

Pellicer Creek Conservation Area

**Land Management Plan
Governing Board Approved
April 2011**

Pellicer Creek Conservation Area

Land Management Plan Summary

Management Area Size: 3,057 acres

Date of Acquisition: Acquisition of parcels within Pellicer Creek Conservation area began in 1995.

Date of Plan: February 2011

Date of Previous Plan: December 2004

Basin: Northern Coastal

Basin Planning Unit: Pellicer Creek

Location: Pellicer Creek Conservation area (PCCA) is located in St. Johns and Flagler County along the south shore of Pellicer Creek. Interstate 95 and US Highway 1 bisect the conservation area.

Funding Source: The acquisition funding sources for PCCA include Preservation 2000 and mitigation donation.

Management Partners: The District serves as lead manager for the entire conservation area and coordinates with the Florida Agricultural Museum, Flagler County, and The Florida Department of Transportation (FDOT) to provide recreational access across the conservation area and the greater Pellicer Creek Conservation Corridor.

Key Resource Issues:

Resource Management Issues:

- WATER RESOURCES – Water resources are largely undisturbed, most protection was accomplished with acquisition.
- FIRE MANAGEMENT – Implementation of prescribed burns occurs in accordance with annual burn plan and individual unit prescriptions.
- FOREST MANAGEMENT - Previous landowners planted portions of the acreage within the conservation area in sand pine (*Pinus clausa*), slash pine (*P. elliottii*), and longleaf pine (*P. palustris*) and the property was managed for those silvicultural interests.
- WILDLIFE – The conservation area provides habitat for numerous wildlife species including the Florida gopher tortoise (*Gopherus polyphemus*), Bald Eagle (*Haliaeetus leucocephalus*), and Florida black bear (*Ursus americanus floridanus*.)
- EXOTICS – Invasive exotic pest plant and animal species occur on the property; including low to moderate populations of Chinese tallow trees (*Sapium sebiferum*), cogongrass (*Imperata cylindrica*), and Japanese climbing fern (*Lygodium japonicum*). The District regularly monitors for the presence of invasive plants and animals and responds with appropriate control action.
- CULTURAL & ARCHEOLOGICAL RESOURCES – A review of the Department of State, Division of Historical Resources indicates the presence of five (5) Florida master site locations within the boundaries of the conservation area.

Key Land Use/Recreation Issues: The entire conservation area is open to the public with recreational opportunities for hiking, biking, equestrian activities, wildlife viewing, fishing, and photography. Paddling and boating are available via Pellicer Creek and both Flagler County and Faver-Dykes State Park have public boat launches. The conservation area provides recreational trail connections to the adjacent, Flagler County managed, Princess Place Preserve (PPP) and the Florida Agricultural Museum. Camping is available at the PPP.

Land Use Management Issues:

- ACCESS – Five public access points provide direct access to the conservation area and four additional access points are located on the neighboring Princess Place Preserve.
- RECREATION USE – The conservation area is open for public recreation. The District has developed and implemented a marked trail system.
- SECURITY – Maintenance of fence lines, parking areas, gates, and locks is conducted as necessary. The District will maintain contact with local law enforcement and a private security firm for any potential security needs. Additionally, Flagler County assists with security as needed.

Administration:

- ACQUISITION – The District may consider purchasing parcels near the PCCA that become available and that will aid in the conservation of water resources within the Pellicer Creek basin. The District may pursue acquisition of small parcels or property exchanges with neighbors to improve and/or provide additional access to the conservation area.
- COOPERATIVE AGREEMENTS, LEASES, EASEMENTS AND SPECIAL USE AUTHORIZATIONS (SUA) –
 - The District issued an SUA for the purposes of:
 - conducting feral hog removal on the property.
 - conducting apiary activities on the property.
 - for vehicular access across the property to monitor and maintain silt fencing associated with a gopher tortoise mitigation bank located on adjacent property.
 - for vehicular access across the property for billboard maintenance.
 - for vehicular access across the property for dog retrieval.
 - for ATV access across the property to conduct GPS surveys.

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INTRODUCTION

This document provides guidelines for land management activities to be implemented at Pellicer Creek Conservation area (PCCA) over the next five years. This is a revision of the land management plan approved in October of 2004.

PCCA includes approximately 3,057 acres within the Northern Coastal Basin. The property is located in St. Johns and Flagler County, north of the City of Palm Coast. The conservation area is situated along the south bank of Pellicer Creek and is bisected by Interstate 95 (I-95), U.S. Highway 1 (US 1), and the Florida Agricultural Museum property. The property is within several Sections of Township 8 South, Ranges 29 and 30 East. Figure 1 is a 2009 aerial image of the property and Figure 2 depicts the location of the conservation area.

The acquisition of the parcels that comprise the PCCA provide for the protection of important water resources and ecological functions. This acquisition is consistent with the goals of the Northern Coastal Basin projects set forth in the District's Land Acquisition and Management Five Year Plan, and the District's Water Management Plan. These goals are to:

- Restore, maintain, and protect native natural communities and diversity.
- Improve water quality, maintain natural hydrologic regime, and maintain flood protection by preserving important wetland areas.
- Provide opportunities for recreation where compatible with the above listed goals.

CONSERVATION AREA OVERVIEW

Regional Significance

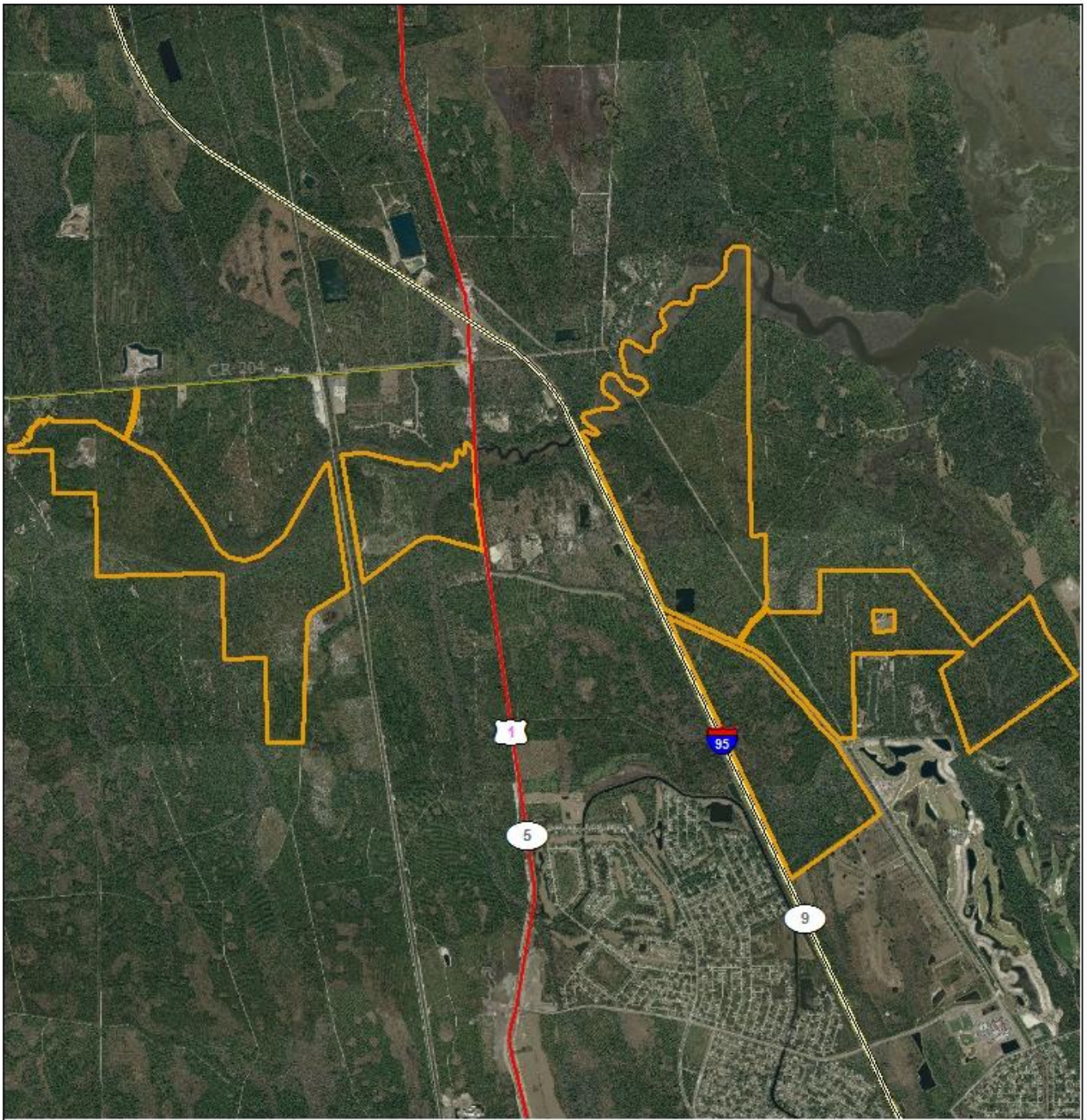
The PCCA is a significant acquisition providing linkage between a broad network of publicly owned lands and conservation easements in St. Johns and Flagler Counties, to and within the Pellicer Conservation Corridor. Figure 3 illustrates the regional significance of the conservation area. Public lands that are contiguous or in close proximity to the PCCA include Princess Place Preserve, Faver-Dykes State Park, Matanzas State Forest, Moses Creek Conservation Area, and Graham Swamp Conservation Area. The property is also contiguous with, via the I-95 land bridge, the Florida Agricultural Museum.

Acquisition History

The PCCA is comprised of two (2) parcels, totaling 3,057 acres (Figure 4.) The following properties were purchased using funding sources as indicated and were incorporated into the conservation area as they were acquired. Table (1) one summarizes the land acquisition accomplishments.

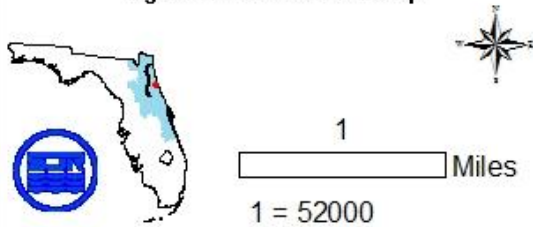
ITT Palm Coast – Pellicer Creek – (2,970 acres) Land Acquisition number 1995-053-P2

The ITT Palm Coast – The acquisition originally included two disjunct parcels (6,122 acres) and have since been designated as two distinct conservation areas. The



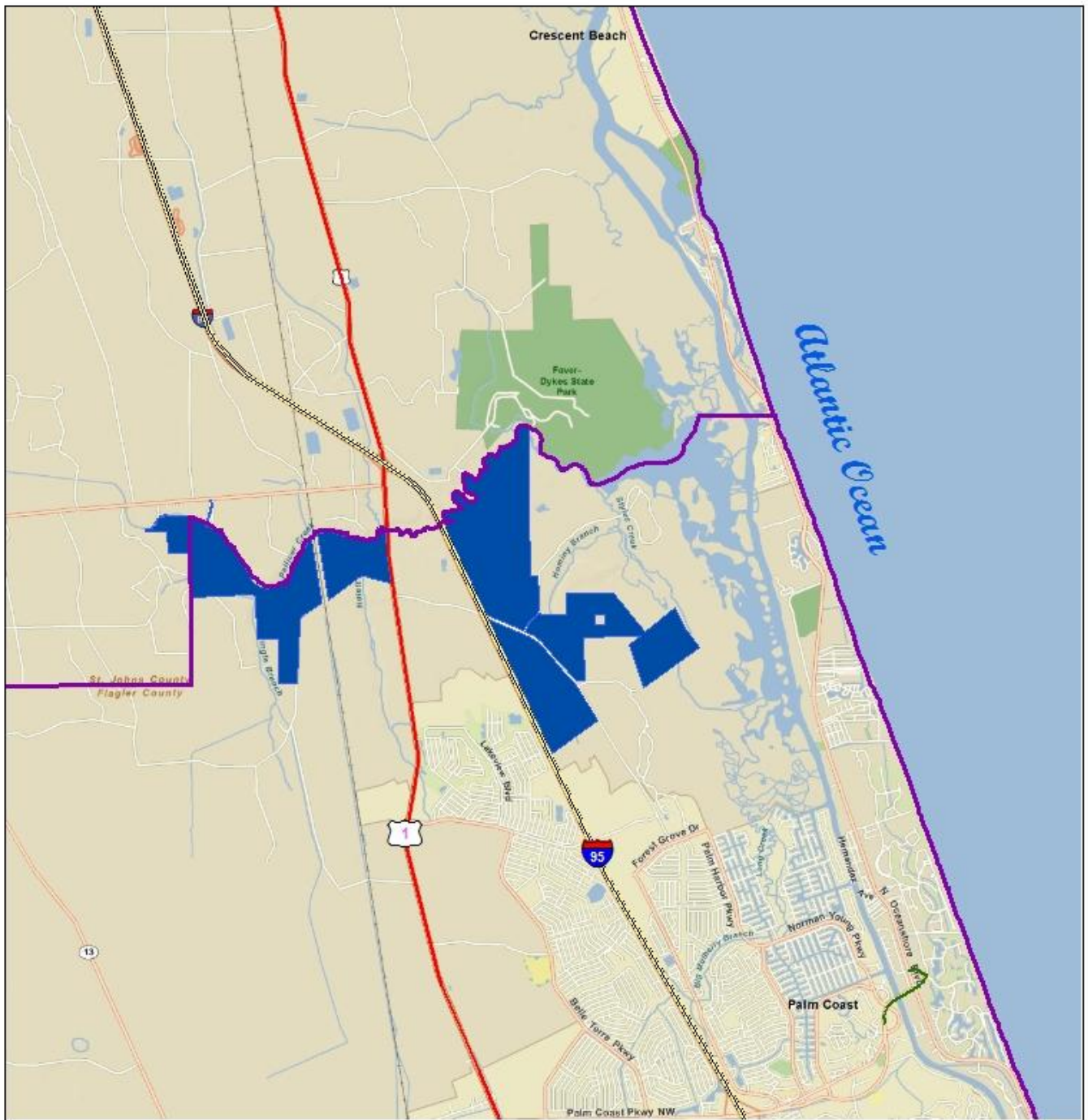
Pellicer Creek Conservation Area

Figure 1 - 2009 Aerial Map



 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 32177-1429 Tel: (385) 329-4176.



Pellicer Creek Conservation Area

Figure 2 - Location Map

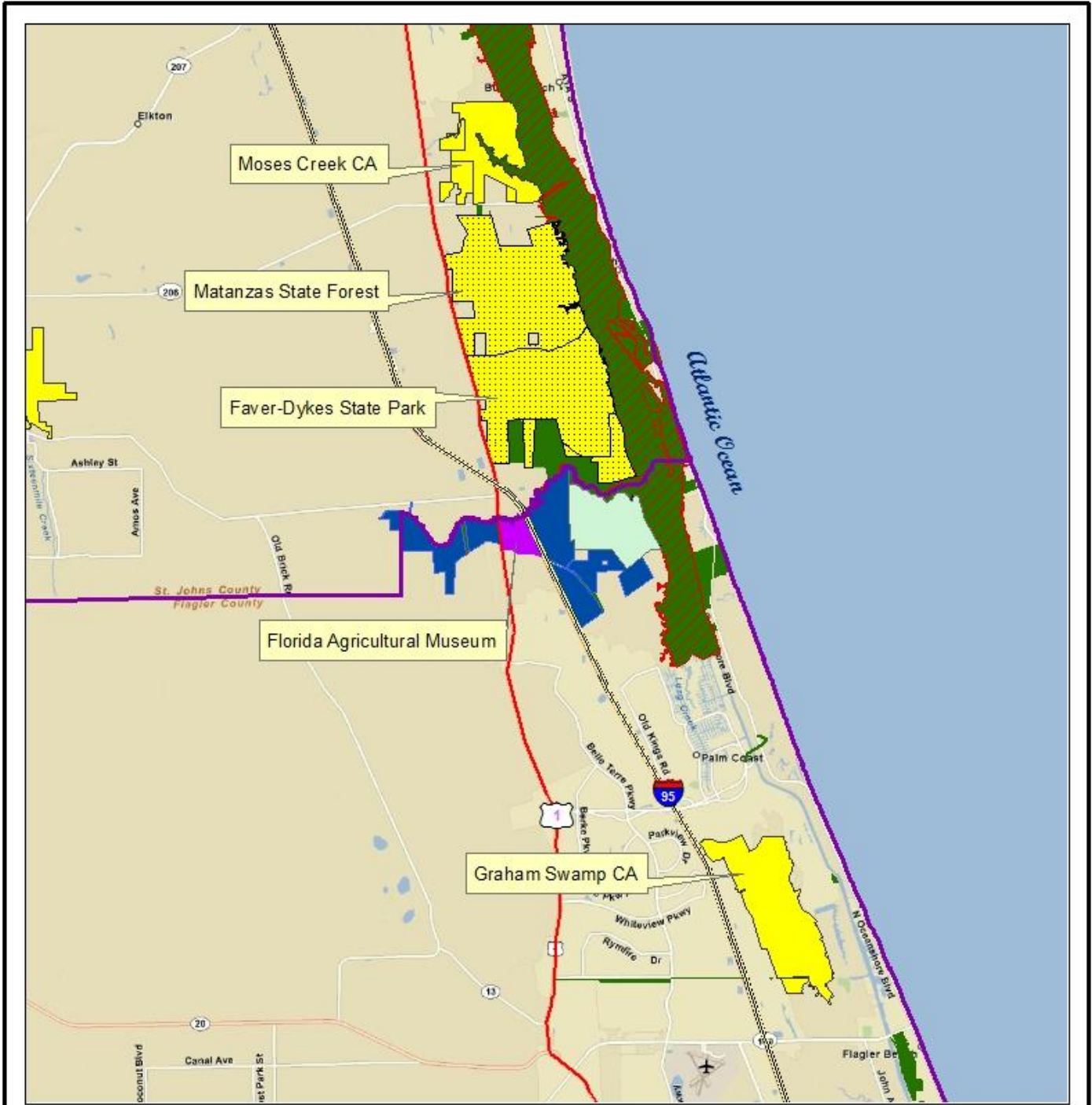


1
Miles
1 = 100000



 Pellicer Creek Conservation Area

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Pellicer Creek Conservation Area
Figure 3 - Regional Significance

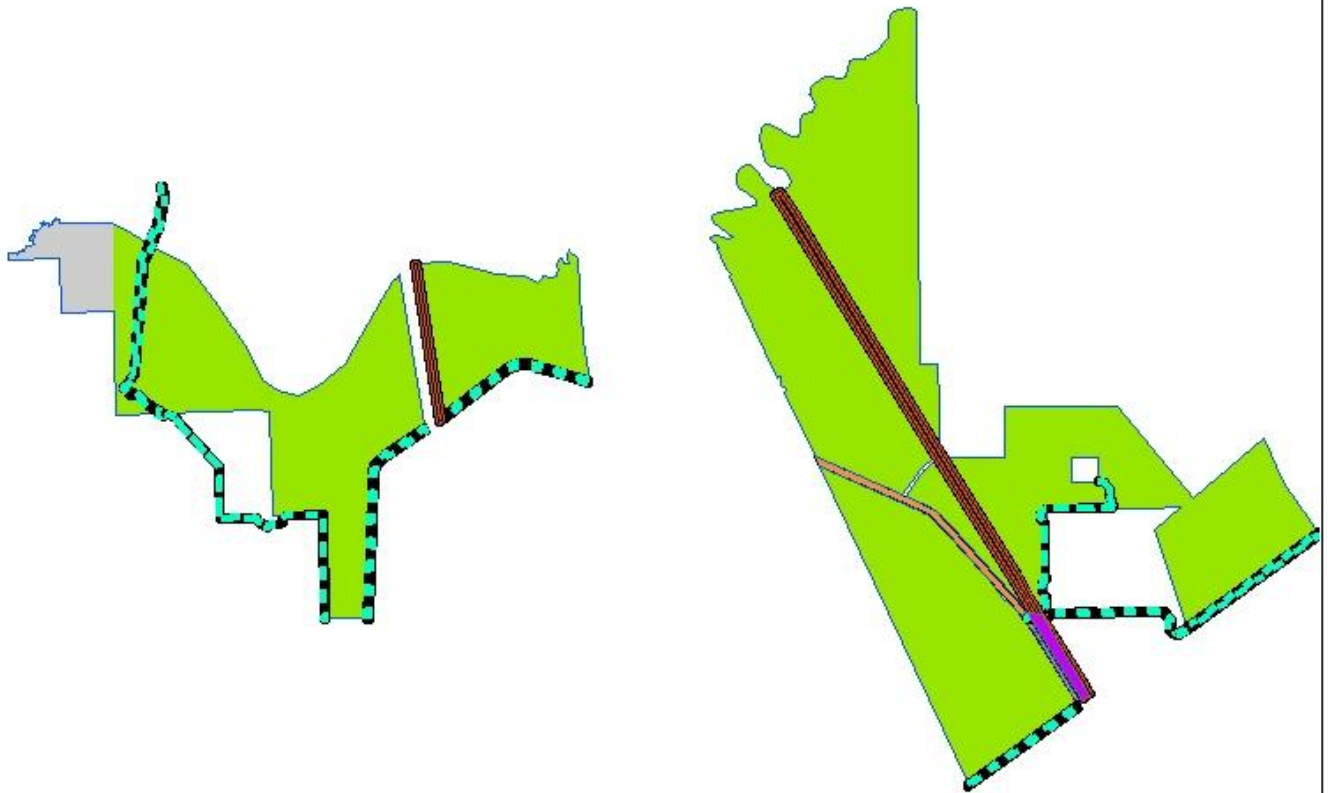


3
 1 = 195000
 Miles



	Boundary
	Princess Place Preserve
	County Boundary
	Florida Agricultural Museum
	Conservation Easements (Less than fee)
SJRWMD Title Interest	
	Full Fee
	Joint Fee
	GTMNERR
	Other Public Lands

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Pellicer Creek Conservation Area
Figure 4 - Land Acquisition



0.75
 Miles
 1 = 52000



-  Ginn Surplus
-  Utility Easements
-  Easements
-  Boundary
-  Old Kings Road Surplus
-  Cobblestone Mall
-  ITT Palm Coast - Pellicer Creek

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southernmost 3,084 acres are now known as the Graham Swamp Conservation Area, while the remaining 3,023 acres are known as the Pellicer Creek Conservation Area. The District purchased the ITT Palm Coast – Pellicer Creek parcel for \$2,620,502 using Preservation 2000 funds. Since the time of acquisition, The District has surplussed approximately 56 acres for a total of \$213,844. Additionally, as a condition to one of the surplus transactions, an access easement was relocated, providing improved management access for the conservation area.

