

# Briefing Book CONSERVATION

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CONSERVATION

NOTE: Information is preliminary and subject to change

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# TABLE OF CONTENTS

INTRODUCTION
LANDS
WILDLIFE AND HABITAT
WATERS
AIR
STATEWIDE CONSERVATION INITIATIVES
SUMMARY OF OPPORTUNITIES AND CONSTRAINTS
REFERENCES
APPENDIX LIST
APPENDIX 1 SUMMARY OF INTERVIEWS
APPENDIX 2 SPECIES LIST
APPENDIX 2 SPECIES LIST APPENDIX 3 FOREST OPTIMAL MANAGEMENT AREAS

i







### **Conservation Lands and Resources**

The I-75 Relief Study was initiated to evaluate the potential for enhanced and new multimodal and multiuse transportation corridors within the initial focus area between the Tampa Bay region and I-75 in North Central Florida including Alachua, Citrus, Levy, Hernando, Marion, and Sumter counties. For the purpose of this booklet, this area is referred to as the Initial Focus Area. A future study will evaluate new and enhanced multi-modal transportation corridors extending from I-75 continuing to Northeast Florida.

ii

Sources: FNAI and FDEP

1-75 RELIEF





# INTRODUCTION

## Overview of the Study

The Florida Department of Transportation (FDOT) has appointed the I-75 Relief Task Force to develop consensus recommendations on maximizing existing and developing new high-capacity transportation corridors serving the Tampa Bay, North Central Florida, and Northeast Florida regions.

The Task Force's **Initial Focus Area** comprises six counties to the north of Tampa Bay and along and to the west of Interstate 75 (I-75): Alachua, Citrus, Hernando, Levy, Marion and Sumter. The Task Force also is considering broader connectivity issues over 19 counties between Tampa Bay and Northeast Florida.

Among other activities, the Task Force is charged to:

- Identify opportunities and constraints related to environmental resources, land use and development, property rights, economic development, quality of life, and other statewide and regional issues that should be considered in planning for future transportation corridors in the Initial Focus Area;
- Recommend the purpose and need for highcapacity, high-speed transportation corridors in the Initial Focus Area with emphasis on providing relief to I-75, increasing safety, improving statewide and regional connectivity, and enhancing economic development opportunities;
- Recommend a range of alternatives for accomplishing the purpose and need and the approach that should be used for narrowing these alternatives;
- Recommend corridors to be incorporated into regional and local long-range plans and to be advanced into future stages of project development; and
- Recommend a proposed implementation plan for moving forward with the recommended corridors.

## The 4 Cs Framework

The I-75 Relief Task Force is modeled after the <u>East</u> <u>Central Florida Corridor Task Force (ECFCTF)</u>, which was created by Executive Order in 2014 to develop



#### Initial Focus Area

recommendations for future transportation corridors in Brevard, Orange, and Osceola counties. One of the objectives is to build on the ECFCTF best practices, by following framework for well-planned а transportation corridors to improve mobility and connectivity for people and freight, while helping to Florida's natural preserve resources and environmentally sensitive lands, support economic development, promote high-quality development patterns aligned with local visions, and facilitate emergency evacuation and response. The I-75 Relief Task Force also builds on the vision and goals of the recently updated Florida Transportation Plan (FTP), the long-range transportation plan for all of Florida.

Drawing from both of these efforts, the I-75 Relief Task Force has adopted a framework organized around four themes, known as the 4Cs:

- **Conservation** including lands, wildlife and habitat, waters, air, and other natural resources;
- Countryside including small towns, villages, and other rural settlements as well as farms, forests,



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mines, and other economically valuable rural lands;

- Centers and communities including population centers ranging from small towns to large cities, as well as economic activity centers; and
- Corridors including roads, rail, trails, pipelines, utilities, and other ways of connecting centers and communities.

The Task Force, supported by public input, will build consensus across all four of these areas.



## Overview of this Briefing Book

This Briefing Book is one of four in a series that provides an overview of each "C" for the I-75 Relief Task Force Initial Focus Area. The briefing book is intended to help identify opportunities, constraints, and alternatives to support the Task Force's deliberations, as well as to support the Task Force's efforts to solicit and consider input from government agencies, property owners, agricultural interests, business and economic development organizations, environmental organizations, and residents of the Initial Focus Area.

The Briefing Book is organized with these key sections:

- Lands describes the conservation lands and easements as well as recreation areas and the need for continued efforts for connectivity between resources.
- Wildlife and Habitat summarizes the key habitats and connectivity concerns to maintain a thriving, diverse population of species, regardless of the protection status.
- Waters identifies key features of the abundant surface water and groundwater system, which serves both the habitat and drinking water supplies.

- Air highlights air quality requirements and considers best practices for sustainable transportation opportunities with regard to air quality.
- **Statewide Conservation Initiatives** summarizes conservation and ecosystem planning initiatives that provide sources for collaboration for research, funding and evaluation methods.

This book concludes with **Summary of Opportunities** and **Constraints** that highlight key takeaways related to the unique resources in the Initial Focus Area and opportunities related to corridors planning. **The intent is to encourage partnership and collaboration to fill in** data gaps, agree on opportunities, identify areas of concern, and facilitate developing options that protect and enhance our natural environment.

This effort has already started in the boundary of the Initial Focus Area, which avoids direct impact to the large coastal conservation areas, the Ocala National Forest and the Green Swamp.

Throughout this document, hyperlinks to online resources are included. The hyperlinks are indicated by an underlined blue text. For example, clicking on <u>I-75</u> <u>Relief</u> will route you to the project website.

## **Content Development**

This Briefing Book was developed through:

- Review of federal, state, regional, and local policies and plans;
- Research of prior studies conducted in this area;
- Coordination with staff of state, regional, and local agencies; and
- Input received from the Task Force at its initial meetings.

A comprehensive summary of the interviews conducted is included in Appendix 1 with species lists and forest information provided as part of the interviews as Appendix 2 and Appendix 3 respectively. Appendix 4 contains a map of regional significant ground water resources.

Information in this report may support involvement of resource agencies, public and other stakeholders in development of purpose and need and range of alternatives. This document is available to the public and is intended to serve as support documentation for



collaborative planning decisions which may be adopted in future analysis under the National Environmental Policy Act (NEPA).

## **Guiding Principles**

The FTP, developed by FDOT in collaboration with state, regional, and local partners, defines the state's transportation vision and policy framework. The <u>FTP</u> <u>Policy Element</u> identifies goals related to supporting Florida's global economic competitiveness and supporting quality places to live, learn, work, and play. Specific objectives include:

- Provide transportation infrastructure and services to support job growth in transportation-dependent industries and clusters;
- Increase transportation connectivity between Florida's economic centers and regions;
- Increase transportation connectivity between Florida and global and national trading partners and visitor origin markets;
- Plan and develop transportation systems that reflect regional and community values, visions, and needs; and
- Provide convenient, accessible access to the transportation system for Florida's residents and visitors.

# LANDS

Florida has more than 10 million acres of land conserved to protect our natural landscape for recreation and habitat. Within the Initial Focus Area, 25% of lands are managed for conservation either as a private conservation easement or as a Federal, State, or local public land. Connectivity both between and within these resources is an important aspect of Conservation.

"Conservation Easements are less-than-fee simple purchases of limited property rights. Less-than-fee acquisitions are an increasingly important part of land protection efforts in Florida. This acquisition method provides agencies and organizations a way to achieve specific conservation objectives on the land while keeping the land in the ownership and control of landowners for uses consistent with the conservation objectives." - <u>FNAI</u>

### Guiding Principles for Planning the Future of Florida's Transportation Corridors:

#### Conservation

- Identify regionally significant land and water resources prior to determining locations for future corridor investments; implement coordinated land acquisition and/or protection measures prior to or in parallel with implementation of future corridor investments.
- Avoid, to the extent feasible, existing lands currently managed for conservation purposes; where avoidance is not feasible, minimize and mitigate impacts on these lands.
- Maintain and, where possible, restore and enhance the integrity and connectivity of regionally significant environmental lands.

## **Policy Framework**

Federal, state, regional and local policies/regulations create the framework for the goal to avoid impacting lands preserved for conservation and recreation. The guiding principles and FTP look at being proactive in accomplishing both transportation and conservation goals. The primary federal regulations for conservation lands for transportation projects are:

- 1. <u>Section 4(f)</u> of the Department of Transportation Act of 1966 with subsequent amendments, and
- 2. Federal-Aid Highway Act of 1968.

At the state level, funding for new acquisition is part of the Florida Forever acquisition program. The Florida Acquisition and Restoration Council is responsible for the evaluation, selection and ranking of state land acquisition projects for the vision outlined in the Florida Forever priority list, as well as the review of management plans and land uses for all state-owned conservation lands. Further funding and management efforts by the state's water management districts, counties, cities and non-governmental organizations support the long-standing initiatives to protect habitat and recreation resources. Future coordination is expected with Florida Forever as well as any federal, local state, regional, and non-governmental



175 RELIEF

organizations with resources, whether owned or in easements for conservation and recreation in accordance with the NEPA.

