



FLORIDA DEPARTMENT OF Environmental Protection

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3900 Commonwealth Boulevard
Tallahassee, FL 32399

Ron DeSantis
Governor

Jeanette Núñez
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Secretary

June 17, 2019

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

RE: Peace River State Forest – Lease No. 4736

Dear Mr. Rowell:

On **June 14, 2019**, the Acquisition and Restoration Council (ARC) recommended approval of the **Peace River 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 **Peace River State Forest** management plan. The next management plan update is due June 14, 2029.

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.

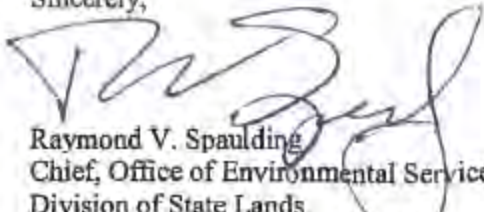
Pursuant to s. 259.036(2), F.S., management areas that exceed 1,000 acres in size, shall be scheduled for a land management review at least every 5 years.

Pursuant to s. 259.032, F.S., and Chapter 18-2.021, P.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,

A handwritten signature in black ink, appearing to read 'Ray Spaulding', is written over the typed name and title.

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

TEN-YEAR LAND MANAGEMENT PLAN
FOR THE
PEACE RIVER STATE FOREST
DESOTO COUNTY



PREPARED BY THE
FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES
FLORIDA FOREST SERVICE

APPROVED ON

JUNE 14, 2019

TEN-YEAR LAND MANAGEMENT PLAN
FOR THE
PEACE RIVER STATE FOREST



Approved by:

A handwritten signature in black ink, appearing to read "Jim Karels", written over a horizontal line.

Jim Karels, Director
Florida Forest Service

7-1-19

Date

A handwritten signature in blue ink, appearing to read "James Roberts", written over a horizontal line.

James Roberts, Chief
Forest Management Bureau

6-21-19

Date

**TEN-YEAR LAND MANAGEMENT PLAN
PEACE RIVER STATE FOREST
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**TEN-YEAR LAND MANAGEMENT PLAN
PEACE RIVER STATE FOREST
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LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

LEAD AGENCY: Florida Department of Agriculture and Consumer Services, Florida Forest Service
COMMON NAME: Peace River State Forest
LOCATION: Desoto County
ACREAGE TOTAL: 5,047.55 acres (more or less)

Historic Natural Communities	Approximate Acreage
Basin Swamp	43
Depression Marsh	92
Floodplain Marsh	97
Hydric Hammock	186
Mesic Hammock	349
Scrub	40
Wet Flatwoods	91

Historic Natural Communities	Approximate Acreage
Blackwater Stream	81
Dome Swamp	15
Floodplain Swamp	2,506
Mesic Flatwoods	1,405
Sandhill	63
Scrubby Flatwoods	25
Xeric Hammock	5

TIITF LEASE AGREEMENT NUMBER: 4736
USE: Single ____ Multiple X

MANAGEMENT AGENCY

Florida DACS, Florida Forest Service
Florida Fish and Wildlife Conservation Commission
Southwest Florida Water Management District
Department of State, Division of Historical Resources

RESPONSIBILITY

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

DESIGNATED LAND USE: Multiple-Use State Forest

SUBLEASES: Pasture grazing/hay lease

ENCUMBRANCES: Multiple, See II.D.6

TYPE ACQUISITION: Donation; Swamp and Overflow Lands

UNIQUE FEATURES: Frontage on Peace River and Horse Creek

ARCHAEOLOGICAL/HISTORICAL: One (1) known site

MANAGEMENT NEEDS: Restoration of native ecosystems, Prescribed burning, Invasive Species control

ACQUISITION NEEDS: Parcels in Optimal Management Boundary

SURPLUS ACREAGE: None

PUBLIC INVOLVEMENT: Management Plan Advisory Group and Public Hearing, and DEP Acquisition and Restoration Council Public Hearing

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

ARC Approval Date: _____ BTIITF Approval Date: _____

Comments: _____

I. Introduction

The Peace River State Forest (PRSF) consists of approximately 5,047 acres and is located in southwestern DeSoto County. The Board of Trustees of the Internal Improvement Trust Fund (BOT) holds fee simple title. PRSF contains a variety of improved range and natural communities. Major natural communities found on the forest include floodplain swamp, mesic flatwoods, mesic hammock, as well as basin and dome swamps. Approximately 1000 acres of mostly mesic flatwoods was converted to improved pasture and various zoological park amenities by former land managers prior to state acquisition.

PRSF is home to two (2) unique water features: Peace River and Horse Creek; the latter of which is a major tributary of the Peace River. The property provides for access to nine (9) miles of the Peace River and seven (7) miles of Horse Creek; which includes the confluence of Peace River and Horse Creek. These water features drift through a largely pristine shoreline forest with a wetlands corridor consisting mostly of cabbage palms, cypress, and live oak. The Peace River transitions from entirely freshwater at the northern end of the PRSF to somewhat brackish water with some tidal influence at the southern end.

The Florida Forest Service management of PRSF will focus primarily on preserving the water quality of the Peace River and its creeks, as these waters flow into the Charlotte Harbor estuary; to protect fish and other wildlife associated with the floodplains, rivers, creeks and estuary; and to provide for resource-based recreational opportunities with a primary focus on the Operation Outdoor Freedom program for disabled veterans. The FFS will seek to maintain the property by preserving the Florida ranch type of atmosphere, removing non-native, invasive species, maintaining most improved pastures, and continuing grazing operations. Conservation along Peace River will bolster efforts to preserve water quality flowing to the estuary, as well as protecting fish and wildlife resources, river access, significant historical sites, and natural resource-based recreation.

A. General Mission and Management Plan Direction

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

Management strategies for PRSF 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 PRSF 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 wounded veterans through the Operation Outdoor Freedom program while incorporating compatible recreation opportunities for multiple interests where possible;

- Restore and manage healthy forests and native ecosystems ensuring the long-term viability of populations and species listed as endangered, threatened, or rare, and other components of biological diversity including game and non-game wildlife and plants;
- Protect known archaeological, historical, and cultural resources;
- Restore, maintain, and protect hydrological functions related water resources and the health of associated wetland and aquatic communities;
- Provide research and educational opportunities related to natural resource management.

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

B. Past Accomplishments

PRSF is a new acquisition by way of donations from The Mosaic Company and Swamp and Overflow Lands (SOL). Since PRSF's acquisition, FFS has worked diligently to achieve various accomplishments, including posting boundaries, installation of gates, initiation of non-native invasive plant control, and the implementation of a prescribed burning program. A compilation of management activities and public use on PRSF has been completed monthly and is available from the forest manager. A table has been prepared for this plan that summarizes the accomplishments since acquisition [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 acquisition, there have been many events, developments, and accomplishments. Among the most noteworthy have been the following:

- Conducted 235 acres of Prescribed fire
- Removal of approximately 14 miles of game fence and two (2) miles of chain link fence
- Conducted hay sale on 100 acres in December 2014
- Established grazing lease on 750 acres
- Replacement of three (3) culverts
- Performed mapping and treated 83 acres of Brazilian pepper, 54 acres of cogongrass, and 38 acres of climbing fern
- Removed approximately 230 feral hogs through hunting and trapping
- Conducted assessment of existing infrastructure
- Executed expenditure of funds for maintenance of headquarters and equipment purchase
- Developed an Operation Outdoor Freedom camp with outdoor kitchen, bunk house, skinning shed and fire pit through donated funds
- Conducted 14 Operation Outdoor Freedom hunting events hosting a total of 80 veterans

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 PRSF 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: Develop and implement the Five-Year Silviculture Management Plan including reforestation, harvesting, prescribed burning, restoration, and timber stand improvement activities and goals. (Ongoing Objective)

Performance Measures:

- Annual updates of the Five-Year Silviculture Management Plan completed.
- Development and implementation of the Five-Year Silviculture Management Plan (acres treated).
- Assessment of natural pine stands in need of a timber harvest on all tracts.

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

Performance Measures:

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

Objective 3: Continue establishing initial forest inventory annually until completed, according to established criteria in the State Forest Handbook. (Long Term Objective)

Performance Measure: Number of total acres inventoried.

➤ GOAL 2: Operation Outdoor Freedom and Other Recreational Opportunities

Objective 1: Provide outdoor recreation opportunities for wounded veterans through the Operation Outdoor Freedom Program. (Ongoing Objective)

Performance Measures:

- Total number of events hosted.
- Total number of veterans served.

Objective 2: Continue to safely integrate human use into PRSF, develop the Five-Year Outdoor Recreation Plan, and update annually. (Ongoing Objective)

Performance Measures:

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

Objective 3: Establish a liaison panel. The panel consists of a mix of residents, community leaders and special interest group representatives (equestrians, veterans, trail hikers, etc.), environmental groups, and other public / private entities to establish communication and seek constructive feedback regarding the management of PRSF. (Ongoing Objective)

Performance Measures:

- Liaison Group established, and first meeting held.
- Meetings continue.

Objective 4: Enlist additional volunteers and volunteer organizations to assist with recreation and/or resource management. (Ongoing Objective)

Performance Measure: Number of volunteer hours.

Objective 5: Evaluate possible additional recreational opportunities compatible with the Operation Outdoor Freedom program.

Performance Measures:

- Opportunities evaluated. (Short Term Objective)
- Recreation increased. (Long Term Objective)

Objective 6: Develop a PRSF brochure to distribute to all users. (Long Term Objective)

Performance Measure: Brochures printed and available to all users.

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

Objective 1: Utilize prescribed fire to enhance restoration of native groundcover. Evaluate areas where native groundcover has been eliminated or heavily impacted from historical land use on a case by case basis for alternative methods to address reestablishment of native groundcover plants. (Long Term Objective)

Performance Measures:

- Assessment of restorable groundcover sites completed.
- Number of burn treatments applied to these sites.
- Periodic assessment of heavily impacted sites completed.

Objective 2. Use photo plots and routine observation to compare sites over time. (Ongoing Objective)

Performance Measures:

- Number of new photo plots established.

- Percentage of photo plots revisited annually.
- Number of photos taken biannually.

➤ **GOAL 4: Fire Management**

Objective 1: The PRSF currently contains approximately 542 acres of fire dependent communities. In addition, approximately 196 acres of altered landcover types are periodically maintained with fire. PRSF staff will conduct habitat / natural community improvement on the forest annually. To achieve an average fire return interval of two (2) to six (6) years across the forest, approximately 120 to 370 acres will be prescribed burned annually. Currently, FFS staff estimates 235 acres of PRSF are within the desired fire rotation. (Ongoing Objective)

Performance Measures:

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

Objective 2: Develop and implement the Five-Year Prescribed Burning Management Plan and the prescribed burning goals. (Ongoing Objective)

Performance Measures:

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

Objective 3: Reduce the threat of wildfire within the Wildland Urban Interface on PRSF 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 Objective)

Performance Measures:

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

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

Objective 1: In cooperation with the Florida Fish and Wildlife Conservation Commission (FWC), develop a Wildlife Management Strategy that addresses fish and wildlife species for PRSF, with emphasis on imperiled species and associated management prescriptions for their habitats. (Long Term Objective)

Performance Measures:

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

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

Performance Measure: Number of species for which monitoring is ongoing.

Objective 3: Initiate mapping of gopher tortoise and conduct searches throughout appropriate habitat within PRSF for new occurrence records. (Long Term Objective)

Performance Measures:

- 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: Develop and annually update the Five-Year Ecological Plan for PRSF, specifically to locate, identify, and control non-native invasive species. (Ongoing Objective)

Performance Measures:

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

Objective 2: Continue to maintain funding to provide for Other Personnel Services (OPS) staff for locating, identifying, and controlling non-native invasive species that exist on PRSF. (Ongoing Objective).

Performance Measures:

- Total number of acres identified and successfully treated by FFS staff.
- Funding approved to support one (1) OPS staff annually.

Objective 3: Continue to apply for contractual services project proposals for invasive treatments on PRSF through internal FFS funds or FWC Uplands Invasive Treatment Program. (Ongoing Objective)

Performance Measure: Total number of acres identified and successfully treated by contractual services.

➤ **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 Objective)

Performance Measure: Number of recorded sites.

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

Performance Measure: Number of sites monitored, and reports submitted to DHR.

Objective 3: Maintain at least one (1) qualified staff member as an archaeological site monitor. (Ongoing Objective)

Performance Measure: Number of local staff trained.

Objective 4: Conduct a comprehensive survey for cultural and historic resources. (Long-term Objective)

Performance Measure: Newly documented archaeological and historical sites.

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

Objective 1: Conduct or obtain a site assessment / study to identify potential hydrological restoration needs. (Long Term Objective)

Performance Measures:

- Assessment conducted.
- Assessment recommendations implemented and followed

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

Performance Measure: Percent compliance with state lands BMPs.

Objective 3: Close, rehabilitate, or restore those roads, firelines, and trails that have evidence of erosion into surrounding water bodies causing alterations to the hydrology and/or water quality. (Ongoing Objective)

Performance Measures:

- Total number of roads, firelines, and trails closed, rehabilitated, and/or restored.
- Total number of culverts replaced.

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

Objective 1: PRSF staff, along with help from volunteers and/or user groups, will continue maintenance of 2 parking areas and 2 trailheads, 9 miles of trails, and 5 miles of tertiary roads. (Ongoing Objective)

Performance Measure: The number of existing facilities, miles of roads, and miles of trails maintained.

Objective 2: Develop and implement the Five-Year Boundary Survey and Maintenance Management Plan and update annually. The entire perimeter will be reworked at minimum every five (5) years including harrowing where appropriate, reposting signage, and repainting boundary trees. (Ongoing Objective)

Performance Measures:

- Continued implementation of the Five-Year Boundary Survey and Maintenance Management Plan.
- Percentage of forest boundary maintained each year.
- Annual updates of the Five-Year Boundary Survey and Maintenance Management Plan completed.

II. Administration Section

A. Descriptive Information

1. Common Name of Property

The common name of the property is the Peace River State Forest (PRSF).

2. Legal Description and Acreage

The PRSF is comprised 5,047.55 acres, more or less.

PRSF is located in southwestern Desoto County, Florida. It's approximately six (6) miles southwest of Arcadia and 10 miles northeast of Port Charlotte. A complete legal description of PRSF lands owned by the Board of Trustees of the Internal Improvement Trust Fund (TIITF) is on file at the PRSF Headquarters Office, FFS State Office, and Florida Department of Environmental Protection (FDEP) state office.

The boundaries and the major parcels are identified in [Exhibit B]. The PRSF is located in Section 23, 24, 25, 35, and 36 Township 38 South, Range 23 East; Sections 31 and 32 Township 38 South, Range 24 East; Sections 1, 2, 10, 11, 12, 14, 15, 22, 23, 26, and 27 Township 39 South, Range 23 East; Section 6 Township 39 South, Range 24 East in Desoto County, Florida.

Table 1. PRSF Acreage by Funding Source

Funding Source	Acres
Donation	4,195.00
Desoto County, and Swamp and Overflow Lands	852.55

A complete legal description of lands owned by the Board of Trustees of the Internal Improvement Trust Fund (TIITF) is on record at the PRSF Forestry Station Office, Florida Department of Environmental Protection (DEP), and the FFS State Office in Tallahassee.

3. Proximity to Other Public Resources

Lands managed by state, federal, or local government for conservation of natural or cultural resources that are located within approximately 10 miles of the PRSF are included in [Exhibit E] as well as the table below:

Table 2. Nearby Public Conservation Land and Easements

TRACT	AGENCY	DISTANCE
RV Griffin Reserve (GDC)	SWFWMD	0.1 mile west
Candy Bar Ranch Agricultural and Conservation Easement	FDACS, FFS	4 miles west
Prairie Creek Preserve	Charlotte County	6 miles southeast
Lower Peace River Corridor	SWFWMD	Adjacent south
Myakkahatchee Creek Conservation Easement	SWFWMD	8 miles west
Prairie/Shell Creek	SWFWMD	4 miles south
Lewis Longino Preserve	SWFWMD	4 miles west
Walton Ranch	Sarasota County	8 miles west
Longino Ranch Conservation Easement	SWFWMD	5 miles west

TRACT	AGENCY	DISTANCE
Boran Ranch Mitigation Bank	EarthBalance	4 miles west
Peace River Preserve	Charlotte County	3 miles south

SWFWMD – Southwest Florida Water Management District

FWC – Florida Fish and Wildlife Conservation Commission

FDACS, FFS – Florida Department of Agriculture and Consumer Services, Florida Forest Service

4. Property Acquisition and Land Use Considerations

The primary purpose of acquisition by the State of Florida was to conserve and protect natural and historical resources with an emphasis on protecting the Peace River and Charlotte Harbor estuary. The primary tract of PRSF, formerly known as the Peaceful Horse Ranch, was acquired through donation by the Mosaic Company in October 2014. Additional parcels of Swamp and Overflow Lands not previously assigned to a managing agency were added to the PRSF upon execution of the Lease Agreement in February 2015. These parcels are assigned to the FFS for management under Lease Agreement number 4736.

