Palm Bluff Conservation Area
Land Management Plan Summary

Management Area Size: 3,321 acres
Date of Acquisition: Acquisition of parcels within Palm Bluff Conservation Area began in December 2009.
Date of Plan: December 2010
Major Basin: Middle St. Johns River Planning Basin: Deep Creek

Location: Palm Bluff Conservation Area (PBCA) is located in Volusia County east of the City of Deltona and the town of Osteen. The property is east of SR 415 and north of Osteen Maytown Road.

Funding Source: The acquisition funding sources for PBCA include FDOT Mitigation, ad valorem, and Florida Forever.

Management Partners: The District is lead managing agency for the property.

Key Resource Issues:

Resource Management Issues:
- WATER RESOURCES – While water resources are largely intact and most protection was accomplished with acquisition, there are some disturbances. Alterations from past management activities such as row crop farming, alligator farming, and silviculture include ditches, canals, and silvicultural bedding. Additionally, portions of the conservation area are subject to future water resource projects.
- FIRE MANAGEMENT – Implementation of prescribed burns occur in accordance with annual burn plans and the PBCA fire management plan.
- FOREST MANAGEMENT- Prior to acquisition, portions of the property were managed for silviculture. The District will utilize a combination of harvesting, mechanical vegetation management, herbicide treatments, and prescription burning to encourage optimal forest health.
- WILDLIFE – The conservation area provides habitat for numerous wildlife species including the Florida black bear (Ursus americanus floridanus), a state listed species. The property is within the secondary range for the Ocala/St. Johns population of this species. Additionally, the conservation area provides habitat linkage for bears and other wildlife through publicly owned conservation lands and conservation easements in Volusia County.
- EXOTICS – Invasive exotic pest plant and animal species occur on the property. The District regularly monitors for the presence of invasive plants and animals and executes appropriate control action.
- CULTURAL & HISTORICAL RESOURCES – A review of the Department of State, Division of Historical Resources indicates no known or registered cultural sites within the boundaries of the conservation area.
Key Land Use/Recreation Issues:

Land Use Management Issues:
- ACCESS – One public access point is identified for development on the conservation area.
- RECREATION USE – The District has selected a site for the public parking area and access point and developed a conceptual marked trail system for the property. The property is scheduled to be open to the public for recreational purposes by January 2011.
- SECURITY – Maintenance of fence lines, parking areas, gates, and locks is conducted. The District maintains contact with local law enforcement and a private security firm for any potential security needs. The District maintains a residence agreement for onsite security.

Administration:
- ACQUISITION – Although no parcels are uniquely identified, the District may consider purchasing parcels near the PBCA that become available and that will aid in the conservation of water resources within the Deep Creek Basin and the Volusia Conservation Corridor. Additionally, the District may pursue acquisition of small parcels or property exchanges with neighbors to improve and provide additional access to the conservation area.
- LEASES, EASEMENTS, SPECIAL USE AUTHORIZATIONS, AND CONCESSIONS- The District administers the following leases, agreements, easements, special use authorizations (SUAs) and concessions:
  - A residence agreement for providing security and assisting the District in responding and monitoring activities within the conservation area.
  - One lease agreement for cattle grazing
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REGIONAL SIGNIFICANCE

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Figure 3 – Regional Significance Map
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Figure 4 – Land Acquisition Map

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INTRODUCTION
This document provides the guidelines and goals for implementation of land management activities at the Palm Bluff Conservation Area (PBCA) over the next five years. This is the first management plan for the conservation area.

The PBCA covers approximately 3,321 acres in Volusia County within the Deep Creek basin, a sub-basin of the Middle St. Johns River Basins respectively. This conservation area is located in numerous sections of Townships 18 and 19 South and Range 32 East.

The property is located east of State Road (SR) 415 near the town of Osteen. The conservation area includes frontage on Osteen Maytown Road along the southern boundary. Figure 1 depicts the location of the conservation area and Figure 2 is a 2009 aerial image of the property.

The District is the lead managing agency for the property. The purchase of the PBCA is consistent with the goals of the Middle St. Johns River Basin projects as set forth in the District’s Land Acquisition and Management Five Year Plan, and the District’s Water Management Plan. These goals include:

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

The above are general goals and objectives for Palm Bluff Conservation Area. The following plan outlines specific goals and strategies regarding both natural and cultural resources and recreation management over the next five years.

CONSERVATION AREA OVERVIEW
Regional Significance
The PBCA is a significant acquisition providing linkage between a multitude of publicly owned land and conservation easements. Figure 3 depicts the regional significance of the conservation area. These lands include the Lake Monroe Conservation Area, Lake Jesup Conservation Area, and Wiregrass Prairie Preserve and numerous public conservation easements and provide for the protection of water quality and storage, indigenous floral and faunal species, as well as numerous natural resource-based recreational opportunities.
Figure 1 - Location Map
Palm Bluff Conservation Area
Figure 2 - 2009 Aerial Image Map

Legend

 Boundary
Acquisition History
The PBCA is comprised of a single parcel totaling 3,321 acres (Figure 4). The property was purchased using funding sources as indicated in Table (1) one, which summarizes the land acquisition accomplishments.

Maytown Tract (3,321 acres) Land Acquisition number 2009-021-P1
The Maytown Tract parcel totals 3,321 acres acquired by the District through a single purchase on December 29, 2009 for $20,066,605 using Florida Forever, ad valorem earmarked for water supply projects, and FDOT mitigation funds. Approximately 349 acres located in the northwest portion of this parcel was formerly the WT Ranch Conservation Easement purchased by the District and Volusia County in 2003 (LA 2001-050-P1), and continues to be subject to the terms of the conservation easement for which Volusia County continues to own a 25% interest. The central portions of the property were acquired using Water Sustainability/Alternative Water Supply Program funds. This area is subject to the possible development of a water supply storage area.

Table 1 – Land Acquisition Summary

<table>
<thead>
<tr>
<th>Parcel</th>
<th>LA Number</th>
<th>Acres</th>
<th>Total Purchase Price</th>
<th>Closing Date</th>
<th>District Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maytown</td>
<td>2009-021-P1</td>
<td>3,321</td>
<td>$20,066,605</td>
<td>12/29/2009</td>
<td>Florida Forever, ad valorem earmarked for water supply projects, FDOT mitigation</td>
</tr>
</tbody>
</table>

Local Government Land Use Designation

Volusia County

According to the current Volusia County Comprehensive Plan, the Future Land Use designations for the property are (Volusia County Growth and Resource Management):

- Forestry Resource - Areas of land that are primarily suited for silviculture.
- Agriculture Resource - Areas of land that are suited for intensive cultivation, ranching, aquaculture, and timber farming.
- Environmental Systems Corridor - These areas of land are important ecological corridors consisting of environmentally sensitive and ecologically significant lands intended to provide protected, natural pathways which connect to other protected areas such as parks, conservation lands, and water bodies.
Figure 4 - Land Acquisition Map

Palm Bluff Conservation Area

Maytown Parcel
FDOT Mitigation Area
Potential Water Supply Area
Conservation Easement Area

The information provided is for general use only and may not be suitable for other purposes. This information is provided "as is". Further documentation of this data can be obtained by contacting the Johns River Water Management District, Geographic Information Systems/Program Management, P.O. Box 1429, East Rand Road, Orange Park, Florida 32073, Tel: (904) 282-0675.
NATURAL RESOURCES OVERVIEW

Topography and Hydrology

Palm Bluff Conservation Area lies within the Crescent City-Deland Ridge, a physiographic subdistrict of the Central Lakes District and within the St. Johns Wet Prairie and Volusia Ridge Sets, subdistricts of the Eastern Flatwoods District.

The Central Lakes District includes areas of uplifted limestone of the Floridan Aquifer that lie unconformably below surficial sands. This is a sand hill karst with solution below surficial sands. It is the region of most active collapsed sinkhole development. Because of the xeric hills and internal drainage, these areas are the principal recharge areas of the Floridan aquifer. The Eastern Flatwoods District is also called the coastal lowlands and has elevations generally less than 90 feet (Brooks). Elevations within the conservation area range from 8 to 43 feet above sea level, with the highest elevations occurring in the scrub and scrubby flatwoods along the western portions of the boundary.

The most significant surface hydrological feature of the conservation area is Deep Creek and the associated wetlands. The conservation area drains into the Deep Creek Unit, a sub basin of the Middle St. Johns River. Surface waters and wetlands within the conservation area drain south to the St. Johns River via Deep Creek. Figure 5 depicts the hydrologic features of the conservation area and portions of the Deep Creek and Middle St. Johns River basins.

Natural Communities

The 3,321 acres that comprise the PBCA consist primarily of mesic flatwoods, improved pasture, 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.
Table 2 – Natural Community Coverages

<table>
<thead>
<tr>
<th>Natural Community Type</th>
<th>Acreage</th>
<th>Percent Coverage</th>
<th>FNAI Ranking</th>
<th>FNAI Fire Return Interval*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floodplain Swamp</td>
<td>552</td>
<td>16%</td>
<td>G4/S4</td>
<td>This is not a fire adapted community</td>
</tr>
<tr>
<td>Basin Swamp</td>
<td>13</td>
<td>&lt;1%</td>
<td>G4/S3</td>
<td>Infrequent – edges may burn with adjacent communities</td>
</tr>
<tr>
<td>Dome Swamp</td>
<td>122</td>
<td>4%</td>
<td>G4/S4</td>
<td>3-150 years with lower intervals along edges</td>
</tr>
<tr>
<td>Basin Marsh</td>
<td>15</td>
<td>&lt;1%</td>
<td>G4/S3</td>
<td>This community burns with adjacent communities</td>
</tr>
<tr>
<td>Depression Marsh</td>
<td>42</td>
<td>1%</td>
<td>G4/S4</td>
<td>This community burns with adjacent communities</td>
</tr>
<tr>
<td>Wet Flatwoods</td>
<td>189</td>
<td>6%</td>
<td>G4/S4</td>
<td>1-10 years</td>
</tr>
<tr>
<td>Mesic Flatwoods</td>
<td>917</td>
<td>28%</td>
<td>G4/S4</td>
<td>2-10 years</td>
</tr>
<tr>
<td>Scrubby Flatwoods</td>
<td>52</td>
<td>2%</td>
<td>G2/S2</td>
<td>5-15 years</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>1,902</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Altered Land Types</th>
<th>Acreage</th>
<th>Percent Coverage</th>
<th>Fire Return Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed</td>
<td>17</td>
<td>&lt;1%</td>
<td>N/A (with the exception of the 5 acre airstrip which will burn in conjunction with the pine plantations)</td>
</tr>
<tr>
<td>Improved Pasture</td>
<td>871</td>
<td>26%</td>
<td>N/A</td>
</tr>
<tr>
<td>Pine Plantation</td>
<td>394</td>
<td>12%</td>
<td>3-5 years</td>
</tr>
<tr>
<td>Spoil Deposition Site</td>
<td>1</td>
<td>&lt;1%</td>
<td>N/A</td>
</tr>
<tr>
<td>Unimproved Pasture</td>
<td>4</td>
<td>&lt;1%</td>
<td>3-5 years</td>
</tr>
<tr>
<td>Utility Corridor</td>
<td>80</td>
<td>2%</td>
<td>N/A</td>
</tr>
<tr>
<td>Artificial Pond</td>
<td>2</td>
<td>&lt;1%</td>
<td>N/A</td>
</tr>
<tr>
<td>Canal/Ditch</td>
<td>5</td>
<td>&lt;1%</td>
<td>N/A</td>
</tr>
<tr>
<td>Clearing/Food Plot</td>
<td>24</td>
<td>1%</td>
<td>3-5 years with pine plantations</td>
</tr>
<tr>
<td>Cultural Hardwood Forest</td>
<td>21</td>
<td>1%</td>
<td>2 years with pastures and abandoned fields</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>1,419</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,321</strong></td>
<td><strong>100%</strong></td>
<td></td>
</tr>
</tbody>
</table>