## Resources

Existing conservation lands are mapped on page 5. The mapping represents more than 200 resources that overlap with the Initial Focus Area. <u>The Nature Conservancy (TNC)</u> and <u>Florida Natural Areas Inventory (FNAI)</u> categorized each based on variety of habitats and management for biodiversity. Category 1, based FNAI's GIS documentation is *"the highest protection and reserved for lands that are specifically and judiciously managed for biodiversity protection."* Over three dozen Category 1 resources are in the Initial Focus Area as summarized on the map on page 5. This map also highlights the proposed Florida Forever acquisition parcels.

Publicly managed lands serve a dual purposes. The balance is between public access for recreation, ecotourism, and education and conservation needs. The map on page 6 identifies the state and county parks as well as existing and priority recreation trails.

In addition to the Local and Regional Initiatives discussed below, statewide programs to evaluate existing resources and prioritize habitat and/or recreation acquisition are outlined in Statewide Initiative section.

## Local and Regional Initiatives

Development affects habitat and the ability to conserve natural resources. How and where development occurs is strongly influenced by local planning efforts. At the county level, planning for conservation, recreation and open space often overlap. The following initiatives are relevant to future land use for conservation lands and recreation sites as well as limitations on development density in or adjacent to sensitive lands. An overview of each county is as follows:

 Alachua County: The <u>Alachua County Forever</u> program is much like the statewide Florida Forever program to acquire or protect environmentally significant lands. Part of the Future Land Use Element of <u>Alachua County's Comprehensive Plan</u>, priorities for conservation purchase are set by the Land Conservation Board appointed by the Board of County Commissioners. This is a potential funding and land management partner in





Florida's first state preserve and a National Natural Landmark, the prairie has over 20 distinct biological communities that provide habitat for more than 270 bird species, horses and bison. PHOTO: FDEP

Devil's Millhopper Geological State Park



A 120-foot deep sinkhole with steep slopes contains a miniature rain forest with fossils of shark teeth, marine shells and extinct land animals. This unique geological formation is a National Natural Landmark. PHOTO: FDEP



The 110-mile corridor encompasses diverse natural habitats, traverses four distinct regions (Withlacoochee Lowlands, Ocala Uplands, Ocklawaha River Valley, Etoniah Basin), and has a variety of recreation. PHOTO: FDEP





75 RELIEF

### Existing Managed Lands and Proposed Florida Forever Acquisitions

State Category 1 Resources: Crystal River Preserve State Park, Longleaf Flatwoods Reserve, Paynes Prairie Preserve State Park, River Rise Preserve State Park, San Felasco Hammock Preserve State Park; More than 30 Local and Private Category 1 Resources including Lake Alto Preserve, Turkey Creek Hammock Preserve, Audubon's Bird Island, and Tuscawilla Preserves Conservation Easement.

Sources: FNAI and FDEP





-75 RELIEF

### Public Recreation Lands

Key resources include: the Florida National Scenic Trail, which is one of 11 National Scenic Trails; the Marjorie Harris Carr Cross Florida Greenway, connecting Gulf of Mexico at the mouth of the Withlacoochee River in Levy County to the St. Johns River in Putnam County and part of the Florida National Scenic Trail; the state forests (Goethe State Forest, Newnans Lake State Forest, Indian Lake State Forest, Ross Prairie State Forest, and Withlacoochee State Forest).

6

Sources: FNAI and FDEP





175 RELIEF

conjunction with statewide efforts for conservation. In addition, the Conservation and Open Space Element of <u>Alachua County's</u> <u>Comprehensive Plan</u> maps critical ecological corridors to maintain and defines efforts to transfer development rights from lands with conservation and agricultural uses to other sites to allow higher density development. The purpose is to have incentive to maintain and expand the conservation and agricultural uses.

- Citrus County: According to the Conservation Element of <u>Citrus County's Comprehensive Plan</u>, about one third of the county is held in public ownership as conservation and recreation lands. While the acquisition is substantially complete by other agencies and no new large acquisition have been identified, the County offers technical assistance and program support for regional, state and federal acquisitions.
- Hernando County: The key information in the Conservation Element of <u>Hernando County's</u> <u>Comprehensive Plan</u> are efforts to acquire additional conservation lands or use Purchase of Development Rights (PDR) or conservation easements to limit development, and establish connecting natural area greenways between environmentally sensitive lands.
- Levy County: Environmentally Sensitive Lands (ESL) are identified in the Conservation Element of Levy County's Comprehensive Plan with objectives for forestry/habitat conservation. Of note, all riverine and coastal floodplains are considered Conservation Areas, which has limitations on development, while Natural Reservation is the mapping for lands owned for conservation and recreation purposes.
- Marion County: The Future Land Use Element in <u>Marion County's Comprehensive Plan</u> contains mitigation options to fund the Parks and Environmental Land Acquisition Program (PELAP) for offsite mitigation if appropriate for the development. Like other county programs, PELAP is a potential partnership for acquisition funding and/or land management. Also, Marion County has mapped Environmentally Sensitive Overlay Zones. Only one is within the Initial Focus Area, which is the Orange Lake area at the Alachua County line.
- Sumter County: The Future Land Use Element and Conservation Elements of <u>Sumter County's</u> <u>Comprehensive Plan</u>, identifies techniques to

promote conservation such as conservation subdivisions and cluster developments to protect important vegetation. Environmentally Sensitive Lands are part of the Conservation Element of <u>Sumter County's Comprehensive Plan</u>, which includes existing conservation lands and the watershed along the Withlacoochee River.

The Counties' conservation and recreation planning elements are consistent with the key regional initiatives in the regional planning council Strategic Regional (SRPP) document. Policy Plan The former Withlacoochee SRPP is now part of the three regional planning councils' area: East Central Florida Regional Planning Council (Sumter County), North Central Florida Regional Planning Council (Alachua, Levy and Marion Counties) and the Tampa Bay Regional Planning Council (Citrus and Hernando Counties). Each of the SRPP documents address protection of ecosystems and habitat connectivity.

Finally, the regional management of the two state forests is an important consideration in combination with the local and regional planning initiatives. The management plans for the Goethe and Withlacoochee State Forests identifies the optimal management areas that are, in part, outside of the existing forest boundaries. The optimum boundaries include buffers from management practices such as prescribed burns (Appendix 2).

These local policies and regional goals dovetail into the regional connectivity desires identified for both recreation and conservation.

### **Recreation Connectivity**

In addition to ecotourism and recreation sites associated with the river systems and natural features, the overall trail system is critical. The resources of note are the <u>Florida National Scenic Trail</u>, one of 11 National Scenic Trails and the <u>Marjorie Harris Carr Cross Florida</u> <u>Greenway</u>. These systems seek to close the gap in the trail resources and provide trail continuity across the state. Identification of trail overpass or underpass features to bridge these trail systems and other opportunities to close gaps should be considered as part of transportation planning studies.

### **Conservation Connectivity**

Wildlife depend on the network of linkages interweaving within Florida in a web of greenways, conservation lands (public and private reserves), local parks and regional managed lands. The Florida Forever mapping





on page 5 shows lands not owned but on the acquisition list. The acquisition list is a subset of the FNAI-mapped priorities. In addition, FDEP, FFWCC, USFWS, TNC, 1000 Friends of Florida, and other agencies and non-governmental organizations have evaluated conservation land purchase priorities as well as conservation and/or recreation connectivity priorities on a statewide level, which is discussed in the Statewide Conservation Initiatives section. Where lands identified in these programs are outside of the Florida Forever and local acquisition plans, an opportunity is available to identify measures and funding for additional acquisition and to ensure connectivity of protected lands.

# WILDLIFE AND HABITAT

Often interrelated to land conservation, wildlife and habitat initiatives include efforts focused on protecting and conserving areas for the specific purpose of protecting wildlife and wildlife habitats. Unique habitats include the large forest and river systems along with upland sandhill and scrub habitats that sustain the wildlife.

The Initial Focus Area location, spanning the Florida peninsula, makes it a connecting point for important and fragile natural systems, such as those connecting the Green Swamp, Paynes Prairie, Ocala and Osceola National Forests and the Okefenokee Swamp.

## **Policy Framework**

The regulatory framework for wildlife and habitat include 50 CFR 402.12, Section 7(c) of the Endangered Species Act of 1973 as amended by Rules 39-25.002, 39-27.002 and 39 27.011 of the Wildlife Code of the State of Florida (Chapter 39, FAC), and the Florida Endangered and Threatened Species Act of 1977. Overall, the goal is recovery of listed species to levels where protection is no longer required.

In recent Florida regulatory history, protecting wildlife and habitat is accomplished by taking a broad landscape approach to identifying strategic parcels critical in forming functional movement corridors between the foremost conservation lands. Without significant linkages, habitats become fragmented and genetic variation within species declines, foreshadowing the eventual loss of the species.

### Resources

Multiple rare, threatened and endangered wildlife species occur in the I-75 Relief Initial Focus Area. These include both upland and wetland-dependent, federal and state-listed species. Many rare, threatened and endangered plant species also occur in upland habitats. Wetland habitats and upland habitats, with a few of the listed species are found on page 9. The Rare Species Habitat Conservation priorities are shown on page 10.







