Florida Forest Service and the local forest manager would like to mention that 5,895 acres have been burned (with 1,684 acres being burned*

multiple times) in the last five years. Florida Forest Service staff has made great headway in increasing fire frequencies throughout the forest. Despite the condition left by prior ownership and management of this property as an industrial forest - the dedicated efforts on part of the local FFS staff will continue to increase the total acreage within fire rotation.

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

   Managing Agency Response: *Agree. Belmore State Forest does not have any dedicated law enforcement personnel. It must make do with coverage provided by local Florida Fish and Wildlife Conservation Commission officers - who not only work this forest, but all other wildlife management areas as well fisheries enforcement responsibilities. Their assistance has been helpful - but if funding would allow a position dedicated to state forest protection alone - law enforcement protection here would be greatly improved.*

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

   Managing Agency Response: *Agree. The Florida Forest Service will investigate ways in which to provide better environmental education and outreach specifically related to invasive species, habitat management activities, interpretive facilities and signs.*

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

   Managing Agency Response: *Agree. Belmore State Forest currently has one staff member assigned to it (forester) and relies on FFS Clay County fire control as well as management resources assigned to other properties to meet its yearly operational goals. Additional staff would be of assistance in all facets of state forest management.*

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	3	3	2	3	4	3			3.00
Wet Flatwoods	I.A.2	4	3	2	3	3	2			2.83

Baygall	I.A.3	5	3	X	4	4	4			4.00
Sandhill	I.A.4	2	2	1	2	2	2			1.83
Alluvial Forest	I.A.5	5	5	5	5	4	5			4.83
Dome Swamp	I.A.6	4	X	X	4	4	3			3.75
Depression Marsh	I.A.7	2	2	2	2	2	3			2.17
Blackwater Stream (Aquatic)	I.A.9		5	5	3	5	5			4.60
									Natural Communities Average Score	3.38
Listed species:Protection & Preservation (I.B)										
Animals	I.B.1	3			3	4	3			3.25
Gopher Tortoise	I.B.1.a	4	3	3	4	4	3			3.50
Plants	I.B.2	3	X		3	3	3			3.00
Hooded Pitcher Plant	I.B.2.a	4	X	3	4	3	3			3.40
Blue Flower Butterwort	I.B.2.b	3	X	3	4	3	3			3.20
									Listed Species Average Score	3.27
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	4	3	2	4	4	2			3.17
Other non-game species or their habitat monitoring	I.C.3	3	3	3	4	4	2			3.17
Fire effects monitoring	I.C.4	5	4	5	4	5	4			4.50
Other habitat management effects monitoring	I.C.5	4		4	3	4	4			3.80
Invasive species survey / monitoring	I.C.6	5	4	3	4	3	4			3.83
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A	3	5	4	4	4	3			3.83
Protection and preservation	II.B	5		4	4	4	3			4.00
									Cultural Resources Average Score	3.92
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A1	5	4	5	5	5	5			4.83
Frequency	III.A.2	2	4	2	2	2	2			2.33
Quality	III.A.3	5	3	5	4	5	4			4.33
									Resource Management, Prescribed Fire Average Score	3.83
Restoration (III.B)										
Flatwoods	III.B.1	4	4	4	4	4	4			4.00
Sandhill	III.B.2	3	4	3	4	4	4			3.67
Dome Swamp/Marshes/Baygalls	III.B.3	3	3	4	2	4	4			3.33
									Restoration Average Score	3.67
Forest Management (III.C)										
Timber Inventory	III.C.1	5	4	4	4	4	5			4.33
Timber Harvesting	III.C.2	5	3	4	4	4	5			4.17
Reforestation/Afforestation	III.C.3	4	2	4	3	4	4			3.50
Site Preparation	III.C.4	4	4	4	3	3	4			3.67
									Forest Management Average Score	3.92
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a	5	5	3	4	3	4			4.00

prevention - animals	III.D.1.b	5	X	3	4	3	4			3.80
prevention - pests/pathogens	III.D.1.c	5	X	3	4	3	4			3.80
Control										
control - plants	III.D.2.a	5	5	4	4	4	4			4.33
control - animals	III.D.2.b	5	X	3	5	4	4			4.20
control - pest/pathogens	III.D.2.c	5	X	3	4	4	4			4.00
Non-Native, Invasive & Problem Species Average Score										4.02
Hydrologic/Geologic function Hydro-Alteration (III.E.1)										
Roads/culverts	III.E.1.a	4	5	4	4	4	5			4.33
Ditches	III.E.1.b	3	3	3	3	4	5			3.50
Hydrologic/Geologic function, Hydro-Alteration Average Score										3.92
Ground Water Monitoring (III.E.2)										
Ground water quality	III.E.2.a	4	X	X	4	4	3			3.75
Ground water quantity	III.E.2.b	3	X	X	4	4	3			3.50
Ground Water Monitoring Average Score										3.63
Surface Water Monitoring (III.E.3)										
Surface water quality	III.E.3.a	3	X	X	4	4	3			3.50
Surface water quantity	III.F.3.b	3	X	X	4	4	3			3.50
Surface Water Monitoring Average Score										3.50
Resource Protection (III.F)										
Boundary survey	III.F.1	4	4	5	5	4	4			4.33
Gates & fencing	III.F.2	4	4	5	4	4	4			4.17
Signage	III.F.3	4	4	2	4	3	4			3.50
Law enforcement presence	III.F.4	3	3	2	3	2	4			2.83
Resource Protection Average Score										3.71
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.G.1.a	3	4	X	4	4	4			3.80
Inholdings/additions	III.G.2	3	X	4	2	3	4			3.20
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	4	4	3	4	4	5			4.00
Parking	IV.1.b	4	4	2	4	4	5			3.83
Environmental Education & Outreach										
Wildlife	IV.2.a	3	4	1	4	4	3			3.17
Invasive Species	IV.2.b	3	3	1	3	3	3			2.67
Habitat Management Activities	IV.2.c	3	3	1	3	4	1			2.50
Interpretive facilities and signs	IV.3	2	3	2	2	3	1			2.17
Recreational Opportunities	IV.4	4	4	3	4	3	4			3.67
Management of Visitor Impacts	IV.5	4	4	2		3	4			3.40
Public Access & Education Average Score										3.18
Management Resources (V.1, V.2, V.3. V.4)										
Maintenance										

