



FLORIDA DEPARTMENT OF Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, FL 32399

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Shawn Hamilton
Secretary

June 12, 2023

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

RE: Indian Lake State Forest – Lease No. 4577

Dear Mr. Camposano:

On **June 9, 2023**, the Acquisition and Restoration Council (ARC) recommended approval of the **Indian Lake 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 **Indian Lake State Forest** management plan. The next management plan update is due June 9, 2033.

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

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

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

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

Mr. Brian Camposano

Page 2

June 12, 2023

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

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

Sincerely,

Deborah Burr

Digitally signed by
Deborah Burr
Date: 2023.06.13
12:55:53 -04'00'

Deborah Burr
Office of Environmental Services
Division of State Lands

TEN-YEAR LAND MANAGEMENT PLAN

FOR THE

INDIAN LAKE STATE FOREST

MARION COUNTY



PREPARED BY THE

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

FLORIDA FOREST SERVICE

APPROVED ON

JUNE 9, 2023

TEN-YEAR LAND MANAGEMENT PLAN
FOR THE
INDIAN LAKE STATE FOREST



Approved by:

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

Richard Dolan, Director
Florida Forest Service

6/22/23

Date

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

James Roberts, Chief
Forest Management Bureau

6-19-23

Date

**TEN-YEAR LAND MANAGEMENT PLAN
INDIAN LAKE STATE FOREST
TABLE OF CONTENTS**

Land Management Plan Executive Summary	1
I. Introduction	3
A. General Mission and Management Plan Direction	3
B. Past Accomplishments	3
C. Goals / Objectives for the Next Ten-Year Period	4
II. Administration Section.....	8
A. Descriptive Information	8
1. Common Name of Property	8
2. Legal Description and Acreage.....	8
3. Proximity to Other Public Resource	9
4. Property Acquisition and Land Use Considerations	9
B. Management Authority, Purpose and Constraints	10
1. Purpose for Acquisition / Management Prospectus	10
2. Degree of Title Interest Held by the Board.....	11
3. Designated Single or Multiple-Use Management.....	11
4. Revenue Producing Activities.....	12
5. Conformation to State Lands Management Plan	12
6. Legislative or Executive Constraints	12
7. Aquatic Preserve/Area of Critical State Concern	12
C. Capital Facilities and Infrastructure	12
1. Property Boundaries Establishment and Preservation	12
2. Improvements	13
3. On-Site Housing.....	13
4. Operations Infrastructure	13
D. Additional Acquisitions and Land Use Considerations	14
1. Alternate Uses Considered.....	14
2. Additional Land Needs	14
3. Surplus Land Assessment	14
4. Adjacent Conflicting Uses	15
5. Compliance with Local Comprehensive Plan.....	15
6. Utility Corridors and Easements.....	15
E. Agency and Public Involvement	16
1. Responsibilities of Managing Agencies.....	16
2. Law Enforcement.....	16
3. Wildland Fire	16
4. Public and Local Government Involvement	16
5. Volunteers	17
6. Friends of Florida State Forests	17

III. Archaeological / Cultural Resources and Protection	17
A. Past Uses	17
B. Archaeological and Historical Resources	17
C. Ground Disturbing Activities	18
D. Survey and Monitoring	18
IV. Natural Resources and Protection.....	19
A. Soils and Geologic Resources.....	19
1. Resources	19
2. Soil Protection.....	19
B. Water Resources.....	19
1. Resources	20
2. Water Classification.....	20
3. Water Protection	20
4. Swamps, Marshes, and Other Wetlands	21
5. Wetlands Restoration	21
6. Basin Management Action Plan.....	21
C. Floral and Faunal Resources	22
1. Rare, Threatened and Endangered Species	22
2. Florida Natural Areas Inventory	23
3. Florida Fish and Wildlife Conservation Commission	23
4. Game Species and Other Wildlife.....	24
5. Survey and Monitoring	24
6. Gopher Tortoise Recipient Site Feasibility Assessment.....	25
D. Sustainable Forest Resources.....	25
E. Beaches and Dune Resources	26
F. Mineral Resources	26
G. Unique Natural Features and Outstanding Native Landscapes.....	26
H. Research Projects / Specimen Collection.....	26
I. Ground Disturbing Activities	27
V. Public Access and Recreation.....	27
A. Existing	27
B. Planned.....	28
C. Hunter Access	30
D. Education	30
VI. Forest Management Practices	31
A. Prescribed Fire	31
B. Wildfire Prevention and Mitigation Strategies.....	32
1. Suppression Strategies	33
2. Smoke Management.....	33
3. Firebreaks and Firelines.....	33
4. Sensitive Areas.....	34
5. Firewise Communities	34
6. Adjacent Neighbor Contacts	34

7. Post-Burn Evaluations	34
C. Sustainable Forestry and Silviculture.....	34
1. Strategies.....	34
2. Silvicultural Operations	34
3. Forest Inventory	35
4. Timber Sales	35
5. Cattle Grazing.....	35
D. Non-Native Invasive Species Control.....	35
E. Insects, Disease, and Forest Health	38
F. Use of Private Land Contractors.....	39
VII. Proposed Management Activities for Natural Communities	39
A. Basin Marsh	41
B. Basin Swamp	42
C. Baygall	43
D. Depression Marsh	43
E. Mesic Flatwoods	44
F. Mesic Hammock	45
G. Sandhill	46
H. Sandhill Upland Lake	48
I. Sinkhole	49
J. Xeric Hammock.....	50
K. Managed Community Types.....	51
L. Altered Landcover Types.....	52
VIII. References.....	54
IX. Glossary of Abbreviations	55

TABLES

Table 1. Acreage by Funding Source.....	Page 9
Table 2. Nearby Public Conservation Land and Easements	Page 9
Table 3. Parcel Acquisition.....	Page 10
Table 4. Archaeological and Historical Sites.....	Page 17
Table 5. Endangered or Threatened Species.....	Page 22
Table 6. Non-Native Invasive Species Found on ILSF	Page 36
Table 7. Natural Community Types.....	Page 39
Table 8. Managed Community Types.....	Page 39
Table 9. Altered Landcover Types.....	Page 40
Table 10. Prescribed Fire Interval Guide.....	Page 40

**TEN-YEAR LAND MANAGEMENT PLAN
INDIAN LAKE STATE FOREST
EXHIBITS**

Ten-Year Management Accomplishment Summary	Exhibit A
Boundary and Road Map	Exhibit B
Optimal Management Boundary Map	Exhibit C
Facilities, Recreation, and Improvements Map	Exhibit D
Tract and Acreage Map.....	Exhibit E
Proximity to Significant Managed Lands	Exhibit F
Archaeological and Cultural Sites	Exhibit G
Management Procedures for Archaeological and Historical Sites and Properties on State Owned or Controlled Lands	Exhibit H
Soil Survey Map and Descriptions	Exhibit I
FDEP Outstanding Florida Waters	Exhibit J
Water Resources and BMAP Maps	Exhibit K
FNAI Managed Area Tracking Record.....	Exhibit L
FWC Listed Species Occurrence Records	Exhibit M
ILSF Fire History	Exhibit N
Non-Native Invasive Species Map.....	Exhibit O
Current FNAI Natural Communities and Cover Type Map	Exhibit P
Historic FNAI Natural Communities Map	Exhibit Q
Management Prospectus	Exhibit R
Land Management Reviews.....	Exhibit S
Compliance with Local Comprehensive Plan.....	Exhibit T
State Forest Management Plan Advisory Group Summary.....	Exhibit U
State Forest Summary Budget	Exhibit V
Arthropod Control Plan.....	Exhibit W
Florida Forever Project	Exhibit X

LAND MANAGEMENT PLAN EXECUTIVE SUMMARY

LEAD AGENCY: Florida Department of Agriculture and Consumer Services (FDACS), Florida Forest Service
COMMON NAME: Indian Lake State Forest
LOCATION: Marion County
ACREAGE TOTAL: 4,567.65 acres

Historic Natural Communities*	Approximate Acreage**
Sandhill	4,065
Mesic hammock	147
Mesic flatwoods	131
Baygall	66
Sandhill upland lake	18

Historic Natural Communities*	Approximate Acreage**
Basin swamp	17
Basin marsh	11
Depression marsh	8
Sinkhole	3
Xeric hammock	2

* Table excludes unmapped SJRWMD 102-acre parcel acquired November 2020

** Rounding errors exist

TIITF LEASE AGREEMENT NUMBER: 4577

USE: Single ☐ Multiple ☒

MANAGEMENT AGENCY

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

RESPONSIBILITY

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

DESIGNATED LAND USE:

Multiple-Use State Forest

SUBLEASES:

None

ENCUMBRANCES:

Existing water monitoring wells and related easements, existing electric supply and related easements, Marion County Parcel #14404-000-00 owned by SJRWMD

TYPES OF ACQUISITION:

Florida Forever and Marion County Funds, St. Johns River Water Management District.

UNIQUE FEATURES:

A deep sinkhole lake occurs on the property that drains into the Floridan Aquifer. A string of hat-rack cypress growing between Indian Lake Prairie and Indian Lake visually captures old Florida.

ARCHAEOLOGICAL / HISTORICAL:

Thirteen (13) known sites

MANAGEMENT NEEDS:

Restoration and maintenance of native ecosystems

ACQUISITION NEEDS:

13,663 Acres of Optimal Management Boundary including remainder of Heather Island / Ocklawaha River Florida Forever project, and portions of Indian Lake Prairie

SURPLUS ACREAGE:

None

PUBLIC INVOLVEMENT:

ILSF Liaison Committee, Marion County, Management Plan Advisory Group Public Hearing, State Forest Liaison Committee, Acquisition and Restoration Council - - - - -

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

ARC Approval Date: _____ TIITF Approval Date: _____

Comments: _____

I. Introduction

The Indian Lake State Forest (ILSF) is approximately 4,567 acres of rolling sandhills and old pastures just north of historic Silver Springs in Marion County. The forest is named after Indian Lake, a deep sinkhole lake that drains into the aquifer. This property was acquired in 2007 and 2008 under the Florida Forever program, with additional money from Marion County and assistance from The Nature Conservancy, Silver Springs Working Group, and the Florida Department of Environmental Protection (FDEP). ILSF is just a few miles from the heart of Ocala.

While ILSF is dominated by rolling sandhills on a sinkhole-rich karst topography, other natural community types include depression marsh, xeric hammock, and mesic flatwoods.

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 ILSF resources through a stewardship ethic to assure they are available for future generations.”

Management strategies for ILSF emphasize the multiple-use concept, as defined in sections 253.034(2)(a) and 589.04(3), Florida Statutes (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 ILSF was acquired. Multiple-use management for ILSF 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 recreational opportunities for multiple interests;
- Restore and manage healthy forests and native ecosystems ensuring the long-term viability of populations and species listed as endangered, threatened, or rare, and other components of biological diversity, including game and non-game wildlife, and plants;
- Protect known archaeological, historical, and cultural resources;
- Restore, maintain, and protect hydrological functions, related water resources, and the health of associated wetlands and aquatic communities; and
- Provide research and educational opportunities related to natural resource management.

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

B. Past Accomplishments

Data regarding past management activities and public use on the ILSF have been compiled monthly and are available from the ILSF manager. A table has been prepared for this plan that summarizes the accomplishments for each of the past 10 years. See Exhibit A. The table does not attempt to account for all activities on ILSF, but summarizes major activities. It does not list the multitude of daily activities and public interactions involved in managing ILSF. Since the approval of the previous management plan in 2011, there have been numerous events,

developments, and accomplishments. Among the most notable have been the following:

- Forest Management
 - Conducted annual forest inventory
 - Planted 65,340 containerized longleaf pines on 570 acres
 - Harvested 4,317.19 tons of timber from approximately 180 acres
 - Monitored 13 archaeological or historical sites
- Fire Management
 - Conducted 45 prescribed burns on 9,383 acres
 - Maintained 514 miles of firelines
- Road / Boundary Management
 - Improved or rebuilt 13 miles of forest roads
 - Maintained 26 miles of forest boundary
- Recreation Management
 - Hosted more than 148,571 day-use forest visits
 - Hosted more than 3,097 overnight primitive camping visits
 - Administered 25 State Forest use permits
- Biological Management
 - Actively controlled 12 invasive plant species on 787 acres
 - Monitored for presence of feral hogs
 - FWC completed Line Transect Distance Sampling gopher tortoise survey in 2018
- Education / Public Outreach
 - Hosted ten (10) forest-related program events (local school programs, clubs, and professional groups)
 - Produced one (1) radio, television, and / or print article featuring forest activities
 - Supported three (3) research and / or specimen collection projects

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

The following goals and objectives provide direction and focus of management resources for the next ten-year planning period. Funding, agency program priorities, and the potential for wildfire or other natural disasters during the planning period will determine the degree to which these objectives can be met. Management activities on ILSF during this period must conserve, protect, utilize, and enhance the natural and historical resources and manage resource-based public outdoor recreation, which is compatible with the conservation and protection of this forest. Most of the management operations will be conducted by the FFS, although appropriate activities will be contracted to private sector vendors or completed with the cooperation of other agencies. All activities will enhance the property's natural resource or public recreation value.

The management activities listed below will be addressed within the ten-year management period and are defined as short-term goals, long-term goals, or ongoing goals. Short-term goals are goals that are achievable within a two-year planning period, and long-term goals are achievable within a ten-year planning period. Objectives are listed in priority order for each

goal. Other activities will be completed with minimal overhead expense and existing staff.