75 RELIEF

### Key Wildlife Habitats

FFWCC and FNAI provided data for key habitats. A few areas of particular interest support wetlanddependent species such as wood stork, frosted flatwoods salamander, sandhill crane, snowy egret, little blue heron, limpkin, tricolored heron, white iris, osprey, and Suwanee cooter. Important uplanddependent species are red-cockaded woodpecker, scrub-jay, Eastern indigo snake, gopher tortoise, sand skink, Sherman's fox squirrel, Florida mouse, Southeastern American kestrel, Florida burrowing owl, shorttailed snake, Florida pine snake, and gopher frog. More information is found in Appendix 2.

Sources: FNAI, FDEP, FFWCC





### Rare Species Habitat Conservation Priorities

Created by FNAI as part of the Florida Forever Conservation Needs Assessment, priorities are based on potential habitat for 248 species of plants, invertebrates, and vertebrates, both terrestrial and aquatic species. All federally listed species, many state listed species and several rare species not listed were considered with the goal to prioritize protecting known populations and identifying additional habitat needs for the species.



1-75 RELIEF





In addition resources from USFWS, FFWCC, and FNAI information sources and the Local and Regional Initiatives discussed below, statewide programs to evaluate existing terrestrial and aquatic habitats and prioritize acquisition are outlined in Statewide Initiative section.

## Local and Regional Initiatives

While the wildlife initiatives are often associated with land conservation, the land use elements of the comprehensive plans set conservation goals based on input about habitat and wetland impact while wildlife issues are part of the land development regulations. In addition, the state water management districts have goals consistent with regional and statewide goals of connectivity as well as the general permitting requirements in Florida.

## WATERS

Florida's surface waters and groundwater not only support diverse wildlife populations and habitats, but also serve as our drinking water supply. Among the habitats are the various types of wetlands, which play a vital role in sustaining adequate water quality statewide.

## **Policy Framework**

Federal and state regulations provide the policy framework for the surface waters and ground waters. The federal and state regulations are:

- 1. <u>Federal Clean Water Act, as amended, Public Law</u> 92-500,
- 2. <u>Federal Safe Drinking Water Act, as amended, Public</u> <u>Law 93-523</u>, and
- 3. <u>Chapters 62-330, Florida Administrative Code (FAC)</u>; and in the appropriate water management district rules. The Initial Focus Area is within three water management districts as shown to the right.

### Resources

Special designations, surface waters, groundwater, springs, wetlands, and special habitats (rare and imperiled fish) are important considerations for any transportation development. A summary of the features within the Initial Focus Area includes: special designations, surface waters, groundwaters, springs, wetlands, and special habitats.

### **Special Designations**

<u>Outstanding Florida Waters</u> (OFWs) are waters that have natural attributes worthy of special protection as and are defined by <u>Rule 62-302.700 (9) Florida</u> <u>Administrative Code</u>. OFWs are found within public lands in this Initial Focus Area and have additional stormwater requirements that must be considered when identifying areas of opportunity for corridors.

<u>Aquatic Preserves</u> are sovereign submerged lands established for protection. Avoidance is important for Aquatic Preserves.

OFWs and Aquatic Preserves found within the Initial Focus Area are mapped on page 13, but no <u>Areas of Critical State Concern</u> are in the area. Further, no <u>Coastal Barrier Resources</u>, or <u>Wild and Scenic Rivers</u> are within the Initial Focus Area, which are relevant to federal actions for transportation corridors under the NEPA.

### Surface Waters

Basins identified as <u>impaired</u> for nutrients or that have a <u>Basin Management Action Plan</u> to address nutrient impairment also have additional permit requirements for pollutant load that may result in additional stormwater requirements. Solutions can be developed to address development within these basins, and may



#### Water Management Districts



open up opportunities for joint water quality improvement projects. Impaired water bodies include segments and contributing basins such as: the Suwannee River, Newnan's Lake, the Wauberg Lake outlet, Hatchett Creek, Lake Lochloosa, in Alachua County, Orange Lake in Alachua and Marion Counties; the Rainbow River in Marion and Levy Counties; segments of the Ocklawaha River in Sumter and Marion Counties, Lake Panasoffkee in Sumter County, Crystal River in Citrus County, and Cross Florida Barge Canal / Lower Withlacoochee in Citrus and Levy Counties.

### Groundwater

Large portions of the Initial Focus Area are high recharge areas to the Floridan aquifer and/or have karst sensitive topography. Karst sensitive areas are vulnerable to sinkholes and provide a direct connection to the Floridan aquifer. Although it's not considered to be a sole source <u>aquifer</u> for drinking water supply, a large portion of the drinking water supply in the area is from the <u>Floridan aquifer</u> as shown below. Impacts to the quality and/or water levels in the aquifer could result in increased drinking water treatment and/or reduced supply.



Because most of the region is a recharge or karst sensitive area, the features are not mapped, but need to be considered as the transportation planning process progresses. More information is in appendix 4.

### Springs

Springs are the interface between groundwater and surface waters that are critical to the water needed to support the unique habitats in Florida. This region has 170 mapped springs of which five are first magnitude springs as shown on page 13. The spring magnitude is



-75 RELIEF

- First Magnitude: More than 100 cfs
- Second Magnitude: More than 10 cfs to 100 cfs
- Third Magnitude: More than 1 cfs to 10 cfs

Impacts to aquifer water levels may affect the magnitude and quality of a spring's discharge, which would in turn impact wetland and wildlife habits as well as recreational uses such as Rainbow Springs State Park. Avoidance and minimization of impacts to significant water resources should be considered.

### Wetlands

Wetlands are an integral part of water quality in Florida. As shown on the map on page 9, wetlands are found in the Initial Focus Area. Many of the wetlands are part of the surface water and springs systems discussed above.

### **Special Habitats**

The Florida Fish and Wildlife Conservation Commission (FFWCC) maps basins in which rare or imperiled fish occur. More than 20 such basins occur within the Initial Focus Area including Rainbow River, Manatee Springs, and Paynes Prairie to name a few.



A park covering nearly 1,500 acres, the most significant natural feature is the first magnitude headspring basin which produces up to 600,000,000 gallons of water per day, which forms the Rainbow River. The park contains 11 distinct natural communities, including sandhills, flatwoods, upland mixed forests, and hydric hammocks. The springs and river have been designated an Aquatic Preserve and an Outstanding Florida Water. PHOTO: FDEP





#### Water Resources

#### **First Magnitude Springs**

75 RELIEF

- 1. Rainbow Spring
- 2. Silver Spring Main
- 3. Santa Fe River Rise
- 4. Treehouse Spring
- 5. Weeki Wachee Spring

**Aquatic Preserves** 

- **1.** Rainbow Springs and River
  - 2. Silver Springs and River

Sources: FNAI and FDEP





In addition to the Local and Regional Initiatives discussed below, statewide programs to evaluate existing water resources, habitats for both terrestrial and aquatic species, and future protection priorities and are outlined in Statewide Initiative section.

## Local and Regional Initiatives

Local and regional initiatives echo much of the state level issues discussed above. The comprehensive plans have protections for drinking water supply and quality through well head protection ordinances, buffers from surface waters to help with stormwater runoff quality, protections for karst sensitive areas to avoid new direct aguifer connections, requirements for wetland protection and incentives for restoring wetlands as a few of the local initiatives that relate to water. Whether located within or adjacent to the Initial Focus Area, protection measures for water quantity and water quality of runoff is critical. Water quality and water quantity are part of permitting by the state's water management districts. While the Initial Focus Area consists of three water management districts, the same goals and objectives for preserving water quantity and water quality in the state are consistently applied.

# AIR

Air quality affects both wildlife and human quality of life. Toxic air pollutants and chemicals that form acid rain and ground-level ozone can damage trees, crops, and wildlife, as well as have harmful effects on aquatic ecosystems. Furthermore, poor air quality is linked to public health problems, especially for at-risk groups. The existing air quality is within conformance of national standards. To maintain or improve air quality, transportation planning must look at the potential for impacts to air quality.

## Policy Framework

<u>The Clean Air Act</u> establishes National Ambient Air Quality Standards (NAAQS) for six common air pollutants as well as address pollution problems that emerge over time. On October 1, 2015, the EPA further strengthened the standards for ground-level ozone to 70 parts per billion (ppb) from the prior level of 75 ppb to further protect public health and welfare. If Florida has any areas designated as



## Resources

Florida's statewide air quality is within conformance with NAAQS, and ground-level ozone concentrations are on a downward trend. Forest provide carbon sinks for the benefit of air quality. Therefore, protecting forest resources as discussed in the land section, provides further benefit for our overall well-being.

## Local and Regional Initiatives

Regional initiatives from the regional planning councils and local concerns from the county comprehensive plans identify air quality as a critical concern. Each county comprehensive plan has various policies and goals for reducing fuel consumption, increasing transit usage, controlling burning activities/industries and benefiting air quality by requiring open space/trees.