In August 2004, the District surplussed 41 acres to Flagler County for the purposes of widening and paving of Old Kings Road.

In February 2005, the District surplussed 12 acres to Ginn,-LA Hammock Beach. In addition to payment for the acres, the District received an easement, which provided improved access for management to the PCCA.

Cobblestone Mall – (87 acres) 2002-010-P1

The Cobblestone Mall – This District acquired the Cobblestone Mall parcel on July 25, 2005 through mitigation donation.

Table 1 – Land Acquisition Summary

Parcel	LA Number	Acres	Total Purchase Price	Closing Date	District Funding Source
ITT Palm Coast – Pellicer Creek	1995-053-P2	3,023	\$2,620,502.10	12/27/1995	P2000
		(41) Flagler County Surplus – Old Kings Road Surplus	(\$83,844.00)	8/9/2004	
		(12) Ginn Surplus	(\$130,000.00)	2/11/2005	
Cobblestone Mall	2002-010-P1	87	\$0.00	7/25/2005	Mitigation Donation

Local Government Land Use Designation

St. Johns County

According to the current St. Johns County Comprehensive Plan, the Future Land Use designation for the portions of the conservation area that are located within St. Johns County is Parks and Open Space. The areas include active and passive recreation areas, or lands permanently maintained as open space (St. Johns County). Permitted uses within this element shall include:

- Active and passive parks and recreational facilities, together with permitted accessory uses; and
- Public safety government facilities such as police, fire, and emergency medical facilities.
- Uses and activities allowed by an approved Federal, State, regional or local Management Plan governing activities allowed on such public lands.

Flagler County

According to the current Flagler County Comprehensive Plan, the Future Land Use designations for the conservation area are Conservation and Agriculture & Timberlands. The goals of the Conservation land use category include the conservation, protection, and management of the natural resources of Flagler County to ensure the highest environmental quality possible. Additionally, during the development review process, the Flagler County shall strive to obtain at least a 100-foot wide buffer area surrounding State parks, which would include design criteria for any allowable development, which would render its land use activities compatible to the parks. This standard applies to the PCCA and similar areas, despite them not being officially designated State Parks.

Flagler County's adopted Comprehensive Plan does not include specific standards within the Agriculture & Timberlands Future Land Use designation other than recognizing that residential densities within this category are limited to a maximum of one dwelling unit per five acres. The Agriculture & Timberlands Future Land Use designation is implemented by the AC (Agriculture) and AC-2 (Agriculture/forestry) zoning districts, which are intended to preserve valuable agricultural/forestry land for those uses, and to protect land best suited for agricultural/forestry uses from the encroachment of incompatible land uses (Flagler County Land Development Code).

NATURAL RESOURCES OVERVIEW

Topography and Hydrology

Pellicer Creek Conservation Area lies within the Central Atlantic Coastal Strip and the St. Augustine Ridge Sets, both subdistricts of the Eastern Flatwoods District. The Eastern Flatwoods District is also called the coastal lowlands and has elevations generally less than 90 feet (Brooks). Topographic elevations within the conservation area range from 5 to 50 feet above sea level with the highest elevation occurring within the sandhill natural communities in the northern reaches of the property. Figure 5 illustrates the hydrologic features of Pellicer Creek Conservation Area and the surrounding area.

The conservation area is located entirely within the Pellicer Creek subbasin of the Northern Costal Basin of the St. Johns River. Significant surface hydrologic features of the conservation area include Pellicer Creek, Pringle Branch, Dave Branch, Hominy Branch, Stevens Branch, Hulett Branch, and Styles Creek. Pellicer Creek, a portion of which is designated an Outstanding Florida Water, is formed near the confluence of Stevens Branch, Dave Branch, and Pringle Branch, which form portions of the west and northwest boundaries of the property. The remaining branches that occur within the property drain into Pellicer Creek, which joins the Matanzas River just east of the conservation area.

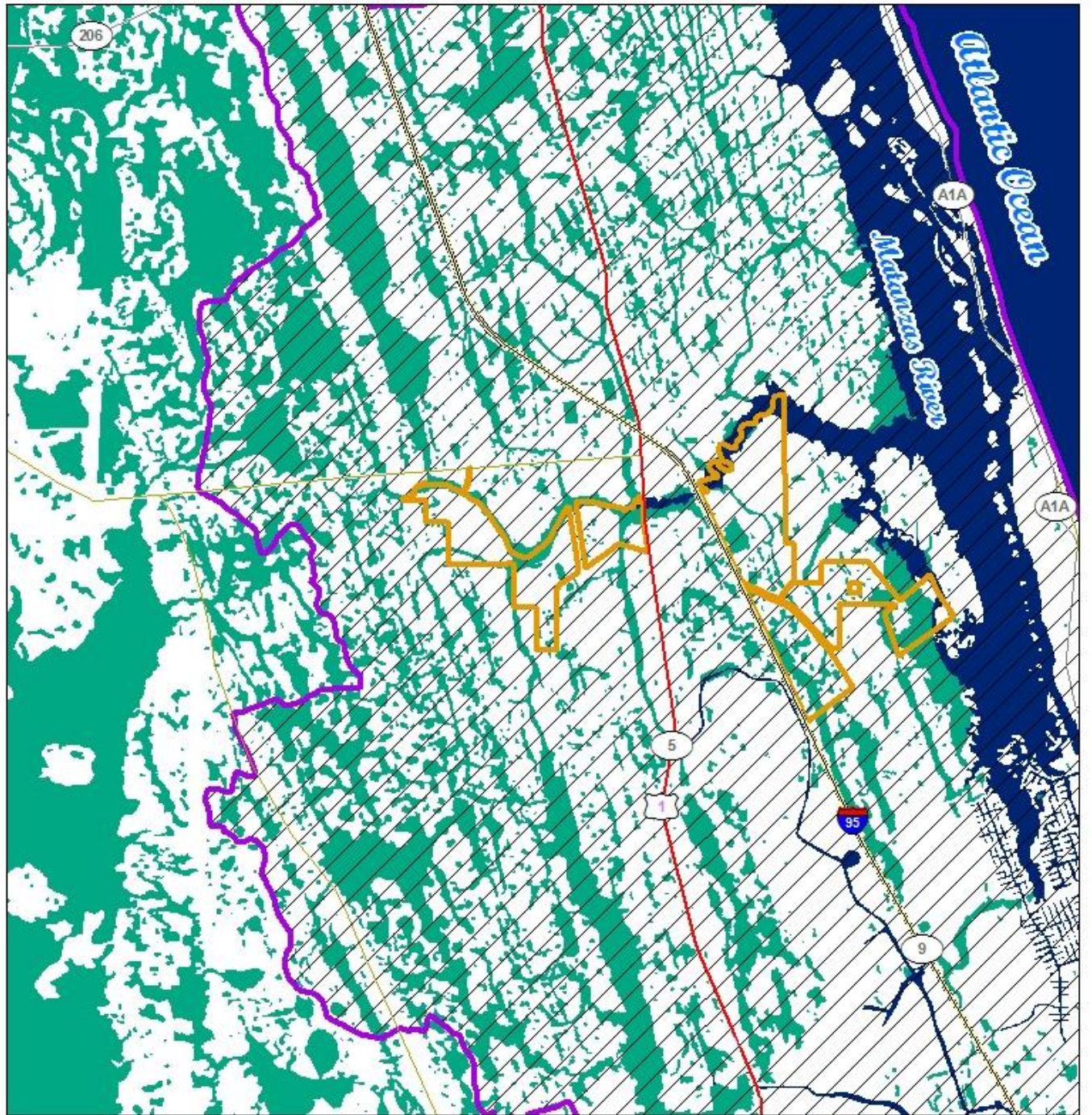
The Florida Department of Environmental Protection, in compliance with the Clean Water Act, has designated Pellicer Creek as a 303 (d) listed water body. These water bodies do not meet water quality standards or do not support their designated uses. “Pellicer Creek includes a variety of substances exceeding limits, including lead, nutrients, coliform bacteria, dissolved oxygen, and iron. (Water bodies, watersheds and storm water, 2010)” Additionally, in February 2009, the Governing Board petitioned the Dept. of Environmental Protection to designate a major portion of the Matanzas River watershed as an Outstanding Florida Water (OFW). The petition includes additional OFW waters within Pellicer Creek Conservation Area.

Natural Communities

The 3,057 acres that comprise the PCCA consist primarily of mesic flatwoods, sandhill, and floodplain swamp (Figure 6). Table 2 details the percent coverage associated with each natural community documented within the conservation area. Information relative to the natural communities within the conservation area is derived from several sources including timber stand assessments and personal observations of District staff. 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 1.

Pine Flatwoods

Flatwoods communities typically occur in low areas with little topography and may be further classified as wet, mesic, or scrubby. Mesic flatwoods occur within the PCCA. Alterations from past management activities, hydrologic disturbances, and prolonged absence of fire make distinguishing any possible embedded wet and scrubby flatwoods within these mesic areas difficult. Natural community reclassification and refinement may occur as restoration and fire management activities progress.



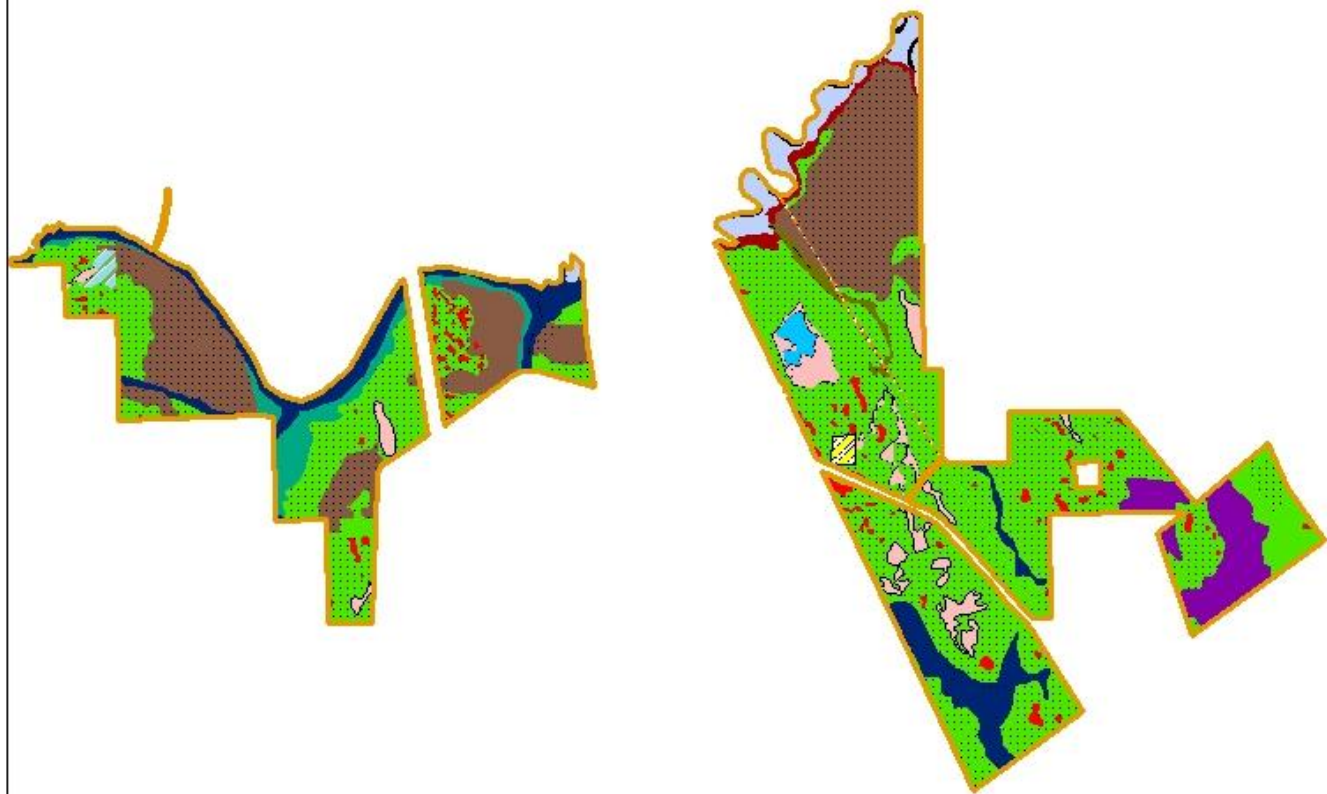
**Pellicer Creek Conservation Area
Figure 5 - Hydrology Map**



1
Miles
1 = 100000

-  Boundary
-  Pellicer Creek Basin Planning Unit
-  Northern Coastal Basin
-  Water
-  Wetlands

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- Natural Community Type**
- | | |
|------------------|------------------------|
| Open Water | Upland Hardwood Forest |
| Floodplain Swamp | Mesic Hammock |
| Basin Swamp | Maritime Hammock |
| Salt Marsh | Mesic Flatwoods |
| Flatwoods Lake | Sandhill |
| Depression Marsh | Xeric Hammock |

Pellicer Creek Conservation Area
Figure 6 - Natural Community Map



1
 Miles
 1 = 52000

Boundary

Altered Land Type

- Pine Plantation
- Artificial Pond
- Created Wetland
- Utility Corridor

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Mesic Flatwoods (1,469 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 hardpan. Hardpan soils become saturated during the rainy season causing standing water at the surface. During dry periods, the hardpan layer prevents low groundwater from rising, creating dry, droughty conditions. The presence of the hardpan translates to extreme seasonal fluctuations in the amount of water available to support plant life. These seasonal hydroperiods are essential in the maintenance of the flatwoods system.

Table 2 – Natural Community Coverages

Natural Community Type	Acreage	Percent Coverage	FNAI Ranking	FNAI Fire Return Interval*
Floodplain Swamp	276	9%	G4/S4	This is not a fire adapted community
Basin Swamp	126	4%	G4/S3	Infrequent – edges may burn with adjacent communities
Depression Marsh	69	2%	G4/S4	This community burns with adjacent communities
Flatwoods Lake	18	<1%	G4/S3	Infrequent – edges may burn with ecotones and adjacent communities.
Upland Hardwood Forest	23	<1%	G5/S3	Infrequent – edges may burn with adjacent communities
Mesic Hammock	91	2%	G3/S3	Infrequent – edges may burn with adjacent communities
Salt Marsh	77	2%	G5/S4	Sporadic
Maritime Hammock	134	4%	G3/S2	Rare
Mesic Flatwoods	1,469	48%	G4/S4	2-10 years
Sandhill	676	22%	G3/S2	1-3 years
Xeric Hammock	33	1%	G3/S3	Site specific
Freshwater Streams**	2	<1%	N/A	N/A
Tidal Creek**	28	<1%	N/A	N/A
Subtotal	3,022			-
Altered Land Types	Acreage	Percent Coverage		Fire Return Interval
Utility Corridor	12	<1%	N/A	N/A
Artificial Pond	10	<1%	N/A	N/A
Created Wetland**	13	<1%	N/A	N/A
Subtotal	35	-	-	-
Total	3,057	100%	-	-

*Stated FNAI fire return intervals are based on regional differences in communities and fuel loading. The District will target the lowest interval possible that will effectively carry fire.

**Not an FNAI described land type.

Intact or well-maintained 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 mixed palate, or be dominated by, species such as saw palmetto (*Serenoa repens*), wax myrtle (*Myrica cerifera*), and numerous members of the Ericaceae family. 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.

Most of the mesic flatwoods communities within the conservation area are in pine plantation; many in longleaf pine. While many of these areas retain site appropriate species, they are beginning to exhibit successional changes resulting from a prolonged absence of fire. Successional changes evident include an overgrown shrub layer, and in some areas, suppressed groundcover. Silvicultural bedding is an additional disturbance within some of the mesic flatwoods.

In addition to seasonal hydroperiods, fire is an important physical factor associated with the shaping and maintenance of this community type. Natural fire return intervals in mesic flatwoods are approximately every two to ten years. Fires in well-maintained mesic flatwoods tend to burn quickly and at relatively low temperatures. In areas of prolonged fire exclusion, altered hydrology, or hardwood encroachment, higher soil and fuel moistures may require more extreme conditions to facilitate a fire, causing fires to be more catastrophic in nature.

Floodplain Swamp (676 acres)

Floodplain swamp communities typically occur on flooded soils along stream channels and within river floodplains. The floodplain swamp communities within the conservation area are associated with Pellicer Creek and Stevens, Dave, Pringle, and Hulett Branches.

Soils that support floodplain swamp communities are variable, but may include a mixture of sand, organic, and alluvial material. Peat soils may be present in floodplain swamps associated with smaller streams and branches or in areas of low stream velocity. 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. Alterations to the hydrology within the floodplain swamp, particularly a reduction in the duration of inundation periods may have damaging consequences to the creek system and associated flora and fauna. Since this community type is maintained by hydrologic regimes, it is not fire dependent.

Floodplain swamps across the PCCA are intact with few discernable alterations. Notable disturbances to this community include road crossings. Typical of the floodplain swamp system, the examples of this community type within the conservation area include a closed-canopy forest of hydrophytic, buttressed trees including bald cypress (*Taxodium distichum*) and water tupelo (*Nyssa aquatica*).

Basin Swamp (126 acres)

Basin swamps are large irregularly shaped basins that are thought to have developed in oxbows of former rivers or in ancient coastal swales and lagoons that existed during higher sea levels. Soils that support basin swamp communities are acidic, nutrient-poor peats often overlying a clay lens or other impervious layer. This clay lens or impervious layer may cause a perched water table above that of the adjacent uplands, causing standing water for most of the year. While basin swamps are not associated with rivers, they may contain streams and sloughs that flow during periods of high water.

The majority of the basin swamps within the PCCA are located in the eastern portions of the property, are associated with interdunal swales, and are dominated by cypress. Basin swamps have a typical hydroperiod of approximately 200-300 days and though infrequent, fire is essential for the maintenance of these natural communities. Fire return intervals in basin swamps are variable, but necessary to restrict peat accumulation and the expansion of hardwoods into adjacent communities. The edges of basin swamps may be exposed to frequent fire, often burning in concert with surrounding natural communities.