Table 3. Parcel Acquisition

Parcel Name	Deed Date	Lease Date	Acres (County)
Mosaic	10/17/2014	2/6/2015	4,195.00 (Desoto)
Desoto County, Swamp and Overflow Lands	N/A	6/18/2015	852.55 (Desoto)

B. Management Authority, Purpose and Constraints

1. Purpose for Acquisition / Management Prospectus

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

The Florida Forest Service management of PRSF will focus primarily on preserving the water quality of the Peace River and its creeks, as these waters flow into the Charlotte Harbor estuary; to protect fish and other wildlife associated with the floodplains, rivers, creeks and estuary; and to provide for a diverse array of resource-based recreational opportunities. The FFS will seek to maintain the property by preserving the Florida ranch type of atmosphere, removing non-native invasive species, maintaining most improved pastures, and continuing grazing operations.

See [Exhibit R] for the Management Prospectus.

Revenue derived from grazing leases and other revenue generating activities is used to offset incurred expenses, capital improvements, and other personal services (OPS).

Multiple-use management for PRSF will be accomplished through the integration of the following strategies:

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

2. Degree of Title Interest Held by the Board

The Board of Trustees of the Internal Improvement Trust Fund (TIITF) holds fee simple title.

3. Designated Single or Multiple-Use Management

PRSF 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 Number 4736.

Multiple use is the harmonious and coordinated management of timber, recreation, conservation of fish and wildlife, forage, archaeological and historic sites, habitat and other biological resources, or water resources so that they are utilized in the combination that will best serve the people of the state, making the most judicious use of the land for some or all 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 PRSF 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 PRSF include, but are not limited to:

- Grazing and other (hay, apiary, etc.) leases
 - Currently, there is one (1) cattle grazing and hay lease on PRSF.
 - There are currently no apiary leases on PRSF. The feasibility of pursuing and establishing apiary leases on the forest in areas where appropriate will be evaluated in accordance with the guidelines stated in the State Forest Handbook.

- Recreational fees
- Miscellaneous forest products

5. Conformation to State Lands Management Plan

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

6. Legislative or Executive Constraints

There are no Florida Statutes specifically directed toward PRSF. 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.

The Peace River approaches its terminus at the Charlotte Harbor estuary. The Peace River contributes the bulk of freshwater entering Charlotte Harbor, one of the largest and most productive estuaries in Florida.

C. Capital Facilities and Infrastructure

1. Property Boundaries Establishment and Preservation

PRSF boundary lines (108 miles total) are managed by state forest personnel in accordance with the guidelines of the State Forest Handbook. Boundary lines along frontage of Peace River and Horse Creek are marked and posted where appropriate. There are approximately 14 perimeter gates on PRSF that require periodic maintenance.

2. Improvements

Current buildings/facilities present on the PRSF include:

- One (1) residence/office structure
- One (1) Operation Outdoor Freedom camp consisting of a residence, screened outdoor kitchen, bunk house and several outbuildings
- Three (3) horse barns
- 29,000ft² all-purpose outbuilding
- Two (2) hunt camp structures
- Numerous miscellaneous agricultural outbuildings
- One (1) kiosk/iron ranger near hiking trailhead
- Two (2) recreational parking areas

- Two (2) artesian wells
- Rhinoceros pens and chute – utilized for cattle

Planned buildings/facilities on the PRSF include:

Recreation:

- Evaluate conversion of an existing hunt camp structure for use as a primitive youth camp area
- Evaluate potential for canoe/kayak launch on King's Highway at the Horse Creek Crossing
- One (1) designated primitive camp site along Horse Creek

3. On-Site Housing

One (1) employee residence is currently in place.

FFS may establish further on-site housing (mobile / manufactured home) on PRSF 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 two (2) homes per location with the possibility of more than one on-site housing location occurring if considered necessary by the District Manager and approved by the Director.

4. Operations Infrastructure

a. Operations Budget

For Fiscal Year 2016-2017, the total annual budget for PRSF was \$79,400. This amount includes salaries, expenses, contractual services, OPS, etc. A summary budget for PRSF is contained in [Exhibit U]. Implementation of any of the activities within this management plan is contingent on availability of available funding, other resources, and other statewide priorities.

b. Equipment

Equipment assigned or immediately available for work on the PRSF to support resource management work, and maintain improvements such as trails, roads, and facilities, include the following:

- One (1) farm tractor with various implements
- One (1) UTV
- One (1) crew-cab pickup truck
- Two (2) riding lawnmowers

Additional equipment may be utilized from the Myakka District.

c. Staffing

A Park Services Specialist and OPS Park Ranger are the staff assigned to PRSF, with an office at the PRSF Headquarters. A Forester is assigned to PRSF and Myakka State Forest, and a Forestry Resource Administrator with an office at the Myakka State Forest Headquarters. Additionally, a Forest Area Supervisor, one (1) Senior Forest Ranger, and two (2) Forest Rangers have offices at the Arcadia Forestry Station and assist with management activities at PRSF.

The Forester and Park Services Specialist 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 Resource Administrator. Forest operations, such as road maintenance, prescribed burning, etc., are the responsibility of the FFS Myakka River 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, sewage treatment facilities, linear facilities, off highway vehicle use, communication towers and antennas, dumping, mining, and oil well stimulation (e.g. hydraulic fracturing/fracking), or as determined by law, regulation or other incompatible uses as described elsewhere in the management plan.

2. Additional Land Needs

The acquisition of additional land within the optimal management boundary would facilitate restoration, maintenance, and management of the resources on PRSF, as well as provide protection for the natural resources. [Exhibit C]

3. Surplus Land Assessment

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

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

4. Adjacent Conflicting Uses

During the development of this management plan, FFS staff identified and evaluated adjacent land uses, reviewed current comprehensive plans, and future land use maps in making a determination and potential adjacent conflicting 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.

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 Desoto County for review and compliance with their local comprehensive plans [Exhibit S].

6. Utility Corridors and Easements

The following are reservations or easements on PRSF:

- a. There are ten (10) oil and mineral reservations; seven (7) of which state “the rights of entry and/or exploration have been released or eliminated of record pursuant to F.S. 704.05”.
- b. There are “restrictions, conditions, reservations, easements and other matters contained on the plat of Jim Jones subdivision”.
- c. There is a road drainage easement.
- d. There is an access easement for “Old Dr. Aurin Road”.
- e. Peace River Electric has a utility easement.

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 PRSF 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 Southwest Florida Water Management District (SWFWMD). 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 Lease numbered 4736. 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, and conducts other wildlife management activities with input from FFS.

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 SWFWMD 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 PRSF are stated in Chapter 5I-4 of the Florida Administrative Code. FWC will enforce fish and wildlife regulations and aid in enforcing state forest rules.

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

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

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 that agency. FFS responds to public involvement through liaison panels, management plan advisory groups, public hearings, and through ongoing direct contact with user groups.

The plan was developed with input from the PRSF Management Plan Advisory Group and was reviewed at a public hearing on February 21, 2019. A summary of the advisory group's meetings and discussions, as well as written comments received on the plan, are included in [Exhibit T]. 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 PRSF. 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 Florida Forest Service. FFSF supports management activities and projects on Florida's state forests. FFSF is an organization established by Florida statute that supports programs within Florida's state forests and is governed by a board of directors representing all areas of the state. Through community support, FFSF assists the Florida Forest Service to expand opportunities for recreation, environmental education, fire prevention, and forest management within Florida's state forests.

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

III. Archaeological/Cultural Resources and Protection

A. Past Uses

The PRSF has a rich history of past agricultural use. The property was formerly utilized for nearly a decade as a ranch by an individual who bred exotic animals such as rhinoceros and giraffes and other "hoofstock" on the land.

B. Archaeological and Historical Resources

A review of information contained in the Florida Department of State, Division of Historical Resources, Florida Master Site file has determined there is one (1) recorded archeological site found at the designated area for PRSF, Desoto County, Florida. Currently, there are no known sites listed in the National Register of Historic Places on PRSF.

Table 4. Archaeological & Historical Sites on PRSF

SITE ID	SITE NAME	SITE TYPE
DE00390*	NN	AR

* Archaic site containing lithic scatter and evidence of drowned camps
See [Exhibit G] for a complete list of all archeological sites on PRSF.

C. Ground Disturbing Activities

Representatives of DHR and Florida Natural Areas Inventory will be consulted prior to the initiation of any proposed significant ground disturbing activity by FFS or any other public agency. FFS will make every effort to protect known archaeological and historical resources. FFS will follow the "Management Procedures for Archaeological and Historical Sites and Properties on State Owned or Controlled Lands" [Exhibit H] and will comply with all appropriate provisions of Section 267.061(2) Florida Statutes. Ground disturbing activities not specifically covered by this plan will be conducted under the parameters of the "List of ARC / Division of State Lands Approved Interim Management Activities".

D. Survey and Monitoring

Currently, four (4) local district FFS staff are trained by DHR as an archaeological resource monitor. FFS will pursue opportunities for getting additional personnel trained. FFS will consult with public lands archaeologists at DHR as necessary to determine an appropriate priority and frequency of monitoring at each of the listed sites, as well as any protection measures that might be required. Although there is only one (1) site currently recorded, all archaeological and historical sites within the state forest will be monitored at least annually. FFS field staff will monitor the listed sites to note condition and any existing or potential threats.

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

IV. Natural Resources and Protection

The purpose for the acquisition of PRSF is to buffer and preserve the water quality and habitat of the Peace River and its creeks; to protect the water quality for the downstream Charlotte Harbor Estuary; to protect aquatic and upland wildlife associated with the floodplains, rivers, creeks and estuary; and to provide for a diverse array of natural-resource-based recreational opportunities for Florida residents and visitors.

Efforts will be made to monitor and protect PRSF's waterbodies and their associated water quality, discharge, and native plants and animals. All forest management activities relating to timber harvesting practices will comply with the BMP's for public lands. Copies of this publication are available upon request from FFS.

FFS will work with the SWFWMD 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 PRSF was obtained from the United States Department of Agriculture Natural Resources Conservation Service (NRCS). PRSF consists of 23 different soils. The predominant soils listed by the NRCS include: Bradenton-Felda-Chobee complex, Terra Ceia muck, Farnton fine sand and Immokalee fine sand. For detailed information on all soils present on the state forest, see [Exhibit I].

2. Soil Protection

Currently, there are no significant soil erosion problems at PRSF. 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 PRSF perform essential roles in the protection of water quality, groundwater recharge, flood control, and aquatic habitat preservation. Maintenance and restoration of native ecosystems is a high management priority. Properly managing the soil, water, and watershed resources of this forest are an integral part of accomplishing this objective. In the interest of maintaining these valuable resource functions, state forest management personnel will work with the FFS Hydrology Section to incorporate wetland restoration into the overall resource management program as opportunities arise, particularly where wetland systems have been impaired or negatively impacted by previous management activities or natural disasters. All silvicultural activities (including timber harvesting and reforestation) will be conducted in accordance with Florida's Silviculture Best Management Practices manual.

See [Exhibit K] for map of the water resources at PRSF.

1. Resources

PRSF encompasses the Peace River corridor for approximately nine (9) miles, and also includes seven (7) miles of frontage along Horse Creek with 3.2 miles including both banks extending to the area of confluence with the Peace River. A tributary of the Peace River called Handcock Lake (locally known as Aurin Lake) is contained within the PRSF property extending northwest from the river for 1.1 miles.

2. Water Classification

There are no Outstanding Florida Waters (OFW) located on or adjacent to the site. Some of the site contains Class I and Class I-Treated waters.

Class I waters include Horse Creek – From the northern border of Section 14, Township 38 South, Range 23 East, southward to Peace River.

Class I-Treated waters include Peace River Segment – From the confluence with Horse Creek southward to the southern line of Section 15, Township 39 South, Range 23 East. [Exhibit J]

3. Water Protection

The Peace River contributes the bulk of freshwater entering Charlotte Harbor. Charlotte Harbor is one of the largest and most productive estuaries in Florida and a focal point for the acquisition of 42,000 acres now included in the Charlotte Harbor

Preserve State Park. The PRSF is among other managed areas in the vicinity contributing to the protection of Charlotte Harbor. As a key area directly contributing to the Peace River Watershed, the PRSF will continue operations management with water quality protection a primary concern.

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

See [Exhibit K] for map of the water resources at PRSF.

Water resource protection measures, at a minimum, will be accomplished using Best Management Practices (BMPs) as described in the most current version of Silvicultural Best Management Practices Manual.

4. Swamps, Marshes, and Other Wetlands

Numerous swamps and wetlands are located on PRSF. The PRSF contains six (6) wetland communities which are Basin Swamp, Blackwater Stream, Floodplain Swamp, Dome Swamp, Floodplain Marsh, and Depression Marsh. Preservation of naturally occurring 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, PRSF, with assistance from the FFS Hydrology Section, may 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 SWFWMD. 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 (BMP).

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

Currently, the PRSF does not reside in an active BMAP.

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

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

C. Wildlife Resources

1. Threatened and Endangered Species

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

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

Scientific Name	Common Name	Federal Status*	State Status*	FNAI Global Rank*	FNAI State Rank*
<i>Gopherus polyphemus</i>	Gopher Tortoise	C	ST	G3	S3
<i>Pteroglossaspis ecristata</i>	Giant Orchid	N	T	G2G3	S2
<i>Haliaeetus leucocephalus</i>	Bald Eagle	N	N	G5	S3
<i>Tillandsia balbisiana</i>	Balbis' Air-plant	N	ST	N	N
<i>Encyclia tampensis</i>	Florida Butterfly Orchid	N	N	N	N
<i>Tillandsia. fasciculata</i>	Common Wild-pine	N	SE	N	N
<i>Tillandsia utriculata</i>	Spreading Air-plant	N	SE	N	N
<i>Elanoides forficatus</i>	Swallow-tailed Kite	N	N	G5	S2

* See Exhibit L for the Status/Rank Key

2. Florida Natural Areas Inventory

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

a. Element Occurrences

The Florida Natural Inventories reports several documented Element Occurrences of rare or endangered species within the vicinity of the property. [Exhibit L]

Documented species are listed in Table 5.

Documented habitat includes: Basin Swamp, Blackwater Stream, Depression Marsh, Dome Swamp, Floodplain Marsh, Floodplain Swamp, Hydric Hammock, Mesic Flatwoods, Mesic Hammock, Sandhill, Scrub, Scrubby Flatwoods, Successional Hardwood Forest, Wet Flatwoods, Xeric Hammock, Pasture-Improved, Pasture – Semi-Improved, 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 the PRSF. [Exhibit L]

c. Land Acquisition Projects

This site is located adjacent to the Peace River Refuge Florida Forever BOT project, which is part of the State of Florida's Conservation and Recreation Lands land acquisition program.

Other Florida Forever Projects within Desoto County include: Horse Creek Ranch and Myakka Ranchlands, however, the additional Florida Forever projects in Desoto County are not within the same Section, Township, and Range as PRSF.

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

3. 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. [Exhibit M]

Other findings by the FWC include:

- a.** The property is located adjacent to and within multiple Strategic Habitat Conservation Areas for Cooper's hawk, Florida Scrub-Jay, and swallow-tailed kite.
- b.** PRSF is located within an area of Species Richness.
- c.** Multiple Priority Wetlands are located on and in close proximity to PRSF.
- d.** FWC's response includes a map indicating multiple species locations.

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

occurrences in their database indicates that species of significance do not occur in the area. [Exhibit M]

The FWC recommends the review of management guidelines in the published FWC Gopher Tortoise Species Management Plan to guide management actions for the gopher tortoise (*Gopherus polyphemus*) on the area. The FWC Gopher Tortoise Species Management Plan provides beneficial resource guidelines for habitat management and monitoring of the gopher tortoise. For your reference, the FWC Gopher Tortoise Species Management Plan can be accessed at this web address: <http://myfwc.com/wildlifehabitats/managed/gopher-tortoise/management-plan/>

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

4. Game Species and Other Wildlife

Wildlife management will play an important role in the management of resources on PRSF. FWC provides cooperative technical assistance in managing the wildlife and fish populations, as well as, law enforcement.

PRSF provides habitat for many different species of wildlife. More common species include: white tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*) gray squirrel (*Sciurus carolinensis*), rabbit (*Sylvilagus* spp.), and migratory birds in season.

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

5. Survey and Monitoring

Species-specific management plans will be developed, when necessary, with assistance from FWC. Such plans will be consistent with rule and statute promulgated for the management of such species. Continued biological surveys will be conducted to determine locations and relative abundance of these species.

While no species-specific monitoring plans have been developed, information gathered has been used to prioritize stands for habitat improvement projects. Future species-specific management plans and monitoring protocols may be developed by the FFS Forest Management Bureau, with input from the SWFWMD and FWC, as appropriate.

a. Gopher Tortoises

Future surveys will depend on resources and respective agency priorities in a given fiscal year. FFS will cooperate with FWC prior to any gopher tortoise population

surveys to determine the recommended appropriate gopher tortoise survey methodology.

FFS may implement the use of management guidelines in the published FWC Gopher Tortoise Species Management Plan to guide management actions for the gopher tortoise on the area. Staff should make an effort to minimize impacts to known burrows, whether active, inactive, or abandoned. Protecting burrows and tortoises during mechanical treatment is important and staff and mechanical equipment operators should use caution when working in areas where tortoises or burrows occur. Staff should locate burrows prior to any mechanical work and if possible, avoiding mechanical work during September through October when gopher tortoise hatchlings are most abundant (FWC 2012).

b. Florida Scrub-jay

FNAI states the U.S. Fish and Wildlife Service indicates there are potential scrub-jay populations on or very near PRSF. [Exhibit L]

c. Listed Plant Species

There are four (4) plants on PRSF that are listed endangered, threatened, or species of concern by either the federal government (USFWS) or the State (FNAI, FDACS).