# STATEWIDE CONSERVATION INITIATIVES

In addition to the local and regional initiatives outlined for land, habitat, water and air, a few statewide initiatives have used prioritization analysis to determine the best investment for future conservation lands. In addition to the resources outlined in this Briefing Book, changing climate conditions and wildlife movement were inputs for several systematic analysis tools. The basic question is: what is the best investment for conservation within Florida to provide the desired benefits for the natural environment and human health? The majority of these initiatives are not regulatory in nature, but look at cooperation as a key method for achieving future goals for conservation connectivity. The initiatives include:

 Florida Ecological Greenway Network (FEGN): The FDEP Office of Greenways and Trails and the University of Florida Geoplan Center worked with agencies and non-governmental organizations to





identify critical linkages between habitat and existing conservation resources. The first FEGN was developed in the late 1990s with updates in 2005 and 2013. Refinements have honed the land needs to provide the habitat and recreation connectivity envisioned. The analysis results are priorities that range from 1, which is a critical linkage, to 6 as shown in the map on page 16. Levels 1 or 2 are the critical linkages and include lands between Goethe State Forest and the Marjorie Harris Carr Cross Florida Greenway; Goethe State Forest and Waccasassa Bay; and West of the Chassahowitzka National Wildlife Refuges. A portion is not within existing conservation lands and not on the Florida Forever, regional or local government acquisition lists, which provides an increased opportunity to establish the connectivity.

- Florida Greenways and Trails System Plan: The FDEP Greenways and Trail Plan outlines the vision for the Florida Greenways and Trails System to focus on priorities and identify the gaps that need to be closed. The plan established land trail and paddling trail opportunities mapped on page 6 as well as the ecological greenway opportunities (FEGN described above). From the trail opportunity standpoint, the priorities within the Initial Focus Area are: 1) the Marjorie Harris Carr Cross Florida Greenway, 2) the Withlacoochee State Trail, and 3) Florida National Scenic Trail.
- Florida Peninsula Ecoregional Plan (FPEP): The Florida ecoregion is one of 63 in the US. An ecoregion has similar climate, topography, soils, and range of habitats. Ecoregion plans are to develop the portfolios (sites) that provide biodiversity and will sustain the native species. For FPEP, the intent is to define and complete the conservation acquisition for the Nature Conservancy and partners in Florida. Prepared in 2005, the UF Geoplan Center used GIS data sets to develop this decision tool. Of the 15 highest priorities, only one appears to be within the Initial Focus Area – the Annutteliga Hammock / Withlacoochee State Forest Complex.
- Critical Land and Waters Identification Project (CLIP): Originally developed for the Century Commission for a Sustainable Florida and the FFWCC, the University of Florida Geoplan Center started with the FEGN information, used updated species and habitat data layers, and created a tool to further review investment options and various

scenarios. The CLIP documentation notes that the same statewide data layers are used in the FDOT Efficient Transportation Decision Making System (ETDM) Environmental Screening Tool.

- State Wildlife Action Plan (SWAP): Originally Comprehensive known as the Wildlife Conservation Strategy, the 2012 **SWAP** encompasses the broad array of Florida's native species habitats. While the Action Plan is not a regulatory process, the SWAP provides a starting point to explore conservation issues and the incentives for habitat stewardship and federal funding opportunities. An element of the SWAP is a grant program, which was a funding source for the updated CLIP 2 priorities. As the SWAP is a living document with a five-year update cycle, opportunities are available to fill data gaps in the region with investigations needed for future transportation and land development efforts.
- Peninsular Florida Landscape Conservation Cooperative (PFLCC): The PFLCC was organized by the Department of Interior. It is one of 22 partnerships for conservation science that build upon the individual team members efforts for a larger scale result. In addition to data, the landscape-scale stressors such as climate change and habitat fragmentation are used to determine the conservation gaps that need to be filled to provide a landscape capable of sustaining healthy plant, animal, and human populations. Funded by USFWS and USGS, PFLCC funded version 3.0 of CLIP, which is shown in the map on page 17.
- Florida's Imperiled Species Management Plan (ISMP): The Draft ISMP (October 2015) is directed communication, outreach, and land management to maximize conservation benefits for these less regulated uplands. This applied conservation science partnership is designed to inform resource management decisions in an integrated fashion across landscapes at a broader statewide scale than any localized efforts.





### Florida Ecological Greenways Network (FEGN) Critical Linkages

The Florida Statewide Greenways Plan is a decision support model that identifies the best opportunities to protect ecological connectivity statewide. GIS is used to prioritize and rank parcels based on criteria selected by agencies, including statewide sea level rise conservation impacts assessment, noting that rankings are on an iterative basis as linkages are protected or priorities change over time.



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75 RELIEF

### Critical Lands and Waters Identification Project (CLIP)

Developed lands and waters that are critical to the conservation of Florida's natural resources. CLIP is a GIS database of natural resources data, including biodiversity, landscape function, surface water, groundwater, and marine resources. In addition to up-to-date resource data, CLIP uses a model to present a combination of biodiversity, landscapes and surface water to identify areas of conservation significance. The CLIP is an important tool to look at a broad range of conservation priorities and can help inform decisions on lands to target for strategic conservation acquisitions.

Sources: FFWCC



1-75 RELIEF

This Briefing Book summarizes key highlights of the extensive amount of prior and ongoing efforts by federal, state, regional, and local agencies and environmental stakeholder groups to develop holistic conservation plans, policies and approaches. These efforts have resulted in a wealth of information, and together comprise the clear message of the desire for comprehensive approaches to land development and conservation. The benefit this provides to the Task Force is that large scale data collection, coordination, and development of conservation priorities have already been developed and can be utilized to guide the evaluation of transportation solutions for the I-75 Relief Initial Focus Area and identify avenues and opportunities for further coordination.

# SUMMARY OF OPPORTUNITIES AND CONSTRAINTS

Florida has a vast amount of public lands - whether owned outright or as an easement. The land along with the habitat provided, water quantity and quality, and air quality are interrelated and form the basis of each County's comprehensive plan, the regional planning councils' goals, and the statewide initiatives for а holistic approach to conservation acquisition. The first step in this approach is to map the resources and gather information regarding the protection needs. This Briefing Book provides an overview to solicit additional input opportunities on initial for transportation solutions that meet the purpose and need and also conform with local, regional and state initiatives and comply with state and federal regulations for:

Maintaining conservation and recreation hubs and improving

conservation/recreation connectivity;

- Protecting wildlife and habitat to contribute to the opportunity for listed species to recover to levels where protection is no longer required and land use provides a balanced ecosystem for all species, including humans;
- Ensuring water quantity and quality levels are maintained to sustain a healthy drinking water supply, recreation facilities and biodiverse habitat; and;
- Balancing air quality and open space with economic development and land development, with considerations for 1) coordinating the best land management approaches for controlled burns to maintain habitats or dispose of rubbish and 2) preserving forest systems to continue the air quality benefits provided by trees and natural vegetation communities.

To summarize the research of key conservation initiatives, the most prevalent issue highlighted is connectivity of ecological resources. Whether

considering the FNAI evaluation to set the Florida Forever acquisition priorities or using the prioritization tools (FEGN, CLIP, FPEP, PFLCC, etc.), a clear opportunity to balance the transportation needs with the land planning goals emerges. With limited funding through existing programs such as Florida Forever, water management districts, local governments and non-government organizations are critical to continued conservation acquisition efforts. The opportunity for joint development projects and initiatives to optimize funding sources, regardless of the work type (transportation, conservation or water quality), are keys to the planning of Florida's future conservation efforts.





# REFERENCES

## Overview

I-75 Relief

-75 RELIEF

East Central Florida Corridor Task Force (ECFCTF)

**Guiding Principles** 

## Lands

Section 4(f) of the Department of Transportation Act of 1966

Federal-Aid Highway Act of 1968

Florida Forever acquisition program.

Conservation Easement: Section 704.06 Florida Statutes.

The Nature Conservancy (TNC)

Florida Natural Areas Inventory (FNAI)

Alachua County Forever

Alachua County's Comprehensive Plan

Citrus County's Comprehensive Plan

Hernando County's Comprehensive Plan

Levy County's Comprehensive Plan

Marion County's Comprehensive Plan

Sumter County's Comprehensive Plan

East Central Florida Regional Planning Council SRPP

North Central Florida Regional Planning Council SRPP

Tampa Bay Regional Planning Council SRPP

Florida National Scenic Trail

Marjorie Harris Carr Cross Florida Greenway

Coast to Coast Connector

## Wildlife and Habitat

50 CFR 402.12, Section 7(c) of the Endangered Species Act of 1973

<u>Florida Endangered and Threatened Species Act of</u> <u>1977</u>.

http://floridawildlifecorridor.org

http://www.fws.gov/northflorida/WoodStorks/woo d-storks.htm

http://www.saj.usace.army.mil/Missions/Regulator y/SourceBook.aspx

## Waters

Federal Clean Water Act, as amended, Public Law 92-500,

<u>Federal Safe Drinking Water Act, as amended, Public</u> <u>Law 93-523</u>, and

Chapters 62-330, Florida Administrative Code (FAC)

Protecting Florida's Springs: An Implementation Guidebook, February 2008, Department of Community Affairs, 2555 Shumard Oak Boulevard Tallahassee, FL 32399-2100 Toll Free Number 1-877-352-3222

**Outstanding Florida Waters** 

Aquatic Preserves

<u>Coastal Barrier Resources - Florida Coastal Barrier</u> <u>Resources Map – Coastal Barrier Resources Online</u> <u>Mapping Tool</u>

Areas of Critical State Concern

Wild and Scenic Rivers

FDEP Impaired Basins

**Basin Management Action Plans** 

Sole Source Aquifer

Floridan aquifer description – Floridan Aquifer Map



## Air and Climate

The Clean Air Act

Air Quality Fact Sheet: The Ozone Standard

## Statewide Initiatives

Florida Greenways Ecological Network (FEGN) Website

Identification of Critical Linkages within the Florida Ecological Greenway Network, University of Florida Geoplan Center, 2002.