Depression Marsh (69 acres)

Depression marsh communities typically occur embedded within a matrix of well-maintained pyric plant communities including flatwoods. The depression marsh communities within the conservation area occur within the mesic flatwoods/pine plantations. Many are altered from the silvicultural activities. Alterations include hydrologic changes and soils disturbances from site preparation techniques such as silvicultural bedding. Additionally, some depression marshes within the conservation area include planted pine.

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. An important physical factor associated with the shaping and maintenance of the depression marsh is the hydroperiod. Depression marshes are maintained in part against woody shrub invasion by fluctuations in water levels associated with rainfall.

Typical of the depression marsh system, the examples of this community type within the conservation area include concentric bands of vegetation which include species such as Carolina redroot (which often colonizes after soil disturbances), Elliott's yellow-eyed grass (*Xyris elliotii*), and pickerel weed (*Sagittaria lancifolia*). 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)

Without frequent fire, herbaceous components of the depression marsh systems may give way to woody shrub species. The frequency of fire within these areas is determined by the fire frequency of the surrounding natural community. The depression marshes within

the PCCA will have fire return intervals influenced by the fire frequency of the surrounding mesic flatwoods/pine plantations.

Sandhill (676 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 (*Quercus 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. The soils that support sandhills within the PCCA include Tavares and Astatula series, which are deep, highly permeable sands that have a strong association with sandhills.

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 structure and composition within sandhills. Optimally, sandhills are maintained through frequent, low-intensity, growing season fires. With the exception of a few areas along the eastern boundary, the sandhills within the PCCA are out of the optimal burn rotation.

While many of the sandhills within the conservation area were clear-cut and replanted with longleaf pine in the late 1980s and early 1990s, they are in good condition, with site appropriate species and community structure.

Prior to public acquisition, approximately 234 acres of historic sandhills were cleared of overstory vegetation, windrowed, and subsequently planted in sand pine at high densities. Sand pine is an offsite species in the sandhill natural community. Excessive shading from the closed sand pine canopy coupled with the prolonged absence of fire have altered these areas to the extent that the majority of these acres are void of appreciable groundcover and retained few natural components within the shrub layer.

In 2006, 78 acres of sand pine were clear-cut from the central portion of the conservation area. This area, between U.S. 1 and the Florida East Coast railroad, retains many appropriate sandhill species, but has regenerated in sand pine.

Mesic Hammock (91 acres)

Mesic hammock is a well-developed evergreen hardwood forest on soils that rarely inundate. The canopy is typically closed and dominated by live oak and includes a cabbage palm, southern magnolia, and pignut hickory component. Soils that support mesic hammocks are typically sands mixed with organic matter and often include a thick

layer of leaf litter. These soils, although well-drained, maintain high moisture through heavy shading and the accumulation of litter. Although mesic hammocks are not generally considered fire-adapted, some areas may experience low-intensity ground fires.

Mesic hammocks within the PCCA occur as ecotonal areas between both Hulett and Pringle Branches and upland communities. These areas are intact with large live oaks, cabbage palm, and numerous epiphytic plants.

Maritime Hammock (134 acres)

Maritime hammocks are evergreen hardwood forests growing on stabilized coastal dunes lying at varying distances from the shore. These hammocks are generally dominated by a dense canopy of live oak, cabbage palm, and red bay and include a characteristic subcanopy composition of red cedar and holly. Soils that support maritime hammocks are typically deep, well-drained sands,

The maritime hammock natural community is the terminal stage of succession in coastal areas with a fire return interval of no more than 26-100 years. Due to their coastal location with water barriers, fire was probably naturally rare and very spotty. Nutrient cycling is achieved through detrital organisms rather than fire. This community type is ranked G3/S2.

The maritime hammocks occurring within the PCCA are found on the southeastern portion of the property. These vegetative communities are relatively intact, however the area does include mosquito control ditches.

Xeric Hammock (33 acres)

Xeric hammock is characterized as an evergreen forest with a low canopy and little understory plants other than palmetto, or a multi-storied forest of tall trees with an open or closed canopy. Several gradations between these extremes may occur.

The xeric hammock natural community is typically an advanced successional stage of scrub or sandhill. It is a climax community, having been protected from fire for 30 or more years. When fire does occur in the xeric hammock, it is under extreme conditions, burns catastrophically and it may revert the community back to an earlier successional stage.

The xeric hammocks within the PCCA are typical as described by FNAI in that they have succeeded from sandhill and contain turkey oak and remnant wiregrass. These areas are located along the northern boundary between the sandhill and the salt marshes of Pellicer Creek.

Upland Hardwood Forest (23 acres)

Upland hardwood forest is a well-developed, closed-canopy forest dominated by deciduous hardwoods on mesic soils. These areas are sheltered from fire and include a diverse array of deciduous and evergreen trees. These forests may occur on rolling mesic hills and slopes above floodplains. Soils are sandy clays or clayey sands with substantial organic and sometimes calcareous components. These soils will often have a higher nutrient level than other sandy soils in Florida. These soils retain moisture, as do the layers of leaf litter, creating mesic conditions. The closed canopy environment and layered midstory restrict air movement and light penetration, which aid in the humid conditions of this community type.

Upland hardwood forests are not fire dependant, although localized effects from low intensity fires that creep into the edges from adjacent pyric plant communities are a natural part of the ecological process for this community. Fires rarely burn through these systems. The primary process behind tree recruitment in the upland hardwood forests is light gap succession. This occurs when individual trees fall taking out portions of adjacent trees, creating a hole in the canopy, which is known as the "light gap". This light gap on the forest floor is then colonized by pioneer species (sweetgum, red maple, etc...), which in time are replaced by other, longer-lived and more adaptable species.

The upland hardwood forests within the conservation area occur on the eastern portions of the property in association with a newly identified seepage stream. These forests are on a substantial slope, intact, and include site appropriate species.

Salt Marsh (28 acres)

Salt marshes are floral based natural communities characterized as expanses of halophytic grasses, rushes, and sedges along the coastlines of low wave energy and river mouths, exhibiting characteristics of both terrestrial and marine environments. These areas are highly biologically productive breeding and feeding grounds for a vast array of wildlife.

Species composition and assemblages in the salt marsh environment are influenced by climatic factors such as precipitation and temperature as well as physical factors such as soil salinity and flood frequency, primarily tidal inundation. Plant species typically associated with tidal marshes are non-woody; however, mangrove and saltbush (*Baccharis halimifolia*) are known to occur. Prominent plant species found within this plant community at the PCCA include black needle rush (*Juncus roemerianus*), saltmeadow cordgrass (*Spartina patens*), and smooth cordgrass (*S. alterniflora*). These plants are distributed throughout the marsh in zones where one of the species will dominate. In addition to soils conditions, these visible zones may be dictated by slight changes in elevation, which influences frequency and duration of exposure to salt water.

Fire is not an integral component of salt marsh ecology, however, fires probably occurred sporadically from lightning strikes in the marsh or by spreading from adjacent pyric plant

communities. There is evidence that the excessive application of fire in these systems can affect the ability of needle rush to re-sprout. This plant will resprout vigorously after fire, but will decline and eventually be replaced by upland species if burned too frequently.

The salt marshes within the conservation area are relatively intact, however, notable disturbances include mosquito ditches, which are present in the southern portions of the property.

Flatwoods Lake (18 acres)

Flatwoods lakes are characterized as open water bodies surrounded by a dense ring of saw palmetto and other shrubs. The depressions in which these communities develop are typically formed when either solution holes form in the underlying limestone, causing surface sand to slump into a depression, or when, during high sea levels, offshore currents, waves, and winds scoured depressions that became inundated after the seas regressed. Soils in these areas generally consist of acidic sands with some peat accumulation and a clay lens.

An example of a flatwoods lake is located on the eastern portions of the conservation area. Hydrologic alterations from past silvicultural activities have altered this community and the surrounding flatwoods. The open water portions of the lake have diminished since the 1940s and the area now supports a broader coverage of cypress.

Altered Land Types (35 acres)

Altered land types within the conservation area include pine plantations, artificial ponds, created wetlands, and utility corridors.

Pine plantations occur on the majority of the mesic flatwoods and sandhills within the conservation area; however, these areas retain indicators sufficient enough to determine historic natural community coverage.

An artificial pond located on the eastern portion of the property is developed into a Fish Management Area. This area is popular recreation area.

A created wetland is located on the western portions of the property. This wetland was created as part of mitigation. The area includes planted cypress, red maple, sweetgum, and other wetland trees.



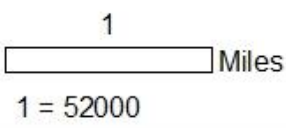

Soils

According to data produced by the United States Department of Agriculture, Soil and Conservation Service, 25 different soil types are within the PCCA. Figure 7 contains a soils map of the conservation area. The St. Johns and Flagler County Soil Surveys provided information used to develop descriptions of the predominant soil series found within the PCCA. The soil descriptions are located in Addendum 2.



Soil Series

- | | |
|---|------------------------------|
| ■ Adamsville fine sand | ■ Riviera fine sand |
| ■ Astatula fine sand | ■ Samsula and Hontoon soils |
| ■ Cassia fine sand | ■ Samsula and Placid soils |
| ■ Favoretta, Chobee, and Winder soils | ■ Smyrna fine sand |
| ■ Holopaw fine sand | ■ Tavares fine sand |
| ■ Hontoon muck | ■ Terra Ceia muck |
| ■ Immokalee fine sand | ■ Turnbull and Pellicer soil |
| ■ Myakka fine sand | ■ Tuscawilla fine sand |
| ■ Pellicer silty clay loam | ■ Valkaria fine sand |
| ■ Placid, Basinger, and St. Johns soils | ■ Valkaria-Smyrna complex |
| ■ Pomello fine sand | ■ Wabasso fine sand |
| ■ Pomona fine sand | ■ Water |

<p>Pellicer Creek Conservation Area Figure 7 - Soils Map</p>   	 <p>Boundary</p>	<p>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: (385) 329-4176.</p>
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PAST MANAGEMENT SUMMARY

This section describes management strategies outlined in the 2004 land management plan and provides the status of each item.

Water Resources 2004 Plan Strategy

Status

Regularly inspect roads, bridges, crossings, and trails for erosion problems.	In 2004, District staff made repairs to the Hulett Branch bridge and in 2006 constructed a bridge across Stevens Branch. District staff routinely inspects and repair as necessary culverts, low water crossings, roads, trails, parking areas, the fishing platform, and all bridges.
---	--

Forest Management 2004 Plan Strategy

Status

Utilize prescribed fire as a forest management tool.	District staff have implemented 479 acres of prescribed fire within the conservation area since 2004.
Monitor forested areas for disease or insect infestation.	District staff regularly monitor for both disease and insect infestation. Since 2004, no disease or insect infestations have been observed.
	In addition to the above listed strategies, District staff accomplished 736 acres of thinning (1 st and 2 nd) operations in slash pine plantations and 79 acres of post hurricane salvage/clearcut operations in sand pine plantations.

Fire Management 2004 Plan Strategy

Status

Introduce dormant season burns in areas where fire has been excluded.	District staff have conducted no dormant season burns since 2004.
Continue to conduct dormant season burns until fuel reduction goals are met.	District staff have conducted no dormant season burns.
Introduce growing season burns in areas with reduced fuels.	District staff have conducted 461 acres of prescribed fire in the growing season since 2004.

Wildlife 2004 Plan Strategy

Status

Continue to restore natural communities.	District staff have identified 156 acres of sandhills for restoration. Since 2004, oak removal activities have been conducted on approximately 12 acres.
Continue to maintain ecotones between natural communities.	District staff are facilitating the recovery and re-vegetation of ecotonal areas that

	were historically disked and maintained as firelines. These areas are currently being mowed.
--	--

Exotic Species 2004 Plan Strategy	Status
Continue to monitor for invasive plant species and treat as necessary.	District staff regularly monitor and treat invasive plant species.
Continue coordination with Flagler County hog trapper.	District staff maintain and SUA for the purposes of feral hog removal.

Cultural Resources 2004 Plan Strategy	Status
Protect existing cultural and historical sites.	District staff protect cultural and historical sites within the conservation area. District staff have cooperated with the Florida Agricultural Museum to identify and map historic roads within the conservation area.
Identify and report any new sites to Florida Division of Historical Resources.	No new sites have been identified since 2004.

Access 2004 Plan Strategy	Status
Maintain roads, bridges, trails, parking area, and fishing platforms.	In 2004, District staff made repairs to the Hulett Branch bridge and in 2006 constructed a bridge across Stevens Branch. District staff routinely inspects and repair as necessary culverts, low water crossings, roads, trails, parking areas, the fishing platform, and all bridges. District staff are working with Rayonier to resolve boundary issues.
Maintain all gates, fencing, and boundary markers.	District staff maintains all gates, fencing, and boundary signs. Additionally, District staff coordinates with Flagler County to assist in this strategy.
Maintain informational signage near parking area trailheads.	All signage is maintained.
Maintain limited access points and roads necessary for resource management activities.	All roads and access points are maintained by District staff.

Recreation 2004 Plan Strategy	Status
Maintain recreational trail and parking areas.	The District conducts maintenance of parking areas and trails at a minimum of twice/month during the growing season and as needed the remainder of the year. District staff coordinated with the Florida

	Agricultural Museum to establish the Hewlett Branch parking area.
Maintain kiosks and all signage describing allowed uses.	All kiosks and signs are maintained and replaced as necessary. Several wooden structures/recreation improvements are pressure washed annually.
Maintain area surrounding Fish Management Area.	The District and Flagler County conduct maintenance around the Fish Management Area.
Update and maintain trail brochure and recreation guide detailing trail system.	Trail brochures and recreation guides are updated as necessary.

Environmental Education 2004 Plan Strategy	Status
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Continue coordination with Princess Place Preserve Legacy Program.	District staff are available to provide support to the Princess Place Preserve Legacy Program.
Encourage education opportunities as they arise.	The PCCA is available for educational opportunities through numerous District programs.

Security 2004 Plan Strategy	Status
------------------------------------	---------------

Continue contract with private security firm.	The District maintains a contract with a private security firm and staff coordinates on a monthly basis.
Continue coordination with the Florida Fish and Wildlife Conservation Commission and local law enforcement.	District staff coordinates on a monthly basis with FFWCC and local law enforcement regarding security needs within the conservation area.
Maintain gates, fencing, and boundary marking.	District staff maintains, repair, and/or replace, as necessary, all gates, fencing, and boundary signs.

IMPLEMENTATION

The following sections outline land management strategies for resource protection, land use, and administration on the conservation area for the next five years.

RESOURCE PROTECTION AND MANAGEMENT

Water Resource Protection

Water resource protection within the conservation area will continue to focus on Pellicer Creek and the associated salt marshes and swamps as well as the numerous branches that feed into it. Tidal marshes are important for storm surge protection and pollutant filtering and are highly biologically productive. Salt marshes support an array of wildlife from invertebrates, to game fish and fish eating birds.

While many salt marsh systems in Florida are lost or degraded, Pellicer Creek's marsh system is intact. Most of the water resource protection of Pellicer Creek was accomplished through acquisition. Appropriate management of the branches and wetlands across the conservation area will further enhance and maintain the water quality in Pellicer Creek. Figure 8 depicts the location of creeks and branches within the PCCA and surrounding area as well as the location of bridges, culverts, and low water crossings. Depression marshes and other wetland edges will be included in prescribed fire activities conducted in associated fire management units; providing protection and continued proliferation of the herbaceous wetlands and restoration of ecotonal areas.

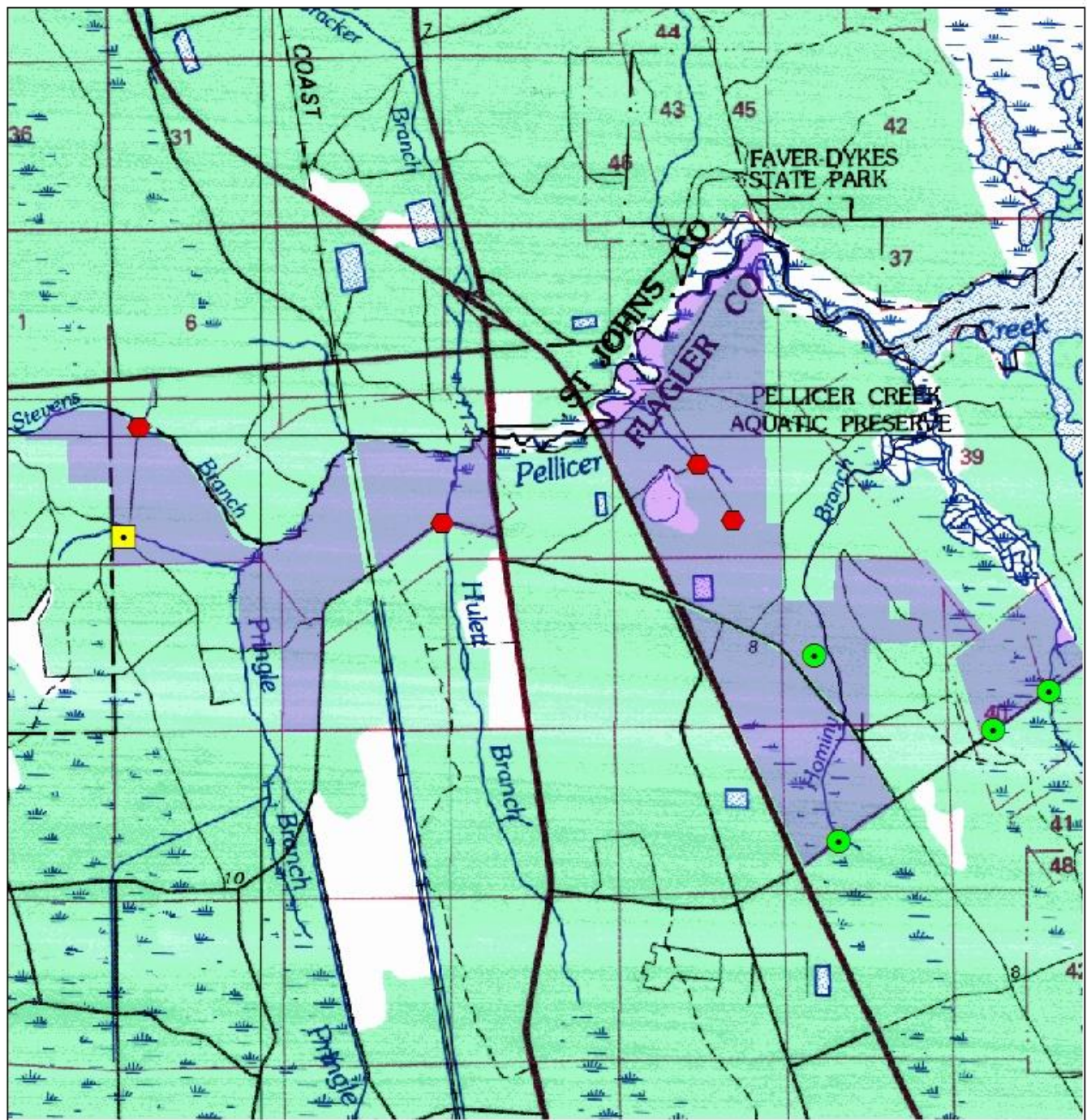
Roads and associated ditches exist within the PCCA, providing access for both management and recreation. The District has made improvements to roads within the conservation area, helping to reduce the potential for erosion. Table 3 itemizes specific water resource improvement activities conducted since 2004. District staff will continue to inspect roads, trails, low water crossings, bridges, and culverts for erosion problems and maintenance and repair needs.

Table 3 – Water Resource Improvements

Date	Location	Structure Type	Activity
2006	Stevens Branch	Bridge	New Construction
2004	Hulett Branch	Bridge	Repair

Water Resource Strategies

- Restore firelines located in ecotonal areas and incorporate into fire management activities.
- Regularly inspect roads, trails, low water crossings, bridges, and culverts for erosion problems and maintenance and repair needs.