New areas and appropriate habitat within PRSF are systematically searched for rare plant occurrence, and if found, are mapped with GPS after burns, before and after management activity (e.g. timber harvesting and other projects that affect the management of scrub and other xeric habitat), or stochastic events (hurricanes). GIS shapefiles/coverages of listed populations are updated with new occurrence records regularly, that include prior rare plant locations.

All known locations of listed or rare flora are GIS mapped and location data were shared with FNAI prior to their mapping of natural communities in 2016. Future work may include submitting data to FNAI to enter into the State Natural Heritage database and the Florida Elements Occurrence database.

d. Other Rare Biota Surveys

Surveys are done as time and staffing allow. During routine management activities, incidental sightings of rare animals and plants are GIS mapped by FFS staff. High quality plant communities continue to have ad hoc surveys for both invasive weeds and listed plants. Newly acquired land parcels will be surveyed for listed species.

Species-specific surveys for state or federally listed wildlife species may be developed when necessary, with assistance from FWC. FFS may seek assistance from universities, FWC, and other agencies to conduct surveys.

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 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.

FFS will implement sound silvicultural practices, including harvesting, thinning, prescribed burning, and reforestation, to establish a healthy forest with an age distribution that best duplicates natural conditions. Well timed and executed timber harvests play an integral role in the health of forest ecosystems by removing off-site trees to reestablish native species and thinning dense forest stands to improve understory habitat. This allows for less damaging prescribed burns and improved forest health.

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

E. Beaches and Dune Resources

No beaches or dunes occur on the PRSF.

F. Mineral Resources

There are significant mineral deposits of commercial value on PRSF. FFS will manage the property to assure biodiversity in a sustainable manner and shall not offer extraction of minerals on the property.

On PRSF there are ten (10) oil and mineral reservations; seven (7) of which state “the rights of entry and/or exploration have been released or eliminated of record pursuant to F.S. 704.05”.

G. Unique Natural Features and Outstanding Native Landscapes

Numerous important natural features occur on PRSF. These include several miles of river and creek frontage along the Peace River and Horse Creek, along with a variety of natural communities. These features, coupled with portions of the functioning ecosystems found on the forest, should be considered as outstanding native landscapes.

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 PRSF 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 PRSF staff. Other special conditions may be applicable, and the authorization may be terminated at any point if the study is not in compliance.

FFS staff anticipates the potential for range research to be conducted onsite in the future.

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, SWFWMD, and the Acquisition and Restoration Council (ARC), as appropriate.

V. Public Access and Recreation

The primary recreation objectives are to provide outdoor recreation activities to wounded veterans through Operation Outdoor Freedom (OOF) events and 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 PRSF include nature study, hiking, horseback riding, fishing, and hunting as part of the OOF program. Additional opportunities are currently under evaluation, including youth camping and canoeing/kayaking.

Periodic evaluations will be conducted by FFS staff to monitor recreational impacts on resources. Modifications to recreational uses will be implemented should significant negative impacts be identified. New recreation opportunities and facilities, which are compatible with the primary goals and responsibilities of the FFS, will be considered only after FFS determines their compatibility with other forest uses and forest resources. Assessment of visitor impacts,

outdoor recreation opportunities and facilities, and proposed changes will all be addressed in the Five-Year Outdoor Recreation Plan updates.

A. Existing

A variety of recreational opportunities are available at PRSF, including hiking, horseback riding, and hunting, as part of the OOF program. See [Exhibit D] for a map of the Facilities and Improvements.

a. Public Access and Parking

Primary access onto the forest is from Kings Highway (County Road 769) approximately 2.7 miles south of State Road 72. A state forest entrance sign is in place at the intersection of Kings Highway and Aurin Grade.

Two (2) parking areas have been established. The smaller parking area near the north end of Aurin Grade provides access to the hiking trail and is accessible to the public. The larger parking area farther south on Aurin Grade provides access to the equestrian trail and is accessible with a State Forest Use Permit.

The PRSF property can also be accessed from the water courses that run through the property, from both Peace River and Horse Creek.

b. Recreational Trails

PRSF has two (2) trailheads providing access to the forest for trail users.

A 2-mile loop hiking trail (Horse Creek Trail) located near the PRSF headquarters winds through and around hardwood hammocks, depression marshes, and cypress stands.

A 6-mile loop equestrian trail (Aurin Lake Trail) beginning approximately two (2) miles south of the PRSF entrance is accessible by State Forest Use Permit. The equestrian trail travels along Horse Creek, Peace River, and Aurin Lake through a variety of natural communities.

c. Camping

While no designated camping areas have been established, FFS recognizes that several sites along Peace River, Horse Creek, and Aurin Lake are frequently used by area boaters. An evaluation of these sites will need to be completed in order to determine appropriate management options.

d. Hunting and Fishing

PRSF is ideally suited to specialty outdoor opportunities for wounded American veterans through the OOF program and special opportunity youth hunts, in cooperation with the Florida Fish and Wildlife Conservation Commission.

The Operation Outdoor Freedom Camp at Peace River, located near the west bank of Aurin Lake, was completed in early 2018 and includes a renovated residential structure for all-purpose use as well as a screened kitchen pavilion, skinning shed, fire pit, and bunk house/training facility. This camp serves as the focal point for OOF events on PRSF.

e. **Environmental Education/Ecotourism**

An information kiosk located near the PRSF entrance and hiking trail head will be utilized for distributing educational materials.

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. Both terrestrial and aquatic resources and relative activities will be evaluated. 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 PRSF.

a. **Public Access and Parking**

An additional small parking area (4-5 vehicles) is planned along Kings Highway (County Road 769) near the Horse Creek bridge to provide proper paddling and fishing access to Horse Creek. Frequent road shoulder parking currently occurs at this location.

b. **Recreational Trails**

FFS will continue to assess the need for additional trails.

c. **Camping**

Evaluation of a group/youth camp area may be considered utilizing an old hunt camp structure located within the hiking trail loop. The existing camp structure, well, septic, and power may easily be converted to a small bath house facility and picnic pavilion.

Potential primitive camp sites may be evaluated.

d. **Environmental Education**

At this time only self-guided tours are available. If a need is determined in the future, PRSF may implement an environmental education program which may include guided tours, additional self-guided tours, and hands-on events.

e. **Bird Watching**

A birding checklist for PRSF may be developed in the future. The local checklists will be used as guides from TNC and FWC.

The FFS will handle permitting requests for recreational activities.

C. Hunter Access

The layout of the acreage of PRSF precludes opening the property to general public hunting. However, the property is ideally suited to limited specialty outdoor

opportunities for wounded American veterans through the OOF program and youth outdoor opportunities, including special opportunity youth hunts, in cooperation with the Florida Fish and Wildlife Conservation Commission.

OOF will be host to multiple events on the PRSF. These events will involve all aspects of outdoor recreation activities including but not limited to fishing, hunting, canoeing, hiking, horseback riding, clay shooting, and any other activity that is developed as an outdoor activity for wounded veterans. The supporting participants 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-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.

D. Education

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

VI. Forest Management Practices

A. Prescribed Fire

Forest management practices on PRSF are important in the restoration and maintenance of forest ecosystems and provide a variety of socio-economic benefits to Floridians. Management practices on PRSF 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. Longleaf restoration may occur in certain areas of the forest.

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 Myakka River 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 PRSF is available in [Exhibit N].

FFS has no fire towers or tractor / plow units located at PRSF Headquarters. Support is available from Arcadia Forestry Station in western Desoto County. Personnel and equipment stationed at PRSF and Arcadia Forestry Station 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 PRSF 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 PRSF, 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 PRSF are executed by Florida Certified Prescribed Burn Managers in accordance with F.S.-590.125 and F.A.C. 5I-2. The smoke screening system will be used as a smoke management tool to minimize the adverse impact of smoke that may affect residential communities, public roads, schools, and other smoke sensitive areas.

According to FNAI, historic, fire dependent natural communities on PRSF are estimated to have occupied approximately 1,818 acres, and to have burned at approximately 1-30 year intervals, depending on the community. Past land uses have left some of these historically fire dependent communities in a condition unable to carry prescribed fire. Based on current conditions and management objectives, PRSF will plan for 120 to 370 acres to be prescribed burned annually at approximately 2-6-year intervals. Restoration of these areas, by removal of the off-site species and reforestation, will increase prescribed burn acreage goals over time. Meeting prescribed fire goals will be largely dependent on weather conditions, personnel, and statewide emergency situations such as wildfires, hurricanes, and other natural disaster response and relief.

The southern portion of the state has an extended growing season for pines and other vegetation. There is also an extended wet season that could limit the frequency of prescribed burns. Therefore, the objective is to encourage year-round prescribed burning whenever possible, with the understanding that much of the prescribed fire will be applied, but not limited to, the dormant season. This will meet several resource objectives including management of cattle forage on PRSF.

Fires caused by lightning at the end of the dry season and through the rainy season (growing season) represent the natural fire regime in central Florida. It is believed that native range present at PRSF has been subjected to this type of fire for many centuries. Numerous groundcover species found in flatwoods and dry prairie communities are adapted to and dependent upon growing season fires. However, Florida ranchers have typically burned native range in winter or early spring. Prescribed fires conducted in late spring or summer will create a ground cover mosaic that will promote herbaceous plant species, while also retaining patches of palmetto cover to provide denning and escape cover for the Florida panther, Florida black bear, and other game and non-game wildlife species. Inclusion of periodic spring and summer prescribed burns in the typical burn regime will likely benefit native plant communities, as well as cattle grazing and wildlife.

Control of wildfires and the proper application of prescribed fire in the Wildland-Urban Interface (WUI) is important for FFS to address. Any current or future encroachment by development near PRSF may present smoke and fire management challenges.

1. Fire Management

FFS will develop a fire management plan that will serve as a working tool and an informational document for PRSF. The plan will provide guidelines regarding wildfire suppression and prescribed fire management. It will specify burn units, burn unit prescriptions, appropriate fire return intervals, and fire suppression planning. The plan may be reviewed and amended as necessary.

The use of prescribed fire in the management of timber, wildlife, and ecological resources on PRSF 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 (2016) to identify areas that may require mechanical treatments in conjunction with prescribed fire to restore a more natural vegetative structure.

b. Burn Unit Plans: Each prescribed fire will be conducted in accordance with FFS regulations and state law (Rule Chapter 5I-2 F.A.C., Chapter 590 F.S.) and have a burn unit plan (or prescription). Each prescription will contain, at a minimum, the information, as required by Section 590.125(3), F.S., needed to complete the FFS Prescribed Burn Plan Form FDACS 11461.

Aerial ignition is unlikely, but 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 Myakka River 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 (3) 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 PRSF Fire Management Plan.

1. Suppression Strategies

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

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

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

2. Smoke Management

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

3. Fire Breaks and Firelines

A system of permanent fire breaks will be developed and maintained around and within the boundaries of PRSF 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 bulldozed lines will be used for initial installation of firelines in heavy fuels and in cases where it's considered necessary to protect life, property, or resources and/or to minimize threats to firefighters. Plow and bulldozed lines will be rehabilitated and BMPs implemented as soon as practical after the fire is suppressed.

4. Sensitive Areas

PRSF will develop and maintain 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 will be made aware of these areas in the event of a wildfire. Special precautions will be followed when prescribed burning in sensitive areas on PRSF. When possible, fire staff will avoid line construction in wetland ecotones throughout the forest.

5. Firewise Communities

Communities in wildfire prone areas must work together to be fully prepared for wildfire. A "Fire Adapted Community" incorporates people, buildings, businesses, infrastructure, cultural resources, and natural areas to prepare for the effects of wildfire. The Fire Adapted Community concept serves as an umbrella to the various programs that help communities become more fire adapted. The FFS has implemented the Fire Adapted Community concept for prevention statewide. Specifically, in the area adjacent to or nearby PRSF, efforts will include identifying Communities at Risk through the web-based South WRAP (Southern Area Wildfire Risk Assessment Portal) and working with communities to become Firewise where appropriate.

6. Adjacent Neighbor Contacts

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

7. Post-Burn Evaluations

A post-burn evaluation is required for each wildfire and prescribed burn on the state forests to assess impacts on timber 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

PRSF is managed consistent with the deed [Exhibit W] for conservation and enhancement of the natural resources and ecological values of land in its natural and/or open condition.

1. Strategies

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

- 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 PRSF 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. 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 percent of PRSF will be inventoried annually to provide an accurate estimation of the standing timber and to ensure that stands will be managed sustainably. A full initial forest inventory has not been completed at this time. The inventory procedure guidelines in the FFS State Forest Handbook will be followed in completing the inventory.

Timber / forestry resources available on the property include longleaf and south Florida slash pines, and mixed hardwoods.

4. Timber Sales

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

PRSF is not envisioned as a productive timber tract and will not be managed as such. However, longleaf pine/wiregrass restoration will be a component of converting some pastures into a more natural state, thus enhancing the native species habitat.

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.

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

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

The FFS will enlist support from the FWC in efforts to control non-native invasive animals. Feral hogs (*Sus scrofa*) are present throughout PRSF. Feral hogs have been seen frequently by FFS staff, and an inspection team prior to the State's purchase of the property noted significant damage due to feral hogs. The FWC has issued a feral hog control trapping permit to FFS for all state forests and the FFS will encourage hog removal on PRSF through trapping and hunting. Recruitment of hog control support will depend on the number and success of OOF hog hunts that may take place on PRSF.

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 PRSF

Scientific Name	Common Name	Treatment Strategy	Acres Impacted	Population Status (Stable, Increasing, Decreasing, Eradicate)
<i>Lygodium microphyllum</i>	Old World Climbing Fern	Herbicide or Cut and Spray	53	Decreasing
<i>Imperata cylindrica</i>	Cogon grass	Herbicide	52	Decreasing
<i>Schinus terebinthifolia</i>	Brazilian Pepper	Herbicide or Cut and Spray	9	Decreasing
<i>Rhodomlyrtus tomentosa</i>	Downy Rosemyrtle	Herbicide	2	Decreasing
<i>Solanum viarum</i>	Tropical Soda Apple	Herbicide	2	Decreasing
<i>Abrus precatorius</i>	Rosary Pea	Under review	Unknown	Increasing
<i>Ardisia crenata</i>	Coral Ardisia	Under review	Unknown	Increasing
<i>Asparagus aethiopicus</i>	Sprenger's Asparagus Fern	Under review	Unknown	Increasing
<i>Cinnamomum camphora</i>	Camphor Tree	Under review	Unknown	Increasing
<i>Crotalaria rotundifolia</i>	Rabbitbells	Under review	Unknown	Increasing
<i>Eichhornia crassipes</i>	Water Hyacinth	Under review	Unknown	Increasing
<i>Enterolobium contortisiliquum</i>	Earpod Tree	Under review	Unknown	Increasing
<i>Eucalyptus robusta</i>	Swamp Mahogany	Under review	Unknown	Increasing
<i>Ludwigia peruviana</i>	Peruvian Primrosewillow	Under review	Unknown	Increasing
<i>Malvaviscus penduliflorus</i>	Turk's Cap Mallow	Under review	Unknown	Increasing
<i>Melia azedarach</i>	Chinaberry	Under review	Unknown	Increasing
<i>Melinis repens</i>	Natal Grass	Under review	Unknown	Increasing
<i>Morrenia odorata</i>	Latexplant	Under review	Unknown	Increasing
<i>Nephrolepis cordifolia</i>	Sword Fern	Under review	Unknown	Increasing
<i>Pseudosasa japonica</i>	Bamboo	Under review	Unknown	Increasing
<i>Psidium guajava</i>	Guava	Under review	Unknown	Increasing
<i>Ricinus communis</i>	Castor Bean	Under review	Unknown	Increasing
<i>Sansevieria hyacinthoides</i>	Bowstring Hemp	Under review	Unknown	Increasing
<i>Sesbania punicea</i>	Purple Sesban	Under review	Unknown	Increasing
<i>Solanum tampicense</i>	Wetland Nightshade	Under review	Unknown	Increasing
<i>Syngonium podophyllum</i>	Arrowhead Vine	Under review	Unknown	Increasing
<i>Urena lobate</i>	Caeser Weed	Herbicide	Unknown	Increasing
<i>Urochloa maxima</i>	Guinea Grass	Under review	Unknown	Increasing
<i>Urochloa mutica</i>	Para Grass	Under review	Unknown	Increasing
<i>Urochloa subquadripara</i>	Signalgrass	Under review	Unknown	Increasing
<i>Wedelia trilobata</i>	Wedelia	Under review	Unknown	Increasing
<i>Xanthosoma sagittifolium</i>	Elephant Ear	Under review	Unknown	Increasing
<i>Sus scrofa</i>	Feral hog	Hunting and Trapping	Unknown	Stable

A monitoring program is in place whereby known populations of non-native, invasive species, treatment strategies, observation dates, and GPS locations are recorded and tracked using a GIS database. When new populations of non-native, invasive species are discovered they are recorded in the database and mapped. [Exhibit O]

E. Insects, Disease and Forest Health

Currently, there are no unusual insect or disease problems on PRSF. 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 Desoto County will be notified of the approval of this plan documenting this designation. [Exhibit V]

As a result, prior to conducting any arthropod control activities on PRSF, 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 PRSF. 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. [Exhibit V]

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 Application
2. Timber Stand Improvement Activities
3. Tree Planting and Site Preparation
4. FNAI for Surveying

VII. Proposed Management Activities for Natural Communities

In 2016, FNAI completed an inventory and natural community mapping project on PRSF and a historic natural community type map was created [Exhibit Q]. Current natural communities and cover types can be found in [Exhibit P].