➤ **GOAL 1: Sustainable Forest Management**

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

Performance Measures:

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

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

Performance Measures:

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

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

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

Performance Measure: Number of visitor opportunities per day

Objective 2: Continue to safely integrate human use into ILSF, following 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: Continue to involve and meet with the Liaison Committee. The purpose of Liaison Committee meetings is to facilitate communication between the FFS and committee members (and the groups they represent) about State Forest management and to obtain feedback from these entities. The Liaison Committee consists of local residents, community leaders, special interest group representatives (vendors, hunters and other recreational users, etc.), environmental group representatives, and other public / private entities. (Ongoing objective)

Performance Measures:

- Liaison Committee remains organized
- Annual meetings continue

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

Performance Measures:

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

Objective 5: Evaluate the potential for additional public access and recreation areas on ILSF that are compatible with multiple-use management. Recreation opportunities will fall under the scope of multiple-use management in accordance with watershed protection, conservation, and ecosystem restoration; and as detailed in the purpose for acquisition. (Short-term objective)

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

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

Performance Measures:

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

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

Objective 1: The ILSF currently contains approximately 2,800 acres of fire-dependent communities. ILSF staff will plan and conduct prescribed burns in a manner that benefits these fire-dependent natural communities within the forest. To achieve an average fire-return interval of two (2) to four (4) years for most fire-dependent communities, FFS will attempt to conduct prescribed burns on an average of approximately 700 to 1,400 acres per year. Currently, FFS staff estimates 2,500 acres at ILSF are within the desired fire-return interval. (Ongoing objective)

Performance Measures:

- Annual number of acres burned
- Number of acres burned within target fire-return interval

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

Performance Measures:

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

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

Performance Measures:

- Evaluations complete
- Should the evaluations determine that fuel reduction is necessary, number of acres treated for fuel reduction

Objective 4: Utilize prescribed fire to enhance restoration of native groundcover. Evaluate areas where native groundcover has been eliminated or heavily impacted from historical land

use on a case by case basis for alternative methods to address reestablishment of native groundcover. Restore native groundcover from historical land use where practical or heavily impacted. (Long-term objective)

Performance Measure: Number of acres restored

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

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

Performance Measures:

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

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

Performance Measure: Number of species for which monitoring is ongoing

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

Objective 1: Continue to follow and annually update the Five-Year Ecological Plan for ILSF, 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 ILSF non-native invasive database information annually

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

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

Performance Measure: Documentation of known sites

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

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

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

Performance Measure: Number of local staff trained as ARM monitors

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

Objective 1: Protect water resources during management activities through the implementation of all applicable Silviculture Best Management Practices (BMPs). (Ongoing objective)

Performance Measure: Percent compliance with Silviculture BMPs

Objective 2: Conduct or obtain a site assessment / study to identify potential hydrological restoration needs. (Short-term objective)

Performance Measure: Assessment conducted

Objective 3: Close, rehabilitate, or restore roads, fire lines, and trails that are causing hydrologic alterations or negatively impacting water quality. (Ongoing objective)

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

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

Objective 1: ILSF staff, along with help from volunteers and / or user groups, will continue maintenance of Office / Visitor center, two (2) picnic pavilions, two (2) vault bathrooms, five (5) primitive and five (5) planned RV camping sites, two (2) trailheads with parking areas, 14 miles of trails, and one (1) mile of primary road. (Ongoing objective)

Performance Measure:

- The number of existing facilities, miles of roads, and miles of trails maintained

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

Performance Measures:

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

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

Performance Measures:

- Continued implementation of the Five-Year Boundary Survey and Maintenance Management Plan
- Percentage of forest boundary maintained 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 Indian Lake State Forest.

2. Legal Description and Acreage

The total acreage of ILSF is 4,567.65 acres. The property is located in all or part of Sections 11, 12, 13, 14, 22, 23, 24, 25, 26, 27, and 36 of Township 14 south, Range 22 and also Sections 7, 18, and 19 of Township 14 South, Range 23 East, Marion County, Florida. ILSF's tracts and acreage are shown in Exhibit E. Acreage acquired by funding source is identified in Table 1.

Table 1. ILSF Acreage by Funding Source

Funding Source	Acres
Florida Forever	4,461.04
FFS Florida Forever	2.63
MG Parcel*	102.00

* SJRWMD-owned

A complete legal description of lands owned by the Board of Trustees of the Internal Improvement Trust Fund (TIITF) is on record at the Indian Lake Forestry Station Office, FDEP, Division of State Lands in Tallahassee, and the FFS State Office in Tallahassee.

3. **Proximity to Other Public Resources**

Lands managed by state, federal, or local governments for conservation of natural or cultural resources that are located within approximately 12 miles of the ILSF are included in Exhibit F and Table 2.

Table 2. Nearby Public Conservation Land and Easements

Tract	Agency	Distance
Silver Springs Forest Conservation Area	SJRWMD	Adjacent
Silver Springs Sandhill	Marion County	Adjacent
Silver Springs Archery	Marion County	Adjacent
Marjorie Harris Carr Cross Florida Greenway	DRP	0.1 miles S
Coehadjoe Park	Marion County	3 miles S
Silver Springs Conservation Area	Marion County	4 miles S
Silver Springs State Park	DRP	4 miles S
Fort King Property	City of Ocala	5 miles S
Heritage Nature Conservancy	City of Ocala	5 miles S
Ocala National Forest	USFS	7 miles E
Black Sink Prairie	SJRWMD	9 miles N
Scott Spring / Celebration 2000 Community Park	City of Ocala	9 miles SW
Ocklawaha Prairie Restoration Area	SJRWMD	12 miles SE
Orange Creek Restoration Area	SJRWMD	12 miles N

DRP – Florida Division of Recreation and Parks

SJRWMD – St. Johns River Water Management District

USFS – US Forest Service

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

The property was acquired by the TIITF in July 2007 from Avatar Properties, Inc. (API) as part of the Florida Forever’s statewide “Florida’s First Magnitude Springs” project. The project was established in 1990 and amended in 2003 to include the addition known as the “Silver Springs Addition.” The portion of the Silver Springs Addition located just north of the 530-million gallon per day Silver Springs, and comprised of approximately 4,452 acres of land, was planned by API for the development of a strip mall and a 13,000-unit residential subdivision. As the development was slated for the Silver Springs recharge area, the purchase was sponsored by the Silver Springs Basin Working Group in an effort to protect the integrity of this sensitive recharge area. The purchase agreement was facilitated through

The Nature Conservancy who made the initial purchase directly from API in December 2006 and subsequently sold it to the TIITF over the course of two state budget funding cycles. In addition, Marion County assisted in the acquisition through a substantial contribution of \$2,500,000 towards the purchase price and closing costs. This contribution was made with conveyance of no title interest. In Resolution No. 06-R-524, adopted in November 2006, Marion County defined the intent of their participation in the public acquisition was to "benefit the people of Marion County by preserving from residential development, and placing [the property] in public hands for perpetual conservation, the habitat of rare and threatened wildlife, archaeological and historic sites, and the watershed of Silver Springs and the Silver River, which are valuable resources and areas of scenic beauty of this State."

On November 10, 2020 FFS entered into an Intergovernmental Agreement (FDACS Contract #027406) with SJRWMD to manage the 102-acre SJRWMD-owned MG parcel as part of Indian Lake State Forest.

Table 3. Parcel Acquisition

Parcel Name	Deed Date	Acres
Avatar Tract Phase I	12/22/2006	2,661.11
Avatar Tract Phase II	7/23/2007	1,799.93
FFS Florida Forever (13 parcels)	1/4/2010 – 11/5/2011	2.63
Donation	8/3/2011	2.42
MG Parcel*	11/10/2020	102.00

* SJRWMD-owned

B. Management Authority, Purpose, and Constraints

1. Purpose for Acquisition / Management Prospectus

Because of the thick, water-filled limestone underlying it, Florida alone has more large springs than any other country in the world. Springs which discharge an average of 100 cubic feet of water per second or more are called first-magnitude springs. The 33 recognized springs in Florida are scattered in the northern peninsula and the eastern panhandle where the limestone of the Floridan Aquifer arches close to the surface. Each day, these 33 springs across the State generate more drinking water than is consumed by Floridians. The springs, with generally clear and continuously flowing waters, are among Florida's most important natural resources.

On December 7, 1990, the Land Acquisition Advisory Council (LAAC) added the Florida's First Magnitude Springs – Phase I project to Florida's Conservation and Recreation Lands (CARL) priority list. This fee-simple acquisition, sponsored by the Department of Environmental Regulations, consisted of approximately 2,907 acres, 36 landowners, and 136 parcels. Five springs made up the project: Falmouth Spring, Fanning Springs, Gainer Springs, River Sink Spring, and St. Marks Springs.

On December 10, 1992, the LAAC approved Phase II that added three springs: Jackson Blue Springs, Troy Spring, and Weeki Wachee Springs. On December 10, 1992, the LAAC also approved the Gainer Springs Expansion and combined it with the Gainer Springs site.

On April 18, 2003, the Acquisition and Restoration Council (ARC) approved a fee-simple, 4,552-acre addition (Silver Springs Addition) north of Silver Springs in Marion County to the project boundary. The addition was sponsored by the Silver Springs Basin Working Group, and consisted of one landowner, Avatar Properties Inc.

The purposes identified by the Florida's First Magnitude Springs Florida Forever program (Exhibit R), including the ILSF site are:

“Large springs of clear, continuously flowing water are among Florida’s most famous and important natural and recreation resources. The cavernous, water-filled rocks of the Floridan Aquifer supply the largest springs. By preserving land around springs, this project will protect them; and the Floridan Aquifer; from the effects of commercial, residential, and agricultural runoff; clearcutting and mining; and unsupervised recreation. This project will ensure that Floridians and visitors from all over the world will be able to enjoy Florida springs for years to come.”

In addition, Florida Forever acquisitions have as their general purpose:

- To conserve and protect environmentally unique and irreplaceable lands that contain native, relatively unaltered flora and fauna representing a natural area unique to, or scarce within, a region of this state or a larger geographic area;
- To conserve and protect native species habitat or endangered or threatened species;
- To conserve, protect, manage, or restore important ecosystems, landscapes, and forests, if the protection and conservation of such lands is necessary to enhance or protect significant surface water, ground water, coastal, recreation, and timber resources, or to protect fish or wildlife resources which cannot otherwise be accomplished through local and state regulatory programs;
- To provide areas, including recreation trails, for natural resource-based recreation; and
- To preserve archaeological or historic sites.

2. Degree of Title Interest Held by the Board

The TIITF holds fee simple title to the 4,567.65 acres of ILSF under Lease Agreement No. 4577. The St. Johns River Water Management District (SJRWMD) holds a portion of the fee simple title to 102 acres.

3. Designated Single or Multiple-Use Management

ILSF is managed under a multiple-use concept by the FFS, under the authority of Chapters 253 and 589, F.S. The FFS is the lead managing agency as stated in Management Lease No. 4577.

Multiple-use management is the harmonious and coordinated management of timber, recreation, conservation of fish and wildlife, forage, archaeological and historic sites, habitat and other biological resources, and water resources so they are utilized in the combination that will best serve the people of the state, making the most judicious use of the land for some or all these resources and considering the relative values of the various resources. Local demands, acquisition objectives, and other factors influence the array of uses that are compatible with and allowed on any specific area of ILSF. 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 ILSF provide for multiple uses, 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 ILSF. Current and potential revenue producing activities for the ILSF include, but are not limited to:

- Timber Harvests – Timber harvests on ILSF will be conducted to improve forest health, promote wildlife habitat, restore plant communities, and provide additional benefits.
- Recreation Fees – Fees are currently collected for campgrounds, and vendor / special use permits.
- Apiary Leases – There are currently no apiary lease sites on ILSF.
- Firewood Sales– Permits are sold for the cutting and collection of firewood in designated areas of ILSF where past fire suppression has led to severe oak encroachment.
- Miscellaneous Forest Product Sales – Other miscellaneous forest product sales, including but not limited to, palm fronds and berries, pine cones, and pine straw, may be considered.

5. Conformation to State Lands Management Plan

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

6. Legislative or Executive Constraints

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

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

7. Aquatic Preserve / Area of Critical State Concern

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

C. Capital Facilities and Infrastructure

1. Property Boundaries Establishment and Preservation

ILSF boundaries, 28 miles in total, are managed by State Forest personnel in accordance with the guidelines of the State Forest Handbook. There are 25 gates throughout ILSF that require

periodic maintenance. State Forest boundaries are maintained by periodic clearing, repainting and reposting, and placement of State Forest boundary signs by FFS personnel.

2. Improvements

Major FFS facilities on ILSF include the Forestry Station office / visitor center and equipment maintenance / storage shops. Major recreation facilities include the Indian Lake Recreation Area, Equestrian Trailhead, and picnic pavilions. See Exhibit D for a map of the buildings and improvements at ILSF.

Buildings / Recreation infrastructure present on the ILSF include:

- Office / visitor center, 2,000 sq. ft.
- Two (2) Public restrooms, 300 sq. ft.
- Shop building, 3,000 sq. ft.

3. On-Site Housing

There are no residences on ILSF.

FFS may establish on-site housing (mobile / manufactured home) on ILSF if deemed necessary to alleviate security and management issues. The need and feasibility for ILSF will be evaluated and established if considered appropriate by the Center Manager and approved by the FFS Director. Prior to the occurrence of any ground disturbing activity for establishing on-site housing, a notification will be sent to the DHR and Florida Natural Areas Inventory (FNAI) for review and recommendations. This type of housing will not exceed three homes per location with the possibility of more than one on-site housing location occurring if considered necessary by the Center Manager and approved by the Director.