Waste disposal	V.1.a	4	4	3	4	4	4			3.83
Sanitary facilities	V.1.b	4	4	3	4	3	X			3.60
Infrastructure										
Buildings	V.2.a	5	5	3	4	2	4			3.83
Equipment	V.2.b	3	4	2	4	2	3			3.00
Staff	V.3	3	3	2	4	2	2			2.67
Funding	V.4	3	4	3	2	1	2			2.50
							Management Resources Average Score			3.24
	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:

1. **Listed Species, specifically animals in general, gopher tortoise, plants in general, hooded pitcher plant and blue flower butterwort, received below average scores. This is an indication that the management plan does not sufficiently address protection and preservation of species.**

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

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

Managing Agency Response: *Agree. The next management plan will address a more structured and complete method of natural resource survey and subsequent monitoring.*

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

   Managing Agency Response: *Agree. The current management plan does address the FFS overall goal of ground water quality within the Resource Section (III) as well discussing efforts for overall maintenance within the Management Concepts by Natural Communities and Proposed Management Activities (IV) section. The next management plan will describe any ground water monitoring, specifically for quality and quantity, being conducted by SJRWMD or other water management agencies.*

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

   Managing Agency Response: *Agree. The current management plan does address the FFS overall goal of surface water quality within the Resource Section (III) as well discussing efforts for overall maintenance within the Management Concepts by Natural Communities and Proposed Management Activities (IV) section. The next management plan will describe any surface water monitoring, specifically for quality and quantity, being conducted by SJRWMD or other water management agencies.*

5. **Adjacent Property Concerns, specifically discussion of potential surplus land determination, received a below average score. This is an indication that the management plan does not sufficiently address surplus lands.**

   Managing Agency Response: *Disagree. The current management plan declares that all property within the current boundary was found to be important and should not be considered for surplus.*

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

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

3.2 Management Plan Review Checklist and Scores

Plan Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Mesic Flatwoods	I.A.1	4	4	4	5	4	4			4.17
Wet Flatwoods	I.A.2	4	3	4	5	4	4			4.00
Baygall	I.A.3	4	4	4	4	3	3			3.67
Sandhill	I.A.4	4	3	4	5	4	4			4.00
Alluvial Forest	I.A.5	3	4	4	2	4	4			3.50
Dome Swamp	I.A.6	4	4	4	4	4	4			4.00
Depression Marsh	I.A.7	4		4	4	3	4			3.80
Blackwater Stream (Aquatic)	I.A.9		4	2	4	4	1			3.00
									Natural Communities Average Score	3.77
Listed species: Protection & Preservation (I.B)										
Animals	I.B.1	3	3		3	3	2			2.80
Gopher Tortoise	I.B.1.a	3	3	2	4	3	2			2.83
Plants	I.B.2	3	2		3	3	2			2.60
Hooded Pitcher Plant	I.B.2.a	3	2	2	4	3	2			2.67
Blue Flower Butterwort	I.B.2.b	3	2	2	4	3	2			2.67
									Listed Species Average Score	2.71
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	3	3	2	4	4	2			3.00
Other non-game species or their habitat monitoring	I.C.3	3	3	2	3	4	2			2.83
Fire effects monitoring	I.C.4	4	4	4	4	4	4			4.00
Other habitat management effects monitoring	I.C.5	4	2	1	4	4	3			3.00
Invasive species survey / monitoring	I.C.6	3		2	4	3	4			3.20
Cultural Resources (Archeological & Historic sites) (II.A,II.B)										
Cultural Res. Survey	II.A	4	3	4	3	4	2			3.33
Protection and preservation	II.B	4		4	4	4	2			3.60
									Cultural Resources Average Score	3.47
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A.1	4	4	4	4	4	3			3.83
Frequency	III.A.2	4	4	4	5	4	3			4.00
Quality	III.A.3	4	4	4	3	4	2			3.50
									Resource Management, Prescribed Fire Average Score	3.78
Restoration (III.B)										
Flatwoods	III.B.1	5	4	4	4	4	3			4.00
Sandhill	III.B.2	4	4	4	4	4	3			3.83
Dome Swamp/Marshes/Baygalls	III.B.3	5	3	4	2	4	3			3.50
									Restoration Average Score	3.78

Forest Management (III.C)										
Timber Inventory	III.C.1	5	4	4	4	4	5			4.33
Timber Harvesting	III.C.2	5	4	4	4	4	4			4.17
Reforestation/Afforestation	III.C.3	4	4	4	4	4	4			4.00
Site Preparation	III.C.4	4	3	4	3	4	4			3.67
							Forest Management Average Score			4.04
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.E.1.a	3	4	2	4	3	3			3.17
prevention - animals	III.E.1.b	3	3	2	4	3	3			3.00
prevention - pests/pathogens	III.E.1.c	3	3	2	4	3	3			3.00
Control										
control - plants	III.E.2.a	4	4	2	4	3	3			3.33
control - animals	III.E.2.b	3	4	2	5	3	3			3.33
control - pest/pathogens	III.E.2.c	4	4	2	4	3	3			3.33
							Non-Native, Invasive & Problem Species Average Score			3.19
Hydrologic/Geologic function, Hydro-Alteration (III.E.1)										
Roads/culverts	III.F.1.a	3		2	4	4	2			3.00
Ditches	III.F.1.b	3	4	2	4	4	2			3.17
							Hydrologic/Geologic function, Hydro-Alteration Average Score			3.08
Ground Water Monitoring (III.E.2)										
Ground water quality	III.F.2.a	3	3	1	4	4	2			2.83
Ground water quantity	III.F.2.b	3	3	1	4	4	2			2.83
							Ground Water Monitoring Average Score			2.83
Surface Water Monitoring (III.E.3)										
Surface water quality	III.F.3.a	3	3	1	4	4	2			2.83
Surface water quantity	III.F.3.b	3	3	1	4	4	2			2.83
							Surface Water Monitoring Average Score			2.83
Resource Protection (III.F)										
Boundary survey	III.G.1	3	4	5	4	4	3			3.83
Gates & fencing	III.G.2	3	4	5	4	4	3			3.83
Signage	III.G.3	3	4	5	4	4	3			3.83
Law enforcement presence	III.G.4	3	3	5	4	4	3			3.67
							Resource Protection Average Score			3.79
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.H.1.a	3	3	1	4	4	3			3.00
Inholdings/additions	III.H.2	3	4	4	3	3	3			3.33
Discussion of Potential Surplus Land Determination	III.H.3	3	2	1	2	3	3			2.33
Surplus Lands Identified?	III.H.4	3	4	1	5	3	3			3.17
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										

