Lochloosa Wildlife Conservation Area
Land Management Plan

Alachua County, Florida

St. Johns River Water Management District
Governing Board Approved

May 2016

Lochloosa Wildlife Conservation Area

Land Management Plan Summary

Management Area Size: 10,737 acres

Date of Acquisition: Acquisition of parcels within the Lochloosa Wildlife Conservation Area (Lochloosa WCA) began in 1994.

Date of Plan: May 2016
Previous Plan: March 2007
Major Basin: Ocklawaha River Basin **Planning Basin:** Orange Creek

Location: Lochloosa WCA is located in Alachua County, southeast of the City of Gainesville. The property is located immediately west of US 301 and east of CR 325, east of the Town of Cross Creek.

Funding Sources: Preservation 2000 and a donation from the Fellburn Foundation.

Management Partners: The St. Johns River Water Management District (District) serves as the lead manager for the property. The Florida Fish and Wildlife Conservation Commission administer public hunting opportunities on this property.

Vision Statement: The primary management focus of Lochloosa Wildlife Conservation Area is the continued protection of the water resources of the Lake Lochloosa/Orange Creek planning unit and the greater Ocklawaha River Basin. Management activities within Lochloosa WCA are largely focused on restoring and maintaining natural communities while providing for compatible public use. Quality recreational opportunities will continue to be maintained and improved upon in a manner consistent with the ecological needs of the property.

Key Land Use/Recreation Issues:
Resource Management Issues:

- WATER RESOURCES – Significant water resource protection was accomplished through acquisition. Alterations to water resources include ditches, culverts, low water crossings, bridges, roads, firelines, and a recreational trail. FIRE MANAGEMENT – Implementation of prescribed burns occurs in accordance with annual burn plans and individual unit prescriptions to meet ecological objectives within the property.
- FOREST MANAGEMENT – Prior to public acquisition, the majority of the upland acres within the property were managed for silviculture. As such, many of the upland areas exhibit closed pine canopies. While tailored to meet silvicultural management goals, the primary objectives of harvesting on Lochloosa WCA are restorative in nature and are to improve species diversity and the overall natural community health and vigor. Forest management activities anticipated during the scope of this plan include forest inventory, pine thinning operations, and conversion to site-appropriate species where necessary.
- WILDLIFE - Lochloosa WCA provides habitat for numerous floral and faunal species.

- EXOTICS – Invasive exotic pest plant and animal species occur on the property at low to moderate levels of infestation. The District regularly monitors for the presence of invasive plants and animals and responds with appropriate control actions.
- CULTURAL & ARCHEOLOGICAL RESOURCES – A review of the Department of State, Division of Historical Resources indicates there are fifteen Florida master site locations within the boundaries of Lochloosa WCA.

Land Use Management Issues:

- ACCESS – One permanent public parking area with a trailhead and one permanent public parking area with a fishing dock are located on Lochloosa WCA. Some roads are open to motorized vehicles year round.
- RECREATION USE – The property is open to the public for hiking, bicycling, equestrian activities, fishing and hunting.
- SECURITY – Maintenance of fence lines, parking areas, gates, and locks is conducted as needed. The District maintains contact with Florida Fish and Wildlife Conservation Commission (FWC), local law enforcement, and a private security firm for any potential security needs. A security resident lives onsite and assists in providing security for the property.

Administration:

- ACQUISITION – The District may pursue acquisition of small parcels, surpluses, donations, or exchanges with neighbors to improve and provide additional access to Lochloosa WCA. Through the District's land assessment process, approximately 136 acres have been recommended for exchange or surplus, subject to a conservation easement.
- LEASES, EASEMENTS, SPECIAL USE AUTHORIZATIONS - The District administers numerous leases, agreements, easements, special use authorizations (SUAs) and concessions.

VISION STATEMENT

The primary management focus of Lochloosa Wildlife Conservation Area is the continued protection of the water resources of the Lake Lochloosa/Orange Creek planning unit and the greater Ocklawaha River Basin. Land Management activities are largely focused on restoring and maintaining natural communities while allowing compatible public use. Quality recreational opportunities will continue to be maintained and improved upon in a manner consistent with the ecological needs of the property.

LOCHLOOSA WILDLIFE CONSERVATION AREA OVERVIEW

This document provides the guidelines and goals for implementation of land management activities at Lochloosa Wildlife Conservation Area (Lochloosa WCA) through 2025. This is a revision of the March 2007 Governing Board approved land management plan.

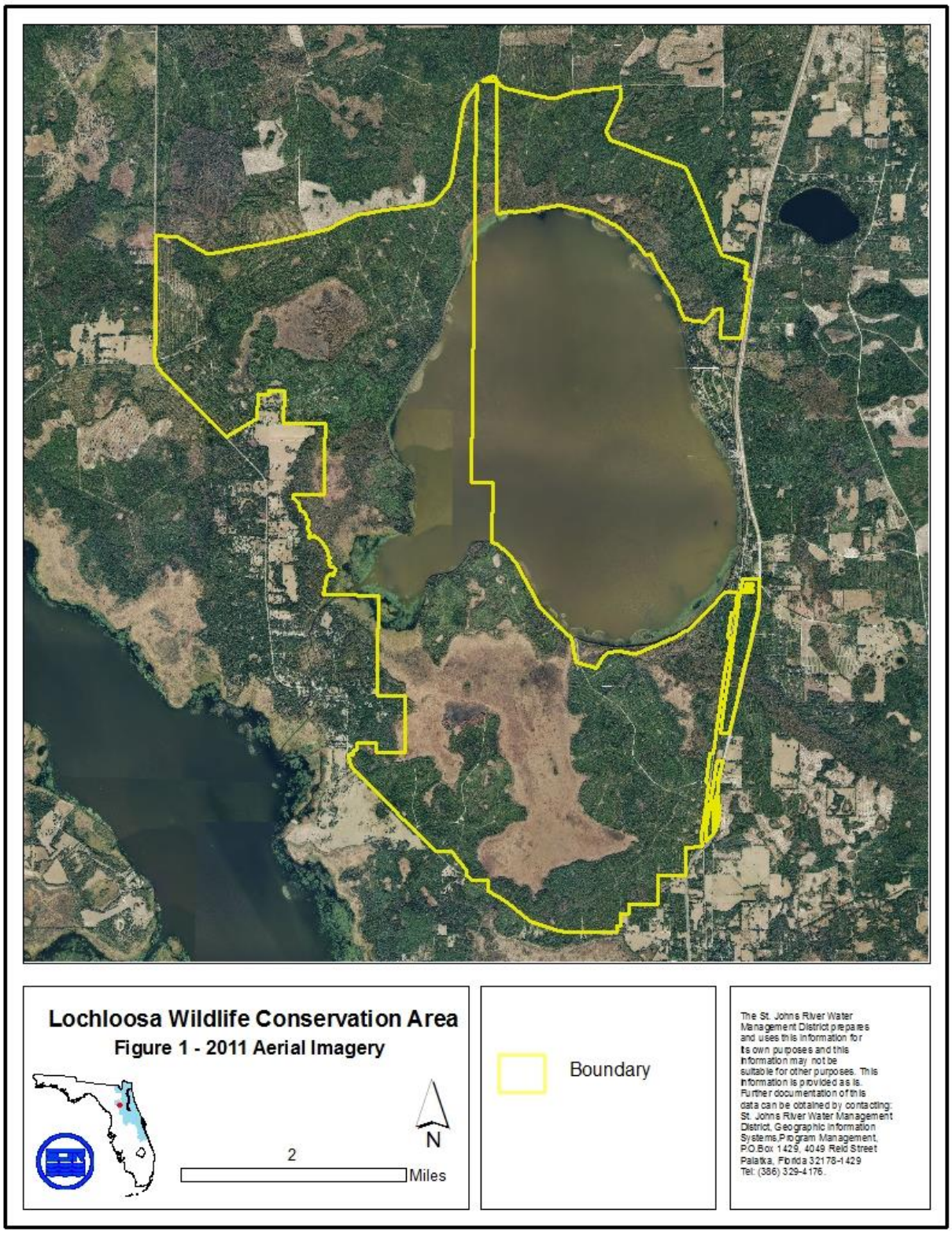
The area that is now the Lochloosa Wildlife Conservation Area has a long land use history that began with use of Paleo-Indian nomadic hunters approximately 11,000 years ago. Spanish explorers built missions in the area in the 1600s when the Timucuan Native Americans inhabited the area. The rise of the citrus industry in the 1800s grew the population. In 1928, Marjorie Kinnan Rawlings moved to the area and described it in her famous writing, Cross Creek published in 1942. Analysis of historical aerial photography combined with forest inventory data indicates that by the 1940s, much of the area's pine was harvested and planted in fast growing slash pine as the region's timber industry flourished.

Location

Lochloosa WCA includes 10,737 acres in Alachua County within the Orange Creek drainage basin, a sub-basin of the Ocklawaha River Basin. Lochloosa WCA is located in numerous sections of Township 10, 11, and 12 South and Ranges 21 and 22 East. Figure 1 provides an aerial view of the property. The property is located on the north, west, and southern boundaries of Lochloosa Lake (Figure 2). The property is 3 miles south of Hawthorne, 20 miles southeast of the City of Gainesville and to the northeast of the historic town of Cross Creek. Lochloosa WCA is bounded by Fish Camp Road to the north, US 301 to the east, and CR 325 to the south and west.

Regional Significance

Lochloosa Wildlife Conservation Area encompasses 10,737 acres in Alachua County and bounds Lochloosa Lake on three sides. Other nearby public lands include Paynes Prairie Preserve State Park, Marjorie Kinnan Rawlings Historic State Park, Longleaf Flatwoods Reserve, Orange Creek Restoration Area, Newnans Lake Conservation Area, Austin Cary Memorial Forest, Price's Scrub, and Balu Forest. Together, these lands make up an extensive corridor of conservation lands, providing for water quality and storage, wildlife habitat, and numerous recreational opportunities. The District alone has an interest in nearly 40,000 acres in Alachua County, while other public lands total approximately 30,000 additional acres.


Lochloosa Wildlife Conservation Area
Figure 1 - 2011 Aerial Imagery
N
2
Miles
Boundary
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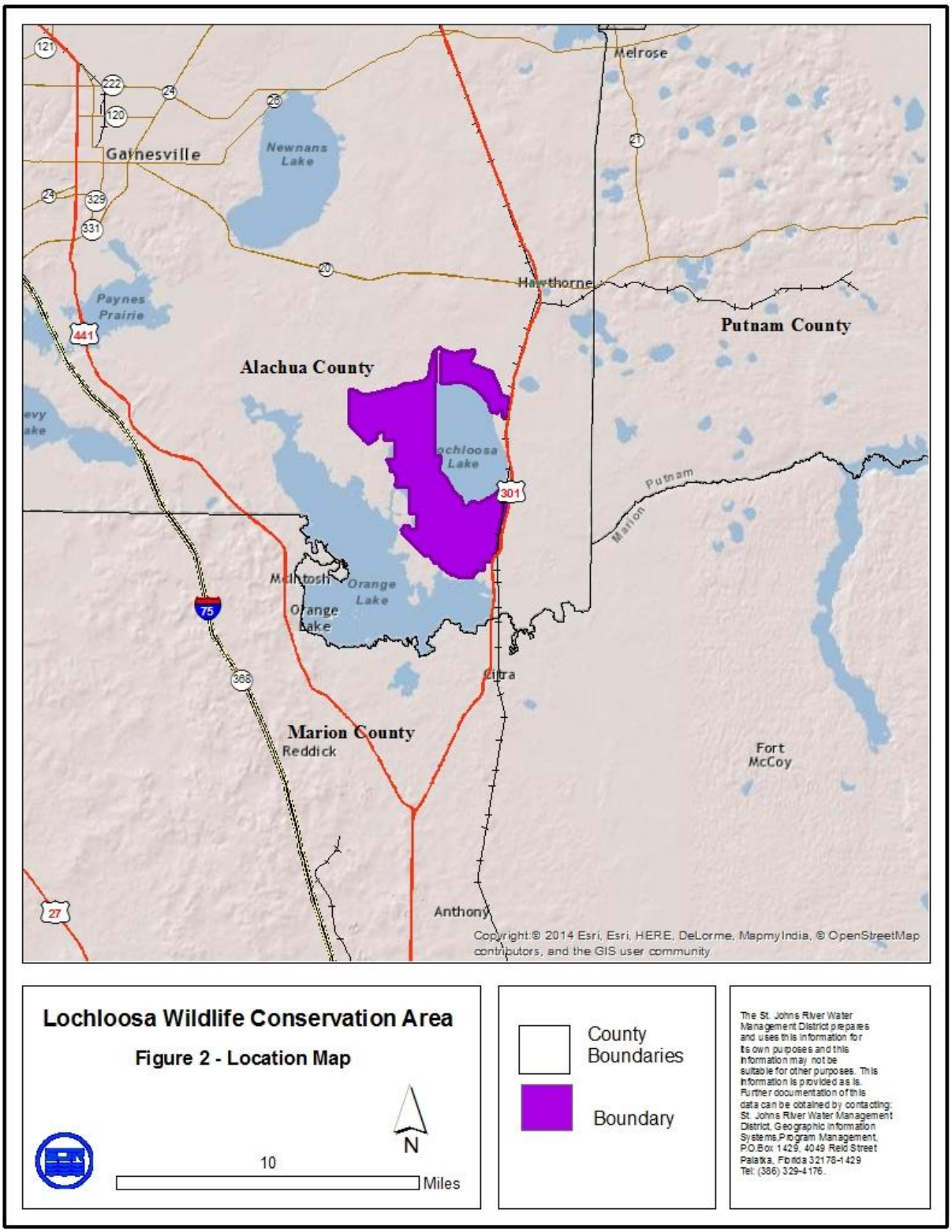
Melrose
Gainesville
Newnans Lake
Hawthorne
Paynes Prairie
Putnam County
Alachua County
Lochloosa Lake
Putnam
Marion
Orange Lake
Orange Lake
Citra
Marion County
Reddick
Fort McCoy
Anthony
Copyright:© 2014 Esri, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community
Lochloosa Wildlife Conservation Area
Figure 2 - Location Map
N
10
Miles
County Boundaries
Boundary
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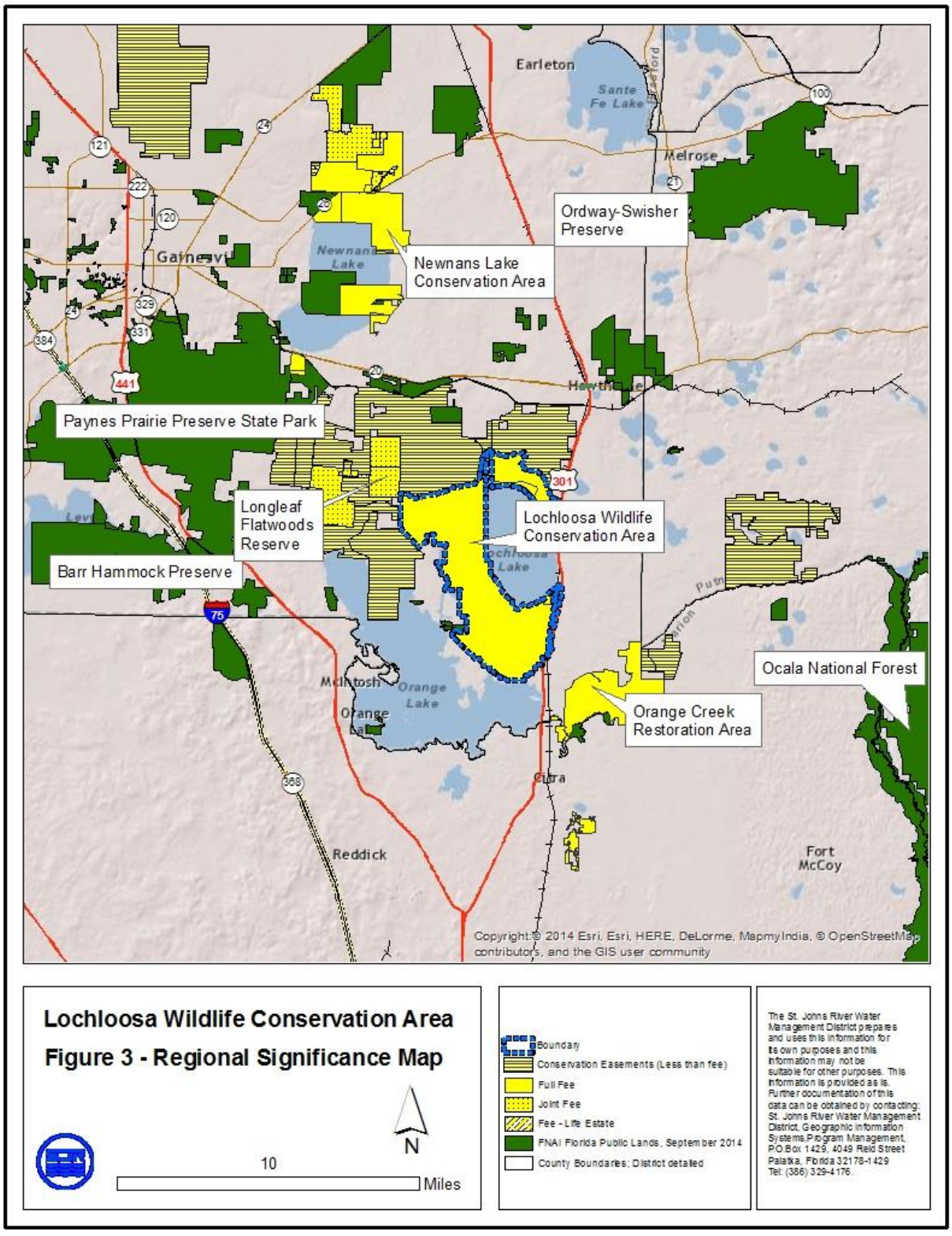
Earleton
Sante Fe Lake
Melrose
Ordway-Swisher Preserve
Newnans Lake Conservation Area
Gainesville
Newnans Lake
Paynes Prairie Preserve State Park
Hawthorne
Longleaf Flatwoods Reserve
Lochloosa Wildlife Conservation Area
Barr Hammock Preserve
Lochloosa Lake
Ocala National Forest
Orange Lake
Orange Creek Restoration Area
Citra
Reddick
Fort McCoy
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Lochloosa Wildlife Conservation Area
Figure 3 - Regional Significance Map
N
10
Miles
Boundary
Conservation Easements (Less than fee)
Full Fee
Joint Fee
Fee - Life Estate
FNAI Florida Public Lands, September 2014
County Boundaries; District detailed
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Acquisition History

The acquisition of the parcels that comprise the Lochloosa Wildlife Conservation Area provides for the protection of important water resources and ecological functions. This acquisition is consistent with the goals of the Ocklawaha River Basin. These goals, as they apply to Lochloosa WCA, include:

- Improve water quality, maintain natural hydrologic regimes, and increase flood protection by preserving important floodplain areas.
- Restore, maintain, and protect native natural communities and diversity.
- Provide opportunities for recreation when compatible with resource management needs and the above listed goals.

Acquisition of the Lochloosa Wildlife Conservation Area began in 1994. The conservation area is comprised of three (3) parcels, including one donation. The combined acreage of all parcels incorporated into the Lochloosa Wildlife Conservation Area totals 10,737 acres (Figure 4). Table 1 summarizes the land acquisition accomplishments of the District. All acreage reported is derived from GIS calculations.

Since the writing of the last plan, one 47-acre parcel was purchased by the Fellburn Foundation, donated to the District, and has been incorporated into the Lochloosa Wildlife Conservation Area.

Through the District land's assessment process, two areas within the property are indentified for potential surplus or alternative uses. Approximately 136 acres in the southeastern portion of the property is identified for surplus for sale/exchange, where the District is interested in the sale or exchange of this property on the open market. Disposition of this property will organized in such a way as to ensure that any future uses will not be incompatible with the conservation values of the retained portions of District property. In the northwestern portion of the property, the District has identified 2,695 acres for an alternative land uses, specifically enhanced forest management.

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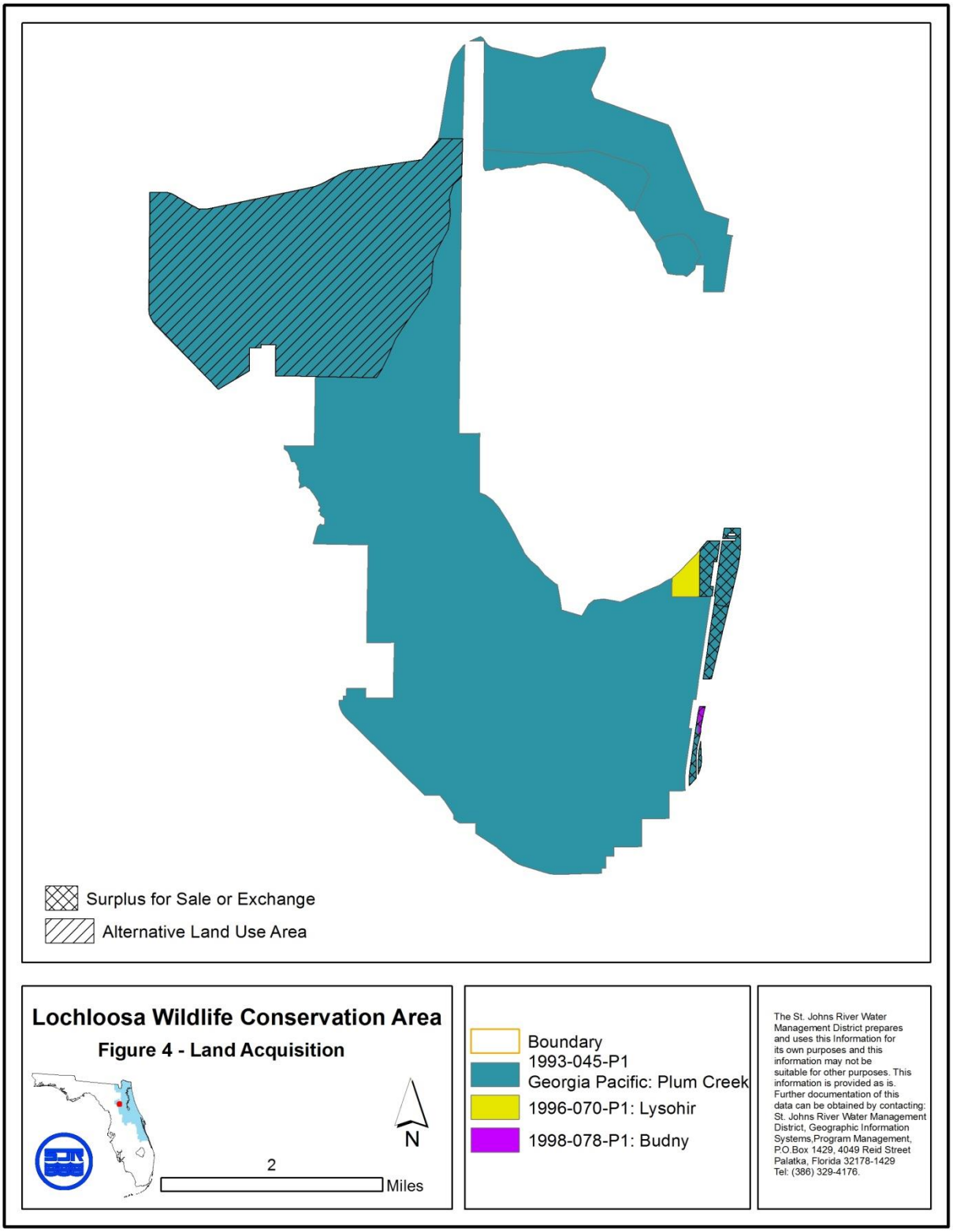
Surplus for Sale or Exchange
Alternative Land Use Area
Lochloosa Wildlife Conservation Area
Figure 4 - Land Acquisition
N
2
Miles
Boundary
1993-045-P1
Georgia Pacific: Plum Creek
1996-070-P1: Lysohir
1998-078-P1: Budny
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Table 1 – Land Acquisition Summary

Parcel	LA Number	Acres	Total Purchase Price	District Amount	District Funding Source	Transaction Date
Georgia Pacific/ Plum Creek – Lochloosa Fee Simple	1993-045-P1	10,684	$7,400,000	$7,400000	P2000	2/17/1994
Budny	1998-078-P1	6	$14,827.50	$14,827.50	P2000	5/12/2000
Lysohir, Helen Estate of	1996-070-P1	47	$0	$0	Donation from Fellburn Foundation	3/30/2015
Property Total	-----	10,737*	$7,414,827.50	$7,414,827.50	-----	-----

*GIS Calculated Acres

Local Government Land Use Designations

Alachua County
According to the Alachua County Department of Growth Management, the Zoning District for the Lochloosa Parcels is Agricultural. This district implements the rural/agriculture designation on the future land use map, and the policies of the comprehensive plan to allow rural and agricultural areas to be developed in a manner consistent with the retention of agriculture, open space, and rural character; preservation of environmentally sensitive areas; and the efficient use of public services and facilities (Alachua County, 2015). Future land use designation is Preservation (Alachua County, 2015).

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NATURAL RESOURCES OVERVIEW

Topography, Hydrology, And Water Resources

Lochloosa WCA lies within the Ocala Uplift District, a physiographic subdivision of the Eastern Flatwoods District. The Ocala Uplift District is the "Lime Sink Region" of the pioneers. The Northern Peninsular Plains are karst plains in this area generally between 90 and 100 feet in elevation, in the southern portion a secondary level has developed at about 60 feet, which is the water table. The Northern Peninsular Slopes are erosional slopes and hills developed along the western margin of the High Flatwoods. Within these areas, the land is typically well drained through surface and subsurface drainage systems. In these areas, rich sandy soils developed upon the phosphatic sand and clayey sand of Miocene and Pliocene age and originally supported hardwood forests. In areas with thicker residual sand soils occur and woodlands of longleaf pine and turkey oak are common (Brooks 1981).

Lochloosa WCA is 60 feet above sea level around Lake Lochloosa. The highest portion of the property is 80 feet above sea level in the North West corner.