**Pellicer Creek Conservation Area
Figure 8 - Water Resource Map**



1
Miles
1 = 52000

-  Conservation Area
-  Bridge
-  Culvert
-  Low Water Crossing

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Flora and Fauna

The conservation area has a diverse assemblage of natural communities providing significant habitat for a variety of floral and faunal species. District staff has documented floral and faunal observations from across the restoration area and these observations are compiled into the conservation area species list (Addendum 3).

The Florida black bear, listed by the State of Florida as a Threatened species, is documented within the PCCA. In addition to habitat loss and fragmentation and a host of diseases and parasites, threats to the bear include human caused mortality and incompatible habitat management. Human caused mortality typically includes illegal killing, euthanasia performed on nuisance bears, and roadkill (Placeholder3). The western portions of the conservation area lie within the secondary range for the St. Johns subpopulation of the black bear and the western most extent of the property occurs within primary range. Bears are known to utilize the area and road killed animals have been documented on I-95 adjacent to the conservation area and on CR 204 and US 1 in the vicinity of the property.

A road-killed panther (*Puma concolor ssp*) was documented in 2005 on the I-95 bridge over Pellicer Creek. The Florida subspecies (*P. c. coryi*), which was listed as Federally endangered in 1967, continues to be exceedingly rare, particularly within the St. Johns River Basin. There have been multiple releases of Texas pumas into various parts of Florida. By way of DNA analysis, it is not believed that this was one of those animals. It was likely offspring of a Texas puma/Florida panther cross that bred with a Florida panther (Onorato, 2011).

The conservation area lies within the core foraging area for a nesting colony of the federally endangered wood stork (*Mycteria americana*). This rookery is documented approximately 5 miles to the north of the property (Wood Storks, 2010) and the property is within the foraging area radii limits established for north Florida wood stork rookeries. The District will adhere to the guidelines established in the January 1990 U.S. Fish and Wildlife Service (FWS) *Habitat Management Guidelines for the Wood Stork in the Southeast Region*.

While no bald eagle nest sites are currently documented within the conservation area, three active nesting sites are located in close proximity to the property. Should nests be discovered within the restoration area, the District will adhere to the guidelines established in the May 2007 U.S. Fish and Wildlife Service (FWS) *National Bald Eagle Management Guidelines*. 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 FWS, prior to conducting management activities within the established management zones that may impact bald eagle nesting between the dates of October 1 to May 15.

The gopher tortoise (*Gopherus polyphemus*) occurs within the conservation area. District staff are working to develop baseline population estimates within the sandhill natural

communities on the PCCA. This data will be utilized as a measure of success of the restoration and management efforts in these areas and as supplemental documentation for habitat improvement grant applications.

Figure 9 illustrates the location of known Bald Eagle nests and pertinent buffer zones as well as gopher tortoise burrow monitoring areas.

Floral and Faunal Strategies

- Collect species occurrence data.
- Continue to monitor for the presence of listed species within the conservation area including Bald Eagle and Wood Stork.
- Document species observations in the Land Management Bio-database.
- Continue to follow the FWS habitat management guidelines established for the wood stork.
- Continue to document population dynamics of the gopher tortoise.

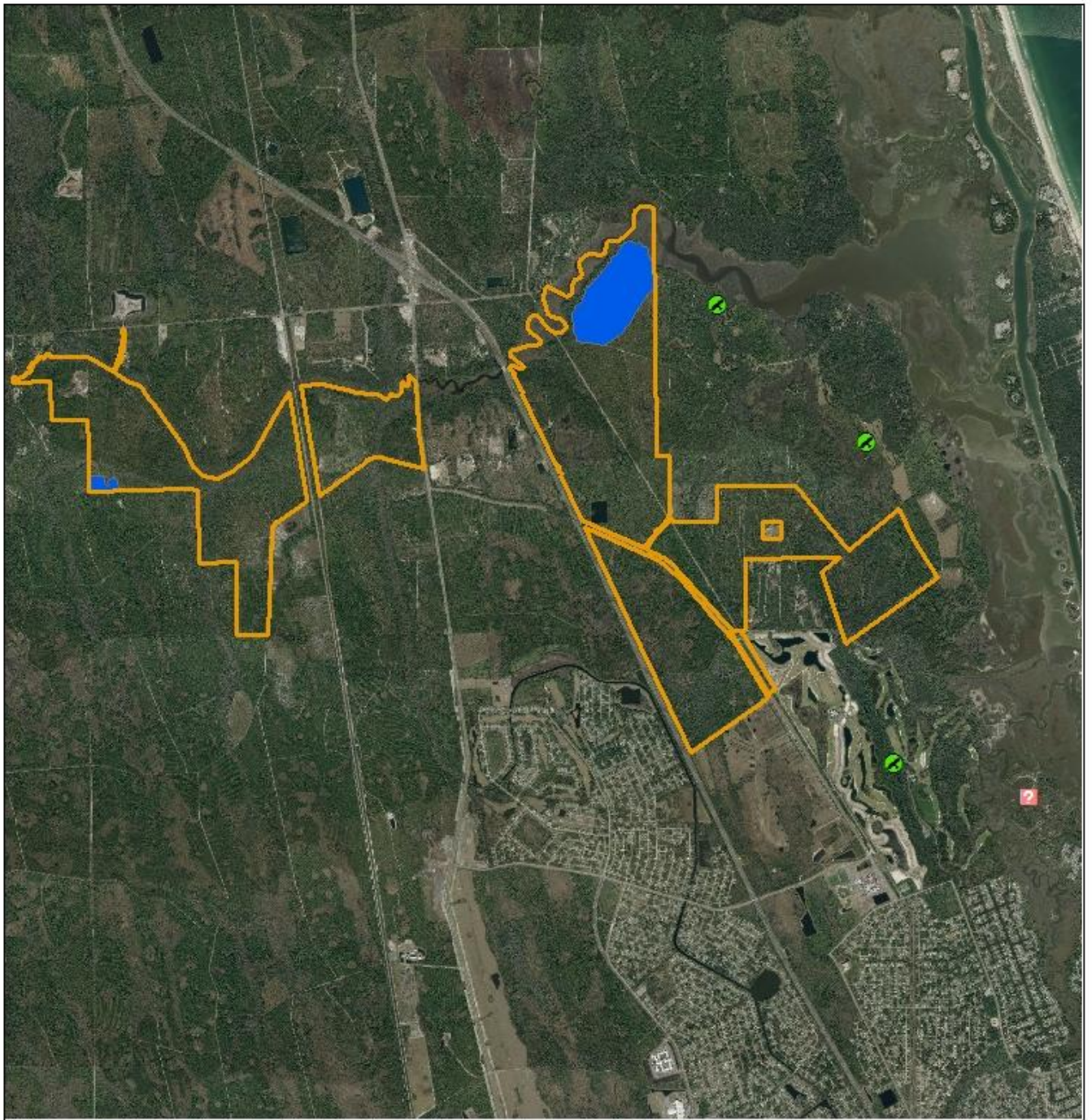
Fire Management

Forest and fire management activities within the conservation area are critically important and integrally linked. The planning and implementation of forest and fire management activities must be coordinated to achieve restoration and management goals.

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 encourage the amelioration of native pyric plant communities and dependant wildlife. Additionally, the application of fire aids in the reduction of fuels and minimizes the potential for catastrophic and damaging wildfires. Most of the upland natural communities at the PCCA are fire adapted, making prescribed fire an important tool for use in the restoration and maintenance of plant communities within the conservation area. Since the writing of the last plan, District staff have applied fire to 479 acres within the conservation area.

Historically, the majority of fires occurring on what is now the PCCA would have been ignited by lightning during the growing season. The District intends to reintroduce growing season fires where possible, understanding that constraints in some areas such as young pine plantations, high fuel loading, and proximity to smoke sensitive areas may predicate the use of dormant season burning. Figure 10 illustrates the fire management accomplishments since 2004.

Limiting factors narrowing the window of opportunity for the application of prescribed fire on the portions of the conservation area is the close proximity to critical smoke sensitive areas including I-95, US 1, CR 204, Old Kings Road, numerous surface streets, developed areas such as the City of Palm Coast, sea breezes, and the down drainage effects of Pellicer Creek and the Matanzas River.



Bald Eagle nest location information courtesy of the Florida Fish and Wildlife Conservation Commission 2009

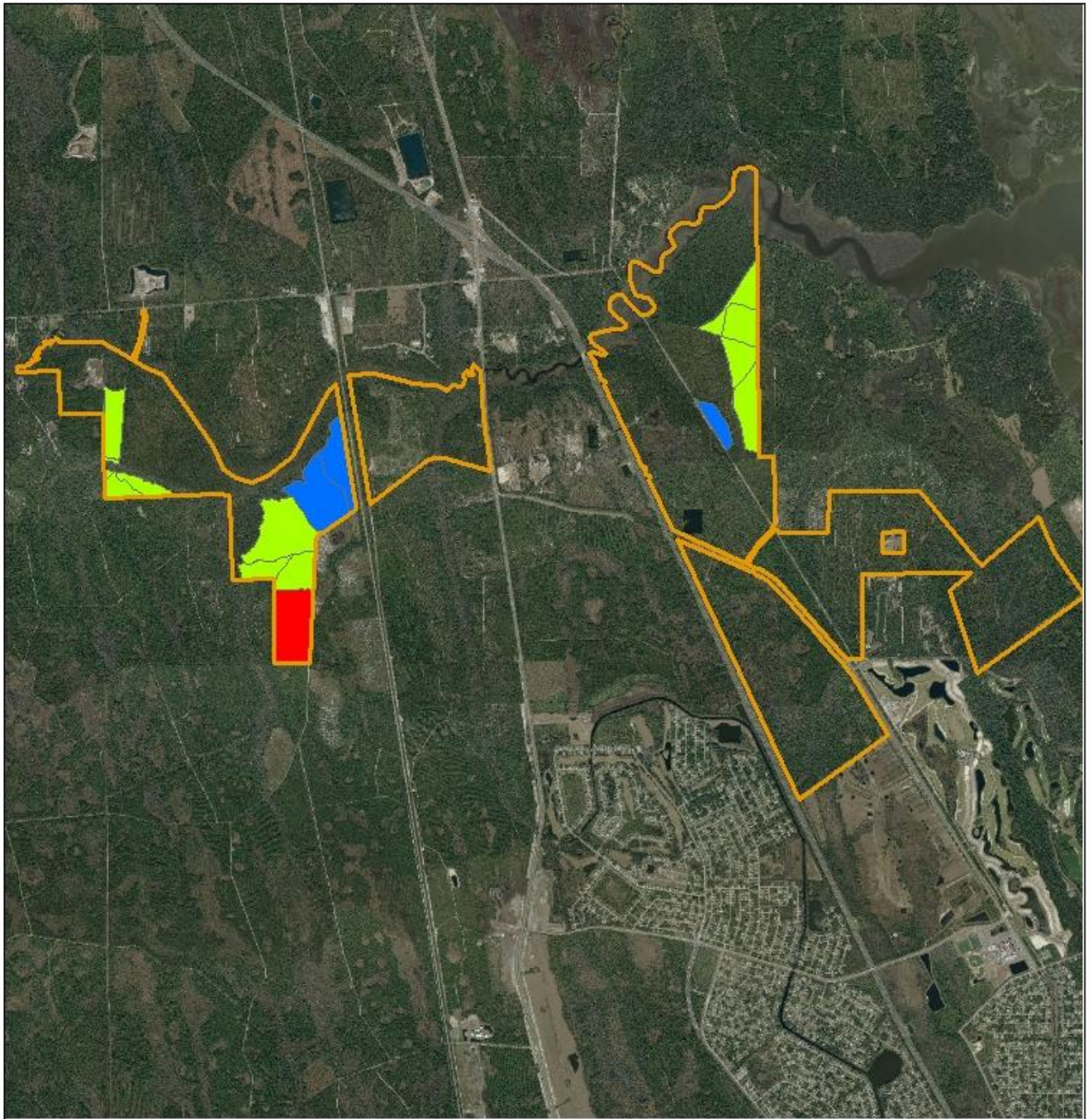
Pellicer Creek Conservation Area
Figure 9 - Listed Species Location
and Monitoring Map



1
 Miles
 1 = 60000

-  Conservation Area
-  Tortoise Burrow Monitoring Areas
-  Bald Eagle Nest - Active
-  Bald Eagle Nest - Status Unknown

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Pellicer Creek Conservation Area
Figure 10 - Prescribed Fire History



1
 Miles
 1 = 52000

	Conservation Area
Year Burned	
	2005
	2008
	2009

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Smoke management is paramount and any potential burns will be conducted to minimize off-site impacts by maneuvering smoke plumes away from smoke sensitive areas and by ensuring adequate smoke dispersal. A major challenge in implementing prescribed fire within the conservation area is the necessity of keeping fire from penetrating the floodplain swamp communities, where the organic soils, under dry conditions will smolder for extended periods of time creating a problematic smoke management situation. Appropriate soil and fuel moisture conditions will be selected to mitigate this potential. Smoke management concerns and smoke radii are depicted in Figure 11.

While prescribed fire is the preferred tool for restoration and maintenance within the conservation area, it may be necessary, under certain circumstances, to implement alternative methods. During periods of extended drought conditions or in areas where implementing prescribed fire safely is not feasible, the District may employ management methods such as selective herbicide treatments, mowing, roller chopping, and overstory manipulation.

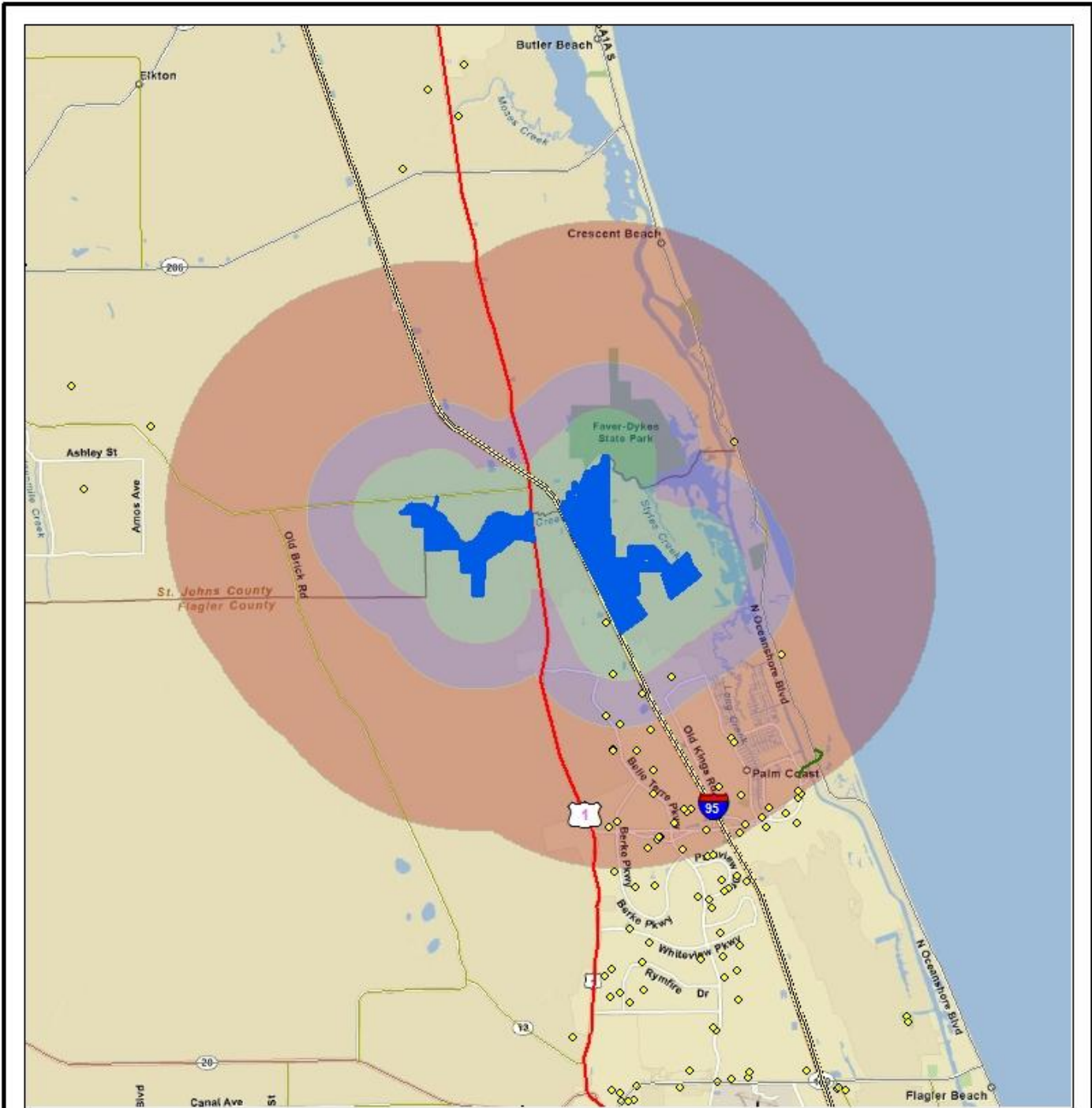
All implementation of prescribed fire within the conservation area will be conducted in accordance with the District's Fire Management Plan, the Pellicer Creek Conservation Area Fire Management Plan (Addendum 4), and the annual burn plan for the property.

Fire Management Strategies

- Implement prescribed burning as described in the District's Fire Management Plan and the Pellicer Creek Conservation Area Fire Management Plan.
- Develop annual burn plans.
- Introduce growing season burns where possible.
- Introduce dormant season burns in select pine plantations and areas of high fuel loading and/or extended fire exclusion.
- Continue to populate and maintain the fire management database.

Forest Management and Restoration

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 management objectives of this property may require pine and hardwood harvesting.



Pellicer Creek Conservation Area
Figure 11 - Smoke Management Map



2.5
 1 = 180000 Miles



- Conservation Area
- Schools and Healthcare Facilities
- 1 mile
- 2 miles
- 5 miles

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Primary objectives of harvesting on the PCCA 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 division budget to offset management costs for the property.

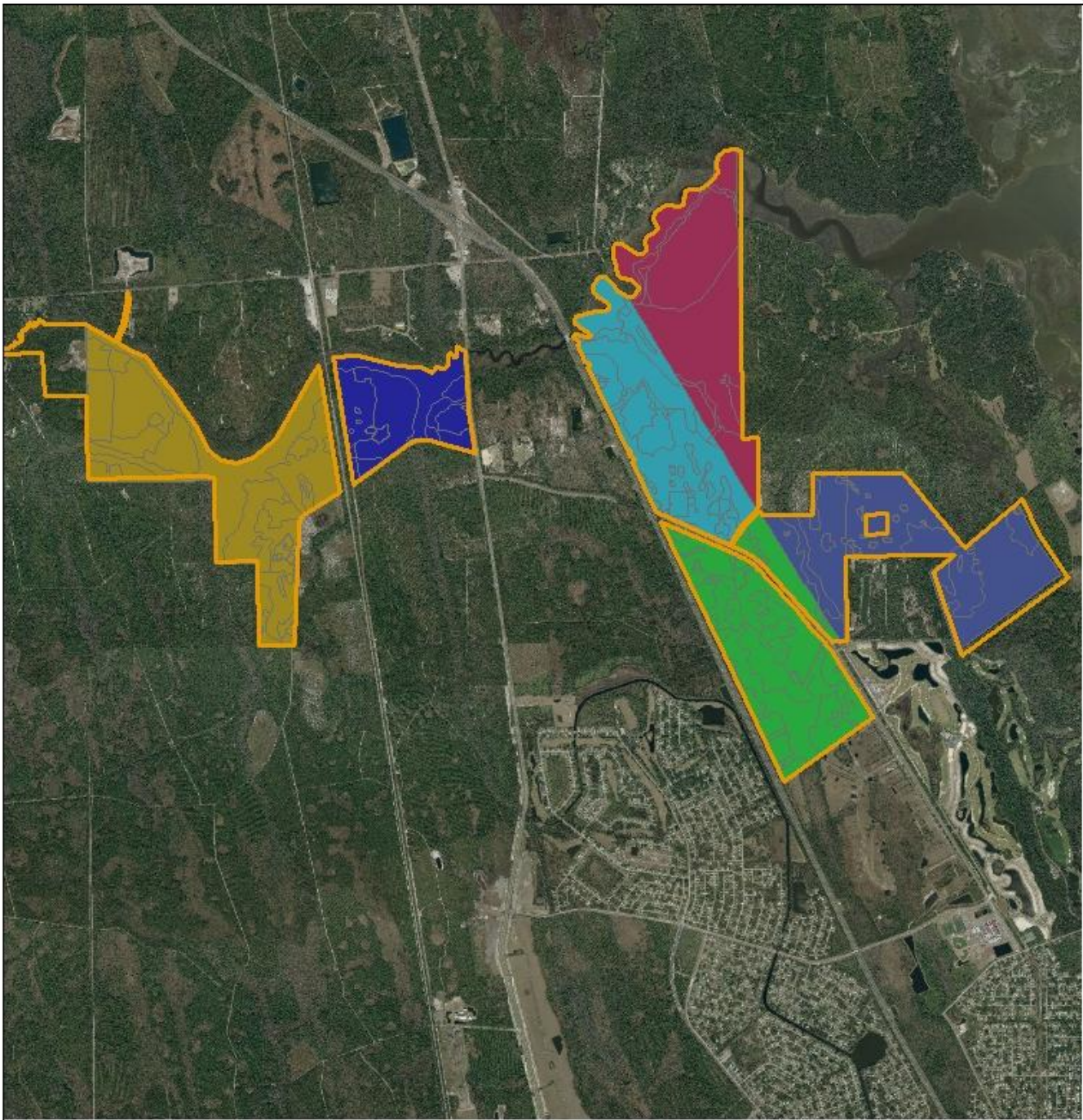
Forest management objectives within the PCCA will target a (longleaf and slash) pine basal area of 60-90ft²/acre within the flatwoods, managing for larger trees with fuller crowns. The District will target a canopy closure of <60% within the sandhills, which exceeds the standard established in the FFWCC Gopher Tortoise Management Plan (GTMP). Additionally, sandhill restoration activities will target a groundcover layer of native grasses and forbs of $\geq 50\%$, consistent with the GTMP. Table 4 provides information relative to forest management techniques (and associated acreage) employed within the conservation area since 2004 and planned activities.