Roads	IV.1.a	4	4	5	4	4	3			4.00
Parking	IV.1.b	4	4	5	4	4	3			4.00
Environmental Education & Outreach										
Wildlife	IV.2.a	3		1	4	4	3			3.00
Invasive Species	IV.2.b	3		1	3	4	3			2.80
Habitat Management Activities	IV.2.c	3		1	3	4	3			2.80
Interpretive facilities and signs	IV.3	3	3	2	2	3	2			2.50
Recreational Opportunities	IV.4	4	4	2	4	3	4			3.50
Management of Visitor Impacts	IV.5	4	4	2		3	4			3.40
								Public Access & Education Average Score		3.25
Managed Area Uses (VI.A, VI.B)										
Existing Uses										
Silviculture	VI.A.3		4	5	4	4	5			4.40
Hiking	VI.A.4	5	4	5	4	4	5			4.50
Hunting	VI.A.5	5	4	5	4	3	5			4.33
Fishing	VI.A.6	5	4	1	4	3	5			3.67
Nature Study	VI.A.7	5	4	5	4	4	5			4.50
Bicycling	VI.A.8	5	4	2	4	1	5			3.50
Horseback Riding	VI.A.9	5	4	3	4	4	5			4.17
Proposed Uses										
Primitive Camping	VI.B.1	5	4	5	4	4	5			4.50
Apiary Leases	VI.B.2	5	4	1	4	4	5			3.83

Color Code:	Excellent	Above Average	Below Average	Poor	See Appendix A for detail
		Missing Vote	Insufficient Information		

Appendix A: Scoring System Detail

Explanation of Consensus Commendations:

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

Explanation of Consensus Recommendations:

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

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

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

Average scores are interpreted as follows:

Scores 4.0 to 5.0 are *Excellent*

Scores 3.0 to 3.99 are *Above Average*

Scores 2.0 to 2.99 are *Below Average*

Scores 1.0 to 1.99 are considered *Poor*

2019 Land Management Review Team Report for Belmore 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 cases where the managed areas exceed 1,000 acres in size, such a review must be scheduled at least every five years. In conducting this review, a statutorily constructed review team "shall evaluate the extent to which the existing management plan provides sufficient protection to threatened or endangered species, unique or important natural or physical features, geological or hydrological functions or archaeological features. The review shall also evaluate the extent to which the land is being managed for the purposes for which it was acquired and the degree to which actual management practices, including public access, are in compliance with the adopted management plan."

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

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

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

1.1. Property Reviewed in this Report

Name of Site: Bemore State Forest

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

Acres: 8,737 **Counties:** Clay

Purpose(s) for Acquisition: to protect and manage the unique resources of the forest through a stewardship ethic to assure these resources will be available for future generations.

Acquisition Program(s): Florida Forever **Original Acquisition Date:** 3/16/05

Area Reviewed: Entire Property **Last Management Plan Approval Date:** 10/10/08

Review Date: 9/17/19

Agency Manager and Key Staff Present:

- Sam Negaran, Manager
- Frank Burley
- Jennifer Hart

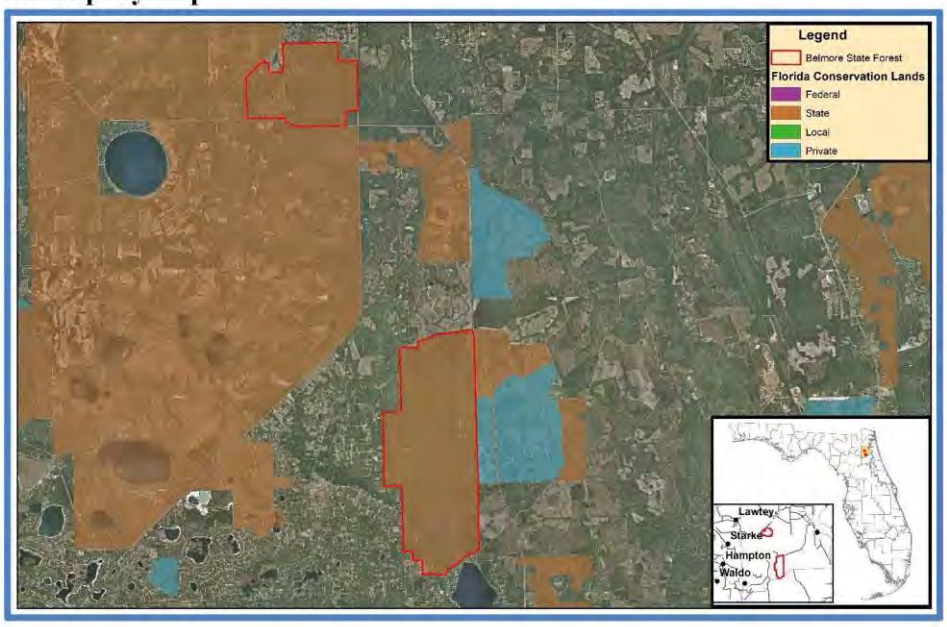
Review Team Members Present (voting)

- Dan Pearson, DRP District
- Liza McCain, Local Gov't.
- Scotland Talley, FWC
- Paul Duff, DEP District
- Heather Schmiege, FFS
- Heather Venter, SJRWMD
- Walter Bryant, Cons. Organization
- Private Land Manager, None

Other Non-Team Members Present (attending)

- Keith Singleton, DEP/DSL
- Lassie Lee, FNPS

1.2 Property Map



1.3. Overview of Land Management Review Results

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

Yes = 7, No = 0

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

Yes = 7, No = 0

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

Table 1: Results at a glance.