*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.
Pine Flatwoods

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

*Mesic Flatwoods (917 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.

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.

The mesic flatwoods communities within the conservation area vary in levels of disturbance. They are largely in good condition with site appropriate species compositions and assemblages. An area of mesic flatwoods located along the northwestern boundary includes a heavily overgrown shrub layer and hardwood encroachment, likely a result of infrequent fire. Additionally, the mesic flatwoods in the central portions of the property, west of the power line, were harvested of overstory pine in the early 1980s. These areas have naturally regenerated in a mix of slash and longleaf pine.

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.
Additionally, embedded within the mesic flatwoods are numerous depression marshes and cypress domes that are not delineated. These areas are difficult to distinguish as a result of the alterations to hydrology and fire regimes. As forest and fire management activities are conducted within the conservation area this matrix of wetlands within the flatwoods will be further defined.

**Scrubby Flatwoods (52 acres)**

Scrubby flatwoods communities generally occur on moderately well drained, sandy soils. This community type occurs on slight rises within mesic flatwoods and in broad transitional areas. Standing water is uncommon in scrubby flatwoods as the depth to the water table is generally greater than adjacent mesic flatwoods.

Scrubby flatwoods have a stratified appearance and are characterized as an open canopy forest of widely scattered pine trees with a sparse shrubby understory and numerous areas of barren white sand. The vegetation in these ecotonal areas is a combination of mesic flatwoods and scrub species. Canopies of the scrubby flatwoods in northern and central Florida may include longleaf or slash pine. Shrub layers will often include scrub oaks, saw palmetto and various Ericaceous plants. Groundcover, while generally sparse, may include wiregrass.

Scrubby flatwoods communities within the PBCA are generally intact, however most areas are in need of prescribed fire. The most significant area of alterations within this community occurs along western portions of property near Keelhaul Road. This area appears to have been subject to silvicultural activities prior to public acquisition. The shrub layer in these areas has a combed appearance and the area is void of much of the overstory pine.

Fire is an integral component in the perpetuation of this community type. The open areas of bare sand, sparse groundcover vegetation and coverage of largely incombustible oak leaf litter typical of most scrubby flatwoods results in a fire return interval of between 5 and 15 years. Examples of scrubby flatwoods with a higher herbaceous or saw palmetto component may burn at a lower fire return frequency. The presence and distribution of certain plants within the scrubby flatwoods indicates the possible presence of other natural communities (sandhill, scrub). As fire management is implemented within these areas, the extent of other xeric habitats will be refined.

**Wet Flatwoods (189 acres)**

Soils that support wet flatwoods communities are generally very poorly drained sandy soils that may have a mucky texture in the upper horizons. Wet flatwoods occur as ecotonal areas between the drier mesic flatwoods and wetter areas such as bogs or swamps. They may also occur in broad, low flatlands embedded within these communities.
Well-maintained wet flatwoods exhibit a relatively open-canopy forest of scattered pine trees (longleaf, loblolly, slash, or pond) or cabbage palms (*Sabal palmetto*) with either a sparse or absent midstory and a dense groundcover of grasses, herbs, and low shrubs. Understory species of the sub canopy and shrub layers may include sweetbay (*Magnolia virginiana*), loblolly bay (*Gordonia lasianthus*), and saw palmetto. The groundcover layer may include species such as wiregrass, blue maidencane (*Amphicarpum muhlenbergianum*), and numerous hydrophytic species. The variations in structure and composition may be attributed to subtle edaphic differences as well as hydrologic and fire regimes.

Many of the historic wet flatwoods within the conservation area exhibit signs of successional changes likely due in part to the prolonged absence of fire and altered hydrology. These changes include the presence of buttressed trees such as cypress. The wet flatwoods plant community is fire dependant with return intervals ranging from one to three years in grassy systems and five to seven years in shrubbier systems. In areas such as the PBCA, shrubs tend to dominate wet flatwoods where fire has been either low in intensity or absent. Wet flatwoods within the conservation area suffer from prolonged fire exclusion and include midstory components that are heavily overgrown.

*Floodplain Swamp (551 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 Deep Creek.

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 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 PBCA 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*).

*Dome Swamp (122 acres)*

Dome swamp communities typically occur embedded within well-maintained pyric plant communities such as flatwoods. The dome swamp communities within the conservation
area occur within the flatwoods, pine plantations, and improved pastures and are altered from the silvicultural, agricultural, and ranching activities.

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

Typical of the dome swamp system, the examples of this community type within the conservation area include a dome shaped profile created by the presence of smaller trees growing in the shallow waters of the outer edge with the large trees growing in the deeper center. The canopy of hydrophytic trees includes pond cypress (*Taxodium ascendens*) and water tupelo. Hydrologic alterations within many of the PBCA dome swamps have allowed for the establishment of slash pine and cabbage palm, particularly in those swamps within the improved pastures and those impacted by the former alligator farming activities. Herbaceous components of dome swamps within the conservation area include Carolina redroot (*Lachnanthes caroliana*), smartweed (*Polygonum densiflorum*), and various grasses, sedges, and rushes.

Without frequent fire, cypress may become less dominant, being replaced by hardwood or bay species and may exhibit an increase in peat accumulation. Fire frequency within these communities is greatest around the edges. The longer hydroperiods within the center of most dome swamps will restrict the advance of most fires under normal conditions. Thus, the fire return interval for dome swamps may range from 3 to 5 years along the outer edges and may be as great as 100 to 150 years in the center.

*Basin Swamp (13 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.

Examples of basin swamps within the PBCA are located in the western and southern portions of the property 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.

_Basin Marsh (2 acres)_

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

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

_Depression Marsh (42 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 flatwoods, pine plantations, and improved pastures. Many are altered from the silvicultural and cattle ranching activities. Alterations include hydrologic changes and soils disturbances from site preparation techniques such as silvicultural bedding and ditching to drain pasture areas. 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 elliottii_), 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 CBCA will have fire return intervals influenced by the fire frequency of the surrounding flatwoods, pine plantations and improved pastures.
Developed (17 acres)

The developed areas within the PBCA include the security residence and pole barn, the structures associated with the former alligator farm, the cucumber fields packing house and shed, the cabbage palm cabin, and two airstrips. The easternmost airstrip was cleared to the soil prior to 1984 was not maintained and except for the areas that were historically scrub, has re-vegetated.

Improved Pasture (871 acres)

The improved pastures within the conservation area are dominated by bahia grass but include a mix of native, yet invasive species such as dog fennel and crabgrass. Historically, the improved pastures onsite had varied land uses, which included sod farming on portions of the northern pastures and row crop agriculture on the southernmost pastures.

Pine Plantation (394 acres)

The majority of the pine plantations were historically dominated by mesic flatwoods. Prior to the 1980s, these areas appeared to have been utilized as native range in cattle grazing operations. During the 1980s, most of the overstory pine was cleared from these areas. As part of the site preparation, previous landowners bedded the plantations prior to being planted in slash pine in the late 1990s. Currently, many of the plantations retain historic natural community components in the shrub layer; however, ground cover is sparse with only the most resilient disturbance adapted species remaining. In some areas, where pine densities are high, shrub and groundcover components are absent, likely a result of excessive shading.

Utility Corridor (80 acres)

The utility corridor is a Florida Power & Light high voltage power line. This utility corridor bisects the conservation area, extending the length of the property from north to south.

Artificial Pond (2 Acres)

An artificial pond is located in the maintained grassy area surrounding the security residence. This pond was constructed between 1995 and 2004 and appears to have been related to the former hunting lodge. There are four artificial ponds associated with the former alligator farm. These ponds were constructed during the 1980s and utilized as nursery ponds.
Canal/Ditch (5 acres)

There are numerous canals and ditches across the conservation area. Most were constructed to facilitate drainage for cattle grazing operations and for water control in the areas utilized in row crop agriculture. Several cypress domes in the areas of the former alligator farm were altered by the construction of deep ditches on the peripheries. These dome swamps were then secured with buried fence and used as brood ponds.

Clearing/Food Plot (24 acres)

There are three areas within the conservation area that are cleared and were utilized as food plots. These areas include a groundcover of bahia grass and include a naturally regenerating coverage of both longleaf and slash pine. Two food plots located on the western portions of the property in the footprint of the former WT Ranch conservation easement have a known history of corn plantings.

Cultural Hardwood Forests (21 acres)

Cultural hardwood forests are closed-canopied forests dominated by fast growing hardwoods and may include remnant pines. These areas are either invaded/fire suppressed natural areas or old fields that have succeeded to forest. The cultural hardwood forests within the conservation area are primarily succeeded pasture and ruderal areas.

Spoil Deposition Site (1 acre)

This area is located near the southeast boundary. Spoil mounds associated with the establishment of the road and Deep Creek crossing are present and scattered throughout the floodplain swamp in this area.

Unimproved Pasture (4 acres)

An area of unimproved pasture is located near the northwest portion of the property. This area includes native groundcover under scattered pine and xeric oaks. This area is identified for the public parking area and trailhead.