The PCCA is partitioned into forest management compartments and each compartment is further divided into stands. Figure 12 illustrates the compartments and stands within the conservation area. On properties like the PCCA, where silvicultural management is an intrinsic component of the overall management of the upland portions of the property, values, including baseline timber volumes/timber inventory are collected. These values 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, and reforestation are also recorded in the database. This information is used to help land management staff forecast forest management needs

Sand Pine Management

Sand pine is a natural component of many upland plant communities in Florida. Under appropriate fire return intervals the natural distribution of this pine species is low in areas like the PCCA, restricted largely to scrub communities with varying densities. Sand pine occurrence in scrubby flatwoods is typically sparse. Frequent fire return intervals associated with sandhills would have largely excluded sand pine from this community. Factors including prolonged fire exclusion and artificial regeneration can cause sand pine to occur in areas and have densities that far exceed natural conditions. Sand pine within the PCCA are largely offsite, introduced species within the sandhills and mesic flatwoods.

Sand pines can produce several cone crops each year, retaining most of the serotinous cones in the upper layers of the canopy. The stored cones may be retained for several years, until a disturbance, such as fire causes them to open. When the disturbance occurs, the cones open, disseminating the tremendous seed source held within the canopy. A survey in the Ocala National Forest (ONF) recorded the post fire release of one million seeds per acre (Fowells). Sand pine is naturally perpetuated by moderate to severe disturbance every 20 to 80 years, with the main disturbance being fire. According to FNAI, 80 years would be the upper limit of the fire return interval based on the longevity of sand pine and that fires from surrounding communities likely burned into scrub



**Pellicer Creek Conservation Area
Figure 12 - Forest Management Map**



1
1 = 52000 Miles



Conservation Area



Stand Lines

Compartments



01
02
03
04
05
06

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Tel: (386) 329-4176.

systems more frequently, particularly during droughts. In the absence of fire, mechanical intrusion mimics stand replacement. Fires in mature sand pine stands are catastrophic and difficult to control.

While the majority of cones are serotinous, approximately 15% will open without the disturbance of fire. The sand pine is fast growing and able to produce viable cones at an early age. “Mature cones have been documented on five (5) year old trees” (Fowells). Sand pines are slightly more shade tolerant than other pine species and will often outcompete other pines establishing dominance early.

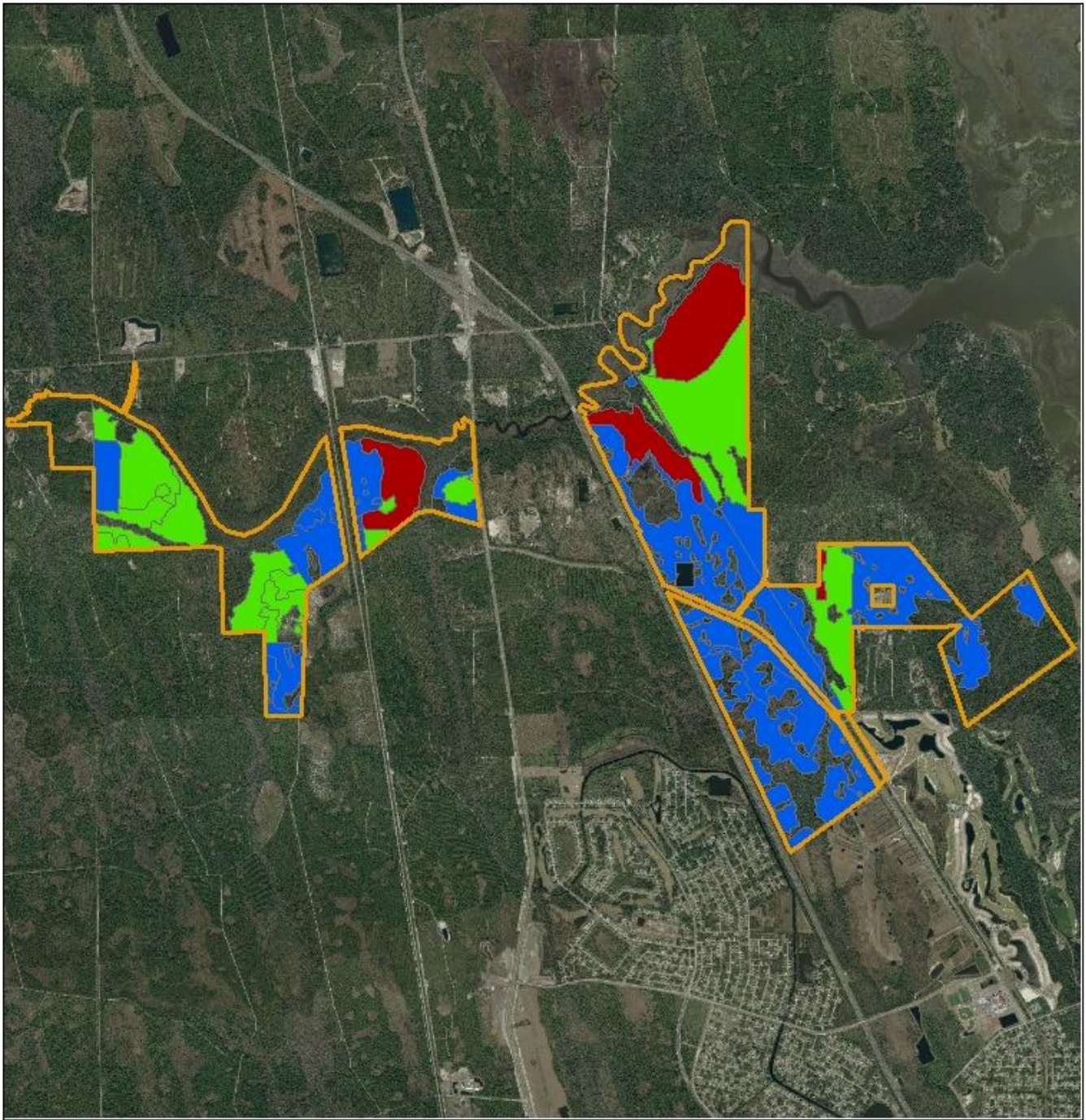
Once sand pine has established in an area, it is difficult to remove because as an early successional species or pioneer species, it is disturbance adapted. Management efforts aimed at the removal or control of these pines will, at least in the early stages, perpetuate the stand. Sand pine will eventually create full canopy closure suppressing, and in many cases eradicating desirable groundcover through the effects of shading. As groundcover vegetation is lost, biological productivity decreases. Multiple iterations of mechanical treatments, herbicide treatments, and prescribed fire are often necessary to achieve maintenance control of sand pine.

Prior to public acquisition, approximately 316 acres of mesic flatwoods and sandhills were planted with sand pine at high densities. These areas of planted sand pine exhibit highly degraded ecological values, with the majority of the sandhill acres being void of both shrub and groundcover components. Figure 13 illustrates the extent of pine by species across the conservation area. Figure 14 depicts the harvest history since the writing of the last plan and Figure 15 shows planned harvest activities, which includes approximately 239 acres of the planted sand pines which are scheduled for a clearcut harvest during the scope of this plan.

Approximately 79 acres of sand pine encroached sandhill located between U.S. 1 and the railroad tracks will remain in and be managed for sand pine. These trees are approximately five (5) years old and harvesting of these pines is not anticipated during the scope of this plan.

Longleaf and Slash Pine Management

Prior to public acquisition, many of the areas managed for silviculture were planted in both longleaf and slash pine. These areas, primarily mesic flatwoods, retain many site appropriate species in the shrub and groundcover layers, but are becoming overgrown due to prolonged fire exclusion. District staff will implement prescribed fire within these areas targeting the maintenance of appropriate fire return intervals for mesic flatwoods. Approximately 117 acres of planted slash pine are scheduled for first-thinning operations during the scope of this plan. No harvesting of longleaf pine is anticipated during the scope of this plan.



**Pellicer Creek Conservation Area
Figure 13 - Pine Species Coverage Map**

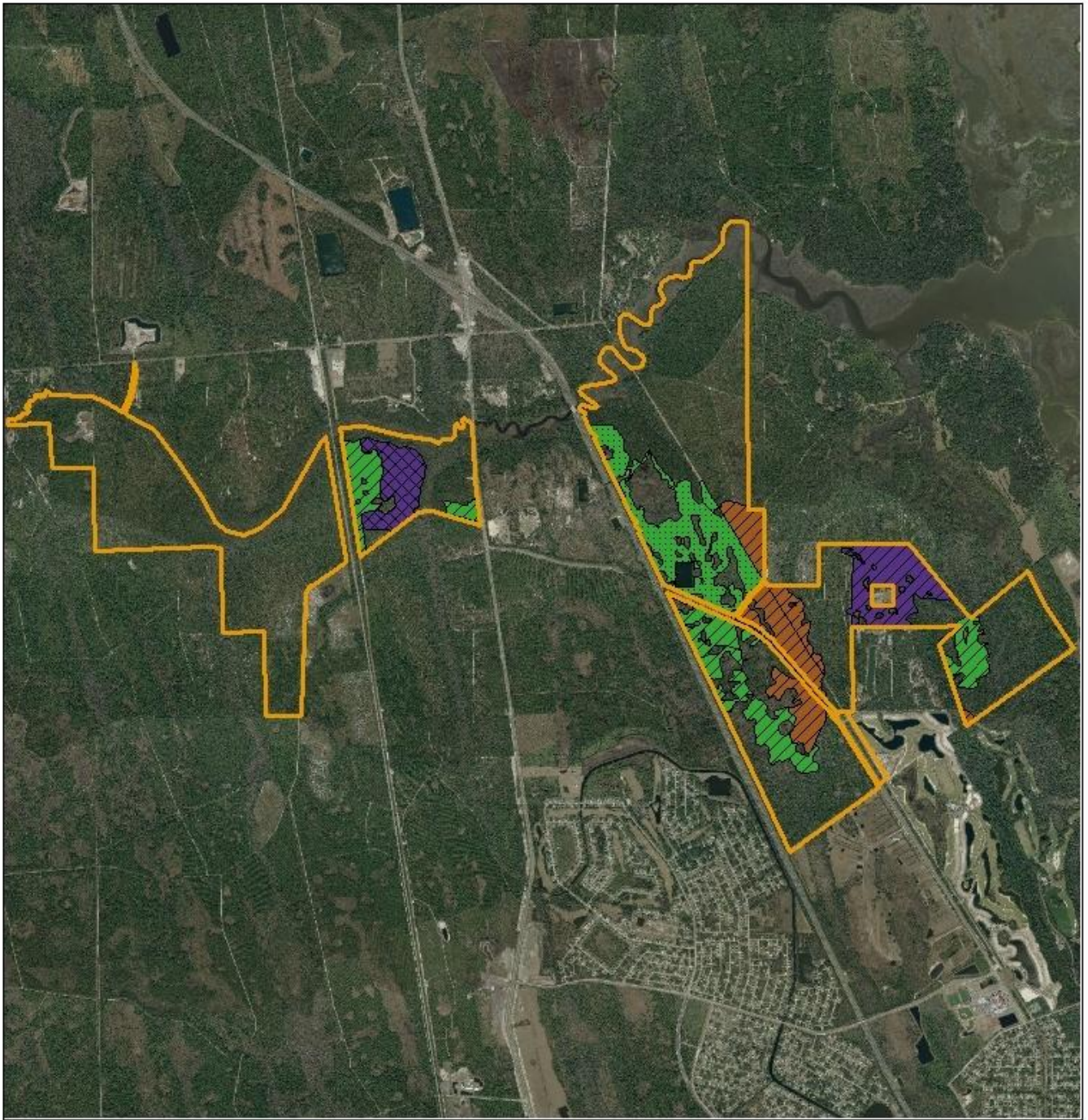


1
Miles
1 = 52000



Conservation Area
Longleaf Pine
Sand Pine
Slash Pine
Stand Lines

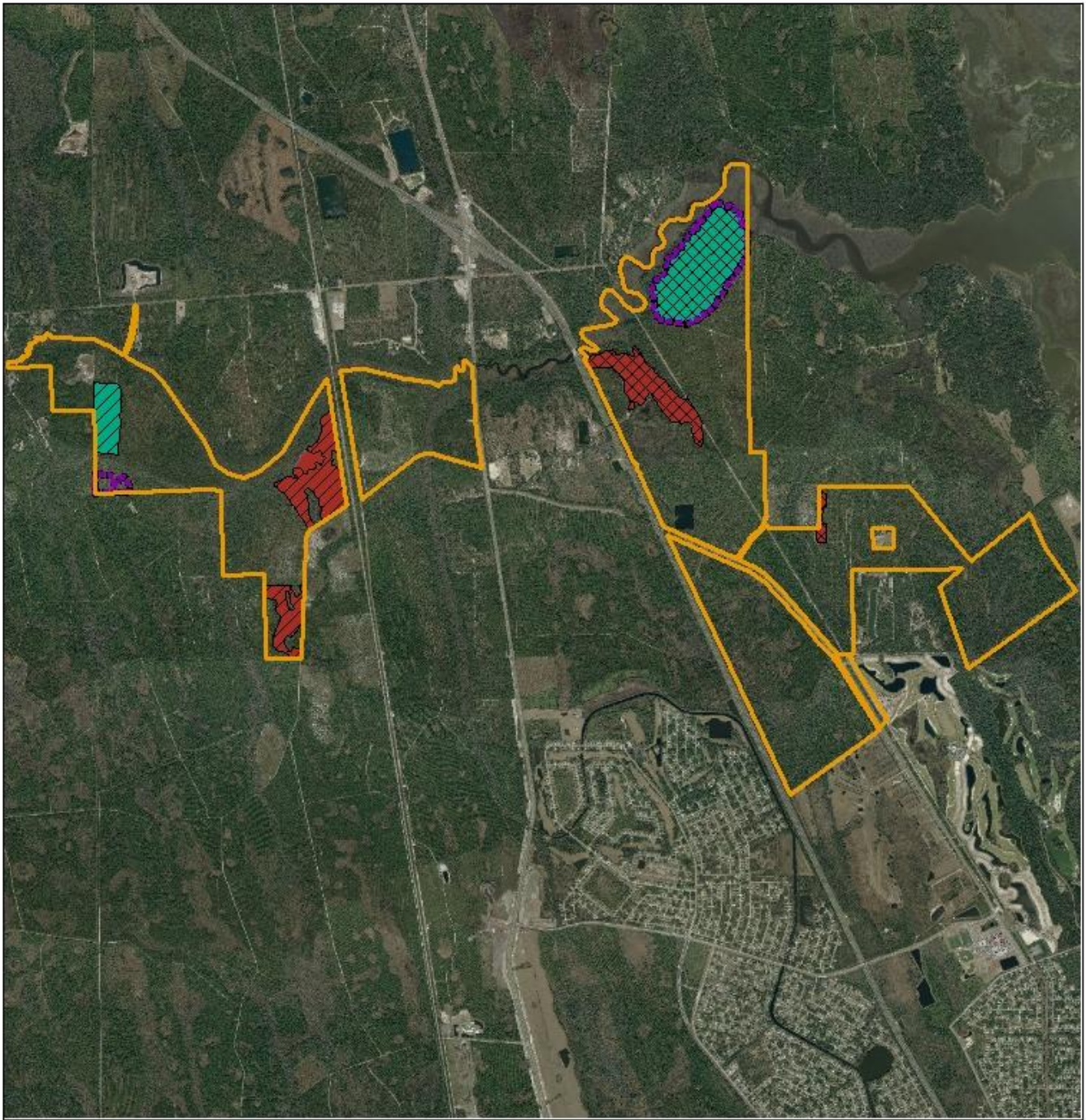
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Pellicer Creek Conservation Area
Figure 14 - Harvest History Map

	Conservation Area
Harvest Type	
	Clearcut
	First Thin
	Second Thin
Harvest Year	
	2005
	2006
	2010

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Pellicer Creek Conservation Area
Figure 15 - Planned Harvest
and Restoration Map



0.6
 Miles
 1 = 52000

- Conservation Area
- Sandhill Restoration Area
- Harvest Type**
- Clearcut
- First Thin
- Harvest Year**
- 2011
- 2012

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, Belleair, Florida 32178-1429. Tel: (386) 329-4176.

Sandhill Restoration/Enhancement

In 2008, District staff conducted restoration/enhancement activities within approximately 12 acres of degraded sandhills. While no baseline monitoring was conducted, anecdotal observations indicated a canopy closure of >95%, with the most problematic species being sand live oak. A basal treatment of a 75/25% mixture of basal oil/Garlon 4 (trifluralin) was applied, targeting sand live oaks ($\geq 6''$ dbh.) District staff will assess the residual canopy closure, implement a prescribed fire, and may conduct additional herbicide treatments.

In 1991, Rayonier planted sand pine on 157 acres of former sandhill. Because of the disturbance from site preparation, and the shade provided by the sand pine, the native ground cover species have diminished. While remnants of the former sandhill species still exist, the extent of their coverage is difficult to assess because they have diminished in both vigor and stature. The sand pine was sold in April 2010, and is scheduled for harvest in February/March 2011. Once the sand pine is harvested, District staff intends to prescribe burn the area and monitor the response of sandhill ground cover species. In areas where the ground cover species are sufficient to encourage management as a sandhill, the District intends to control sand pine regeneration using some combination of mowing, fire, and herbicide. In areas where little or no groundcover exists, sand pine will be allowed to regenerate and the area will be managed without fire and will be clearcut on a 20 to 40 year stand replacement cycle.

District land management staff developed interpretive literature and signage relative to sand pine management within the PCCA. Information provided includes sand pine life history, natural range and distribution, and management challenges. This information is posted onsite and is available online. The following web address is hyperlinked to the web page <http://floridaswater.com/landmanagement/sandpinemanagement.html>. The signage and brochures will continue to be available.

Forest Management Strategies

- Conduct pine harvest operations as described in Table 4.
- Implement sandhill restoration activities in Stand ID 3404003.
- Monitor sand pine regeneration within sandhill restoration area and apply appropriate management.
- Provide sand pine management signage and fact sheets in areas of sand pine harvests.
- Implement prescribed fire within the longleaf and slash pine plantations and maintain appropriate fire return interval for mesic flatwoods.
- Assess canopy closure within Stand ID 3401012 and implement additional herbicide treatments if canopy closure is >60%.