4. Operations Infrastructure

a. Operations Budget

For Fiscal Year 2021-2022 the total operating budget for ILSF was \$16,261. This amount includes, expenses, contractual services, Other Personal Services Employment (OPS), etc. A summary budget for ILSF is contained in Exhibit V. Implementation of any of the activities within this management plan is contingent on availability of funding, other resources, and other statewide priorities.

b. Equipment

To carry out the mission of the FFS, equipment assigned to the ILSF includes: one (1) pickup truck, one (1) ATV, one (1) UTV, one (1) farm tractor, one (1) front-end loader, one (1) lawn mower, and eight (8) attachments for the farm tractors.

c. Staffing

One (1) Forester is assigned to ILSF who also has duties on Ross Prairie State Forest. Other personnel from the Waccasassa Forestry Center are occasionally used to assist with management activities at ILSF.

The Forester will work to achieve the goals outlined in this management plan. Recreation planning and management activities as well as resource management and planning activities,

such as trail flagging / identification, recreation facility placement, timber cruising, and sale administration, etc., are the responsibility of the Forester under the direction of the Resource Administrator and Center Manager. Forest operations, such as road maintenance, operations / recreation facility maintenance, prescribed burning, etc., are the responsibility of the Forest Area Supervisor under the direction of the Operations Administrator and Center Manager.

To supplement the staff assigned to ILSF, the Resource Administrator is responsible for recruiting interested volunteers who can bring needed experience and skills to assist with the management of the ILSF recreation program, as well as resource management activities. The Waccasassa Forestry Center Recreation Coordinator assists at ILSF and is directed by the Resource Administrator.

Additionally, a State Forest Liaison Committee comprised of private citizens and representatives of forest user groups meets bi-annually to provide input on forest management activities and share ideas with FFS staff to improve the State Forest. oversee

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 ILSF. 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, dumping, mining, and oil well stimulation (e.g. hydraulic fracturing / fracking), or as determined by law, regulation, or other incompatible uses as described elsewhere in the management plan. Deadhead logging is not compatible with nor considered an appropriate use within or adjacent to ILSF boundaries. Although no water resources projects are being considered at this time on SJRWMD-owned lands within ILSF, they should not be precluded.

2. Additional Land Needs

Purchasing of additional land within the optimal management boundary would facilitate restoration, protection, maintenance, and management of the natural resources on ILSF. The Heather Island / Ocklawaha River Florida Forever project is located east of ILSF. If acquired, this area would be managed as part of ILSF connecting the forest with existing public conservation lands, corridors for wildlife dispersal, preservation of habitat for rare species, and floodplain protection. See Exhibit X.

There is an undeveloped platted subdivision (Silver Springs Park) inholding with a number of small privately-owned parcels scattered throughout which should receive priority for acquisition because they would benefit the management of the property. These parcels are located in Section 26, township 14 South, Range 22 East. The FFS will work with these property owners, on a willing seller basis, to acquire these parcels. See Exhibit C.

3. Surplus Land Assessment

On conservation lands where FFS is the lead manager, FFS assesses and identifies areas for

potential surplus land. This assessment consists of an examination of resource and operational management needs, public access and recreational use, and GIS modeling and analysis.

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

4. Adjacent Conflicting Uses

There are no known inholdings with conflicting uses.

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 ILSF.

ILSF is fragmented by several highly traveled roads, including State Road 326 and Baseline Road (County Road 35). These roads are a primary consideration when planning and conducting prescribed burns due to smoke management concerns.

5. Compliance with Local Comprehensive Plan

This plan was submitted to the Planning Division of the Marion County Growth Services Department for review and compliance with its local comprehensive plan. See Exhibit T.

6. Utility Corridors and Easements

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

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

ILSF has four in-holdings with ingress and egress access easements: a 40 acre parcel, a developed lot in the Silver Springs Park Addition, and two cemeteries. The Ocala Springs Elementary School is on an inholding, but has frontage along NE 40th Avenue Road.

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 cables where scenic considerations are desirable as well

as encourage the development of use of wildlife crossings for unavoidable roadway development projects. Easements for such utilities are subject to the review and approval of the TIITF and the SJRWMD. Requests for linear facility uses will be handled according to the Governor and the Cabinet's linear facilities policy.

E. Agency and Public Involvement

1. Responsibilities of Managing Agencies

FFS is the lead managing agency, responsible for overall forest management and public recreation activities, as stated in TIITF Management Lease No. 4577. Pursuant to the management lease, the lead managing agency may enter into further agreements or to subleases on any part of ILSF.

FFS will cooperate with the DHR regarding appropriate management practices on historical or archaeological sites on the property as stated in Section 267.061, F.S. FFS will consult DHR prior to the initiation of ground disturbing activities as required per DHR guidelines.

2. Law Enforcement

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

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

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

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 (590.01, F.S.). The FFS also has the responsibility of authorizing prescribed burns (590.02 [1][i], F.S.).

4. Public and Local Government Involvement

This plan has been prepared by FFS and will be carried out primarily by the FFS. FFS responds to public involvement through liaison committees, management plan advisory groups, public hearings, and through ongoing direct contact with user groups. Land Management Review Teams, as coordinated by the Division of State Lands, have conducted reviews of management plan implementation in 2013 and 2017. See Exhibit S. The review team's recommendations were addressed in this plan, as appropriate.

The plan was developed with input from the ILSF Management Plan Advisory Group and

was reviewed at a public hearing on January 25, 2023. A summary of the advisory group's meetings and discussions, as well as written comments received on the plan, are included in Exhibit U. The 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 ILSF. Volunteer activities may occur as one-time events or in association with long-term recurring projects and routine maintenance. Additional volunteer recruitment will continue to assist furthering the FFS's mission.

6. Friends of Florida State Forests

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

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

III. Archaeological / Cultural Resources and Protection

A. Past Uses

Prior to state ownership, ILSF was known as the Avatar Tract and was owned for about 30 years by API, a real estate development company. API leased this property for farming, hay and sod production, and cattle grazing many years before the state purchase. A developed campground (Ocala Springs RV Park), comprising of approximately 40 acres, was located near the shore of Indian Lake, and is currently abandoned.

B. Archaeological and Historical Resources

A review of information contained in the Florida Department of State, DHR, Florida Master Site File has determined there are 11 recorded archaeological sites and 2 historical cemeteries within the designated area for ILSF. Currently, none of the known sites on ILSF are listed in the National Register of Historic Places, though Mt. Olive Cemetery is eligible. See Table 4 and Exhibit G for a cultural resource roster.

Table 4. Historical Sites on ILSF

Site ID	Site Name	Site Type
MR01062	F46	AR
MR03292	Mt. Olive Cemetery	CM
MR03293	Indian Lake Cemetery	CM
MR03295	Indian Lake East	AR
MR03296	Indian Lake South	AR
MR03297	Indian Lake Prairie East	AR
MR03298	Indian Lake Northwest	AR
MR03299	Indian Lake North	AR

Site ID	Site Name	Site Type
MR03300	Indian Lake Camp Northeast	AR
MR03301	Straight Knoll	AR
MR03302	Mt. Olive Sinkhole	AR
MR03303	Indian Lake Camp Southeast	AR
MR03305	North of Cemetery	AR

AR – Archaeological Site

CM – Historical Cemetery

Sensitive Areas maps are provided to personnel to help identify locations where protection is critical. Periodic monitoring by staff and law enforcement is also important to protection efforts. Where cultural sites are part of current or future public use areas and DHR approves, interpretation may be utilized to inform and educate the public.

C. Ground Disturbing Activities

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

D. Survey and Monitoring

Currently three (3) local district FFS staff are trained by DHR as Archaeological Resource Management (ARM) monitors. The Waccasassa Forestry Center Recreation Coordinator is trained as an archaeological monitor and serves as the primary contact for historical issues. FFS will pursue opportunities for additional personnel to receive ARM Monitor training to facilitate protection of cultural resources. 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, and any protection measures that might be required. Unless required on a more frequent basis, 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.

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

IV. Natural Resources and Protection

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

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

A. Soils and Geologic Resources

1. Resources

Soil information for ILSF was obtained from the United States Department of Agriculture Natural Resources Conservation Service (NRCS). The major soils listed by the NRCS include: Candler sand, Arredondo sand, Adamsville sand, and Lynne sand. Detailed information on all soils present on ILSF may be found in Exhibit I.

2. Soil Protection

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

Currently there are no major or significant soil erosion problems on ILSF.

B. Water Resources

The water resources on ILSF perform essential roles in the protection of water quality, groundwater recharge, flood control, and aquatic habitat preservation. In the interest of maintaining these valuable resource functions, State Forest management personnel will work with the FFS Hydrology Section to incorporate wetlands restoration into the overall resource management program as opportunities arise, particularly where wetlands systems have been impaired or negatively impacted by previous management activities or natural disasters. See Exhibit K for map of the water resources on ILSF.

ILSF is critical to Silver Springs because it lies within its two-year and ten-year recharge areas (Shoemaker et al. 2004, Pandion Systems 2006, Phelps 2004, Phelps 2006). ILSF comprises roughly 4,500 acres of vital recharge area for this major Florida spring system. Hydrological modeling was used by SJRWMD and FDEP to calculate the two-year, ten-year and 100-year recharge areas of Silver Springs. Water from local rainfall infiltrates into the ground via these recharge areas and then flows underground through porous limestone to Silver Springs, one of the largest first magnitude springs in the nation, and the second-largest natural spring in Florida

that yields some 340 million gallons of water per day (Figure 13 Sutherland, et. Al 2017).

One of the main threats to the Floridan aquifer on this property was a scattering of abandoned wells, some up to twelve inches in diameter. A well-closure contract was initiated by FDEP and thirteen wells were capped or welded shut. As a result, all known abandoned wells on the property have been capped. There are also four SJRWMD monitoring wells on ILSF. Two active wells and one septic system are being used by FFS on the property as of 2022. In the future, as recreation sites for on-site forest use are planned, water supply wells and / or septic systems will be necessary. They will be located and designed to comply with all pertinent state, water management district, and local regulations, and with the sensitive nature of the property in mind. Two water supply wells are found on the property; a six-inch well at the FFS office site and a four-inch well at the Indian Lake Campground. At acquisition, FDEP evaluated the wells on the State Forest and capped many of them. Uncapped wells used for monitoring include: paired six-inch and twelve-inch wells reworked by SJRWMD in 2020; two small wells; a deep well along Baseline Road; and two six-inch irrigation wells which are loosely capped. See Exhibit K.

The FFS will cooperate with the St. Johns River Water Management District (SJRWMD), FDEP, counties and municipalities to develop and implement a water quality monitoring plan for Indian Lake and Indian Lake Prairie. Water resource protection measures, at a minimum, will be accomplished through the use of Best Management Practices (BMPs) as described in the FFS's Silviculture Best Management Practices manual.

1. Resources

Indian Lake and Indian Lake Prairie are the main water bodies on ILSF. In addition to this sinkhole lake system, cypress domes and baygalls occur in a small area on the eastern side of ILSF. At least 83 sinkholes are scattered throughout the sandhills, however, they do not hold water.

2. Water Classification

The FDEP's Standards Development Section reports that all of the surface waters within, adjacent to, or within five (5) miles of ILSF are classified as Class III Waters (Fish Consumption; Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife), which is the statewide default classification under Rule 62-302.400, F.A.C.

According to subsection 62-302.700(9), F.A.C., there are no Outstanding Florida Waters (OFW) within or adjacent to ILSF but there are four OFWs in relatively close proximity to the forest. These are the Silver River Special Waters and the Silver Springs State Park, each a little over 0.5 miles away; the Oklawaha River Aquatic Preserve, approximately 1.5 miles southeast; and the Oklawaha River Special Waters, approximately 3.2 miles southeast. See Exhibit J.

3. Water Protection

An objective for the acquisition and management of this public land was to optimize ecological restoration, protect and manage existing natural resources, and facilitate

sustainable public use. Concerns over a continuous, usable source of fresh water requires emphasis on protecting this vital resource.

4. Swamps, Marshes, and Other Wetlands

Maintenance of naturally occurring wetland communities is a high priority and will be accomplished through appropriate management activities, including prescribed fire and adherence to Silviculture BMPs.

The main area of ILSF wetlands, including Indian Lake and Indian Lake Prairie (a basin marsh), is on the eastern side of the forest. The eastern side of ILSF also contains dome swamps, depression marshes, baygalls, and other smaller isolated wetlands. Most ILSF wetlands are hydrologically intact, although fire-dependent communities have been historically fire-suppressed. While these wetlands only compose 3% of ILSF, maintaining the integrity of the wetlands natural communities is a high priority. The remaining forest area is extremely well-drained sandhill without surface water features. However, this is a vital groundwater recharge area, and the location and integrity of sinkholes will be considered while conducting any management activity that might impact the aquifer.

5. Wetlands Restoration

Wetlands restoration objectives on the State Forest include erosion control, restoration of hydrology, and restoration of wetland plant and animal communities. To achieve these objectives, restoration activities may involve road and soil stabilization, water level control structure removal or installation, non-native invasive species control, site preparation and re-vegetation with native wetlands species, and project monitoring. These activities may be conducted individually or concurrently and 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, ILSF, with assistance from the FFS Forest Management Bureau, may pursue funding to develop and implement wetlands restoration projects. Additionally, cooperative research among FFS, other state agencies, and the federal government will provide valuable information in determining future management objectives of wetland restoration.

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

6. Florida Department of Environmental Protection Basin Management Action Plan

A Basin Management Action Plan (BMAP) 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.

The ILSF resides in the Ocklawaha Silver Springs BMAP. See Exhibit K.