Figure 5 depicts the hydrologic features within portions of the Ocklawaha River Basins and the Lochloosa Wildlife Conservation Area. Lochloosa Creek and several small tributaries feed into Lochloosa Lake from the north. Lochloosa Lake drains to the southwest into Orange Lake via Cross Creek. Orange Lake drains to the east into Orange Creek, which then flows east until its confluence with the Ocklawaha River, eventually flowing into the St. Johns River. During high-water events, Lochloosa Lake drains directly into Orange Creek through Lochloosa Slough, which is located near the lake's southeast shore.

The most prominent natural hydrologic feature of the property is the approximately 6,000-acre Lochloosa Lake. The Lochloosa WCA incorporates approximately 6 miles of Lochloosa Lake's shoreline. Lochloosa Lake (including Little Lochloosa Lake, Lochloosa Lake Right Arm, and Lochloosa Creek) is designated a "Special Water," per Florida State Statute Section 403.061, which grants Florida Department of Environmental Protection the power to establish rules that provide for a special category of water bodies within the state, to be referred to as "Outstanding Florida Waters", worthy of special protection because of their natural attributes (DEP 2015). This designation allows for a set of rules to govern the water body and designation is deemed after making a finding that the waters are of exceptional recreational or ecological significance and finding that environmental, social, and economic benefits of the designation outweigh the environmental, social, and economic costs (DEP 2015).

Two water bodies within the Lochloosa Lake watershed are on the FDEP 2014 verified list of impaired waters. Lochloosa Lake is impaired as a result of high nutrient (TN, TP) concentrations and Lochloosa Slough is impaired as a result of the violation of dissolved oxygen criteria. In May 2015, FDEP drafted a total maximum daily load (TMDL) for Lochloosa Lake, which is currently under review by the U.S. EPA. Within this TMDL, proposed targets are 0.052 mg/L and 1.270 mg/L for TP and TN respectively. Additionally, the Orange Creek Basin Management Plan (BMAP) Phase 2 was adopted in July 2014. This BMAP focuses on action plans and projects designed to reduce nutrient loading to water bodies with adopted TMDLs within the Orange Creek Basin. Since the Lochloosa Lake TMDL is not finalized, there is little

information about Lochloosa Lake in the BMAP. It is expected that FDEP will provide an addendum to the adopted BMAP to address management actions required to reduce nutrient loading to Lochloosa Lake once the TMDL is adopted.

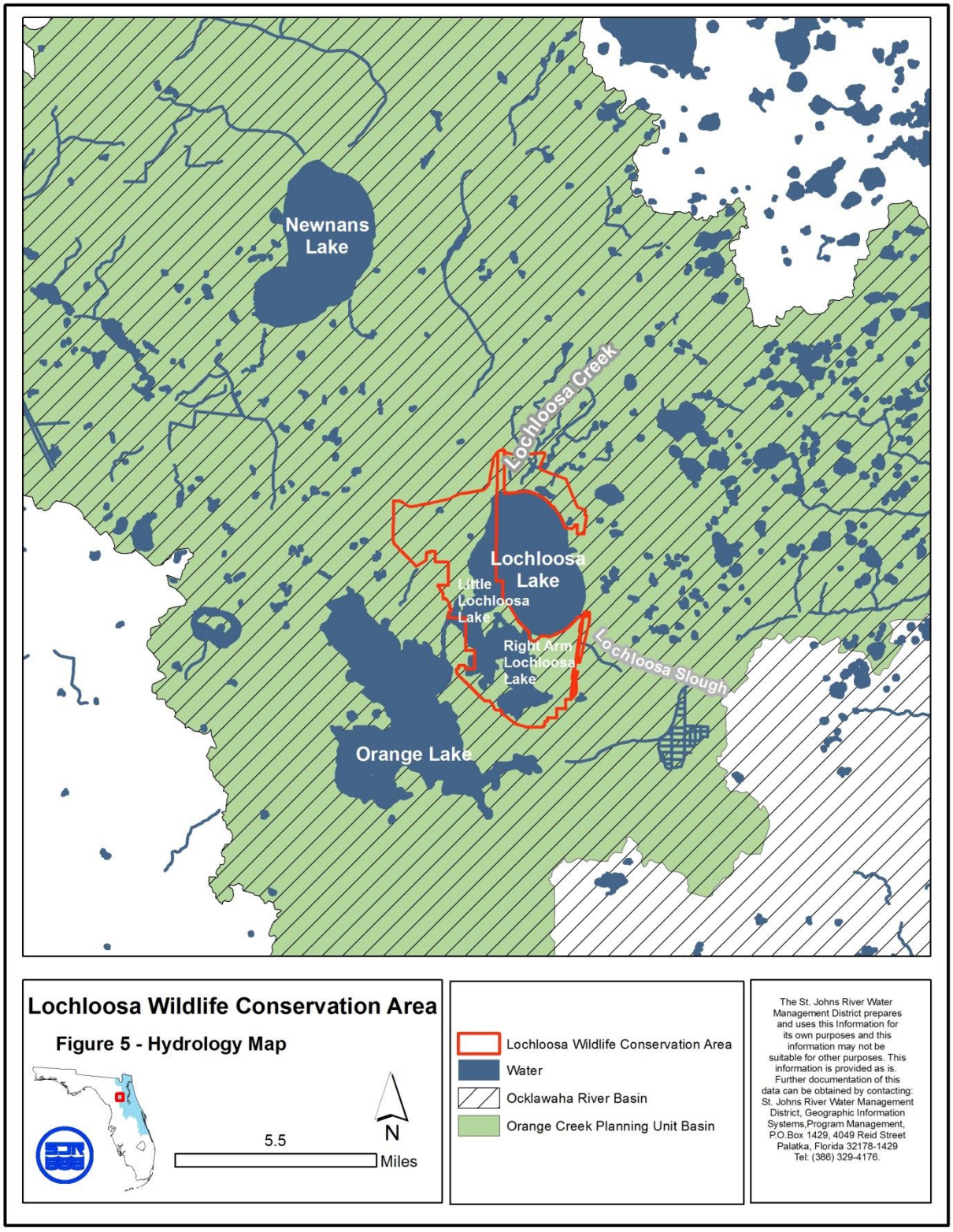
Minimum flows and levels (MFLs) are adopted to prevent harm to the water resources or ecological systems of an area as a result of permitted water withdrawals. MFLs define the frequency and duration at which high, intermediate, and low water flows and levels should occur to prevent harm to water and ecological resources. The MFLs are scheduled to be set for Lochloosa Lake in 2018.

In 1987, the Surface Water Improvement Act was created by the Florida Legislature to protect, restore, and maintain Florida's highly threatened surface water bodies. Under this act, the District has identified a list of priority water bodies for which Surface Water Improvement Plans (SWIM) are adopted. These plans provide provisions for the improvement and management of degraded surface waters, typically in coordination with state agencies, local governments, and other stakeholders. The most recent SWIM plan for the Orange Creek Basin, adopted in 2011, addresses a range of surface water management issues including altered hydrology, low lake levels, aquatic species management, water quality, lake sediments, and wildlife management (Lippincott 2011).

Currently, the St. Johns River Water Management District has designated the entire District a Water Resource Caution Area (Chapter 62-40, F.A.C). In making this designation, it has been determined that all parts of the District have been subject to declarations of water shortages recently.

Soil

The soils within the Lochloosa Wildlife Conservation Area include hydric, partially hydric and non hydric conditions, as well as areas of open water. Hydric soils are soils that formed under saturated conditions during the growing season and for a duration sufficient enough to develop anaerobic conditions in the upper parts of the soil (NRCS 2013). Within the property, hydric soils account for 30% of the land area. Partially hydric soils, which include some characteristics of hydric soils, account for approximately 21% of the property (Figure 6). According to data produced by the United States Department of Agriculture Natural Resource Conservation Service (NRCS), 33 unique soil series types are present within the property.


Newnans Lake
Lochloosa Creek
Lochloosa Lake
Little Lochloosa Lake
Right Arm Lochloosa Lake
Lochloosa Slough
Orange Lake
Lochloosa Wildlife Conservation Area
Figure 5 - Hydrology Map
5.5
Miles
N
Lochloosa Wildlife Conservation Area
Water
Ocklawaha River Basin
Orange Creek Planning Unit Basin
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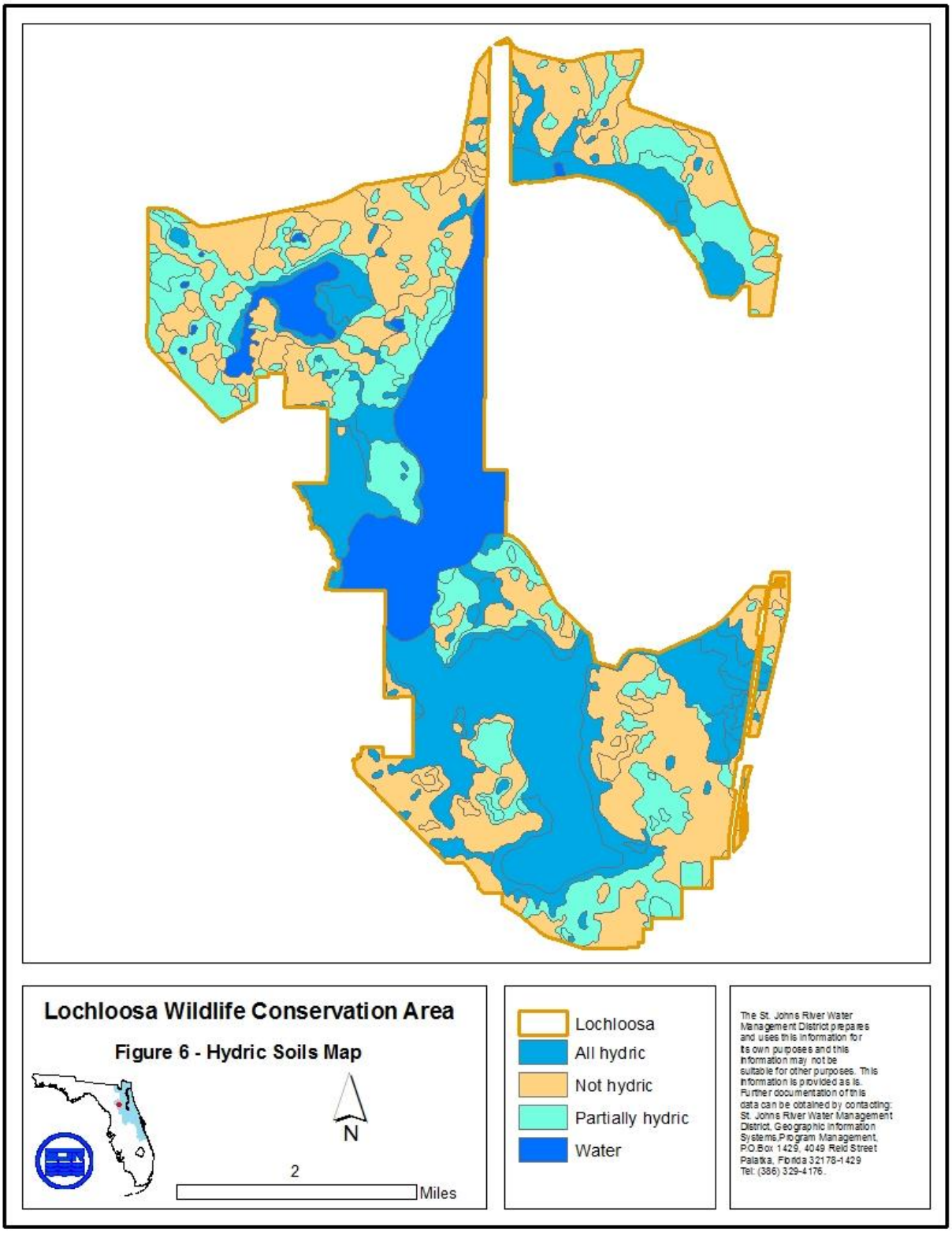
Lochloosa Wildlife Conservation Area
Figure 6 - Hydric Soils Map
N
2
Miles
Lochloosa
All hydric
Not hydric
Partially hydric
Water
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Addendum 1 includes a detailed map of the various soil series present within Lochloosa WCA and includes associated series descriptions.

Natural Communities

Past land use activities have resulted in alterations to the natural communities within the Lochloosa Wildlife Conservation Area; however, the District is working to improve natural community conditions and ecological functions on the property.

The Lochloosa Wildlife Conservation Area consists primarily of mesic flatwoods and includes a diverse array of other natural communities (Figure 7). Table 2 details the percent coverage associated with each natural community documented within the property. Information relative to the natural communities within the Lochloosa Wildlife Conservation Area is derived from soils, historical accounts, and presence of indicator species. Additionally, the general natural community descriptions are characterized using descriptions published in the Florida Natural Areas Inventory's (FNAI) *Guide to the Natural Communities of Florida.* Natural community and species ranking definitions are listed in Addendum 2.

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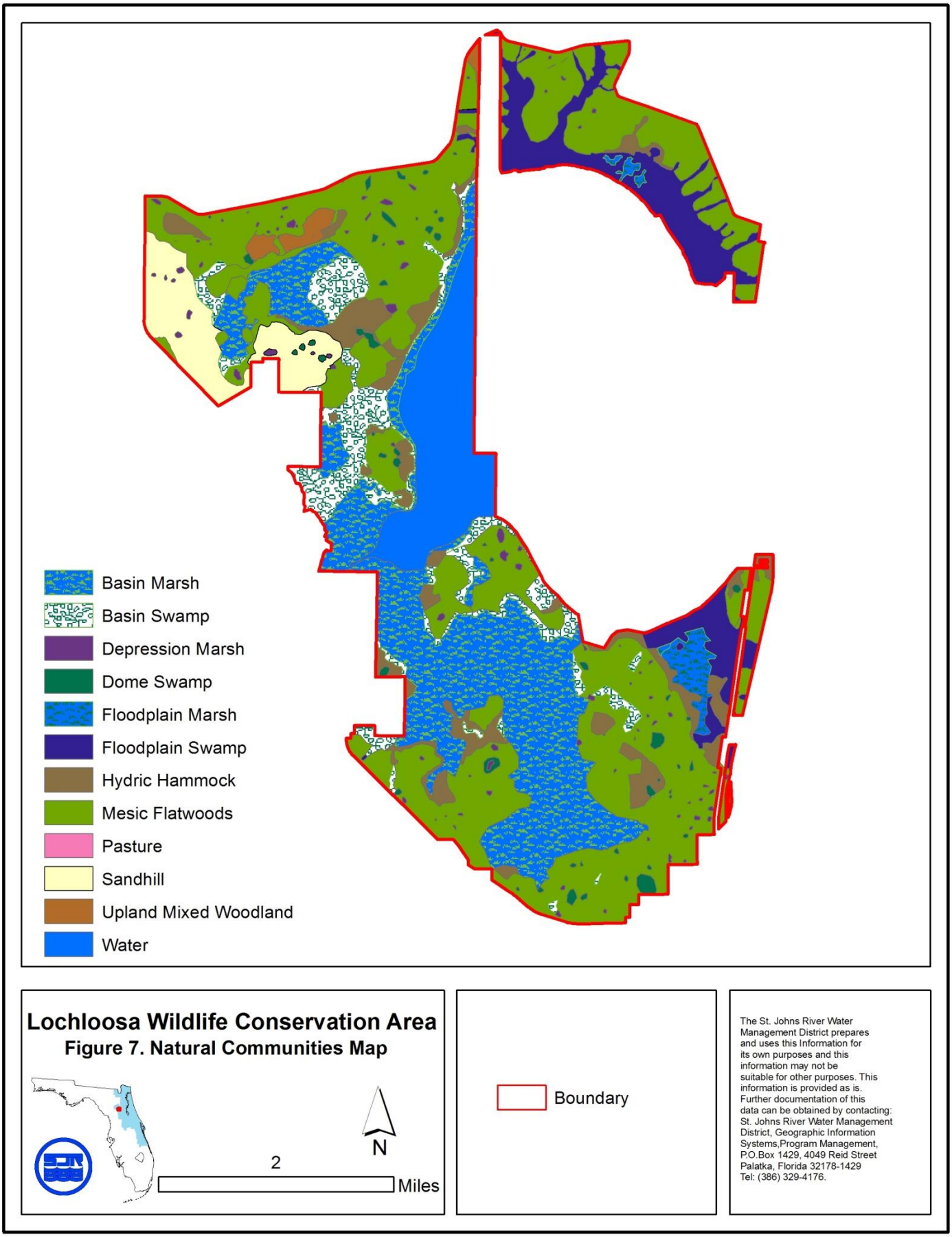
Basin Marsh
Basin Swamp
Depression Marsh
Dome Swamp
Floodplain Marsh
Floodplain Swamp
Hydric Hammock
Mesic Flatwoods
Pasture
Sandhill
Upland Mixed Woodland
Water
Lochloosa Wildlife Conservation Area
Figure 7. Natural Communities Map
N
2
Miles
Boundary
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Table 2 – Natural Community Coverages

Natural Community Type	Acreage*	Percent Coverage	FNAI Ranking	FNAI Fire Return Interval*
Mesic Flatwoods	4,295	40%	G4/S4	2-4 years
Basin Marsh	2,271	21%	G4/S3	1-3 years
Hydric Hammock	702	6%	G4/S4	Rare; depending on size and adjacent community types
Floodplain Swamp	851	8%	G4/S4	This is not a fire adapted community
Sandhill	545	5%	G3/S1	1-3 years
Dome Swamp	111	<1%	G4/S4	3-5 years along the outer edges (or as adjacent communities burn); 100-150 years interior
Basin Swamp	759	7%	G4/S3	Occasional or rare fire
Depression Marsh	84	<1%	G4/S4	This community burns in conjunction with adjacent pyric plant communities
Floodplain Marsh	148	1%	G3/S3	1-3years
Upland Mixed Woodland	90	<1%	G2/S2	2 – 10 years
Subtotal	9,856	-----	-----	-----
Altered Land Types	-----	Percent Coverage	-----	Fire Return Interval
Pasture	2	<1%	-----	1-3 years or in conjunction with adjacent pyric plant communities
Water	879	8%	-----	-----
Subtotal	881	-----	-----	-----
Total	10,737*	-----	-----	-----

*GIS Acres

Mesic Flatwoods (4,295 acres)
Soils that support mesic flatwoods communities are generally poorly drained, acidic, and sandy soils deposited on ancient, shallow seabeds. Many flatwoods communities have a clay or organic hardpan. Hardpan soils become saturated during the rainy season causing the accumulation of surface water. These soils are often droughty during dry periods. The presence of the hardpan translates to extreme seasonal fluctuations in the amount of water available to support plant life. These seasonal periods of inundation are essential in the maintenance of the flatwoods system.

Intact mesic flatwoods typically have a layered appearance, with a distinct, high, discontinuous canopy, low shrub layer, and diverse herbaceous layer. The canopy densities are variable and may include (depending on location) longleaf pine (*Pinus palustris*), slash pine (P. *elliottii*), loblolly pine (*P. taeda*), or pond pine (*P. serotina*). The shrub layer may include a mixture of species or be dominated by species such as saw palmetto (*Serenoa repens*), wax myrtle (*Myrica cerifera*), and numerous Ericaceous plants. The herbaceous coverage may be dominated by wiregrass, however species abundance and diversity is often dictated by the openness of both shrub and canopy layers.

The mesic flatwoods communities within Lochloosa WCA exhibit evidence of disturbance from previous commercial silvicultural activities. The most significant alterations from previous management activities included mechanical site preparations for silviculture and exclusion of fire. This combination of historical management activities has resulted in a dense canopy of pine and heavily overgrown shrub layers. Groundcover across the property is generally absent due to mechanical site preparations such as scraping for. Pine species present within the mesic flatwoods is primarily slash and with limited areas of longleaf.

Fire is an important physical factor associated with the shaping and maintenance of this community type. The District targets natural fire frequency intervals of approximately every two to four years within the mesic flatwoods, which is consistent with the FNAI 2010 descriptions. Fires in well-maintained mesic flatwoods tend to burn quickly and at relatively low temperatures. Areas of prolonged fire exclusion, altered hydrology, or hardwood encroachment typically have higher soil and fuel moistures and may require more extreme conditions to facilitate a fire.

Basin Marsh (84 acres)
Basin marshes are herbaceous or shrubby freshwater wetlands in large irregularly shaped basins. These marshes typically develop in large solution depressions that were formerly shallow lakes and may be located within non-pyrogenic plant communities. Plant species compositions can be divided into submersed, floating-leaved, emergent, and grassy zones.

Seasonal inundation and longer-term fluctuations in water levels are essential to the maintenance of this natural community as is frequent fire. The fire return interval for basin marshes is dependant on the hydrology of the marsh and the exposure to fire from surrounding communities.

The basin marshes within Lochloosa WCA are relatively intact and functional.

Floodplain Marsh (148 acres)
Floodplain marsh is a wetland community occurring in river floodplains and dominated by herbaceous vegetation and/or shrubs. Sand cordgrass (*Spartina bakeri*), sawgrass (*Cladium jamaicense*), and maidencane (*Panicum hemitomon*) arecommon dominants, but various other herbs may be found distributed along a hydrologic gradient. The characteristic herbaceous species re-sprout vigorously following burns, and there is evidence that frequent fire helps to limit shrub invasion. Frequent fires in the freshwater floodplain marshes maintain sawgrass dominance, but woody species, although widely spaced, often persist in these marshes, coppicing from roots or quickly germinating seedlings (FNAI 2010).

Hydric Hammock (702 acres)
Soils that support hydric hammock communities are generally poorly drained and may be acidic to slightly alkaline, with little organic matter. While hydric hammocks may often have limestone at or near the surface, no outcropping is known to occur within Lochloosa WCA. Hydric hammocks are well-developed hardwood and/or palm forests with a variable understory. The closed canopy may include a variety of species such as cabbage palm (*Sabal palmetto*), live oak (*Quercus virginiana*), water oak (*Q. nigra*), swamp tupelo (*Nyssa sylvatica* var. *biflora*), red cedar (*Juniperus virginiana*), and loblolly pine (*P. taeda*), all of which are present within the property. Fire is not a primary mechanism of disturbance; however, these communities do occasionally burn in conjunction with surrounding pyric plant communities.

Floodplain Swamp (851 acres)
Floodplain swamp communities typically occur on flooded soils along stream channels and within river floodplains. The floodplain swamp communities within the Lochloosa Wildlife Conservation Area are associated with the creeks flowing into Lake Lochloosa and areas bordering the lake. The floodplain swamp communities within the property are largely intact and functional.

Soils that support floodplain swamp communities are variable, but may include a mixture of sand and organic material. The most important physical factor associated with the shaping and maintenance of the floodplain swamp is the hydroperiod. Extended periods of inundation, which may last for most of the year, are common in the floodplain swamp environment. Since this community type is maintained by hydrologic regimes, it is not fire dependent; however, fires may occur during times of drought.

Sandhill (545 acres)
Sandhills are characterized as a forest of widely spaced pine trees with a sparse understory of deciduous oaks and a dense groundcover of grasses and herbs on rolling hills of sand. The most typical associations are dominated by longleaf pine, turkey oak (*Q. laevis*), and wire grass. Sandhills occur on crests and slopes of rolling hills and ridges with steep or gentle topography. Soils are deep, marine-deposited, often-yellowish sands that are well drained and largely infertile. Sandhill communities at Lochloosa WCA are degraded and are identified for restoration under the purview of this plan.

The sandhill plant community is a fire climax community. Fire is a dominant factor in the ecology of this community and frequent fires are necessary to reduce hardwood competition and

to perpetuate pines and grasses. Fire return intervals within sandhill communities range from one to three years. In addition to fire frequency, intensity and season are important fire characteristics that greatly influence the species composition and structure within sandhills. Optimally, sandhills are maintained through frequent, low-intensity, growing season fires.

Upland Mixed Woodland (90 acres)

Upland mixed woodlands are characterized as areas with open to partly closed canopies of various hardwoods including post oak (*Q. stellata*) and mockernut hickory (*Carya alba*) as well as longleaf pine. Understory shrubs and dense groundcover of grasses and herbs further define this natural community. Upland pine forests are often confused with sandhills; distinguishing factors between them are the lack or low coverage of turkey oak and wiregrass, which are prevalent in most sandhills. Upland pine forests are typically associated with loamy soils such as Lochloosa soils.

The upland mixed woodland is a pyric community, though fire return intervals are thought to be longer than that of neighboring sandhills. The fire return interval is between every 2 to 5 years, though some frequencies may be as long as 10 years. The upland pine forest communities within Lochloosa Wildlife Conservation Area are degraded from past commercial silvicultural activities and prolonged lack of fire. This area is currently dominated by a heavy coverage of slash pine with dense laurel oak in the mid story. Ground cover assemblages are highly suppressed. Alterations from past silvicultural activities and prolonged absence of fire make distinguishing these areas difficult. Natural community reclassification and refinement may occur as restoration and fire management activities progress in these areas.

Dome Swamp (111 acres)

Dome swamp communities typically occur embedded within well-maintained pyric plant communities such as flatwoods (FNAI 2010). The dome swamp communities within the Lochloosa Wildlife Conservation Area occur primarily within the mesic flatwoods.

Dome swamps are typically found on flat terraces, where they develop when the overlying sand has slumped into a depression in the limestone underlayment. Soils that support dome swamp communities are variable, but may include a layer of peat that thickens towards the center. The peat layer is typically underlain with acidic sands or marl and then limestone or a clay lens. An important physical factor associated with the shaping and maintenance of the dome swamp is the hydroperiod. Water levels in dome swamps fluctuate seasonally with rainfall changes. Normal dome swamp hydroperiods are from 180 – 270 days per year (FNAI 2010).

Typical of the dome swamp system, many of the examples of this community type within the Conservation Area include a dome shaped profile created by the presence of smaller trees growing in the shallow waters of the outer edge with the large trees growing in the deeper center. The canopy of hydrophytic trees is dominated by cypress.

Without frequent fire, cypress may become less dominant, being replaced by hardwood or bay species, and may exhibit an increase in peat accumulation. Fire frequency within these communities is greatest around the edges. The longer hydroperiods within the center of most dome swamps will restrict the advance of most fires under normal conditions. Thus, the fire

return interval for dome swamps may range from 3 to 5 years along the edges and up to 100 to 150 years in the center (FNAI 2010).