Table 4 - Forest Management Accomplishments and Planned Activities

Stand ID	Acres	Target Species	Activity/Harvest Year	Activity Type
3401012	12	Sand Live Oak	2008	Sandhill Restoration/Oak Removal
3402002	79	Sand Pine	2005	Salvage/Clearcut
3402003	46	Slash Pine	2006	1 st Thinning
3402006	12	Slash Pine	2006	1 st Thinning
3402015	2	Slash Pine	2006	1 st Thinning
3402016	4	Slash Pine	2006	1 st Thinning
3403007	25	Slash Pine	2006	2 nd Thinning
3403010	167	Slash Pine	2006	2 nd Thinning
3403016	4	Slash Pine	2006	2 nd Thinning
3404009	40	Slash Pine	2010	1 st Thinning
3405001	66	Slash Pine	2011	1st Thinning
3405002	48	Slash Pine	2006	1st Thinning
3405011	14	Slash Pine	2006	1st Thinning
3405015	48	Slash Pine	2010	1 st Thinning
3405016	67	Slash Pine	2006	1st Thinning
3406002	122	Slash Pine	2005	1 st Thinning
3406017	24	Slash Pine	2010	1 st Thinning
3406027	42	Slash Pine	2006	1 st Thinning
3406029	3	Slash Pine	2010	1 st Thinning
3406036	2	Slash Pine	2010	1 st Thinning
Stand ID	Acres	Pine Species	Planned Activity/Harvest Year	Planned Activity
3401004	41	Slash Pine	2011	1 st Thinning
3401006	76	Slash Pine	2012	1 st Thinning
3401009	9	Slash Pine	2012	1 st Thinning
3401025	36	Slash Pine	2012	1 st Thinning
3403006	75	Sand Pine	2012	Clearcut
3404003	156	Sand Pine	2011	Clearcut
3405001	49	Slash Pine	2011	1 st Thinning
3406006	8	Sand pine	2012	Clearcut

Exotic Species

Several exotic pest plants occur within the conservation area including:

- Camphor tree (*Cinnamomum camphora*)
- Chinese tallow (*Sapium sebiferum*)
- Mimosa (*Albizia julibrissin*)
- Caesar weed (*Urena lobata*)
- Air potato (*Discorea bulbifera*)
- Wild Taro (*Colocasia esculenta*)
- Japanese climbing fern (*Lygodium japonicum*)
- Bahia grass (*Paspalum notatum*)
- Bermuda grass (*Cynodon sp.*)
- Cogongrass (*Imperata cylindrica*)
- Paper mulberry (*Broussonetia papyrifera*)
- Britton's wild petunia (*Ruellia simplex*)
- Chinaberry (*Melia azedarach*)

The PCCA is part of the District's invasive plant management program. Exotic species control is necessary to inhibit the continued proliferation of exotic plants and integral in the maintenance and restoration of natural plant communities. While it is unlikely that the District will entirely eradicate invasive plants within the conservation area, achieving maintenance control of such species is targeted within the scope of this plan. At this level, the property is regularly monitored and treated as necessary.

Exotic wildlife species known to occur within the conservation area include feral hogs (*Sus scrofa*), brown anoles (*Anolis sagrei*), (and nine-banded armadillos (*Dasypus novemcinctus*). In 2008, an African spurred tortoise (*Geochelone sulcata*) was removed from the conservation area.

Feral hog control is currently facilitated via a Special Use Authorization (SUA) between the District and a feral hog removal agent. The United States Department of Agriculture may be contracted to assist, if necessary, in the removal of feral hogs from the conservation area.

Laurel wilt, a disease of red bays (*Persea borbonia*) and other trees in the laurel family has been observed in red bay populations in areas near the conservation area. The disease has not been specifically observed within the PBCA. Caused by a fungus, laurel wilt is carried and transmitted by the non-native red bay ambrosia beetle (*Xyleborus glabratus*.) The beetles generally attack healthy mature trees and the subsequent fungal infection causes the flow of water to be restricted to the leaves and branches, eventually causing mortality. Laurel wilt is devastating to infected populations and there are currently no established methods for controlling the laurel wilt disease in wild populations of *Persea*.

This disease has the potential to have detrimental effects on wildlife populations, including the palamedes swallowtail butterfly (*Papilio palamedes*). The palamedes is

relatively common in Florida. Larval host plants for the palamedes swallowtail butterfly include species of *Persea*, but are primarily red bay.

Additional information on laurel wilt disease and the red bay ambrosia beetle can be found at http://www.fl-dof.com/publications/fh_pdfs/Laurel_Wilt.pdf and <http://edis.ifas.ufl.edu/HS391>.

Exotic Species Strategies

- Continue to monitor for exotic plant species and implement appropriate action.
- Continue to administer the feral hog removal program.

Cultural Resources Protection

A review of the Department of State, Division of Historical Resources (DHR) indicates five registered Florida master site locations within the conservation area. The District is cooperating with staff from the Florida Agricultural museum to identify the footprint of historic roads within the conservation area. If additional sites are located, District staff will document and report sites to the DHR. District land management activities that may affect or impact these resources will be evaluated and modified to reduce the potential for disturbance of the identified sites. Additionally, detrimental activities discovered on these sites will also be reported to the DHR and appropriate law enforcement agencies. Due to the District and State policy, the location of the sites is not identified on public maps.

Cultural Resources Protection Strategies

- Identify and report newly discovered sites to the DHR.

LAND USE MANAGEMENT

Access

Four public parking areas, plus an additional public access point from the Florida Agricultural Museum are located on the conservation area. The parking areas are fenced and have walkthroughs providing for recreational access. An informational kiosk is located near the parking area trailheads.

There are currently 27 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, 911 address have been issued for two of the parking areas. The PCCA includes the following 911 address:

- 285 Princess Place Road
- 5800 Old Kings Road North

Several interior management roads traverse the conservation area; some are incorporated into a multiuse trail system. In order to manage road maintenance, District roads are classified according to anticipated maintenance needs. All roads within the conservation

area are classified by the District as either “Type B”, “Type C”, or “Type D”. Table 5 details the extent of roads across the conservation area.

Type B roads are all weather, stabilized roads that are frequently graded. These roads have shoulders and ditches (8-12 feet wide) that are frequently mowed. Type C roads are stabilized roads with a surface of native soils and grass. These roads have shoulders and ditches and are routinely mowed. Type D roads are roads with limited stabilized surfaces with or without ditches (existing) that receive occasional traffic. Maintenance consists of routine mowing of the road surface and side and overhead vegetation. Roads will be regularly inspected and receive maintenance and repair as necessary and may be subject to closure during these times. Figure 16 depicts the location of the parking areas and roads on the property.

Table 5 – Roads

Road Classification Type	Miles
Type B	1.2
Type C	3.5
Type D	5.3
Total	10

Access Strategies

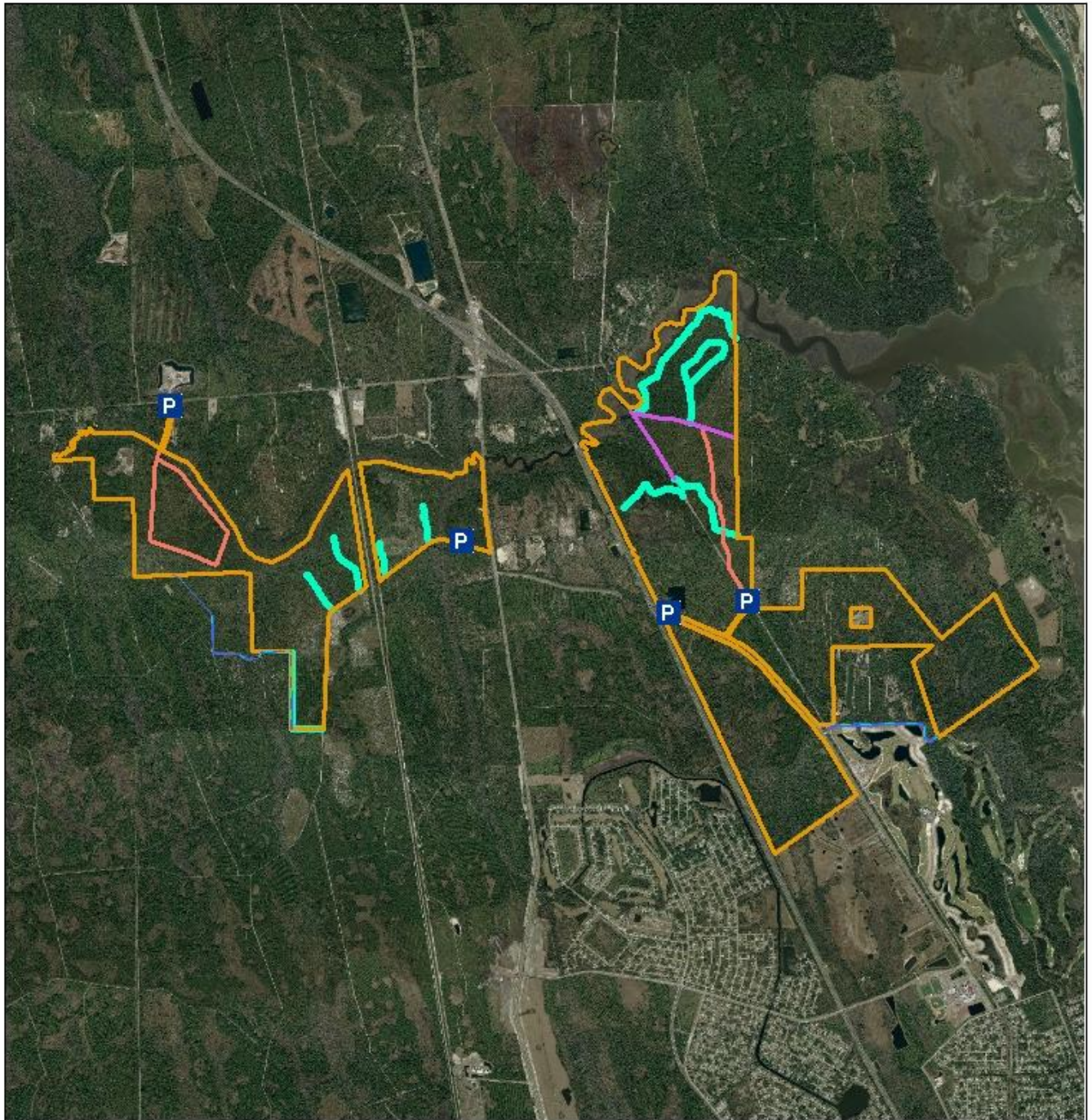
- Maintain parking areas, signs, gates, and trails.

Recreation

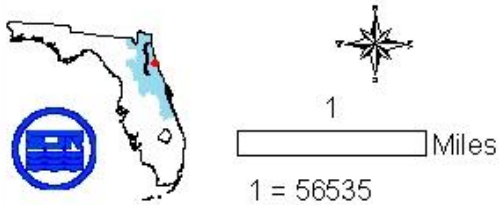
The primary objective of the Recreation Management Program is to facilitate resource-based recreational activities on District lands. An aspect in developing the SJRWMD Recreation Program is not to compete with other local recreational opportunities, but rather to complement what they may already have in place by filling an outdoor recreation niche through dispersed recreation opportunities. Dispersed recreation activities generally require large tracts of land with some level of isolation. This type of recreation blends well with District conservation areas, providing numerous opportunities for passive recreation which also provides solitude and challenge.

Recreational opportunities within the PCCA are geared toward dispersed resource-based activities. The conservation area includes four trailheads with designated parking areas, information kiosks, and access to the land using trails that are primarily interior roads, and fire lines that are currently maintained for land and water management purposes.

Approximately 6 miles of trails have been installed in cooperation with Flagler County and Princess Place Preserve, providing opportunities for hiking, off-road bicycling, horseback riding, and wildlife viewing. Portions of the trail system incorporates scenic vistas of Pellicer Creek.



Pellicer Creek Conservation Area
Figure 16 - Roads Map



- | | |
|---|------------------|
|  | Boundary |
|  | Parking Area |
| Conservation Area Roads | |
| Road Type | |
|  | B |
|  | C |
|  | D |
|  | Access Easements |

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In addition to the above listed, recreational opportunities primitive camping with a Flagler County permit is available at the Princess Place Preserve. Public use facilities also available at Princess Place Preserve include a boat/canoe launch and restroom facilities. Additionally, a canoe/boat launch and other similar recreational opportunities are available at Faver-Dykes State Park, just north of the conservation area. Bicycling and horseback riding are restricted to established trails, roads, and firelines.

In November 2010, bicycle clubs in Flagler County approached the District about establishing an off road bicycle trail. The original proposal was rejected because of its impacts to natural communities, ecotones and wetlands, but staff suggested alternatives. The bike clubs are working to develop a plan for a more site appropriate trail. It is anticipated that during this plan a more site appropriate bicycle trail may be established.

The District cooperated with Flagler County, the Florida Department of Transportation (FDOT), and the Florida Agricultural Museum (FAM) to develop a land bridge over I-95 between the conservation area and FAM. The bridge provides recreational linkage between the two properties and supports hiking and horseback riding opportunities.

Fishing opportunities are available on Pellicer Creek and Pellicer Pond, Pellicer Pond is located off Old Kings Road near I-95. Through a Fish Management Area agreement, the District and FWC have jointly developed a fishing program at this site. This recreation site consists of an 11-acre pond with two fishing piers. The pier nearest the parking area is handicapped-accessible. FWC provides fish food, stocks the pond with fish, and maintains the fish population within the pond. Flagler County staff perform regular maintenance of the parking area and trails around the pond. Recreational users are required to have a valid Florida freshwater fishing license in order to fish Pellicer Pond.

District trails are maintained through a trail maintenance contract. Grassy trails and road edges are mowed four (4) times yearly, and the parking areas are maintained twice monthly, or as needed. Additionally, the trails are blazed and trimmed of overhanging branches as needed. The District will evaluate the need for further recreational development as visitor usage increases or new land is acquired.

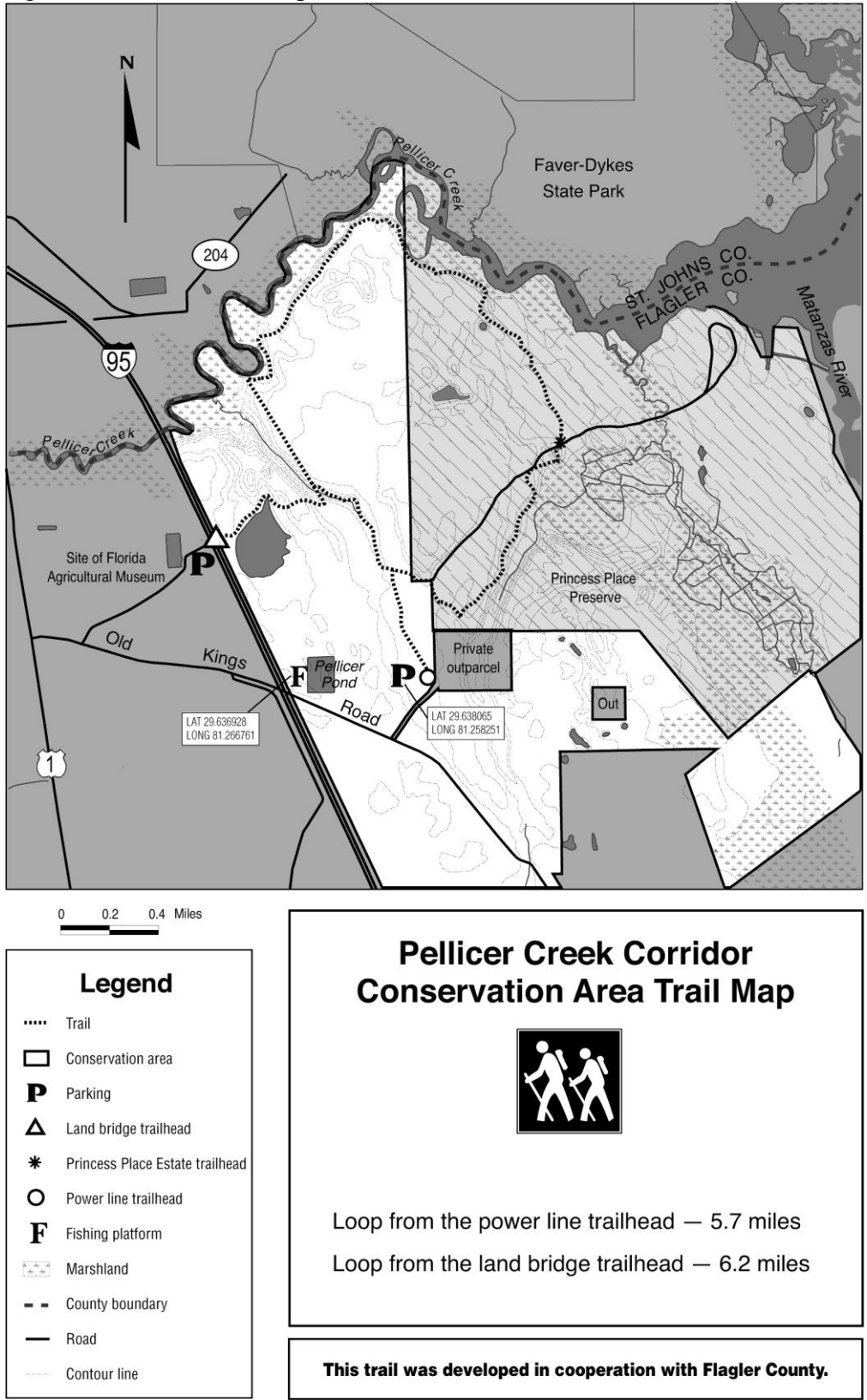
Figure 17 depicts the location of recreational amenities found within the conservation area and Princess Place Preserve.

The entire conservation area is open to the public for passive recreation and is included in the District's [*Recreation Guide to District Lands*](#), which can be viewed online at floridaswater.com.

Recreation Strategies

- Maintain trail maintenance contract.
- Continue cooperation with Flagler County, Princess Place Preserve, Florida Agricultural Museum, and FWC.
- Evaluate the potential for additional recreational facilities or infrastructure.
- Maintain current information in the recreation guide, trail guides, and kiosks.

Figure 17 – Recreation Map



Environmental Education

The District offers numerous educational opportunities in the form of online materials and workshops. Programs include Project Wet and the Great Water Odyssey. The former, available in Flagler and St. Johns Counties, is a program designed to teach educators about water resources and is based on FCAT standards while the latter is an interactive, multidisciplinary educational experience offered free of charge to educators within the District. A Legacy Program is offered/administered by the Princess Place Preserve.

Environmental Education Strategies

- Continue to offer environmental education opportunities.

Security

The boundaries of the PCCA were marked and posted soon after the original survey work was complete. While portions of the boundary were fenced prior to acquisition, some of the conservation area boundary, particularly through the forested wetlands, remains unfenced. District staff will evaluate the need for fencing in unfenced areas and incorporate all new fencing into future budget and annual work plans.

Security concerns include illegal motorized vehicle access, dumping, vandalism of gates and fences, and poaching. The District, primarily through a contract security firm as well as coordination with FWC and local law enforcement, administers law enforcement for the property.

Security Strategies

- Maintain signage, fencing, gates, and locks.
- Evaluate the need for new fencing.
- Continue coordination with private security firm, FWC, and local law enforcement.

ADMINISTRATION

Land Acquisition

There are no anticipated acquisitions associated with the Pellicer Creek Conservation area in the next five years. The District and the County may pursue acquisition of small parcels or easements that may improve access for management purposes. The District has identified approximately 440 acres on the southern end of the property between I-95 and Old Kings Road for potential surplus or exchange. Due to the configuration of major highways and the interstate, fire management is impossible and while mechanical management can mimic fire, mechanical methods are much more expensive and cannot achieve the full suite of ecological objectives. Managing between the highways will also consume more staff time, which diminishes what can be accomplished on other lands.

In October 2008, the District approved an agreement for the exchange of real property with Wilson Green LLC (Green.) Green owns a large tract of property located west of the conservation area, on which a mixed use development of regional impact (DRI), is proposed. To facilitate this future development plan, Green requested (and the District agreed) that the District convey the fee simple title to approximately 99 acres of District land to Green for the purposes of roadway development and commuter rail depot development. In exchange, the District would be granted a conservation easement over no less than 1,100 acres known as the Dave Branch Watershed and Green would convey and additional 41 acres to the District as part of a land management boundary agreement.