C. Floral and Faunal Resources

1. Rare, Endangered, and Threatened Species

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

Table 5. Rare, Endangered, and Threatened Species Documented on ILSF

Common Name	Scientific Name	FNAI Global Rank*	FNAI State Rank*	Federal Status*	State Status*
Eastern indigo snake	<i>Drymarchon couperi</i>	G3	S2	T	FT
Gopher tortoise	<i>Gopherus polyphemus</i>	G3	S3	C	ST
Pine snake	<i>Pituophis melanoleucus</i>	G4	S3	N	ST
Scrub stylisma	<i>Stylisma abdita</i>	G3	S3	N	E
Southeastern American kestrel	<i>Falco sparverius paulus</i>	G5T4	S3	N	ST
Southeastern fox squirrel	<i>Sciurus niger</i>	G5T5	S3	N	N

* STATUS / RANK KEY

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

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

Federal Status (USFWS): LE = Listed Endangered, LT = Listed Threatened, N = Not currently listed, C = Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened. SAT, T(S/A) = threatened due to similarity of appearance. A species that is threatened due to similarity of appearance with another listed species and is listed for its protection. Species listed as T(S/A) are not biologically endangered or threatened and are not subject to Section 7 consultation.

State Status (FWC): Animals: FE = Listed as Endangered Species at the Federal level by the USFWS, FT = Listed as Threatened Species at the Federal level by the USFWS, F(XN) = Federal listed as an experimental population in Florida, FT(S/A) = Federal Threatened due to similarity of appearance, ST = State population listed as Threatened by the FWC, SSC = Listed as Species of Special Concern by the FWC, N = Not currently listed, nor currently being considered for listing.

Plants: LE = Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act; LT = Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered; CE = Commercially Exploited; N = Not currently listed, nor currently being considered for listing.

2. Florida Natural Areas Inventory

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

a. Element Occurrences

FNAI element occurrences data layer includes occurrences of rare species and natural communities. For animals and plants, element occurrences usually indicate a viable population of the species.

Documented habitat includes: basin marsh, basin swamp, baygall, depression marsh, mesic flatwoods, mesic hammock, sandhill, sandhill upland lake, sinkhole, and xeric hammock.

b. Likely and Potential Habitat for Rare Species

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

c. Land Acquisition Projects

The site is located in Florida's First Magnitude Springs Florida Forever Project - Silver Springs Sandhill, which is part of Florida's CARL land acquisition program. See Exhibit R.

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

3. Florida Fish and Wildlife Conservation Commission

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

Specific findings by the FWC include:

- a.** Records of Florida black bear (*Ursus americanus floridanus*) and Eastern Indigo snake (*Drymarchon couperi*) are found on or within one mile of ILSF.
- b.** Strategic Habitat Conservation Areas within one mile of the property for Florida mouse (*Podomys floridanus*), swallow-tailed kite (*Elanoides forficatus*), Cooper's hawk (*Accipiter cooperii*), Florida black bear (*Ursus americanus floridanus*), and striped newt (*Notophthalmus perstriatus*).
- c.** ILSF is located within an area of moderate Species Richness which indicates the total number of species within potential habitat identified in a specific location.
- d.** ILSF is adjacent to Priority Wetlands, which are wetlands significant to listed wetland-dependent vertebrates.
- e.** FWC records include a map indicating multiple listed species locations on or near ILSF.

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

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 ILSF. The FWC Gopher Tortoise Species Management Plan provides beneficial resource guidelines for habitat management and monitoring of the gopher tortoise. For reference, the FWC Gopher Tortoise Species Management Plan can be accessed at www.MyFWC.com.

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

4. Game Species and Other Wildlife

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

Notable wildlife species inhabiting ILSF include gopher tortoise (*Gopherus polyphemus*), southeastern fox squirrel (*Sciurus n. niger*), American kestrel (*Falco sparverius*), wood stork, (*Mycteria americana*) and wild turkey (*Meleagris gallopavo*).

ILSF supports a small population of feral hogs (*Sus scrofa*). Nuisance trapping may be utilized to control this population.

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

5. Survey and Monitoring

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

a. Gopher Tortoises

Surveys for gopher tortoise burrows have been conducted by FFS and FWC staff intermittently, as needed. All surveys are done in cooperation with FWC. Results from the 2018 survey indicated a population of around 622 tortoises with a density estimated at 0.18 tortoises/acre.

The FFS follows and utilizes the Best Management Practices for gopher tortoises to assist in meeting management objectives for both the species and the communities in which it is found.

b. Florida Black Bear

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

c. Listed Plant Species

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

d. Other Rare Biota Surveys

Surveys are done as time and staffing allow. High quality plant communities continue to incur ad hoc surveys for both invasive plants and animals. The FFS will utilize FWC Species Action Plans for guidance both monitoring populations and for habitat management recommendations for rare and imperiled species, where appropriate.

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

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

6. Gopher Tortoise Recipient Site Feasibility Assessment

The FFS has assessed the feasibility of establishing a gopher tortoise recipient site on ILSF. In 2018, biologists from FWC conducted a line transect distance sampling protocol across 3,496 acres of ILSF to determine the baseline population of tortoises across all suitable natural communities and soil types. After conducting the survey, FWC estimated that there was a population of 622 gopher tortoises across suitable habitat types, or about one tortoise per five acres, which is low enough that ILSF could accept gopher tortoises. To that end, staff on ILSF have identified a 132-acre parcel in the southern portion of the forest, directly adjacent to the southern boundary, which contains suitable soils and could be established as a recipient site.

However, based on the operational budget and staff assigned to the forest, the FFS does not have the financial or technical capacity to install a gopher tortoise recipient area on ILSF. The FFS would require financial and technical assistance from FWC to establish a recipient site on ILSF. Should that assistance be available, the FFS would be amenable to partnering and establishing a gopher tortoise recipient site.

D. Sustainable Forest Resources

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

E. Beaches and Dune Resources

No beaches or dunes occur on the ILSF.

F. Mineral Resources

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

G. Unique Natural Features and Outstanding Native Landscapes

A unique feature existing on ILSF is Indian Lake, a deep sinkhole lake directly connected to the Floridan aquifer. The surrounding karst uplands are vital to the water quality of Silver Springs.

H. Research Projects / Specimen Collection

Research projects may be conducted on ILSF 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 ILSF must be 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 ILSF staff. Other special conditions may be applicable, and the authorization may be terminated at any point if the study is not in compliance.

Research projects, studies, and / or specimen collections that have been initiated on the property within the last 10 years include:

- University of Florida, Department of Geological Sciences. 2017. Hydrostratigraphy characterization of the Floridan aquifer system using ambient seismic noise.
- University of North Carolina, Schoonover-Weakley. 2019. Plant material collection for genetic and morphological analyses and to examine *Trichostema* populations throughout the southeastern United States.
- FWC-FWRI, Smith. 2021. Project to improve detection method for long-tailed weasel and Everglades mink to determine their abundance in Florida.

- University of Florida, Mallinger. 2021. Project to investigate the behavior and ecology of the Southeastern blueberry bee (*Habropoda laboriosa*) and its host plants (*Vaccinium* sp.).

I. Ground Disturbing Activities

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

When new pre-suppression firelines, recreation trails, or other low-impact recreation 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, WMD, and ARC, as appropriate.

V. Public Access and Recreation

The primary recreation objective is to provide the public with dispersed outdoor recreation activities that are dependent on the natural environment, and to provide outdoor recreation opportunities to wounded veterans through Operation Outdoor Freedom (OOF). FFS will continue to promote and encourage public access and recreational use by the public while protecting resources and practicing multiple-use management.

Periodic evaluations will be conducted by FFS staff to monitor recreation 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

Recreation opportunities at ILSF include hiking, birdwatching, horseback riding, fishing, picnicking, RV & primitive camping, wildlife viewing, and photography. The lake recreation area trailhead is located on the north side on Indian Lake. The Bear-N-Oak looped hiking trail begins at this trailhead. The equestrian trailhead and trails are on the west side of Baseline Road north of State Road 326. This section of ILSF has the largest acreage needed to provide trail lengths suitable for equestrian users. A third high-use public area on ILSF is the campground. The campground is suitable for RV and / or primitive campers. The fourth existing public site is the State Forest office. The office is located just off State Road 326 and within five miles of all the recreation parking areas. This office also serves as a visitor center where visitors can get more information and specific questions answered. See Exhibit D for a map of the Recreation, Facilities, and Improvements.

Lake Recreation Area

Visitors can park at the lake recreation trailhead within 100 yards of the lake's shore. From here visitors can hike the 1.4-mile Bear-N-Oak trail that loops around Indian Lake, enjoy sitting at picnic tables scattered amongst the majestic oaks while enjoying the lake views, or use the pavilion with barbecue grills and tables. The pavilion was built using the foundation of a previous property owner's campground recreation / social hall. The hiking trail and the area around the lake is foot traffic only. A vault toilet is conveniently located adjacent to the day use parking area for day visitors.

Equestrian Trails Recreation Area

The equestrian trailhead and trails are found on the western side of Baseline Road. Equestrians can use 11.6 miles of designated horse trails. Equestrian riders may choose to shorten the ride length by half if they decide to use the 1.2-mile cut-off trail at Mile Marker 6. In the future, these trails may be considered for multiple-use trails to provide additional opportunities to hike or bike. A pavilion with picnic tables as well as a vault toilet can also be found at this trailhead. A connector trail was added from this trailhead to the St. Johns River Water Management District's Silver Springs Forest Conservation Area equestrian trails. This connection with water management lands gives riders an additional 10 miles of marked riding trails.

Campgrounds

ILSF currently has six RV campsites, five primitive campsites, and one campground host RV site. Indian Lake Campground is located several hundred yards north of the sinkhole lake the forest is named for, Indian Lake, and only 4.5 miles north of the renowned Silver Springs in Marion County. The current campground lies within the footprint of the old full-service campground that operated on this property until the early 1980s. Campsites include a picnic table, grill, fire ring, lantern post, and a parking spot. Each RV site has water and electric connections. Currently there is an RV dump station and a bathhouse is centrally located in the campground.

Forestry Station Office / Visitor Center

The Forestry Station Office / Visitor Center located on NE 40th Avenue Road serves as the hub where visitors can meet with staff and obtain information about the forest. Equipment used to manage and maintain the forest is housed at this site.

B. Planned

FFS will continue to assess plans for additional recreation opportunities based on demand, carrying capacity, demographics, and impact to the resources on ILSF. All planned improvements may be completed as staff and funding permits. Both terrestrial and aquatic resources and related activities will be evaluated. Any plans will be incorporated into the Five-Year Outdoor Recreation Plan on file at ILSF. FFS will continually reach out to user groups to communicate its needs and concerns with our user groups, cooperators, and visitors.

1. Public Access and Parking

Within this ten-year planning cycle, other parking and access points will be evaluated. Current parking areas and forest access points will continually be evaluated for

improvements. There is no current need to add more trailheads on ILSF. Existing trailheads may need to be redesigned to allow for more parking using previously impacted areas. Parking and access issues will be addressed annually as the Five-Year Outdoor Recreation Plan is updated and documented impacts are reviewed.

2. Recreation Trails

Within this ten-year planning cycle, suitable locations will be explored for additional recreation trails. Input from user groups will be considered in any trail improvements. A second loop will be added to the Bear-N-Oak hiking trail as trail use increases. This trail will expose forest visitors to Indian Lake Prairie (a basin marsh), mesic hammocks, and mesic flatwoods. A planned second trail will be an educational / interpretive trail if FFS and Ocala Springs Elementary School partner to construct a trail on forest property adjacent to the school. These trails will be laid out and constructed with the goal of minimizing impacts to the resources while keeping maintenance costs down. The construction, maintenance, and improvements of hiking, nature, and equestrian trails will be ongoing. Foot bridges and boardwalks may need to be installed on trails to mitigate impacts in wetland areas. Additional multi-use, equestrian, cycling, nature, and hiking trails may be evaluated, planned, and installed on ILSF.

Marion County has presented the concept of a paved trail that runs north and south from the ILSF campground to Silver Springs. Most of the proposed trail would be on ILSF adjacent to existing county road right of ways.

3. Environmental Education

Environmental education activities on ILSF are displayed on kiosks and conducted through guided tours and hands-on events by request. Targeted groups include the general public, school and youth groups, and various user groups. ILSF partners with other organizations to provide various in person hikes, tours, and events throughout the year. The link between Indian Lake, the Floridan aquifer, and Silver Springs will be a key focus of interpretation. Kiosks will be installed, replaced, or repaired as needed throughout ILSF. Information in the kiosks will continually be updated to remain current and relevant.

4. Amenities (Pavilions, Docks, Bathrooms, etc.)

During this ten-year planning period, FFS will assess the feasibility of installing additional pavilions at sites that are to be determined. Pavilions may be installed at various locations on ILSF if future demands create a need for them. Pitcher pumps are also being planned for installation. At least one water source should be added as an equestrian amenity at the equestrian trailhead. Culverts will need to be replaced to prevent further erosion at a key hiking trail crossing over the drain from the basin marsh to the lake. Additional bathroom / shower units may be installed if the number of campsites is increased to a level where the current infrastructure cannot accommodate the increased use. All other existing amenities may be replaced, upgraded, or improved as needed. Additional amenities that may be assessed during this ten-year planning period include but are not limited to: bear-proof trashcans, bear-proof storage containers, gates, educational displays, signs, fencing, potable water sources, water and electric utility hook-ups, lighting, tent or RV pads, boardwalks, culverts, and gazebos. New amenities may need to be added along the Indian Lake to Silver

Springs multi-use paved trail if the trail is constructed in the future. These amenities will be included in the multi-use trail's planning phase prior to construction. Any amenity installed will provide a positive benefit for forest users.

5. Camping

During this ten-year planning period, FFS will assess the feasibility of additional campsites and a group camping area. Any new campsites added will have amenities consistent with existing camping areas. Before any new campsites or camping areas are installed, the current infrastructure will be evaluated to make sure it can handle an increase in use without putting a strain on existing services. Campsites will be installed, replaced, improved, and/or repaired as needed. Additional amenities including but not limited to bear-proof trashcans, bear-proof storage containers, pavilions, gates, restrooms, RV dump station, signs or kiosks, fencing, water and electric hook-ups, lighting, tent or RV pads, and gates. The Florida Forest Service will handle permitting special camping requests which fall outside of the normal day to day operations handled through the online camping reservation system.