Table 7. Current Natural Communities (Acres)

Current Natural Community Type	*Current Acres (Approximate)
Basin Swamp	43
Blackwater Stream	73

Current Natural Community Type	*Current Acres (Approximate)
Depression Marsh	83
Dome Swamp	15
Floodplain Marsh	105
Floodplain Swamp	2,551
Hydric Hammock	154
Mesic Flatwoods	206
Mesic Hammock	427
Sandhill	29
Scrub	18
Scrubby Flatwoods	25
Wet Flatwoods	48
Xeric Hammock	28
Other Altered Landcover Types**	1,152

* Note rounding errors exist in “Current” category totals

** See Table 8

Table 8. Other Altered Landcover Types Found on PRSF

Altered Landcover Type*	Current Acres Mapped
Developed	6
Abandoned Field/Pasture	22
Artificial Pond	5
Pasture - Improved	697
Pasture – Semi-Improved	63
Clearing	111
Successional Hardwood Forest	248
TOTAL	1,152

*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 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 PRSF

Habitat Type	Historic Fire Return Intervals*	PRSF Fire Frequency Goal (Local)	Comments
Basin Swamp	2 – 5 periphery N/A interior	2 – 5	Periphery will burn with surrounding uplands. Lowest portions burn very infrequently, if ever.
Blackwater Stream	N/A	N/A	Not a fire dependent community
Depression Marsh	Variable	Variable	Edges burn with surrounding uplands
Dome Swamp	3 – 5 periphery 100 – 150 interior	3 – 5	Edges burn with surrounding uplands
Floodplain Marsh	Variable	3 – 5	Will burn with surrounding uplands during dry season, longer return interval likely where influenced by fresh (tidal) water.
Floodplain Swamp	N/A	N/A	Not a fire dependent community
Hydric Hammock	N/A	N/A	Not a fire dependent community
Mesic Flatwoods	2 - 4	2 - 4	
Mesic Hammock	N/A	N/A	Not a fire dependent community
Sandhill	1 – 3	1 - 3	
Scrub	5 – 20	5 - 20	May burn more frequently with surrounding uplands
Scrubby Flatwoods	5 – 15	5 - 15	May burn more frequently with surrounding uplands
Wet Flatwoods	2 – 5 grassy 5 – 10 shrubby	2 - 10	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.
Xeric Hammock	N/A	N/A	Not a fire dependent community

* As determined by FNAI

The following community descriptions, existing condition descriptions, and management recommendations are taken from a 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 PRSF.

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

A. Basin Swamp **Description:**

Basin swamps are forested wetlands that are variable in size, shape, and species composition, depending on fire and hydrological history. Basin swamps that occur in and around hydric and mesic hammock have a low exposure to fire while basin swamps

associated with basin marsh and shrub bog likely burn much more frequently. The soils are generally acidic, nutrient-poor peats overlying an impervious soil layer.

This community type is dominated by hydrophytic trees and shrubs that can withstand inundation for most or all of the year, including pond cypress (*Taxodium ascendens*) and swamp tupelo (*Nyssa sylvatica* var. *biflora*). Sub-canopy species may include red maple (*Acer rubrum*), dahoon (*Ilex cassine*), swamp bay (*Persea palustris*), sweetbay (*Magnolia virginiana*), loblolly bay (*Gordonia lasianthus*), swamp laurel oak (*Quercus laurifolia*), water oak (*Q. nigra*), cabbage palm (*Sabal palmetto*), and American elm (*Ulmus americana*). Shrubs are typically scattered and may be concentrated along the perimeter, depending on hydrology and fire history. Common shrubs include common buttonbush (*Cephalanthus occidentalis*), swamp dogwood (*Cornus foemina*), Virginia willow (*Itea virginica*), and wax myrtle (*Myrica cerifera*). The herbaceous layer may be sparse to dense, and includes beggarticks (*Bidens mitis*), toothed midsorus fern (*Blechnum serrulatum*), false nettle (*Boehmeria cylindrica*), Gulf swampweed (*Hygrophila costata*), soft rush (*Juncus effusus* ssp. *solutus*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis* var. *spectabilis*), green arrow arum (*Peltandra virginica*), beaksedges (*Rhynchospora* spp.), arrowheads (*Sagittaria* spp.), water spangles (*Salvinia* spp.), lizard's tail (*Saururus cernuus*), netted chain fern (*Woodwardia areolata*), and Virginia chain fern (*W. virginica*). Epiphytes and vines are common and include resurrection fern (*Pleopeltis polypodioides*), golden polypody (*Phlebodium aureum*), southern needleleaf (*Tillandsia setacea*), Spanish moss (*T. usneoides*), poison ivy (*Toxicodendron radicans*), and muscadine (*Vitis rotundifolia*).

Basin swamps were distinguished from surrounding mesic flatwoods and mesic hammock using 1943 aerials and 1999 DOQQ infra-red imagery and later ground-truthed.

Current Conditions:

The few basin swamps occurring on PRSF were historically bordered by mesic flatwoods. Though much of the historic basin swamps remain intact, they are now mostly bordered by mesic hammock or improved pasture. The canopy is fairly dense with pond cypress (*Taxodium ascendens*). The sub-canopy includes red maple (*Acer rubrum*), wax myrtle (*Myrica cerifera*), water oak (*Quercus nigra*), and cabbage palm (*Sabal palmetto*). The shrub layer consists of red maple, Virginia willow (*Itea virginica*), wax myrtle, swamp laurel oak (*Quercus laurifolia*), cabbage palm, and deerberry (*Vaccinium stamineum*). In more open areas, herbs include smallfruit beggarticks (*Bidens mitis*), toothed midsorus fern (*Blechnum serrulatum*), Gulf swampweed (*Hygrophila costata*), prairie iris (*Iris hexagona*), soft rush (*Juncus effusus* ssp. *solutus*), sword fern (*Nephrolepis* spp.), green arrow arum (*Peltandra virginica*), water spangles (*Salvinia* spp.), lizard's tail (*Saururus cernuus*), netted chain fern (*Woodwardia areolata*), and Virginia chain fern (*W. virginica*). Gulf swampweed (*Hygrophila costata*) is the dominant herb present in large portions of inundated areas of basin swamps at PRSF. Epiphytes and vines include golden polypody (*Phlebodium aureum*), southern needleleaf (*Tillandsia setacea*), Spanish moss (*T. usneoides*), eastern poison ivy (*Toxicodendron radicans*), and muscadine (*Vitis rotundifolia*).

Many of the basin swamps that were historically present on PRSF remain intact. The largest basin swamp present in the southwest corner of the uplands is surrounded by mostly improved pasture converted from mesic flatwoods prior to state ownership. The remaining basin swamps are predominantly surrounded by mesic hammock. Edge disturbance from land conversion and lack of fire are likely disrupting the natural ecotone and altering water flow and quality. Old world climbing fern (*Lygodium microphyllum*) is present in small quantities along the higher edges in some basin swamps.

Fire Regimes:

Fire intervals in basin swamps are highly variable and depend on such factors as dominant vegetation, fire exposure, and drought. The lowest portions of basin swamps rarely, if ever, burn. Graminoid-dominated ecotones often burn in conjunction with the adjacent uplands, and these may burn as frequently as every 2 to 5 years. Basin swamps that are situated within the matrix of a pyrogenic community, such as mesic flatwoods, will likely burn more frequently than basin swamps positioned within a matrix of mesic or hydric hammock. Without fire, bays and hardwoods increase in density and peat accumulates more rapidly. Cypress and pines are tolerant of light surface fires, but muck fires burning into the peat can kill the trees, lower the ground surface, and transform a swamp into a pond, lake, marsh, or shrub bog.

Management Needs:

Many of the ecotones between basin swamps and upland communities at PRSF have been disturbed by pasture conversion and fire suppression. Restoring historic hydrological regimes, and applying fire to adjacent, historically pyrogenic, uplands is a recommended focus for forest management. Entry of occasional fires into the basin swamps is necessary to maintain cypress and pine components; swamp tupelo and hardwoods dominate basin swamps that burn less often. Removing feral hogs (*Sus scrofa*) may be desirable in areas where these animals are impacting basin swamps and other wetlands.

B. Blackwater Stream

Description:

Blackwater streams are watercourses that typically flow through forested communities. Tannins derived from swamps and marshes cause the water to be dark brown and often acidic.

Blackwater streams are mostly free of vegetation except for occasional goldenclub (*Orontium aquaticum*), submersed macrophytes, and algae. Because of its narrow width, the canopy is partially closed over a majority of the system. Common bottomland forest species dominate, including red maple (*Acer rubrum*), swamp laurel oak (*Quercus laurifolia*), live oak (*Quercus virginiana*), pond cypress (*Taxodium ascendens*), and bald cypress (*T. distichum*). A subcanopy of younger canopy species is present along the riverbank. Understory species composition is as variable as the canopy, with shrubs being the dominant component. Shrubs include saw palmetto (*Serenoa repens*), American beautyberry (*Callicarpa americana*), wax myrtle (*Myrica cerifera*), Carolina ash (*Fraxinus caroliniana*), and wild lime (*Zanthoxylum fagara*), among others. Herbs along the stream bank are generally sparse but may be dense in areas that receive sufficient amounts of sunlight. Species may include smartweeds (*Polygonum* spp.) and panic grass (*Panicum*

spp.). Epiphytes are infrequent to occasional and include Spanish moss (*Tillandsia usneoides*), golden polypody (*Phlebodium aureum*), and resurrection fern (*Pleopeltis polypodioides*). Vines are infrequent to common and include muscadine (*Vitis rotundifolia*) and poison ivy (*Toxicodendron radicans*).

Current Conditions:

The blackwater stream communities on PRSF are mostly comprised of Horse Creek and a few Peace River tributaries. Along Horse Creek, canopy species include live oak (*Quercus virginiana*) and pond cypress (*Taxodium ascendens*). Sub-canopy species include cabbage palm (*Sabal palmetto*), and coastalplain willow (*Salix caroliniana*). Coastalplain willow and wild lime (*Zanthoxylum fagara*) are common shrubs along the creek. Smartweed (*Polygonum* spp.) and panic grass (*Panicum* spp.) are common herbs. Sparse epiphytes include golden polypody (*Phlebodium aureum*), southern needleleaf (*Tillandsia setacea*), and Spanish moss (*T. usneoides*). Earleaf greenbrier (*Smilax auriculata*) is an occasional vine.

Wetland nightshade (*Solanum tampicense*) is a major invasive problem along Horse Creek. The invasive is commonly seen growing in dense thickets along the stream, often reaching sub-canopy height.

Fire Regimes:

Fire is not a component of this community. The steep upland hardwood slopes and wet bottomland forest soils would prevent most fires from impacting the stream banks.

Management Needs:

Management activities for blackwater streams on PRSF should focus on removing invasive species.

C. Depression Marsh

Description:

Depression marshes are isolated, non-forested wetland basins that are imbedded in a pyrogenic matrix community such as pine flatwoods or upland pine. These marshes typically have concentric zones of vegetation related to the length of hydroperiod and depth of flooding.

Trees are generally sparse or absent. The herbaceous layer is moderate to dense, especially where fire frequency and woody plant mortality is high. Peelbark St. John's wort (*Hypericum fasciculatum*) or roundpod St. John's wort (*H. cistifolium*) may form a zone around the edge of the marsh along with herbs such as beaksedges (*Rhynchospora* spp.), Elliott's yellow-eyed grass (*Xyris elliotii*), fringed yellow-eyed grass (*X. fimbriata*), pipeworts (*Eriocaulon* spp.), and Baldwin's spikerush (*Eleocharis baldwinii*). The innermost, deepest zone is occupied by sawgrass (*Cladium jamaicense*), maidencane (*Panicum hemitomon*), pickerelweed (*Pontederia cordata*) and bulltongue arrowhead (*Sagittaria lancifolia*). Depression marshes within xeric communities such as sandhill or

scrub may have outer borders dominated by bluestem grasses, such as *Andropogon brachystachyus*, or purple bluestem (*A. glomeratus* var. *glaucopsis*).

Depression marshes often burn with the surrounding landscape and are 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 were distinguished by the characteristic pockmarked landscape on the 1943 aerials.

Current Conditions:

Small depression marshes at PRSF are scattered within the upland areas between the Peace River and Horse Creek. Occasional live oak (*Quercus virginiana*) and coastalplain willow (*Salix caroliniana*) comprise canopy species along marsh edges. Common buttonbush (*Cephalanthus occidentalis*) and roundpod St. John's wort (*Hypericum cistifolium*) occurred in the shrub layer along marsh edges. Herbaceous cover around the upper portions of the marsh includes shortspike bluestem (*Andropogon brachystachyus*), purple bluestem (*A. glomeratus* var. *glaucopsis*), royal fern (*Osmunda regalis* var. *spectabilis*), panic grass (*Panicum* spp.), beaksedge (*Rhynchospora* spp.), whip nutrush (*Scleria triglomerata*), and Virginia chain fern (*Woodwardia virginica*). Herbaceous species in lower, wetter areas include lemon bacopa (*Bacopa caroliniana*), spadeleaf (*Centella asiatica*), tropical flatsedge (*Cyperus surinamensis*), soft rush (*Juncus effusus* ssp. *solutus*), creeping primrosewillow (*Ludwigia repens*), maidencane (*Panicum hemitomon*), jointweed (*Polygonella* spp.), and combleaf mermaidweed (*Proserpinaca pectinata*).

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, while encouraging herbaceous growth in depression marshes.

Management Needs:

Woody encroachment is a concern for depression marshes on PRSF. Fires in surrounding communities should be allowed to burn into depression marshes and extinguish naturally or burn through them, eliminating the encroachment of coastalplain willow (*Salix caroliniana*) and common buttonbush (*Cephalanthus occidentalis*). Physical disturbance, particularly from hog rooting, livestock, or vehicles can cause serious damage in depression marshes. The removal of feral hogs (*Sus scrofa*) may be desirable in areas where wetlands are being impacted.

D. Dome Swamp

Description:

Dome swamps are isolated, shallow, forested wetland basins that are imbedded in a pyrogenic matrix community such as pine flatwoods or upland pine. These swamps have domed profiles resulting from smaller trees growing around the edges and larger trees growing in the interior. Dome swamps have peat soils that are thickest toward the center and are generally underlain with acidic soils and a limestone layer. Dome swamps are

distinguished from basin swamps principally by their often more circular shape, smaller size, and higher historical fire frequency due to landscape position.

The mature canopy is dominated by pond cypress (*Taxodium ascendens*) and/or swamp tupelo (*Nyssa sylvatica* var. *biflora*), along with other hydrophytic trees such as red maple (*Acer rubrum*). The sub-canopy and shrub layers are sparse. Typical dominant shrubs include Virginia willow (*Itea virginica*), fetterbush (*Lyonia lucida*), common buttonbush (*Cephalanthus occidentalis*), coastalplain willow (*Salix caroliniana*), wax myrtle (*Myrica cerifera*), and St. John's wort (*Hypericum* spp.). The herbaceous layer is sparse to dense, especially where fire frequency and woody plant mortality is high.

Dome swamps usually have a diverse herbaceous ecotone with the surrounding pine dominated community, created through frequent fires that extinguish naturally along the edge of the dome.

Current Conditions:

A few dome swamps are scattered within upland communities of PRSF. Most of the dome swamps are embedded in successional hardwood forests. Pond cypress (*Taxodium ascendens*) is the dominant canopy species. The sub-canopy includes red maple (*Acer rubrum*), ash (*Fraxinus* spp.), wax myrtle (*Myrica cerifera*), swamp tupelo (*Nyssa sylvatica* var. *biflora*), swamp laurel oak (*Quercus laurifolia*), cabbage palm (*Sabal palmetto*), and willow (*Salix* spp.). Shrubs include common buttonbush (*Cephalanthus occidentalis*), wax myrtle, myrtle oak (*Quercus myrtifolia*), and cabbage palm. The herbaceous layer is dominated by Gulf swampweed (*Hygrophila costata*) with occasional lizard's tail (*Saururus cernuus*). Epiphytes include Spanish moss (*Tillandsia usneoides*), golden polypody (*Phlebodium aureum*), and resurrection fern (*Pleopeltis polypodioides*). Vines include eastern poison ivy (*Toxicodendron radicans*).

Fire Regimes:

Periodic fires are essential to decrease hardwood encroachment and peat accumulation in dome swamps. Light surface fires will maintain community structure and species composition, but catastrophic fires can kill cypress trees and lower the ground surface if burned into the peat. Dome swamps that have long gone without fire are most susceptible to catastrophic fires.

Management Needs:

Most dome swamps at PRSF are bordered by communities that were historically mesic or wet flatwoods but have degraded into successional hardwood forest. Management should focus on restoration of surrounding pine communities, primarily through the reestablishment of a frequent fire return interval to be determined by the needs of the historical community. Initially, burning around dome swamps during years of normal precipitation (as opposed to drought years) will reduce heavy fuel loads that can facilitate muck fires. The removal of feral hogs (*Sus scrofa*) may be desirable in areas where wetlands are being impacted.