Additionally, two transactions were proposed, subject to either the execution of the Agreement for Exchange or the District Governing board approval of closing on the above described transactions. These transactions (below) have occurred:

- fee simple ownership of approximately 32 acres of District land was proposed to be exchanged for Green land to enhance the District's property boundary if the other described exchanges were approved for closing.
- a perpetual easement for land management purposes to facilitate access to the southern portions of the conservation area where access was not available was proposed to be granted to the District upon execution of the Agreement for Exchange.

Green shall have three years from the effective date of the agreement (ending April 2012) to provide confirmation to the District their intent to close these transactions.

Acquisition Strategies

- Evaluate adjacent properties for potential acquisition.
- Continue to facilitate the Wilson Green LLC property exchange when/if the DRI is approved.

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 6 details the agreements and SUAs in effect during the writing of this plan.

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

- Continue to administer existing easements, agreements and SUAs.
- Receive data, information, species lists, and/or publications from SUAs issued for research on the property.

Table 6 – Agreements, Easements, and SUA Table

Agreement Number	Type	Agreement Name	Term
663	SUA – Feral Hog Removal	Durrance, Steve	Annual-automatic renewal expires on 12-31-2014
705	SUA – Access to Retrieve Dogs	Gopher Ridge Hunting Association	Expires 11-7-2012
230	SUA – Access for Billboard Maintenance	Palm Coast Outdoor	Expires 2-14-2011
599	SUA – Access for Silt Fence Maintenance	Palm Coast Park Community Development	Annual-automatic renewal expires 5-14-2014
667	SUA – Apiary	Smith Family Honey	Annual-automatic renewal expires on 5-2-2015
680	SUA – Access for GPS surveys	Massfeller, Jim	Expires September 2011
Easement – LA Number	Easement Type	Easement Name	
1995-053-P2	Ingress/Egress and Utility	-----	
1995-053-P2	Non-exclusive Perpetual Easement	Wilson Green, LLC	
1995-053-P2	Power Transmission Line	Florida Power & Light	
1995-053-P2	Power Transmission Line	Florida Power & Light	
1995-053-P2	Access Easement to Outparcel	Ronald E. Brammer and Diana S. Brammer	
1995-053-P2	Access Easement	Ginn-LA Hammock beach, LTD	

IMPLEMENTATION CHART

Pellicer Creek Conservation Area Implementation Chart

TASK	RESPONSIBLE LEAD	DUE DATE	COOPERATORS
RESOURCE PROTECTION AND MANAGEMENT			
Water Resources			
Restore firelines located in ecotonal areas and incorporate into fire management activities.	LM	2012	
Regularly inspect roads, trails, low water crossings, bridges, and culverts for erosion problems and maintenance and repair needs.	LM		
Floral and Faunal			
Collect species occurrence data.	LM		
Continue to monitor for the presence of listed species within the conservation area including Bald Eagle and Wood Stork.	LM		
Document species Observations in the Land Management Biodatabase	LM	Annually, by September 1	
Continue to follow the FWS habitat management guidelines established for the wood stork.	LM		
Continue to document population dynamics of the gopher tortoise	LM		
Fire Management			
Implement prescribed burning as described in the District's Fire Management Plan and the Pellicer Creek Conservation Area Fire Management Plan.	LM		
Develop annual burn plans.	LM	Annually, by September 1	
Introduce growing season burns where possible.	LM		
Introduce dormant season burns in select pine plantations and areas of high fuel loading and/or extended fire exclusion.	LM		
Continue to populate the fire management database.	LM	As fires occur	

Forest Management and Restoration			
Conduct pine harvest operations as described in Table 4.	LM	According to Table 4 schedule	
Monitor sand pine regeneration within sandhill restoration area and apply appropriate management.	LM	Annually	
Provide sand pine management signage and fact sheets in areas of sand pine harvests.	LM	March 2011	
Implement prescribed fire within the longleaf and slash pine plantations and maintain appropriate fire return interval for mesic flatwoods.	LM		
Asses canopy closure within Stand ID 3401012 and implement additional herbicide treatments if canopy closure is >50%.	LM	June 2011	
Exotic Species			
Continue to monitor for exotic plant species and implement appropriate action.	LM		
Continue to administer the feral hog removal program.	LM		FC, PPP
Cultural Resources Protection			
Identify and report newly discovered sites to the DHR.	LM		
RESOURCE PROTECTION AND MANAGEMENT			
Access			
Maintain parking areas, signs, gates, and trails.	LM		FC
Recreation			
Maintain trail maintenance contract.	LM	Annually, by September 1	
Continue cooperation with Flagler County, Princess Place Preserve, Florida Agricultural Museum, and FWC.	LM	Monthly	FC, PPP, FAM, FWC
Evaluate the potential for additional recreational facilities or infrastructure.	LM		
Maintain current information in the recreation guide, trail	LM	Annually, by September 1	OC

guides, and kiosks.			
Environmental Education			
Continue to offer environmental education opportunities.	LM		FC, PPP
Security			
Maintain signage, fencing, gates, and locks.	LM		FC
Evaluate the need for new fencing.	LM		
Continue coordination with private security firm, FWC, and local law enforcement.	LM		FC
ADMINISTRATION			
Land Acquisition			
Evaluate adjacent properties for potential acquisition.	LA		LM
Continue to facilitate the Wilson Green LLC property exchange when/if the DRI is approved.	LA		LM
Cooperative Agreements, Leases, Easements, and Special Use Authorization			
Continue to administer existing agreements and SUAs.	LM		
Receive data, information, species lists, and/or publications from SUAs issued for research on the property.	LM	Annually, or as SUAs expire	

IMPLEMENTATION CHART KEY

DLA	Division of Land Acquisition
DLM	Division of Land Management
FDOF	Florida Division of Forestry
FDHR	Florida Division of Historical Resources
FWC	Florida Fish and Wildlife Conservation Commission
OC	Office of Communication
FC	Flagler County
PPP	Princess Place Preserve

Addendum 1 Listing Status/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.

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.
- 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.

Addendum 2 Soils

The Adamsville series consists of very deep, somewhat poorly drained, rapidly permeable soils on broad flats, low knolls, and lower side slopes. They formed in thick sandy marine sediments in central and southern Florida. Natural vegetation consists of pines, laurel, and water oaks with a ground cover of saw palmetto, pineland threeawn, indiagrass, bluestem grasses, and several low panicums.

The Astatula series consists of very deep, excessively drained, rapidly permeable soils that formed in eolian and marine sands. Natural vegetation may consist of blue jack, blackjack, turkey oaks, longleaf pine, sand pine, and an understory of rosemary, pineland threeawn, bluestem, paspalum, lopsided indiagrass, and panicum.

The Basinger series consists of very deep, poorly drained and very poorly drained, rapidly permeable soils in sloughs, depressions, low flats, and poorly defined drainageways. They formed in sandy marine sediments. The natural vegetation may consist of wax myrtle, St. Johns wort, maidencane, pineland threeawn, cypress, slash pine, longleaf pine, pond pine, and other water tolerant plants.

The Cassia series consists of very deep, somewhat poorly drained, moderately rapid permeable soils on low ridges and knolls that are slightly higher than the adjacent flatwoods. The native vegetation supported by this series generally consists of scattered slash pine, longleaf pine, and saw palmetto.

Chobee – Very deep, very poorly drained, slowly to very slowly permeable soils in depressions, flats, and occasionally on river floodplains in the Lower Coastal Plain. Formed in thick beds of loamy marine sediments. Drained areas are used for citrus, pasture, and range. Most of the soils remain in their natural state and have vegetation consisting of pickerelweed, lilies, sawgrass, and scattered swamp maples in treeless areas. Some areas have a growth of ash, gum, maple and cypress.

The Favoretta series consists of very deep, very poorly drained, very slowly permeable soils that formed in clayey marine sediments with high silt content. They are on flood plains and on broad low flatwoods areas adjacent to major streams. Natural vegetation may include water oak, red maple, sweet gum, cabbage palm, bald cypress, slash pine, longleaf pine and American hornbeam. Understory may include wax myrtle, inkberry, saw palmetto, sedges, bluestems, maidencane, pineland threeawn, and various other grasses.

Holopaw – Deep and very deep, poorly and very poorly drained soils formed in sandy marine sediments. Slopes range from 0-2% and are found on low lying flats, in poorly defined drainages or depressional areas. Native vegetation is scattered slash and pond pine, cabbage and saw palmettos, scattered cypress, myrtle, sand cordgrass, and pineland three awn.

The Hontoon series consists of deep, very poorly drained, rapidly permeable organic soils formed in hydrophytic non-woody plant remains. These soils occur in fresh water swamps and marshes. Native vegetation is loblolly, bay, maple, gum, and scattered cypress trees with a ground cover of greenbriers, ferns, and other aquatic plants. In a few areas there are slash pines with a ground cover of fern.

Immokalee – These soils are deep to very deep and poorly drained to very poorly drained soils that formed in sandy marine sediments. They occur on flatwoods and in depressions of Peninsular Florida. Slopes tend to be 0 – 2%, but may range to 5%. Principle vegetation is longleaf and slash pine with undergrowth of saw palmetto, gallberry, wax myrtle, and pineland threeawn. In depressions, water tolerant plants such as cypress, loblolly bay, gorodonia, red maple, sweetbay, maidencane, bluestem, sand cordgrass, and blue joint panicum are more common. Most areas with Immokalee soils are in rangeland and forests.

Myakka – 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 Pellicer series consists of very deep, very poorly drained, very slowly permeable soils in tidal marshes along the Atlantic Coast of Peninsular Florida. They formed in loamy and clayey marine sediments. The native vegetation consists of seashore saltgrass, needlegrass rush, smooth and marshhay cordgrass, bushy sea-oxeye, and glasswort.

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 Pomello series consists of very deep, moderately well to somewhat poorly drained soils that are sandy to depths of more than 80 inches. Pomello soils formed in sandy marine sediments in the flatwoods areas of Peninsular Florida. Native vegetation is dominated by scrub oak, dwarf live oak, sawpalmetto, longleaf pine, slash pine, and wiregrass.

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, indiagrass, and pineland threeawn.

The Riveriera series consists of very deep, poorly drained, very slowly permeable soils on broad, low flats and in depressions in the lower coastal plain. They formed in stratified sandy and loamy marine sediments on the lower coastal plain. Slopes in areas where these soils are found range from 0-2%. Native vegetation consists of slash pine, cabbage, and saw palmetto, scattered cypress, maidencane, and pineland threeawn.

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 St. Johns series consists of very deep, very poorly or poorly drained, moderately permeable soils on broad flats and depressional areas of the lower Coastal Plain. They formed in sandy marine sediments. Principal vegetation of the forested areas is longleaf pine, slash pine, and pond pine with an undergrowth of saw palmetto, gallberry, wax myrtle, huckleberry, and pineland threeawn.

The Smyrna series consists of very deep, poorly to very poorly drained soils formed in thick deposits of sandy marine materials. Natural vegetation consists of longleaf and slash pines with an undergrowth of saw palmetto, running oak, gallberry, wax myrtle, and pineland three awn.

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 Tusawilla series consists of very deep, very poorly drained, moderately permeable soils in hammocks on the lower Coastal Plain. They formed in sandy and loamy marine sediments containing shells and shell fragments. The native vegetation consists of laurel oak, live oak, sweetgum, and pignut hickory with an understory of cabbage palm, southern magnolia, southern redcedar, America hornbeam, waxmyrtle, longleaf uniola, and maidencane.

The Turnbull series consists of very deep, very poorly drained, very slowly permeable soils near sea level and are flooded periodically by tidal overwash. They formed in clayey and sandy estuarine deposits. Turnbull soils are used for wildlife habitat. They serve as a spawning area and are an important link in the food chain of many commercial and sport fin fish as well as shellfish. Native vegetation consists of needlegrass rush, smooth cordgrass, bushy sea-oxeye, marshhay cordgrass, glasswort, bigleaf sumpweed, and seashore saltgrass.

The Valkaria series consists of deep, rapidly permeable soils that formed in thick beds of marine sands. These soils occur in broad, poorly defined, low gradient drainageways, depressions and low nearly level areas. Natural vegetation is palms, cabbage palmettos, St. Johnswort, wax myrtle, blue maidencane, chalky bluestem, pineland threeawn, and widely spaced pine and cypress. Maidencane is the most common plant in depressions.

The Wabasso series consists of deep or very deep, very poorly drained, very slowly and slowly permeable soils on flatwoods, floodplains, and depressions in Peninsular Florida. They formed in sandy and loamy marine sediments. Slopes range from 0-2% in areas where these soils are found. Natural vegetation consists of longleaf pine, slash pine, cabbage palm, and live oak with an understory of saw palmetto, laurel oak, wax myrtle, chalky bluestem, and pineland threeawn.

The Winder series consists of very deep, poorly drained, slowly to very slowly permeable soils on broad, low flats, and depressional areas. Formed in loamy marine sediments on the lower coastal plain. Slopes in areas where these soils are found range from 0-2%. Most areas are native vegetation and used for wildlife habitat. Natural vegetation consists of cordgrass, maidencane, cabbage palmetto, saw palmetto, and pineland threeawn.

Addendum 3 Fire Management Plan

PELLICER CREEK Conservation area

FIRE MANAGEMENT PLAN

PREPARED BY

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

DIVISION OF LAND MANAGEMENT

PELLICER CREEK CONSERVATION

FIRE MANAGEMENT PLAN

St. Johns and Flagler Counties, 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 Pellicer Creek Conservation area (PCCA).

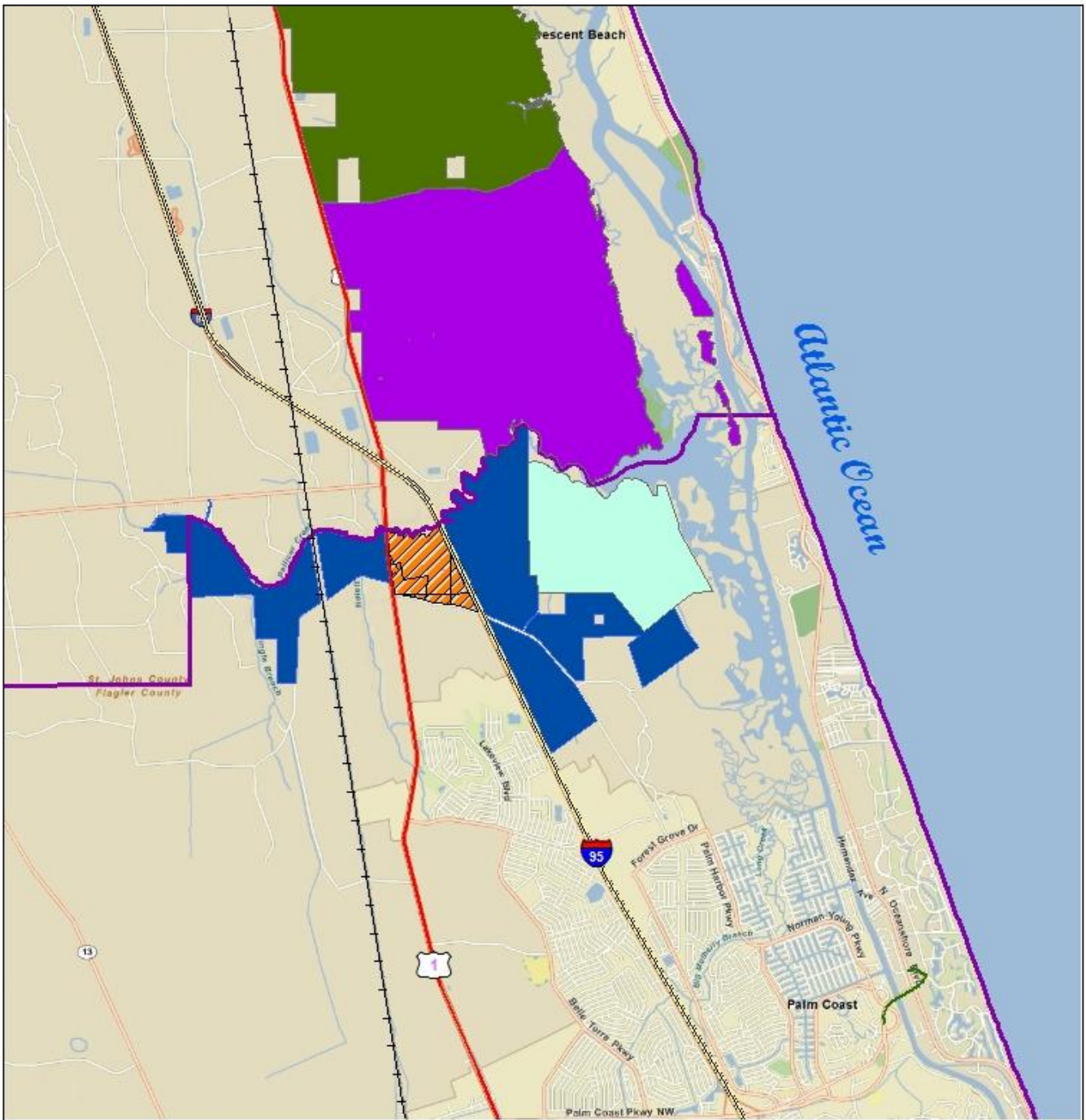
Introduction and Objectives

The PCCA covers approximately 3,057 acres in Flagler and St. Johns Counties along Pellicer Creek. This conservation area is located in numerous Sections of Township 8 South, Ranges 29 and 30 East.

The property is located in St. Johns and Flagler County, north of the City of Palm Coast. The conservation area is situated along the south bank of Pellicer Creek and is bisected by Interstate 95 (I-95), U.S. Highway 1 (US 1), and the Florida Agricultural Museum property. Figure 1 depicts the general location of the conservation area.

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 PCCA 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 perpetuation 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 ecotonal areas



Pellicer Creek Conservation Area

Figure 1 - Location Map



1
 Miles
 1 = 100000

-  Pellicer Creek Conservation Area
-  Faver-Dykes State Park
-  Matanzas State Forest
-  Princess Place Preserve
-  Florida Agricultural Museum

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The achievement of these goals requires that the conservation area 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 PCCA.

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 disturbances to perpetuate themselves while others are not fire adapted and subsequently do not require fire to maintain their characteristics. The following table (Table 1.) and discussion of native plant communities occurring on the Conservation area and optimal fire return intervals was characterized in part using information from the Florida Natural Areas Inventory's *Guide to the Natural Communities of Florida*.

Table 1.

Community Type	Fire return Interval
Floodplain Swamp	This community is not fire adapted.
Basin Swamp (edges)	Infrequent. Edges may burn in conjunction with ecotones and adjacent communities.
Depression Marsh (edges)	This community burns with adjacent communities.
Salt Marsh	Sporadic.
Upland Hardwood Forest	Infrequent. Edges may burn in conjunction with ecotones and adjacent communities.
Flatwoods Lake	Infrequent. Edges may burn in conjunction with ecotones and adjacent communities.
Maritime Hammock	Rare.
Mesic Hammock	Infrequent. Edges may burn in conjunction with ecotones and adjacent communities.
Sandhill	1-3 years.
Xeric Hammock	Site specific, but generally infrequent and catastrophic.
Mesic Flatwoods	2-10 years

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

Mesic flatwoods and sandhill are the most prevalent fire adapted natural community type found within the conservation area. These plant communities, at the time of acquisition were pine plantations, which included sand pine (*Pinus clausa*), slash pine (*P. elliottii*), and longleaf (*P. palustris*). Restoration driven management techniques implemented within these areas includes clear cut harvesting of sand pine, thinning of slash pine roller chopping, selective (oak) herbicide treatments, and prescribed burning. With the exception of the sand pine dominated sandhills, groundcover and shrub layers in most of these areas are intact, consisting of site appropriate species. Portions of the mesic flatwoods are exhibiting overgrown shrub layers due to a prolonged absence of fire.

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 marsh is a fire-adapted community. Though fire may not carry entirely through each marsh during every burn, it is an important factor in the maintenance of the edge habitats surrounding them. The natural fire regime would burn approximately every 1-8 years. Depression marshes are embedded within in the upland areas at the conservation area. In general, depression marsh fires are carried through the herbaceous layer. Many of these marshy areas have been disturbed by a prolonged absence of fire and are encroached by hardwoods, but all still occupy an important niche in providing habitat for numerous species of wildlife. Fire will be applied to these marshes any time surrounding natural communities are burned.