C. Hunter Access

Regulated hunting and fishing on Florida's forests are managed cooperatively with the FWC. Hunting season dates, limits, and methods are established annually by FWC, in cooperation with FFS. Wildlife Management Area (WMA) regulations are updated annually and are identified in the current WMA brochures provided by FWC at www.MyFWC.com. Non-hunting recreation users are encouraged to check the Wildlife Management Area regulations and season dates before visiting ILSF.

ILSF is not currently a WMA. FFS will consult with FWC to designate ILSF as a WMA for quality hunting opportunities if the OOF program decides to no longer use this forest as an OOF site. Management of this area will be directed to the production of biological diversity and species composition consistent with the 10 existing natural community types. Such communities will be restored and / or maintained through habitat management. All biological resources will be managed to maintain diversity.

OOF may host multiple events on ILSF. These events will involve outdoor recreation activities including, but not limited to, hunting, fishing, hiking, camping, clay shooting, and any other activity that is developed as an outdoor activity for wounded veterans. The supporting personnel will include state and private volunteers and any support personnel necessary for the operation, support, or funding of such events. Events can be recreation, fundraising, or planning in nature. The OOF program needs may include the upgrading of existing or construction of new facilities for lodging and recreation of participants, as well as logistical and operational needs of the program. On-site and offsite 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 ILSF. Once partnerships are developed, the Five-Year Outdoor Recreation Plan will provide more insight to management activities as they

pertain to future educational opportunities ILSF may provide to the public.

VI. Forest Management Practices

A. Prescribed Fire

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

FFS utilizes a fire management program on State Forests that includes wildfire prevention, detection and suppression, and prescribed burning. This program is the responsibility of FFS's Waccasassa Forestry Center 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 ILSF.

A Fire History chart detailing the recent history of prescribed burns and wildfires at ILSF is available in Exhibit N.

FFS has two (2) fire towers, two (2) brush trucks, and five (5) tractor-plow units located throughout Marion County. Additional support is available from neighboring counties. Personnel and equipment stationed at ILSF 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 prescribed burning program developed for ILSF produces multiple benefits. The objectives of prescribed burning on ILSF include facilitating forest management operations, enhancing wildlife and listed species habitat; decreasing fuel loading, enhancing public safety, and restoring, maintaining, and protecting all native ecosystems, ecotones, and their ecological processes. FFS personnel are responsible for planning and implementing the annual prescribed burn program for ILSF, which will consist of dormant and growing season burns. An update to the Five-Year Prescribed Burning Management Plan is developed each year by FFS staff. All burns conducted on ILSF are executed by Florida Certified Prescribed Burn Managers in accordance with Chapters 590.125, F.S. and 5I-2 F.A.C.

According to FNAI, historic, fire-dependent natural communities on ILSF are estimated to have occupied 4,200 acres and to have burned at approximately two (2) to four (4) year intervals. Current fire-dependent communities encompass 2,800 acres. Some historically fire-dependent communities have been altered through past land use practices, which inhibits the ability to meet objectives with prescribed fire alone. Based on current conditions and management objectives, ILSF will plan for 700 to 1,400 acres to be prescribed burned annually. Priority ranking of burn units is used to keep fire-return intervals maintained while slowly adding additional acreage. Meeting prescribed fire goals will be largely dependent on weather conditions, available personnel, and statewide emergency situations such as wildfires, hurricanes, and other natural disaster response and relief. Currently it is estimated that approximately 2,500 acres of ILSF are within the desired fire-return interval.

1. Fire Management

The fire management plan serves as a working tool and an informational document for ILSF. The plan provides guidelines regarding wildfire suppression and prescribed fire management. It will specify burn units, burn unit prescriptions, appropriate fire-return intervals, and fire pre-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 ILSF 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, and managing timber, recreation, historical, and other resource values. The fire management plan and its objectives shall reflect and incorporate these multiple-resource objectives.

- a. Prescribed Fire:** Prescribed fire is the most important land management tool, both ecologically and economically, for managing vegetation and natural communities and for perpetuating existing wildlife populations in Florida. Forest operation records and staff experience should be combined with the FNAI inventory and assessment (2016) to identify areas that may require mechanical or chemical treatments in conjunction with prescribed fire to restore a more natural vegetative structure.
- b. Burn Unit Plans:** Each prescribed fire will be conducted in accordance with FFS regulations and state law (Chapter 51-2 F.A.C., Chapter 590, F.S.) and have a burn unit plan (or prescription). Each prescription will contain, at a minimum, the information, as required by Section 590.125(3), F.S., needed to complete the FFS Prescribed Burn Plan Form FDACS 11461.

Aerial ignition may be considered for large burn units where this tactic can be cost effective for larger acreages. Consideration should be given to rotating burn units between dormant and growing season burns over time, particularly when fuel loads have been significantly reduced by multiple applications of dormant season prescribed fire. Some variation in the season of burns in a given unit is desirable, although growing season burns are optimal for maintaining natural community health. 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. Wildfire Prevention and Mitigation 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 Waccasassa Forestry Center. 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.

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

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

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

1. Suppression Strategies

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

- a. Contain and Control** is defined as a suppression strategy where a fire is restricted to a certain area by using existing natural or constructed barriers that stop the fires spread under the prevailing and forecasted weather until it is out. This strategy allows the use of environmentally sensitive tactics based on fuels, fire behavior, and weather conditions that keep a wildfire from burning a large area or for a long duration.
- b. Direct Suppression** is defined as a suppression strategy where aggressive suppression tactics are used to establish firelines around a fire to halt its spread and to extinguish all hotspots. This alternative is used whenever there is a threat to human life, property, private lands, and / or critical natural or cultural resources. This strategy should also be used when the total district fire load dictates that crews not be involved with individual fires for any longer than 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 ILSF to guard against fires escaping from and entering the forest. Such fire breaks will consist of natural barriers, roads, trails, permanent grass strips, and where appropriate, well-maintained harrowed lines. All pre-suppression fire breaks will meet the established Silvicultural BMP criteria.

During wildfire suppression, the use of water and foam, permanent fire breaks, natural barriers, and existing roads and trails for firelines can be used when human life, safety, property, and resource considerations allow. Plowed and / or bladed lines will be used for

initial installation of firelines in heavy fuels and in cases where it's considered necessary to protect life, property, or resources and / or to minimize threats to firefighters. Plowed and bladed lines will be rehabilitated, and BMPs implemented as soon as practical after the fire is suppressed.

4. Sensitive Areas

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

5. Firewise Communities

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

6. Adjacent Neighbor Contacts

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

7. Post-Burn Evaluations

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

C. Sustainable Forestry and Silviculture

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

1. Strategies

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

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

2. Silvicultural Operations

Silvicultural operations on ILSF will be directed toward improving forest health, wildlife

habitat, ecological and economical sustainability, as well as toward recovery from past management practices prior to state acquisition that are not in accordance with the objectives of this plan. Stands of off-site species with merchantable volume will be scheduled for harvest, followed by reforestation with the appropriate tree species. Herbicide applications may be necessary to control woody competition and to re-establish desired native overstory and groundcover species. 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. Precautions will be taken to ensure that these activities are planned and implemented to minimize or avoid impacts to native groundcover. Mechanically treated areas will be monitored for invasive plant colonization.

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

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

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

3. Forest Inventory

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

Timber / forestry resources available on the property include loblolly, longleaf, slash, and small pockets of sand pine. In addition, there are mixed hardwoods and cypress found throughout ILSF.

4. Timber Sales

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

5. Cattle Grazing

There are currently no cattle leases on ILSF.

D. Non-Native Invasive Species Control

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

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

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

FFS will enlist support from FWC in efforts to control non-native invasive animals. Feral hogs are present on ILSF but are not believed to occur in significant numbers at this time.

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 ILSF

Common Name	Scientific Name	FISC Category*	Treatment Strategy	Acres Impacted	Increasing /Decreasing
Air potato	<i>Dioscorea bulbifera</i>	1	Spot Treatment with herbicide/Biocontrol	0.1	Decreasing
Asparagus fern	<i>Asparagus aethiopicus</i>	1	Spot Treatment with herbicide	0.1	Decreasing
Bengal dayflower	<i>Commelina benghalensis</i>	No	Unknown/Herbicide resistant	0.1	Increasing
Bermuda grass	<i>Cynodon dactylon</i>	No	Monitor	25	Increasing
Bowstring hemp	<i>Dracaena hyacinthoides</i>	2	Spot Treatment with herbicide	0.1	Decreasing
Caesar weed	<i>Urena lobata</i>	1		0.5	Increasing
Camphor tree	<i>Cinnamomum camphora</i>	1	Treatment with herbicide; Hack & Squirt With Repeated Visits Until Site in Maintenance	8	Decreasing
Cat's claw vine	<i>Dolichandra unguis-cati</i>	1	Treatment with herbicide; Foliar With Repeated Visits Until Site in Maintenance	2	Increasing
Chinaberry	<i>Melia azedarach</i>	2	Treatment with herbicide; Hack &	1	Decreasing

Common Name	Scientific Name	FISC Category*	Treatment Strategy	Acres Impacted	Increasing /Decreasing
			Squirt With Repeated Visits Until Site in Maintenance		
Chinese parasol tree	<i>Firmiana simplex</i>	No	Spot Treatment with herbicide	0.1	Decreasing
Chinese privet	<i>Ligustrum sinense</i>	1	Spot Treatment with herbicide	0.1	Decreasing
Chinese tallowtree	<i>Triadica sebifera</i>	1	Spot Treatment with herbicide	0.1	Decreasing
Chinese wisteria	<i>Wisteria sinensis</i>	2	Spot Treatment with herbicide		Decreasing
Cogongrass	<i>Imperata cylindrica</i>	1	Treatment with herbicide; Broadcast With Repeated Visits Until Site in Maintenance	5	Decreasing
Coral ardisia	<i>Ardisia crenata</i>	1	Spot Treatment with herbicide; Manual	2	Decreasing
Coral vine	<i>Antigonon leptopus</i>	2	Spot Treatment with herbicide	0.1	Decreasing
Elephant ear	<i>Xanthosoma sagittifolium</i>	2	Spot Treatment with herbicide	0.1	Decreasing
English ivy	<i>Hedera helix</i>	No	Spot Treatment with herbicide	0.1	Increasing
Flamegold	<i>Koelreuteria elegans formosana</i>	2	Treatment with herbicide; Hack & Squirt With Repeated Visits Until Site in Maintenance	1	Decreasing
Glossy privet	<i>Ligustrum lucidum</i>	1	Spot Treatment with herbicide	0.1	Decreasing
Japanese climbing fern	<i>Lygodium japonicum</i>	1	Spot Treatment with herbicide	0.1	Decreasing
Japanese honeysuckle	<i>Lonicera japonica</i>	1	Spot Treatment with herbicide	0.1	Decreasing
Johnson grass	<i>Sorghum halepense</i>	No	Monitor	2	Increasing
Kudzu	<i>Pueraria montana var. lobata</i>	1	Spot Treatment with herbicide	0.1	Decreasing
Lantana	<i>Lantana strigocamara</i>	1	Spot Treatment with herbicide	0.1	Decreasing
Mexican petunia	<i>Ruellia simplex</i>	1	Spot Treatment with herbicide	0.1	Decreasing
Mimosa	<i>Albizia julibrissin</i>	1	Treatment with herbicide; Hack & Squirt With Repeated Visits Until Site in Maintenance	4	Decreasing
Nandina	<i>Nandina domestica</i>	1	Spot Treatment with herbicide		Decreasing
Natal grass	<i>Melinis repens</i>	1	Treatment with herbicide; Broadcast With Repeated Visits Per Season With Soil Active Herbicide Until Site in Maintenance	50	Increasing

Common Name	Scientific Name	FISC Category*	Treatment Strategy	Acres Impacted	Increasing /Decreasing
Paper mulberry	<i>Broussonetia papyrifera</i>	2	Spot Treatment with herbicide	1	Decreasing
Rough hairy indigo	<i>Indigofera hirsuta</i>	No	Monitor	100	Increasing
Rose glorybower	<i>Clerodendrum bungei</i>	No	Spot Treatment with herbicide	0.1	Decreasing
Small leaved spiderwort	<i>Tradescantia fluminensis</i>	1	Spot Treatment with herbicide	0.1	Decreasing
Showy rattlebox	<i>Crotalaria spectabilis</i>	No	Spot Treatment with herbicide; Manual	0.1	Decreasing
Skunk vine	<i>Paederia foetida</i>	1	Spot Treatment with herbicide	0.1	Decreasing
Sweet viburnum	<i>Viburnum odoratissimum</i>	No	Spot Treatment with herbicide	0.1	Decreasing
Sword fern	<i>Nephrolepis cordifolia</i>	1	Spot Treatment with herbicide	1	Decreasing
Tropical soda apple	<i>Solanum viarum</i>	1	Spot Treatment with herbicide	0.5	Decreasing
Wedelia	<i>Sphagneticola trilobata</i>	2	Spot Treatment with herbicide	0.1	Decreasing
Winged yam	<i>Dioscorea alata</i>	1	Spot Treatment with herbicide	0.5	Increasing

* FISC – Florida Invasive Species Council: Category 1 – Invasive exotics that are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives. This definition does not rely on the economic severity or geographic range of the problem, but on the documented ecological damage caused; Category 2 – Invasive exotics that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category 1 species. These species may become Category 1 if ecological damage is demonstrated.

E. Insects, Disease, and Forest Health

Currently, there are no significant insect or disease problems on ILSF. In the event of a forest pest outbreak, ILSF resource managers will consult with the Forest Management Bureau's Forest Health Section to formulate an appropriate and effective response.