Florida Peninsula Ecoregional Plan (FPEP), The Nature Conservancy and the University of Florida Geoplan Center, March 2005:

Critical Lands and Critical Lands and Waters Identification Project (CLIP) Web Site) Identification Project (CLIP) Web Site) Florida Fish and Wildlife Conservation Commission. 2012. Florida's Wildlife Legacy Initiative: Florida's State Wildlife Action Plan. Tallahassee, Florida, USA.

1-75 RELIEF

Peninsular Florida Landscape Conservation Cooperative (PFLCC) Web Site:

Florida Fish and Wildlife Conservation Commission. 2016. Florida's Imperiled Species Management Plan (Draft). Tallahassee, Florida.

## GIS Data

http://fnai.org/gisdata.cfm

http://www.fgdl.org/

# **APPENDIX LIST**

Appendix 1 – Summary of Key Interviews

Appendix 2 – FFWCC Species Information

Appendix 3 – Forest Optimal Management Area

Appendix 4 – Regionally Significant Ground Water Resources (Alachua County)





Organization Name	Conservation Initiative and Goal	Key Study Area Resources
State Agencies		
Florida Fish and Wildlife Conservation Commission (FWC) State Wildlife Action Plan (SWAP) <http: conservation="" myfwc.com="" specia<br="">I-initiatives/fwli/action-plan&gt; and Cooperative Conservation Blueprint (CCB) &lt; http://myfwc.com/conservation/special- initiatives/blueprint&gt;</http:>	in 2006 to help implement the SWAP and built on the Critical Lands and Water Identification Project (CLIP), an integrated set of GIS spatial data layers that identify critical	Both the Oklawaha and Withlacoochee basins overlap in the I-75 Relief study area. Both basins exhibit a high number of threats and a high number of species of concern. They are two of the 12 priority basins outlined in the SWAP as part of the plan's basin approach to conserving the state's freshwater habitats and species.
FWC Management Plans for Imperiled Species	FWC also prepares wildlife management plans to provide guidance to improve the status of conserved species so that they can be removed from the Florida Endangered and Threatened Species list and not need to be listed again. The FWC Wildlife Management Area (WMA) system includes more than 5.8 million acres established as WMAs or Wildlife and Environmental Areas (WEAs).	Approved WMAs in the study area are the Andrews WMA, Chassahowitzka WMA, and Half Moon WMA. Approved WEAs in the study area are the Chinsegut WEA and the Watermelon Pond WEA.

Organization Name	Conservation Initiative and Goal	Key Study Area Resources		
FWC Scenario-based Approach for Implementing Climate Adaptation on Public Conservation Lands	A joint project with the U.S. Fish and Wildlife Service, the goal is to use a scenario process to develop adaptation approaches based on climate science that integrate management needs, predicted urbanization in the surrounding landscape, and stakeholder desires into a scalable framework that facilitates implementable actions.	Tying into the 2012 State Wildlife Action Plan, the project involves working with land managers at state wildlife management areas (Chassahowitzka and Big Bend) and federal refuges (Chassahowitzka, Crystal River, and St. Marks) to examine alternative future scenarios and building adaptation strategies at selected sites. The focus is on coastal and upland habitats on the selected conservation lands and imperiled and other wildlife species dependent on those habitats. The goal is to develop adaptation strategies related to stressors such as sea level rise and urbanization that the refuge managers can use. The approximately one- year long project involves two or three public workshops. Affected counties include Hernando, Citrus, Levy, Dixie, and Taylor.		
Department of Environmental Protection (DEP) Ecological Greenways Networks (FEGN) <http: d<br="" dep.state.fl.us="" fgts_plan="" gwt="">efault.htm&gt;</http:>	Identifies the areas that, when connected, will create the necessary statewide network of conservation lands and wildlife corridors to maintain large landscape-scale ecological functions. The Florida Wildlife Corridor (listed below) is a direct outcome of the FEGN.	Two priority one corridors: 1) From the Ocala National Forest to the Osceola National Forest (ties into the Northeast Florida Timberlands and Watershed Reserve project, the Camp Blanding-Raiford Greenway project and the Raiford- Osceola Greenway project), 2) Withlacoochee State Forest with the Chassahowtizka Wildlife Management Area (a priority two corridor connects to lands along the Big Bend Coast). Also important are tie-ins to Florida Forever land purchases as part of the Annutteliga Hammock project, Gulf Hammock project, and the South Goethe Florida Forever project.		

Organization Name	Conservation Initiative and Goal	Key Study Area Resources
DEP Greenways and Trail Plan <http: d<br="" dep.state.fl.us="" fgts_plan="" gwt="">efault.htm&gt;</http:>	Outlines the vision for the Florida Greenways and Trails System used by DEP to focus on priorities and identify the gaps that need to be closed to establish a fully connected and integrated statewide trail network. The Coast to Coast Connector (C2C), which still has gaps, and the 110-mile Marjorie Harris Carr Cross Florida Greenway (CFG) are two important east-west connecting trails.	Important study area trails include the Good Neighbor Trail that, when the gaps are closed, will provide a major connection within the C2C; and the Suncoast trail extension north into Citrus County that will add to the existing trail in Hernando and Pasco counties. Between the extension and the CFG is an approximately 15-mile gap; other gaps are between Citrus and Marion counties located within the CFG Priority Corridor. Also important are the Withlacoochee State Trail and Florida National Scenic Trail in Hernando, Citrus, and Marion counties; the existing connection between the Nature Coast State Trail and the CFG in Levy and Marion counties; priority east-west corridors in Alachua County, and the northern alignment of the C2C in Sumter County.
DEP Water Management Districts (WMD) Surface Water Improvement and Management Program (SWIM) http://www.dep.state.fl.us/water/water sheds/swim.htm	SWIM is used as a mechanism to address "nonpoint" pollution to surface waters. SWIM develops plans for at-risk water bodies, and direct the work needed to restore damaged ecosystems, prevent pollution from stormwater runoff and other sources, and educate the public. SWIM plans are used by other state programs, like Save Our Rivers, to help make land-buying decisions, and by local governments to help make land-use management decisions	The following is a list of priority SWIM waterbodies within the study area: • Crystal River/Kings Bay • Lake Panasoffkee • Rainbow River • Weeki Wachee River • Chassahowitzka River • Homosassa River • Suwannee River • Sumannee River • Santa Fe River • Waccasassa River • Orange Creek

Organization Name	Conservation Initiative and Goal	Key Study Area Resources	
Florida Department of Agriculture and Consumer Services, Florida Forest Service <http: divi<br="" www.freshfromflorida.com="">sions-Offices/Florida-Forest-Service&gt;</http:>		State forests in the study area include the Bivens River State Forest (Alachua County), Goethe State Forest (Levy and Alachua counties), Withlacoochee State Forest (Citrus, Sumter, and Hernando counties), Indian Lake State Forest (Marion County), and Ross Prairie State Forest (Marion County). Other forests identified as natural resources of regional significance include Austin Cary Memorial Forest (Alachua) and Ocala National Forest (Marion).	
Regional Agencies			
East Central Florida Regional Planning Council (ECFRPC)	regional ecosystems and ecological corridors that allow for wildlife and plant movement and avoid the encroachment of development into those areas and prevent the isolation of habitats from one another. The RPC's Natural Resources of Regional Significance GIS Data Layer identifies natural	Although Sumter County is now part of the ECFRPC, its natural resources are described in the Withlacoochee Regional Planning Council's SRPP that calls out natural resources of regional significance such as the Chassahowitzka River and Springs (Fenny Springs, Gum Springs, and a number of unnamed springs). Sumter County also contains the Green Swamp, Little Withlacoochee River, Lake Panasoffkee. Chassahowitzka National Wildlife Refuge and Withlacoochee State Forest.	