Major Land Management Categories	Field Review	Management Plan Review
Natural Communities / Forest Management	4.30	4.26
Prescribed Fire / Habitat Restoration	3.89	4.11
Hydrology	3.95	3.84
Imperiled Species	3.45	2.98
Exotic / Invasive Species	4.19	3.60
Cultural Resources	4.50	4.00
Public Access / Education / Law Enforcement	4.07	3.92
Infrastructure / Equipment / Staffing	3.36	N/A

Color Code (See Appendix A for detail)

Excellent | Above Average | Below Average | Poor

1.3.1 Consensus Commendations for the Managing Agency

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

1. The team commends the Florida Forest Service (FFS) for working with DHR prior to repair/replace of the bridge under construction now. (7+, 0-)
2. The team commends the FFS for groundcover restoration by direct seeding in mesic flatwoods and sandhill areas. (7+, 0-)
3. The team commends the FFS for continuing efforts to upgrade roads, bridges and culverts to protect water quality in the stream crossings. (7+, 0-)
4. The team commends the FFS for the continuing efforts to increase fire frequency, especially in the mesic flatwoods. (7+, 0-)
5. The team commends the FFS for conducting bio-blitz in 2018 to identify plant and animal species. (7+, 0-)
6. The team commends the FFS for adding hiking and horse trails, and other recreational opportunities. (7+, 0-)

1.3.2. Consensus Recommendations to the Managing Agency

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

1. ***The team recommends that the FFS increase the number of acres burned and continue to move towards more growing season burns as restoration continues. (7+, 0-)***

Managing Agency Response:

The Florida Forest Service will continue to pursue an increase in burn acreage on Belmore State Forest. Once fuel loads are safely reduced, a transition to growing season burns will be intiatiated and maintained.

2. ***The team recommends that the FFS convert the District (OPS) Biologist to an FTE position. (7+, 0-)***

Managing Agency Response:

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

2. 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 baygall, dome swamp, blackwater stream, floodplain swamp, and bottomland forest.**
2. **Natural resource survey/monitoring resources, specifically fire effects monitoring.**
3. **Cultural resources, specifically, cultural resource survey and protection and preservation.**
4. **Resource management (prescribed fire), specifically quality.**
5. **Restoration, specifically flatwoods and sandhill.**
6. **Forest management, specifically timber inventory, timber harvesting, reforestation/afforestation, and site preparation.**
7. **Non-native, invasive, and problem species, specifically prevention and control of plants, animals, and pest/pathogens.**
8. **Hydrologic/geologic function, specifically roads/culverts.**
9. **Ground water monitoring, specifically quality, and quantity.**
10. **Surface water monitoring, specifically quality, and quantity.**
11. **Resource protection, specifically boundary survey, gates and fencing, and signage.**
12. **Adjacent property concerns, land use, specifically inholdings and additions.**
13. **Public access, specifically roads, and parking.**
14. **Environmental education and outreach, specifically recreational opportunities, and management of visitor impacts.**
15. **Management resources, specifically waste disposal, and buildings.**

2.2. Items Requiring Improvement Actions in the Field

The following items received low scores on the review team checklist, which indicates that management actions noted during the Field Review were not considered sufficient (less than 3.0 score on average). Please note that

overall good scores do not preclude specific recommendations by the review team requiring remediation. **The management plan update should include information on how these items have been addressed**:

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

   Managing Agency Response:

   Increased burning, the removal of sandpine plantations, and the re-introduction of site appropriate pine species will move the sandhill communities on Belmore SF towards restoration and maintenance status. The Florida Forest Service would like to highlight that significant work towards this end has occurred. Recently 70% of the sand pine acres have been harvested with the remaining 30% scheduled to be harvested in the next five years.

   A significant amount of prescribed burning and thining has occurred in the mesic flatwoods ecological communites necessary to move these pine plantations, established by the timber industry, into a more restored state. The FNAI would classify the majority of these mesic flatwoods as restoration flatwoods. Approximately 50% of Belmore State Forest's mesic flatwoods are within desired fire frequency while approximately 40% have had timber thinning operations conducted. Invasive species impacts less than 1% of this community type (less than one acre out of the historic 4,604 acres). The FFS estimates the total amount of mesic flatwoods in maintenance condition is in the 41% to 60% range.

2. ***Resource Management, Prescribed Fire, specifically aren being burned, received a below average score. The review team is asked to evaluate, based on information provided by the managing agency, to what degree prescribed fire is accomplished according to the objectives for prescribed fire management. The scores range from 1 to 5, with 1 being 0-20% accomplished, 2 being 21-40%, 3 being 41-60%, 4 being 61-80% and 5 being 81-100%.***

   Managing Agency Response:

   The Florida Forest Service continually attempts to increase burn acreage across Belmore State Forest; however, the ability to apply prescribed fire is highly dependent on long and short term weather conditions.

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

   Managing Agency Response:

   The FFS will continue to submit legislative budget request for facilities, equipment, staff and funding.

2.3. Field Review Checklist and Scores

Field Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Mesic Flatwoods	I.A.1	2	3	3	3	3	3	3		2.86
Wet Flatwoods	I.A.2	3	3	4	3	3	3	2		3.00
Baygall	I.A.3	4	5	4	5	5	5	5		4.71
Sandhill	I.A.4	1	4	4	1	1	3	2		2.29
Dome Swamp	I.A.6	5	4	4	5	4	4	5		4.43
Depression Marsh	I.A.7	4	4	4	4	3	3	5		3.86
Blackwater Stream (Aquatic)	I.A.8	5	5	4	5	5	5	5		4.86
Floodplain Swamp	I.A.9	5	5	5	5	5	5	5		5.00
Bottomland Forest	I.A.10	5	5	5	5	5	5	5		5.00
									Natural Communities Average Score	4.00
Listed species: Protection & Preservation (I.B)										
Animals	I.B.1	5	3	4	3	4	4	3		3.71
Gopher Tortoise	I.B.1.a	5	3	4	3	4	4	3		3.71
Black Creek Crayfish	I.B.1.b	5	4	4	3	4	3	4		3.86
Plants	I.B.2	5	3	4	3	3	3	3		3.43
Hooded Pitcher Plant	I.B.2.a	4	3	4	2	3	3	2		3.00
Blue Flower Butterwort	I.B.2.b	4	3	4	2	3	3	2		3.00
									Listed Species Average Score	3.45
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	5	3	5	4	3	3	3		3.71
Other non-game species or their habitat monitoring	I.C.3	5	3	4	3	3	3	3		3.43
Fire effects monitoring	I.C.4	5	4	5	5	3	4	3		4.14
Other habitat management effects monitoring	I.C.5	5	4	5	3	3	4	3		3.86
Invasive species survey / monitoring	I.C.6	4	4	5	4	3	4	3		3.86
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A	5	4	5	5	4	5	4		4.57
Protection and preservation	II.B	5	4	5	4	4	5	4		4.43
									Cultural Resources Average Score	4.50
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A.1	4	3	2	3	2	3	2		2.71
Frequency	III.A.2	4	4	4	4	3	3	3		3.57
Quality	III.A.3	5	5	5	4	4	5	3		4.43
									Resource Management, Prescribed Fire Average Score	3.57
Restoration (III.B)										
Flatwoods	III.B.1	4	5	5	4	4	4	4		4.29
Sandhill	III.B.2	4	4	5	5	5	4	3		4.29
									Restoration Average Score	4.29