Soils

According to data produced by the United States Department of Agriculture, Soil and Conservation Service, 21 different soil types are within the PBCA. Figure 7 contains a soils map of the conservation area. The Volusia County Soil Survey provided information used to develop descriptions of the predominant soil series found within the PBCA. The soil descriptions are located in Addendum 2.
IMPLEMENTATION
The following sections outline land management strategies for resource protection, land use, and administration on the conservation area for the next five years.

SPECIAL MANAGEMENT CONSIDERATIONS

Conservation Easement
Prior to acquisition, approximately 334 acres of the conservation area were encumbered by a perpetual conservation easement with a less than full fee title interest (conservation easement) held by both the District (75%) and Volusia County (25%). While the District has acquired the remaining title interest in these acres from the landowner, the property is still subject to the terms of Volusia County’s interest in this conservation easement. The perpetual conservation easement and easement documentation report are attached as Addendum 3 and should be referenced prior to conducting management activities including harvest operations, road and trail construction, the installation or replacement of culverts, bridges, or other water crossings, and fencing.

Potential Water Storage Project
Approximately 1,383 acres of the conservation area located between the conservation easement and the power lines is identified by the District as an area that has high potential for a future water storage project. Funding for this portion of the conservation area was derived from ad valorem funds earmarked for Water Sustainability/Alternative Water Supply Program. While specific water supply/storage projects are to be developed, land management objectives and priorities may be influenced by this potential.

FDOT Mitigation Projects
The District’s FDOT Mitigation Program (F.S. 373.4137) funded the acquisition of a portion of the PBCA for the purposes of mitigation. The mitigation would offset permitted wetland impacts associated with FDOT roadway projects that occur within SJRWMD Regulatory Basin 18 (St. Johns River-Canaveral Marshes to Wekiva). In order to provide the mitigation for the functional loss of the permitted wetland impacts, the District will implement preservation, enhancement and long-term management of 993-acres. This area has a recorded note to the deed stating that it was purchased for conservation purposes and listing the relevant COE permit numbers. See Addendum 4 for specific Mitigation Objectives.

Figure 8 depicts the extent of the areas of special management consideration.

RESOURCE PROTECTION AND MANAGEMENT

Water Resource Protection
While most wetlands protection was accomplished through acquisition, portions of the wetlands and surface waters within the conservation area are disturbed. Hydrologic disturbances within the conservation area include roads, tram roads, silvicultural beds, ditches, swales, culverts, bridges, borrow pits, artificial ponds, and rim ditches around cypress domes. The latter were constructed to facilitate alligator farming.
Roads and associated ditches exist across the conservation area, 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. Portions of the upland acreage within the conservation area are former commercial silviculture sites and as such, some of the acreage was bedded prior to planting. Bedding is a method of site preparation, which includes a series of linear mounds and alternating trenches designed to improve soil aeration and nutrient concentrations on wet and/or nutrient poor sites. Primary objectives of bedding are to elevate seedling root systems out of the water into mounds where the concentrated nutrients are readily available. Bedding is also used to reduce competition for newly planted trees. The trenches associated with bedding channel water and are detrimental to the sheet flow of water across the property.

A review of aerial photography from the 1940s – 2009 reveals numerous ditches/swales designed to facilitate drainage across the property for the purposes of cattle grazing, timber production, and other agricultural uses. These swales drain water from the isolated wetlands and flatwoods areas into roadside ditches and eventually to the floodplain swamp associated with Deep Creek. One of the hydrologic restoration projects planned for this property is the blocking of the small swales that join the remnant cypress domes located in the northern pasture areas. These cypress domes currently include a heavy coverage of cabbage palm and slash pine, likely due to drier conditions caused by the altered hydrology.

**Water Resource Strategies**
- Locate and GPS all culvert locations and incorporate into conservation area database. Include type, length, and diameter of each culvert.
- Regularly inspect roads, ditches, bridges, culverts, crossings, fire lines, and trails for erosion problems.
- Remove silvicultural beds from harvest areas, subject to available funding and where water resources are impaired and the removal of beds will not further degrade the site.
- Coordinate with the Department of Water Resources regarding the implementation of restoration projects within the FDOT mitigation area.

**Flora and Fauna**

The Palm Bluff Conservation Area has a diverse assemblage of natural communities providing significant habitat for a variety of floral and faunal species.

The Florida black bear, listed by the State of Florida as a Threatened species, is documented within the conservation area. Observations within the conservation easement portion of the conservation area were reported by a neighboring landowner and road killed animals have been documented along SR 415 just north of the conservation area. In addition to a host of diseases and parasites and habitat loss and fragmentation, 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 (Draft Black Bear Management Plan for Florida Ursus americanus floridanus, 2008). The conservation area lies within the secondary range for the Ocala subpopulation of the black bear in south central Volusia County. The conservation area is a significant acquisition in providing connectivity to other conservation lands and provides an optimal range of desirable habitat and seasonal food sources for bears, as well as cover for denning.

The Florida Department of Transportation (FDOT) (during the writing of this plan) is in the design phase of a road-widening project affecting portions of SR 415. The extent of this phase of the project ends at Acorn Lake Road approximately ¼ mile south of where the conservation area fronts the highway. As currently planned, this project is not expected to have a direct impact on the conservation area however, landscape level issues such as corridor connectivity and potential wildlife crossing issues may cause the extension of this project to areas farther north.

**Floral and Faunal Strategies**
- Conduct diversity surveys and develop species lists.
- Continue to monitor for the presence of listed species.
- Continue to coordinate with the Department of Water Resources, FDOT, and other project participants regarding the SR 415 road-widening project.
- Continue to coordinate with FDOT and FWC regarding wildlife crossings on SR 415.

**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 will require pine harvesting. Primary objectives of harvesting on the PBCA are restorative in nature and are to improve species diversity and the overall natural community health and vigor. All revenue generated through forest management is applied towards the District’s Land Management Division budget to offset management costs for the property.

Prior to public acquisition approximately 394 acres of historic wet, mesic, and scrubby flatwoods within the conservation area were managed for commercial forestry and most of these were bedded and planted at high densities in slash pine. Silvicultural bedding practices have altered the continuity and composition of vegetation within the shrub and groundcover layers across these areas. Additionally, excessive shading in areas of high pine densities has caused these layers to be highly suppressed and in some areas absent. Where these layers do exist, species compositions include saw palmetto, gallberry, and sparse wiregrass. Figure 9 illustrates the extent of pine by species within the PBCA that are outside the anticipated footprint of the alternative water supply project area. Forest management needs within the water supply project area will be evaluated as water storage project plans are developed.
The PBCA is partitioned into three forest management compartments and each compartment is further divided into stands. On properties like the PBCA, where silvicultural management is a component of the overall management of the property, values, including baseline timber volumes, are collected and incorporated into the District’s timber management and GIS lands database. Changes that may occur over time within the compartments and stands resulting from growth, harvest and salvage operations, and reforestation are also recorded in the database. This information is used to help land management staff forecast forest management needs.

Forest management activities anticipated during the scope of this plan include stocking evaluations, possible reforestation, and thinning operations. Stocking evaluations are conducted to assess the need for replanting an area through the determination of the number of target trees per acre. Reforestation projects may be preceded by various site preparation techniques including mechanical treatments such as roller chopping and mowing, herbicide applications, and prescribed fire. These techniques may be used singularly or in combination as site conditions warrant. First thinning operations typically occur between the 18th and 22nd year and second thinning operations are conducted, on average, 10 years after the first. Salvage harvests are anticipated in areas of pine killed by both fire and insect infestation. Figure 10 illustrates the compartment and stand configuration and identifies areas for harvest or harvest evaluation. Table 3 detail planned silviculture activities.

**Planned Forest Management Strategies**

<table>
<thead>
<tr>
<th>Compartmen Stand</th>
<th>Species</th>
<th>Establishment Year</th>
<th>Acres</th>
<th>Basal Area</th>
<th>Planned Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-001</td>
<td>Slash</td>
<td>1992</td>
<td>9.8</td>
<td>100</td>
<td>5th row thin</td>
</tr>
<tr>
<td>01-002</td>
<td>Slash</td>
<td>1992</td>
<td>54.4</td>
<td>100</td>
<td>5th Row thin</td>
</tr>
<tr>
<td>01-004</td>
<td>Slash</td>
<td>1992</td>
<td>18.9</td>
<td>64</td>
<td>Possible Salvage Harvest of Portion of Stand</td>
</tr>
<tr>
<td>01-005</td>
<td>Slash</td>
<td>1992</td>
<td>69.2</td>
<td>64</td>
<td>Possible Salvage Harvest of Portion of Stand</td>
</tr>
<tr>
<td>01-006</td>
<td>Slash</td>
<td>1989</td>
<td>39.6</td>
<td>89</td>
<td>Salvage Harvest</td>
</tr>
<tr>
<td>01-007</td>
<td>Slash</td>
<td>1989</td>
<td>3.6</td>
<td>140</td>
<td>Harvest/Thinning</td>
</tr>
<tr>
<td>01-008</td>
<td>Slash</td>
<td>1989</td>
<td>13.2</td>
<td>76</td>
<td>Evaluate for Thinning Needs</td>
</tr>
<tr>
<td>02-0002</td>
<td>Slash</td>
<td>1989</td>
<td>1.2</td>
<td>90+</td>
<td>Harvest/Thinning</td>
</tr>
<tr>
<td>02-0003</td>
<td>Slash</td>
<td>1989</td>
<td>9.22</td>
<td>90+</td>
<td>Harvest/Thinning</td>
</tr>
<tr>
<td>02-0005</td>
<td>Slash</td>
<td>1989</td>
<td>13.61</td>
<td>90+</td>
<td>Harvest/Thinning</td>
</tr>
<tr>
<td>02-0006</td>
<td>Slash</td>
<td>1989</td>
<td>28.05</td>
<td>90+</td>
<td>Harvest/Thinning</td>
</tr>
<tr>
<td>02-0008</td>
<td>Slash</td>
<td>1989</td>
<td>23</td>
<td>90+</td>
<td>Harvest/Thinning</td>
</tr>
<tr>
<td>03-010</td>
<td>Slash</td>
<td>1978</td>
<td>11.3</td>
<td>151</td>
<td>Harvest/Thinning</td>
</tr>
<tr>
<td>03-012</td>
<td>Slash</td>
<td>1972</td>
<td>31.1</td>
<td>138</td>
<td>Harvest/Thinning</td>
</tr>
<tr>
<td>03-014</td>
<td>Slash</td>
<td>Unknown</td>
<td>8.6</td>
<td>90</td>
<td>Harvest/Thinning</td>
</tr>
<tr>
<td>03-017</td>
<td>Slash</td>
<td>Unknown</td>
<td>5</td>
<td>90</td>
<td>Harvest/Thinning</td>
</tr>
<tr>
<td>03-018</td>
<td>Slash</td>
<td>1978</td>
<td>2.4</td>
<td>151</td>
<td>Harvest/Thinning</td>
</tr>
</tbody>
</table>
Through planned harvesting, the District aims to create a more open canopy, which will reduce the competition among trees and in time, allow for larger, more vigorous trees with fuller canopies. Harvesting may also provide some protection against wildfires and pine beetle outbreaks.