Organization Name	Conservation Initiative and Goal	Key Study Area Resources
North Central Florida Regional Planning Council (NCFRPC)	The NCFRPC's 2011 SRPP takes a systems approach to the region's interrelated system of natural resources of regional significance that are part of an interconnected natural system extending across and beyond the region. Actions in one part of the system can have significant adverse consequences elsewhere, the plan notes.	The NCFRPC's 2011 SRPP, which includes Alachua County, identifies natural resources of regional significance as consisting of the Regional Ecological Greenways Network, which is a subset of the of the FEGN (described earlier). The Withlacoochee RPC's SRPP describes natural resources of regional significance in Levy and Marion Counties, which are now included in the NCFRPC. In addition to the Withlacoochee River, examples include a number of first and second magnitude springs (Fannin Springs, Manatee Spring, Rainbow Springs, Silver Springs, etc.), the Waccasassa River, Ocala National Forest, Otter Creek, Goethe State Forest, and Marjorie Harris Carr Cross Florida Greenway State Recreation and Conservation Area.
Tampa Bay Regional Planning Council (TBRPC)	The TBRPC's SRPP is guided by the ONE BAY regional visioning process. For the natural environment, those goals relate to water, sustaining agriculture and open space, and preserving continuous quality habitat and sensitive ecosystems by growing more compactly. For the natural environment, those goals relate to reducing consumption and increasing alternative resources, sustaining agriculture and open space, and preserving continuous quality habitat and sensitive ecosystems by growing more compactly.	Although Citrus and Hernando counties are now part of the TBRPC, their natural resources of regional significance are described in the Withlacoochee Regional Planning Council's SRPP. Examples include the Crystal, Homossasa, Chassahowitzka, and Weeki Wachee rivers. Crystal River and its headwaters known as Kings Bay, located in Citrus County, is considered a critical manatee habitat. A number of first and second magnitude springs such as Crystal River Springs, Homosassa Springs, Weeki Wachee Springs are also located in Citrus and Hernando counties.

Organization Name	Conservation Initiative and Goal	Key Study Area Resources
Federal Agencies		
US Department of Agriculture Forest Service's Florida National Scenic Trail <http: fnst="" www.fs.usda.gov=""></http:>	The approximately 1,300-mile long Florida National Scenic Trail (FNST) is one of 11 Congressionally designated National Scenic Trails that are intended to provide a continuous, permanent non-motorized recreational opportunity for hiking and other compatible activities and to showcase Florida's biodiversity, history, and culture. The Florida trail is divided into four segments and begins in the Big Cypress Preserve and travels north to the Gulf Islands Seashore at Fort Pickens.	Important trail segments in the initial I-75 Relief study area are the Withlacoochee State Forest tracts and Green Swamp management area and to the northeast of the area are the Withlacoochee Trail and Cross Florida Greenway. The map shown at www.arcgis.com/home/webmap/viewer.html?webmap=b4f2 fedc4c5848b1a221e21400938a02&extent=-84.0915,26.6815, 78.7192,29.8689 can be used to navigate the trail in the I-75 Relief study area.
US Fish and Wildlife Service Peninsular Florida Landscape Conservation Cooperative (PFLCC) <http: peninsularfloridalcc.org=""></http:>	The PFLCC, which is a part of a 2010 USFWS national initiative to create Landscape Conservation Cooperatives (LCCs) across the nation, extends from the St. Johns and Suwannee River watersheds south to the Florida Keys. LCCs are based on collaborative public-private partnerships and a science-based network approach to conservation at the landscape scale. They are designed to inform resource management decisions in an integrated fashion across landscapes at a broader scale than would be possible for an individual partner.	The PFLCC is involved with the FWC-coordinated project, A Scenario-based Approach for Implementing Climate Adaptation on Public Conservation Lands (described under FWC). Information on the PFLCC's climate change scenario work can be found at <http: page="" peninsularfloridalcc.org="" projects-1="">. Other PFLCC resources include two recent publications – Landscape Conservation and Climate Change Scenarios for the State of Florida: A Decision Support System for Strategic Conservation and Defining Conservation Targets September 2015.</http:>

Organization Name	Conservation Initiative and Goal	Key Study Area Resources
Non-Profits		
Florida Wildlife Corridor (FWC) <http: floridawildlifecorridor.org=""></http:>	of the state's diverse wildlife and health of its waters. FWC's	The FEGN (see earlier description) Priority 1 (in early 2016 to be additions to priority 1 in Levy County) and Priority 2 are combined to create the Florida Wildlife Corridor. Priority corridors include the Withlacoochee River corridor from the Green Swamp to its mouth at the Gulf of Mexico, Suwannee River corridor, southern portion of the Big Bend corridor from Crystal River north to the Lower Suwannee National Wildlife Refuge, Payne's Prairie to Goethe State Forest corridor, Waccassa Flats corridor connecting Goethe State Forest and the Sante Fe River, Sante Fe River watershed corridor (which includes the New River and Olustee Creek), Ocala National Forest to Camp Blanding corridor via northeast Marion County and eastern Alachua County.
The Conservation Trust for Florida (CTF) <http: conserveflorida.org=""></http:>	CTF works with landowners to save Florida's wild and working landscapes for future generations. It has protected over 10,000 acres since 1999 and is now leading conservation projects totaling more than 100,000 acres <http: conserveflorida.org="">. CTF projects are guided by scientific research that identifies areas of highest priority. One of its projects focuses on preserving greenways <http: conserveflorida.org="" preserving-greenways="">. The work is guided by the FEGN and its critical linkages map <http: conserveflorida.org="" wp-<br="">content/uploads/2014/12/CTF_CriticalLinkages_Letter_Lands cape.pdf&gt;.</http:></http:></http:>	In north central Florida, CTF is working to preserve forest ecosystems, springsheds, and wildlife corridors for wide- ranging species like the Florida black bear. That includes working to connect the Ocala National Forest to Goethe State Forest, Matanzas State Forest, Osceola National Forest (O2O), and Wekiva State Park. Its plans also include connecting the Apalachicola National Forest to the Green Swamp. Lands protected include the Barr Hammock Levy Prairie Preserve that is part of the greenway connecting the Ocala National Forest to the Goethe State Forest. Other lands protected can be viewed at <http: conserveflorida.org="" lands-<br="" preserving-greenways="">protected&gt;.</http:>

# Appendix 2 - Species List

### **Conservation Lands & Listed Species**

The following list shows existing conservation lands greater than 2,000 acres within the Florida Department of Transportation (FDOT) I-75 Relief Study Area and both federal and state listed species with recorded occurrences on the property. This is not intended to be a complete inventory of species on these lands, simply a guide of those species where the occurrence or a part of the occurrence buffer overlapped with the boundary of the property. For more information regarding species on a particular managed land please reference the property's Management Plan, available through the property's managing agency.

**Note:** The "Federal Status" and "State Status" lists include the Federal and State Listing Status of each species. Below are descriptions of each status.

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

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

Federal-

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

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

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

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

N = Not currently listed.

#### State-

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

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

Service. E = Listed as Endangered by the FFWCC.

ST = State population listed as Threatened by the FFWCC.

SSC = Listed as Species of Special Concern by the FFWCC.

**Note:** Bivens Arm Nature Park (1490) and Bivens Rim Forest (1806) are both smaller than 2,000 acres. They were added to the following list by request.



Managed Area Name	County	Scientific Name	Common Name	Federal Status	State Status
Andrews Wildlife Management Area (1061)	Levy	Gopherus polyphemus	Gopher Tortoise	С	ST
Annutteliga Hammock (313)	Hernando	Sciurus niger shermani	Sherman's Fox Squirrel	N	SSC
	Hernando	Falco sparverius paulus	Southeastern American Kestrel	N	ST
	Hernando	Drymarchon couperi	Eastern Indigo Snake	LT	FT

Austin Cary Memorial Forest (904)	Alachua	Picoides borealis	Red-cockaded Woodpecker	LE	FE
	Alachua	Lampropeltis extenuata	Short-tailed Snake	Ν	ST
	Hernando	Lithobates capito	Gopher Frog	Ν	SSC

Gopherus polyphemus

Hernando

С

ST

Gopher Tortoise

Barr Hammock Preserve (1976)	Alachua	Lampropeltis extenuata	Short-tailed Snake	Ν	ST
	Alachua	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Alachua	Gopherus polyphemus	Gopher Tortoise	С	ST
	Alachua	Grus canadensis pratensis	Florida Sandhill Crane	N	ST

Beville Ranch Conservation Easement (1573)	Alachua	Grus canadensis pratensis	Florida Sandhill Crane	N	ST
	Sumter	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Sumter	Sciurus niger shermani	Sherman's Fox Squirrel	Ν	SSC

Bivens Arm Nature Park (1490)	Alachua	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Alachua	Egretta caerulea	Little Blue Heron	N	SSC
	Alachua	Lampropeltis extenuate	Short-tailed Snake	N	ST
	Alachua	Falco sparverius paulus	Southeastern American Kestrel	N	ST
	Alachua	Eudocimus albus	White Ibis	N	SSC

Bivens Rim Forest (1806)	Alachua	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Alachua	Lampropeltis extenuata	Short-tailed Snake	Ν	ST
	Alachua	Falco sparverius paulus	Southeastern American Kestrel	N	ST
	Alachua	Eudocimus albus	White Ibis	Ν	SSC

Chassahowitzka National Wildlife Refuge (754)	Sumter	Sciurus niger shermani	Sherman's Fox Squirrel	Ν	SSC
	Citrus	Pandion haliaetus	Osprey	N	SSC*

Chassahowitzka River and Coastal Swamps (504)	Sumter	Lampropeltis extenuata	Short-tailed Snake	N	ST
	Citrus	Gopherus polyphemus	Gopher Tortoise	С	ST

Chassahowitzka Wildlife Management	Citrus	Gopherus polyphemus	Gopher Tortoise	С	ST
Area (1022)					