Basin Swamp (759 acres)
Basin swamp is a basin wetland vegetated with hydrophytic trees and shrubs that can withstand extended hydroperiod. (FNAI 2010). Mixed species canopies are common with dominant trees being pond cypress (*Taxodium ascendens*) and swamp tupelo (*Nyssa sylvatica* var. *biflora*). The primary source of water in basin swamps is local rainfall. A clay lens or other impervious layer often causes perched water table above that of the adjacent uplands. Fire intervals are variable and depend on such factors as dominant vegetation, fire exposure, and drought. The interior of basin swamps may go without fire for decades while the exposed outer edges can be more susceptible to frequent fire.

Basin swamps within Lochloosa WCA are intermixed with mesic flatwoods communities. They are relatively intact with buffers of pine left during harvesting operations.

Depression Marsh (82.8 acres)
Depression marsh communities often occur embedded within a matrix of well-maintained pyric plant communities (FNAI 2010). Depression marshes are typically found on flat landscapes throughout Florida. They develop when the overlying sand has slumped into a depression in the limestone underlayment. Soils are typically depressional phases of fine sands. Depression marshes are maintained against woody shrub invasion through the combined effects of seasonal water fluctuations and fire. These seasonal ponds are important habitat for numerous species of wildlife, but are particularly important for many amphibians that require breeding sites that are free of predatory fish (Moler 1987)

Water (879 acres)
This includes the western portions of Lake Lochloosa.

Altered Land Types
Pasture (2 acres)
A small area of pasture is found on the south side of the property.

Planted Pine (3,951 acres)
Planted pine is found in the areas categorized as mesic flatwoods and upland mixed hardwoods. These areas are managed through thinning and prescribed fire to move these areas of silviculture towards a more natural forest habitat.

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PAST MANAGEMENT SUMMARY

This section describes the management strategies outlined in 2007 and provides the status for each item. The summaries are consistent with the previous plan's implementation schedule.

Water Resources 2007 Plan Strategy	Status
Regularly monitor roads, bridges, and crossings for erosion problems.	Roads, bridges, crossings and culverts were GPS documented, mapped, and evaluated since the last plan was prepared. All data are found in the GIS layer. Following a wildfire in 2010, 25.76 miles of firelines along the marsh were rehabilitated. This fireline rehabilitation was accomplished as restitution for water resource violations by a private land owner.

Fire Management 2007 Plan Strategy	Status
Develop and implement annual prescribed burn plans.	Prescribed burn plans are written annually. Burn prescriptions are drafted and updated as needed.
Develop and implement comprehensive long-term prescribed fire management plan. See Appendix I	This was completed as part of the 2007 land management plan, Appendix I, as updated in this iteration of the plan.
Complete site preparation burns in appropriate areas (primarily clearcuts) prior to replanting.	Site preparation burns are conducted as needed.
Administer dormant season burns in areas with high fuel loads.	District staff conducted 14 dormant season prescribed burns totaling 1,846 acres within Lochloosa WCA since the last plan. Dormant season wildfires burned an additional 2,688 acres during that time.
Continue to conduct dormant season burns until fuel reduction goals are met.	Repeated dormant season burns are conducted as needed.
Implement growing season burns in areas that have sufficiently reduced fuels.	District staff conducted 11 growing season prescribed burns totaling 1,102 acres within Lochloosa WCA since the last plan. Growing season wildfires burned an additional 167 acres during that time.

Forest Management 2007 Plan Strategy	Status
Conduct thinning in planted slash pine stands.	Stands were thinned as follows: 2007: 688 acres, first thinning 2009: 939 acres, first thinning 2010: 131.65 acres, first thinning 2011: 83.78 acres, first thinning 2012: 252.56 acres, clearcut harvest 2013: 465 acres, fuel wood harvest

	2014: 156.35 acres, second thinning
Additional Forestry Management since 2007	Implemented 1,332 Forest Inventory Plots. Conducted reforestation: 2008 – 19 acres planted in longleaf pine. 2013 – 121 acres planted in longleaf/slash pine.
Utilize prescribed fire as a forest management tool.	Approximately 2,948 acres in 25 prescribed burns were conducted to maintain the forest quality at Lochloosa WCA.
Continue to monitor forested stands for signs of drought, disease, or insect infestations.	Forested stands are monitored through regular forest visits and aerial flights, as needed.

Exotic Species 2007 Plan Strategy	Status
Continue to monitor for invasive plant species and treat as necessary.	District staff monitor and treat for exotic and invasive vegetation as needed. Since the last plan, 809 staff hours have been expended searching for and controlling 83 acres of exotic plants. Species treated include: air potato Cogongrass, Japanese climbing fern, Chinese tallow, camphor, and torpedo grass. Staff also used herbicides to control off-site hardwood species that were invading sandhills. These treatments were done as a part of restoration efforts.

Cultural Resources 2007 Plan Strategy	Status
Document and report any new sites to the Division of Historical Resources.	Known cultural resources are provided protection. New sites are documented and reported as identified. No new sites were identified during the scope of the previous plan.

Access 2007 Plan Strategy	Status
Maintain roads, trails, and bridges within LWCA.	Roads, crossings, and trails are maintained regularly.
Improve roads for interpretive auto-drive.	Roads are maintained through grading and improving washouts as needed. The auto interpretive drive materials were completed soon after the writing of the plan in 2007 and then updated in October 2012.

Maintain necessary fencing, gates, boundary markers, and signage within the conservation area.	Gates are maintained to provide access for land management staff.
Maintain parking area near Burnt Island Park.	Parking area at Burnt Island Park at the fishing dock is maintained as needed.

Recreation 2007 Plan Strategy	Status
Continue regular maintenance on interior roads, marked multi-use trails and corresponding brochures.	Road and trail brochures are maintained as needed. Marked multi-use trails are maintained at regular intervals. Roads are maintained as needed.
Maintain parking area.	Parking areas are maintained via mowing as needed.
Maintain entrance sign and informational kiosk.	Entrance signs and kiosks are maintained quarterly or as needed.
Maintain camping areas and trail shelters.	The campsite was removed in 2010 due to dumping, and vandalism. The installation of a campsite at Longleaf Flatwoods Reserve provides an alternative campsite in the area.

Environmental Education 2007 Plan Strategy	Status
Continue partnership with University of Florida's School of Forest Resources and Conservation.	Formal agreements with University of Florida are entered into as needed.
Continue to develop additional educational opportunities to other groups and individuals.	The interpretive drive was created to help guide the public through the conservation area as an educational opportunity.

Security 2007 Plan Strategy	Status
Maintain signage, fences, and gates.	District staff maintain boundary signs, fences, and gates as needed.
Continue coordinating with local law enforcement.	District staff coordinate with local law enforcement and FWC as needed. District staff coordinate monthly or as needed with a private contract security firm to address security needs.
Establish an onsite security resident.	The security residence was improved in 2010 and a new resident put in place.

Acquisition 2007 Plan Strategy	Status

Continue to pursue those parcels that will aid in the conservation of the Ocklawaha River subbasin.	Since the writing of the last plan, a 47-acre parcel was purchased by the Fellburn Foundation and has been added to the Lochloosa Wildlife Conservation Area.

Cooperative Agreements 2007 Plan Strategy	Status
Maintain agreements to assist with the management and maintenance of the Lochloosa WCA.	There are many agreements in place at this time. They are detailed in the Agreements Section below.

Leases, Easements, SUAs 2007 Plan Strategy	Status
Continue to evaluate easements and special use authorizations at Lochloosa WCA.	The District evaluates the need for easements and issues special use authorizations as deemed appropriate.

IMPLEMENTATION

The following sections outline land management strategies for resource protection, land use, and administration on the Lochloosa Wildlife Conservation Area for the next ten years.

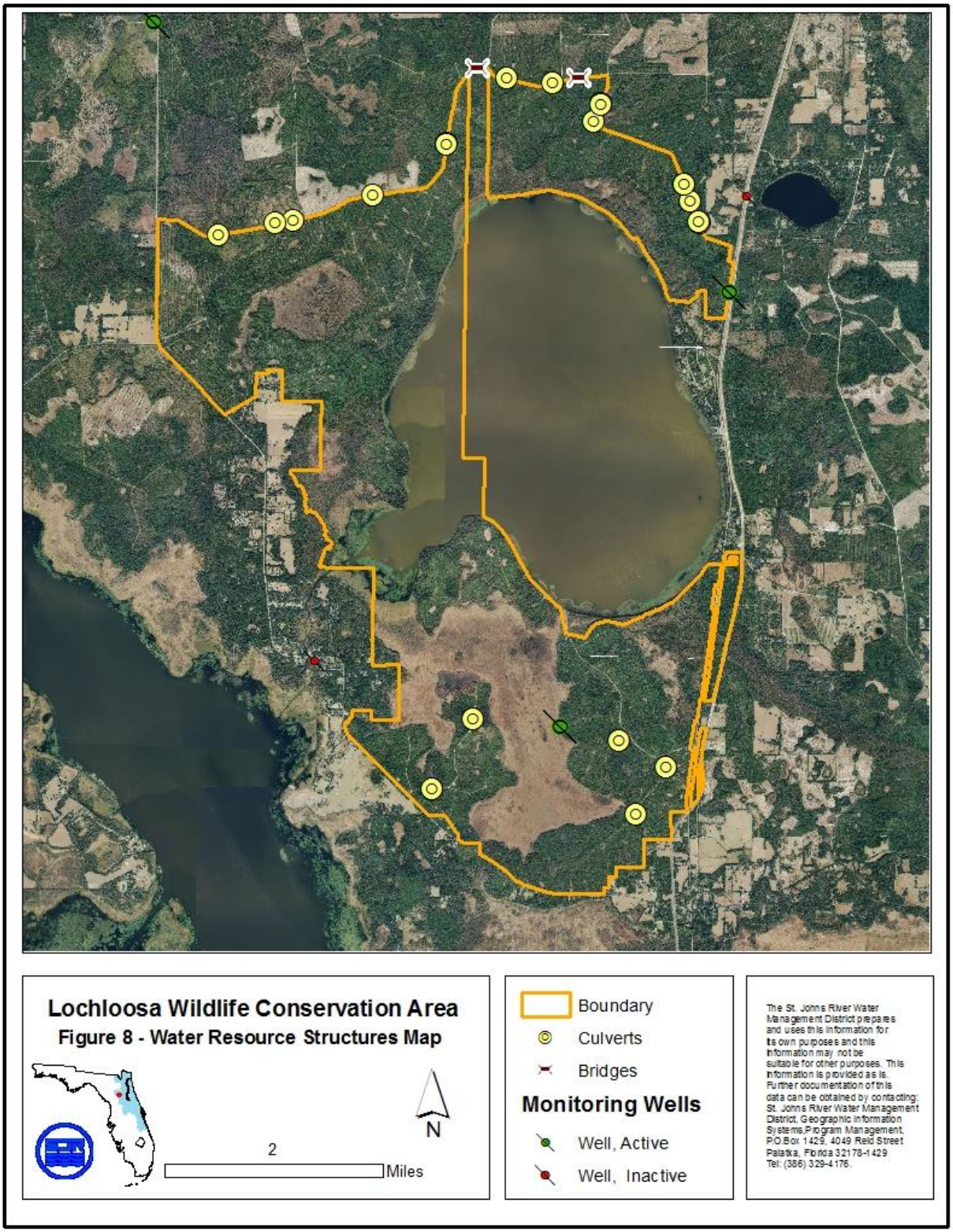
RESOURCE PROTECTION AND MANAGEMENT

Water Resource Protection and Management

While the majority of the wetlands within the Lochloosa Wildlife Management Area are functional and include site appropriate species, there are numerous alterations within these systems. These alterations include numerous ditches, windrows, culverts, bridges, low water crossings, roads, trails, and plowed firelines.

Roads and associated ditches are located within the conservation area and provide access for land management activities and recreational opportunities. The District has made improvements to, and conducted maintenance on, many of these roads and ditches helping to reduce the potential for erosion. Roads along the northern part of the property will require improvements to keep them passable. Many are serving to convey water and sediment to nearby creeks and Lake Lochloosa during rain events, and will continue doing so until road elevations are brought at least to grade level. Improvements may include filling in large holes, installing water bars and turnouts, and adding stabilization material to prevent degradation. Appropriate management of the branches and wetlands across the conservation area will enhance the water quality in Lake Lochloosa. The water resource structures within the property are detailed in Figure 8. Table 3 provides details regarding maintenance needs for those structures within the property.

The majority of the acreage within the conservation area is former commercial silviculture land and as such, a large portion of those acres were bedded prior to planting. Bedding is a method of site preparation, which includes the construction of a series of linear mounds and alternating trenches designed to improve soil aeration and nutrient concentration on wet and/or nutrient poor sites. Primary objectives of bedding are to elevate seedling root systems out of the water and into the mounds where nutrients are readily available. During the scope of this plan, when possible and when such activities will not produce unacceptable disturbance to existing, desirable groundcover, silvicultural beds will be leveled.


Lochloosa Wildlife Conservation Area
Figure 8 - Water Resource Structures Map
N
2
Miles
Boundary
Culverts
Bridges
Monitoring Wells
Well, Active
Well, Inactive
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Water Resource Strategies

General Maintenance Activities

- Conduct maintenance and incidental or emergency repair of water resource structures as necessary.
- Maintain water resource structures database and incorporate maintenance, repair, and any new structures.

Specific Strategies

Recurrent

- Visually inspect roads, trails, firelines, culverts, and low water crossings for erosion problems and maintenance and repair needs.
- Conduct repairs and replacements to road structures as indicated in Table 3.
- Conduct additional improvements to reduce erosion issues on roads.

Table 3 – Roads Structures Maintenance Needs

Structure ID	Type	Width/Feet/Material	Condition	Action Required
346	Bridge	520'X13.8'/Wood	Good	-----
347	Bridge	202'X13.5'/Wood	Good	-----
13	Culvert	Metal	Good	-----
14	Culvert	Metal	Fair	-----
38	Culvert	Metal	Poor	Replace
39	Culvert	Metal	Poor	Replace
63	Culvert	Metal	Poor	Replace
99	Culvert	Metal	Poor	Replace
100	Culvert	Metal	Good	-----
101	Culvert	Metal	Good	-----
102	Culvert	Metal	Good	-----
103	Culvert	Metal	Fair	-----
104	Culvert	Metal	Fair	-----
105	Culvert	Metal	Good	-----
106	Culvert	Metal	Good	-----
107	Culvert	Metal	Excellent	-----
136	Culvert	Other	Good	-----
137	Culvert	Metal	Good	-----
162	Culvert	Metal	Poor	Replace
163	Culvert	Metal	Fair	-----
164	Culvert	Metal	Poor	Replace
237	Culvert	Metal	Poor	Replace
238	Culvert	Metal	Excellent	-----
370	Culvert	Metal	Poor	Replace

Flora and Fauna

Native Species
Lochloosa WCA supports a wide range of conditions that provide important habitat for a variety of floral and faunal species. During the scope of this plan, District staff will work to develop a comprehensive species list for the property.

Flora

Giant orchid (*Pteroglossaspis ecristata*), occur on Lochloosa WCA. This species is ranked G2, imperiled globally, and S2, imperiled within the state, due to rarity as a result of natural or manmade factors. This species is most often associated with sandhill, pine flatwoods, and rockland communities. Management considerations for this species are consistent with those of the sandhill and mesic flatwoods communities and will primarily include maintaining the property with the frequent application of prescribed fire.

The District may seek the assistance of local Native Plant Society and other volunteers to further develop the knowledge of plant species within the Lochloosa Wildlife Management Area.

Fauna

Bald Eagle
Lochloosa WCA has 14 active Bald Eagle (*Haliaeetus leucocephalus*) nests within the property and 38 inactive nests documented within or in the immediate vicinity of the boundary. Multiple wildfires on Burnt Island, located at the end of Burnt Island Road near the fishing dock, have likely caused the abandonment of a few Bald Eagle nests. Land management in this area will include prescribed burns on a short fire return interval with limited forest management. The area is wet in nature so forest management will include natural regeneration. Short prescribed fire intervals and limited forest management are efforts to allow the eagles to renest on Burnt Island and in the vicinity.

Should any new nests be discovered within Lochloosa WCA, the District will document the occurrence and incorporate the data into the District's Bald Eagle database with relevant activity status. The District will adhere to the guidelines established in the May 2007 U.S. Fish and Wildlife Service (FWS) *National Bald Eagle Guidelines*, or most recent applicable document. This document is effective following the delisting of the species from the Endangered Species list. The Bald Eagle continues to receive protection through the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The District will consult with the FWC and/or the USFWS as applicable, prior to conducting management activities within the established management zones that may affect Bald Eagle nesting between the dates of October 1 to May 15. If nests are discovered on the property, the District will confirm activity status each year.

Exotic and Invasive Species

Several exotic pest plants are known to occur within the Lochloosa Wildlife Conservation Area. These pest plants are managed by the District's Invasive Plant Management Program. Exotic species control is necessary to inhibit the continued proliferation of invasive and exotic plants and is integral in the maintenance and restoration of natural plant communities. The Invasive Plant Management Program applies various herbicides according to label rates using the most appropriate method of application for the target species. Within the property, the District may utilize the following methods for the application of herbicides:

Basal treatments – This method of control includes mixing penetrating oil with the herbicide and applying the mixture directly to the bark of a standing tree or other wood plant. This method may focus the treatment on the precise location and use the minimum amount of herbicide, but it is also the most labor intensive. Collateral damage or loss of non-targeted plants is minimal.

Broadcast – This method of control includes the application of herbicide over the entire treatment area. The distribution system may be a hand-held or backpack container or all-terrain vehicle, tractor, or truck mounted. Broadcast treatments cover larger areas and are less precise than basal bark treatments; herbicide is applied to all plants within the treatment area. Some collateral damage or loss of non-targeted plants is expected. Typically, the District utilizes this treatment method in areas where infestations of target species are dense, where presence of desirable species is low, or for site preparation where clean sites are desirable. Wind drift of herbicide is a consideration when utilizing this method of application and District staff does not apply herbicides when wind speeds are excessive.

Aerial – This method of control includes the application of herbicides over a large area using low-flying aircraft. This method is least precise and care must be taken to minimize collateral loss or damage to non-target species. This method is often used when treatment area is large, infestation is severe, or in areas that are largely inaccessible by other methods. Wind drift of herbicide is a significant consideration for this control method. Preventing chemical drift to neighboring properties is paramount. District staff evaluates weather conditions prior to any aerial application to minimize the potential for drift and collateral damage outside the targeted area.

While it is unlikely that the District will entirely eradicate invasive and exotic plants within the property, depending on species and level of infestation, maintaining or achieving maintenance control of such species is targeted within the scope of this plan. Exotic pest plant infestations are light to moderate across the property, and the property is regularly monitored and treated as necessary.

Feral Hogs

Exotic wildlife species including feral hogs (*Sus scrofa*) occur within the Lochloosa Wildlife Conservation Area. The District recently added a feral hog removal agent through a Special Use Authorization (SUA) process to assist in the control of feral hogs. The District keeps records of hog removal from the property. Lochloosa WCA is also part of the Lochloosa Wildlife Management Area. Hunters, with the proper license and during the dates announced each year at

www.myfwc.com, are permitted to take feral hogs during archery season, muzzle loading gun season, general gun season, and small game season. There is no game check station on the property so the number of hogs removed by hunters is unknown. On other District-managed properties, the District has coordinated via contract with the United States Department of Agriculture (USDA) to assist in the removal of feral hogs in specific or unusual circumstances. If necessary, the District will request removal assistance from the USDA agent to address specific population reduction initiatives at Lochloosa WCA.

Flora and Fauna Strategies

General Maintenance and Management Strategies

- Collect species occurrence data and incorporate into the District biological database.
- Conduct management activities in a manner consistent with relative rules, regulations, guidelines, and species management plans and in a manner that provides maximum protection for listed, rare, sensitive, or otherwise desirable species.
- Conduct feral hog removal activities as needed.
- Continue appropriate treatment of exotic vegetation.

Specific Strategies

Recurrent

- Annually survey Bald Eagle nesting sites and record activity status.
- Incorporate annually collected Bald Eagle nesting site data into the land management Bald Eagle database.

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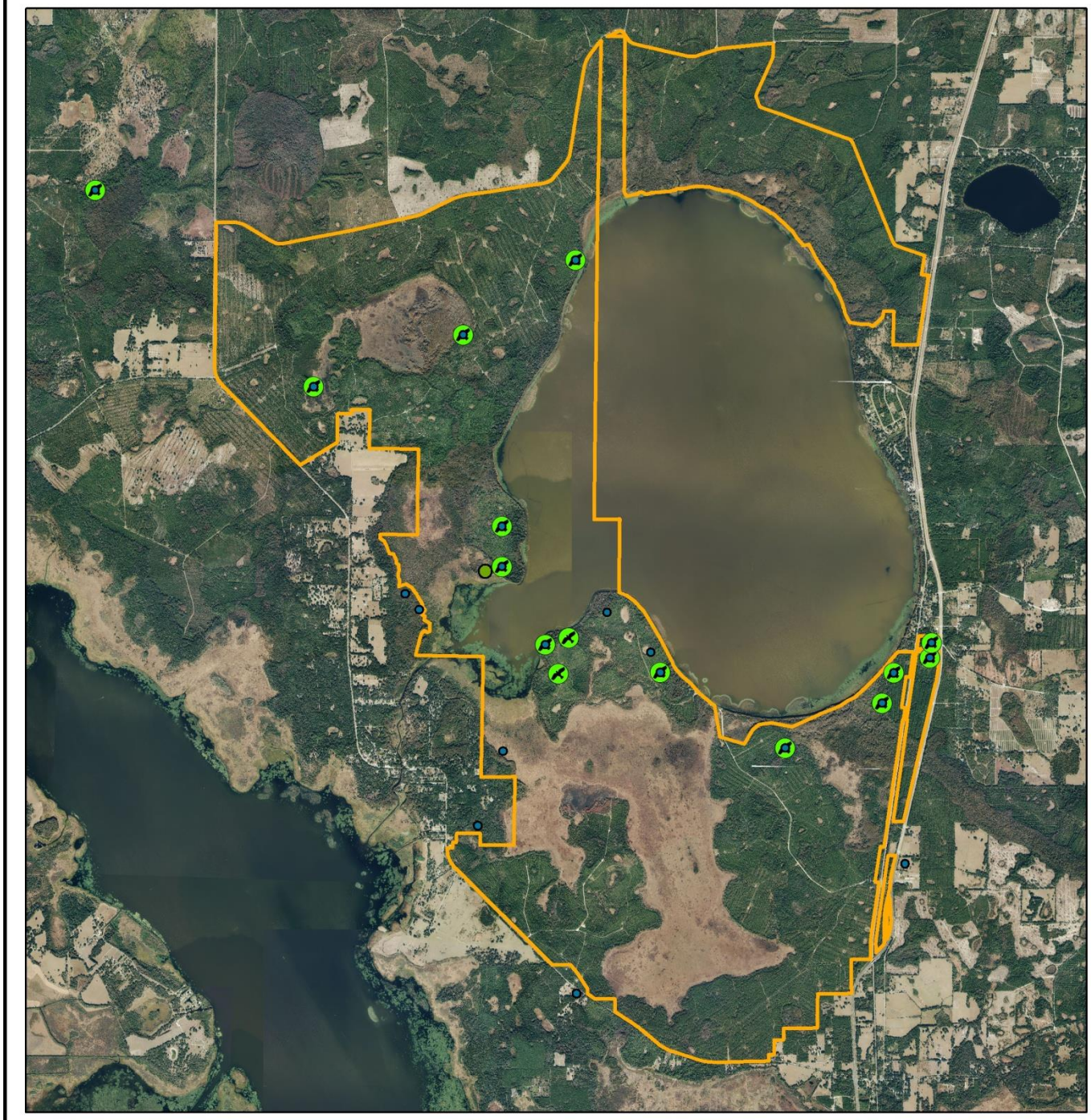

Lochloosa Wildlife Conservation Area

Figure 9 - Bald Eagle Nest Location Map

N

2

Miles

Lochloosa

Active

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Forest Management and Restoration

Forest Management

Chapter 253.036, Florida Statutes requires the lead agency of state lands to prepare a forest resource analysis, "…which shall contain a component or section…which assesses the feasibility of managing timber resources on the parcel for resource conservation and revenue generation purposes through a stewardship ethic that embraces sustainable forest management practices if the lead management agency determines that the timber resource management is not in conflict with the primary management objectives of the parcel."