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

As a result, prior to conducting any arthropod control activities on ILSF, 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 ILSF. This public lands control plan must comply with FDACS guidelines and use the appropriate FDACS form. The plan must then be approved and mutually adopted by the county, FFS, and FDACS, prior to initiation of any mosquito control work. Should the local mosquito control district not propose any mosquito control operations on the property, no arthropod control plan is required. See Exhibit Y.

F. Use of Private Land Contractors

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

1. Herbicide applications
2. Restoration activities
3. Reforestation
4. Site preparation activities
5. Timber harvesting
6. Biological assessments and mapping
7. Contractors for fixed capital and infrastructure improvements

VII. Proposed Management Activities for Natural Communities

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

Table 7. Natural Community Types

Community Type	Historic Acres*	Current Acres*
Basin marsh	11	11
Basin swamp	17	17
Baygall	66	74
Depression marsh	8	0
Mesic flatwoods	131	131
Mesic hammock	147	147
Sandhill	4,065	1,675
Sandhill upland lake	18	18
Sinkhole	3	3
Xeric hammock	2	254
Managed and other altered community types**	0	2,137
Unmapped***	102	102
TOTAL	4,570	4,569

* Rounding errors exist

** See Tables 8 & 9

*** Unmapped parcel recently added to ILSF after FNAI mapping survey was completed

Table 8. Managed Community Types

Community Type*	Current Acres
Pine plantation	1,263
TOTAL	1,263

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

Table 9. Other Altered Landcover Types

Landcover Type*	Current Acres
Successional hardwood forest	421
Abandoned field / pasture	407
Clearing	3
Road	43
TOTAL	874

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

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

Table 10. Prescribed Fire Interval Guide on ILSF

Community Type	Historic Fire-return Intervals**	ILSF Fire Frequency Goal (Local)	Comments
Basin marsh	3 - 25	3 - 25	Plan to burn when water level is right
Basin swamp	N / A	N / A	Burns with adjacent communities
Baygall	25 - 75	25 - 75	We burn the surrounding flatwoods on a 2 to 4 year rotation to establish natural ecotone
Mesic flatwoods	2 - 4	2 - 4	
Mesic hammock	N / A	N / A	
Sandhill	1 - 3	1 - 3	
Sandhill upland lake	N / A	N / A	Burns with adjacent sandhill
Sinkhole	N / A	N / A	
Xeric hammock	N / A	N / A	Some areas receive fire when neighboring sandhill is burned
Abandoned field / pasture	N / A	2 - 4	
Successional hardwood forest	N / A	N / A	
Pine Plantation	N / A	Varies	After the longleaf pine emerge from the grass stage, goal is 1-3 years

* Includes restoration community acreage / ** 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 ILSF.

To achieve the objectives outlined in this plan, the following management activities will be performed in the natural and managed communities at ILSF 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 Marsh

Description:

Basin marsh is a typically large depressional, non-forested wetland. The soils are generally acidic, nutrient-poor peats overlying an impervious soil layer. This community type is dominated by herbs or occasionally shrubs that can withstand inundation for most or all of the year.

Trees are sparse, usually only occupying higher areas in the marsh or around the edge. These may include typical swamp species such as pond cypress (*Taxodium ascendens*), swamp tupelo (*Nyssa sylvatica* var. *biflora*), red maple (*Acer rubrum*), loblolly bay (*Gordonia lasianthus*), swamp bay (*Persea palustris*), sweetbay (*Magnolia virginiana*), and slash pine.

Current Conditions:

The single basin marsh mapped on ILSF is in the northeastern corner of the property. It is the southern tip of the large Indian Prairie marsh which extends off-site to the north. The marsh is bordered by mesic hammock vegetation which acts as a barrier to fire.

The basin marsh on ILSF generally meets the desired future conditions. The herbaceous layer is dominated by maidencane (*Panicum hemitomon*), hairy smartweed (*Polygonum hirsutum*), and pickerelweed (*Pontederia cordata*). Other species include lemon bacopa (*Bacopa caroliniana*), haspan flatsedge (*Cyperus haspan*), soft rush (*Juncus effusus* ssp. *solutus*), southern cutgrass (*Leersia hexandra*), frog's bit (*Limnolobos spongia*), primrosewillow (*Ludwigia* sp.), and American cupscale (*Sacciolepis striata*). The center of the marsh is open water with scattered white waterlily (*Nymphaea odorata*). Woody vegetation is mainly restricted to the edge of the community and includes common buttonbush (*Cephalanthus occidentalis*), persimmon (*Diospyros virginiana*), and dahoon (*Ilex cassine*). Saplings of the invasive Chinese tallow (*Triadica sebifera*) are present. The vine coral greenbrier (*Smilax walteri*) is occasional.

Fire Regimes:

Fire-return intervals in basin marsh are highly variable, with natural fires most probable at the end of the dry season. Dense sawgrass and maidencane marshes will burn even when there is standing water. Frequency of fire varies depending on the hydrology of the marsh and its exposure to fire from surrounding areas.

Management Needs:

Occasional fires within the basin marshes are necessary to remove encroaching woody vegetation and reduce the buildup of organic soils, which will be timed according to water levels in the basin marsh.

B. Basin Swamp

Description:

Basin swamp is a large, irregularly shaped, forested depression, independent from river systems. It is typically embedded in a non-pyrogenic community and thus not heavily influenced by frequent fires in the surrounding landscape. The vegetation is dominated by hydrophytic trees and shrubs capable of withstanding inundation for most or all of the year. The soils are generally acidic, nutrient-poor peats overlying an impervious soil layer.

The mature canopy is usually closed and dominated by pond cypress and swamp tupelo, and to a lesser extent, red maple, green ash (*Fraxinus pennsylvanicus*), loblolly bay, sweetgum (*Liquidambar styraciflua*), swamp bay, slash pine, and sweetbay. Shrubs are typically scattered throughout the swamp, although some areas may have heavier concentrations. Subcanopy tree and shrub species primarily include fetterbush (*Lyonia lucida*), large gallberry (*Ilex coriacea*), sweetbay, pop ash (*Fraxinus caroliniana*), Virginia willow (*Itea virginica*), parsley hawthorn (*Crataegus marshallii*), swamp rose (*Rosa palustris*), common buttonbush, and swamp dogwood (*Cornus foemina*), as well as canopy and subcanopy saplings. In densely forested swamps, herbs are sparse and consist mostly of netted chain fern (*Woodwardia areolata*), Virginia chain fern (*Woodwardia virginica*), royal fern (*Osmunda regalis*), cinnamon fern (*Osmunda cinnamomea*), and lizard's tail (*Saururus cernuus*). Epiphytes and vines are common and include Spanish moss (*Tillandsia usneoides*), resurrection fern (*Pleopeltis polypodioides*), poison ivy (*Toxicodendron radicans*), and laurel greenbrier (*Smilax laurifolia*).

Current Conditions:

Basin swamp forms a connection between the east end of Indian Lake and the southern end of the Indian Lake Prairie basin marsh. The canopy is bald cypress (*Taxodium distichum*) and to a lesser degree red maple. The subcanopy has the two canopy species plus swamp laurel oak (*Quercus hemisphaerica*). The shrubs include common buttonbush, common persimmon, swamp doghobble (*Leucothoe racemosa*), wax myrtle (*Myrica cerifera*), and cabbage palm (*Sabal palmetto*). The herbaceous species consist of Carolina redroot (*Lachnanthes caroliniana*), creeping primrosewillow (*Ludwigia repens*), netted chain fern, and Virginia chain fern. The epiphyte Spanish moss and the vine eastern poison ivy are occasional. The basin swamp occurring on ILSF meets the desired future conditions. The hiking trail and wood bridge crossing the basin swamp are a minor disturbance.

Fire Regimes:

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

Management Needs:

The basin swamp at ILSF is in relatively good condition. Maintaining historic hydrological regimes and limiting ORV traffic from the edge are the recommended focus for forest management. Entry of occasional fires into the basin swamp is necessary to maintain cypress as swamp tupelo and hardwoods dominate basin swamps that burn less often. Cypress and pines are tolerant of light surface fires, but muck-fires burning into the peat layer can kill these trees and lower the ground surface, possibly transforming the swamp into a lake, pond or basin marsh.

C. Baygall

Description:

Baygall is a closed canopy evergreen forest that can develop on slopes with seepage from surrounding uplands or in basins where high water tables maintain saturated conditions. Soils are acidic and generally composed of peat.

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

Current Conditions:

Baygall is mapped in several adjacent depressions in the northeastern corner of ILSF. This area is a mosaic of baygall and mesic flatwoods bordering the eastern side of the dominant sandhill ridge. The canopy trees are loblolly bay and slash pine. The subcanopy has shorter loblolly bay and slash pine plus southern magnolia (*Magnolia grandiflora*), sweetbay, and swamp tupelo. The shrubs include loblolly bay, red maple, swamp doghobble, fetterbush, sweetbay, wax myrtle, swamp bay, slash pine, and saw palmetto (*Serenoa repens*). The herbaceous layer has viviparous spikerush (*Eleocharis vivipara*), Carolina redroot, cinnamon fern, beaksedge, sphagnum moss, and Virginia chain fern. The vines cat greenbrier (*Smilax glauca*), laurel greenbrier, coral greenbrier, and muscadine are common.

The baygall on ILSF is generally in a desirable condition.

Fire Regimes:

Baygall should burn infrequently, perhaps only a few times each century in the deepest baygalls. Although the saturated soils and humid conditions within baygalls typically inhibit fire, droughts may create conditions that allow them to burn catastrophically. These fires not only destroy the canopy, but also may ignite the deep peat layers that can smolder for weeks, or even months.

Management Needs:

Management activities for baygall on ILSF should focus on limiting mechanical soil disturbance in ecotones between baygall and the adjacent uplands. Additionally, when burning the adjacent uplands, fire should be encouraged to burn into the edge of the baygall. The control of feral hogs may be desirable in areas where wetlands are being impacted.

D. Depression Marsh

Description:

Depression marsh is an isolated, non-forested wetland basin imbedded in a pyrogenic matrix community such as pine flatwoods or upland pine. The vegetation is typically arranged in concentric zones related to the length of hydroperiod and depth of flooding. Depression marsh often burns with the surrounding landscape and is seasonally inundated. The deepest zones may

have a peat substrate and a continuous layer of sphagnum moss, while shallower zones have a sandy substrate. Depression marshes are distinguished from basin marshes principally by their landscape position which subjects them to more frequent fires.

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

Current Conditions:

Depression marsh was not recorded on the current conditions map of ILSF. Five examples are on the historic condition map in the northeastern corner but are no longer distinguishable as marsh in current aerial photography.

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:

Management of the depression marsh areas should focus on allowing fires from the surrounding sandhill and mesic flatwoods to burn into the marsh and extinguish naturally. Firebreaks should be avoided as they may damage the herbaceous ecotone to the marsh. In areas where undesirable woody vegetation has invaded depression marshes, mechanical or chemical control may be utilized to restore the marsh.

E. Mesic Flatwoods

Description:

Mesic flatwoods are relatively open-canopy forests predominantly longleaf pine (*Pinus palustris*). Slash pine is also present, but is usually more frequent in wetter areas (wet flatwoods). There is little or no subcanopy and very few tall shrubs, but a dense ground cover of herbs and short shrubs is typically present. The latter help maintain community structure by fueling growing-season fires. Common shrubs include saw palmetto, coastalplain staggerbush (*Lyonia fruticosa*), gallberry (*Ilex glabra*), wax myrtle, tarflower (*Bejaria racemosa*), dwarf huckleberry (*Gaylussacia dumosa*), blue huckleberry (*Gaylussacia frondosa* var. *tomentosa*), shiny blueberry (*Vaccinium myrsinites*), running oak (*Quercus elliottii*), and dwarf live oak (*Quercus minima*). Mesic flatwoods are noted for their herbaceous diversity, including many rare species. Herbaceous species include wiregrass (*Aristida stricta* var. *beyrichiana*), arrowfeather threeawn (*Aristida purpurascens*), bottlebrush threeawn (*Aristida spiciformis*), lopsided Indiangrass (*Sorghastrum secundum*), witchgrasses (*Dichanthelium* sp.), beaksedges, queensdelight (*Stillingia sylvatica*), narrowleaf silkgrass (*Pityopsis graminifolia*), and Curtiss' dropseed (*Sporobolus curtissii*).

The ecotone between mesic flatwoods and wetland communities is an important area for many rare species and is maintained with frequent, low-intensity fires, typically every 2 to 4 years. Soils are mainly in the spodosol family, bearing a spodic horizon (i.e., a clay hardpan) that develops under poorly drained conditions. These low pH soils are characterized by low levels of nutrients and organic matter.

Current Conditions:

Mesic flatwoods are documented only in the northeastern corner of ILSF. This area is a mosaic of baygall and mesic flatwoods bordering the eastern side of the dominant sandhill ridge. The flatwoods have significant hardwood subcanopy encroachment and little herbaceous groundcover due to fire exclusion in recent decades.

The canopy is dominated by slash pine and occasional longleaf pine. The subcanopy has shorter pines, loblolly bay, laurel oak, myrtle oak (*Quercus myrtifolia*), and water oak (*Quercus nigra*). The tall shrubs include tarflower, gallberry, fetterbush, wax myrtle, swamp bay, water oak, and sparkleberry (*Vaccinium arboreum*). The short shrub layer has the tall shrub species plus dwarf pawpaw (*Asimina pygmaea*), netted pawpaw (*Asimina reticulata*), blue huckleberry, coastalplain staggerbush, saw palmetto, and shiny blueberry. The sparse herbaceous groundcover has Elliott's milkpea (*Galactia elliotii*) and bracken fern (*Pteridium aquilinum*). The vines earleaf greenbrier (*Smilax auriculata*), and muscadine are common.