E. Floodplain Marsh

Description:

Floodplain marsh is a wetland community occurring in river floodplains and dominated by herbaceous vegetation and/or shrubs. Sand cordgrass (*Spartina bakeri*), sawgrass (*Cladium jamaicense*), and maidencane (*Panicum hemitomon*) are common dominants, but various other herbs such as spadeleaf (*Centella asiatica*), flatsedges (*Cyperus* spp.), lemon bacopa (*Bacopa caroliniana*), toothed midsorus fern (*Blechnum serrulatum*), spikerushes (*Eleocharis* spp.), manyflower marshpennywort (*Hydrocotyle umbellata*), primrosewillows (*Ludwigia* spp.), climbing hempvine (*Mikania scandens*), royal fern (*Osmunda regalis* var. *spectabilis*), jointweeds (*Polygonella* spp.), dotted smartweed (*Polygonum punctatum*), pickerelweed (*Pontederia cordata*), bulrushes (*Scirpus* spp.), bulltongue arrowhead (*Sagittaria lancifolia*), and cattails (*Typha* spp.) may also be common.

In wetter sites, coastalplain willow (*Salix caroliniana*) or common buttonbush (*Cephalanthus occidentalis*) may form shrub thickets. The highest part of the marsh is often a drier, wet prairie-like zone with a large diversity of graminoids and forbs. While the progression from high to low marsh occurs generally from the upland edge to the river edge, these vegetation patches may also be scattered throughout the marsh, which provides a diversity of habitats beneficial to wildlife.

Most floodplain marshes are freshwater (salinity less than 0.5 parts per thousand); however, saltwater may influence marshes near the mouths of rivers (freshwater tidal marsh variant) and in areas where there is upwelling of groundwater that is partly saline. In these situations, dominant species are those tolerant of brackish conditions, particularly sawgrass, sand cordgrass, needle rush (*Juncus roemerianus*), perennial glasswort (*Sarcocornia perennis*), seashore dropseed (*Sporobolus virginicus*), giant cutgrass (*Zizaniopsis miliacea*), and shoreline seapurslane (*Sesuvium portulacastrum*).

Current Conditions:

Floodplain marshes on PRSF occur in the Peace River floodplain. Most of these marshes are concentrated on the southern end of the state forest, where freshwater tidal swamp has replaced floodplain swamp. These lower marshes were not visited, but due to their association with freshwater tidal swamp, the lower marshes were defined as floodplain marsh with “freshwater tidal marsh variant” in the comments. The lower marshes were historically very open with little woody encroachment. Current 2013 aerials reveal that most of these marshes are now heavily wooded.

A small floodplain marsh on the west side of Aurin Lake was visited and most of the area has a dense shrub layer of coastalplain willow (*Salix caroliniana*) with occasional buttonbush (*Cephalanthus occidentalis*). Herbaceous species include lemon bacopa (*Bacopa caroliniana*), toothed midsorus fern (*Blechnum serrulatum*), spadeleaf (*Centella asiatica*), tropical flatsedge (*Cyperus surinamensis*), creeping primrosewillow (*Ludwigia repens*), royal fern (*Osmunda regalis* var. *spectabilis*), panic grass (*Panicum* spp.), and jointweed (*Polygonella* spp.).

Fire Regimes:

The characteristic herbaceous species re-sprout vigorously following burns, and there is evidence that frequent fire helps to limit shrub invasion. Frequent fires in the freshwater tidal floodplain marshes maintain a sawgrass dominance, but woody species, although widely spaced, often persist in these marshes, coppicing from roots or quickly germinating seedlings.

Management Needs:

Maintenance or restoration of natural hydrology is an important consideration for floodplain marsh management. Vegetation in the wettest part of the marsh is probably most sensitive to long-term effects of hydrologic alterations. Prescribed fire, in addition to maintenance or restoration of natural hydrology, may aid in reducing shrub cover in floodplain marsh.

F. Floodplain Swamp

Description:

Floodplain swamp is a closed-canopy forest of hydrophytic trees occurring on frequently or permanently flooded hydric soils adjacent to stream and river channels and in depressions and oxbows within floodplains. The canopy is typically closed and dominated by pond cypress (*Taxodium ascendens*) and bald cypress (*T. distichum*), with occasional red maple (*Acer rubrum*), water hickory (*Carya aquatica*), swamp tupelo (*Nyssa sylvatica* var. *biflora*), swamp laurel oak (*Quercus laurifolia*), and American elm (*Ulmus americana*). Sub-canopy species often include younger canopy species as well as Carolina ash (*Fraxinus caroliniana*), water locust (*Gleditsia aquatica*), cabbage palm (*Sabal palmetto*), and coastalplain willow (*Salix caroliniana*). Shrubs can be infrequent to dense and include common buttonbush (*Cephalanthus occidentalis*), wax myrtle (*Myrica cerifera*), cabbage palm, Florida bully (*Sideroxylon reclinatum*), and wild coffee (*Psychotria nervosa*). Herb species may include spiderlily (*Hymenocallis* spp.), Gulf swampweed (*Hygrophila costata*), duckweed (*Lemna* spp.), royal fern (*Osmunda regalis* var. *spectabilis*), smartweed (*Polygonum* spp.), pickerelweed (*Pontederia cordata*), common arrowhead (*Sagittaria latifolia*), lizard's tail (*Saururus cernuus*), climbing aster (*Symphyotrichum carolinianum*), marsh fern (*Thelypteris palustris* var. *pubescens*), and Virginia chain fern (*Woodwardia virginica*). Common epiphytes and vines include resurrection fern (*Pleopeltis polypodioides*), needleleaf (*Tillandsia setacea*), Spanish moss (*T. usneoides*), poison ivy (*Toxicodendron radicans*), and greenbrier (*Smilax* spp.).

Floodplain swamp is often associated with and grades into bottomland forest, hydric hammock, and occasionally baygall. Floodplain swamp is often found in a mosaic with bottomland forest where the ridge and swale topography of the floodplain creates a mixture of habitats including low depressions that hold water most of the year.

In floodplain swamps located within tidal influence, flooding patterns, tidal range, and storm events are major driving factors. These swamps are subject to daily freshwater inundation associated with tidal fluctuations. As a river approaches the coast, increasing stresses from daily tidal-driven inundation and occasional saltwater intrusion gradually

influence vegetation structure. At the lower end of this gradient, cypress becomes much less dominant, replaced by water hickory, swamp tupelo, and American elm and salt-tolerant herbs such as leather fern (*Acrostichum aureum*) become prominent. This community is a variant of floodplain swamp, known as freshwater tidal swamp.

Current Conditions:

Floodplain swamp occupies the largest acreages in natural condition on PRSF. This community occurs along the Peace River and its tributaries along with some lower portions of Horse Creek.

North of CR 761, floodplain swamp communities are mostly in good to fair condition with a moderately dense canopy of pond cypress (*Taxodium ascendens*) and bald cypress (*T. distichum*) with occasional water hickory (*Carya aquatica*), swamp tupelo (*Nyssa sylvatica* var. *biflora*), swamp laurel oak (*Quercus laurifolia*), and American elm (*Ulmus americana*). The sub-canopy consists of red maple (*Acer rubrum*), water hickory, Carolina ash (*Fraxinus caroliniana*), water locust (*Gleditsia aquatica*), swamp laurel oak, live oak (*Quercus virginiana*), cabbage palm (*Sabal palmetto*), coastalplain willow (*Salix caroliniana*), pond cypress, American elm, and wild lime (*Zanthoxylum fagara*). The shrub layer includes red maple, common buttonbush (*Cephalanthus occidentalis*), Carolina ash, wax myrtle (*Myrica cerifera*), swamp laurel oak, cabbage palm, coastalplain willow, wild coffee (*Psychotria nervosa*), Florida bully (*Sideroxylon reclinatum*), pond cypress, hog plum (*Ximenia americana*), and wild lime. The herb layer is sparse to dense and includes toothed midsorus fern (*Blechnum serrulatum*), spadeleaf (*Centella asiatica*), common dayflower (*Commelina diffusa*), string lily (*Crinum americanum*), witchgrass (*Dichanthelium* spp.), roundfruit hedgehyssop (*Gratiola virginiana*), manyflower marshpennywort (*Hydrocotyle umbellata*), Gulf swampweed (*Hygrophila costata*), spiderlily (*Hymenocallis* spp.), St. John's wort (*Hypericum* spp.), prairie iris (*Iris hexagona*), duckweed (*Lemna* spp.), royal fern (*Osmunda regalis* var. *spectabilis*), crowngrass (*Paspalum* spp.), smartweed (*Polygonum* spp.), pickerelweed (*Pontederia cordata*), swamp dock (*Rumex verticillatus*), common arrowhead (*Sagittaria latifolia*), marsh fern (*Thelypteris palustris* var. *pubescens*), cattails (*Typha* spp.), and Virginia chain fern (*Woodwardia virginica*). Common epiphytes include golden polypody (*Phlebodium aureum*), needleleaf (*Tillandsia setacea*), and Spanish moss (*T. usneoides*). Vines include climbing hempvine (*Mikania scandens*), passion-flower (*Passiflora* spp.), earleaf greenbrier (*Smilax auriculata*), saw greenbrier (*S. bona-nox*), and eastern poison ivy (*Toxicodendron radicans*).

The state-threatened Balbis' airplant (*Tillandsia balbisiana*) is occasional on cypress trees. The state-endangered common wild-pine (*T. fasciculata*) and spreading air-plant (*T. utriculata*) also were noted on cypress trees.

Several invasive plants occur in the floodplain swamp community on PRSF. Multiple occurrences of old world climbing fern (*Lygodium microphyllum*) were documented, often

growing on cypress knees. Wetland nightshade (*Solanum tampicense*) is scattered to very dense, occasionally forming monocultures in small areas. Caesar's weed (*Urena lobata*) is often scattered in transition areas between hammock and floodplain swamp. Water hyacinth (*Eichhornia crassipes*) occurs as dense monocultures in floodplain lakes.

Feral hogs (*Sus scrofa*) and evidence of rooting damage were observed in transitional areas between floodplain swamp and hydric/mesic hammock.

Much of the floodplain swamp directly to the southeast of the Peace River/Horse Creek junction and southeast of Aurin Lake show high topographic diversity on the 1999 DOQQ infra-red aerial photographs and likely has inclusions of other communities, such as hydric hammock, mesic hammock, or bottomland forest. These areas were not seen during the field visit.

South of CR 761, as the Peace River approaches Charlotte Harbor, the floodplain swamp transitions into freshwater tidal swamp, with a very sparse pond cypress (*Taxodium ascendens*) and bald cypress (*T. distichum*) canopy and large clumps of salt-tolerant leather fern (*Acrostichum aureum*) along the shoreline. Polygons comprising these areas are labelled as floodplain swamp, with "freshwater tidal swamp variant" noted in the comments. It also should be noted that Hurricane Charley devastated the floodplain canopy in this stretch of the river in 2004. The sub-canopy in this community variant consists of red maple (*Acer rubrum*), water hickory (*Carya aquatica*), Carolina ash (*Fraxinus caroliniana*), wax myrtle (*Myrica cerifera*), swamp bay (*Persea palustris*), swamp laurel oak (*Quercus laurifolia*), red mangrove (*Rhizophora mangle*), cabbage palm (*Sabal palmetto*), and American elm (*Ulmus americana*). The shrub layer consists of red maple, water hickory, common buttonbush (*Cephalanthus occidentalis*), citrus (*Citrus* spp.), swamp dogwood (*Cornus foemina*), Carolina ash, Virginia willow (*Itea virginica*), wax myrtle, swamp bay, swamp laurel oak, myrsine (*Rapanea punctata*), red mangrove (*Rhizophora mangle*), cabbage palm, saw palmetto (*Serenoa repens*), and American elm. The herbaceous layer includes giant leather fern (*Acrostichum danaeifolium*), beach false foxglove (*Agalinis fasciculata*), toothed midsorus fern (*Blechnum serrulatum*), sawgrass (*Cladium jamaicense*), spiderlily (*Hymenocallis* spp.), butterweed (*Packera glabella*), green arrow arum (*Peltandra virginica*), water-lettuce (*Pistia stratiotes*), dotted smartweed (*Polygonum punctatum*), pickerelweed (*Pontederia cordata*), giant bulrush (*Scirpus californicus*), climbing aster (*Symphyotrichum carolinianum*), marsh fern (*Thelypteris palustris* var. *pubescens*), maiden fern (*Thelypteris* spp.), cattail (*Typha* spp.), and giant cutgrass (*Zizaniopsis miliacea*). Epiphytes include Florida butterfly orchid (*Encyclia tampensis*), southern needleleaf (*Tillandsia setacea*), and Spanish moss (*T. usneoides*). Vines include moonflowers (*Ipomoea alba*), climbing hempvine (*Mikania scandens*), passion-flower (*Passiflora* spp.), eastern poison ivy (*Toxicodendron radicans*), and muscadine (*Vitis rotundifolia*).

Balbis' airplant (*Tillandsia balbisiana*), common wild-pine (*T. fasciculata*), and spreading air-plant (*T. utriculata*) also were spotted in freshwater tidal swamp, often growing on cypress.

The invasive Peruvian primrosewillow (*Ludwigia peruviana*) was noted twice, growing along the shoreline in the transitional area between floodplain swamp and freshwater tidal swamp.

Fire Regimes:

Fire is not necessary to maintain floodplain swamp. This community is typically too wet to carry a fire. If floodplain swamps experience drought, fires may occur and cause damage to the understory.

Management Needs:

Rooting from feral hogs (*Sus scrofa*) can be devastating to the floodplain swamp community in terms of soil structure, native plant mortality, and invasive plant abundance. The removal of feral hogs may be desirable in areas where wetlands are being impacted.

Invasive plants are a concern in floodplain swamps on PRSF. The removal of these plants at the early stages of invasion would be recommended to maintain the structure of this community.

G. Hydric Hammock

Description:

Hydric hammock is an evergreen hardwood and/or palm forest with a variable understory typically dominated by palms and ferns occurring on moist soils, often with limestone very near the surface. While species composition varies, the community generally has a closed canopy of swamp laurel oak (*Quercus laurifolia*), live oak (*Q. virginiana*), and cabbage palm (*Sabal palmetto*), an open understory with saplings of canopy species as well as swamp dogwood (*Cornus foemina*), wax myrtle (*Myrica cerifera*), swamp bay (*Persea palustris*), wild coffee (*Psychotria nervosa*), and small-leaf viburnum (*Viburnum obovatum*). The herbaceous layer is sparse to moderate with mostly graminoids, including sedges (*Carex* spp.), woodoats (*Chasmanthium* spp.), and woodsgrass (*Oplismenus hirtellus*), and ferns, including maiden ferns (*Thelypteris* spp.), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis* var. *spectabilis*), toothed midsorus fern (*Blechnum serrulatum*), netted chain fern (*Woodwardia areolata*), and Virginia chain fern (*W. virginica*). Epiphytes including golden polypody (*Phlebodium aureum*), air-plants (*Tillandsia* spp.), and shoestring fern (*Vittaria lineata*) are often frequent.

Species composition is mainly influenced by flooding patterns. In saturated and frequently flooded environments, hydrophytic trees such as swamp tupelo (*Nyssa sylvatica* var. *biflora*) become more abundant. Frequency and depth of inundation have a pronounced effect on oak canopy composition as well, with saturated soils supporting more swamp laurel oak, and areas of infrequent flooding supporting more live oak. Hydric hammock occurs on low, flat, wet sites where limestone may be near the surface and soil moisture is kept high mainly by rainfall accumulation on poorly drained soils. The limestone often creates a richer or more alkaline soil that is conducive to supporting a unique suite of plants. Periodic flooding from rivers, seepage, and spring discharge may also contribute to hydric conditions. Soils are variable, usually somewhat acidic to slightly alkaline with little organic matter, and in all cases, alkaline materials are available in the substrate.

Current Conditions:

Hydric hammock on PRSF occurs in a few areas along Horse Creek and Aurin Lake and near the upper portions of the Peace River. The canopy is dominated by swamp laurel oak (*Quercus laurifolia*), live oak (*Q. virginiana*), cabbage palm (*Sabal palmetto*) and occasional red maple (*Acer rubrum*). Inclusions of floodplain swamp were frequent, as small areas within hydric hammock were inundated and contained scattered pond cypress (*Taxodium ascendens*). The sub-canopy includes Carolina ash (*Fraxinus caroliniana*), swamp laurel oak, live oak, cabbage palm, and coastalplain willow (*Salix caroliniana*). The shrub layer contains groundsel tree (*Baccharis halimifolia*), St. John's wort (*Hypericum* spp.), wax myrtle (*Myrica cerifera*), wild coffee (*Psychotria nervosa*), cabbage palm, coastalplain willow, elderberry (*Sambucus nigra* ssp. *canadensis*), saw palmetto (*Serenoa repens*), bully (*Sideroxylon* spp.), hog plum (*Ximenia americana*), and wild lime (*Zanthoxylum fagara*). The herbaceous layer is generally sparse and includes carpetgrass (*Axonopus* spp.), witchgrass (*Dichanthelium* spp.), marshpennywort (*Hydrocotyle* spp.), spiderlily (*Hymenocallis* spp.), St. John's wort (*Hypericum* spp.), and royal fern (*Osmunda regalis* var. *spectabilis*). Epiphytes include golden polypody (*Phlebodium aureum*), southern needleleaf (*Tillandsia setacea*), and Spanish moss (*T. usneoides*). Saw greenbrier (*Smilax bona-nox*), greenbrier (*Smilax* spp.), eastern poison ivy (*Toxicodendron radicans*), and grape (*Vitis* spp.) are common vines.