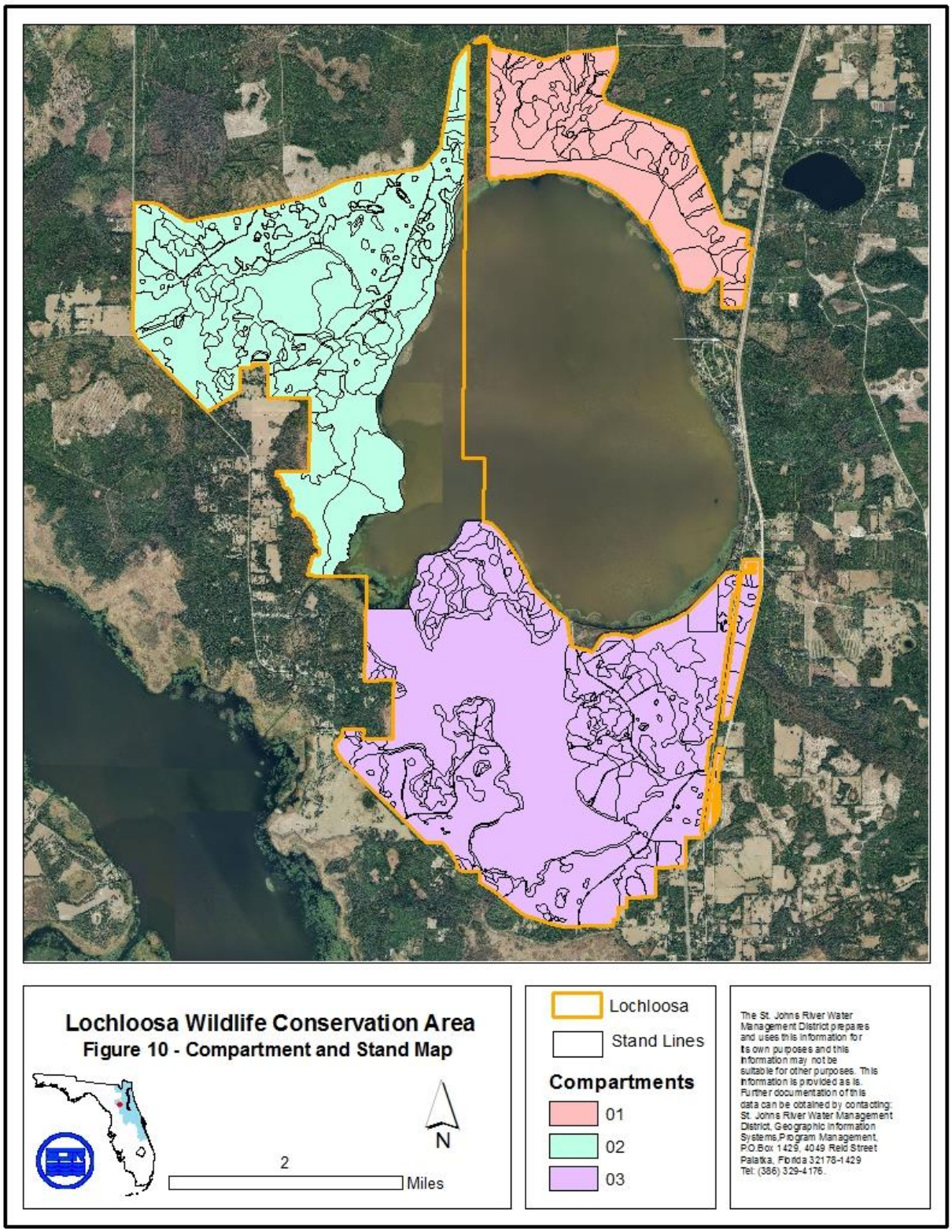
The District has certain guidelines it strives for in forest management practices. Forest management objectives will target a pine basal area of $60ft^2 – 90ft^2$/acre. The District adheres to the most current version of Florida Silvicultural Best Management Practices during forest management operations. The District has developed a Forest Management Plan, which guides forest management and planning. The District will monitor for disease and pest signs and outbreak. The District will aim to convert to longleaf pine, but will plant the most appropriate species according to site characteristics.

Lochloosa WCA has a long history of silviculture management. As far back as the 1940s the land has been utilized for pine production. In the 1940s aerial imagery, black and white georeferenced photos show areas that were already clearcut. The next aerial photos available show the land in planted pine with scattered clearcuts throughout. Timber companies owned and managed the land for silviculture until public acquisition in 1994.

Lochloosa WCA is partitioned into forest management compartments and each compartment is further divided into stands. Figure 10 illustrates the compartments and stands within the property and Figure 11 illustrates the dominant pine species within each stand. On properties like Lochloosa WCA, where silvicultural management is an intrinsic component of the overall management of the upland portions of the property, data, including timber inventory, are collected. These data are verified and incorporated into the District's forest management database. Changes that may occur over time within the compartments and stands resulting from growth and harvest operations as well as reforestation are also recorded in the database. This information is used to help land management staff forecast forest management needs.

While tailored to meet silvicultural management goals, the primary objectives of harvesting on Lochloosa WCA are restorative in nature and are to improve species diversity and the overall natural community health and vigor. The District applies all revenue generated through these forest management activities towards the District's land management budget to offset management costs for the property.

Since 2007, the writing of the last plan, forest management activities within the conservation area generated $493,000. Table 4 provides information relative to forest management techniques (and associated acreage) employed within the conservation area since 2007. Figure 12 illustrates the location of accomplished harvest activities and Figure 13 depicts the areas of accomplished


Lochloosa Wildlife Conservation Area
Figure 10 - Compartment and Stand Map
N
2
Miles
Lochloosa
Stand Lines
Compartments
01
02
03
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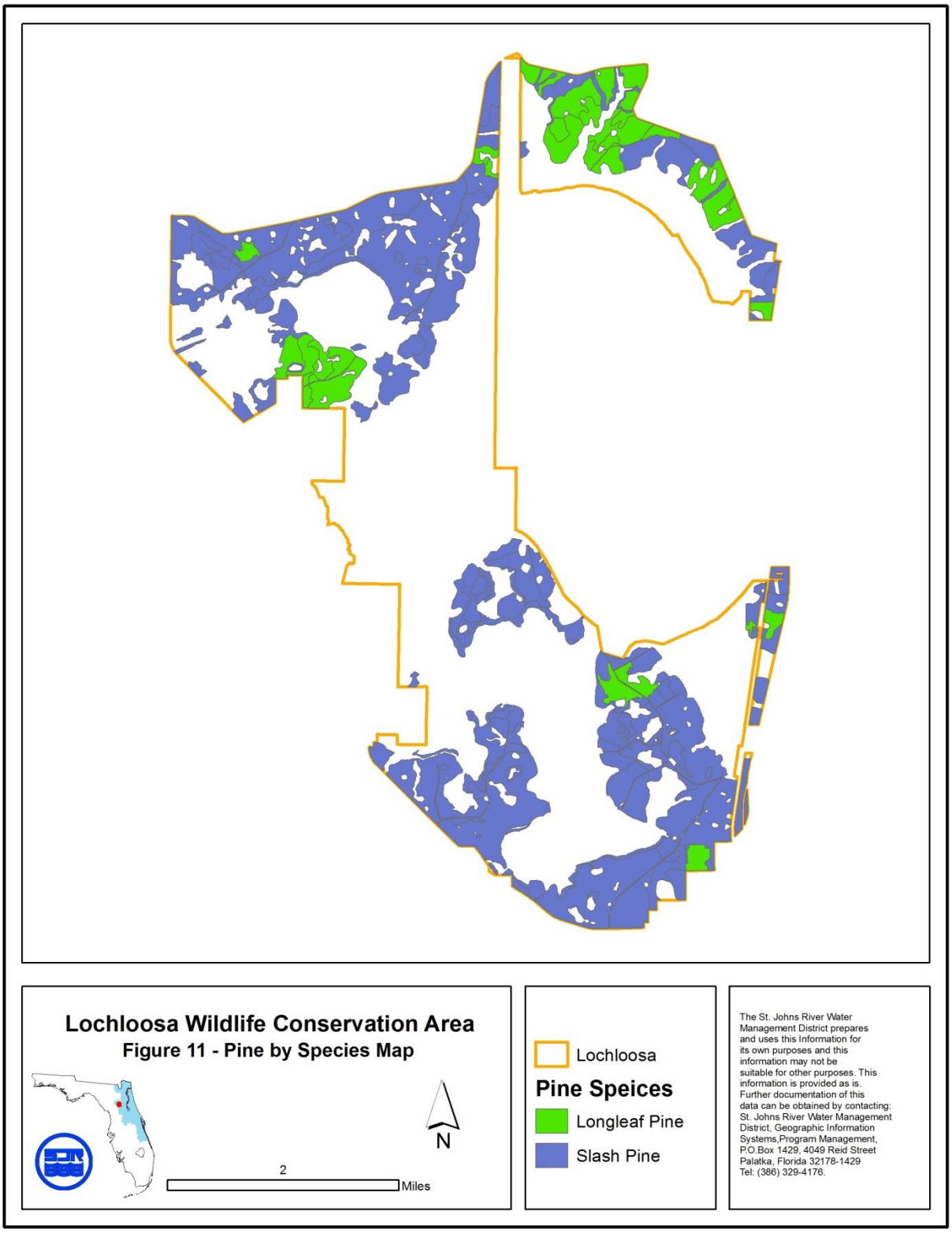
Lochloosa Wildlife Conservation Area
Figure 11 - Pine by Species Map
N
2
Miles
Lochloosa
Pine Speices
Longleaf Pine
Slash Pine
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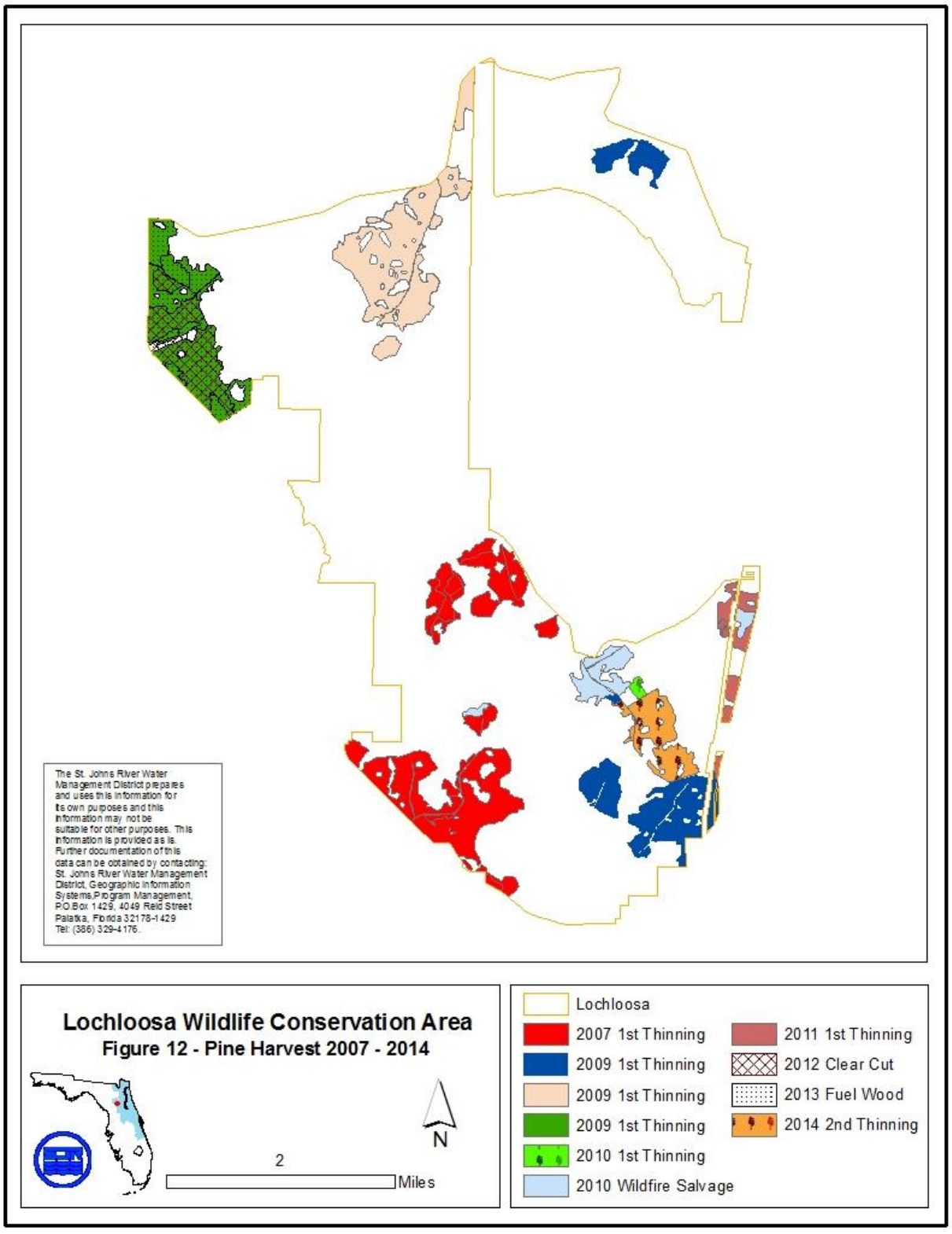
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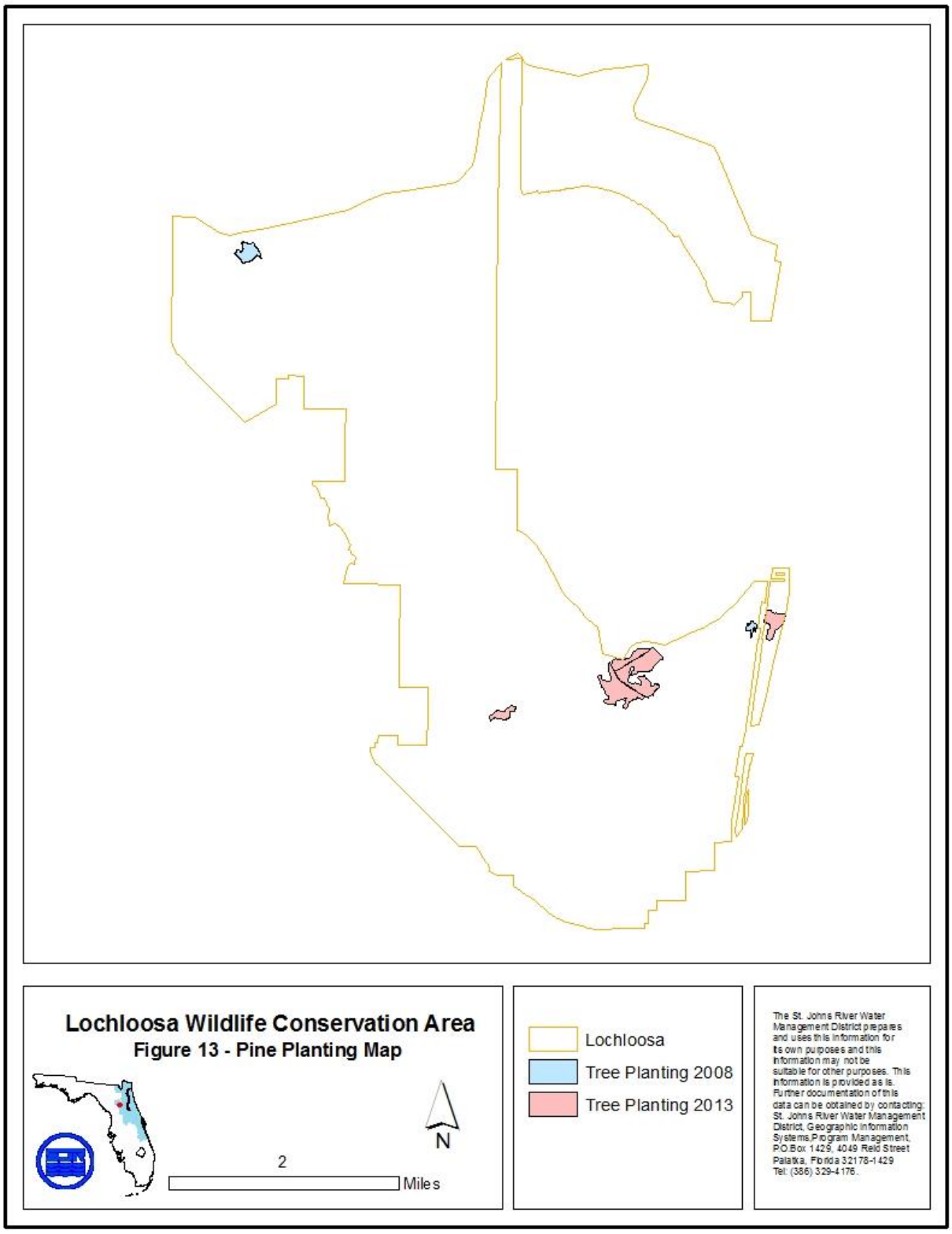
Lochloosa Wildlife Conservation Area
Figure 12 - Pine Harvest 2007 - 2014
N
2
Miles
Lochloosa
2007 1st Thinning
2009 1st Thinning
2009 1st Thinning
2009 1st Thinning
2010 1st Thinning
2010 Wildfire Salvage
2011 1st Thinning
2012 Clear Cut
2013 Fuel Wood
2014 2nd Thinning


Lochloosa Wildlife Conservation Area
Figure 13 - Pine Planting Map
N
2
Miles
Lochloosa
Tree Planting 2008
Tree Planting 2013
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longleaf pine plantings, which are both depictions of the forest management techniques itemized in Table 4.

Table 4 – Forest Management Accomplishments

Year	Forest Management Activity	Acres	Planting Species*
2007	1st Thinning	668	-----
2008	Tree Planting	19	Longleaf
2009	1st Thinning	939	-----
2010	1st Thinning	132	-----
2011	1st Thinning	84	-----
2012	Clearcut	253	-----
2013	Fuelwood Harvest	465	-----
2013	Tree Planting	121	Longleaf/Slash
2014	Second Thinning	156	-----
	Forest Inventory Plots		Monitored 1,332 plots: 941 active plots 391 inactive plots

*All plantings were conducted at a rate of 605 stems per acre.

Forest management activities anticipated during the scope of this plan include forest inventory, reforestation, pine thinning operations, and fuelwood harvests. Seedling survival monitoring is also conducted to assess the need for replanting an area through the determination of the number of target trees per acre. Reforestation projects may be preceded by various site preparation techniques including mechanical treatments such as disking to remove silvicultural bedding, roller chopping and mowing, herbicide applications, and prescribed fire. These techniques may be used singularly or in combination as site conditions warrant. First thinning operations typically occur between the 18th and 22nd year and second thinning operations are conducted, on average, 15 years after the first. Third thinning operations generally fall 15-20 years following the second. These times are largely dependant on ecological factors that affect tree growth and basal area.

Figures 14a - c depict harvest management activities and Table 5 details that information. An itemized, stand level forest management table is located in addendum 4.

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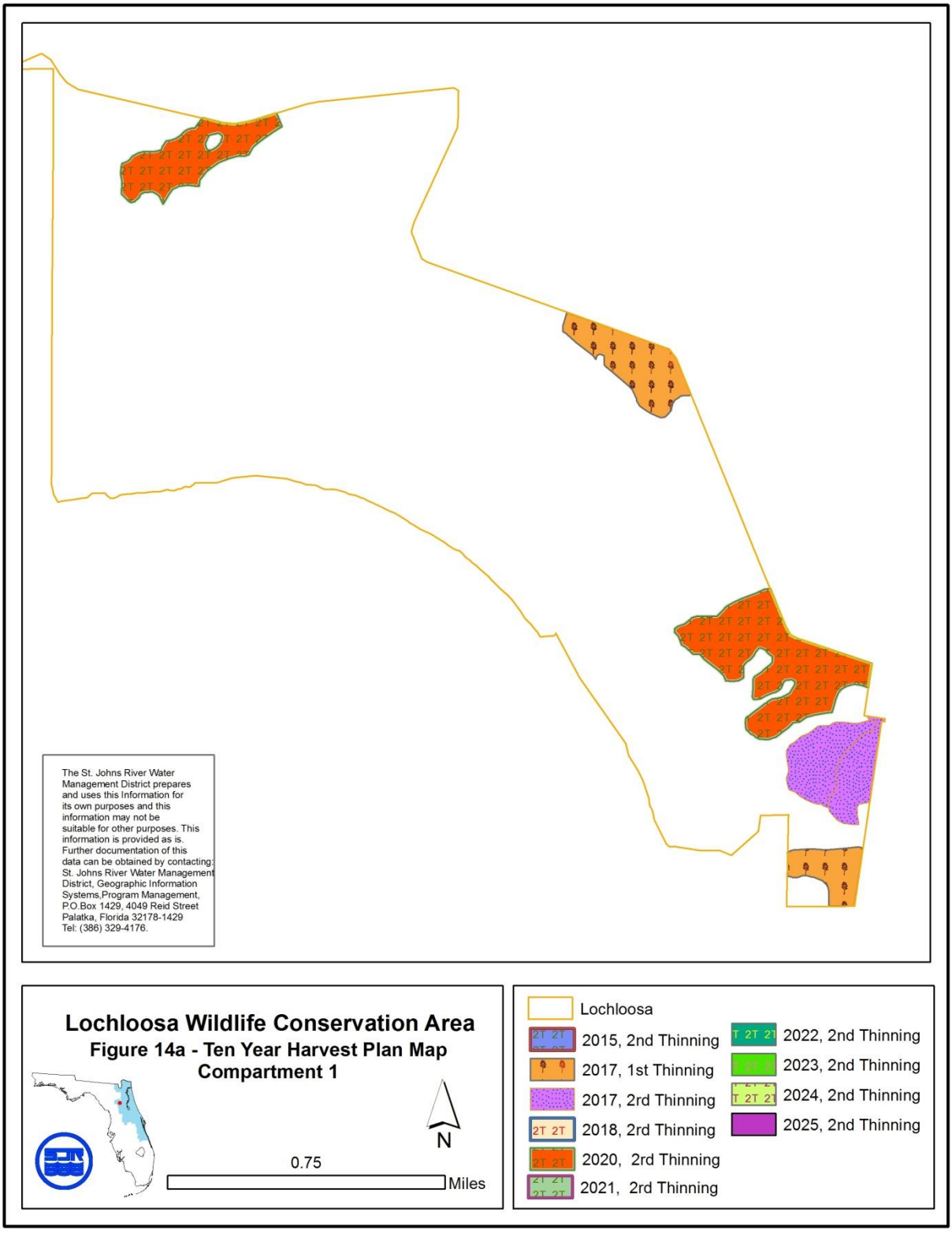
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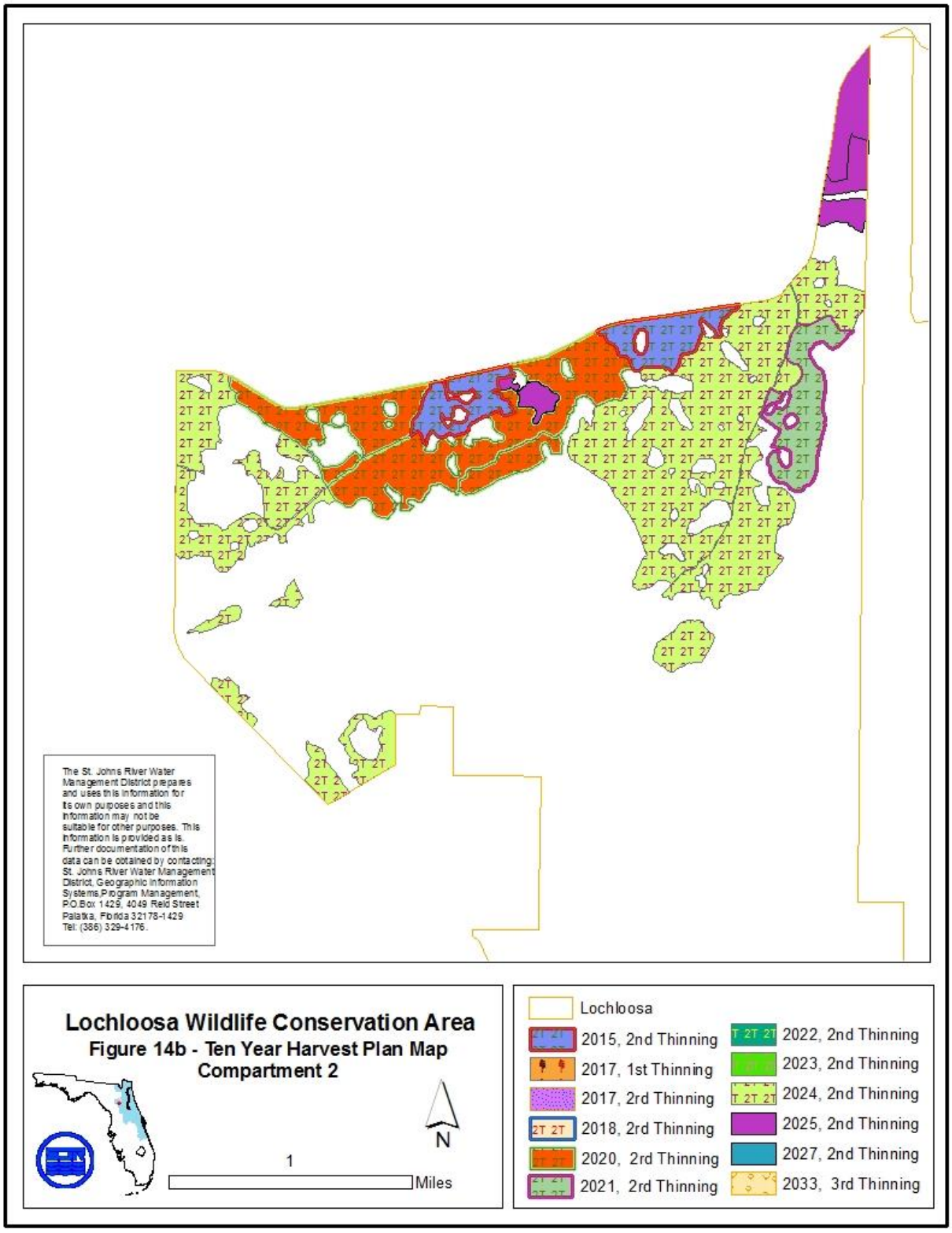
Lochloosa Wildlife Conservation Area
Figure 14a - Ten Year Harvest Plan Map
Compartment 1
N
0.75
Miles
Lochloosa
2015, 2nd Thinning
2017, 1st Thinning
2017, 2rd Thinning
2018, 2rd Thinning
2020, 2rd Thinning
2021, 2rd Thinning
2022, 2nd Thinning
2023, 2nd Thinning
2024, 2nd Thinning
2025, 2nd Thinning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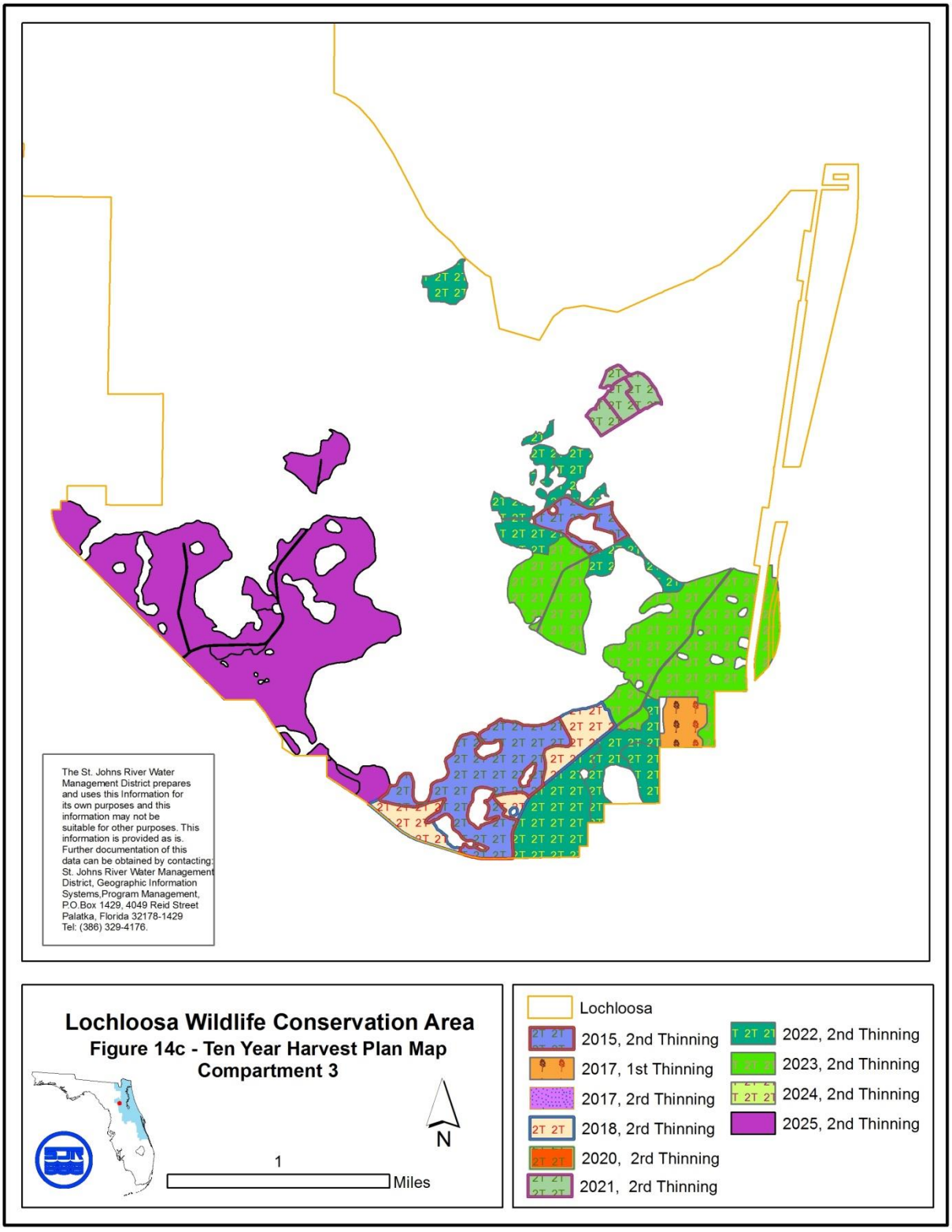
Lochloosa Wildlife Conservation Area
Figure 14b - Ten Year Harvest Plan Map
Compartment 2
N
1
Miles
Lochloosa
2015, 2nd Thinning
2017, 1st Thinning
2017, 2rd Thinning
2018, 2rd Thinning
2020, 2rd Thinning
2021, 2rd Thinning
2022, 2nd Thinning
2023, 2nd Thinning
2024, 2nd Thinning
2025, 2nd Thinning
2027, 2nd Thinning
2033, 3rd Thinning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Lochloosa Wildlife Conservation Area
Figure 14c - Ten Year Harvest Plan Map
Compartment 3
N
1
Miles
Lochloosa
2015, 2nd Thinning
2017, 1st Thinning
2017, 2rd Thinning
2018, 2rd Thinning
2020, 2rd Thinning
2021, 2rd Thinning
2022, 2nd Thinning
2023, 2nd Thinning
2024, 2nd Thinning
2025, 2nd Thinning