Citrus	Pandion haliaetus	Osprey	N	SSC*
Citrus	Egretta thula	Snowy Egret	N	SSC
Citrus	Egretta caerulea	Little Blue Heron	N	SSC
Hernando	Egretta tricolor	Tricolored Heron	N	SSC
Hernando	Falco sparverius paulus	Southeastern American Kestrel	N	ST
Hernando	Eudocimus albus	White Ibis	N	SSC
Hernando	Mycteria americana	Wood Stork	LT	FT
Hernando	Aphelocoma coerulescens	Florida Scrub-Jay	LT	FT
Hernando	Drymarchon couperi	Eastern Indigo Snake	LT	FT
Hernando	Gopherus polyphemus	Gopher Tortoise	С	ST
Hernando	Lithobates capito	Gopher Frog	N	SSC
Hernando	Podomys floridanus	Florida Mouse	N	SSC
Hernando	Sciurus niger shermani	Sherman's Fox Squirrel	N	SSC
Citrus	Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC

Crystal River Preserve State Park (1362)	Citrus	Aphelocoma coerulescens	Florida Scrub-Jay	LT	FT
	Citrus	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Citrus	Podomys floridanus	Florida Mouse	N	SSC
	Hernando	Eudocimus albus	White Ibis	Ν	SSC
	Hernando	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Hernando	Gopherus polyphemus	Gopher Tortoise	С	ST
	Hernando	Lithobates capito	Gopher Frog	N	SSC
	Levy	Pituophis melanoleucus mugitus	Florida Pine Snake	Ν	SSC
	Citrus	Drymarchon couperi	Eastern Indigo Snake	LT	FT

Devil's Hammock (2181)         Citrus         Drymarchon couperi	Eastern Indigo Snake	LT	FT	
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Flying Eagle Ranch (549)	Citrus	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Alachua	Aphelocoma coerulescens	Florida Scrub-Jay	LT	FT

Georgia Pacific-Lochloosa Conservation Easement (2224)	Alachua	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Alachua	Sciurus niger shermani	Sherman's Fox Squirrel	N	SSC
	Alachua	Pandion haliaetus	Osprey	N	SSC*
	Alachua	Lithobates capito	Gopher Frog	N	SSC
	Alachua	Gopherus polyphemus	Gopher Tortoise	С	ST
	Alachua	Grus canadensis pratensis	Florida Sandhill Crane	N	ST
	Alachua	Eudocimus albus	White Ibis	N	SSC
	Alachua	Falco sparverius paulus	Southeastern American Kestrel	N	ST
	Citrus	Lampropeltis extenuata	Short-tailed Snake	N	ST
	Citrus	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Citrus	Gopherus polyphemus	Gopher Tortoise	С	ST
	Citrus	Egretta thula	Snowy Egret	N	SSC

Levy	Egretta tricolor	Tricolored Heron	Ν	SSC
Levy	Drymarchon couperi	Eastern Indigo Snake	LT	FT
Sumter	Gopherus polyphemus	Gopher Tortoise	С	ST
Alachua	Pandion haliaetus	Osprey	Ν	SSC*

Goethe State Forest (826)	Alachua	Falco sparverius paulus	Southeastern American Kestrel	N	ST
	Alachua	Gopherus polyphemus	Gopher Tortoise	С	ST
	Alachua	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Alachua	Eudocimus albus	White Ibis	N	SSC
	Alachua, Levy	Mycteria americana	Wood Stork	LT	FT
	Alachua, Levy	Sciurus niger shermani	Sherman's Fox Squirrel	N	SSC
	Levy	Lithobates capito	Gopher Frog	N	SSC
	Levy	Falco sparverius paulus	Southeastern American Kestrel	N	ST
	Levy	Gopherus polyphemus	Gopher Tortoise	С	ST
	Levy	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Levy	Sciurus niger shermani	Sherman's Fox Squirrel	N	SSC
	Levy	Picoides borealis	Red-cockaded Woodpecker	LE	FE
	Levy	Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC

Half Moon Wildlife Management Area (664)	Levy	Podomys floridanus	Florida Mouse	N	SSC
	Levy	Gopherus polyphemus	Gopher Tortoise	С	ST
	Levy	Picoides borealis	Red-cockaded Woodpecker	LE	FE
	Levy	Falco sparverius paulus	Southeastern American Kestrel	N	ST
	Levy	Sciurus niger shermani	Sherman's Fox Squirrel	Ν	SSC

alpata Tastanaki Preserve (617) Levy	Podomys floridanus	Florida Mouse	Ν	SSC	
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Indian Lake State Forest (1961)	Levy	Picoides borealis	Red-cockaded Woodpecker	LE	FE
	Levy	Gopherus polyphemus	Gopher Tortoise	С	ST
	Marion	Sciurus niger shermani	Sherman's Fox Squirrel	N	SSC
	Marion	Gopherus polyphemus	Gopher Tortoise	С	ST
	Sumter	Lampropeltis extenuata	Short-tailed Snake	N	ST
	Sumter	Gopherus polyphemus	Gopher Tortoise	С	ST
	Sumter	Aphelocoma coerulescens	Florida Scrub-Jay	LT	FT
	Sumter	Aramus guarauna	Limpkin	N	SSC
	Marion	Lithobates capito	Gopher Frog	N	SSC

Lake Panasoffkee (961)	Marion	Ambystoma cingulatum	Frosted Flatwoods Salamander	LT	FT
	Marion	Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC
	Marion	Falco sparverius paulus	Southeastern American Kestrel	N	ST
	Marion	Sciurus niger shermani	Sherman's Fox Squirrel	N	SSC

Sumter	Gopherus polyphemus	Gopher Tortoise	С	ST
Sumter	Aphelocoma coerulescens	Florida Scrub-Jay	LT	FT
Sumter	Lithobates capito	Gopher Frog	Ν	SSC

Lochloosa Wildlife Conservation Area (789)	Sumter	Egretta caerulea	Little Blue Heron	Ν	SSC
	Sumter	Falco sparverius paulus	Southeastern American Kestrel	N	ST
	Sumter	Mycteria americana	Wood Stork	LT	FT
	Sumter	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Sumter	Pseudemys concinna nniensis	nnee Cooter	N	SSC
	Alachua	Aramus guarauna	Limpkin	N	SSC

Longleaf Flatwoods Reserve (1638)	Alachua	Sciurus niger shermani	Sherman's Fox Squirrel	N	SSC
	Alachua	Lithobates capito	Gopher Frog	N	SSC
	Alachua	Gopherus polyphemus	Gopher Tortoise	С	ST
	Sumter	Aphelocoma coerulescens	Florida Scrub-Jay	LT	FT
	Sumter	Aramus guarauna	Limpkin	N	SSC
	Sumter	Pseudemys concinna nniensis	nnee Cooter	N	SSC
	Sumter	Mycteria americana	Wood Stork	LT	FT
	Alachua	Drymarchon couperi	Eastern Indigo Snake	LT	FT

Marjorie Harris Carr Cross Florida Greenway State Recreation and Conservation Area (714)	Alachua	Gopherus polyphemus	Gopher Tortoise	С	ST
	Alachua	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Alachua	Pandion haliaetus	Osprey	N	SSC*
	Alachua	Lithobates capito	Gopher Frog	N	SSC
	Alachua	Eudocimus albus	White Ibis	N	SSC
	Citrus	Falco sparverius paulus	Southeastern American Kestrel	N	ST
	Citrus	Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC
	Citrus	Gopherus polyphemus	Gopher Tortoise	С	ST
	Levy	Aphelocoma coerulescens	Florida Scrub-Jay	LT	FT
	Levy	Egretta caerulea	Little Blue Heron	N	SSC
	Levy	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Marion	Gopherus polyphemus	Gopher Tortoise	С	ST
	Marion	Gopherus polyphemus	Gopher Tortoise	С	ST
	Marion	Lampropeltis extenuata	Short-tailed Snake	N	ST
	Marion	Sciurus niger shermani	Sherman's Fox Squirrel	N	SSC
	Marion	Pseudemys concinna nniensis	nnee Cooter	N	SSC
	Marion	Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC
	Marion	Aphelocoma coerulescens	Florida Scrub-Jay	LT	FT
	Marion	Ambystoma cingulatum	Frosted Flatwoods Salamander	LT	FT
	Marion	Lithobates capito	Gopher Frog	N	SSC

	Marion	Drymarchon couperi	Eastern Indigo Snake	LT	FT
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NATC Gulf Hammock Conservation Easement (563)	Marion	Aphelocoma coerulescens	Florida Scrub-Jay	LT	FT
	Citrus	Gopherus polyphemus	Gopher Tortoise	С	ST

Newnans Lake Conservation Area (1444)	Citrus	Aphelocoma coerulescens	Florida Scrub-Jay	LT	FT
	Citrus	Podomys floridanus	Florida Mouse	N	SSC
	Levy	Gopherus polyphemus	Gopher Tortoise	С	ST
	Levy	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Marion	Picoides borealis	Red-cockaded Woodpecker	LE	FE
	Marion	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Marion	Lampropeltis extenuata	Short-tailed Snake	N	ST
	Marion	Gopherus polyphemus	Gopher Tortoise	С	ST
	Alachua	Lithobates capito	Gopher Frog	N	SSC