Some southeastern portions of hydric hammock near the Peace River appear heavily disturbed, with a very open canopy of water hickory, (*Carya aquatica*), swamp laurel oak, and pond cypress and a weedy herbaceous layer of mostly spadeleaf (*Centella asiatica*), Gulf swampweed (*Hygrophila costata*), wetland nightshade (*Solanum tampicense*), and Caesar's weed (*Urena lobata*). This disturbance may be a consequence of Hurricane Charley.

Fire Regimes:

Fire is not considered an important component of hydric hammock dynamics; however, they do burn occasionally. Cabbage palms are fire tolerant and intense fires favor this species. Live oak can survive low intensity fires, but red cedar is highly susceptible to fire.

Management Needs:

Effective conservation management of hydric hammock primarily consists of maintaining natural hydrology and controlling invasive plant populations. Invasive plants and animals pose significant problems in hydric hammock. This community may be the most preferred habitat of feral hogs (*Sus scrofa*). Control of this species is not only important in order to reduce competition with native wildlife, but also to minimize soil disturbance which decreases diversity of native ground cover within hydric hammock.

H. Mesic Flatwoods**Description:**

Mesic flatwoods are characterized by a canopy of tall pines and a dense, low ground layer of low shrubs, grasses, and forbs. Longleaf pine (*Pinus palustris*) and slash pine (*Pinus elliottii*) are the principal canopy trees. There is little or no sub-canopy and very few tall shrubs, but a dense ground cover of herbs and short shrubs is often present. The latter help

maintain community structure by fueling growing-season fires. Characteristic shrubs include saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), coastalplain staggerbush (*Lyonia fruticosa*), and fetterbush (*L. lucida*). Rhizomatous dwarf shrubs, usually less than two feet tall, are common and include dwarf live oak (*Quercus minima*), runner oak (*Q. elliotii*), shiny blueberry (*Vaccinium myrsinites*), Darrow's blueberry (*V. darrowii*), and dwarf huckleberry (*Gaylussacia dumosa*). The herbaceous layer is predominantly wiregrass (*Aristida stricta* var. *beyrichiana*). Mesic flatwoods are noted for their herbaceous diversity, including many rare species. Herbaceous species include wiregrass (*Aristida stricta* var. *beyrichiana*), arrowfeather threeawn (*A. purpurascens*), bottlebrush threeawn (*A. spiciformis*), Curtiss' dropseed (*Sporobolus curtissii*), lopsided Indiangrass (*Sorghastrum secundum*), witchgrasses (*Dichanthelium* spp.), beaksedges (*Rhynchospora* spp.), and queensdelight (*Stillingia sylvatica*).

Current Conditions:

There are few examples of extant mesic flatwoods scattered throughout the uplands at PRSF. An extensive amount of historically mesic flatwoods was converted to pasture prior to state ownership. The small remaining areas of intact mesic flatwoods represent an example of the species composition of the larger converted areas and could potentially be a seed source for future restoration efforts.

Canopy species in mesic flatwoods at PRSF include slash pine, south Florida slash pine (*Pinus elliotii* var. *densa*), and longleaf pine (*Pinus palustris*). The sub-canopy and tall shrub layer is occupied by red maple (*Acer rubrum*), south Florida slash pine, sand live oak (*Quercus geminata*), swamp laurel oak (*Q. laurifolia*), water oak (*Q. nigra*), winged sumac (*Rhus copallinum*), cabbage palm (*Sabal palmetto*), American snowbell (*Styrax americanus*), and hog plum (*Ximenia americana*). The short shrub layer contains netted pawpaw (*Asimina reticulata*), American beautyberry (*Callicarpa americana*), roundpod St. John's wort (*Hypericum cistifolium*), fourpetal St. John's wort (*H. tetrapetalum*), gallberry (*Ilex glabra*), coastalplain staggerbush (*Lyonia fruticosa*), fetterbush (*L. lucida*), wax myrtle (*Myrica cerifera*), south Florida slash pine, sand live oak, winged sumac (*Rhus copallinum*), sand blackberry (*Rubus cuneifolius*), cabbage palm, saw palmetto (*Serenoa repens*), American snowbell, shiny blueberry (*Vaccinium myrsinites*), and coontie (*Zamia pumila*). The herbaceous layer is predominantly wiregrass (*Aristida stricta* var. *beyrichiana*), and also contains purple bluestem (*Andropogon glomeratus* var. *glaucopsis*), Elliott's bluestem (*A. gyrans*), broomsedge bluestem (*A. virginicus*), chalky bluestem (*A. virginicus* var. *glaucus*), threeawn (*Aristida* spp.), bottlebrush threeawn (*A. spiciformis*), Florida alicia (*Chapmannia floridana*), rabbitbells (*Crotalaria rotundifolia*), witchgrass (*Dichanthelium* spp.), tall elephantsfoot (*Elephantopus elatus*), fireweed (*Erechtites hieraciifolius*), eryngo (*Eryngium* spp.), slender flattop goldenrod (*Euthamia caroliniana*), skyblue lupine (*Lupinus diffusus*), rose rush (*Lygodesmia aphylla*), bahiagrass (*Paspalum notatum*), crowngrass (*P. spp.*), wild pennyroyal (*Piloblephis rigida*), narrowleaf silkgrass (*Pityopsis graminifolia*), blackroot (*Pterocaulon pycnostachyum*), beaksedge (*Rhynchospora* spp.), little bluestem (*Schizachyrium scoparium*), whip nutrush (*Scleria triglomerata*), licoriceweed (*Scoparia dulcis*), goldenrod (*Solidago* spp.), lopsided indiangrass (*Sorghastrum secundum*), queen's delight (*Stillingia sylvatica*), grape (*Vitis* spp.), and yellow-eyed grass (*Xyris* spp.). Epiphytes include common wild-pine

(*Tillandsia fasciculata*), southern needleleaf (*T. setacea*), and Spanish moss (*T. usneoides*). Vines include Elliott's milkpea (*Galactia elliotii*), yellow jessamine (*Gelsemium sempervirens*), blackberry (*Rubus* spp.), earleaf greenbrier (*Smilax auriculata*), saw greenbrier (*S. bona-nox*), eastern poison ivy (*Toxicodendron radicans*), and muscadine (*Vitis rotundifolia*).

Much of the flatwoods acreage suffers from years of fire exclusion. Woody encroachment is evident in many areas. The groundcover has suffered as a result of fire exclusion as well as from past ditching and bedding. Areas that were agriculture fields in the 1943 historical aerial photos have since succeeded into a “weedy” form of mesic flatwoods.

Invasive plants present in mesic flatwoods at PRSF include cogon grass (*Imperata cylindrica*), Natal grass (*Melinis repens*), and tropical soda apple (*Solanum viarum*). Cogon grass was the most prevalent invasive species observed in mesic flatwoods, often occurring as dense monocultures in transitional areas between mesic flatwoods and mesic hammock.

Fire Regimes:

Mesic flatwoods require repeated applications of growing season fires on a 2-4 year cycle. Controlled burns in this matrix community will indirectly determine fire frequency and season for all the included communities, such as wet prairie, depression marsh, dome swamp, scrub, etc.

Management Needs:

Managers are encouraged to return a more natural fire regime to mesic flatwoods. Sand live oak (*Quercus geminata*) is becoming a prevalent sub-canopy species in extant mesic flatwoods at PRSF. Frequent fires (2- to 4-year intervals) will control hardwood growth. Emphasis should be placed on dormant season burns until fuel levels allow for transitioning to growing season burns. With restoration, these areas may become seed sources for future reseeding projects. Groundcover species may need to be seeded in areas that were formerly agriculture fields.

Some abandoned fields and pastures may require a more active restoration approach to return to a more natural community structure and composition. In more extreme cases, where non-native pasture grasses have been introduced or invasive species are present, herbicides may be required to reduce competition of those aggressive species and native species will need to be introduced via seeding or plugs, followed shortly by prescribed burning.

I. Mesic Hammock

Description:

Mesic hammocks are closed canopy forests mainly of oaks and palms with a mixture of other mesic temperate hardwood species in the canopy. They occur on moderately poorly drained soils in areas that receive infrequent fire. These areas are drier than hydric hammocks. Mesic hammock can arise in pyrogenic, naturally pine-dominated areas when

shielded from fire as a result of human activities, a common example being old home sites overgrown with oaks and cabbage palms.

The closed canopy is dominated by swamp laurel oak (*Quercus laurifolia*), live oak (*Q. virginiana*), and cabbage palm (*Sabal palmetto*) with occasional water hickory (*Carya aquatica*), pignut hickory (*C. glabra*), sand live oak (*Q. geminata*), and American elm (*Ulmus americana*). The sub-canopy typically contains young canopy species, as well as pignut hickory (*Carya glabra*). The shrub layer is sparse and contains mostly American beautyberry (*Callicarpa americana*), saw palmetto (*Serenoa repens*), wild coffee (*Psychotria nervosa*), and hog plum (*Ximenia americana*) with occasional gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), wax myrtle (*Myrica cerifera*), Chapman's oak (*Quercus chapmanii*), myrsine (*Rapanea punctata*), blackberry (*Rubus* spp.), American snowbell (*Styrax americanus*), sparkleberry (*Vaccinium arboreum*), and Walter's viburnum (*Viburnum obovatum*). The herbaceous layer is often sparse and contains graminoids such as (*Andropogon glomeratus* var. *glaucoptis*), bluestem (*Andropogon* spp.), woodoats (*Chasmanthium* spp.), witchgrass (*Dichanthelium* spp.), spikerush (*Eleocharis* spp.), and woodsgrass (*Oplismenus hirtellus*). Ferns are also common including toothed midsorus fern (*Blechnum serrulatum*), royal fern (*Osmunda regalis* var. *spectabilis*) and Virginia chain fern (*Woodwardia virginica*). Other forbs include tall elephantsfoot (*Elephantopus elatus*), mock pennyroyal (*Hedeoma graveolens*), marshpennywort (*Hydrocotyle* spp.), blackroot (*Pterocaulon pycnostachyum*), and lizard's tail (*Saururus cernuus*). Epiphytes are frequent on canopy species and include Florida butterfly orchid (*Encyclia tampensis*), golden polypody (*Phlebodium aureum*), resurrection fern (*Pleopeltis polypodioides* var. *michauxiana*), Balbis' airplant (*Tillandsia balbisiana*), common wild-pine (*T. fasciculata*), ballmoss (*T. recurvata*), southern needleleaf (*T. setacea*), Spanish moss (*T. usneoides*), and shoestring fern (*Vittaria lineata*). Vines are common and include Virginia creeper (*Parthenocissus quinquefolia*), passion-flower (*Passiflora* spp.), earleaf greenbrier (*Smilax auriculata*), saw greenbrier (*S. bona-nox*), eastern poison ivy (*Toxicodendron radicans*), and muscadine (*Vitis rotundifolia*).

Current Conditions:

Mesic hammock on PRSF occurs frequently throughout the uplands, mostly bordering Horse Creek and Peace River. The canopy is closed and dominated by swamp laurel oak (*Quercus laurifolia*), live oak (*Q. virginiana*), and cabbage palm (*Sabal palmetto*) with occasional water hickory (*Carya aquatica*), pignut hickory (*C. glabra*), sand live oak (*Q. geminata*), and American elm (*Ulmus americana*). Longleaf pine (*Pinus palustris*) is occasional in the canopy in areas where mesic hammock arose from fire suppressed mesic flatwoods. Cabbage palm, swamp laurel oak, and live oak were most common in the sub-canopy along with occasional pignut hickory (*Carya glabra*), citrus (*Citrus* spp.), bay (*Persea* spp.), sand live oak, and wild lime (*Zanthoxylum fagara*). The shrub layer is open to dense and very diverse in species composition. American beautyberry (*Callicarpa americana*), saw palmetto (*Serenoa repens*), wild coffee (*Psychotria nervosa*), and hog plum (*Ximenia americana*) were the most common shrub species. Young canopy species also were common in the shrub layer. Less frequent shrubs include groundsel tree (*Baccharis halimifolia*), citrus (*Citrus* spp.), gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), wax myrtle (*Myrica cerifera*), Chapman's oak (*Quercus chapmanii*), myrsine

(*Rapanea punctata*), American snowbell (*Styrax americanus*), sparkleberry (*Vaccinium arboreum*), Walter's viburnum (*Viburnum obovatum*), and wild lime (*Zanthoxylum fagara*).

The herbaceous layer is often patchy and includes purple bluestem (*Andropogon glomeratus* var. *glaucopsis*), bluestem (*Andropogon* spp.), carpetgrass (*Axonopus* spp.), toothed midsorus fern (*Blechnum serrulatum*), spadeleaf (*Centella asiatica*), woodoats (*Chasmanthium* spp.), thistle (*Cirsium* spp.), common dayflower (*Commelina diffusa*), tickseed (*Coreopsis* spp.), witchgrass (*Dichanthelium* spp.), spikerush (*Eleocharis* spp.), tall elephantsfoot (*Elephantopus elatus*), fireweed (*Erechtites hieracifolius*), dogfennel (*Eupatorium capillifolium*), mock pennyroyal (*Hedeoma graveolens*), marshpennywort (*Hydrocotyle* spp.), woodsgrass (*Oplismenus hirtellus*), royal fern (*Osmunda regalis* var. *spectabilis*), woodsorrel (*Oxalis* spp.), panic grass (*Panicum* spp.), bahiagrass (*Paspalum notatum*), blackroot (*Pterocaulon pycnostachyum*), lizard's tail (*Saururus cernuus*), and Virginia chain fern (*Woodwardia virginica*). Epiphytes are very common on oaks and cabbage palms within mesic hammock and include Florida butterfly orchid (*Encyclia tampensis*), golden polypody (*Phlebodium aureum*), resurrection fern (*Pleopeltis polypodioides* var. *michauxiana*), Balbis' airplant (*Tillandsia balbisiana*), common wild-pine (*T. fasciculata*), ballmoss (*T. recurvata*), southern needleleaf (*T. setacea*), Spanish moss (*T. usneoides*), and shoestring fern (*Vittaria lineata*). Vines are abundant and include Virginia creeper (*Parthenocissus quinquefolia*), passion-flower (*Passiflora* spp.), blackberry (*Rubus* spp.), earleaf greenbrier (*Smilax auriculata*), saw greenbrier (*S. bonanox*), eastern poison ivy (*Toxicodendron radicans*), and muscadine (*Vitis rotundifolia*).

The southeastern portion of mesic hammock bordering the Peace River has an extremely overgrown understory/shrub layer. Saw palmetto is the dominant understory species with large arching trunks and leaves that often exceeded 6 feet in height. If any herbs were present, most were non-native, namely Caesar's weed (*Urena lobata*).

The highest diversity of invasive plants in a natural community on PRSF was observed in mesic hammocks. Invasive species include rosary pea (*Abrus precatorius*), coral ardisia (*Ardisia crenata*), camphor tree (*Cinnamomum camphora*), earpod tree (*Enterolobium contortisiliquum*), swamp mahogany (*Eucalyptus robusta*), cogon grass (*Imperata cylindrica*), old world climbing fern (*Lygodium microphyllum*), Chinaberry (*Melia azedarach*), Guinea grass (*Panicum maximum*), guava (*Psidium guajava*), downy rose-myrtle (*Rhodomyrtus tomentosa*), bowstring hemp (*Sansevieria hyacinthoides*), Brazilian pepper (*Schinus terebinthifolius*), purple sesban (*Sesbania punicea*), wetland nightshade (*Solanum tampicense*), tropical soda apple (*Solanum viarum*), wedelia (*Sphagneticola trilobata*), Caesar's weed and signalgrass (*Urochloa* spp.). Coral ardisia is especially common in the understory of mesic hammocks near Aurin Lake. Cogon grass often occurs in more open areas of the hammock, forming dense monocultures. Caesar's weed is common in mesic hammock throughout PRSF. It was often seen growing as the dominant herb in weedy sections of the hammock, but it also occurred in higher quality areas. Feral hogs (*Sus scrofa*) were spotted multiple times in mesic hammock along the lower portions of Horse Creek and near Aurin Lake.

Fire Regimes:

Mesic hammocks are generally not fire-adapted communities. Destructive ground fires capable of killing most of the hammock vegetation are possible on organic substrates where the upper soil layer may be completely consumed, damaging roots and preventing resprouting.

Management Needs:

Mesic hammocks are of considerable importance to wildlife, providing cover, nesting sites, and hardwood mast. Ecological management and protection of mesic hammock habitats should include restoration of natural fire regimes and hydrology in the overall landscape, and control of invasive species.

J. Pasture - Improved**Description:**

Improved pasture is an altered landcover type cleared of native vegetation and dominated by planted non-native or domesticated native forage species with evidence of current or recent pasture activity and/or cultural treatments (mowing, grazing, burning, fertilizing). Most improved pastures in Florida are planted with bahiagrass (*Paspalum notatum*) and to a lesser extent with Bermudagrass (*Cynodon dactylon*) or pangolagrass (*Digitaria eriantha*). Weedy native species are often common in improved pastures in Florida and include dogfennel (*Eupatorium capillifolium*), many species of flatsedge (*Cyperus* spp.), carpetgrasses (*Axonopus* spp.), crabgrasses (*Digitaria* spp.), and rustweed (*Polypremum procumbens*) among many others.