Fire Regimes:

Mesic flatwoods require repeated applications of prescribed fires on a 2 to 4-year cycle, with the seasonality of the prescribed fires based on current fuel loadings.

Management Needs:

A prescribed fire regime using frequent, low intensity fires would help increase herbaceous species and reduce hardwood encroachment, particularly in the growing season as fuel loads are reduced over time.

F. Mesic Hammock

Description:

Mesic hammock is a hardwood forest with a closed canopy of mixed mesophytic species dominated by live oak (*Quercus virginiana*) and often with cabbage palm. It occurs primarily as scattered small stands or fringing borders around swamps or other naturally fire-protected areas. Mesic hammocks are infrequently inundated. The dense canopy maintains relatively high humidity levels; thus fires are a rare occurrence.

Canopy species include live oak, pignut hickory (*Carya glabra*), southern magnolia, sweetgum, and laurel oak. There is a subcanopy of younger canopy species and smaller trees such as American holly (*Ilex opaca*). Shrubs can be sparse to abundant and often include saw palmetto. Herbs are generally sparse due to the closed canopy and dense shrub layer. Species may include woodoats (*Chasmanthium laxum*), woods grass (*Oplismenus hirtellus*), bracken fern, partridgeberry (*Mitchella repens*), and whip nutrush (*Scleria triglomerata*). Epiphytes include Spanish moss, resurrection fern, and ball moss (*Tillandsia recurvata*). Vines are infrequent to

common and include muscadine and poison ivy.

Current Conditions:

Mesic hammock occurs in the northeast corner of the site around Indian Lake. The closed canopy is dominated by older mature live oak along with pignut hickory, southern magnolia, and laurel oak. Additional subcanopy species are red cedar (*Juniperus virginiana*), and bully (*Sideroxylon lanuginosa*). The tall shrubs are mainly laurel oak and sparkleberry. Short shrubs include the two tall shrub species plus smallflower pawpaw (*Asimina parviflora*), American beautyberry (*Callicarpa americana*), cabbage palm, and saw palmetto. The infrequent herbs are cypress witchgrass (*Dichanthelium dichotomum*), tall elephantsfoot (*Elephantopus elatus*), partridgeberry, and sarsaparilla vine (*Smilax pumila*). The epiphyte Spanish moss and vines Virginia creeper (*Parthenocissus quinquefolia*) and muscadine are common.

The mesic hammock is overall in good condition with the exception that non-native invasive plants are locally abundant in some areas. Additionally, areas have been disturbed by previous agricultural and industrial uses and contain remnants of paved roads and several abandoned buildings.

Fire Regimes:

Fire is infrequent in mesic hammocks, occurring only during times of extreme drought.

Management Needs:

Prescribed fire in the adjacent sandhill should be allowed to burn into the mesic hammock. This will help maintain the ecotone and prevent the spread of hardwood mesic hammock species into sandhill. Chemical control of non-native invasive species is a priority in localized areas.

G. Sandhill

Description:

Sandhill is a fire-maintained community occurring on well-drained, deep sands. Sandhill is a forest of longleaf pine trees, typically with an open subcanopy of turkey oak (*Quercus laevis*) and sand post oak (*Quercus margaretta*). The shrub layer is open and low in stature. The herbaceous groundcover consists primarily of wiregrass (*Aristida stricta*) mixed with other grasses and forbs such as pineywoods dropseed (*Sporobolus junceus*), narrowleaf silkgrass, bracken fern, queen's delight, anisescented goldenrod (*Solidago odora*), wild indigo (*Baptisia* sp.), milk peas (*Galactia* sp.), whitetop aster (*Aster tortifolius*), tall ironweed (*Vernonia angustifolia*), summer farewell (*Dalea pinnata*), greeneyes (*Berlandiera pumila*), gayfeather (*Liatris* sp.), pinweeds (*Lechea* sp.), and frostweeds (*Helianthemum* sp.). Patches of open sand should be occasional.

Current Conditions:

Sandhill is the dominant natural community at ILSF. High quality sandhill occurs in many areas, especially along SR 326 where recent prescribed fire has been used. The sandhill in the extreme northeastern corner is of fair quality due to fire exclusion and past land clearing. The canopy is dominated by longleaf pine, with some old growth and older mature trees present. Other trees are sand pine (*Pinus clausa*), slash pine, loblolly pine (*Pinus taeda*), sand live oak (*Quercus geminata*), laurel oak, bluejack oak (*Quercus incana*), turkey oak, sand post oak, water oak, live

oak, black cherry (*Prunus serotina*), and cabbage palm. Shrubs include saplings of the tree species plus Michaux's hawthorn (*Crataegus michauxii*), common persimmon, rusty staggerbush (*Lyonia ferruginea*), flatwoods plum (*Prunus umbellata*), winged sumac (*Rhus copallinum*), and sparkleberry. Additional short shrubs are woolly pawpaw (*Asimina incana*), gallberry, gopher apple (*Licania michauxii*), coastalplain staggerbush, coastalplain palaflox (*Palafloxia integrifolia*), sand blackberry (*Rubus cuneifolius*), saw palmetto, eastern poison oak (*Toxicodendron pubescens*), and deerberry (*Vaccinium stamineum*). The often diverse herbaceous groundcover includes sticky jointvetch (*Aeschynomene viscidula*), Elliott's bluestem (*Andropogon gyrans*), bluestem (*Andropogon* sp.), splitbeard bluestem (*Andropogon ternarius*), corkscrew threeawn (*Aristida gyrans*), arrowfeather threeawn, wiregrass, pinewoods milkweed (*Asclepias humistrata*), fernleaf yellow false foxglove (*Aureolaria pectinata*), Ware's hairsedge (*Bulbostylis warei*), grassleaf roseling (*Callisia graminea*), coastalplain chaffhead (*Carphephorus corymbosus*), vanillaleaf (*Carphephorus odoratissimus*), spurred butterfly pea (*Centrosema virginianum*), partridge pea (*Chamaecrista fasciculata*), Maryland goldenaster (*Chrysopsis mariana*), goldenaster (*Chrysopsis* sp.), a lichen (*Cladina evansii*), a lichen (*Cladina subtenuis*), a lichen (*Cladonia leporina*), tread softly (*Cnidioscolus stimulosus*), silver croton (*Croton argyranthemus*), Michaux's croton (*Croton michauxii*), flatsedge (*Cyperus* sp.), summer farewell, tick-trefoil (*Desmodium* sp.), needleleaf witchgrass (*Dichanthelium aciculare*), witchgrass, oblongleaf twinflower (*Dyschoriste oblongifolia*), centipede grass (*Eremochloa ophiuroides*), dogtongue wild buckwheat (*Eriogonum tomentosum*), coralbean (*Erythrina herbacea*), yankeeweed (*Eupatorium compositifolium*), downy milkpea (*Galactia volubilis*), Carolina indigo (*Indigofera caroliniana*), pinweed, blazing star, shortleaf gayfeather (*Liatris tenuifolia*), bahiagrass (*Paspalum notatum*), Florida false sunflower (*Phoebanthus grandiflorus*), pitted stripeeed (*Piriqueta cistoides* ssp. *caroliniana*), narrowleaf silkgrass, bracken fern, blackroot (*Pterocaulon pycnostachyum*), slender beaksedge (*Rhynchospora gracilentia*), Gray's beaksedge (*Rhynchospora grayi*), sandyfield beaksedge (*Rhynchospora megalocarpa*), little bluestem (*Schizachyrium scoparium*), nutrush (*Scleria* sp.), kidneyleaf rosinweed (*Silphium compositum*), lopsided indiangrass, pineywoods dropseed, queen's delight, coastalplain dawnflower (*Stylisma patens*), scurf hoary-pea (*Tephrosia chrysophylla*), and wavyleaf noseburn (*Tragia urens*). The vines are Virginia creeper, earleaf greenbrier, and muscadine. The non-native invasive mimosa (*Albizia julibrissin*) is present in a few areas.

Almost 2,400 additional acres of historic sandhill have been converted to pasture, pine plantation or agriculture field. Most of these areas have been planted with longleaf pine since the FFS took over management of the property.

Fire Regimes:

Prescribed fire should be applied to this community every 1 to 3 years. Emphasis should be placed on growing season fire (when fuel loads dictate), variability in the season, frequency and intensity of fire for preserving species diversity, since different species in the community flourish under different fire regimes.

Management Needs:

Restoration of sandhill is mainly dependent on frequent prescribed burns to decrease the abundance of weedy hardwood species such as laurel oak, transitioning to growing season burns when fuels allow. Most historic sandhills are in a prescribed fire rotation. Areas of successional

hardwood forests in the south end of ILSF and scattered pockets of xeric hammock may require the mechanical removal of hardwoods to encourage herbaceous growth and facilitate prescribed burning. Longleaf pine reforestation is largely completed in the abandoned fields / pastures, but additional tree planting may be required in the remaining non-forested areas and as oak abundance is reduced in successional hardwood forests. Groundcover restoration projects, if appropriate, should focus on the former pasture and agricultural fields. FFS may consider seeding or transplanting of wiregrass and other herbs to facilitate burns through these areas. During all management activities, every effort should be made to minimize any detrimental effects to the widespread gopher tortoise (*Gopherus polyphemus*) population. Cogon grass and natal grass cover an area of the more disturbed historic sandhill and will continue to need management attention.

H. Sandhill Upland Lake

Description:

This sandhill upland lake (Indian Lake) is a shallow rounded solution depression occurring in sandy upland communities. It is generally a permanent water body, but sometimes becomes completely dry during times of extreme drought. Although typically a lentic water body without significant surface inflow or outflow, this lake is fed by the run from Indian Lake Prairie. At low surface flow periods, water may be derived from lateral ground water seepage through the surrounding well-drained uplands and / or from artesian sources via connection with the underlying limestone aquifer. Vegetation may be restricted to a narrow band along the shore composed of hydrophytic grasses and herbs or a dense shrub thicket depending on fire frequency and water level fluctuations. Typical plants include pond cypress, common buttonbush, St. John's wort (*Hypericum* sp.), spikerush (*Eleocharis* sp.), rushes (*Juncus* sp.), yellow pondlily (*Nuphar advena*), white waterlily, panic grass (*Panicum* sp.), pickerelweed, beaksedge, and yellow-eyed grass (*Xyris* sp.).

Current Conditions:

Sandhill upland lake is represented by Indian Lake in the northeastern corner of ILSF. It has been disturbed by ORV trails around the perimeter and shoreline clearing along the north edge. Vegetation is marsh-like at the shallow western end and grades into basin swamp at the eastern end. The center section has open tannic water. Bald cypress trees are scattered along the shoreline. The shrub common buttonbush is locally abundant in the western end. Herbaceous plants include viviparous spikerush, falsefennel (*Eupatorium leptophyllum*), manyflower marshpennywort (*Hydrocotyle umbellata*), tropical bushmint (*Hyptis mutabilis*), Piedmont marshelder (*Iva microcephala*), Carolina redroot, southern watergrass (*Luziola fluitans*), yellow pondlily, rustweed (*Polypremum procumbens*), shortbeak beaksedge (*Rhynchospora nitens*), largeflower rosegiant (*Sabatia grandiflora*), nutrush, and yellow-eyed grass.

Fire Regimes:

Frequency of fire varies depending on the hydrology of the lake and its exposure to fire from surrounding areas, but the lakeshore is sandy bottomed and not expected to burn.

Management Needs:

The sandhill upland lake should be protected from further ORV traffic along its shoreline. Access has been limited by fences and locked gates since the FFS took over management of the

property. Diligent monitoring is needed to maintain this barrier. Fire in the surrounding uplands should be allowed to spread into the lake basin to prevent an increase in wooded vegetation. Prevention of groundwater pollution in the surrounding uplands (such as by septic tanks or chemicals) is a priority as it could significantly alter the nutrient balance of the lake water.

I. Sinkhole

Description:

Sinkholes are cylindrical or steep-sided conical depressions that are generally formed by the slumping of soil into subterranean cavities or the solution of limestone near the surface. Sinkhole vegetation is highly variable and usually influenced by the matrix community in which the sinkhole develops. Vertical or steep walls may be mostly devoid of plants. Where soil covers the underlying rock, the vegetative structure may be that of a well-developed forest that is virtually indistinguishable from the surrounding environment. Shallow sinkholes grade into depression marsh and dome swamp communities since these communities often occupy solution features in the landscape. The density of sinkholes found at ILSF is indicative of the extremely karstic landscape and unconfined aquifer found here.

Current Conditions:

Sinkholes are scattered over the entire ILSF. They are small, shallow depressions with some having exposed limestone. The bottom of the sinks may be temporarily flooded but are usually dry. The canopy trees include black cherry, sand live oak, laurel oak, and live oak. Mockernut hickory (*Carya alba*) is present at one location. The subcanopy has sugarberry (*Celtis laevigata*), southern magnolia, red mulberry (*Morus rubra*), and the non-native invasive mimosa, camphor tree (*Cinnamomum camphora*), chinaberry (*Melia azedarach*), and invasive Chinese tallow. Shrubs include groundsel tree (*Baccharis halimifolia*), American beautyberry, common buttonbush, fetterbush, blackberry (*Rubus* sp.), cabbage palm, elderberry (*Sambucus nigra* ssp. *canadensis*), saw palmetto, and Hercules' club (*Zanthoxylum clava-herculis*). The herbaceous groundcover includes witchgrass, fireweed (*Erechtites hieraciifolius*), American pokeweed (*Phytolacca americana*), beaksedge, southern shield fern (*Thelypteris kunthii*), netted chain fern, and Virginia chain fern. The only epiphyte is resurrection fern (*Pleopeltis polypodioides* var. *michauxiana*). The vines are yellow jessamine (*Gelsemium sempervirens*), Virginia creeper, earleaf greenbrier, saw greenbrier (*Smilax bona-nox*), muscadine, and the non-native invasive air potato (*Dioscorea bulbifera*).