Table 5 - Planned Forest Management Strategies

Year	Harvest Type	Acres
2015	2nd Thinning	248
2017	1st Thinning	181
2017	2nd Thinning	100
2018	2nd Thinning	64
2020	2nd Thinning	348
2021	2nd Thinning	107
2022	2nd Thinning	225
2023	2nd Thinning	300
2024	2nd Thinning	634
2025	2nd Thinning	532
Year	Planting	Total Acres
By 2025	Longleaf Pine Planting 605 stems/acre	2,970

Restoration

The majority of uplands on Lochloosa Wildlife Conservation Area have been altered due to past silvicultural activities and fire suppression. The District's goal is to restore these altered areas to more closely resemble their condition prior to being disturbed. Reference natural communities from FNAI will be used as models, and success indicators will be defined for each restoration unit. The District will evaluate opportunities to implement restoration activities within Lochloosa WCA.

Restoration activities may include application of herbicide, prescribed fire, mowing, roller chopping, and timber harvest. Timber harvests may including thinning and clearcutting of pine and hardwood species. Silvicultural beds, plowed lines, and windrows will be leveled or removed where possible. District staff may plant a mixture of native seed in areas devoid of desirable ground cover, and establish site-appropriate pines at densities of up to 500 seedlings per acre.

Forest Management and Restoration Strategies

General Maintenance Activities

- Monitor groundcover regeneration
- Monitor longleaf pine plantings and regeneration.

Specific Strategies

Recurrent

- Conduct visual monitoring for disease and/or insect infestation.
- Conduct seedling survival monitoring.

Short-term planning horizon (1-5 years)

- Conduct pine harvest operations as detailed (through 2015) in Table 5 and Addendum 4.
- Evaluate upland restoration opportunities and implement as site conditions warrant.

Long-term planning horizon (5-10 years)

- Conduct pine harvest operations as detailed (2016-2021) in Table 5 and Addendum 4.

Fire Management

Fire is a vital factor in managing the character and composition of vegetation in many of the natural communities in Florida. The District's primary use of fire is to mimic natural fire regimes to sustain plant communities and dependant wildlife species. Using fire return intervals provided by FNAI, the biological fire demand for Lochloosa Wildlife Conservation Area is nearly 2,300 acres to be burned annually. The application of fire also aids in reducing fuels and the potential for catastrophic and damaging wildfires. The majority of the upland natural communities within the property are fire adapted, making prescribed fire an important tool for use in the restoration and maintenance of plant communities within the property. Since 2007, District staff implemented 25 prescribed fires on 2,948 acres within the property. Staff also responded to 9 wildfires that burned 2,855 acres. Figure 15 illustrates the prescribed fire history for the property since 2007.

Historically, the majority of fires occurring on what is now Lochloosa WCA would have been ignited by lightning during the growing season. In more recent history, previous landowners shifted the fire regime to include primarily dormant season burning, lack of prescribed burning, or suppression of wildfire, which served to protect the growth of fast growing slash pine investment on the property. The District makes an effort to reintroduce prescribed fire to the property during dormant season, and expand to the growing season, where possible. Since the last plan 14 burns on 1,846 acres were done in the dormant season, while 11 burns were conducted on 1,102 acres during the growing season. The District will continue to implement growing season fires where possible in areas of new pine plantings/low fuel loads and in the restoration units, understanding that constraints in some areas such as young pine, high fuel loading, organic soils, areas of high duff, and proximity to smoke sensitive areas may predicate the use of dormant season burning or other tools.

While prescribed fire is the preferred tool for management, restoration, enhancement, and maintenance of natural communities within Lochloosa WCA, it will be necessary, at times, to implement alternative methods. The District may utilize management techniques such as selective herbicide treatments, silvicultural thinning, mowing, and roller chopping in combination with fire as part of an integrated approach to creating and maintaining desired conditions within the property.

A system of condition class measures was originally developed by the Nature Conservancy and the USDA Forest Service in 2003 as an effort to assess ecosystem health. It was designed as Fire Regime Condition Class (FRCC) and it is based on a relative measure describing the degree of departure from the historical natural fire regime of a given system. This departure results in changes to one (or more) of the following ecological components: species composition, structural stages, stand age, canopy closure, or mosaic pattern. The District adapted the system in 2008 to measure ecosystem health and therefore land management effectiveness. While fire is the preferred disturbance that maintains most natural communities in Florida, other disturbances can serve as a surrogate for fire. Annually, each burn zone is assigned a condition class score based upon the most recent disturbance and the fire frequency recommended for that plant community by FNAI. If FNAI recommends a fire return interval of 3-5 years, a plant

community that has benefited from disturbance in the past 5 years is in condition class one. If it has been more than 5 years but less than 15 years, or three cycles, the zone is in condition class 2. If it has been more than three times the fire return interval, but can still be recovered by fire, it would fall in to condition class 3. If the plant community has gone without disturbance so long that fire alone can no longer restore the area, it is in condition class 4. District staff will make annual condition class assessments and incorporate them into annual burn planning and work planning processes.

All implementation of prescribed fire within the property will be conducted in accordance with the District's Draft Fire Management Plan, the Lochloosa Wildlife Conservation Area Fire Management Plan (Addendum 3), and the annual burn plan for the property.

Fire Management Strategies

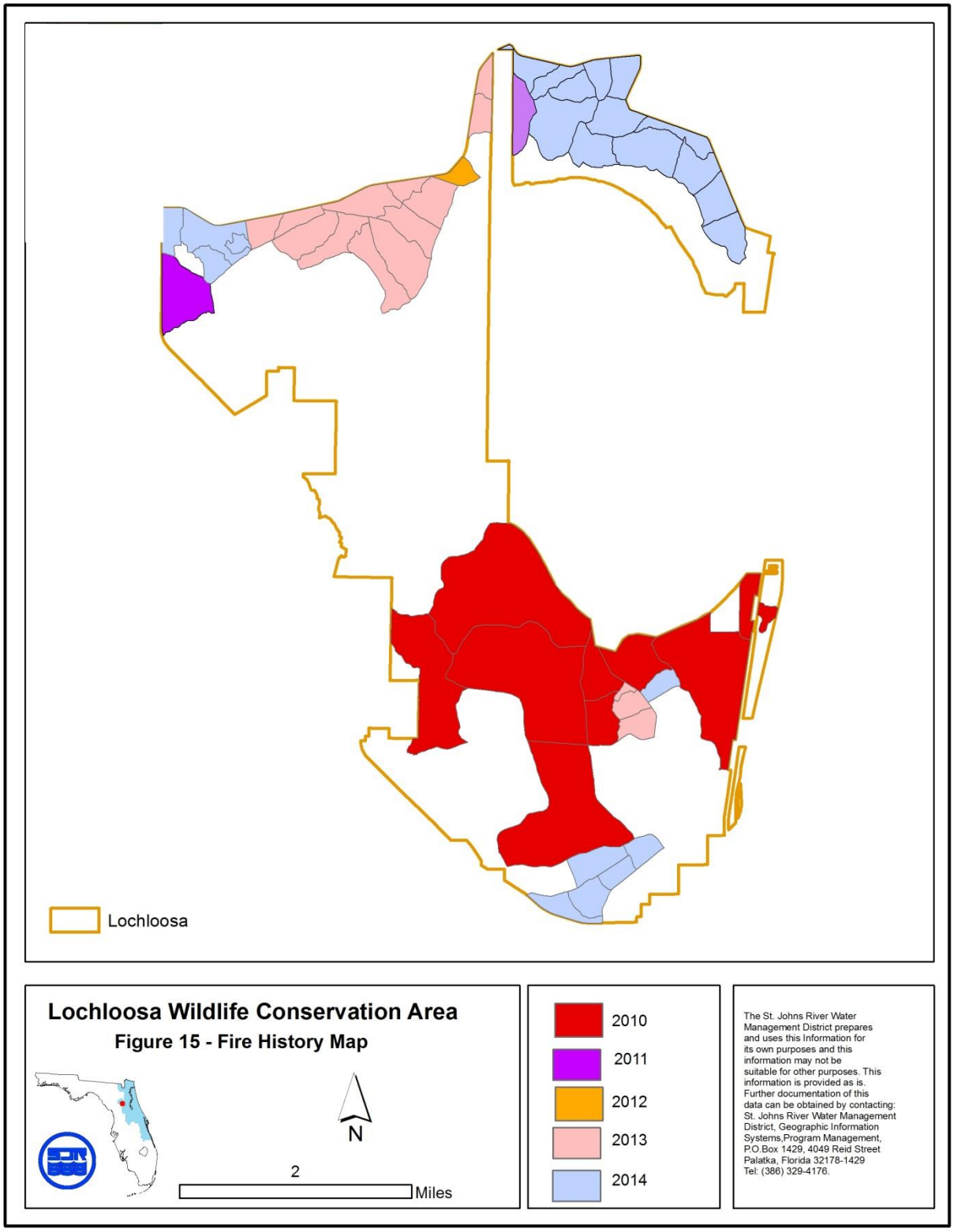
General Maintenance Activities

- Implement prescribed burning as described in the District's Draft Fire Management Plan and the Lochloosa Wildlife Conservation Area Fire Management Plan.
- Respond to wildfires that impact District lands.
- Rehabilitate firelines and other impacted areas after wildfires are successfully suppressed.

Specific Strategies

Recurrent

- Develop annual burn plans.
- Populate and maintain the fire management database.
- Conduct fireline maintenance.


Lochloosa
Lochloosa Wildlife Conservation Area
Figure 15 - Fire History Map
N
2
Miles
2010
2011
2012
2013
2014
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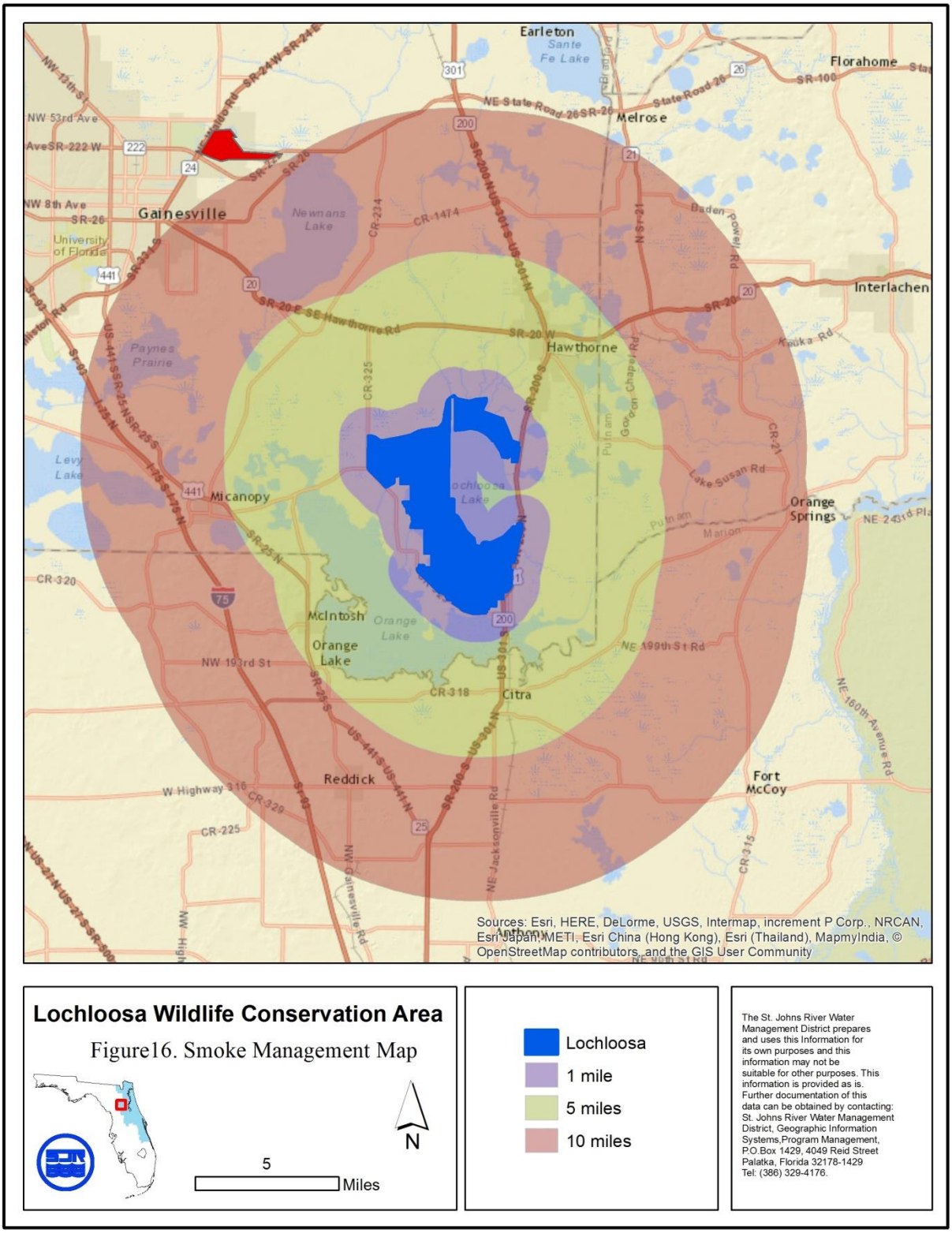
Earleton
Santa Fe Lake
Florahome
SR-100
NE State Road 26
SR-26
Melrose
NW 53rd Ave
NW 8th Ave
Gainesville
Newmans Lake
University of Florida
Baden
Interlachen
Hawthorne
SR-20 E SE Hawthorne Rd
SR-20 W
Paynes Prairie
Micanopy
Levy Lake
Lochloosa Lake
Orange Springs
Lake Susan Rd
Putnam
Marion
McIntosh
Orange Lake
NW 193rd St
NE 199th St Rd
CR-318
Citra
Reddick
W Highway 316
CR-225
Fort McCoy
NE 160th Avenue Rd
Anthony
Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Lochloosa Wildlife Conservation Area
Figure16. Smoke Management Map
N
5
Miles
Lochloosa
1 mile
5 miles
10 miles
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Cultural Resources

A review of the Department of State, Division of Historical Resources (DHR) indicates fifteen known Florida Master Site File cultural sites within the property. Fourteen of those are prehistoric sites and one is a cemetery. Eleven of the prehistoric sites contain lithic scatter with no ceramics. Several of the sites date to the Archaic Period.

The District will conduct land management activities in a manner that will provide protection for these sites and serve to reduce the potential for adverse impacts. If District staff discovers any additional sites, staff will document and report those sites to the DHR. Additionally, detrimental activities discovered on these sites will also be reported to the DHR and appropriate law enforcement agencies. Due to District and State policy, the location of sites are not identified on public maps.

Cultural Resource Protection Strategies

General Maintenance and Management Strategies

- Identify and report any new sites.

LAND USE MANAGEMENT

Access

A public parking area is located on the eastern side of the property, on the southern border of Lake Lochloosa, by entering off US 301 and taking Burnt Island Road west/northwest to the lake. The parking area is grassed and fenced. It has recreational access, a covered picnic pavilion, wildlife viewing, a fishing dock, and is American Disabilities Act accessible. A recreational kiosk is located on Burnt Island Road across from the security residence.

A second public parking area is located on the western side of the property off CR 325. This parking area is board fenced and the area is grassed. A walk through provides recreational access. An informational kiosk is located near the parking area trailhead. The trail leads to boardwalk access to a lookout tower overlooking Watson Prairie.

There are currently 28 gates providing management access to and across the property. These gates are monitored regularly for maintenance and/or repair needs from normal wear and tear and vandalism. In an effort to expedite emergency responses and to assist law enforcement and fire rescue in locating individuals in the event of an emergency, nine 911 addresses have been issued at certain parking areas and access points to the property. Table 6 includes the 911 addresses for Lochloosa WCA.

Under previous ownership, roads across the property were open, providing unrestricted access to the property. After public acquisition, these roads remained open and the property is one of the few of a small number of District properties that permit vehicular access. While open access allows for enhanced recreational opportunities for some, it also presents several management challenges. In addition to dumping and vandalism, roads are often damaged as a result of mud-

bogging activities during wet periods. The excessive damage to roads causes erosion and siltation into wetlands and the degraded roads limit access for legitimate use and management. The District will continue to utilize the security residence and county police surveillance as necessary to help manage access to the property.

Table 6 – 911 Addresses

Gate ID	911 Address	Location/Description
LOCH 16	20181 S County Road 325	Marsh Road Entrance
LOCH 05	19680 SE US 301	Burnt Island Road Entrance
LOCH 19	19181 S CR 325	Cross Creek Volunteer Fire Department Entrance

Approximately 47 miles of interior management roads traverse the property, some of which incorporate the multiuse trail system. In order to manage road maintenance, the District utilizes a roads classification system. This system includes the following classifications:

Paved Road – Any road that is paved in nature.
Primary Road – Any road that requires routine maintenance of any kind.
Secondary Road – Any road that does not require routine maintenance; only periodic or no maintenance.

District staff will update the roads database to reflect changes to the road network within the property area as necessary. Roads will be regularly inspected and receive maintenance and repair as necessary and may be subject to closure during these times. Figure 17 depicts the location of the parking areas, roads, and gates on the property.

Roads and associated ditches are located within the conservation area and provide access for land management activities and recreational opportunities. The District has made improvements to, and conducted maintenance on, many of these roads and ditches helping to reduce the potential for erosion. Additional roads along the northern part of the property will require improvements to keep them passable. Many are serving to convey water and sediment to nearby creeks and Lake Lochloosa during rain events, and will continue doing so until road elevations are brought at least to grade level. Improvements may include filling in large holes, installing water bars and turnouts, and capping sections with lime rock to prevent degradation.

Road maintenance will include periodic grading as needed, particularly on Cooter Bob Road and Burnt Island Road since they withstand the most traffic. The roads on the southern side of the property are currently mowed monthly during the growing season. The roads on the north side of the lake are in poor condition for mowing; however, this area could be added to the mowing contract if the roads are improved. Garrison Hammock Road continues to be a siltation issue due to extreme dry sandy soils in the dry season and being wet in the rainy season. Due to contributing silt to water column, and Lake Lochloosa holding the Outstanding Florida Waterbody designation, the road will be improved under the purview of this plan, dependent upon funding.

Access Strategies

General Maintenance and Management Strategies

- Maintain parking areas, signs, gates, roads, and trail.

Specific Strategies

Recurrent

- Update roads, gates, and firelines in the land management database as maintenance, repair, or creation of new roads or trails occurs.
- Grading Cooter Bob Road and Burnt Island Road.

Short-term planning horizon (1-5 years)

- Conduct stabilization to Garrison Hammock Road.
- Conduct improvements to roads on the north side of the property.

Long-term planning horizon (5-10 years)

- Add roads on north side of the property to mowing contract, once improved.

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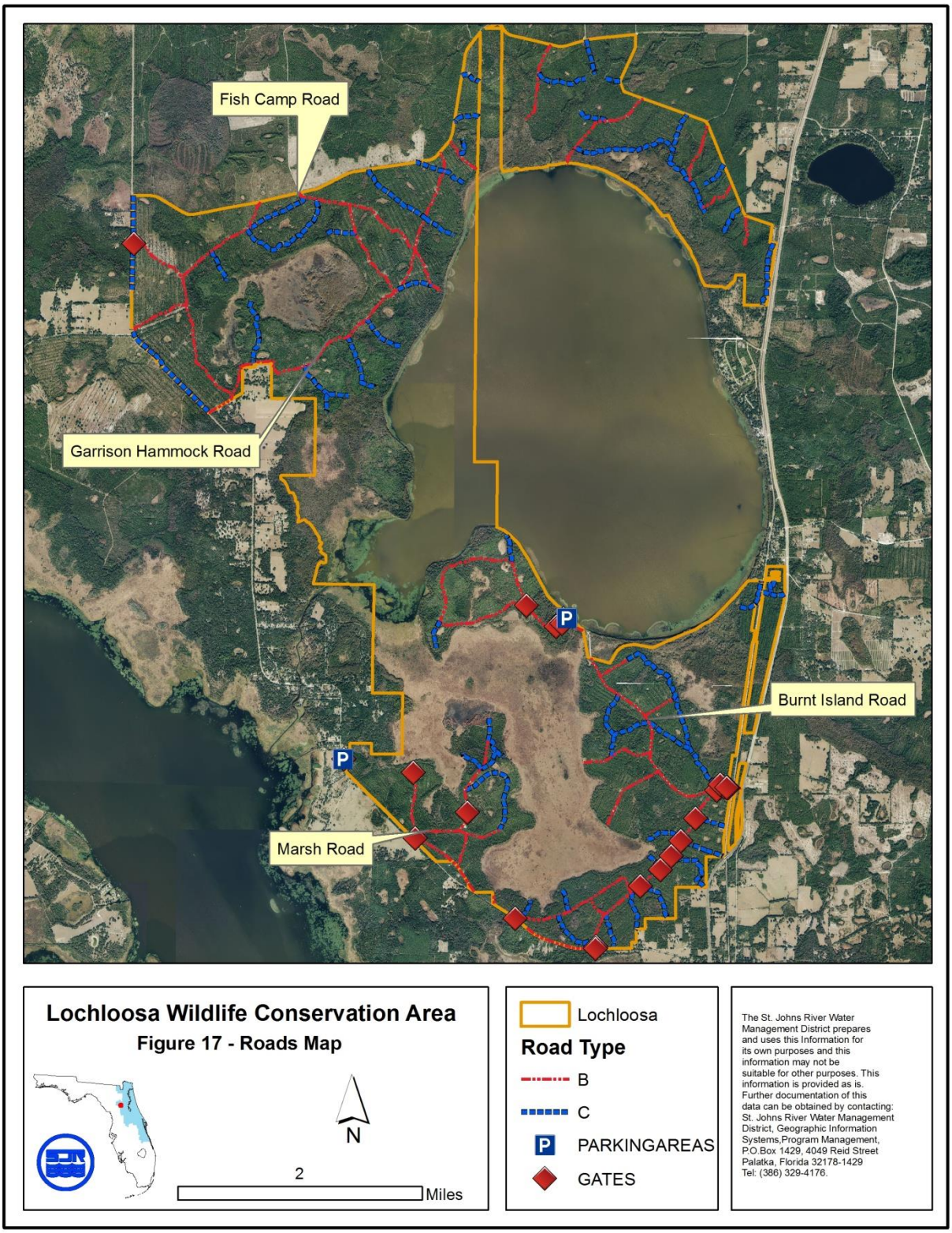
Fish Camp Road
Garrison Hammock Road
Burnt Island Road
Marsh Road
P
P
P
Lochloosa Wildlife Conservation Area
Figure 17 - Roads Map
N
2
Miles
Lochloosa
Road Type
B
C
PARKINGAREAS
GATES
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Recreation

The primary objective of the District's Recreation Management Program is to facilitate resource-based recreational activities on District lands. An aspect in developing the District's Recreation Program is not to compete with other local recreational opportunities, but rather complement what they may already have in place by filling an outdoor recreation niche called dispersed recreation. Dispersed recreation activities generally require large tracts of land with some level of isolation. This type of recreation blends well with most District conservation areas, providing numerous opportunities for passive recreation, which also provides solitude and challenge. While this is the model used for recreation on most District properties, Lochloosa Wildlife Conservation Area differs in that most roads within the property are open to vehicular traffic.