Current Conditions:

Most improved pastures on PRSF are planted with bahiagrass (*Paspalum notatum*) and to a lesser extent with Bermudagrass (*Cynodon dactylon*) or pangolagrass (*Digitaria eriantha*). Limpograss (*Hemarthria altissima*) dominated some of the northern improved pastures. Weedy native species are often common in improved pastures in Florida and include dogfennel (*Eupatorium capillifolium*), flatsedges (*Cyperus* spp.), carpetgrasses (*Axonopus* spp.), crabgrasses (*Digitaria* spp.), rustweed (*Polypremum procumbens*), and blackberry (*Rubus* spp.).

Improved pastures mapped at PRSF are almost entirely historical mesic flatwoods and if restoration is to take place, desired future conditions should be geared toward that community (or in a few exceptions the other historical community mapped).

Cogon grass (*Imperata cylindrica*) is a common invasive plant on improved pasture edges, often forming scattered patches to dense monocultures. Other less frequent invasive plants include Sprenger's asparagus-fern (*Asparagus aethiopicus*), natal grass (*Melinis repens*), sword fern (*Nephrolepis cordifolia*), and elephant ear (*Xanthosoma sagittifolium*).

Feral hog (*Sus scrofa*) damage was observed in some sections of improved pasture. In one lower section of improved pasture adjacent to a basin swamp, severe rooting damage extended over an acre.

Fire Regimes:

Refer to the historical community. Historical pyrogenic communities may require more frequent fire in the beginning than is typical for the historical natural community.

Management Needs:

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.

K. Pasture – Semi-Improved**Description:**

Semi-improved pastures have been cleared of a significant percentage of their native vegetation and planted in non-native or domesticated native forage species, but still retain scattered patches of native vegetation with natural species composition and structure (most often small areas of mesic flatwoods) among the pastured areas. The planted areas are usually dominated by bahiagrass (*Paspalum notatum*) and can resemble improved pastures. Seeding of bahiagrass can also occur within areas of native groundcover.

Current Conditions:

Semi-improved pasture on PRSF occurs on historically mesic flatwoods and sandhill communities. Most semi-improved pastures on PRSF are planted with bahiagrass (*Paspalum notatum*). Longleaf pine (*Pinus palustris*) occur in the canopy, with scattered sand live oak (*Quercus geminata*), live oak (*Q. virginiana*), and cabbage palm (*Sabal palmetto*) in the sub-canopy. Sparse turkey oak (*Quercus laevis*) occur in the sub-canopy of historical sandhill communities. Shrubs were scattered and include groundsel tree (*Baccharis halimifolia*), American beautyberry (*Callicarpa americana*), fourpetal St. John's wort (*Hypericum tetrapetalum*), gallberry (*Ilex glabra*), fetterbush (*Lyonia lucida*), wax myrtle (*Myrica cerifera*), Chapman's oak (*Quercus chapmanii*), sand live oak, myrtle oak (*Q. myrtifolia*), winged sumac (*Rhus copallinum*), cabbage palm, saw palmetto (*Serenoa repens*), shiny blueberry (*Vaccinium myrsinites*), hog plum (*Ximenia americana*), and coontie (*Zamia pumila*). The herbaceous layer is predominantly bahiagrass (*Paspalum notatum*) with occasionally dense patches of wiregrass (*Aristida stricta* var. *beyrichiana*), and scattered natives, including purple bluestem (*Andropogon glomeratus* var. *glaucopsis*), bluestem (*Andropogon* spp.), broomsedge bluestem (*A. virginicus*), chalky bluestem (*A. virginicus* var. *glaucus*), sensitive pea (*Chamaecrista* spp.), witchgrass (*Dichanthelium* spp.), tall elephantsfoot (*Elephantopus elatus*), dogfennel (*Eupatorium capillifolium*), slender flattop goldenrod (*Euthamia caroliniana*), fourpetal St. John's wort (*Hypericum tetrapetalum*), skyblue lupine (*Lupinus diffusus*), beaked panicum (*Panicum anceps*), narrowleaf silkgrass (*Pityopsis graminifolia*), blackroot (*Pterocaulon pycnostachyum*), sandyfield beaksedge (*Rhynchospora megalocarpa*), licoriceweed (*Scoparia dulcis*), lopsided indiagrass (*Sorghastrum secundum*), yellow hatpins (*Syngonanthus flavidulus*), and savannah yellow-eyed grass (*Xyris flabelliformis*). Spanish moss (*Tillandsia usneoides*) is the only common epiphyte. One common wild-pine (*Tillandsia fasciculata*) was spotted on a live oak in semi-improved pasture on the north side of CR 769. Vines were scattered to dense and include Elliott's milkpea (*Galactia elliotii*), yellow jessamine

(*Gelsemium sempervirens*), blackberry (*Rubus* spp.), earleaf greenbrier (*Smilax auriculata*), and grape (*Vitis* spp.).

Similar to observations in improved pastures, Cogon grass (*Imperata cylindrica*) was observed multiple times in semi-improved pasture. Other less frequent invasive plants include Sprenger's asparagus-fern (*Asparagus aethiopicus*), natal grass (*Melinis repens*), Guinea grass (*Panicum maximum*), tropical soda apple (*Solanum viarum*), and Caesar's weed (*Urena lobata*).

Fire Regimes:

Refer to the historical community. Historical pyrogenic communities may require more frequent fire in the beginning than is typical for the historical natural community.

Management Needs:

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.

L. 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, improved pasture, and semi-improved pasture 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 historical community. Please refer to the appropriate community type for a more specific explanation of the desired future condition.

Current Conditions:

Ruderal areas on PRSF comprise abandoned fields, abandoned pastures, artificial ponds, clearings, and developed areas.

Abandoned Field/Abandoned Pasture (22.4 acres) – Two abandoned pastures occur on the uplands of PRSF. Both of these areas were historical mesic flatwoods. The canopy is dominated by sand live oak (*Quercus geminata*). Groundsel tree (*Baccharis halimifolia*), cabbage palm (*Sabal palmetto*) and saw palmetto (*Serenoa repens*) are common shrubs. Herbs include broomsedge bluestem (*Andropogon virginicus*) and wiregrass (*Aristida stricta* var. *beyrichiana*). Cogon grass (*Imperata cylindrica*) is common in these disturbed areas. One small abandoned field on the southeastern edge of the property appears to have been utilized as a citrus grove.

Artificial Pond (4.69 acres) – Three artificial ponds are found throughout the pasture uplands on PRSF. The southern pond was historically a depression marsh, and the

remaining ponds were historically mesic or wet flatwoods. Wax myrtle (*Myrica cerifera*) and groundsel tree (*Baccharis halimifolia*) are frequent shrubs along pond edges. Common herbs include mosquito fern (*Azolla* spp.) marshpennywort (*Hydrocotyle* spp.), bahiagrass (*Paspalum notatum*), and pickerelweed (*Pontederia cordata*).

Clearing (110.9 acres) – Clearings on PRSF are found in the north uplands, along the east side of CR 769, north of CR 769, and on a southeastern corner of the property, adjacent to a citrus grove. These areas were historically mesic flatwoods or scrub. Invasive plants are very frequent in this area, especially in the clearing that is adjacent to the citrus grove and the clearing that was historically scrub. Invasive plants include bamboo (*Bambusa* spp.), castor bean (*Ricinus communis*), cogon grass (*Imperata cylindrica*), tropical soda apple (*Solanum viarum*), arrowhead vine (*Syngonium podophyllum*), Turk's cap mallow (*Malvaviscus penduliflorus*), Chinaberry (*Melia azedarach*), latexplant (*Morrenia odorata*), Guinea grass (*Panicum maximum*), and Brazilian pepper (*Schinus terebinthifolius*).

Developed (5.69 acres) – The PRSF office complex is located on the south side of CR 769 in former wet flatwoods. Two (2) houses are located on the property in former mesic flatwoods. Several unused equipment buildings, livestock sheds, and other structures for animal containment remain on the property in the pasture areas, as the uplands of this property were formerly utilized as an exotic animal ranch.

Fire Regimes:

Refer to the historical community.

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 historical natural community. Native trees and shrubs should be used in landscaping, and these areas should be monitored for invasive plants.

M. Sandhill

Description:

Sandhills are forests of longleaf pine (*Pinus palustris*) trees, typically with a sparse sub-canopy of turkey oak (*Quercus laevis*) and/or sand post oak (*Q. margaretta*), and a fairly dense groundcover of herbs, particularly wiregrass (*Aristida stricta*). Sandhills are fire-maintained communities that occur on relatively well-drained, deep sands.

Sandhills of PRSF should have a canopy of longleaf pine (*Pinus palustris*) with an open sub-canopy of turkey oak (*Quercus laevis*) and sand live oak (*Q. geminata*). The understory should be a mix of shrubs and herbs with some patches of bare sand. Shrubs should include gopher apple (*Licania michauxii*), netted pawpaw (*Asimina reticulata*), American beautyberry (*Callicarpa americana*), roundpod St. John's wort (*Hypericum cistifolium*), coastalplain staggerbush (*Lyonia fruticosa*), myrtle oak (*Quercus myrtifolia*), running oak (*Q. pumila*), winged sumac (*Rhus copallinum*), saw palmetto (*Serenoa repens*), hog plum (*Ximenia americana*), and coontie (*Zamia pumila*). Typical herbs should include bluestem (*Andropogon virginicus*), chalky bluestem (*A. virginicus* var.

glaucus), wiregrass (*Aristida stricta* var. *beyrichiana*), sensitive pea (*Chamaecrista* spp.), witchgrass (*Dichanthelium* spp.), tall elephantsfoot (*Elephantopus elatus*), pinweed (*Lechea* spp.), skyblue lupine (*Lupinus diffusus*), wild pennyroyal (*Piloblephis rigida*), narrowleaf silkgrass (*Pityopsis graminifolia*), candyroot (*Polygala nana*), blackroot (*Pterocaulon pycnostachyum*), sandyfield beaksedge (*Rhynchospora megalocarpa*), and nutrush (*Scleria* spp.). Vines should be found occasionally and consist of include yellow jessamine (*Gelsemium sempervirens*), earleaf greenbrier (*Smilax auriculata*), and muscadine (*Vitis rotundifolia*).

On the 1943 aerials, sandhills appear peppered with white areas of reflective exposed sand. However, local karst activity creates a landscape with numerous depressions. Thus, sandhill was likely found in a fine mosaic with more mesic communities such as upland pine and upland mixed woodland that were probably more prevalent on the many depressional areas. Delineation was aided by ground-truthing.

Current Conditions:

Historically, few scattered areas of sandhill occurred on PRSF throughout the uplands of historically mesic flatwoods. Over half of these communities have been converted to pasture or transitioned to xeric hammock from lack of fire.

Extant sandhills on PRSF occur along the southwestern uplands, within improved pasture or mesic flatwoods. The canopy is largely comprised of scattered longleaf pine (*Pinus palustris*). Sand live oak (*Quercus geminata*) dominates the sub-canopy with very sparse turkey oak (*Q. laevis*). The shrub layer contains netted pawpaw (*Asimina reticulata*), American beautyberry (*Callicarpa americana*), roundpod St. John's wort (*Hypericum cistifolium*), coastalplain staggerbush (*Lyonia fruticosa*), sand live oak, turkey oak, myrtle oak (*Quercus myrtifolia*), winged sumac (*Rhus copallinum*), cabbage palm (*Sabal palmetto*), saw palmetto (*Serenoa repens*), hog plum (*Ximenia americana*), and coontie (*Zamia pumila*). The herbaceous layer includes broomsedge bluestem (*Andropogon virginicus*), chalky bluestem (*A. virginicus* var. *glaucus*), wiregrass (*Aristida stricta* var. *beyrichiana*), sensitive pea (*Chamaecrista* spp.), witchgrass (*Dichanthelium* spp.), tall elephantsfoot (*Elephantopus elatus*), dogfennel (*Eupatorium capillifolium*), pinweed (*Lechea* spp.), skyblue lupine (*Lupinus diffusus*), bahiagrass (*Paspalum notatum*), wild pennyroyal (*Piloblephis rigida*), candyroot (*Polygala nana*), blackroot (*Pterocaulon pycnostachyum*), sandyfield beaksedge (*Rhynchospora megalocarpa*), nutrush (*Scleria* spp.), and yucca (*Yucca* spp.). Vines include yellow jessamine (*Gelsemium sempervirens*), earleaf greenbrier (*Smilax auriculata*), and muscadine (*Vitis rotundifolia*).

One active gopher tortoise (*Gopherus polyphemus*) burrow was observed in the sandhill community on PRSF. The gopher tortoise is an especially important keystone species in sandhills.

Sandhills on PRSF have been subject to past silviculture operations, logging, and years of fire exclusion. While remnant species such as turkey oak and wiregrass remain in the understory, the sub-canopy and shrub layer is heavily encroached by sand live oak, and bahiagrass has invaded the herb layer from surrounding pastures.

Fire Regimes:

In the absence of regular fire, the abundance and density of sandhill shrubs and small trees increases, allowing invasion of oaks such as sand live oak and laurel oak (*Q. hemisphaerica*). Fire should be applied to this community every 1-3 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:

Restoration of this community should focus on the use of frequent prescribed burns which will decrease abundance of weedy species, such as sand live oak, thereby allowing ample sunlight to reach the forest floor. This is essential for the regeneration and maintenance of longleaf pines, as well as the native grasses, herbs, and low shrubs that characterize sandhill communities.

Groundcover restoration projects should focus on practices that will increase wiregrass abundance. Emphasis should be placed on dormant season burns until fuel levels allow for transitioning to growing season burns. Growing season burns at a 1-3 year interval will be the most effective at accomplishing this. FFS may consider seeding or transplanting of wiregrass to facilitate burns through these areas.

During all management activities, every effort should be made to minimize any detrimental effects to the gopher tortoise (*Gopherus polyphemus*) population (and its burrows) within this community, as this species is considered a keystone ecosystem component.

N. Scrub**Description:**

Scrub is a community composed of evergreen shrubs, with or without a canopy of pines, and is found on dry, infertile, sandy ridges. The signature scrub species – three species of shrubby oaks – myrtle oak (*Quercus myrtifolia*), sand live oak (*Q. geminata*), and Chapman's oak (*Q. chapmanii*) -- plus rusty staggerbush (*Lyonia ferruginea*) and saw palmetto (*Serenoa repens*) are common to oak scrub throughout the state. Florida rosemary (*Ceratiola ericoides*) and sand pine (*Pinus clausa*) may also be present. The dominance of these species, however, is variable from site to site. The most common form, and the form occurring on PRSF is oak scrub, dominated by the three species of shrubby oaks. Scrub occurs on either white (St. Lucie, Archbold), or yellow (Astatula, Paola) low-nutrient, acid sands with little organic matter. Scrub is located on dry, infertile, sandy ridges which often mark the location of former Plio-Pleistocene shorelines (Laessle 1958; Myers 1990; Webb 1990). In the shrub layer, coastalplain staggerbush (*Lyonia fruticosa*), saw palmetto, shiny blueberry (*Vaccinium myrsinites*), hog plum (*Ximenia americana*), and coontie (*Zamia pumila*) are common. The herbaceous layer, though sparse, should include bluestem (*Andropogon* spp.), threeawns (*Aristida* spp.), Elliott's milkpea (*Galactia elliotii*), pinweeds (*Lechea* spp.), narrowleaf silkgrass (*Pityopsis graminifolia*), sandyfield beaksedge (*Rhynchospora megalocarpa*), and lopsided indiagrass (*Sorghastrum secundum*).

Scrub appears on the 1943 historical aerial photographs as a mostly treeless light gray area that is slightly rougher in texture than the nearby flatwoods.

Current Conditions:

Two scrub communities occur on the northern uplands of PRSF. These two areas are remnant pieces of a large 40-acre polygon of historical scrub, most of which has been cleared. Most of the intact scrub at PRSF is similar to desired future conditions with a sparse canopy, a dense tall and short shrub layer, and a sparse herbaceous component. Both the tall and short shrub layers are moderate to dense and dominated by scrub oaks: sand live oak (*Quercus geminata*), Chapman's oak (*Q. chapmanii*), and myrtle oak (*Q. myrtifolia*). The tall shrub layer also contains coastalplain staggerbush (*Lyonia fruticosa*), turkey oak (*Quercus laevis*), and hog plum (*Ximenia americana*). The short shrub layer includes coastalplain staggerbush, turkey oak, saw palmetto (*Serenoa repens*), shiny blueberry (*Vaccinium myrsinites*), hog plum, and coontie (*Zamia pumila*). The herbaceous layer includes bluestem (*Andropogon* spp.), wiregrass (*Aristida stricta* var. *beyrichiana*), Elliott's milkpea (*Galactia elliotii*), narrowleaf silkgrass (*Pityopsis graminifolia*), sandyfield beaksedge (*Rhynchospora megalocarpa*), and lopsided indiagrass (*Sorghastrum secundum*).

Invasive plants found within scrub communities of PRSF include cogon grass (*Imperata cylindrica*), natal grass (*Melinis repens*), and Guinea grass (*Panicum maximum*).

Five gopher tortoise (*Gopherus polyphemus*) burrows were observed in the scrub communities on PRSF. Scrub is an important habitat for gopher tortoises and their associated commensals.