Forest Management (III.C)										
Timber Inventory	III.C.1	5	5	5	5	5	4	5		4.86
Timber Harvesting	III.C.2	5	5	5	5	5	4	5		4.86
Reforestation/Afforestation	III.C.3	5	4	5	4	4	3	5		4.29
Site Preparation	III.C.4	5	5	4	4	4	4	5		4.43
								Forest Management Average Score		4.61
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.D.1.a	5	4	5	5	4	4	4		4.43
prevention - animals	III.D.1.b	5	3	5	3	4	4	4		4.00
prevention - pests/pathogens	III.D.1.c	5	4	5	4	4	4	4		4.29
Control										
control - plants	III.D.2.a	5	4	5	4	4	4	4		4.29
control - animals	III.D.2.b	5	4	5	3	3	4	4		4.00
control - pest/pathogens	III.D.2.c	5	3	5	4	4	4	4		4.14
								Non-Native, Invasive & Problem Species Average Score		4.19
Hydrologic/Geologic function Hydro-Alteration (III.E.1)										
Roads/culverts	III.E.1.a	3	4	4	5	4	4	4		4.00
Ditches	III.E.1.b	3	4	4	3	4	4	4		3.71
								Hydrologic/Geologic function, Hydro-Alteration Average Score		3.86
Ground Water Monitoring (III.E.2)										
Ground water quality	III.E.2.a	5	4	5	3	3	4	4		4.00
Ground water quantity	III.E.2.b	5	4	5	3	3	4	4		4.00
								Ground Water Monitoring Average Score		4.00
Surface Water Monitoring (III.E.3)										
Surface water quality	III.E.3.a	5	4	5	3	3	4	4		4.00
Surface water quantity	III.F.3.b	5	4	5	3	3	4	4		4.00
								Surface Water Monitoring Average Score		4.00
Resource Protection (III.F)										
Boundary survey	III.F.1	5	5	5	4	4	5	4		4.57
Gates & fencing	III.F.2	5	4	4	5	4	5	4		4.43
Signage	III.F.3	5	4	5	4	3	5	4		4.29
Law enforcement presence	III.F.4	4	3	3	3	3	3	3		3.14
								Resource Protection Average Score		4.11
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.G.1.a	5	4	4	3	4	4	3		3.86
Inholdings/additions	III.G.2		5	4		4	4	3		4.00
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	4	4	4	5	5	4	4		4.29
Parking	IV.1.b	4	4	5	4	4	4	4		4.14
Environmental Education & Outreach										
Wildlife	IV.2.a	5	4	5	3	3	4	3		3.86

Invasive Species	IV.2.b	5	4	5	3	3	3	3		3.71
Habitat Management Activities	IV.2.c	5	4	5	3	3	4	3		3.86
Interpretive facilities and signs	IV.3	5	4	4	4	3	4	3		3.86
Recreational Opportunities	IV.4	5	5	4	4	4	4	3		4.14
Management of Visitor Impacts	IV.5	5	5	5	4	4		3		4.33
								Public Access & Education Average Score		4.02
Management Resources (V.1, V.2, V.3. V.4)										
Maintenance										
Waste disposal	V.1.a	5	4	5	4	3	3	x		4.00
Sanitary facilities	V.1.b	5	3	4	3	3	3	x		3.50
Infrastructure										
Buildings	V.2.a	5	3	4	4	4	5	3		4.00
Equipment	V.2.b	3	2	3	2	3	4	2		2.71
Staff	V.3	5	3	2	2	3	3	2		2.86
Funding	V.4	4	3	3	3	3	3	2		3.00
								Management Resources Average Score		3.35

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:

1. ***Listed Species protection and preservation, specifically gopher tortoise, and black creek crayfish, received below average scores. This is an indication that the management plan does not sufficiently address protection and preservation of listed species.***

   Managing Agency Response:

   The FFS feels that this management plan adequately addresses this issue. There are multiple sections of the plan detailing listed species protection. The protection of gopher tortoise is specifically mentioned for protection during sandhill restoration. When the plan was written, the presence of black creek crayfish was unknown on the forest. It will be added to updates to the management plan.

2. ***Adjacent Property Concerns, specifically discussion of potential surplus land determination, received below average scores. This is an indication that the management plan does not sufficiently address adjacent property.***

   Managing Agency Response:

   The FFS will update future management plans to show how surplus land is determined.