Recreation amenities within Lochloosa Wildlife Conservation Area include two designated parking areas. The parking area on the west side of the property has a trailhead with a trail leading to a boardwalk path with an observation platform overlooking Watson Prairie and informational kiosk. The second parking area is located on the east side of the property entering off US 301onto Burnt Island Road to the lake. This entrance provides recreational users access to a fishing dock, covered pavilion with picnic tables, and hiking access to the property.

Lochloosa Wildlife Conservation Area is one of four District properties open to year-round vehicular access. Three access points allow access to interior roads that are primarily used for land management purposes. The open roads provide opportunity for ADA accessible recreation. The Lochloosa Interpretive Drive was created to allow users to access the large property via vehicle. Drivers stop at designated points and learn about the ecosystem and historical use of the area. These roads may be utilized for driving, hiking, bicycling, horseback riding, and wildlife viewing. Maintaining roads open to public vehicular poses significant land management challenges. Issues associated with this arrangement include damage to the road system, dumping, and vandalism within the property.

While the property does include significant frontage along Lake Lochloosa, there are no improved boat ramps within Lochloosa WCA. Lochloosa Park, adjacent to the property, provides access to the lake via a boat ramp off US 301 on the southeast corner of the lake. An airboat jump is found at Burnt Island Road adjacent to the lake where airboat users can leave Lake Lochloosa and enter Right Arm Marsh during times of high water.

The campsite near Burnt Island road was removed in 2010 as a result of dumping and vandalism. Recreational users interested in camping on District lands may find an alternative campsite at the nearby Longleaf Flatwoods Reserve.

Seasonal hunting opportunities are available at Lochloosa Wildlife Conservation Area. Activities associated with public hunting fall under the jurisdiction of the Florida Fish and Wildlife Conservation Commission.

Off-road vehicle events are held annually within Lochloosa WCA. These events are authorized via the District's Special Use Authorization process. Prior to the event, the user group proposes a route. District staff review the route, suggest any necessary changes, and approve the proposed route. The route is designed to minimize disturbance to natural communities, and the effects of the event are monitored each year. District staff will continue to review, approve, and monitor the effects of the event.

Recreational improvements and considerations for the Lochloosa Wildlife Management Area include:

Interpretive Drive and Land Management Roads – Many miles of land management roads are available for the interpretive drive, hiking, biking, and equestrian use. The District may close trails and roads or portions of trails and roads to accomplish land management activities or when conditions pose a public safety concern.

Multi Use Trail – Approximately one mile of multi-use trail is available on the west side of the property. This trail is open for hiking, biking, and equestrian use. The District may close trails or portions of trails to accomplish land management activities or when conditions pose a public safety concern.

Observation Platform – An observation platform is located on the west side of the property at the terminus of the white diamond trail.

Fishing Dock – A metal fishing dock is located at the public parking area at the end of Burnt Island Road. The platform is open for public use.

Picnic Pavilion – A covered picnic pavilion with picnic tables is provided for recreational users and is located at the end of Burnt Island Road on the south side of the lake.

Kiosks – Kiosks are located at the public access point on the west side of the property and on Burnt Island Road just off US 301. They provide property information, which includes maps, trail brochures, and interpretive displays.

The targeted maintenance schedule includes:

Mowing grassy trails and road edges four (4) times yearly.

Mowing parking areas twice monthly, or as needed.

Trail blazing and trimming of overhanging branches as needed.

Trail and trailhead maintenance.

Subject to budget availability, the District may evaluate the need for further recreational development as visitor usage increases or new land is acquired.

Figure 18 is the recreation trail guide for the conservation area.

Any improvements will be incorporated into the next edition of the District's *Recreation Guide to District Lands*, which can be viewed online at www.floridaswater.com.

Recreation Strategies

General Maintenance and Management Strategies

- Maintain parking areas, kiosks, and trails.
- Coordinate with FWC to administer public hunting opportunities associated with the Wildlife Management Area.
- Maintain current information in recreation guide, trail guides, kiosks, and District website.

Specific Strategies

Recurrent

- Mow recreational trails four times each year.
- Mow/maintain parking areas twice monthly.
- Mow/maintain primitive campsites monthly.
- Conduct trail blazing and trimming maintenance.
- Facilitate and monitor off-road vehicle event.

Short-term Planning Horizon (1-5 years)

Evaluate and prioritize potential/need for additional recreational facilities.

Environmental Education

The District has historically looked for opportunities to collaborate with local schools and organizations to encourage the use of District lands for environmental education. The District will assist with educational opportunities as time allows.

Environmental Education Strategies

General Maintenance Strategies

- Continue to offer environmental education opportunities subject to staff time and budget availabilities.

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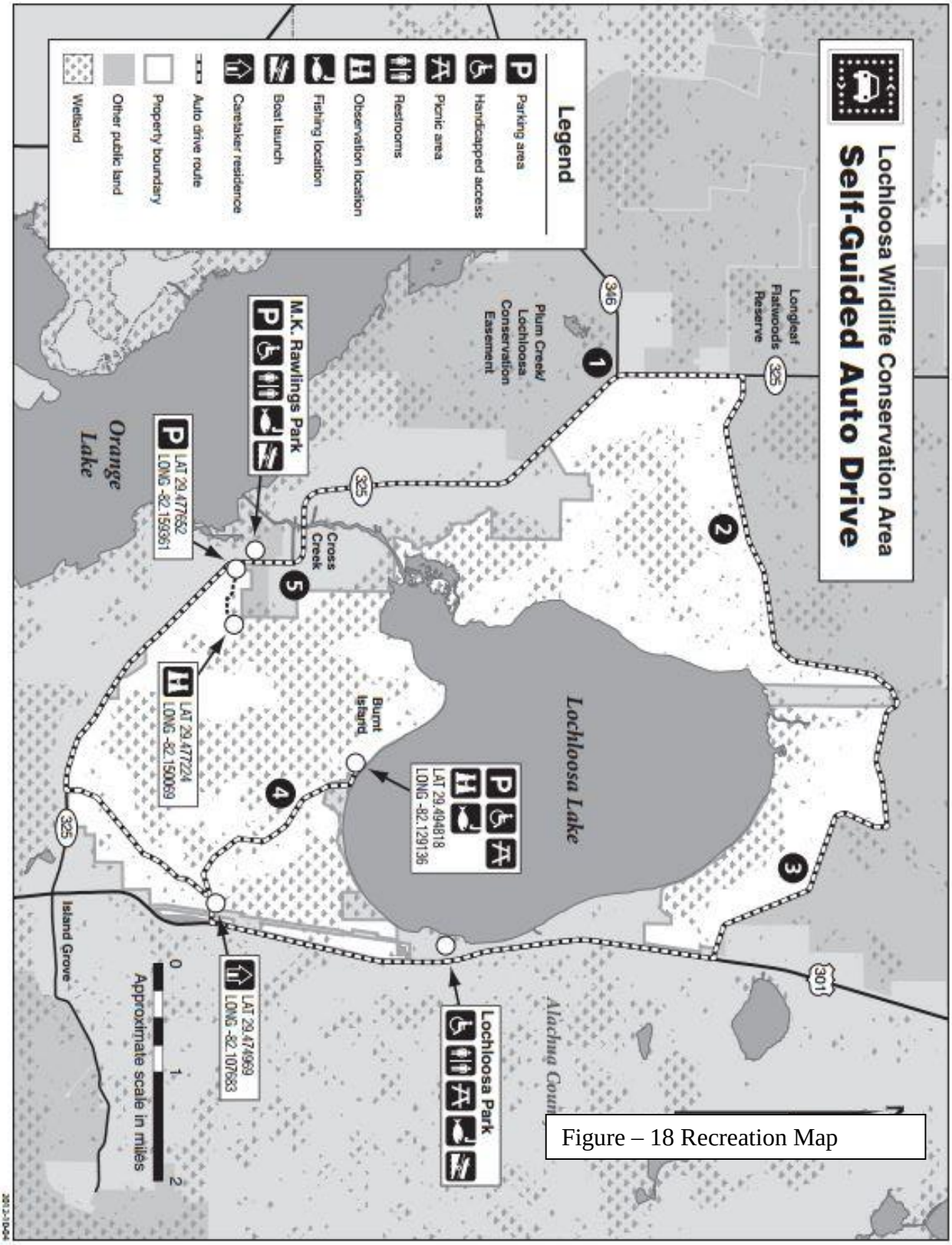

Figure – 18 Recreation Map

Security

Security concerns within Lochloosa WCA include damage to roads caused by activities associated with motorized vehicle access, dumping, vandalism of gates, fences, and conservation signage, digging for artifacts, and poaching. The District, primarily through a contract security firm as well as coordination with FWC and local law enforcement, administers security and law enforcement for the property. Additionally, the District has a security resident that lives on site.

Security Strategies

General Maintenance and Management Strategies

- Coordinate with local law enforcement and FWC for security needs.
- Maintain contract with private security firm.
- Maintain agreement with current security resident to help monitor the property.

Specific Strategies

Recurrent

- Develop monthly, prioritized security needs and provide to contracted security firm.
- Conduct biennial boundary line posting.

Short-term Planning Horizon (1-5 years)

- Identify, map, and prioritize locations of fencing needs.

ADMINISTRATION

Real Estate Administration

There are no anticipated acquisitions associated with the Lochloosa Wildlife Conservation Area in the next ten years. The District may pursue acquisition of additional parcels or easements that may improve access for management purposes.

Through a land assessment process, the District has identified land (see Figure 4) for potential surplus or alternative use. As part of the required surplus lands review, it has been recommended that enhanced forestry practices be applied to the uplands within an approximately 2,695 acre area on the northwest portion of the conservation area. Enhanced forestry practices is a general term applied to certain lands as part of the surplus review. In this case, the area identified refers to sandhill restoration, which will enhance the natural community in the area identified (also noted in Figure 15, Restoration Unit Map) and improve wildlife habitat. The east side of the conservation area abuts US 301 for approximately two miles. A portion of the CSX Railroad runs north/south, parallel to this boundary. All of the land located east of the railroad and a small area to the west has been identified for potential exchange or surplus. Bisecting this land is Lochloosa Slough, an important wetland that is within the Lochloosa Lake Special Outstanding Florida Water boundary.

Real Estate Administration Strategies

General Maintenance and Management Strategies

- Evaluate adjacent properties for potential acquisition.
- Consider offers to sell lands identified for surplus, subject to a conservation easement, where indicated in Lands Assessment Implementation Plan, 2012.

Short-term Planning Horizon (1-5 years)

- Refine boundary and parcel data information and map layers.

Cooperative Agreements, Leases, Easements, and Special Use Authorization

In accordance with District Policy #90-16, the District promotes entering into agreements with other agencies and private parties for cooperation and coordination of management of the District's lands. These cooperative agreements serve to protect the District's water management interests and to enhance the management and public value of the land. Table 7 details the agreements and SUAs in effect during the writing of this plan.

The District and Plum Creek own to the centerline of Fish Camp Road, on the northern boundary of the property. In an informal agreement, it was decided that the District would replace the two bridges on Fish Camp Road and in return, Plum Creek would maintain Fish Camp Road through periodic grading. This agreement will be formalized, via letter, under the purview of this plan.

Table 7 – Agreements, Easements, and SUA Table

Agreement Number	Type	Agreement Name	Term
1091	Lease	Brinson Malcolm (Apiary - Brinson Honey) (Revenue)	Expires January 2020
1084	Lease	C&E Farms LLC (Coulliette) Cattle Lease - Revenue	Expires January 2017
1088	Intergovernmental	Cooperative Agreement with FWC for WMAs and PSGHAs	Expires May 2034
1121	SUA	FWC Frogloggers (Anna Farmer)	Expires January 2016
1098	SUA	FWC Florida Mouse Study	Expires June 2016
1096	SUA	Florida Department of Environmental Protection Sinkhole Project	Expires September 2016
816	Residence	Hill, Thomas (DJ)(Employee Resident/Lochloosa)	Ongoing
986	SUA	Florida Fish and Wildlife Conservation Commission Turkey Research	Expires February 2017
1029	SUA	Williamson Hog Removal	Expires February 2018

Cooperative Agreements, Leases, Easements, and Special Use Authorizations Strategies

General Maintenance and Management Strategies

- Administer easements, agreements, leases, and SUAs.

Short-term Planning Horizon (1-5 years)

- Formalize the Plum Creek/District agreement to have Plum Creek maintain Fish Camp Road.

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IMPLEMENTATION CHART

Table 8. Lochloosa Wildlife Conservation Area – Management Implementation Chart

TASK	RECURRENT	1-5 YEARS	5-10 YEARS	LEAD (COOPERATOR)
RESOURCE PROTECTION AND MANAGEMENT				
Water Resources				
General Maintenance				
Conduct maintenance and incidental or emergency repair of water resource structures as necessary.	-----	-----	-----	BLR
Maintain water resource structures database and incorporate maintenance, repair, and any new structures.	-----	-----	-----	BLR
Recurrent				
Visually inspect roads, trails, firelines, culverts, and low water crossings for erosion problems and maintenance and repair needs.	-----	-----	-----	BLR, BOP
Short-term Planning Horizon				
Conduct repairs and replacements to road structures as indicated in Table 4.	-----	-----	-----	BLR, BOP
Floral and Faunal				
General Maintenance				
Collect species occurrence data and incorporate into the land management biological database.	---	---	---	BLR
Conduct management activities in a manner consistent with relative rules, regulations, guidelines, and species management plans and in a manner that provides maximum protection for listed, rare, sensitive, or otherwise desirable species.	---	---	---	BLR
Conduct feral hog removal activities as need is indicated.	-----	-----	-----	BLR

Continue appropriate treatment of exotic vegetation.	-----	-----	-----	BLR
Recurrent				
Annually survey Bald Eagle nesting sites and record activity status.	Annually	-----	-----	BLR
Incorporate annually collected Bald Eagle nesting site data into the land management Bald Eagle database.	Annually	-----	-----	BLR
Forest Management				
General Maintenance				
Monitor groundcover regeneration	-----	-----	-----	BLR
Monitor longleaf pine plantings and regeneration.	-----	-----	-----	BLR
Recurrent				
Conduct visual monitoring for disease and/or insect infestation.	-----	-----	-----	BLR
Conduct seedling survival monitoring.	-----	-----	-----	BLR
Short-term planning horizon				
Conduct pine harvest operations as detailed (through 2015) in Table 5 and Addendum 4.	-----	-----	-----	BLR
Evaluate upland restoration opportunities and implement as site conditions warrant.	-----	-----	-----	BLR
Develop monitoring protocol for restoration units.	-----	-----	-----	BLR
Long-term planning horizon				
Conduct pine harvest operations as detailed (2016-2021) in Table 5 and Addendum 4.	-----	-----	-----	BLR
Fire Management				
General Maintenance				
Implement prescribed burning as described in the District's Draft Fire Management Plan and the Lochloosa Wildlife	---	---	---	BLR

Conservation Area Fire Management Plan.				
Respond to wildfires that impact District lands.	---	---	---	BLR
Rehabilitate firelines and other impacted areas after wildfires are successfully suppressed	---	---	---	BLR
Recurrent				
Develop annual burn plans.	Annually by September 30th.	-----	----	BLR
Populate and maintain fire management database.	Annually by September 30th.	-----	-----	BLR (BRS)
Conduct fireline maintenance.	Biannually Spring and Fall unless site conditions warrant otherwise	-----	-----	BLR
Cultural Resource Protection				
General Maintenance				
Identify and report any new sites.	---	---	---	BLR, BOP, BRS (DHR)
Access				
General Maintenance				
Maintain parking areas, signs, gates, roads, and trail.	---	---	---	BLR, BOP
Recurrent				
Update roads, gates, and firelines in the land management database as maintenance, repair, or creation of new roads or trails occurs.	Annually by September 30th	-----	----	BLR
Grade Cooter Bob Road and Burnt Island Road.				
Short-term planning horizon				
Stabilize Garrison Hammock Road.	-----	-----	-----	BOP
Conduct improvements to roads on the north side of the property.	-----	-----	-----	BOP
Long-term planning				

Add roads on north side of the property to mowing contract, once improved.	-----	-----	-----	BLR
Recreation				
General Maintenance				
Maintain parking areas, kiosks, and trails.	---	---	---	BLR (BOP)
Coordinate with FWC to administer public hunting opportunities associated with the Wildlife Management Area.	---	---	---	BLR (FWC)
Maintain current information in recreation guide, trail guides, kiosk, and District website.	---	---	---	BLR (FWC, OC)
Recurrent				
Mow recreational trails.	Quarterly			BLR
Mow/maintain parking areas.	Bimonthly	-----	-----	BLR
Mow/maintain campsite.	Monthly	-----	-----	BLR
Conduct trail blazing and trimming maintenance.	Annually by December 31st.	-----	------	BLR
Short-term Planning				
Evaluate and prioritize potential/need for additional recreational facilities.	---	---	---	BLR
Environmental Education				
General Maintenance				
Continue to offer educational opportunities if possible and subject to staff and budget availability.	-----	-----	-----	OC (BLR)
Security				
General Maintenance				
Coordinate with local law enforcement and FWC for security needs.	---	---	---	BLR FWC, County
Maintain contract with private security firm.	---	---	---	BLR (BRS)
Maintain agreement with current security resident to help monitor the property.	---	---	---	BLR (BRS)
Recurrent				

Develop monthly, prioritized security needs and provide to contracted security firm.	Monthly	-----	-----	BLR
Conduct biennial boundary line posting.	2017, 2019, 2021, 2023, 2025	-----	-----	BLR
Real Estate Administration				
General Maintenance				
Evaluate adjacent properties for potential acquisition.	---	---	---	BRS (BLR)
Consider offers to sell lands identified for surplus, subject to a conservation easement, where indicated in Lands Assessment Implementation Plan, 2012.	-----	-----	-----	BRS
Short-term Planning Horizon				
Refine boundary and parcel data information and map layers	-----	-----	-----	BRS
Cooperative Agreements, Leases, Easements, and Special Use Authorizations				
General Maintenance				
Administer easements, agreements, leases, and SUAs	-----	-----	-----	BLR (BRS)
Formalize the Plum Creek/District agreement to have Plum Creek maintain Fish Camp Road	-----	-----	-----	BRS (BLR)

IMPLEMENTATION CHART KEY
BLR – Bureau of Land Resources
BOP – Bureau of Operations
BRS – Bureau of Real Estate Services
DHR – Division of Historical Resources
FWC – Florida Fish and Wildlife Conservation Commission
OC – Office of Communications

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ADDENDUM 1 – SOILS

The following soil series descriptions are taken directly from the USDA-NRCS using the online query tool. As of the writing of this plan, the query tool may be located at https://soilseries.sc.egov.usda.gov/osdnamequery.asp.

The Apopka series consists of very deep, well drained, moderately permeable soils on ridges and side slopes in the Lower Coastal Plain. They formed in thick beds of sandy and loamy marine or eolian deposits. The understory vegetation supported by this series may consist of bluestem, dog fennel, paspalum, pineland threeawn, and other native grasses and weeds.

The Candler series consists of very deep, excessively drained, rapidly permeable soils on uplands. They formed in thick beds of eolian or marine deposits of coarse textured materials. They are typically located in Marion County, Florida; approximately 200 feet west of the Base Line Road; about 0.75 mile north of Silver Springs. Native vegetation consists of blue jack oak, turkey oak, post oak, live oak, and longleaf pine with a sparse understory of indiangrass, chalky bluestem, pineland threeawn, hairy panicum, and other annual forbs.

The Chipley Sand series consists of very deep, somewhat poorly drained, very rapid or rapidly permeable soils on uplands in the lower coastal plain. They formed in thick deposits of sandy marine sediments. They are typically located on the uplands of the southern coastal plain. Native vegetation consists of slash pine, longleaf pine, blackjack oak, turkey oak, post oak, several bluestem species, low panicums, and purple lovegrass.

The Emeralda series consists of very deep, poorly drained, slowly or very slowly permeable soils in broad, low areas generally near lakes and streams in the lower Coastal Plain. They formed in clayey marine sediments. Emeralda soils are on broad areas in the lower Coastal Plain. Native vegetation consists of live oak, laurel oak, water oak, scattered slash pine, sweetgum, and red maple with an understory of wax myrtle, cabbage palm, saw palmetto, gallberry, cutgrass, beaked panicum, and sand cordgrass.

The Floridana series are very deep, very poorly drained, slowly to very slowly permeable soils on low, broad flats, flood plains, and in depressional areas. They formed in thick beds of sandy and loamy marine sediments. Slopes in areas where this soil is found ranges from 0-1%. Natural vegetation consists of sand cordgrass, cabbage palmetto, myrtle, and pineland threeawn. In depressional areas, most of the soil has a sparse to dense cover of cypress. In floodplains, the vegetation is mostly sweetgum, black gum, red maple, and cypress.

The Lake series consists of excessively drained, rapidly to very rapidly permeable soils formed in thick beds of sand. They are on nearly level to steep slopes in central Florida. They are located in Lake County, Florida about 3 miles south of Astatula; 1/2 mile west of intersection of State Roads 561 and 455; 150 feet south of Highway 455.

The Ledwith Muck series consists of very deep, very poorly drained, slowly permeable soils in fresh water marshes, swamps, and prairie areas of central and southern Florida. They formed in clayey marine sediments. They are in marshes, swamps, and wet prairie areas of central and

southern Florida. Most areas of Ledwith soils remain in natural vegetation and are used for wildlife habitat. Some areas have been drained and are used for truck crops or improved pasture. Vegetation is dominantly a mixture of wetland grasses, herbs, and shrubs, which include bulrush, maidencane, cordgrass, cattails, cutgrass, buttonbush, goldenrod, flatsedge, and inplaces, some wax myrtle and willow. A few areas have scattered pond cypress and water tupelo.

The Lochloosa series consists of somewhat poorly drained, slowly permeable soils formed in thick beds of sandy and loamy marine sediments in central Florida. Native vegetation consists of slash and loblolly pine, dogwood, hickory, live, laurel and water oak, sweetgum, red maple, and magnolia. The understory is waxmyrtle, briars, and native grasses.

The Mascotte series consists of very deep, poorly and very poorly drained, moderately slowly permeable soils on areas of flats, depressions, and on low stream terraces of the lower Coastal Plain. They formed in sandy and loamy marine sediments. Large areas of Mascotte soils are used for tame pasture, truck crops, planted pines, and range. Natural vegetation consists of creeping and chalky bluestem, indiangrass, low panicums, and pineland threeawn. Longleaf pine, slash pine, sawpalmetto, gallberry, fetterbush, and waxmyrtle are the dominant woody plants on flatwoods sites. Depressional areas are dominated by cypress, slash pine, sand pine, loblolly bay, black gum, red bay, red maple, and sweetbay. The understory includes chalky bluestem, cinnamon fern, club moss, yelloweyed grass, pitcher plant, greenbriar, and sedges.

The Millhopper series consists of very deep, moderately well drained, moderately permeable soils that formed in thick beds of sandy and loamy marine sediments. Native vegetation consists of live oak, laurel oak, post oak, water oak, sweetgum, cherry laurel, few hickory, and slash and longleaf pine. The understory is chiefly lopsided indiangrass, hairy panicum, low panicum, greenbrier, hawthorne, persimmon, fringeleaf paspalum, chalky and creeping bluestems, and pineland threeawn.

The Myakka series consists of deep and very deep, poorly to very poorly drained soils formed in sandy marine deposits. These soils are on flatwoods, high tidal areas, flood plains, depressions, and gently sloping to barrier islands. Slopes in areas where these soils are found range from 0-8%. Native vegetation includes longleaf and slash pines with an undergrowth of saw palmetto, running oak, inkberry, wax myrtle, huckleberry, chalky bluestem, pineland threeawn, and scattered fetterbush.

The Newnan series consists of somewhat poorly drained soils that formed in thick beds of sandy and loamy marine sediments of slight ridges in the flatwoods areas of central and southern Florida. Some areas of these soils are in tame pasture or in special crops. Most areas remain in native vegetation consisting of slash and longleaf pine and scattered live and laurel oaks. A few turkey or water oaks are in some areas. The understory is chiefly huckleberry, blueberry, gallberry, running oak, brackenfern, bluestems, paspalums, pineland threeawn, sawpalmetto, greenbrier, lovegrass, and lopsided indiangrass.

The Pamlico muck series consists of very poorly drained soils that formed in decomposed organic material underlain by dominantly sandy sediment. The soils are on nearly level flood plains, bays, and depressions of the Coastal Plain. Slopes are less than 1 percent. In the natural

stage, practically all of these soils are used for woodland and wildlife. The native vegetation consists of pond pine, tupelo gum, sweetbay, gumtrees, cypress, greenbrier, wax myrtle bushes, with undergrowth of gallberry and cut bamboo briers. These soils are used for improved pasture, corn, soybeans, oats, truck crops, and other cultivated crops when drained.

The Pelham series consists of very deep, poorly drained, moderately permeable soils that formed in unconsolidated Coastal Plain sediments. These soils are on nearly level broad flats, toe slopes, depressions and drainageways. The native vegetation consists of slash pine, loblolly pine, and longleaf pine together with sweetgum, blackgum, water oak, and cypress. The understory is composed of gallberry, myrtle, swamp holly, and scattered palmettos, and ground cover is wiregrass and other water-tolerant grasses. Most areas of Pelham soils are used for forestry. Some areas are used for pasture and a few areas are used for growing vegetables and corn.

The Pit series consists of very deep, poorly drained soils that formed in fine-textured alluvium weathered from extrusive and basic igneous rocks. Pit soils are on flood plains and in basins. Vegetation is hair grass, alpine timothy, Baltic rush, sedges, bluegrass, and scattered silver sagebrush in the drier locations.

The Placid series consists of very deep, very poorly drained, rapidly permeable soils on low flats, depressions, poorly defined drainageways on uplands, and flood plains on the Lower Coastal Plain. They formed in sandy marine sediments. Natural vegetation consists of pond pine, bay, cypress, gum, pickerel weed, and coarse grasses.

The Plummer fine sand series consist of poorly or very poorly drained soils in the upper, middle, and lower coastal plains. They are found in flats and depressions. Major Uses include woodlands with dominant vegetation in wooded areas being mixed stands of slash, loblolly, and longleaf pine with swamp tupelo and bald cypress and an understory of gallberry, waxmyrtle, southern bayberry, wiregrass, pitcher plants, and bracken fern and in cleared areas they are found in pasture.