The northernmost scrub polygon had a small inclusion of scrubby flatwoods along its northern edge. Scrubby flatwoods have a canopy of pine trees and a low, shrubby understory dominated by scrub oaks and saw palmetto, often interspersed with areas of barren white sand. The canopy contains sand live oak (*Quercus geminata*), and cabbage palm (*Sabal palmetto*). Shrub layers include coastalplain staggerbush (*Lyonia fruticosa*), sand live oak (*Quercus geminata*), myrtle oak (*Q. myrtifolia*), sand blackberry (*Rubus cuneifolius*), saw palmetto (*Serenoa repens*), and hog plum (*Ximenia americana*). The herbaceous layer contains bluestem (*Andropogon* spp.), wiregrass (*Aristida stricta* var. *beyrichiana*), slender flattop goldenrod (*Euthamia caroliniana*), wild pennyroyal (*Piloblephis rigida*), narrowleaf silkgrass (*Pityopsis graminifolia*), goldenrod (*Solidago* spp.), and lopsided indiagrass (*Sorghastrum secundum*).

Fire Regimes:

Scrub fire regimes are highly variable, depending on landscape settings and dominant vegetation. Current scientific research suggests oak-dominated scrub would have naturally burned more frequently, 5-20 years. Scrub fires are often high intensity and require careful application.

Management Needs:

A mosaic of scrub of varying shrub heights would be desirable. Encourage fires from adjacent flatwoods to burn into the scrub. A fire prescription targeting the scrub should be used if shrub height or density, or bare soil percentage are outside of desired ranges. Mechanical treatments should be used only if necessary to burn safely or achieve desired conditions.

During all management activities, every effort should be made to minimize any detrimental effects to the gopher tortoise (*Gopherus polyphemus*) population (and its burrows) within this community, as this species is considered a keystone ecosystem component.

O. Scrubby Flatwoods

Description:

Scrubby flatwoods have a canopy of pine trees and a low, shrubby understory dominated by scrub oaks and saw palmetto, often interspersed with areas of barren white sand. Principal canopy species are longleaf pine (*Pinus palustris*) and slash pine (*P. elliottii*). The shrub layer consists netted pawpaw (*Asimina reticulata*), American beautyberry (*Callicarpa americana*), pinebarren frostweed (*Helianthemum corymbosum*), roundpod St. John's wort (*Hypericum cistifolium*), rusty staggerbush (*Lyonia ferruginea*), coastalplain staggerbush (*L. fruticosa*), fetterbush (*L. lucida*), Chapman's oak (*Quercus chapmanii*), sand live oak (*Q. geminata*), myrtle oak (*Q. myrtifolia*), winged sumac (*Rhus copallinum*), saw palmetto (*Serenoa repens*), sand blackberry (*Rubus cuneifolius*), shiny blueberry (*Vaccinium myrsinites*), hog plum (*Ximenia americana*), and coontie (*Zamia pumila*). The herbaceous layer should be fairly continuous with small openings of bare sand. Typical herbs include purple bluestem (*Andropogon glomeratus* var. *glaucopsis*), bluestem (*Andropogon* spp.), wiregrass (*Aristida stricta* var. *beyrichiana*), witchgrass (*Dichanthelium* spp.), tall elephantsfoot (*Elephantopus elatus*), mock pennyroyal (*Hedeoma graveolens*), wild pennyroyal (*Piloblephis rigida*), narrowleaf silkgrass (*Pityopsis graminifolia*), blackroot (*Pterocaulon pycnostachyum*), and lopsided indiagrass (*Sorghastrum secundum*).

Scrubby flatwoods occur on slight rises within mesic flatwoods and in transitional areas between scrub and mesic flatwoods. Soils of scrubby flatwoods are moderately well-drained sands with or without a spodic horizon. Examples of soil types include Pomello and Satellite sands.

Scrubby flatwoods on PRSF were delineated by ground-truthing.

Current Conditions:

Two scrubby flatwoods communities occur on the northern and southern uplands of PRSF. Most of the scrubby flatwoods at PRSF contain sparse canopy, a dense tall and short shrub layer, and a relatively continuous herbaceous layer. Canopy species include longleaf pine (*Pinus palustris*), sand live oak (*Quercus geminata*), and live oak (*Q. virginiana*). The sub-canopy is sparse and includes sand live oak (*Quercus geminata*), and cabbage palm (*Sabal palmetto*). Both the tall and short shrub layers are moderate to dense and contain netted pawpaw (*Asimina reticulata*), American beautyberry (*Callicarpa americana*), pinebarren frostweed (*Helianthemum corymbosum*), roundpod St. John's wort (*Hypericum cistifolium*), rusty staggerbush (*Lyonia ferruginea*), coastalplain staggerbush (*L. fruticosa*),

fetterbush (*L. lucida*), Chapman's oak (*Quercus chapmanii*), sand live oak, myrtle oak (*Q. myrtifolia*), winged sumac (*Rhus copallinum*), saw palmetto (*Serenoa repens*), sand blackberry (*Rubus cuneifolius*), shiny blueberry (*Vaccinium myrsinites*), hog plum (*Ximenia americana*), and coontie (*Zamia pumila*). The herbaceous layer includes purple bluestem (*Andropogon glomeratus* var. *glaucopsis*), bluestem (*Andropogon* spp.), wiregrass (*Aristida stricta* var. *beyrichiana*), witchgrass (*Dichanthelium* spp.), tall elephantsfoot (*Elephantopus elatus*), slender flattop goldenrod (*Euthamia caroliniana*), mock pennyroyal (*Hedeoma graveolens*), wild pennyroyal (*Piloblephis rigida*), narrowleaf silkgrass (*Pityopsis graminifolia*), blackroot (*Pterocaulon pycnostachyum*), goldenrod (*Solidago* spp.), and lopsided indiagrass (*Sorghastrum secundum*).

Invasive plants found within scrubby flatwoods of PRSF include cogon grass (*Imperata cylindrica*), natal grass (*Melinis repens*), Guinea grass (*Panicum maximum*), downy rose-myrtle (*Rhodomyrtus tomentosa*), and Caesar's weed. (*Urena lobata*).

Fire Regimes:

Fire intervals of more than 5 years and less than 15 years would allow for maximal acorn production. Within these upper and lower limits, variability in season and frequency of prescribed fires to produce a mosaic of burned and unburned patches would be most desirable for maintaining high biotic diversity in this community.

Management Needs:

Maintain a fire interval between 5-15 years. Encourage fires from adjacent flatwoods to burn into the scrubby flatwoods. A fire prescription targeting the scrubby flatwoods should be used if shrub height or density, or bare soil percentage are outside of desired ranges. Mechanical treatments should be used only if necessary to burn safely or achieve desired conditions.

P. Successional Hardwood Forest

Description:

Successional hardwood forests are defined by FNAI as closed-canopied forests dominated by fast growing hardwoods such as laurel oak (*Quercus hemisphaerica*), water oak (*Q. nigra*), and/or sweetgum (*Liquidambar styraciflua*), often with remnant pines. These forests are either invaded natural habitat (i.e., mesic flatwoods, sandhill, upland pine, upland mixed woodland) due to lengthy fire-suppression or old fields that have succeeded to forest.

For desired conditions, refer to the historical community. The majority of successional hardwood forest on PRSF is historical mesic flatwoods and a small portion is historical wet flatwoods.

Current Conditions:

Successional hardwood forest comprises a large portion of the northern uplands on PRSF. These areas of historically open flatwoods now have a closed canopy dominated by swamp laurel oak (*Quercus laurifolia*), and live oak (*Q. virginiana*), with occasional south Florida slash pine (*Pinus elliottii* var. *densa*), and longleaf pine (*Pinus palustris*). The sub-canopy

includes red maple (*Acer rubrum*), swamp laurel oak (*Quercus laurifolia*), cabbage palm (*Sabal palmetto*), and occasional coastalplain willow (*Salix caroliniana*) in wetter areas. The shrub layer is mostly sparse and includes roundpod St. John's wort (*Hypericum cistifolium*), wax myrtle (*Myrica cerifera*), swamp laurel oak (*Quercus laurifolia*), cabbage palm (*Sabal palmetto*), saw palmetto (*Serenoa repens*), deerberry (*Vaccinium stamineum*), and Walter's viburnum (*Viburnum obovatum*). Herbs are scattered and include common dayflower (*Commelina diffusa*), witchgrass (*Dichanthelium* spp.), and tall elephantsfoot (*Elephantopus elatus*). Vines are common and include Elliott's milkpea (*Galactia elliotii*), saw greenbrier (*Smilax bona-nox*), eastern poison ivy (*Toxicodendron radicans*), and muscadine (*Vitis rotundifolia*).

Some areas of successional hardwood forest have dense patches of cogon grass (*Imperata cylindrica*). Caesar's weed (*Urena lobata*) also is common in weedier areas.

Fire Regimes:

Refer to the historical community. Historically pyrogenic communities may require more frequent fire in the beginning than is typical for the historical natural community.

Management Needs:

Management should focus on increasing the frequency of prescribed burns. Though pines are scattered throughout, they do not appear to be dense enough to restrict hardwood growth. Selected hand thinning of laurel oak, though expensive and labor intensive, around larger, more desired hardwood species, could free up competition for resources and encourage more rapid growth. Planting more native pines in the area may help to carry fire through the groundcover and promote the growth of flatwoods species.

Q. Wet Flatwoods

Description:

Wet flatwoods are pine forests with a sparse or absent midstory and a dense groundcover of hydrophytic grasses, herbs, and low shrubs. The pine canopy typically consists of longleaf pine (*Pinus palustris*) and slash pine (*P. elliotii*). Wet flatwoods often occur in the ecotones between mesic flatwoods and shrub bogs, wet prairies, dome swamps, or strand swamps. Wet flatwoods also occur in broad, low flatlands, often in a mosaic with these communities.

The relative density of shrubs and herbs varies greatly in wet flatwoods. Shrubs tend to dominate where fire has been absent for a long period or where cool season fires predominate; herbs are more abundant in locations that are frequently burned. Soils and hydrology also influence relative density of shrubs and herbs. The soils are generally 0.3 to 1 m (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.

The desired future condition of wet flatwoods at PRSF is a forest canopy of longleaf pine (*Pinus palustris*) and slash pine (*P. elliotii*). Shrub species that tend to occupy wet flatwoods are gallberry (*Ilex glabra*), myrtle dahoon (*I. cassine* var. *myrtifolia*), fetterbush

(*Lyonia lucida*), saw palmetto (*Serenoa repens*), and loblolly bay (*Gordonia lasianthus*). As in mesic flatwoods, the herbaceous layer in wet flatwoods includes species that help to maintain community structure by fueling growing-season fires; wiregrass (*Aristida stricta* var. *beyrichiana*) is dominant. Other typical species include whitehead bogbutton (*Lachnocaulon anceps*), meadowbeauties (*Rhexia* spp.), several species of beak-sedges (*Rhynchospora* spp.), yellow hatpins (*Syngonanthus flavidulus*), and yellow-eyed grasses (*Xyris* spp.).

On the 1943 geo-rectified photographs, wet flatwoods appear similar to mesic flatwoods but with a slightly darker color, slightly rougher texture, more interspersed dark patches (baygall inclusions), and a somewhat wavy pattern as if the photo is out of focus in that area (i.e., area of wet flatwoods).

Current Conditions:

Small patches of extant wet flatwoods occur throughout the uplands of PRSF. Nearly half of the historic wet flatwoods are now successional hardwood forest, mesic hammock, pasture, or basin swamp. Most extant areas of wet flatwoods were delineated from 1943 aerials and were not visited during ground-truthing. The canopy is relatively sparse with longleaf pine (*Pinus palustris*) and sand live oak (*Quercus geminata*). The shrub layer contains St. John's wort (*Hypericum cistifolium*), gallberry (*Ilex glabra*), and saw palmetto (*Serenoa repens*). The herbaceous layer includes wiregrass (*Aristida stricta* var. *beyrichiana*), whitehead bogbutton (*Lachnocaulon anceps*), beaksedge (*Rhynchospora* spp.), and yellow hatpins (*Syngonanthus flavidulus*).

The vegetative structure of the wet flatwoods is highly variable and partially dependent on fire history, hydroperiod, and silviculture. For example, herb-dominated wet flatwoods with an open canopy typically fringe many of the basin and dome swamps. A second type is shrub-dominated with little herbaceous/graminoid groundcover. Finally, a third type, currently appears to be baygall with a pine canopy but historically was much more open with small inclusions of baygall species.

The southernmost wet flatwoods community on PRSF contains inclusions of baygall. Loblolly bay (*Gordonia lasianthus*) and swamp laurel oak (*Quercus laurifolia*) dominate the canopy and sub-canopy. Shrubs include loblolly bay, gallberry (*Ilex glabra*), wax myrtle (*Myrica cerifera*), swamp laurel oak, and winged sumac (*Rhus copallinum*). The herb layer is open with scattered Virginia chain fern (*Woodwardia virginica*).

Fire Regimes:

Historically, the fire return interval in wet flatwoods is 2-4 years for grassy wet flatwoods and 5-10 years for shrubby wet flatwoods. 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.

Management Needs:

Areas with remnant or restored herbaceous vegetation should be high priorities for burning and burned with late spring/early summer fires to stimulate wiregrass flowering and seed

viability. With restoration, these areas may become potential seed sources for reseeded projects.

R. Xeric Hammock

Description:

Xeric hammocks are closed canopy, evergreen forests that occur on well-drained sandy soils. Xeric hammocks are often considered an advanced successional stage of sandy upland communities such as sandhill, scrub, and scrubby flatwoods. Xeric hammocks may develop naturally through fire protection afforded to them by a wetland or other natural barrier such as a downward slope.

Xeric hammock has a closed canopy of predominantly sand live oak (*Quercus geminata*), but with occasional longleaf pine (*Pinus palustris*), live oak (*Quercus virginiana*), and laurel oak (*Q. hemisphaerica*). The sub-canopy consists of younger canopy species, as well as turkey oak (*Quercus laevis*) and cabbage palm (*Sabal palmetto*). The understory is dominated by shrubs. Typical species are American beautyberry (*Callicarpa americana*), coastalplain staggerbush (*Lyonia fruticosa*), fetterbush (*L. lucida*), myrtle oak (*Quercus myrtifolia*), saw palmetto (*Serenoa repens*), sparkleberry (*Vaccinium arboreum*), shiny blueberry (*V. myrsinites*), deerberry (*V. stamineum*), and coontie (*Zamia pumila*). Herbs are generally sparse due to the closed canopy and high litter cover. Species may include bluestem (*Andropogon* spp.), wiregrass (*Aristida stricta* var. *beyrichiana*), coastalplain chaffhead (*Carphephorus corymbosus*), witchgrass (*Dichanthelium* spp.), pinweed (*Lechea* spp.), crowngrass (*Paspalum* spp.), and wild pennyroyal (*Piloblephis rigida*). Epiphytes are common and consist of Spanish moss (*Tillandsia usneoides*) and ball moss (*T. recurvata*). Vines are occasional and include muscadine (*Vitis rotundifolia*) and earleaf greenbrier (*Smilax auriculata*).

Current Conditions:

Small xeric hammock communities are scattered throughout the uplands on PRSF. The majority of these communities were historically mesic flatwoods or sandhill.

The dominant canopy trees are longleaf pine (*Pinus palustris*), and sand live oak (*Quercus geminata*). The sub-canopy includes longleaf pine, sand live oak, turkey oak (*Quercus laevis*), and cabbage palm (*Sabal palmetto*). Shrubs are moderate to dense and include American beautyberry (*Callicarpa americana*), coastalplain staggerbush (*Lyonia fruticosa*), fetterbush (*L. lucida*), sand live oak (*Quercus geminata*), myrtle oak (*Q. myrtifolia*), saw palmetto (*Serenoa repens*), shiny blueberry (*Vaccinium myrsinites*), and coontie (*Zamia pumila*). Herbs are sparse and include bluestem (*Andropogon* spp.), wiregrass (*Aristida stricta* var. *beyrichiana*), coastalplain chaffhead (*Carphephorus corymbosus*), witchgrass (*Dichanthelium* spp.), pinweed (*Lechea* spp.), crowngrass (*Paspalum* spp.), and wild pennyroyal (*Piloblephis rigida*). Muscadine (*Vitis rotundifolia*) is an occasional vine.

Invasive plants located in xeric hammock include cogon grass (*Imperata cylindrica*) and downy rose-myrtle (*Rhodomyrtus tomentosa*).

Fire Regimes:

Xeric hammocks rarely burn and typically develop after 30 or more years of fire protection. Fires in xeric hammocks are usually catastrophic and may lead to reversion of the xeric hammock to another community type.

Management Needs:

The decision to convert a xeric hammock of anthropogenic origin to its historical condition (sandhill, scrub, or scrubby flatwoods) should be site-specific and should factor in management objectives as well as the current condition of the hammock.

VIII. Literature Cited

Florida Fish and Wildlife Conservation Commission (FWC). 2012. Gopher Tortoise Management Plan. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida.

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 State, Division of Archives, History and Records Management. Florida Master Site File. 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). 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
CARL	Conservation and Recreation Lands
DACS	Department of Agriculture and Consumer Services
DEP	Department of Environmental Protection
DHR	Division of Historical Resources
DRP	Division of Recreation and Parks
FCT	Florida Communities Trust
FFS	Florida Forest Service
FNAI	Florida Natural Areas Inventory
FWC	Florida Fish and Wildlife Conservation Commission
NRCS	Natural Resources Conservation Service
SWFWMD	Southwest Florida Water Management District
OALE	DACS Office of Agricultural Law Enforcement
OFW	Outstanding Florida Water
OGT	DEP Office of Greenways & Trails
P2000	Preservation 2000
TIITF	Board of Trustees of the Internal Improvement Trust Fund
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
PRSF	Peace River State Forest
WMA	Wildlife Management Area