The District will abide by Florida Silviculture Best Management Practices and will target the achievement of appropriate overstory species in proper stand densities as described in the District Forest Management Plan. In addition to planned forest management activities, the District will harvest trees as needed in the case of insect infestations, disease, and damage from severe weather, wildfire, or other occurrences that could jeopardize the health of natural communities.

**Forest Management Strategies**

- Evaluate feasibility of groundcover restoration or enhancement in conjunction with forest management planning.
- Evaluate additional planting needs in areas of salvage harvests.
- Continue forest management database population.
- Refine data within existing forest management database.
- Conduct harvest operations as detailed in Table 3.

**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 in most areas 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 proliferation 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 natural communities at the PBCA are fire adapted, making prescribed fire an important tool for use in the restoration and maintenance of plant communities within the conservation area. Since acquisition, prescribed fire has been implemented in approximately 488 acres of pine plantation in the eastern portions of the property.

Historically, the majority of fires occurring on what is now the PBCA 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 and high fuel loading may predicate the use of dormant season burning.

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 SR 415, Osteen Maytown Road, and developed areas such as the town of Osteen and the City of Deltona. The Orlando-Sanford International Airport is approximately 8.5 miles to the southwest of the property. Smoke management is vital and any potential burns will be conducted to minimize off-site impacts by directing smoke plumes away from smoke sensitive areas and by ensuring adequate smoke dispersal. Smoke management concerns and smoke radii for the PBCA 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 Palm Bluff Conservation Area Fire Management Plan (Addendum 5), and the annual burn plan for the property.

Fire Management Strategies
- Implement prescribed burning as described in the District’s 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 the fire management database.
- Delineate fire management units within portions of the conservation area that included special management considerations for the conservation easement.

Exotic Species
Several exotic pest plants occur within the conservation area including:

- Camphor tree (*Cinnamomum camphora*)
- Chinese tallow (*Sapium sebiferum*)
- Lantana (*Lantana camara*)
- Caesar weed (*Urena lobata*)
- Air potato (*Discorea bulbifera*)
- Tropical soda apple (*Solanum viarum*)
- Japanese climbing fern (*Lygodium japonicum*)
- Bahia grass (*Paspalum notatum*)
- Bermuda grass (*Cynodon sp.*)
- Cogon grass (*Imperata cylindrica*)
- Water hyacinth (*Eichornia crassipes*)
- Brazilian pepper (*Schinus terebinthifolius*)
Figure 11 - Smoke Management Map

Palm Bluff Conservation Area

The St. Johns River Water Management District assumes no responsibility for the information contained herein. This information is provided 'As Is' and may not be suitable for use for any purpose. Further documentation of this dataset can be obtained by contacting the St. Johns River Water Management District Geospatial Information Systems Program Management, 9000 82nd Avenue, Jacksonville, FL 32244-4999. Tel: (904) 293-5303.

1 mile
2 miles
3 miles

Schools and Healthcare Facilities

Boundary

2.5
Miles

1 = 150000

Palm Bluff Conservation Area
33
November 2010- Land Management Plan
The PBCA 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. The District will conduct treatment activities necessary to attain a maintenance control level within one year and anticipates conducting a minimum of two (2) treatment events each year thereafter, monitoring/re-treating previously treated areas and identifying new/additional infestations.

Exotic wildlife species known to occur within the conservation area include feral hogs (*Sus scrofa*), and nine-banded armadillos (*Dasypus novemcinctus*). Feral hog control is currently incorporated into the Special Use Authorization (SUA) between the District and the cattleman. 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.


**Exotic Species Strategies**
- Achieve maintenance control of invasive plants within one year.
- Conduct follow up/maintenance treatments of invasive plants twice each year.

**Structures and Improvements**
The property includes several structures and improvements constructed prior to public ownership. Figure 12 depicts the location of known structures, grouped by general area. Table (4) four details the structures located within each area. Demolition and removal of structures is subject to budget availability.
Palm Bluff Conservation Area
Figure 12 - Structure Location Map

Palm Bluff Conservation Area
35
November 2010- Land Management Plan
### Table 4 - Structures

<table>
<thead>
<tr>
<th>Structure Area</th>
<th>Structure Type/Description</th>
<th>Current/Planned Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security Residence Area</td>
<td>Dwelling</td>
<td>Continue residence agreement</td>
</tr>
<tr>
<td>Security Residence Area</td>
<td>Carport</td>
<td>Maintain with residence</td>
</tr>
<tr>
<td>Palm Cabin Area</td>
<td>Palm cabin</td>
<td>*Undetermined</td>
</tr>
<tr>
<td>Alligator Farm Area</td>
<td>Office</td>
<td>Utilized and maintained by cattle lessee</td>
</tr>
<tr>
<td>Alligator Farm Area</td>
<td>Shed</td>
<td>Utilized and maintained by cattle lessee</td>
</tr>
<tr>
<td>Alligator Farm Area</td>
<td>Alligator hide salting building</td>
<td>Identified for demolition and removal (preserve power pole and lines)</td>
</tr>
<tr>
<td>Alligator Farm Area</td>
<td>Cement slab behind salting building</td>
<td>Identified for demolition and removal</td>
</tr>
<tr>
<td>Alligator Farm Area</td>
<td>Circular/cement alligator nursery ponds</td>
<td>Identified for demolition and removal</td>
</tr>
<tr>
<td>Alligator Farm Area</td>
<td>Pit/Brood Ponds (4)</td>
<td>**Undetermined</td>
</tr>
<tr>
<td>Chemical Shed Area</td>
<td>Shed</td>
<td>Identified for removal</td>
</tr>
<tr>
<td>Cattle Pen Area</td>
<td>Cattle pens</td>
<td>Utilized and maintained by cattle lessee</td>
</tr>
<tr>
<td>Cattle Pen Area</td>
<td>Cement slabs</td>
<td>Utilized and maintained by cattle lessee</td>
</tr>
<tr>
<td>Cattle Pen Area</td>
<td>Barns (2)</td>
<td>Utilized and maintained by cattle lessee</td>
</tr>
<tr>
<td>Packing House Area</td>
<td>Pole barn</td>
<td>Utilized and maintained by cattle lessee</td>
</tr>
<tr>
<td>Packing House Area</td>
<td>Restroom</td>
<td>Identified for demolition and removal</td>
</tr>
</tbody>
</table>

*The palm cabin was constructed in the 1980s and utilized as a hunt cabin. The cabin has not been actively used for approximately 15-years and has some structural problems including rotten and unstable flooring. District staff have contacted several local government agencies and citizen groups to identify a potential use. During the scope of this plan, District staff will continue to pursue a use for this structure; however, demolition is a possibility.

**There are four ponds located within the alligator farm area. The ponds are enclosed by field fence, buried to a depth of two feet. The removal of the ponds is not currently planned. Any removal of these ponds will occur subject to budget availability, applicable permits, and only if removal can be accomplished without further degradation of the site.

**Cultural Resources Protection**

A review of the Department of State, Division of Historical Resources (DHR) indicates no documented Florida Master Site File cultural sites within the conservation area. If any
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 District and State policy, the location of the sites is not identified on public maps.

Cultural Resources Strategies
- Identify and report sites to the DHR.

LAND USE MANAGEMENT

Access
A public parking area site is planned for development off the main access road approximately 1/10\textsuperscript{th} of a mile from SR 415. The area is currently an unimproved pasture area that was cleared of most trees prior to public acquisition. Once developed, the parking area will include wood panel fencing, walkthroughs providing for recreational access at the trailhead, and a kiosk with information panels.

There are numerous 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.

Several roads traverse the conservation area. In order to maintain District roads the main roads at the PBCA are identified and classified according to anticipated maintenance needs. All roads currently mapped within the conservation area are classified by the District as either “Type C”, “Type D”, or “Type E”. Type C roads are stabilized roads between 12 and 24 feet wide with a surface of native soils or a combination of clay, lime, or coquina rock, sand and grass. These roads will include shoulders and ditches on each side of the road and maintenance will include routine mowing. 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. Type E roads are seasonal roads that receive infrequent traffic. Maintenance is generally restricted to mowing to prevent encroachment by vegetation. These roads often serve as recreational trails and some may be harrowed to serve as fire lines.

District staff will identify, map, and classify all roads within the conservation area during the scope of this plan. Roads will be regularly inspected and receive maintenance and repair as necessary and may be subject to closure during these times. Figure 13 depicts
Palm Bluff Conservation Area

Figure 13 - Roads Map

- Boundary
- Bridge
- Low Water Crossing
- Type C
- Type D
- Type E
- Proposed Type C Road

The St. Johns River Water Management District presents and uses this information for its own purposes and the information may not be available for other purposes. This information is provided as is. Further documentation of this information may be obtained by contacting the St. Johns River Water Management District, Geographic Information Systems Program Management, P.O. Box 1745, Jacksonville, Florida, 32203 or (904) 263-1023.
the location of the parking area and roads on the property. Table (5) five details the miles of unique road types within the conservation area.

Table 5 – Road Classification Table

<table>
<thead>
<tr>
<th>Road Classification Type</th>
<th>Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type C</td>
<td>6.37</td>
</tr>
<tr>
<td>Type D</td>
<td>5.03</td>
</tr>
<tr>
<td>Type E</td>
<td>4.8</td>
</tr>
<tr>
<td>*Proposed Type C</td>
<td>.67</td>
</tr>
<tr>
<td><strong>Total Existing Miles</strong></td>
<td><strong>16.2</strong></td>
</tr>
</tbody>
</table>

*not included in total miles

Access Strategies
- Maintain parking areas, signs, gates, trails, bridge, and roads.
- Identify, map, and classify all roads.
- Develop additional Type C road as indicated on map, pending budget availability.
- Incorporate road classification detail into the land management database.