Fire Regimes:

Sinkhole does not typically burn owing to the steep sides and low fuel load.

Management Needs:

Sinkholes can be fragile communities. Logging of the surrounding canopy can increase both solar radiation and sedimentation levels in the sinkhole itself. Major soil disturbances in the adjoining uplands can also disrupt seepage water sources. Large withdrawals of groundwater could substantially lower water tables and reduce the hydroperiods of sinkholes.

The non-native invasive species found in some of the sinkholes should be targeted for eradication. The close connection of sinkholes to aquifers requires especially careful applications of herbicides to avoid groundwater contamination.

J. Xeric Hammock

Description:

Xeric hammock is a closed canopy, oak dominated forest occurring on well drained soils. Xeric hammock is often considered an advanced successional stage of sandy upland communities such as sandhill, scrub, and scrubby flatwoods. Xeric hammock may develop naturally in areas protected from fire by a wetland or other natural barrier such as a downward slope.

Xeric hammock has a closed canopy of predominantly sand live oak, but also often includes live oak, laurel oak, pignut hickory, southern red oak (*Quercus falcata*), and southern magnolia. The subcanopy consists of younger canopy species, as well as American holly, black cherry, wild olive (*Osmanthus americanus*), red bay (*Persea borbonia*), and persimmon. The understory is dominated by shrubs such as rusty staggerbush, Chapman's oak (*Quercus chapmannii*), saw palmetto, sparkleberry, deerberry, wild olive, yaupon (*Ilex vomitoria*), and American beautyberry. Herbs are generally sparse due to the closed canopy and high litter cover. Species may include witchgrasses, sandyfield beaksedge, and an occasional threeawn (*Aristida* sp.). Epiphytes are common and consist of Spanish moss and ball moss. Vines are occasional and include muscadine and earleaf greenbrier.

Current Conditions:

On ILSF, xeric hammock occurs as widely scattered pockets of dense oaks in the more open sandhill. They appear to be artifacts of long term fire exclusion. The canopy is dominated by sand live oak and laurel oak with common persimmon and longleaf pine less common. The subcanopy has sand live oak, laurel oak, turkey oak, sand post oak, and tough bully (*Sideroxylon tenax*). Tall shrubs include saplings of the tree species plus pignut hickory, water oak, cabbage palm, sparkleberry, and deerberry. Short shrubs are often dominated by sand live oak and laurel oak. Additional species are woolly pawpaw, dwarf pawpaw, American beautyberry, gopher apple, flatwoods plum, turkey oak, water oak, cabbage palm, saw palmetto, eastern poison oak, and deerberry. The herbaceous groundcover is usually sparse and may include bluestem, wiregrass, coastalplain chaffhead, a lichen, needleleaf witchgrass, witchgrass, coralbean, bracken fern, and sandyfield beaksedge. The epiphyte Spanish moss and vines earleaf greenbrier and muscadine are common.

Fire Regimes:

Xeric hammocks rarely burn and typically develop after 30 or more years of fire exclusion. Prescribed fires will be allowed into the edges of these areas and naturally extinguish.

Management Needs:

Management activities in xeric hammock on ILSF should focus on introducing fire in areas where restoration to sandhill is desired. Mechanical removal of the dense hardwood overstory may be required. Soil active herbicides like hexazanone are less desirable on this site due to the overly well drained soils.

K. Managed Community Types

Pine plantations and pastures represent vegetative communities that the FFS manages as integral components of the agency's multi-use management approach. These managed communities

provide both ecological benefits, such as wildlife habitat for gopher tortoises and ground and surface water filtration, as well as opportunities for generating revenue that can be used to help offset management costs. Management of plantations and pastures within ILSF is conducted to further ensure compatibility with other management goals and objectives.

1. Pine Plantation

Description:

Planted longleaf pine, and less frequently loblolly pine, form the canopy, with sand live oak, and laurel oak often found as a sparse subcanopy. Tall and short shrubs are common but never dense, with laurel oak, water oak, *Asimina* sp., American beautyberry, sand live oak, myrtle oak, saw palmetto, American holly, live oak, deerberry, hairy indigo (*Indigofera hirsute*), and blackberry. Except for residual bahia grass and Bermuda grass (*Cynodon dactylon*), herbs are sparse and include flatsedge, broom sedge (*Carex tribuloides*), pinebarren frostweed (*Crocianthemum corymbosum*), blue maidencane (*Amphicarpum muehlenbergianum*), dogfennel (*Eupatorium capillifolium*), *Setaria* sp., rabbitbells (*Crotalaria rotundifolia*), and Michaux's croton. Earleaf greenbrier, and muscadine are frequent vines.

Current Conditions:

Currently this community type consists of longleaf pine with little to no mid-story, with a pasture grass or hairy indigo groundcover and needle cast. These stands were planted between 2009 and 2016. On ILSF all the plantations were planted onto historic sandhill sites that had been used as tilled fields or pastures. Most old pastures were bahia grass, although some Bermuda grass swards were present at acquisition. The old fields also have a high proportion of pasture grasses mixed in with their successional weeds. Although all of these xeric soils are suitable for gopher tortoises, the pasture grass sites tend to host more burrows.

Fire Regimes:

Refer to the fire regimes heading for sandhill, abandoned field / pasture habitats.

Management Needs:

Prescribed burns are the primary management tool for this community between silvicultural operations. Because these sites were disturbed for a significant length of time, intensive groundcover restoration would be required to return them to a natural state.

During this planning cycle the plantation stands will be raked for pine straw. In addition to generating revenue, the pine straw harvest will remove some of the excess nitrogen added to these soils during their cropped history and decrease nutrient flows to the aquifer. Also during this planning cycle the longleaf pine will be ready to thin. Although most sites have been planted, additional planting may be done if needed. After raking, if the basal area of a given plantation is high enough to warrant a harvest, then thinning may start around age 17 to open the stand up and allow sunlight to reach the ground and promote the growth of herbaceous ground cover.

Upland non-native invasive plant control is a challenge on ILSF, and sound treatment and prevention strategies will integrate with the fire and silvicultural operations.

L. Altered Landcover Types

Description:

Altered landcover types are areas where the natural community has been overwhelmingly altered as a result of human activity. Abandoned field / pasture are old fields, fallow pastures, early successional areas formerly grazed or in agriculture without recent activity to maintain the area as pasture or planted field. These areas are often dominated by weedy native (e.g., *Rubus* sp., *Myrica cerifera*) and non-native species (e.g., *Indigofera hirsuta*). Old pastures are generally designated as abandoned when weedy cover from woody species (*Rubus* sp., *Myrica cerifera*, etc.) is greater than 20 percent. The target future condition of these areas is dependent on the historic community. Please refer to the appropriate community type for a more specific explanation of the desired future condition.

1. Successional Hardwood Forest

Description:

Successional hardwood forests are defined by FNAI as closed-canopied forests dominated by fast growing hardwoods such as laurel oak, water oak, and / or sweetgum, 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.

Successional hardwood forest on ILSF is historic sandhill, so for desired future conditions see the sandhill section. Successional hardwood forests occur throughout ILSF, in some places too small to map and are included in the larger surrounding natural community polygon.

Current Conditions:

Successional hardwood forest occurs in widely scattered small pockets throughout ILSF. These areas appeared to have been cleared in the past. Canopy trees are dominated by laurel oak and live oak, with interspersed slash pine, longleaf pine, loblolly pine, southern magnolia, black cherry, sand live oak. The subcanopy has southern red oak, bluejack oak, laurel oak, sand post oak, live oak, plus the invasive mimosa and camphor tree. The shrubs include sapling tree species plus Michaux's hawthorn, common persimmon, red cedar, flatwoods plum, scrub palmetto (*Sabal etonia*), cabbage palm, tough bully, sparkleberry, and rusty blackhaw (*Viburnum rufidulum*). Additional short shrubs are woolly pawpaw, dwarf pawpaw, American beautyberry, gopher apple, red bay, winged sumac, sassafras (*Sassafras albidum*), saw palmetto, eastern poison oak, deerberry, and Hercules' club. The herbaceous layer includes wiregrass, velvetleaf milkweed (*Asclepias tomentosa*), spurred butterfly pea, Florida alicia (*Chapmannia floridana*), tick-trefoil, needleleaf witchgrass, witchgrass, oblongleaf twinflower, coralbean, downy milkpea, coastal bedstraw (*Galium hispidulum*), Carolina indigo, sensitive briar (*Mimosa quadrivalvis*), bahiagrass, purple passion-flower (*Passiflora incarnata*), bracken fern, and coastalplain daffodil. Epiphytes are resurrection fern and Bartram's air-plant (*Tillandsia bartramii*). Vines are trumpet creeper (*Campsis radicans*), Virginia creeper, earleaf greenbrier, summer grape (*Vitis aestivalis*), muscadine, and the invasive air-potato.

Fire Regimes:

The historic fire-return interval would have been around 1 to 3 years for sandhill.

Management Needs:

Restoration to sandhill will require logging of the dominant hardwood trees and establishing a prescribed burning program. Non-native invasive plants, mainly mimosa, camphor tree and air potato need to be eradicated.

2. Abandoned Field / Pasture**Description:**

Abandoned field / abandoned pasture make up a portion of ILSF. Prior to acquisition this sandhill community was cleared for agriculture. FFS has begun restoration by planting longleaf pine on almost all of this acreage. These trees range from short grass-stage seedlings to trees ten (10) meters or more in height.

The abandoned pasture has a dominant groundcover of Bermudagrass and / or bahiagrass. Some areas are more overgrown with weedy shrub and herb species. Additional herbaceous species include common ragweed (*Ambrosia artemisiifolia*), Mexican tea (*Chenopodium ambrosioides*), Canadian horseweed (*Conyza canadensis*), prairie fleabane (*Erigeron strigosus*), yankeeweed, camphorweed (*Heterotheca subaxillaris*), Virginia pepperweed (*Lepidium virginicum*), cutleaf eveningprimrose (*Oenothera laciniata*), annual phlox (*Phlox drummondii*), and heartwing dock (*Rumex hastatulus*). The sparse canopy consists of infrequent sand live oak. The short shrub layer has woolly pawpaw, American beautyberry, common persimmon, planted longleaf pine, winged sumac, sand blackberry, saw palmetto, and Adam's needle (*Yucca filamentosa*).

Abandoned field lacks the turf grasses and has a similar but more diverse mix of weedy plant species. Canopy cover varies from none to sparse with infrequent common persimmon and black cherry. Tall shrubs are groundsel tree, Michaux's hawthorn, common persimmon, black cherry, and flatwoods plum. The short shrubs add woolly pawpaw, pricklypear (*Opuntia humifusa*), longleaf pine, and sand blackberry. Herbaceous groundcover plants include common ragweed, partridge pea, Canadian horseweed, prairie fleabane, dogfennel, yankeeweed, camphorweed, pinweed, spotted beebalm (*Monarda punctata*), cutleaf eveningprimrose, purple passion-flower, pitted stripe seed, and heartwing dock. The non-native invasive Natal grass (*Melinis repens*) is infrequent.

Fire Regimes:

The historic fire-return interval of the historic sandhill would have been around 1 to 3 years.

Management Needs:

For abandoned field and pasture, the planted longleaf pine will improve the condition of the community and aid in adding fuel for prescribed fires. Groundcover restoration should be a long-term goal by planting or direct seeding wiregrass and native herbs for groundcover restoration.

3. Other Altered Landcover Types

Description:

Altered landcover types are areas where the natural community has been overwhelmingly altered as a result of human activity. The target future condition of these areas is dependent on the historic community. Please refer to the appropriate community type for a more specific explanation of the desired future condition.

Current Conditions:

Clearing / regeneration (3 acres) – There are several clearings on ILSF. These are recent or historic clearings that have significantly altered groundcover and / or overstory of the original natural community.

Road (43 acres) – The ILSF has an extensive network of roads. Roads ≥ 5 meters wide are delineated on the current natural community map.

Fire Regimes:

N / A

Management Needs:

It may not be practical or desirable to restore some of the ruderal habitats (e.g., developed land, roads, parking lots, etc.) to the historic natural community. Native trees and shrubs should be used in landscaping, and these areas should be monitored for non-native invasive plants.

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IX. Glossary of Abbreviations

ARC.....	Acquisition and Restoration Council
API.....	Avatar Properties, Inc.
BMP.....	Best Management Practice
CARL	Conservation and Recreation Lands Acquisition Program
DHR.....	Division of Historical Resources
DRP	Division of Recreation and Parks
DSO	Direct Support Organization
F.A.C.	Florida Administrative Code
FDACS	Florida Department of Agriculture and Consumer Services

FDEP	Florida Department of Environmental Protection
FFS	Florida Forest Service
FISC.....	Florida Invasive Species Council
FNAI.....	Florida Natural Areas Inventory
F.S.....	Florida Statutes
FWC	Florida Fish and Wildlife Conservation Commission
ILSF	Indian Lake State Forest
LAAC	Land Acquisition Advisory Council
NRCS.....	Natural Resources Conservation Service
OALE	FDACS Office of Agricultural Law Enforcement
OFW	Outstanding Florida Waters
OOF	Operation Outdoor Freedom
OPS.....	Other Personal Services Employment
SJRWMD	St. Johns River Water Management District
TIITF	Board of Trustees of the Internal Improvement Trust Fund
USFS.....	United States Forest Service
USFWS.....	United States Fish and Wildlife Service
WMA.....	Wildlife Management Area