The basin swamp is not a primary target for fire management at the PCCA; however, this natural community grades into flatwoods communities, which are fire dependent. Basin swamps are considered fire influenced, because while they do support fire at some frequency, fire has the potential to have rather extreme effects. Under normal hydrologic conditions, fire will burn the edges of this community type without penetrating to the center. This is the desired effect of fire within the basin swamp, as it will prohibit the expansion of hardwoods and shrubs into the adjacent flatwoods.

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 resulting in fewer safety and smoke management issues. Fuel loads range widely across the conservation area. Fuels are not exceptionally high in the sandhills; these majority of these areas are excessively shaded with sparse shrub and groundcover vegetation. Fuels outside of these areas remain moderate to high, primarily due to fire exclusion. The 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 implementation 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, DOF, 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, Division of Forestry (DOF), 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.

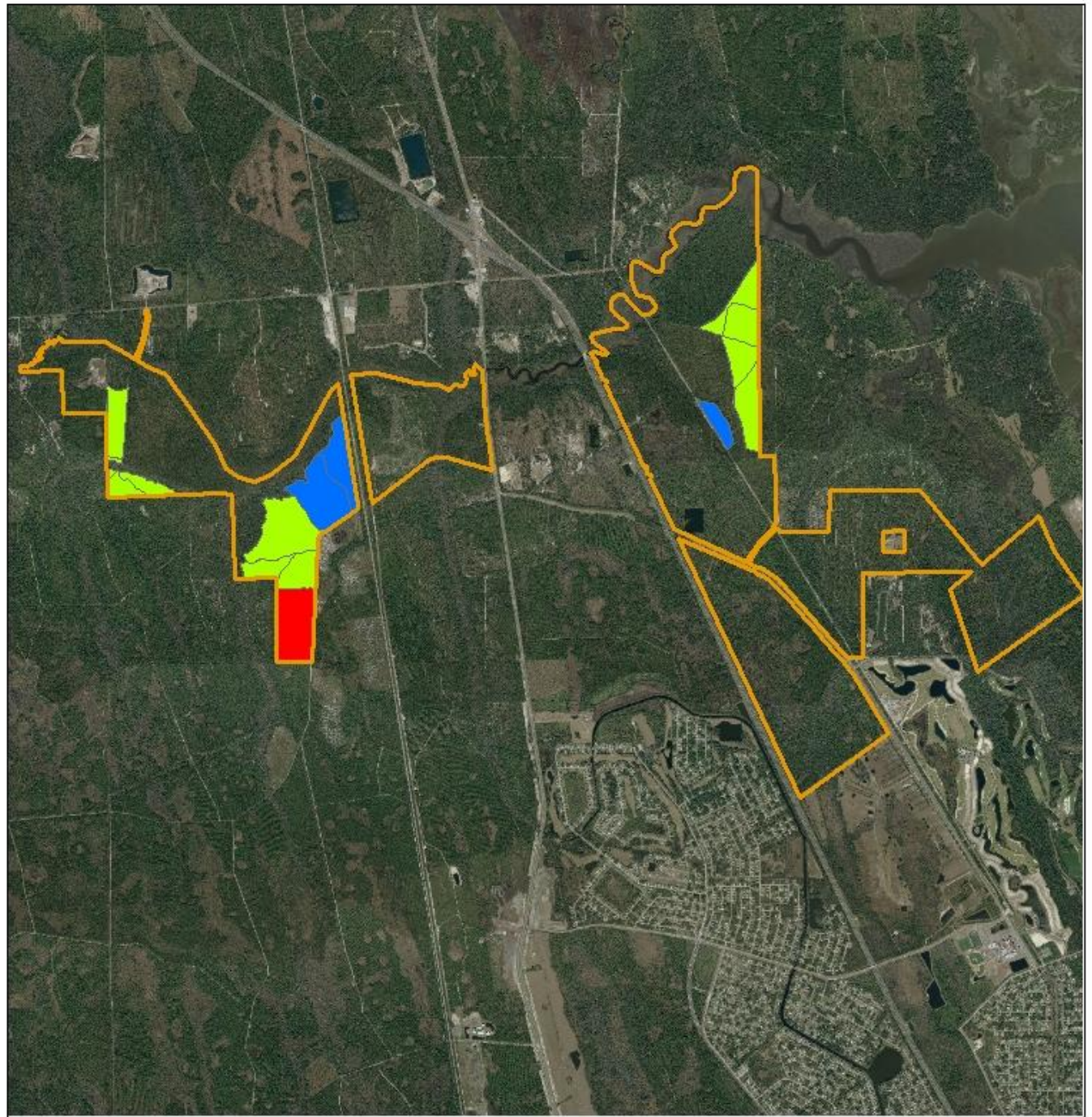
Smoke Management

A significant challenge to the implementation of any prescribed burn program is smoke management. Fire history across the conservation area, since 2004, includes a total of 479 acres burned via prescribed fire during the growing season. No wildfires have occurred in this timeframe. Figure 2 illustrates the fire history since 2004. Prior to acquisition, there is no known fire history on conservation area and fuel accumulation (dead and live) across the flatwoods communities is moderate to high. This accumulation of fuels has the potential to produce a tremendous amount of smoke as areas are burned. As the surrounding areas become increasingly urbanized, this problem will increase in magnitude, as there become fewer acceptable places to maneuver a smoke column from a prescribed fire.

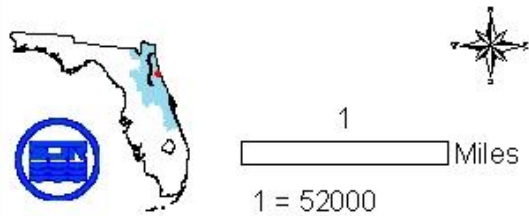
The PCCA has a limited smoke shed in which to place a smoke column from a prescribed fire. There are smoke sensitive areas that surround the conservation area and effect the smoke management of each burn unit. Smoke management is a limiting factor in the application of prescribed fire with in the conservation area. The PCCA is bound on the north side by Pellicer Creek. The property is bisected by Interstate 95, U.S Highway 1, North Old Kings Road, the Florida East Coast railroad, a high tension powerline, and the Florida Agricultural Museum property. Additionally, other major roadways, schools, healthcare facilities, and numerous residential areas are in the immediate vicinity and within critical smoke impact area. Sea breezes and the down drainage effect of Pellicer Creek and other waterways are also a significant smoke management consideration. Figure 3 illustrates smoke sensitive areas in relation the PCCA. As development increases in the area, fire management will become more difficult. Increasing daily traffic on I-95, U.S.1, and Old Kings Road, and other highways and roads will further impair the District's ability to implement prescribed burns at the appropriate fire return intervals within the conservation area. Currently, portions of this property still have an acceptable smoke shed into which to place a smoke column from a prescribed fire; while others will be limited to mechanical treatments to mimic the effects of fire.

A smoke screening process will be completed with each prescription, before an authorization is obtained from the FDOF. 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 conservation area or over the ocean. Smoke can then mix and loft into the atmosphere over uninhabited or rural land adequately enough to minimize off-site impacts.

On burn day, the ability of smoke to mix and disperse into the atmosphere should be good. Dispersion indices should be above 35. Dispersions of greater than 69 will not be utilized unless other weather conditions mitigate expected fire behavior. Forecast mixing heights should be above 1700ft. 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. Burns will be conducted with a carefully plotted wind direction to limit and/or eliminate negative impacts from smoke to neighbors and urbanized areas.

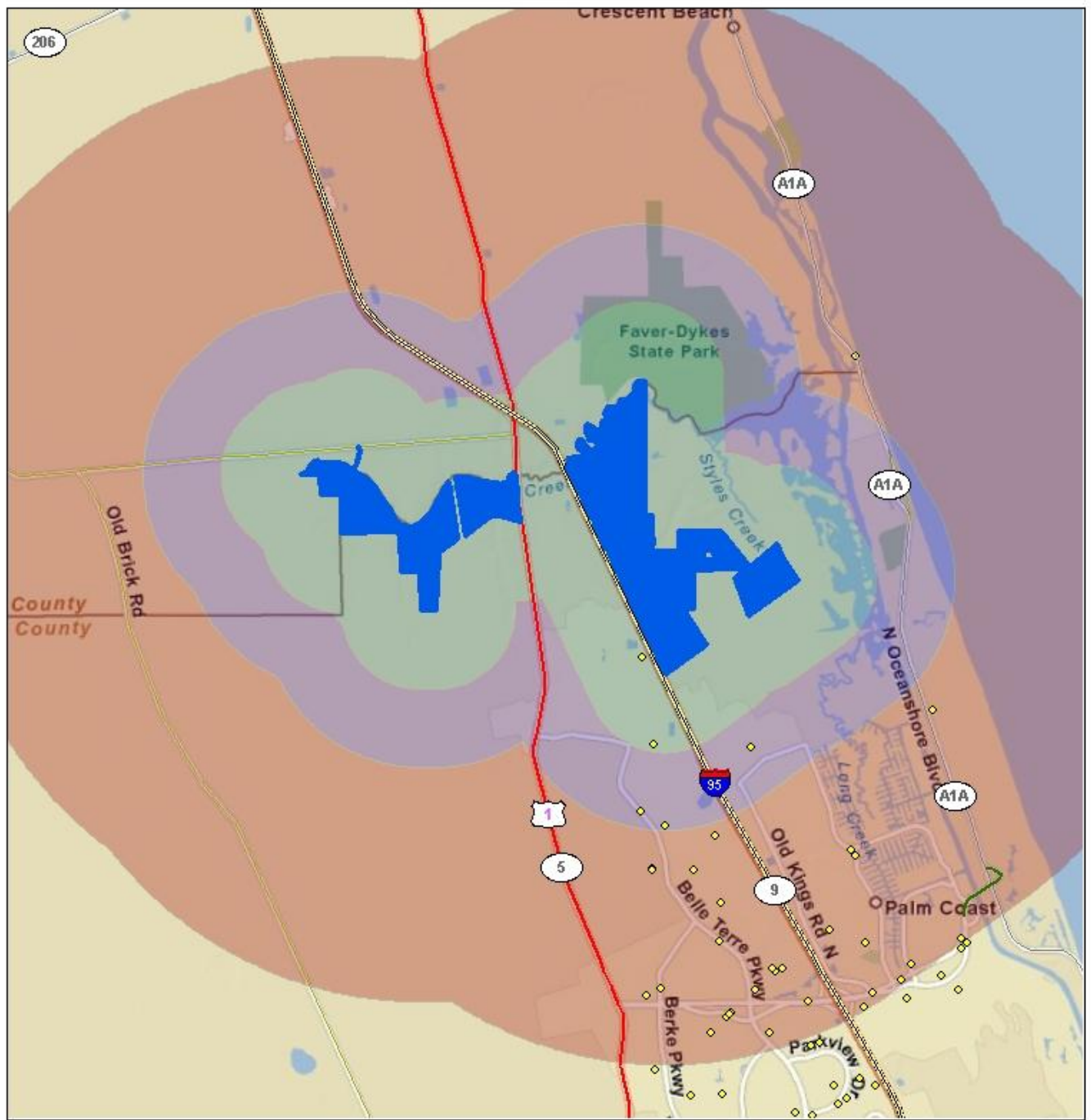


Pellicer Creek Conservation Area
Figure 2 - Prescribed Fire History



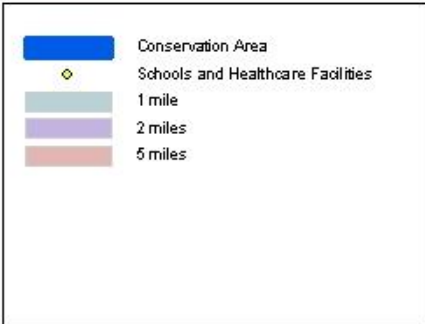
	Conservation Area
Year Burned	
	2005
	2008
	2009

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Pellicer Creek Conservation Area
Figure 3 - Smoke Management Map

1
 Miles
 1 = 111199



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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 the conservation area are dominated by pine plantations. An integral component to the implementation of a successful prescribed fire program within the PCCA 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 five years and will be conducted in conjunction with annual burn plans.

Some of the pyric plant communities within the PCCA include sand pine. Due to the catastrophic nature of fire within sand pine dominated systems, prescribed fire will not be attempted in these areas prior to harvesting. Additionally, areas of sandhill that the District is choosing to manage for sand pine regeneration will likely be excluded from prescribed fire management.

Legal Considerations

Only burn managers certified by FDOF 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 PCCA. Where logical, the District used existing timber stand boundaries and landscape features to delineate fire management units. In many cases, individual timber stands represent the smallest areas of land that are free of roads, trails, or other barriers to fire. Occasionally, several fire management units with similar fire needs will be burned simultaneously and stand lines provide a break in fuels so that staff may burn smaller areas than initially planned if needed. Additionally, in an effort to mitigate smoke management and potential urban interface issues, fire management units may be smaller in size than on other parcels or conservation areas.

Ideally, District staff would thoroughly address and describe each fire management unit in terms of its fire management needs. Though all units within the bounds of the conservation area are somewhat different, all can be 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 the PCCA 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 conservation area contain multiple FMs. In these instances, the designated FM is dominant in coverage. Figure 4 illustrates the FM associated with individual fire management units.

The original thirteen fuel models were developed for surface fires only. They did not attempt to model crown fires. Therefore, at certain ages and fuel moisture regimes there is no fuel model that described the fire behavior that can be anticipated for a fire burning through sand pine. During times of high fuel moistures, sand pine will not burn and may actually serve as a natural barrier to fire. During dry times, the entire canopy of the sand pine will burn with extremely high rates of spread and long flame lengths.

Fuel Models

Fuel Model 2

This category includes fire management units within the conservation area that can best be described as sandhill 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 5

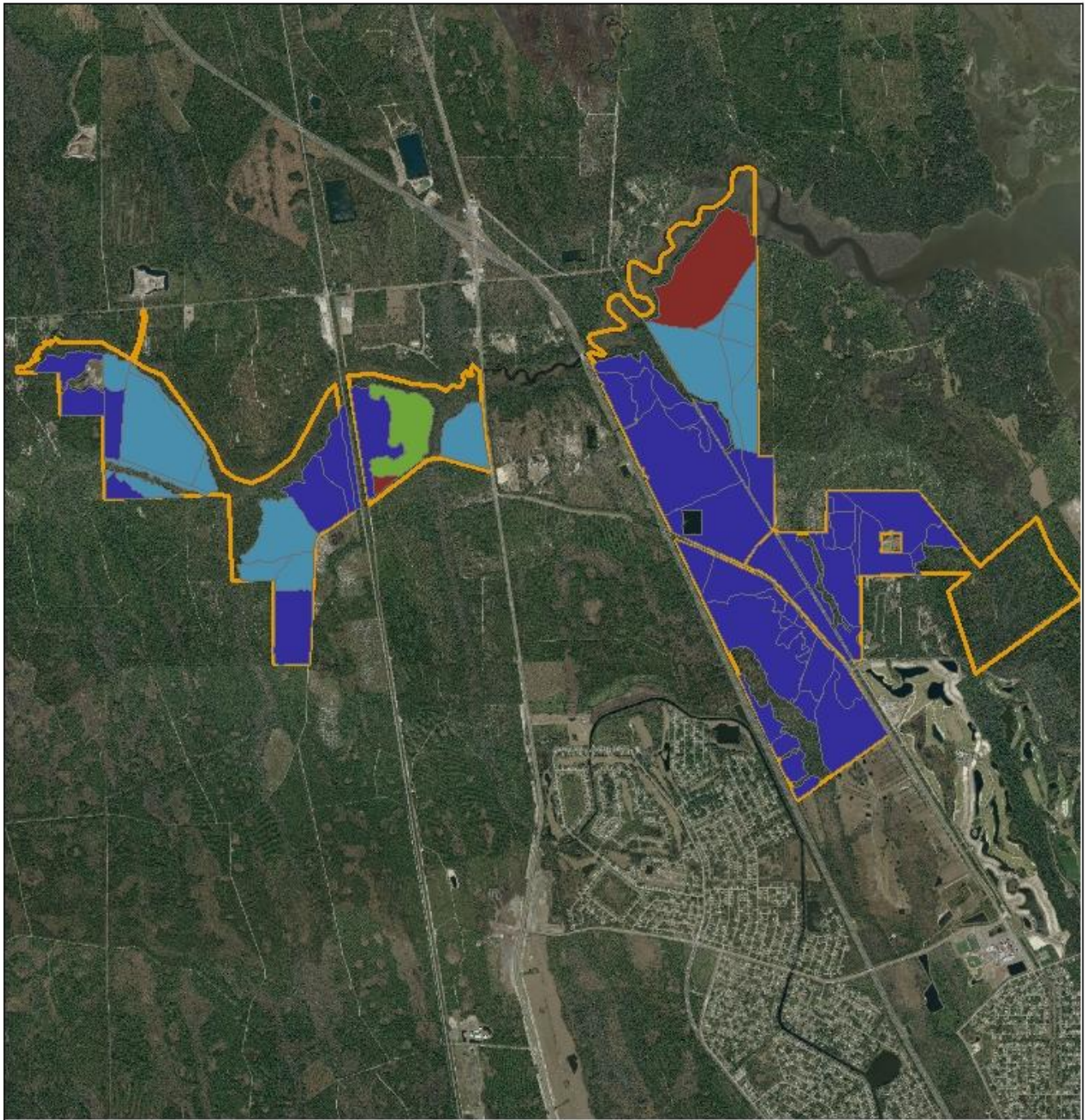
This category includes the fire management unit within the conservation area that is best described as sandhill dominated by offsite, regenerating sand pine introduced from past silvicultural activities. Fire in this fuel model is generally carried in the surface fuels that are primarily leaf litter, but may included grasses. Fires are not very intense because fuel loads are light and the vegetation is short with little dead material. The fuel model in this area is asses at current condition and is anticipated to change as sand pine trees mature.

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 intact and includes wiregrass. The optimal fire return interval for this FM is approximately every 1 to 10 years. Growing season burns are preferable; however, some units of this FM will require initial dormant season burns and/or mechanical treatments.

Fuel Model 9

This category includes fire management units that are best described as sandhill that are converted to sand pine plantations, or that include an offsite sand pine canopy that is closed. Closed stands of pine are grouped in this model. Fires will run quickly through surface litter and have moderate to high flame height. Concentrations of dead-down woody materials will contribute to possible torching out of trees, spotting, and crowning activity. Due to the catastrophic nature of fires in sand pine dominated stands prescribed fire will likely not be applied in this areas prior to harvest operations.



Pellicer Creek Conservation Area

Figure 4 - Fuel Model Map



1
 Miles
 1 = 52000

 Conservation Area

Fuel Model

-  2
-  5
-  7
-  9

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Exhibit 1
Aerial Burn Safety Plan
Pellicer Creek 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.

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

Helispot	Latitude		"N
	Longitude		"W

CRASH RESCUE PLAN

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

INCIDENT COMMANDER or BURN BOSS

1. **Notify 911**
2. Notify St. Johns County Fire Rescue (904) 491-7525
3. Notify St. Johns Sheriff's Office (904) 630-0500
4. Notify Flagler County Fire Rescue (386)313-4200
5. Notify Flagler County Sheriff's Office (386)437-4116
6. Assume responsibility of the Rescue Operation.
7. Notify NTSB (305-957-4610 OR 404-462-1666)
8. Delegate responsibility of fire control to the second in command or the most qualified.

SECOND IN COMMAND

1. Assume responsibility of the burn.
2. Assist the IC or Burn Boss with resource and personnel needs for the rescue operation.
3. If the IC is in the helicopter, second in command will assume rescue operation responsibilities and assign the most qualified to fire control.

Level I Trauma Center

- | | | |
|----|--------------------|--------------|
| 1. | Halifax Daytona | 386-254-4000 |
| 2. | Shands Gainesville | 352-265-0111 |

DIVISION OF FORESTRY

- | | | |
|----|------------------|--------------|
| 1. | Bunnell Dispatch | 904-446-6786 |
|----|------------------|--------------|

SJRWMD

- | | | |
|----|-----------------|--------------|
| 1. | Land Management | 386-329-4404 |
|----|-----------------|--------------|

NTSB

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

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