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 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.

Anticipated recreational opportunities within the conservation area will include hiking, bicycling, wildlife viewing, equestrian activities, and primitive camping. The need for a group campsite will be evaluated during the scope of this plan. District staff will pursue the establishment of a WMA within the conservation area. The timing and potential location of the alternative water supply reservoir may impact the extent and function of a WMA. The entire conservation area will open to the public for recreational purposes by January 2011.

Recreation improvements anticipated during the scope of this plan include:
- A marked trail system (Figure 14).
- A parking area and kiosk in the area of the improved pasture off the main access road.
- A primitive campsite.

Once complete, all improvements will be incorporated into the next edition of the District’s Recreation Guide to District Lands, which can be viewed online at floridaswater.com.
Palm Bluff Conservation Area
Figure 14 - Recreation Map

Figure 14: Recreation Map of Palm Bluff Conservation Area.

- Yellow: Boundary
- Blue: Proposed Camp Site
- Pink: Security Residence
- Black: Proposed Trail
- Green: Parking Area

Legend:
- 0.5 Miles
- 1 = 32000
Trails and other recreation improvements may be altered, relocated, or closed during forest management activities, road construction/repair, or as necessitated by the progress and development of the alternative water supply project.

Recreation Strategies
- Complete development of public parking area.
- Complete development of a multiuse trail.
- Install primitive campsite.
- Evaluate the potential for a group campsite.
- Evaluate recreation potential or removal of palm cabin.
- Pursue the development of a Wildlife Management Area.
- Include any recreation improvements on the District’s web site and in the next edition of the District’s Recreation Guide to District Lands.

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 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. Implementing a Legacy Program for this conservation area will be evaluated.

Environmental Education Strategies
- Continue to offer environmental education opportunities.

Security
The boundaries of the PBCCA 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, may remain unfenced. District staff will evaluate the need for fencing in unfenced areas and incorporate all new fencing into the cattle lease, future budget and/or annual work plans.

Security concerns include illegal motorized vehicle access and poaching. Law enforcement for the property is administered by the District, primarily through a contract security firm as well as coordination with FWC and local law enforcement. Additionally, the District maintains a residence agreement for the purposes of providing additional security on the conservation area.

Security Strategies
- Post conservation area boundary.
- Maintain signage, fencing, gates, and locks.
- Evaluate the need for new fencing.
- Continue coordination with private security firm, FWC local law enforcement, and security resident.
ADMINISTRATION

Acquisition
There are no anticipated surpluses or acquisitions associated with the Palm Bluff Conservation area in the next five years.

Acquisition Strategies
- Evaluate adjacent properties for potential acquisition.

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. The agreements associated with the PBCA are detailed in Table (6) six.

An SUA for the purposes of cattle grazing exists between the District and Jeff Russell and Debra Russell-Bowman. The current agreement incorporates all of the PBCA with the exception of those acres encumbered by Volusia County’s interest in the former WT Ranch conservation easement. The District will extend this agreement restricting grazing to the areas west of Deep Creek, excluding the conservation easement portions of the property. The cattle grazing lease may be amended or terminated as needed to facilitate the development and progress of the alternative water supply project.

The District will work with an adjacent landowner to exchange access easements to facilitate management access within the southern portions of the property.

Table 6 – Agreements, Easements, and SUA Table

<table>
<thead>
<tr>
<th>Agreement Number</th>
<th>Agreement Name</th>
<th>Type</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>642</td>
<td>Bowman, Jeff and Debra Russell-Bowman</td>
<td>Cattle Grazing SUA</td>
<td>1-year; expires December 31, 2010</td>
</tr>
<tr>
<td>670</td>
<td>Eason, Benjamin</td>
<td>Residence Lease</td>
<td>Terminates with 90-day written notice</td>
</tr>
</tbody>
</table>

Cooperative Agreements, Leases, Easements, and Special Use Authorization Strategies
- Continue to administer the security residence agreement.
- Continue to administer the cattle grazing agreement.
- Pursue access easement exchange with adjacent landowner.
# IMPLEMENTATION CHART

## Palm Bluff Conservation Area - Management Implementation Chart- 2010

<table>
<thead>
<tr>
<th>TASK</th>
<th>RESPONSIBLE LEAD</th>
<th>DUE DATE</th>
<th>COOPERATORS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RESOURCE PROTECTION AND MANAGEMENT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Water Resources</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Locate and GPS all culvert locations and incorporate into conservation area database. Include type, length, and diameter of each culvert.</td>
<td>DLM</td>
<td>2011</td>
<td></td>
</tr>
<tr>
<td>o Regularly inspect roads, ditches, bridges, culverts, crossings, fire lines, and trails for erosion problems.</td>
<td>DLM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Remove silvicultural beds from harvest areas, subject to available funding and where water resources are impaired and the removal of beds will not further degrade the site.</td>
<td>DLM</td>
<td></td>
<td>DWR</td>
</tr>
<tr>
<td>o Coordinate with the Department of Water Resources regarding the implementation of restoration projects.</td>
<td>DLM</td>
<td></td>
<td>DWR</td>
</tr>
<tr>
<td><strong>Flora and Fauna</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Continue to conduct diversity surveys and develop species lists.</td>
<td>DLM</td>
<td>Upon discovery</td>
<td></td>
</tr>
<tr>
<td>o Continue to monitor for the presence of listed species.</td>
<td>DLM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Continue to coordinate with the Department of Water Resources, FDOT, and other project participants regarding the SR 415 road-widening project.</td>
<td>DLM</td>
<td></td>
<td>DWR, FDOT, FWC</td>
</tr>
<tr>
<td>o Continue to coordinate with FDOT and FWC regarding wildlife crossings on SR 415.</td>
<td>DLM</td>
<td></td>
<td>DWR, FDOT, FWC</td>
</tr>
<tr>
<td><strong>Forest Management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Evaluate feasibility of groundcover restoration or enhancement in conjunction with forest management</td>
<td>DLM</td>
<td>As harvests occur</td>
<td></td>
</tr>
<tr>
<td>TASK</td>
<td>RESPONSIBLE LEAD</td>
<td>DUE DATE</td>
<td>COOPERATORS</td>
</tr>
<tr>
<td>------</td>
<td>------------------</td>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>planning.</td>
<td>DLM</td>
<td>As harvests occur</td>
<td></td>
</tr>
<tr>
<td>o Evaluate additional planting needs in areas of salvage harvests.</td>
<td>DLM</td>
<td>2013</td>
<td></td>
</tr>
<tr>
<td>o Continue forest management database population.</td>
<td>DLM</td>
<td>2015</td>
<td></td>
</tr>
<tr>
<td>o Conduct harvest operations as detailed in Table 3.</td>
<td>DLM</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fire Management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Implement prescribed burning as described in the District’s Fire Management Plan.</td>
<td>DLM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Develop annual burn plans.</td>
<td>DLM</td>
<td>Annually by September 30</td>
<td></td>
</tr>
<tr>
<td>o Introduce growing season burns where possible.</td>
<td>DLM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Introduce dormant season burns in select pine plantations and areas of high fuel loading and/or extended fire exclusion.</td>
<td>DLM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Continue to populate the fire management database.</td>
<td>DLM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Delineate fire management units within portions of the conservation area that include special management consideration for the conservation easement.</td>
<td>DLM</td>
<td>2013</td>
<td></td>
</tr>
<tr>
<td><strong>Exotic Species</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Continue to monitor for exotic plant species and implement appropriate action. Achieve maintenance control of invasive plants within one year.</td>
<td>DLM</td>
<td>2011</td>
<td></td>
</tr>
<tr>
<td>o Conduct follow up/maintenance treatments of invasive plants twice each year.</td>
<td>DLM</td>
<td>Twice yearly</td>
<td></td>
</tr>
<tr>
<td><strong>Cultural Resources</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Identify and report sites to the DHR.</td>
<td>DLM</td>
<td>Upon discovery</td>
<td></td>
</tr>
<tr>
<td><strong>LAND USE MANAGEMENT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Access</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Maintain parking areas, signs, gates, trails, bridge, and roads.</td>
<td>DLM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Identify, map, and classify all</td>
<td>DLM</td>
<td>2012</td>
<td></td>
</tr>
<tr>
<td>TASK</td>
<td>RESPONSIBLE LEAD</td>
<td>DUE DATE</td>
<td>COOPERATORS</td>
</tr>
<tr>
<td>------</td>
<td>------------------</td>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>roads.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Formalize access easement agreement between the District and neighboring land owner.</td>
<td>DLM</td>
<td>2012</td>
<td>DLA</td>
</tr>
<tr>
<td>o Develop additional Type C road as indicated on map, pending budget availability.</td>
<td>DLM</td>
<td>2013</td>
<td></td>
</tr>
<tr>
<td>o Incorporate road classification detail into the land management database.</td>
<td>DLM</td>
<td>2012</td>
<td></td>
</tr>
<tr>
<td><strong>Recreation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Complete development of a public parking area.</td>
<td>DLM</td>
<td>December 2010</td>
<td></td>
</tr>
<tr>
<td>o Complete development of a multiuse trail.</td>
<td>DLM</td>
<td>2011</td>
<td></td>
</tr>
<tr>
<td>o Install primitive campsite.</td>
<td>DLM</td>
<td>2011</td>
<td></td>
</tr>
<tr>
<td>o Evaluate the potential for a group campsite.</td>
<td>DLM</td>
<td>2012</td>
<td></td>
</tr>
<tr>
<td>o Pursue the development of a Wildlife Management Area within the PBCA.</td>
<td>DLM</td>
<td>2015</td>
<td>FWC</td>
</tr>
<tr>
<td>o Include any recreation improvements on the District’s web site and in the next edition of the District’s <em>Recreation Guide to District Lands</em>.</td>
<td>DLM</td>
<td></td>
<td>OC</td>
</tr>
<tr>
<td><strong>Environmental Education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Continue to offer environmental education opportunities.</td>
<td>DLM</td>
<td></td>
<td>OC</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Post conservation area boundary.</td>
<td>DLM</td>
<td>2011</td>
<td></td>
</tr>
<tr>
<td>o Maintain signage, fencing, gates, and locks.</td>
<td>DLM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Evaluate the need for new fencing.</td>
<td>DLM</td>
<td>Annually by September 1</td>
<td></td>
</tr>
<tr>
<td>o Continue coordination with private security firm, FWC local law enforcement, and security resident.</td>
<td>DLM</td>
<td>Monthly</td>
<td></td>
</tr>
<tr>
<td>TASK</td>
<td>RESPONSIBLE LEAD</td>
<td>DUE DATE</td>
<td>COOPERATORS</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------------------</td>
<td>-----------------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>ADMINISTRATION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquisition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Evaluate adjacent properties</td>
<td>DLA</td>
<td>Annually by September 1</td>
<td>DLM, VC</td>
</tr>
<tr>
<td>for potential acquisition.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cooperative Agreements</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Continue to administer the</td>
<td>DLM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>security residence area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>agreement.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Continue to administer the</td>
<td>DLM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cattle grazing agreement.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Pursue access easement</td>
<td>DLA</td>
<td>2015</td>
<td>DLM</td>
</tr>
<tr>
<td>exchange with adjacent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>landowner.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**IMPLEMENTATION CHART KEY**

VC  Volusia County  
DLA Division of Land Acquisition  
DLM Division of Land Management  
DWR Department of Water Resources  
FDOT Florida Department of Transportation  
FDHR Florida Division of Historical Resources  
FWC Florida Fish and Wildlife Conservation Commission  
OC Office of Communication
WORKS CITED


ADDENDUM 1 – Species Ranking Definitions

FNAI GLOBAL RANKING

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1,000 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 3,000 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 1,000 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 3,000 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 - Soil Descriptions

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. John’s 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. They formed in sandy materials in the Lower Coastal Plain. The native vegetation may include scattered slash pine, longleaf pine, and saw palmetto.