3.2 Management Plan Review Checklist and Scores

Plan Review Item	Reference #	Anonymous Team Members								Average
		1	2	3	4	5	6	7	8	
Natural Communities (I.A)										
Mesic Flatwoods	I.A.1	5	4	4	4	4	4	4		4.14
Wet Flatwoods	I.A.2	5	4	4	4	4	4	4		4.14
Baygall	I.A.3	5	4	4	4	4	4	4		4.14
Sandhill	I.A.4	5	4	3	4	4	4	4		4.00
Dome Swamp	I.A.6	5	4	3	4	4	4	4		4.00
Depression Marsh	I.A.7	5	4	3	4	4	4	4		4.00
Blackwater Stream (Aquatic)	I.A.8	4	4	4	4	2	4	4		3.71
Floodplain Swamp	I.A.9		4	4	4	3	1	4		3.33
Bottomland Forest	I.A.10		4	4	4	3	3	4		3.67
									Natural Communities Average Score	3.90
Listed species: Protection & Preservation (I.B)										
Animals	I.B.1	4	3	4	3	3	3	3		3.29
Gopher Tortoise	I.B.1.a	4	2	4	2	2	3	3		2.86
Black Creek Crayfish	I.B.1.b		1	4	2		1			2.00
Plants	I.B.2	5	2	4	3	3	4	3		3.43
Hooded Pitcher Plant	I.B.2.a	4	2	4	2	3	4	3		3.14
Blue Flower Butterwort	I.B.2.b	4	2	4	2	3	4	3		3.14
									Listed Species Average Score	2.98
Natural Resources Survey/Management Resources (I.C)										
Listed species or their habitat monitoring	I.C.2	5	3	4	4	3	3	3		3.57
Other non-game species or their habitat monitoring	I.C.3	5	3	4	4	3	3	3		3.57
Fire effects monitoring	I.C.4	4	4	5	5	4	3	3		4.00
Other habitat management effects monitoring	I.C.5	5	3	5	4	3	3	3		3.71
Invasive species survey / monitoring	I.C.6	5	3	5	3	4	3	3		3.71
Cultural Resources (Archeological & Historic sites) (II.A, II.B)										
Cultural Res. Survey	II.A	5	3	5	4	4	3	4		4.00
Protection and preservation	II.B	5	3	5	4	4	3	4		4.00
									Cultural Resources Average Score	4.00
Resource Management, Prescribed Fire (III.A)										
Area Being Burned (no. acres)	III.A.1	5	3	5	3	4	4	4		4.00
Frequency	III.A.2	5	4	5	3	4	4	4		4.14
Quality	III.A.3	5	4	5	4	4	4	4		4.29
									Resource Management, Prescribed Fire Average Score	4.14
Restoration (III.B)										
Flatwoods	III.B.1	5	4	5	3	4	3	4		4.00
Sandhill	III.B.2	5	4	5	4	4	3	4		4.14
									Restoration Average Score	4.07

Forest Management (III.C)										
Timber Inventory	III.C.1	5	5	5	5	5	4	5		4.86
Timber Harvesting	III.C.2	5	4	5	5	5	4	5		4.71
Reforestation/Afforestation	III.C.3	5	4	5	4	5	4	5		4.57
Site Preparation	III.C.4	5	4	4	4	4	4	5		4.29
								Forest Management Average Score		4.61
Non-Native, Invasive & Problem Species (III.D)										
Prevention										
prevention - plants	III.E.1.a	4	3	5	3	3	3	3		3.43
prevention - animals	III.E.1.b	4	3	5	3	3	3	3		3.43
prevention - pests/pathogens	III.E.1.c	4	3	5	3	4	3	3		3.57
Control										
control - plants	III.E.2.a	5	3	5	4	4	3	3		3.86
control - animals	III.E.2.b	5	3	5	3	3	3	3		3.57
control - pest/pathogens	III.E.2.c	5	3	5	4	3	3	3		3.71
								Non-Native, Invasive & Problem Species Average Score		3.60
Hydrologic/Geologic function, Hydro-Alteration (III.E.1)										
Roads/culverts	III.F.1.a	5	3	4	4	4	4	4		4.00
Ditches	III.F.1.b	5	3	4	3	4	4	4		3.86
								Hydrologic/Geologic function, Hydro-Alteration Average Score		3.93
Ground Water Monitoring (III.E.2)										
Ground water quality	III.F.2.a	5	3	5	3	2	4	3		3.57
Ground water quantity	III.F.2.b	5	3	5	2	2	4	3		3.43
								Ground Water Monitoring Average Score		3.50
Surface Water Monitoring (III.E.3)										
Surface water quality	III.F.3.a	5	3	5	3	2	4	3		3.57
Surface water quantity	III.F.3.b	5	3	5	2	2	4	3		3.43
								Surface Water Monitoring Average Score		3.50
Resource Protection (III.F)										
Boundary survey	III.G.1	5	4	5	4	4	4	4		4.29
Gates & fencing	III.G.2	5	4	4	4	4	4	4		4.14
Signage	III.G.3	5	3	5	4	4	4	4		4.14
Law enforcement presence	III.G.4	5	4	4	4	4	4	4		4.14
								Resource Protection Average Score		4.18
Adjacent Property Concerns (III.G)										
Land Use										
Expanding development	III.H.1.a	5	3	4	2	4	4	3		3.57
Inholdings/additions	III.H.2	5	4	4	4	4	4	3		4.00
Discussion of Potential Surplus Land Determination	III.H.3	3	2	4	2	4	3	2		2.86
Surplus Lands Identified?	III.H.4	5	5	4	4	4	5	2		4.14
Public Access & Education (IV.1, IV.2, IV.3, IV.4, IV.5)										
Public Access										
Roads	IV.1.a	5	4	4	4	4	3	4		4.00

Parking	IV.1.b	5	4	5	3	4	3	4		4.00
Environmental Education & Outreach										
Wildlife	IV.2.a	5	2	3	3	3	3	4		3.29
Invasive Species	IV.2.b	5	2	3	3	3	3	4		3.29
Habitat Management Activities	IV.2.c	5	2	4	3	3	3	3		3.29
Interpretive facilities and signs	IV.3	5	2	4	4	3	3	3		3.43
Recreational Opportunities	IV.4	5	4	4	4	4	3	4		4.00
Management of Visitor Impacts	IV.5	5	4	4	3	4		4		4.00
						Public Access & Education Average Score				3.66
Managed Area Uses (VI.A, VI.B)										
Existing Uses										
Silviculture	VI.A.1	5	5	4	4	5	5	5		4.71
Hiking	VI.A.2	5	5	5	5	5	5	5		5.00
Hunting	VI.A.3	5	5	5	5	5	5	5		5.00
Fishing	VI.A.4	5	5	5	5	5	5	5		5.00
Nature Study	VI.A.5	5	5	5	5	5	5	5		5.00
Bicycling	VI.A.6	5	5	5	5	5	5	5		5.00
Horseback Riding	VI.A.7	5	3	4	5	4	3	5		4.14
Proposed Uses										
Primitive Camping	VI.B.1	5	5	5	5	5	5	5		5.00
Apiary Leases	VI.B.2	5	5	5	5	2	5	5		4.57