O'leno State Park (214)	Alachua	Picoides borealis	Red-cockaded Woodpecker	LE	FE
	Alachua	Lampropeltis extenuata	Short-tailed Snake	Ν	ST
	Alachua	Ambystoma cingulatum	Frosted Flatwoods Salamander	LT	FT
	Alachua	Pandion haliaetus	Osprey	Ν	SSC*

Paynes Prairie Preserve State Park (709)	Alachua	Lampropeltis extenuata	Short-tailed Snake	N	ST
	Alachua	Ambystoma cingulatum	Frosted Flatwoods Salamander	LT	FT
	Alachua	Eudocimus albus	White Ibis	N	SSC
	Alachua	Falco sparverius paulus	Southeastern American Kestrel	N	ST
	Alachua	Pseudemys concinna nniensis	nnee Cooter	N	SSC
	Alachua	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Alachua	Gopherus polyphemus	Gopher Tortoise	С	ST
	Alachua	Pandion haliaetus	Osprey	N	SSC*
	Alachua	Mycteria americana	Wood Stork	LT	FT
	Alachua	Egretta caerulea	Little Blue Heron	N	SSC
	Alachua	Egretta thula	Snowy Egret	N	SSC
	Alachua	Grus canadensis pratensis	Florida Sandhill Crane	N	ST
	Alachua	Egretta tricolor	Tricolored Heron	N	SSC
	Alachua	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Alachua	Mycteria americana	Wood Stork	LT	FT
	Alachua	Gopherus polyphemus	Gopher Tortoise	С	ST

Potts Preserve (585)	Alachua	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Alachua	Eudocimus albus	White Ibis	Ν	SSC

River Rise Preserve State Park (883)	Alachua	Pandion haliaetus	Osprey	Ν	SSC*
	Alachua	Egretta caerulea	Little Blue Heron	Ν	SSC

Alachua	Falco sparverius paulus	Southeastern American Kestrel	Ν	ST
Alachua	Lampropeltis extenuata	Short-tailed Snake	Ν	ST
Alachua	Mycteria americana	Wood Stork	LT	FT

Ross Prairie State Forest (1193)	Alachua	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Alachua	Eudocimus albus	White Ibis	N	SSC
	Alachua	Pandion haliaetus	Osprey	N	SSC*
	Alachua	Gopherus polyphemus	Gopher Tortoise	С	ST
	Alachua	Falco sparverius paulus	Southeastern American Kestrel	N	ST
	Alachua	Lampropeltis extenuata	Short-tailed Snake	N	ST
	Alachua	Mycteria americana	Wood Stork	LT	FT

San Felasco Hammock Preserve State Park (1461)	Alachua	Drymarchon couperi	Eastern Indigo Snake	LT	FT
·	Alachua	Eudocimus albus	White Ibis	N	SSC
	Alachua	Pandion haliaetus	Osprey	N	SSC*
	Alachua	Falco sparverius paulus	Southeastern American Kestrel	N	ST
	Alachua	Lampropeltis extenuata	Short-tailed Snake	N	ST
	Alachua	Egretta tricolor	Tricolored Heron	N	SSC
	Alachua	Mycteria americana	Wood Stork	LT	FT
	Alachua	Pseudemys concinna nniensis	nnee Cooter	N	SSC
	Alachua	Gopherus polyphemus	Gopher Tortoise	С	ST
	Alachua	Egretta caerulea	Little Blue Heron	N	SSC
	Alachua	Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC
	Alachua	Lithobates capito	Gopher Frog	N	SSC
	Alachua	Sciurus niger shermani	Sherman's Fox Squirrel	N	SSC
	Alachua	Podomys floridanus	Florida Mouse	N	SSC
	Alachua	Egretta thula	Snowy Egret	N	SSC
	Alachua	Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC
	Citrus	Pseudemys concinna nniensis	nnee Cooter	N	SSC
	Citrus	Mycteria americana	Wood Stork	LT	FT
	Marion	Aphelocoma coerulescens	Florida Scrub-Jay	LT	FT
	Marion	Lithobates capito	Gopher Frog	N	SSC
	Marion	Gopherus polyphemus	Gopher Tortoise	С	ST
	Marion	Podomys floridanus	Florida Mouse	N	SSC
	Marion	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Marion	Aphelocoma coerulescens	Florida Scrub-Jay	LT	FT
	Alachua	Lampropeltis extenuata	Short-tailed Snake	N	ST

Silver Springs State Park (138)	Alachua	Egretta caerulea	Little Blue Heron	Ν	SSC
	Alachua	Lithobates capito	Gopher Frog	Ν	SSC
	Alachua	Lampropeltis extenuata	Short-tailed Snake	Ν	ST

Alachua	Gopherus polyphemus	Gopher Tortoise	С	ST
Alachua	Podomys floridanus	Florida Mouse	Ν	SSC
Alachua	Falco sparverius paulus	Southeastern American Kestrel	N	ST
Alachua	Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC
Alachua	Drymarchon couperi	Eastern Indigo Snake	LT	FT

Subtropical Agricultural Research Station (1087)	Alachua	Lampropeltis extenuata	Short-tailed Snake	N	ST
	Alachua	Gopherus polyphemus	Gopher Tortoise	С	ST
	Alachua	Podomys floridanus	Florida Mouse	N	SSC

Timber Company Conservation Easement (991)	Alachua	Lithobates capito	Gopher Frog	N	SSC
	Alachua	Lampropeltis extenuata	Short-tailed Snake	Ν	ST
	Marion	Sciurus niger shermani	Sherman's Fox Squirrel	Ν	SSC
	Marion	Lithobates capito	Gopher Frog	Ν	SSC

Upper Waccasassa Conservation Area (347)	Marion	Aramus guarauna	Limpkin	N	SSC
	Marion	Lampropeltis extenuata	Short-tailed Snake	N	ST
	Marion	Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC

Weekiwachee Preserve (668)	Marion	Lampropeltis extenuata	Short-tailed Snake	Ν	ST
	Marion	Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC
	Alachua	Sciurus niger shermani	Sherman's Fox Squirrel	Ν	SSC

Withlacoochee State Forest (1150)	Alachua	Lampropeltis extenuata	Short-tailed Snake	N	ST
	Alachua	Ambystoma cingulatum	Frosted Flatwoods Salamander	LT	FT
	Alachua	Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC
	Citrus	Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC
	Citrus	Sciurus niger shermani	Sherman's Fox Squirrel	N	SSC
	Citrus	Drymarchon couperi	Eastern Indigo Snake	LT	FT
	Citrus	Athene cunicularia floridana	Florida Burrowing Owl	N	SSC
	Citrus	Lampropeltis extenuata	Short-tailed Snake	N	ST
	Citrus	Gopherus polyphemus	Gopher Tortoise	С	ST
	Citrus	Picoides borealis	Red-cockaded Woodpecker	LE	FE
	Citrus	Falco sparverius paulus	Southeastern American Kestrel	N	ST
	Citrus	Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC
	Citrus	Podomys floridanus	Florida Mouse	N	SSC
	Citrus, Hernando	Lithobates capito	Gopher Frog	N	SSC
	Citrus, Hernando	Gopherus polyphemus	Gopher Tortoise	С	ST
	Hernando	Drymarchon couperi	Eastern Indigo Snake	LT	FT

Hernando	Drymarchon couperi	Eastern Indigo Snake	LT	FT
Hernando	Gopherus polyphemus	Gopher Tortoise	С	ST
Hernando	Picoides borealis	Red-cockaded Woodpecker	LE	FE
Hernando	Aphelocoma coerulescens	Florida Scrub-Jay	LT	FT
Hernando	Egretta thula	Snowy Egret	N	SSC
Hernando	Egretta tricolor	Tricolored Heron	N	SSC
Hernando	Egretta caerulea	Little Blue Heron	N	SSC
Hernando	Falco sparverius paulus	Southeastern American Kestrel	N	ST
Hernando	Sciurus niger shermani	Sherman's Fox Squirrel	N	SSC
Hernando	Mycteria americana	Wood Stork	LT	FT
Hernando	Podomys floridanus	Florida Mouse	N	SSC
Levy	Athene cunicularia floridana	Florida Burrowing Owl	N	SSC
Marion	Drymarchon couperi	Eastern Indigo Snake	LT	FT
Marion	Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC
Marion	Sciurus niger shermani	Sherman's Fox Squirrel	N	SSC
Marion	Eudocimus albus	White Ibis	N	SSC
Marion	Egretta thula	Snowy Egret	N	SSC
Marion	Egretta caerulea	Little Blue Heron	N	SSC
Marion	Lampropeltis extenuata	Short-tailed Snake	N	ST
Sumter	Aramus guarauna	Limpkin	N	SSC
Sumter	Aramus guarauna	Limpkin	N	SSC
Sumter	Pandion haliaetus	Osprey	N	SSC*
	Gopherus polyphemus	Gopher Tortoise	С	ST

## Appendix 3 – Forest Optimal Management Areas



Withlacoochee State Forest

## Appendix 4 - Regionally Significant Ground Water Resources



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