The Daytona series consists of very deep, moderately well drained, moderately rapid permeable soils on knolls and ridges in the flatwoods. They formed in sandy deposits of marine or eolian sediments. The native vegetation may include sand pine with an understory of creeping bluestem, broom sedge bluestem, splitbeard bluestem, lopsided indiangrass, pineland threeawn, switchgrass, panicum, and paspalums.

The EauGallie series consists of deep or very deep, poorly or very poorly drained, slowly permeable soils in flats, sloughs and depressional areas. They formed in sandy and loamy marine sediments in Peninsula Florida. Natural vegetation may consist of longleaf pine, South Florida slash pine, and saw palmetto, with understory vegetation possibly including inkberry, southern bayberry, and pineland threeawn.

The Gator series consists of very poorly drained organic soils that formed in moderately thick beds of hydrophytic plant remains overlying beds of loamy and sandy marine sediments. They are in depressions and on flood plains. Native vegetation includes mostly cordgrass or saw grass, maidencane, willow, dogwood, or swamp vegetation including bald cypress, sweet gum, red maple, and American hornbeam.

The Immokalee series consists of deep and very deep, poorly drained and very poorly drained soils that formed in sandy marine sediments. They occur on flatwoods and in depressions of Peninsular Florida. Principal vegetation is longleaf and slash pines and undergrowth of saw palmetto, gallberry, wax myrtle, and pineland threeawn. In depressions, water tolerant plants such as cypress, loblolly bay gorodonia, red maple, sweet bay, maidencane, blue maidencane, chalky bluestem, sand cordgrass, and blue joint panicum are more common.

The Malabar series consists of very deep, poorly to very poorly drained soils in sloughs, shallow depressions, and along flood plains. They formed in sandy and loamy marine sediments. Native vegetation consists of scattered slash pine, cypress wax myrtle, cabbage palm, pineland threeawn, and maidencane. In depressions, the vegetation is dominantly St. John’s wort or maidencane.
The Myakka series consists of deep and very deep, poorly to very poorly drained soils formed in sandy marine deposits. These soils are on flatwoods, high tidal areas, flood plains, depressions, and gently sloping to sloping barrier islands. 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 Orsino series consists of very deep, moderately well drained, very rapidly permeable soils that formed in thick beds of sandy marine or aeolian deposits. They are on moderately high ridges in the coastal plain. Native vegetation consists primarily of scrub vegetation with sand live oak, Chapman oak, myrtle oak, and scrub hickory. Scattered sand, slash, and longleaf pines and scattered blue jack, turkey, and post oak are found with a sparse understory.

The Pineda series consists of deep and very deep, poorly and very poorly drained, very slowly permeable soils in depressions, low hammocks, poorly defined drainageways, broad low flats, and flood plains. They formed in thick beds of sandy and loamy marine sediments on the lower coastal plain. Natural vegetation consists of slash pine, cypress, myrtle, cabbage palm, blue maidencane, chalky bluestem, bluepoint panicum, sedges, pineland threeawn, and sand cordgrass.

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, longleaf pine with an understory of saw palmetto, wax myrtle, gallberry, creeping bluestem, chalky bluestem, indiangrass, 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 drainageways and flood plains. Natural vegetation is loblolly bay with scattered cypress, maple, gum, and pine trees with a ground cover of greenbriers, ferns, and other aquatic plants.

The Scoggin series consists of very poorly drained soils formed in loamy and sandy marine sediments on the low Coastal Plain in central Peninsular Florida. They occur in swamps and low areas bordering swamps. They are covered with standing water for as much as 6 months in most years beginning in the summer rainy season. Most areas are in a sparse forest of slash pine and swamp hardwoods with a ground cover of maidencane, pineland threeawn, gallberry, and clumps of saw palmetto.

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 threeawn.
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 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 undergrowth 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 Tequesta series consists of very deep, very poorly drained, moderately slowly permeable soils in depressional areas, fresh water swamps and marshes, and broad low flats adjacent to organic soils. They formed in stratified marine sandy and loamy sediments on the Lower Coastal Plain. The natural vegetation consists of needle grass, pickerelweed, maidencane, ferns, wax myrtle, and scattered cypress.

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 and poorly drained, very slowly and slowly permeable soils on flatwoods, flood plains, and depressions in Peninsula Florida. They formed in sandy and loamy marine sediments. The natural vegetation consists of longleaf pine, slash pine, cabbage palm, live oak, with an understory of saw palmetto, laurel oak, wax myrtle, chalky bluestem, and pineland threeawn.
ADDENDUM 3 – Conservation Easement Documents
PERPETUAL CONSERVATION EASEMENT

THIS INDENTURE, made and entered into this 28th day of February, 2003, by and between ROBERT A. WAGNER, AS TRUSTEE OF THE ROBERT A. WAGNER REVOCABLE TRUST DATED JUNE 3, 1993, and MELISSA BETH TULP AS TRUSTEE OF THE MELISSA BETH TULP TRUST AGREEMENT DATED FEBRUARY 26, 2002, whose address is c/o Louis P. Tulp, Post Office Box 621024, Oviedo, Florida 32762 (hereinafter collectively referred to as the "Grantor"), and the ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, a public body existing under Chapter 373 of the Florida Statutes, as to an undivided seventy-five percent (75%) interest (hereinafter referred to as the "District"), whose address is Post Office Box 1429, Palatka, Florida 32178-1429, and VOLUSIA COUNTY, a political subdivision of the State of Florida, as to an undivided twenty-five percent (25%) interest (hereinafter referred to as the "County"), whose address is 123 W. Indianta Avenue, Room 201, Deland, Florida 32720-4606 (hereinafter District and County collectively referred to as the "Grantee").

WITNESSETH:

WHEREAS, the Grantor is the owner in fee simple of certain real property lying and being situated in Volusia County, Florida, more specifically described in Exhibit "A," attached hereto and incorporated herein by reference (hereinafter referred to as the "Property"); and,

WHEREAS, the Grantor and the Grantee mutually recognize the natural, scenic and special character of the Property and have the common purpose of conserving certain natural and agricultural values and character of the Property by conveyance to the Grantee of a Perpetual Conservation Easement (hereinafter referred to as the "Easement") on, over and across the Property, which shall conserve the value, rural and agricultural character, ecological integrity and hydrological integrity of the Property, conserve and protect the animal and plant populations on the Property and prohibit certain further development activity on the Property.

NOW, THEREFORE, the Grantor, in consideration of TEN AND NO/100 DOLLARS ($10.00) and other good and valuable consideration in hand paid by the Grantee to the Grantor, the receipt and sufficiency of which is hereby acknowledged, does hereby grant, bargain, sell and convey to the Grantee and its successors and assigns forever this Easement pursuant to Section 704.06, Florida Statutes, on, over, upon, and across the Property of the nature, character, and extent hereinafter set forth.

I. PURPOSE OF THE EASEMENT.

It is the purpose of this Easement to preserve the Property in its existing condition as a working ranch and silviculture operation, to provide sustainable and relatively natural habitat for fish, wildlife, plants or similar ecosystems, and to preserve the Property as productive timberland and ranch land that sustain for the long term the conservation values of the current uses of the Property and its environs through management guided by the terms of Article III, IV and V hereof.

II. PROHIBITIONS AND RESTRICTIONS ON USE.

Grantor and Grantee acknowledge that a purpose of this Easement is to prevent any use of the Property that will cause or result in a sustained degradation or the present environmental and conservation quality of the Property. Therefore, subject to the rights and interests of Grantor hereinafter reserved in this Easement, and in furtherance of the affirmative rights of Grantee described in Section IV herein, Grantor, for itself and its successors and assigns, and with the intent
toxic waste or substances, pollutants or contaminants, including but not limited to those as defined by the Federal Solid Waste Disposal Act ("SWDA"), the Federal Clean Air Act ("CAA"), the Federal Clean Water Act ("CWA"), the Federal Resource Conservation and Recovery Act of 1976 ("RCRA"), the Federal Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA"), the Federal Superfund Amendments and Reauthorization Act of 1986 ("SARA"), the Federal Emergency Planning and Community Right-To-Know Act ("EPCRA"), the Federal Insecticide, Fungicide and Rodenticide Act ("FIFRA"), the Toxic Substances Control Act ("TSCA"), Chapters 161, 233, 373, 376, and 403, Florida Statutes, and the rules and regulations of the (i) United States Environmental Protection Agency, (ii) the Florida Department of Environmental Protection, and (iii) the St. Johns River Water Management District, now or at any time hereafter in effect, or any Florida Statute defining hazardous materials, wastes or substances, toxic wastes or substances, pollutants or contaminants (hereinafter collectively referred to as "Contaminants") on the Property. This prohibition shall not be construed to include reasonable amounts of agricultural waste generated as a result of activities allowed under Article III nor prohibit the use and lawful application of chemicals, pesticides, herbicides or fertilizers, dirt, soil, rock, shell and other materials in accordance with the activities allowed under this Easement.

7. **Concentrated Animal Feeding Operations.** There shall be no concentrated animal feeding from permanent feed lots for bovine, swine, poultry or other animals on the Property.