Color Code: Excellent | Above Average | Below Average | Poor | Missing Vote | Insufficient Information

See Appendix A for detail

Appendix A: Scoring System Detail

Explanation of Consensus Commendations:

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

Explanation of Consensus Recommendations:

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

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

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

Average scores are interpreted as follows:

Scores 4.0 to 5.0 are *Excellent*

Scores 3.0 to 3.99 are *Above Average*

Scores 2.0 to 2.99 are *Below Average*

Scores 1.0 to 1.99 are considered *Poor*

Exhibit U

Compliance with Local Comprehensive Plan(s)

FLORIDA FOREST SERVICE
(850) 681-5800

THE CONNER BUILDING
3125 CONNER BOULEVARD
TALLAHASSEE, FLORIDA 32399-1650

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES
COMMISSIONER NICOLE "NIKKI" FRIED

August 31, 2020

Ms. Caroline Morgan
Clay County Planning Department
477 Houston Street
Green Cove Springs, FL 32043
(904) 541-5365
planning@claycountygov.com

RE: Belmore State Forest 10-Year Land Management Plan

Dear Ms. Morgan,

Greetings from the Florida Forest Service (FFS). Enclosed is a copy of the Ten-Year Land Management Plan and plan Exhibits for Belmore State Forest, prepared in accordance with F.S. 253.034. Please review the draft plan at your earliest convenience and reply as to whether the plan is consistent with Clay County's Local Comprehensive Plan.

Please address all correspondence concerning the Management Plan on official letterhead to the above mailing address or via e-mail. I can be reached by telephone at (850) 681-5889 or by email at Patricia.Anderson@FDACS.gov if you have any questions.

Thank you for assisting us in managing Belmore State Forest's resources through a stewardship ethic to ensure they are available for future generations.

Sincerely,

Patti Anderson
State Lands Plan Coordinator

cc: Daniel Head, FFS Forester

Exhibit V

State Forest Management Plan
Advisory Group Summary

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

August 25, 2020
10:30 a.m.

Meeting Minutes

MPAG Members Present:

• Andy Lamborn	Jacksonville District Manager, Florida Forest Service (FFS)
• Allan Hallman	Biologist, Florida Fish and Wildlife Conservation Commission (FWC)
• Heather Venter	North Region Manager, St. Johns River Water Management District
• Ricky Lackey	District Biologist, National Wild Turkey Federation (NWTF)
• George Ashby	Local Property Owner

MPAG Members Not Present:

• Jimmy Farley	Local Property Owner
• Richard Darby	Clay County Soil and Water Conservation District
• Gavin Rollins	Clay County Commissioner, District 4

Staff:

- Alan Davis, Land Planning Coordinator, FFS
- Brian Camposano, Forest Management Assistant Bureau Chief, FFS
- Daniel Head, Forester, FFS
- Frank Burley, Forestry Supervisor II, FFS
- Sam Negaran, Forestry Resource Administrator, FFS
- Justin Rogers, Recreation Coordinator, FFS
- Jennifer Hart, Region 2 Deputy Chief, FFS
- Keith Rowell, Land Programs Administrator, FFS
- James Roberts, Forest Management Bureau Chief, FFS
- Patti Anderson, Assistant Land Planning Coordinator, FFS

Guests:

- R.G. (GoToMeetings registered attendee)

Virtual Public Meeting Start Time: 10:30 A.M.

- Mr. Davis opened the meeting by introducing himself and explained the purpose and statutory framework for the 10-Year Land Management Plan process. He explained that the Plan is not an annual work plan or detailed operational plan but provides general guidance for management of Belmore State Forest for the next 10-year period. It also outlines the major concepts that will guide management activities on the state forest.
- Mr. Davis confirmed compliance with the Florida Sunshine Law reminding MPAG members to not discuss the draft outside of the public hearings. He stated that the meetings are recorded, and minutes taken.
- Mr. Davis stated the MPAG meetings are open to the public and proper notice was given. The meetings were advertised to the public through a local newspaper (Clay Today), Florida Administrative Register, FFS webpage, as well as posted on the kiosk at the entrance to the forest. The meetings were also announced

at the Clay County Board of County Commissioners meeting on August 11, 2020. He noted that the draft goes through various approvals but that the Director assumes ultimate authority on changes to the draft.

- Mr. Davis then stated that after a PowerPoint presentation at the public hearing, there would be a question and answer session where guests were welcome to speak or ask questions. Mr. Davis encouraged MPAG members to hear the public's ideas/concerns during that time. He advised that at the MPAG Workshop meeting following the hearing there would be an opportunity to discuss their thoughts on input shared by the public.
- Mr. Davis then asked the advisory group to elect an MPAG chairperson. [Brian Camposano explained how to virtually raise hand to vote and acknowledged 2 members in support of Andy Lamborn]. Mr. Davis stated that Andy Lamborn is appointed chairperson. He then requested feedback for any technical assistance needed.
- Brian Camposano requested MPAG members share their cameras and express comments in the chat box.
- Next the MPAG members introduced themselves.
- Mr. Davis then introduced Daniel Head who presented a PowerPoint presentation of the 2020 10-year plan
- After the presentation Mr. Davis asked if there were any questions. No responses were received.
- Mr. Davis then thanked everyone for their participation and acknowledged addressing MPAG member comments at the 1:00 P.M. workshop meeting.
- Mr. Camposano thanked everyone and adjourned the public hearing.

Virtual Public Meeting End Time: 11:02 A.M.

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

August 25, 2020
1:00 P.M.