The Pomona series consists of very deep, poorly and very poorly drained, moderate to moderately slowly permeable soils on broad low ridges on the Lower Coastal Plain. They formed in sandy and loamy marine sediments. The native vegetation consists of slash pine (*Pinus Elliottii*), longleaf pine (*Pinus Palustris*), and south Florida slash pine (*Pinus elliottii densa*) with an understory of sawpalmetto, waxmyrtle, gallberry, creeping bluestem, chalky bluestem, indiangrass, and pineland threeawn.

Pompano consists of very deep, very poorly drained, rapidly permeable soils in depressions, drainageways, and broad flats. They formed in thick beds of marine sands. Mean annual precipitation is about 50 inches and slopes range from 0-2%. Natural vegetation consists of palmetto, widely spaced cypress, gum, slash pine, and native grasses.

The Pottsburg sand series consists of very deep, somewhat poorly and poorly drained soils that formed in marine sediments. They are found in northern peninsular Florida and north. Major uses include timber and pulpwood production and community development. Dominant vegetation includes second growth slash and longleaf pine with an understory of sawpalmetto, gallberry,

pineland threeawn, broomsedge bluestem, lopsided indiangrass, chalky bluestem, wild grape, and other perennial grasses

The Samsula series consists of very deep, very poorly drained, rapidly permeable soils that formed in moderately thick beds of hydrophytic plant remains and are underlain by sandy marine sediments. These soils are in swamps, poorly defined drainage ways, and flood plains. Slopes are less than 2%. Natural vegetation is loblolly bay, with scattered cypress, maple, gum, and trees with a ground cover of greenbriers, ferns, and other aquatic plants.

The Shenks series consists of very poorly drained, slowly permeable soils that formed in moderately thick deposits of sapric material over clayey marine sediments. These soils occur within marshes, swamps, flood plains, and wet prairies of central and southern Florida. Most areas remain in natural vegetation and are used for wildlife habitat. Natural vegetation consists of maidencane, cordgrass, cattail, bulrush, goldenrod, cutgrass, buttonbush, and other aquatic plants. A few areas may have scattered cypress and water tupelo. Swamp vegetation including cypress, water tupelo, sweetgum and red maple dominate the flood plains. Some areas have been drained and are used for truck crops or improved pasture.

The Sparr series consists of very deep, somewhat poorly drained, moderately slowly to slowly permeable soils on uplands of the coastal plain. They formed in thick beds of sandy and loamy marine sediments. Native vegetation consists of longleaf pine, slash pine, loblolly pine, magnolia, dogwood, hickory, and live oak, laurel oak, and water oak.

The Starke sand series consists of very poorly drained, moderate to moderately slowly permeable soils in depressions, poorly defined drainageways, and on flood plains. They formed in thick beds of sandy and loamy marine sediments. Slopes range from 0 to 2 percent. Most areas of this soil are in natural vegetation which includes cypress, red maple, sweetgum, sweet bay, scattered slash and pond pine, swamp tupelo, and water tupelo. The understory consists of waxmyrtle, inkberry, fetterbush lyonia, swamp cyrilla, greenbriar, maidencane, brackenfern, sedges, and other water tolerant plants. Areas of this soil provide cover for deer and are excellent habitat for wading birds and other wetland wildlife.

The Surrency sand series consists of very poorly drained, moderately slow to moderately drained soils found in flats, depressions, and swamps. It was formed with marine and fluvial sediments. Major Uses: Forest or water-tolerant grasses; some pasture. Dominant vegetation includes loblolly pine, slash pine, bald cypress, sweetgum, black gum, red maple, sweetbay magnolia, and water oak; shrubs are inkberry, southern wax myrtle, and titi.

The Tavares series consists of very deep, moderately well drained, rapidly or very rapidly permeable soils on lower slopes of hills and knolls of the lower Coastal Plain. They formed in sandy marine or eolian deposits. In most places the natural vegetation consists of slash pine, longleaf pine, a few scattered blackjack oak, turkey oak, and post oak with an undercover of pineland threeawn. In some places natural vegetation consists of turkey oak, blackjack oak, and post oak with scattered slash pine and longleaf pine.

The Terra Ceia series consists of very deep, very poorly drained organic soils that formed from nonwoody fibrous hydrophytic plant remains. They occur mostly in nearly level freshwater marshes and occasionally on river floodplains and in tidal swamps or flats. Natural vegetation includes sawgrass, lilies, sedges, reeds, maidencane, and other aquatic plants. Wooded areas include cypress, black gum, cabbage palm, Carolina ash, loblolly bay, red maple, sweet bay, and pond pine. Large undeveloped areas are used for wildlife habitat and water storage.

The Wauberg series consists of poorly drained, very slowly permeable soils that formed in thick beds of loamy marine sediments within large prairie areas and low areas within the flatwoods of central and southern Florida. Native vegetation consists of low panicums, bushy beard, creeping and chalky bluestems, bulrush, cutgrass, maidencane, carpet grass, dog fennel, briars, thistle, and wax myrtle, slash and longleaf pine, sweetgum, and red maple.

The Wauchula sand series consists of very deep, very poorly or poorly drained, moderately slow or slowly permeable soils on flatwoods on the lower coastal plains. They formed in sandy and loamy marine sediments. Many areas of this soil have been cleared and are used for tame pasture or range. Some areas are used for citrus and vegetable crops where water control is adequate. The natural vegetation consists of longleaf pine, slash pine, sawpalmetto, with an understory of inkberry, fetter, southern bayberry, and pineland threeawn.

The Wesconnett series consists of very deep, very poorly drained sandy soils that formed in sandy deposits on marine terraces. These soils are in depressions and on flood plains. Most of this soil is in forest. Natural vegetation is bald cypress, pond cypress, red maple, sweetbay magnolia, sweetgum, cabbage palm, holly, and water oak, with an understory of waxmyrtle and sparse amounts of creeping bluestem, hairy bluestem, and toothachegrass.

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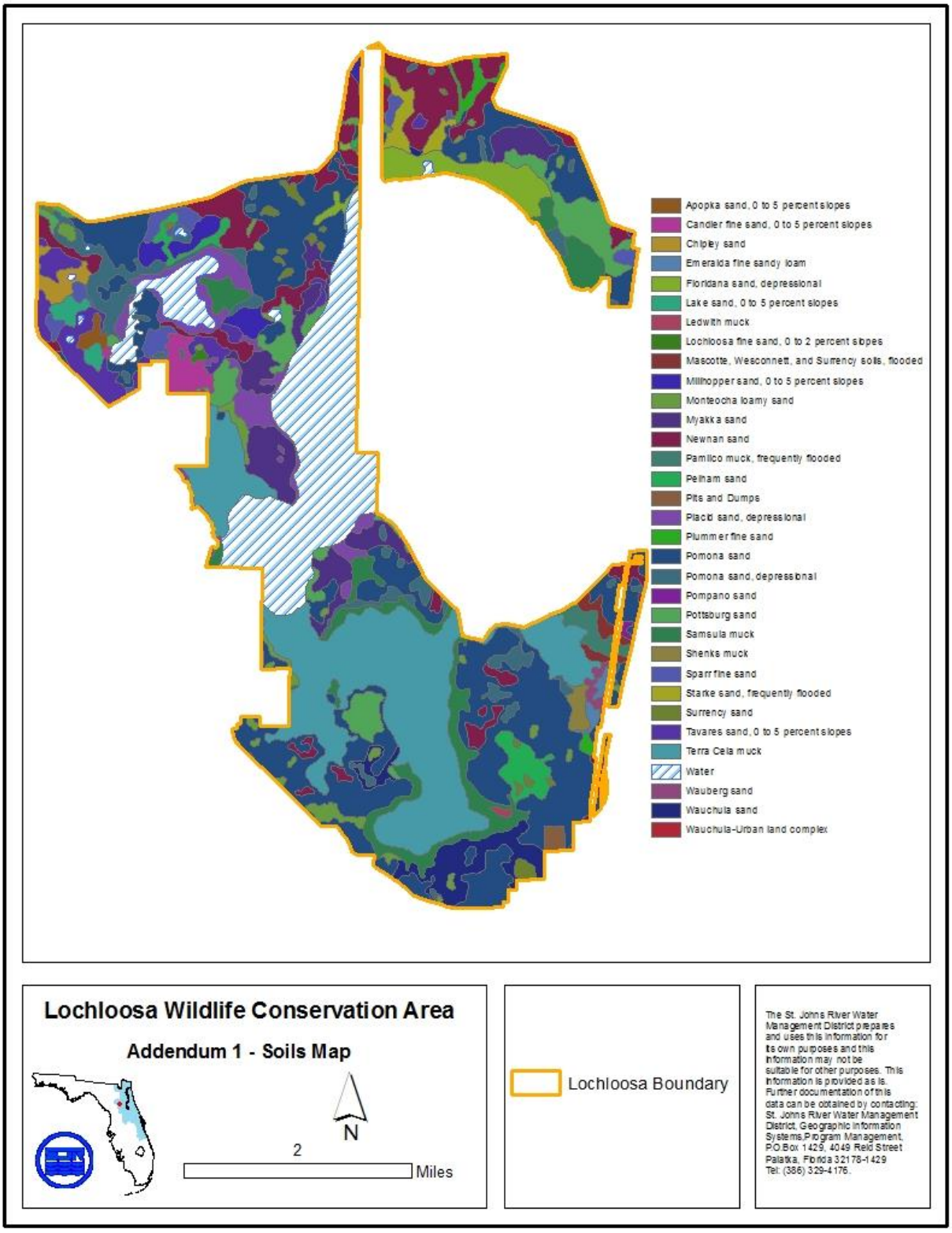

Apopka sand, 0 to 5 percent slopes
Candler fine sand, 0 to 5 percent slopes
Chipley sand
Emeralda fine sandy loam
Floridana sand, depressional
Lake sand, 0 to 5 percent slopes
Ledwith muck
Lochloosa fine sand, 0 to 2 percent slopes
Mascotte, Wesconnett, and Surrency soils, flooded
Millhopper sand, 0 to 5 percent slopes
Monteocha loamy sand
Myakka sand
Newnan sand
Pamlico muck, frequently flooded
Pelham sand
Pits and Dumps
Placid sand, depressional
Plummer fine sand
Pomona sand
Pomona sand, depressional
Pompano sand
Pottsburg sand
Samsula muck
Shenks muck
Sparr fine sand
Starke sand, frequently flooded
Surrency sand
Tavares sand, 0 to 5 percent slopes
Terra Ceia muck
Water
Wauberg sand
Wauchula sand
Wauchula-Urban land complex
Lochloosa Wildlife Conservation Area
Addendum 1 - Soils Map
N
2
Miles
Lochloosa Boundary
The St. Johns River Water Management District prepares and uses this information for its own purposes and this information may not be suitable for other purposes. This information is provided as is. Further documentation of this data can be obtained by contacting: St. Johns River Water Management District, Geographic Information Systems,Program Management, P.O.Box 1429, 4049 Reid Street Palatka, Florida 32178-1429 Tel: (386) 329-4176.

ADDENDUM 2 – SPECIES RANKING DEFINITIONS

FNAI GLOBAL RANKING

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.

G2 = Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.

G3 = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.

G4 = Apparently secure globally (may be rare in parts of range).

G5 = Demonstrably secure globally.

G#T# = Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1).

FNAI STATE RANKING

S1 = Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.

S2 = Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.

S3 = Either very rare and local in Florida (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.

S4 = Apparently secure in Florida (may be rare in parts of range).

S5 = Demonstrably secure in Florida.

STATE LEGAL STATUS

LE Endangered: species, subspecies, or isolated population so few or depleted in number or so restricted in range that it is in imminent danger of extinction.
LT Threatened: species, subspecies, or isolated population facing a very high risk of extinction in the future.
LS Species of Special Concern is a species, subspecies, or isolated population which is facing a moderate risk of extinction in the future.
PE Proposed for listing as Endangered.
PT Proposed for listing as Threatened.

PS Proposed for listing as Species of Special Concern.
N Not currently listed, nor currently being considered for listing.

FEDERAL LEGAL STATUS

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.
LT, PDL Species currently listed threatened but has been proposed for delisting.
LT,PE Species currently listed Threatened but has been proposed for listing as Endangered.
SAT Treated as threatened due to similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.
PE Proposed for listing as Endangered species.
PT Proposed for listing as Threatened species.
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.
XN Non-essential experimental population.
SC Not currently listed, but considered a "species of concern" to USFWS.
N Not currently listed, nor currently being considered for listing as Endangered or Threatened.

FDACS
C Commercially exploited.

ADDENDUM 3 – FIRE MANAGEMENT PLAN

LOCHLOOSA WILDLIFE CONSERVATION AREA

FIRE MANAGEMENT PLAN

PREPARED BY

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

Lochloosa Wildlife Conservation Area
Fire Management Plan
Alachua County, Florida

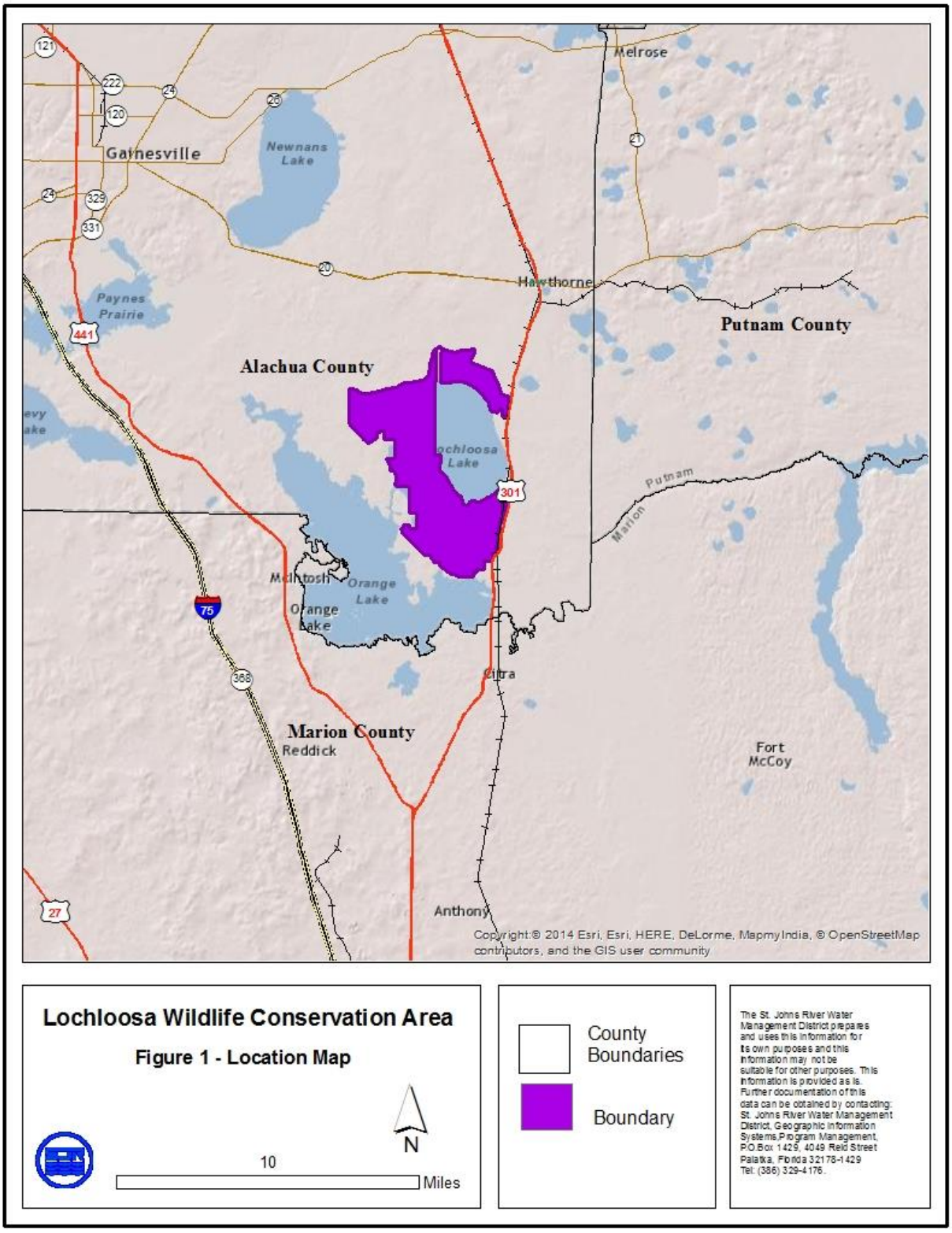
The District Fire Management Plan provides general fire management information relative to policy, procedure, and reporting. This document provides the guidelines for the implementation of prescribed fire activities on the Lochloosa Wildlife Conservation Area (Lochloosa, property).

Introduction and Objectives

Lochloosa includes 10,737 acres in Alachua County within the Orange Creek drainage basin, a sub-basin of the Ocklawaha River Basin. Lochloosa is located in numerous sections of Township 10, 11, and 12 South and Ranges 21 and 22 East. Figure 1 provides an aerial view of Lochloosa in 2012. The property is located (Figure 2) on the north, west, and southern boundaries of Lochloosa Lake. The property is 3 miles south of Hawthorne, 20 miles southeast of the City of Gainesville and adjacent to the northeast to the historic town of Cross Creek. Fish Camp Road is the northern property boundary and CR 325 is the property's southern and western boundaries. US 301 is the eastern border of the property. Plum Creek – Lochloosa Conservation Easement borders the property to the north and west and Longleaf Flatwoods Reserve borders the property to the northwest, across from CR 325.

Historically, fires have played a vital role in the shaping and maintenance of many of the natural communities in Florida. As such, most vegetative communities and associated wildlife are fire adapted and in many instances fire dependant. Conversely, the exclusion of fire from an area allows for successional changes within the natural community. Fire exclusion leads to the excessive accumulation of fuel loads, which increase the risk for catastrophic wildfires. The goals for the implementation of fire management activities within the Lochloosa Wildlife Conservation Area include:

Reduction of fuel loads through the application of dormant season burns to decrease potential risk of damaging wildfires;
Reintroduction of growing season burns to encourage the amelioration of native fire adapted ground cover species;
Mitigation of smoke management issues;
Restoration and maintenance of a mosaic of natural plant communities and ecological diversity;
Maintenance and restoration of ecotones


Melrose
Gainesville
Newnans Lake
Hawthorne
Paynes Prairie
Putnam County
Alachua County
Lochloosa Lake
Putnam
Marion
McIntosh
Orange Lake
Orange Lake
Citra
Marion County
Reddick
Fort McCoy
Anthony
Copyright:© 2014 Esri, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community
Lochloosa Wildlife Conservation Area
Figure 1 - Location Map
N
10
Miles
County Boundaries
Boundary
The St. Johns River Water Management District prepares and uses this information for its own purposes and this information may not be suitable for other purposes. This information is provided as is. Further documentation of this data can be obtained by contacting: St. Johns River Water Management District, Geographic Information Systems,Program Management, P.O.Box 1429, 4049 Reid Street Palatka, Florida 32178-1429 Tel: (386) 329-4176.

The achievement of these goals requires that the property be partitioned into manageable burn units prior to the application of prescribed fire within those units. The following sections summarize the considerations necessary for the safe and effective use of prescribed fire as a land management tool within the Conservation Area.

Fire Return Interval

The general frequency to which fire returns to a community type is termed its fire return interval. Some communities require frequent pyric perturbations to perpetuate themselves while others are not fire adapted and subsequently do not require fire to maintain their characteristics. The following table (Table 1) outlines native plant communities occurring on the property and the optimal fire return intervals. These intervals were characterized in part using information from the Florida Natural Areas Inventory's *Guide to the Natural Communities of Florida*.

Table 1.

Natural Community Type	Acreage*	Percent Coverage	FNAI Ranking	FNAI Fire Return Interval*
Mesic Flatwoods	3,782.8	35%	G4/S4	2-4 years
Basin Marsh	2,031	19%	G4/S3	1-3 years
Hydric Hammock	1,298	12%	G4/S4	Rare; depending on size and adjacent community types
Floodplain Swamp	885.60	8.2%	G4/S4	This is not a fire adapted community
Sandhill	877.43	8.2%	G3/S1	1-3 years
Dome Swamp	80.88	<1%	G4/S4	3-5 years along the outer edges (or as adjacent communities burn); 100-150 years interior
Basin Swamp	200	1.8%	G4/S3	Occasional or rare fire
Depression Marsh	82.81	<1%	G4/S4	This community burns in conjunction with adjacent pyric plant communities
Floodplain Marsh	144.85	1.3%	G3/S3	1-3years
Upland Mixed Woodland	169.66	1.5%	G2/S2	2 – 10 years
Subtotal		-----	-----	-----
Altered Land Types		Percent Coverage		Fire Return Interval
Pasture	1.5	<1%	-----	1-3 years or in conjunction with adjacent pyric plant communities
Water	1,182.27	10%	-----	-----
Subtotal		-----	-----	-----
Total	10,737*	-----	-----	-----

The above referenced fire return intervals relate to high quality natural communities. The fire return interval within degraded systems is variable, often elongated. Prescribed fire will be applied as necessary to achieve management and enhancement goals.

Mesic flatwoods is the most prevalent fire adapted natural community type found within the property. Prior to public acquisition, the majority of these areas were cleared of much of the overstory pine and utilized as native range for cattle. The mesic flatwoods within Lochloosa are mostly densely planted pine, however the goal is to maintain them with fire to help maintain natural function. Many flatwoods areas are overgrown, but recent burning and wildfire are moving them towards a more naturally functioning system.

Fire management within the remaining plant communities (below) will be in conjunction with the associated dominant pyric plant community within each fire management unit (FMU). These plant communities will burn as site conditions permit during the implementation of controlled burns in adjacent plant communities. Additionally, these areas will not be excluded from fire activities unless warranted by safety or smoke management issues.

Depression and basin marshes are fire-adapted communities. Though fire may not carry entirely through each marsh during every burn, it is an important factor in the maintenance of ecotonal habitats surrounding them. These marshes are embedded within the mesic flatwoods areas at Lochloosa. Fire will be applied to these marshes any time surrounding natural communities are burned.

Dome swamps are scattered throughout the flatwoods at Lochloosa. Many of these domes have been altered to some extent by past management activities, yet many retain the characteristic "bands" of vegetation normally found in the shallow outer edges of the domes. Fire will be applied to dome swamps as the adjacent communities are burned.

Seasonality and Type of Fire

Historically, most fires in Florida occurred in what is commonly referred to as the "growing season." The growing season usually spans from mid March through August. Fires during the spring and early summer months generally have significant ecological benefits as most fire-adapted flora is perpetuated by fire. Mimicking lightning-ignited natural fires by implementing prescribed fire during the growing season provides benefits to natural systems by controlling shrub layers and encouraging diversity in groundcover species.

Dormant season burns, conducted from mid November through the mid March, are less intense than growing season burns and are a desirable alternative when igniting fire in young pine plantations. Additionally, dormant season burns help to reduce fuel loads in overgrown areas, resulting in fewer safety and smoke management issues. Fuel loads range widely across the conservation area. While thousands of acres have been treated with prescribed burns, or been impacted by wildfires, the effects of long-term fire exclusion prior to the District purchase of the Lochloosa Wildlife Conservation Area have not been entirely overcome. These effects include: increased fuel loads, increased dominance of shrubby plants, decreased abundance of herbaceous plants, and shift in species. The District has worked towards restoration of the natural

distribution and abundance of plant and animal species through the use of prescribed fire and mechanical manipulations. It may take several iterations of fire and likely the addition of mechanical and chemical treatments to reduce shrub heights across much of the conservation area.

The current fuel conditions may require that some of the initial applications of fire be in the form of dormant season burning. This will allow for the reduction of fuel loads while providing for the protection of desirable vegetation. The ultimate goal of this strategy will be to move the prescribed fire application into a growing season rotation. District staff anticipate the gradual increase of growing season burns.

In many cases, fire management units with similar fire management needs may be burned simultaneously, either with crews igniting the areas by hand from the ground, or with the aid of aircraft. Aerial ignition allows District staff to ignite fire management units more quickly, resulting in a faster burnout. In an area with a large mosaic of unavailable fuels, fire can be applied easily to all portions of the unit. With ground-based crews this sometimes is infeasible or impossible and may pose a safety issue. An aerial burn safety plan (Exhibit 1) will accompany the individual burn prescriptions and be onsite and on the ground the day of any aerial burn.

Wildfire Policy

In the event of a wildfire, if conditions permit, suppression strategies will utilize existing fuel breaks to contain the wildfire. These fuel breaks may include previously burned areas, existing roads, trails, and firelines, and wetlands and other water bodies. This is only possible with the agreement of local fire rescue, Florida Forest Service, District staff, and when all of the following conditions are met:

1) Fuels within the area have been managed
2) No extreme weather conditions are present or expected
3) There are no other wildfires that may require action
4) There are sufficient resources available to manage the fire to containment
5) The fire and the resulting smoke will not impact neighbors or smoke sensitive areas

If any of these conditions are not met, direct suppression action will be taken.

As soon as possible following a fire in which firelines are plowed, a plan for fireline rehabilitation shall be developed and implemented.

Persons discovering arson or wildfires on the Conservation area should report them to the Florida Department of Agriculture and Consumer Services, Florida Forest Service, the St. Johns River Water Management District, or by dialing 911.

Post Burn Reports

Burn reports must be completed after each controlled burn or wildfire. These reports include detailed information regarding the acreage, fuel models, staff and equipment hours, cooperator hours, contractor hours, weather (forecasted and observed) and fire behavior. The timely completion of these reports is necessary for the compilation of information relative to the entire

District burn program. Additionally, these reports provide a documented account of site-specific conditions which are helpful in the planning of future burns.

Smoke Management

A significant challenge to the implementation of any prescribed burn program is smoke management. Figure 2 illustrates the prescribed fire history since 2007. Fuel loads across the property are medium to high. Accumulated fuels have the potential to produce a tremendous amount of smoke as areas are burned. If surrounding areas become increasingly urbanized, smoke management concerns will increase in magnitude, as there become fewer acceptable places to maneuver a smoke column from a prescribed fire.