8. **Exotics and Invasive Species.** Grantor shall not plant, and will use reasonable efforts to control, the spread of nuisance, exotic and non-native invasive vegetation on the Property, including planting in the game food plots and the improved pasture.

9. **Pesticides/Herbicides.** Pesticides or herbicides must be applied according to applicable BMP’s or in the absence of BMP’s in accordance with label instructions.

10. **Fertilizer.** When used pursuant to allowed uses under Article III, fertilizer shall be applied according to applicable BMP’s.

11. **Mining and Excavation.** Except as otherwise allowed under this Easement, there shall be no mining, excavation, filling or dredging on the Property. The sale by Grantor of material produced as a result of excavation allowed under this Easement is prohibited.

12. **Commercial Signs or Billboards.** Except for signs marketing or identifying the Property or the allowed activities thereon, there shall be no commercial signs or billboards, temporary or permanent, constructed, placed or maintained upon the Property. The total square footage of all allowed signage for the Property shall not exceed fifty (50) square feet.

### III. RIGHTS RESERVED TO GRANTOR

Grantor reserves in perpetuity, and reserves for its successors and assigns in perpetuity, the following reserved rights, which may be exercised at any time (subject to any notice requirements set forth below):

1. **Fee Simple Title.** Grantor has, and shall be deemed hereby to have retained, the underlying fee simple title absolute in the Property. Further Grantor retains and reserves all rights of, in and to the Property not expressly prohibited under Article II or expressly conveyed to Grantor under Article IV.
2. **Safety of Property.** Grantor shall have the right to sell, rent or mortgage the Property provided that the maximum number of parcels into which the Property may ever be divided or sold is three (3) parcels. Any such interest granted subsequent to this document shall be subject to this Easement.

3. **Homesites and Buildings.** Within each subdivided parcel, Grantor may construct and maintain buildings, residences and structures, together with ancillary utilities which, together with the buildings shown on the Easement Documentation Report, collectively, contain no more than 10,000 square feet of roof top per subdivided parcel ("Structures"). These Structures shall be located within a five (5) acre homestead area within each subdivided parcel. Removable or semi-affixed structures, such as windmills, corrals, gates, game feeders, equestrian jumps, watering troughs and pump houses, shall not be included within the foregoing footprint limitations. Within each homestead area, Grantor may plant and maintain sod and ornamental trees, shrubs and fruit bearing trees for landscaping purposes, provided such plants are not listed as a Category I or Category II "Invasive Species" by the Florida Exotic Pest Plant Council.

4. **Improved Pasture.** Pastures currently improved for cattle and equine operations can be, or can continue to be, used as improved pasture. Grantor may plant cover crops in the existing pasture areas, provided any such crop is of a non-invasive, non-exotic species. Grantor may also manage the Improved Pasture Areas as pine plantation or native range. Agricultural activities reserved by the Grantor hereunder shall be conducted in accordance with the applicable BMP's. Consistent with any applicable BMP's, Grantor may maintain the Improved Pasture Area, as delineated in the Easement Documentation Report, through generally accepted habitat management practices, such as controlled burning, mowing, rotary chopping and discing as required to further good husbandry and game management.

5. **Silviculture and Timber Harvesting.** Grantor shall have the right to conduct commercial forestry operations (silviculture) and timber harvest on the Property as indicated below, in accordance with the applicable BMP's and subject to the following conditions and restrictions:

   a. **Wetland Harvesting.** Except for salvage harvesting under Paragraph 5(e), there shall be no harvesting in wetlands delineated on the Easement Documentation Report.

   b. **Pine Plantation Harvesting.** Provided Grantor follows applicable BMP's, harvesting and replanting of existing pine plantation can continue within the areas that are periodically planted and periodically harvested, such areas being depicted in the Easement Documentation Report ("Pine Plantation Area"). Grantor shall be entitled to manage the Pine Plantation Area as native range, however. Pine Plantation areas shall not be converted to Improved Pasture.

   c. **Management of Pine Plantation.** The management of the allowed Pine Plantation Area shall be in accordance with applicable BMP's and may include generally accepted habitat management practices, such as controlled burning, mowing, rotary chopping and discing as required to further good husbandry and game management. Site preparation, application of fertilizers, use of pesticides/herbicides, implementation of prescribed burning, clear cutting and harvesting methods shall be addressed within the Management Plan and performed in accordance with applicable BMP's.

   d. **Upland Harvesting.** There shall be no timber harvesting in the uplands, with the exception of (i) Pine Plantation Area, (ii) Improved
Pasture Area uplands, (iii) forested uplands with selective hardwood harvesting and selective palm tree harvesting, and (iv) residential clearing within the five (5) acre homesites. Any such timber harvesting shall be subject to the applicable BMP's.

e. **Salvage Harvesting.** Salvage harvesting following natural disasters, including but not limited to insect infestations or wildfires, shall be allowed in all areas of the Property in accordance with applicable BMP's. Following such disaster, all site preparation and re-establishment activities will be conducted according to the BMP's applicable to the type area of the Property affected, consistent with the condition of such area as it existed prior to the disaster event.

6. **Ranch Operation.** Grantor shall retain the right to ranch and maintain commercial cattle and equine operations in accordance with the Natural Resources Conservation Service ("NRCS"), local soil and water district guidelines, or State of Florida Department of Agriculture and Consumer Services ("DACS") BMP's and as provided for in the Management Plan. The NRCS, local soil and water district, or DACS BMP's shall establish the number of animal units that are acceptable on the Property. The maximum number of animal units will be determined by the NRCS, local soil and water district, or DACS and shall also include the number of horses allowed on the Property. The NRCS, local soil and water district, or DACS BMP's determination shall be maintained at the Grantee's headquarters office. The maximum carrying capacity in animal units may only be changed after consultation with NRCS, local soil and water district, or DACS BMP's. Provided, however, Grantor shall be entitled to maintain a cattle and equine stocking rate of a minimum of one (1) animal unit per ten (10) upland acres of the Property. Grantor shall have the right to repair and maintain existing fences and to fence and cross-fence as reasonably required for the conduct of ranch operations.

7. **Hunting, Fishing and Wildlife Viewing.** Grantor reserves the right to observe, maintain, photograph, introduce and stock native fish or wildlife on the Property, the use of the Property for hunting and fishing, and for wildlife viewing and study activities. The foregoing activities shall be conducted in compliance with applicable federal, state and local laws. Hunting shall be by the family members of Grantor's principals, the caretaker, and their guests only. In furtherance of game management and husbandry, Grantor may maintain the existing game fields on the Property as identified in the Easement Documentation Report. Planting in all game fields and food plots shall be limited to non-invasive, non-exotic species.

8. **Ponds and Restoration.** Grantor retains the right to excavate additional ponds or expand existing man-made ponds in the improved pasture, pine plantation, or native range upland area only, not to exceed a total of ten (10) acres of pond excavation for the entire Property. Grantor may excavate on the Property pursuant to a habitat or wetlands restoration or enhancement plan approved by Grantee. Areas of excavation under such an approved plan shall not be included within the foregoing ten (10) acre limitation. Grantor's sale of material produced as a result of excavation allowed under this paragraph is prohibited.

9. **Access.** Grantor retains the right to control and limit all access to the Property.

10. **Quiet Use and Enjoyment.** Grantor retains all rights and use of the Property not otherwise prohibited by the express terms of this Easement, including all rights of possession and quiet use and enjoyment.
IV. GRANTEE'S AFFIRMATIVE RIGHTS.
Subject to the rights and interests of Grantor herein reserved, Grantor gives, grants and conveys the following affirmative rights to Grantee:

1. Grantee shall have visual and physical access to the Property for the purposes of monitoring and enforcement of the terms and conditions of the Easement including, but not limited to, Article II, supra. Grantor shall furnish Grantee with reasonable advance notice of any physical inspection of the Property.

2. As provided in Article V, Grantee shall have the right to enforce, by proceedings at law or in equity, compliance with this Easement, including, but not limited to, the right to require restoration by Grantor of the Property to the pre-violation condition.

V. GENERAL PROVISIONS.
1. Grantee's Remedies. In the event that Grantee becomes aware of a violation of the terms of this Easement, Grantee shall give notice to Grantor in accordance with the notice provisions of Section V(8) hereof. Failure by Grantor to cause discontinuance, abatement, or commencement of corrective action within thirty (30) days after receipt of such notice shall entitle Grantee to bring an action at law or in equity before a court of competent jurisdiction to: (i) enforce the terms of this Easement; (ii) require the restoration of the Property to the condition that existed prior to such activity; (iii) recover liquidated damages in lieu of restoration of harvested timber, and in the event Grantor harvests or causes to be harvested timber in violation of this Easement, Grantor stipulates to liquidated damages for such violation in an amount equal to three hundred percent (300%) of the then fair market value of the harvested timber; provided, however, nothing herein shall be construed to alter or waive Grantor's right to seek restoration of any portions of the Property altered in violation of this Easement; (iv) enjoin such noncompliance by a temporary or permanent injunction in a court of competent jurisdiction; (v) seek a mandatory injunction in a court of competent jurisdiction to compel Grantor to take such corrective action as required to remedy the violation; and/or (vi) recover any damages arising from noncompliance with this Easement. Such damages, when recovered, may be applied by Grantee, in its sole discretion, to corrective action on the Property.

   a. If Grantee, in its discretion, determines that Grantor is affirmatively acting in fashion not allowed by this Easement, and further determines that circumstances require immediate action to prevent or mitigate significant damage to the conservation values of the Property, Grantee may pursue its remedies under this paragraph without prior notice to Grantor or without waiting for the period for cure to expire; provided, however, that Grantee shall provide notice to Grantor of the violation and Grantor's actions to prevent or mitigate said damage at the earliest feasible time.

   b. Grantee does not waive or forfeit the right to take such action as may be necessary to ensure compliance with this Easement by any prior failure to act and Grantor hereby waives any defenses of laches with respect to any delay by Grantee in acting to enforce any restriction or exercise any rights under this Easement.

   c. Nothing herein shall be construed to entitle Grantee to institute any enforcement proceedings against Grantor for any changes to the Property or plant or animal life thereon due to causes beyond Grantor's control, such as, without limitation, changes caused by fire, flood, storm, earthquake, major plant or animal disease, acts of God, or the unauthorized wrongful acts of third persons.
2. **Warranty and Title.** Subject to easements, rights of way, restrictions and other matters of record as of the date of this Easement, Grantor hereby warrants that Grantor is fully vested with fee simple title to the Property and will warrant and defend Grantee's interest in the same created by this Easement against the lawful claims of all persons.