Meeting Minutes

MPAG Members Present:

• Andy Lamborn	Jacksonville District Manager, Florida Forest Service (FFS)
• Allan Hallman	Biologist, Florida Fish and Wildlife Conservation Commission (FWC)
• Heather Venter	North Region Manager, St. Johns River Water Management District
• Ricky Lackey	District Biologist, National Wild Turkey Federation (NWTF)
• George Ashby	Local Property Owner
• Richard Darby	Clay County Soil and Water Conservation District

MPAG Members Not Present:

• Jimmy Farley	Local Property Owner
• Gavin Rollins	Clay County Commissioner, District 4

Staff:

- Alan Davis, Land Planning Coordinator, FFS
- Brian Camposano, Forest Management Assistant Bureau Chief, FFS
- Daniel Head, Forester, FFS
- Frank Burley, Forestry Supervisor II, FFS
- Sam Negaran, Forestry Resource Administrator, FFS
- Justin Rogers, Recreation Coordinator, FFS
- Jennifer Hart, Region 2 Deputy Chief, FFS
- Keith Rowell, Land Programs Administrator, FFS
- James Roberts, Forest Management Bureau Chief, FFS
- Patti Anderson, Assistant Land Planning Coordinator, FFS

Virtual Workshop Meeting Start Time: 1:00 P.M.

- Mr. Davis opened the workshop meeting acknowledging a page-by-page progression through the draft for review and comment. He stated that Frank Burley will make edits to the draft as discussions or comments arise and all permanent revisions must be approved by the Director.
- Mr. Davis stated that meeting minutes will be sent to the MPAG members within the next few days and approval accepted by negative response. A quick turnaround was requested in order to meet the September 1 submittal deadline for the December 2020 Acquisition and Restoration Council (ARC) public hearing.
- There was no public input thus no group discussion.
- Mr. Davis requested an MPAG member sound check to ensure all could be heard.
- Page 18, Table 4 Historical Sites: It was recommended that the reference to the Sand Pine Bridge be removed as bridge was replaced with a new bridge. FFS will consult with DHR regarding removing the reference from the plan.

- Page 26, Public Access and Existing Roads: It was suggested to replace "Restoration requires closing approximately 54 miles of roads to public vehicle access" with "There are approximately 54 miles of roads closed to public vehicle access. "
- Mr. Davis asked for consensus of agreement of the few edits. He reiterated that the suggested edits will be reviewed by the Director for acceptance into the plan. He then asked if everyone agreed with the Belmore State Forest Land Management draft as written including the Satsuma Tract. Mr. Davis specified that the next step is presentation before the ARC at their December public hearing. He continued that the meeting minutes will be quickly emailed to the MPAG members for approval on a negative response basis and will be documented as a plan exhibit. He then reminded the MPAG members that their Sunshine Law responsibilities will be terminated when the land management plan draft is submitted to ARC. He thanked everyone for their patience, time, and participation.
- Mr. Lamborn thanked everyone for participating and making the process swift and smooth. The workshop meeting was adjourned.

Virtual Workshop Meeting End Time: 1:18 P.M.

Exhibit W

State Forest Summary Budget

	BELMORE STATE FOREST MGT. ONLY 18-19 EXPENDITURES	Percentages Based on Total Dollar Amount of Expenditures	Assessed Needed Funding Based Upon LMUAC Resource Management
Resource Management	**$ 12,836**	**25.50%**	**$ 56,471.57**
Exotic Species Control	$ 1,198	4.10%	$ 9,079.74
Prescribed Burning	$ 6,201	2.80%	$ 6,200.80
Cultural Resources Management	$ 29	0.10%	$ 221.46
Timber Management	$ 2,484	8.50%	$ 18,823.86
Hydrological Management	$ 146	0.50%	$ 1,107.29
	$ -		$ -
OTHER RESOURCE MANAGEMENT	$ 2,777	9.50%	$ 21,038.43
Listed Species Management	$ -		$ -
Forest Pest and Disease	$ -		$ -
Plant Conservation Program	$ -		$ -
State Forest Research Projects	$ -		$ -
Boundary Surveys for State Forests	$ -		$ -
Other Activities Also Include:	$ -		$ -
Liaison Community Meetings / Boundary Line Maintenance / Forest Inventories and Various Other Activities / Wildfire Suppression on State Forests			
			$ -
Administration	**$ 2,104**	**7.20%**	**$ 15,944.91**
Central Office Headquarters	$ 2,104	7.20%	$ 15,944.91
District/Regions	$ -		$ -
Units/Projects	$ -		$ -
	$ -		$ -
Support	**$ 9,908**	**33.90%**	**$ 75,073.97**
Land Management Planning	$ 409	1.40%	$ 3,100.40
Land Management Reviews	$ 117	0.40%	$ 885.83
Training/Staff Development	$ 2,806	9.60%	$ 21,259.89
Vehicle Purchase	$ 263	0.90%	$ 1,993.11
Vehicle Operations and Maintenance	$ 4,180	14.30%	$ 31,668.37
	$ -		$ -
OTHER SUPPORT	$ 2,134	7.30%	$ 16,166.37
State Forest Land Acquisition Support			$ -
Other Support Activities Also Include:	$ -		$ -
Computer Maintenance / Radio Maintenance / Technical Support / Management of Apiary and Cattle Leases / State Forest Leases, Lease Amendments, Easements and Other Various Activities	$ -		$ -
			$ -
Capital Improvements	**$ 5,992**	**20.50%**	**$ 45,398.71**
New Facility Construction	$ 1,491	5.10%	$ 11,294.31
Facility Maintenance	$ 4,501	15.40%	$ 34,104.40
			$ -
Visitor Services/Recreation	**$ 3,770**	**12.90%**	**$ 28,567.97**
Information/Education	$ 877	3.00%	$ 6,643.71
Operations	$ 2,894	9.90%	$ 21,924.26
			$ -
Law Enforcement	$ -	0.00%	$ -
Total	**$ 29,228**	**100.00%**	**$ 221,457**

Exhibit X

Arthropod Control Plans on BSF
Response from Clay County

UF | UNIVERSITY of FLORIDA

UF/IFAS Extension
Clay County

2463 State Road 16 West
Green Cove Springs, FL 32043
904-284-6355

February 16, 2018

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

Dear Alan,

Clay County has not conducted any mosquito control activities in Belmore State Forest and we will not conduct any control activities on this property in the future. As such, an arthropod control plan will not be required. Feel free to contact me if you have any questions, comments, or concerns.

Sincerely,

B. Burbaugh

Bradley Burbaugh, Ph.D.
Acting Mosquito Control Director
Clay County