Lochloosa has a good smoke shed in which to place a smoke column from a prescribed fire at this time, however smoke sensitive areas do occur in close proximity to the property and affect the smoke management of each burn unit. Smoke management is a limiting factor in the application of prescribed fire within Lochloosa. Smoke management considerations include US 301, CR 325 and SR 20, several surface streets, and residential areas. Additionally, the presence of organic soils along with the down drainage effects of associated creek branches pose management concerns. Figure 3 illustrates smoke sensitive areas in relation the property. As development increases in the area, fire management will become more difficult. Increasing daily traffic on local roads will further impair the District's ability to implement prescribed burns at the appropriate fire return intervals within Lochloosa WCA. Currently, this property still has an acceptable smoke shed into which to place a smoke column from a prescribed fire.

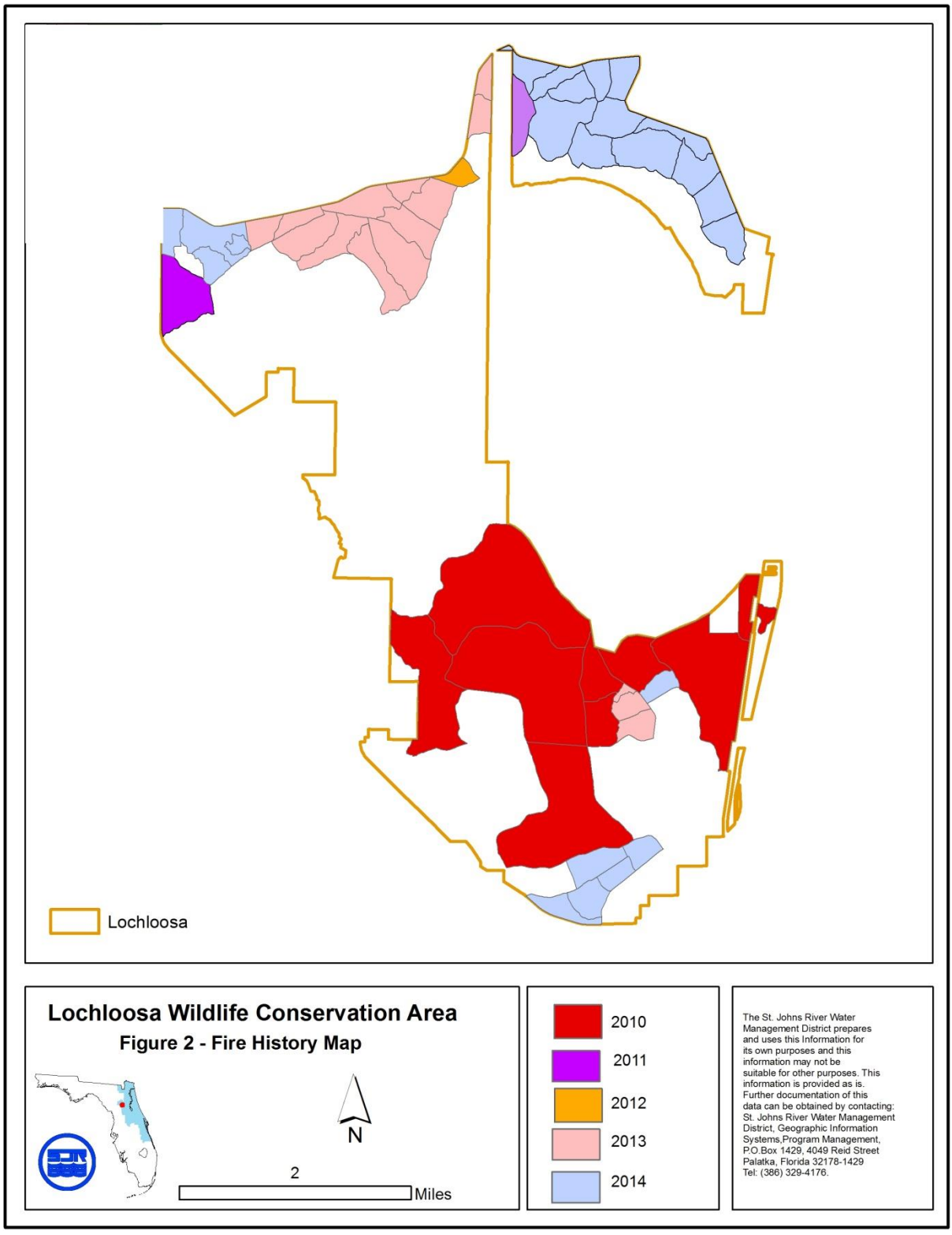
A smoke screening process will be completed with each prescription before an authorization is obtained from the Florida Forest Service. A fire weather forecast is obtained and evaluated for suitable burning conditions and smoke management objectives. A wind direction is chosen that will transport smoke away from urbanized areas and/or impact these smoke sensitive areas in the least possible way. When possible, the smoke plume from burns should be directed back through the property. Smoke can then mix and loft into the atmosphere over uninhabited or rural land adequately enough to minimize off-site impacts.

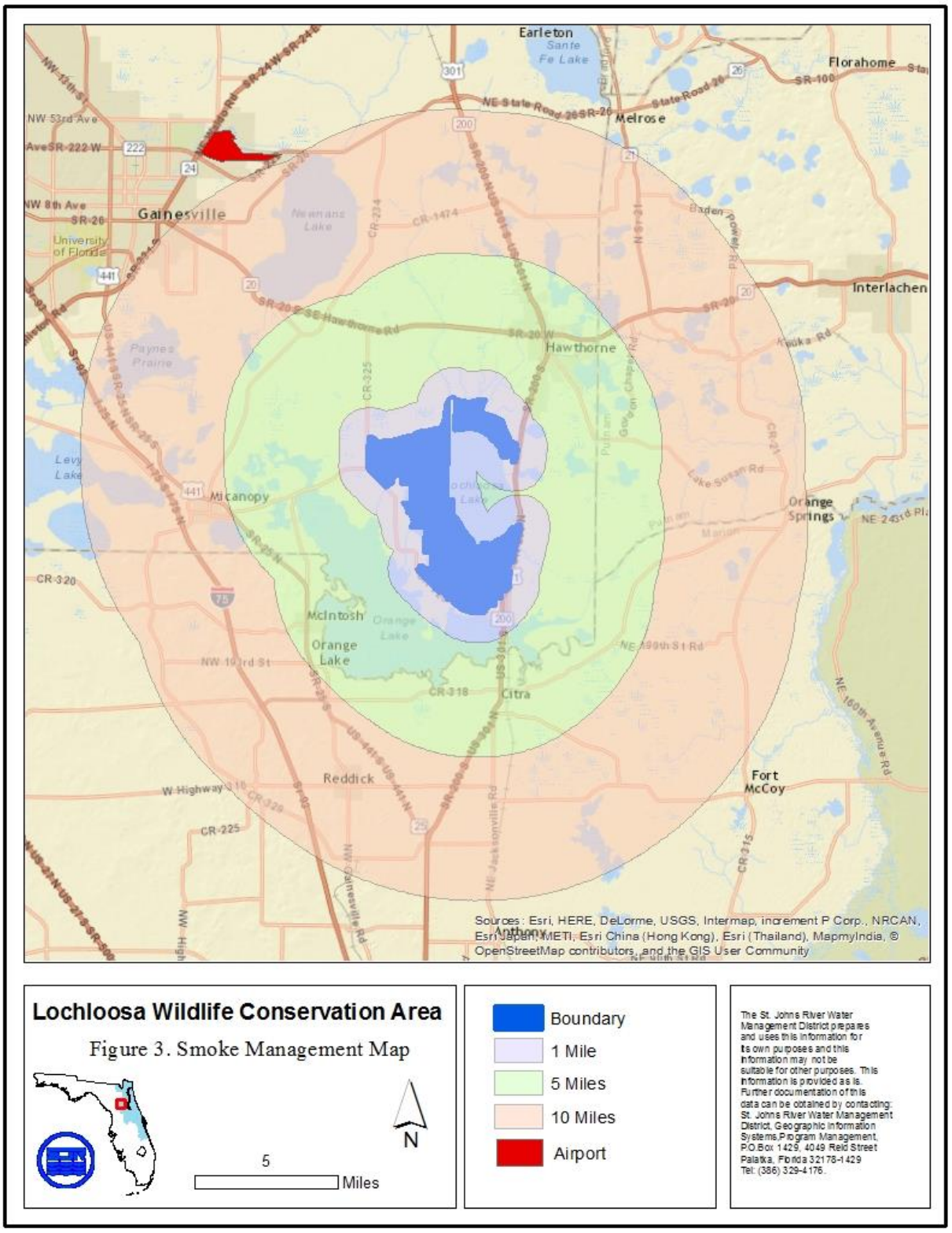
On the day of the burn, the ability of smoke to mix and disperse into the atmosphere should be good. The Dispersion index is a value that indicates the atmospheres ability to "absorb and disperse" smoke. The higher the index value, the more the smoke dissipates. Lochloosa Wildlife Conservation Area's proximity to US301 and other County Roads makes smoke dispersion critical. For burns that are at least ½ mile from a highway and less than 300 acres, dispersion index values should be above 30. For all burns that meet any one of the following criteria the dispersion should be above 44:

Within ½ mile of US 301
Greater than 300 acres
Aerial ignition will be used.

Dispersions of greater than 75 will not be utilized unless other weather parameters mitigate expected fire behavior. In cases where the forecast dispersion is borderline with either the minimum or the maximum, the burn boss should consult the Land Management Program Manager or Bureau Chief.

Forecast mixing heights should be above 1700 ft. Transport winds should be at least 9 mph to effectively minimize residual smoke. Lower transport wind speeds can be utilized if dispersion index and mixing heights are above average. Variations from stated parameters may be incorporated into individual unit prescriptions if site conditions warrant.


Lochloosa
Lochloosa Wildlife Conservation Area
Figure 2 - Fire History Map
N
2
Miles
2010
2011
2012
2013
2014
The St. Johns River Water Management District prepares and uses this Information for its own purposes and this information may not be suitable for other purposes. This information is provided as is. Further documentation of this data can be obtained by contacting: St. Johns River Water Management District, Geographic Information Systems,Program Management, P.O.Box 1429, 4049 Reid Street Palatka, Florida 32178-1429 Tel: (386) 329-4176.


Earleton
Florahome
Melrose
Gainesville
Interlachen
Hawthorne
Micanopy
Orange Springs
McIntosh
Orange Lake
Citra
Reddick
Fort McCoy
Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Lochloosa Wildlife Conservation Area
Figure 3. Smoke Management Map
5
Miles
N
Boundary
1 Mile
5 Miles
10 Miles
Airport
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Mechanical and Chemical Treatments

Short and long term weather conditions and urban interface issues are important considerations when implementing a prescribed fire program. Weather conditions such as extended droughts or insurmountable smoke management issues due to increased urbanization may require the District to manage natural systems mechanically and/or chemically. A variety of methods including mowing, roller chopping, and herbicide applications may be incorporated as alternatives to prescribed fire.

Many of the pyric plant communities within Lochloosa WCA are dominated by pine plantations. An integral component to the implementation of a successful prescribed fire program within the Lochloosa Wildlife Conservation Area is the harvesting of planted pine. Harvesting of pine trees will provide safer conditions for prescribed fire staff and decrease the potential for fire related mortality to the remaining pines and other desirable vegetation. Prescribed fire activities are planned for the conservation area over the next ten years and will be conducted in conjunction with annual burn plans and in coordination with harvest plans.

Legal Considerations

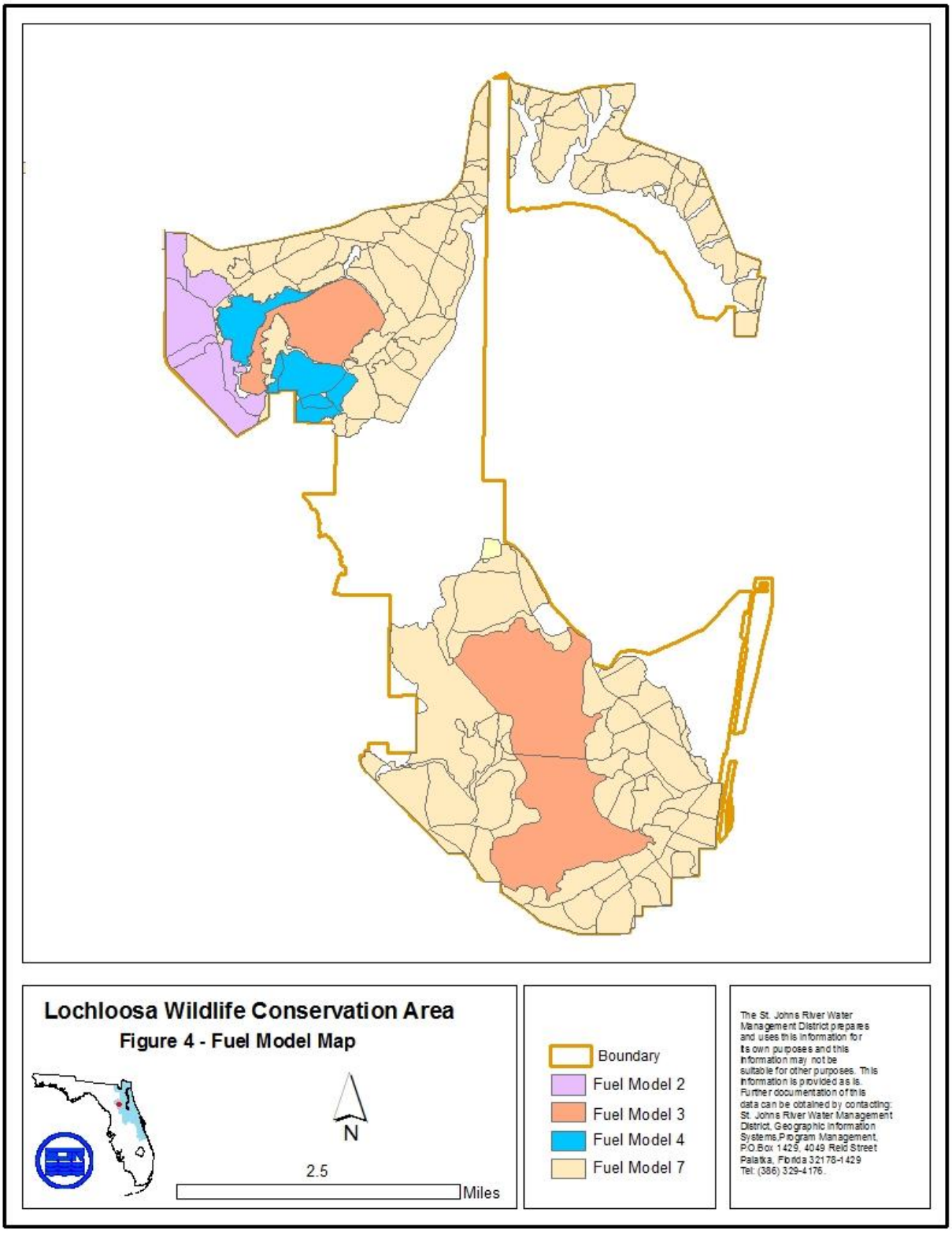
Only burn managers certified by Florida Forest Service will approve the unit prescriptions and must be on site while the burn is being conducted. Certified burn managers adhering to the requirements of State Statute 590.026 are protected from liability for damage or injury caused by fire or resulting smoke, unless gross negligence is proven.

Fire Management Units

Fire management units (FMUs) have been delineated on the property. Where logical, the District used existing roads and landscape features to delineate fire management units. Occasionally, multiple fire management units with similar fire needs will be burned simultaneously and roads and natural landscape features provide a break in fuels so that staff may burn smaller areas than initially planned if needed.

Ideally, District staff would thoroughly address and describe each fire management unit in terms of its fire management needs. All fire management units are categorized into one of several fuel model (FM) descriptions. The thirteen standard fuel models (as described in Hal E. Anderson's *Aids to Determining Fuel Models For Estimating Fire Behavior*) were used as a basis for this categorization. The factors considered in determining each FM are: amount, composition and arrangement of available fuels within units, predicted fire behavior within each unit (under conditions acceptable to implement a prescribed burn), and resources necessary to regain management of a fire in extenuating circumstances. District staff anticipates the change of vegetative assemblages over time due to growth and/or restoration and understand that fuel characteristics, models, and resulting fire behavior will also change.

Below is a brief description of each fuel model occurring within Lochloosa WCA and associated natural communities. A detailed description of each individual fire management unit and its associated objectives will be included in the individual prescriptions. Some fire management units within the property contain multiple FMs. In these instances, the designated FM is dominant in coverage. Figure 4 illustrates the FM associated with individual fire management units.


Lochloosa Wildlife Conservation Area
Figure 4 - Fuel Model Map
N
2.5
Miles
Boundary
Fuel Model 2
Fuel Model 3
Fuel Model 4
Fuel Model 7
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Fuel Models

Fuel Model 2
This category includes the fire management unit within the conservation area that can best be described as sandhill and upland mixed woodland and includes only those areas that retain an herbaceous groundcover. Fires in these fuels are typically spread through the herbaceous layer and have an overstory of longleaf pine, and offsite slash and sand pine, as well as turkey oak. Given appropriate wind speeds and fuel moisture conditions, fire spread can be very rapid. The optimal fire return interval in this fuel model is approximately every 1-3 years with growing season burns being preferred.

Fuel Model 3
This category includes fire management units within the conservation area that can best be described as basin marsh and floodplain marsh. Fires in these fuels are spread through the short herbaceous layer, are rapid, and will be most likely to carry fire during winter when water levels are low and fuels have died due to freeze, then allowed time to brown and dry.

Fuel Model 4
This category includes fire management units within the conservation area that are best described as overgrown sandhill with thick oaks over head high. Fire intensity and fast spreading fires involving foliage and live and dead fine woody materials in the crowns of a nearly continuous secondary overstory characterize Fuel Model 4. Besides flammable foliage, there is dead woody material in the stand that significantly contributes to fire intensity.

Fuel Model 7
This category includes fire management units that are best described as mesic flatwoods, both natural and planted pine. Fire in these fuel types is spread through both the shrub and herbaceous layers. The shrub layer components present within the fire management units of this FM include saw palmetto, gallberry and other ericaceous shrubs between 3 and 6 feet tall and are contiguous across many of the units. The herbaceous layer is generally suppressed, but includes wiregrass. The optimal fire return interval for this FM is approximately every 2 to 4 years. Growing season burns are preferable; however, some units of this FM will require dormant season burns and/or mechanical treatments.

Aerial Burn Safety Plan
Lochloosa Wildlife Conservation Area

The hazards associated with this type of burning are related to working with the helicopter, the sphere dispenser, and dealing with active fire. All helicopter safety procedures and all district fireline policies and procedures will be followed.

BRIEFING - During the operational briefing the safety plan will be reviewed with all personnel on the burn.
HELICOPTER SAFETY - The pilot will give a helicopter safety briefing at the morning operational briefing.
AIDS SAFETY – The operator will review the operation and cleaning procedures for the dispenser at the morning briefing.
PERSONAL PROTECTIVE EQUIPMENT – The incident commander will ensure that all personnel have the required PPE.
HIGH HAZARD AREAS – All high hazard areas such as power lines shall be designated on the map and attached to the burn plan.
EMERGENCY LANDING ZONES – These should be confirmed with the pilot and indicated on the burn map.

Helispot 1	lat long from Google maps
	Latitude 29.477562
	Longitude -82.126408
	Longitude (X): 82° 07' 35.84" W (-)
	Latitude (Y): 29° 28’ 38.80” N

Crash Rescue Plan

In the even of an accident involving the helicopter the following procedures will be followed.

INCIDENT COMMANDER or OPERATIONS
Notify Alachua County Fire and Rescue (352) 384-3101 Alachua County Sheriff 352-955-1818 or 911.
Assume responsibility of the Rescue Operation.
Notify NTSB (305-957-4610 or 404-462-1666)
Delegate responsibility of fire control to the second in command or the most qualified.

SECOND IN COMMAND
Assume responsibility of the burn.
Assist the IC or Operations with resource and personnel needs for the rescue operation.
If the IC is in the helicopter, second in command will assume rescue operation responsibilities and assign the most qualified to fire control.

Emergency Phone Numbers

AIR RESCUE UNITS

Shands Gainesville	352.265.8000

BURN UNIT LOCATIONS

1. Shands Gainesville	352-265-8000

Florida Forest Service

1. Waccasassa Forestry Dispatch	352-955-2010

NTSB

1. Southeast Regional Office	305-957-4610
2. Southeast Field Office	404-462-1666

ADDENDUM 4 – DETAILED HARVEST PLAN

Detailed Harvest Plan					
Stand ID	Primary	Acres	Established Year	Harvest Type	Harvest Year
2703104	Slash Pine	0.90	1985	3- Second Thinning	2022
2703187	Long Leaf	26.01	1997	2-First Thinning	2017
2703189	Slash Pine	5.20	1989	3- Second Thinning	2023
2703192	Slash Pine	2.10	1987	3- Second Thinning	2025
2703194	Slash Pine	73.42	1986	3- Second Thinning	2022
2703195	Slash Pine	20.29	1989	3- Second Thinning	2022
2703219	Slash Pine	26.76	1985	3- Second Thinning	2015
2703217	Slash Pine	14.97	1989	3- Second Thinning	2027
2703221	Slash Pine	9.05	1988	3- Second Thinning	2022
2703222	Slash Pine	43.32	1989	3- Second Thinning	2023
2703224	Slash Pine	6.92	1987	3- Second Thinning	2025
2703149	Slash Pine	71.51	1987	3- Second Thinning	2023
2703150	Slash Pine	103.42	1988	3- Second Thinning	2023
2703088	Slash Pine	10.35	1987	4-Third Thinning	2033
2703094	Slash Pine	24.59	1987	3- Second Thinning	2025
2703097	Slash Pine	7.53	1987	3- Second Thinning	2022
2703113	Slash Pine	1.04	1987	3- Second Thinning	2022
2703116	Slash Pine	19.24	1988	3- Second Thinning	2022
2703120	Slash Pine	18.35	1989	3- Second Thinning	2025
2703211	Slash Pine	13.85	1992	3- Second Thinning	2023

2702104	Slash Pine	21.94	1978		3- Second Thinning	2024
2703169	Slash Pine	6.08	1989		3- Second Thinning	2025
2701057	Slash Pine	14.19	1979		3- Second Thinning	2017
2701058	Slash Pine	19.22	1984		3- Second Thinning	2017
2701061	Long Leaf	13.70	1996		2-First Thinning	2017
2703131	Slash Pine	141.71	1989		3- Second Thinning	2025
2703135	Slash Pine	17.18	1985		3- Second Thinning	2022
2703137	Slash Pine	40.30	1989		3- Second Thinning	2023
2701055	Slash Pine	59.02	1983		3- Second Thinning	2020
2702013	Slash Pine	71.93	1984		3- Second Thinning	2021
2703071	Slash Pine	10.64	1989		3- Second Thinning	2021
2703044	Slash Pine	16.55	1985		3- Second Thinning	2022
2702092	Slash Pine	5.85	1985		3- Second Thinning	2024
2702020	Slash Pine	158.69	1985		3- Second Thinning	2020
2701012	Slash Pine	29.13	1986		3- Second Thinning	2020
2702004	Slash Pine	13.10	1986		3- Second Thinning	2025
2702065	Slash Pine	30.53	1990		3- Second Thinning	2024
2703081	Slash Pine	146.74	1985		4-Third Thinning	2033
2703127	Slash Pine	226.32	1987		3- Second Thinning	2025
2702002	Slash Pine	15.01	1986		3- Second Thinning	2025
2702025	Slash Pine	43.86	1990		3- Second Thinning	2024
2703196	Slash Pine	2.50	1987		3- Second Thinning	2025
2703200	Slash Pine	6.33	1989		3- Second Thinning	2025

2703203	Slash Pine	14.30	1986		3- Second Thinning	2025
2703026	Slash Pine	21.23	1987		3- Second Thinning	2027
2703213	Slash Pine	10.91	1989		3- Second Thinning	2021
2703215	SD	4.60	1987		3- Second Thinning	2021
2702056	Slash Pine	25.16	1986		3- Second Thinning	2020
2703082	Slash Pine	3.56	1984		3- Second Thinning	2022
2703157	Slash Pine	8.07	1987		3- Second Thinning	2025
2702158	Slash Pine	35.13	1988		3- Second Thinning	2024
2701036	Slash Pine	26.37	1995		2-First Thinning	2017
2703148	Slash Pine	22.01	1988		3- Second Thinning	2023
2702147	Slash Pine	4.52	1985		3- Second Thinning	2024
2703066	Slash Pine	9.15	1987		3- Second Thinning	2021
2702001	Slash Pine	33.97	1984		3- Second Thinning	2025
2702033	Slash Pine	12.84	1985		3- Second Thinning	2025
2702057	Slash Pine	5.74	1986		3- Second Thinning	2024
2702151	Slash Pine	75.64	1985		3- Second Thinning	2020
2702149	Slash Pine	47.90	1990		3- Second Thinning	2024
2702156	Slash Pine	82.21	1988		3- Second Thinning	2024
2702157	Slash Pine	6.23	1988		3- Second Thinning	2024
2702128	Slash Pine	21.82	1990		3- Second Thinning	2024
2702129	Slash Pine	14.99	1990		3- Second Thinning	2024
2702008	Slash Pine	304.97	1988		3- Second Thinning	2024
2702122	Slash Pine	8.69	1990		3- Second Thinning	2024

2703183	Slash Pine	35.69	1986	3- Second Thinning	2022
2703220	Slash Pine	20.17	1985	3- Second Thinning	2022
2703030	Slash Pine	16.33	1989	3- Second Thinning	2027
2703095	Slash Pine	7.73	1990	3- Second Thinning	2027
2703073	Slash Pine	13.94	1990	3- Second Thinning	2027
2702020a	<null>	42.53	<null>	3- Second Thinning	2015
2702020b	Slash Pine	47.10	1985	3- Second Thinning	2015
2703188A	<null>	31.83	<null>	3- Second Thinning	2018
2703188A	<null>	25.32	<null>	3- Second Thinning	2018
2703188A	<null>	7.09	<null>	3- Second Thinning	2018
2703188	<null>	131.93	<null>	3- Second Thinning	2015