3. **Taxes and Assessments.** Grantor agrees to pay when due any real estate taxes or other assessments levied on the Property. Upon request of Grantee, Grantor shall furnish to Grantee timely proof of such payment. In the event that Grantor fails to pay any tax or assessment on the Property when due, Grantee, subject to the notice and cure provision of this Easement, and in Grantee's absolute discretion, may pay such tax or assessment. Such payment by Grantee on behalf of Grantor shall bear interest at the statutory rate for money judgments then in effect in the State of Florida. Grantee's payment, together with interest, shall constitute a lien upon the fee interest of Grantor until repaid to Grantee with the priority date of such lien being the date of payment of the tax or assessment by Grantee. Such lien shall be enforceable by Grantee in the manner provided under the laws of the State of Florida for the foreclosure of mortgages on real property.

4. **Transfers by Grantor.** Grantor agrees to incorporate by reference the terms of this Easement in any deed or other legal instrument by which Grantor transfers any interest in all or a portion of the Property, including, without limitation, a leasehold or other possessory interest. The failure of Grantor to perform any act required by this subsection shall not impair the validity of this Easement or limit its enforceability in any way. Grantee shall have the right to record, from time to time, this Easement or a notice of the existence of this Easement in the Public Records of Volusia County, Florida.

5. **Modification.** The terms and conditions of this Easement may be modified only by mutual agreement, in writing, between the Grantor and the Grantee, or their respective successors or assigns.

6. **Attorneys' Fees and Costs.** In any dispute between Grantor and Grantee arising out of this Easement which results in the filing of a lawsuit, each party in such action shall bear its own fees and costs (including fees and costs of appeal) incurred by such party in regard to this dispute.

7. **Successors and Assigns.** The terms "Grantor" and "Grantee" as used herein shall include, without limitation, the successors and assigns of Grantor and Grantee. The covenants, terms, conditions and restrictions of this Easement shall be binding upon and inure to the benefit of such Grantor and Grantee and shall continue as a servitude running in perpetuity with the Property. Grantee shall only assign its rights and obligations of this Easement to an agency or political subdivision of the State of Florida charged to carry out the conservation purposes that this grant is intended to carry out.

8. **Notices.** Any notice, demand, consent, or communication that either party is required to give to the other hereunder shall be in writing and either served personally by hand-delivery, Next Day courier delivery, facsimile delivery with printed receipt confirmation, or by registered or certified mail, postage prepaid, addressed as follows:

   To the Grantor:   Melissa Beth Tulp, Trustee  
   Robert A. Wagner, Trustee  
   c/o Louis P. Tulip  
   Post Office Box 621204  
   Oviedo, Florida 32762  
   Telephone: (407) 366-6510  
   Fax: (407) 359-5385
To the Grantee:  
St. Johns River Water Management District  
Director, Division of Land Management  
Post Office Box 1429  
Palatka, Florida 32178-1429  
Telephone: (386) 329-4399  
Fax: (386) 329-4125  

and  
Volusia County  
Growth and Resource Management Department  
123 W. Indiana Avenue  
Room 201  
Deland, Florida 32720-4606  
ATTN: Land Acquisition Manager  
Telephone: (386) 740-5261  
Fax: (386) 740-5277  

or to such other address as any of the above parties shall from time to time designate by written notice, delivered pursuant to the terms of this paragraph. All such notices delivered hereunder shall be effective upon delivery, if by hand-delivery, next-day courier delivery or facsimile delivery with printed receipt confirmation, or within three (3) days from the date of mailing if delivered by registered or certified mail.

9. **Mediation.** From time to time, the terms and conditions of this Easement will require Grantor and Grantee to reach agreement on certain plans and courses of action described and contemplated herein. Grantor and Grantee agree to attempt to reach agreement on such plans and courses of action in good faith. In the event that, after a reasonable effort, Grantor and Grantee fail to reach agreement on a plan or course of action required to be undertaken pursuant to this Easement, then in that event, Grantor and Grantee shall submit such issue to mediation. Mediation shall be held at a time and place mutually agreeable to Grantor and Grantee provided, however, no event shall the mediation be scheduled later than thirty (30) days after notice provided by one party to the other requesting mediation on the issue in dispute. The mediation shall be held before a panel of three mediators chosen in the following manner: Grantor shall choose one mediator, Grantee shall choose one mediator, and the two mediators selected shall confer and choose a mutually acceptable third mediator having expertise in the subject matter in dispute. This mediation provision is intended to apply to good faith disputes regarding mutual decisions to be reached by Grantor and Grantee under the terms and conditions of this Easement. No event shall this mediation provision supplant or impair election of the remedies set forth in Section V(A) hereof.

10. **No Waiver of Regulatory Authority.** Nothing herein shall be construed to restrict or abrogate the lawful regulatory jurisdiction or authority of Grantee.

11. **Condemnation.** If the Property is condemned under the power of eminent domain, Grantor and/or Grantee shall be entitled to compensation in accordance with applicable law to the extent and in the proportion that the rights of each party are affected by any such act of condemnation.

12. **Environmental Indemnification.** Grantor hereby indemnifies and agrees to save, defend and hold harmless Grantee from and against any and all liabilities, claims, demands, losses, expenses, damages, fines, fees, penalties, suits, proceedings, actions, costs and other liabilities (whether legal or equitable in nature including, without limitation, attorneys fees and costs) claimed or asserted by or on behalf of any person or governmental authority and caused by a violation by Grantor (or Grantor's agents, employees, invitees or guests) of Environmental Laws. Provided however, in the event that Grantee is named or joined as a party in a suit or proceeding alleging a violation of Environmental Laws (or a violation by Grantor's
agents, employees, invitees or guests. Grantee shall give Grantor timely notice of the suit or proceeding. Upon receipt of such notice, Grantor shall tender a defense of Grantor in such action or proceeding. Grantor shall have the right to reasonably approve Grantor's selection of counsel for such defense. So long as Grantor tenders and maintains such defense on behalf of Grantor, the indemnity provisions of this Paragraph shall not extend to attorneys' fees and costs incurred or paid by Grantor in defense of such suit or proceeding if such fees and costs are independent of the defense tendered by Grantor. The term "Environmental Law" shall mean all federal, state and local laws including statutes, regulations, ordinances, codes, rules and other governmental restrictions and requirements relating to the environment or hazardous substances including, but not limited to, as amended, the Federal Solid Waste Disposal Act ("SWDA"), the Federal Clean Air Act ("CAA"), the Federal Clean Water Act ("CWA"), the Federal Resource Conservation and Recovery Act of 1976 ("RCRA"), the Federal Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA"), the Federal Superfund Amendments and Reauthorization Act of 1986 ("SARA"), the Federal Emergency Planning and Community Right-To-Know Act ("EPCRA"), the Federal Insecticide, Fungicide and Rodenticide Act ("FIFRA"), the Toxic Substances Control Act ("TSCA"), Chapters 161, 253, 373, 376, and 463, Florida Statutes, and the rules and regulations of the (i) United States Environmental Protection Agency, (ii) the Florida Department of Environmental Protection, and (iii) the St. Johns River Water Management District, now or at any time hereafter in effect.

13. **Best Management Practices.** As used in this Easement, the term "Best Management Practices" ("BMP’s") shall be deemed to be those Best Management Practices that are approved by any of the following: Florida Department of Agriculture and Consumer Services ("FDACS"), University of Florida Institute of Food and Agricultural Sciences ("IFAS"), Natural Resources Conservation Service ("NRCS"), the local soil and water conservation district, or in the absence of the foregoing, those BMP’s then utilized as the prevailing practices for commercial ranching and silviculture operations in Florida.

14. **Unity of Interest and Coordinating Grantee.** Grantor shall not be obligated, by virtue of the division of ownership of the easement interest between District and County, to undertake or suffer any duplication of burdens or compliance imposed by this Easement. All administration of Grantor’s rights, remedies and functions under this Easement shall be performed by and through a "Coordinating Grantee", including, without limitation, the Right of First Refusal. District shall be designated as the Coordinating Grantee until such time as notice of a substitute Coordinating Grantee is provided to Grantor by District and Volusia County.

VI. **EASEMENT DOCUMENTATION REPORT.** Grantor and Grantee acknowledge and agree that an Easement Documentation Report (the "Report") of the Property shall be prepared within 180 days of the date hereof by the District. The Report shall be approved by Grantor and Grantee as an accurate representation of the physical, ecological, and biological condition of the Property at the time of the grant of this Easement. The Report, signed by Grantor and Grantee, will be placed and retained on file with Grantee as a public record and a copy will be provided to Grantor. In the event a controversy arises with respect to the nature and extent of the physical, ecological or biological condition of the Property, the parties may utilize the Report and any other relevant documents, surveys, photographs or other information to assist in the resolution of the controversy. The Report shall serve, however, as the principal base line for the biological, ecological, and physical condition of the Property on the date of this Easement.

VII. **MANAGEMENT PLAN AND ANNUAL REPORT.**

1. **Management Plan.** Grantor and Grantee acknowledge that a Management Plan (the "Management Plan") for the Property has been prepared, or will be prepared, within 180 days of the recordation in the public records of this Easement. The Management Plan shall be prepared by Grantor and shall relate to Grantor’s uses, operations and improvements upon the Property as reserved or allowed to Grantor.
by this Easement. Grantor shall prepare the Management Plan in consultation with the
local soil and water district, or the Natural Resources Conservation Service, or
DACS, setting forth Grantor’s current plans for cattle, equine and silviculture
operations, hunting and related activities upon the Property. The Management Plan
shall specify that these activities are to be conducted upon the Property in accordance
with the applicable BMP’s. The accepted Management Plan shall be subject to
revision by addenda submitted by Grantor no more frequently than annually, but no
less frequently than every five (5) years. The Management Plan shall be consistent
with the purposes of this Easement. In no event shall the Management Plan allow
or contemplate activities that are not allowed or reserved by this Easement.

2. Annual Report. Once or before March 31, or such other mutually agreeable date,
of each year, Grantor shall prepare and furnish to Grantee an annual report, in a
format reasonably acceptable to Grantee, including (i) documenting Grantor’s
compliance with the Management Plan and the Easement for the preceding calendar
year period, (ii) stating the Grantor’s activities upon and use of the Property during
the preceding calendar year period, and (iii) providing for the Grantor’s proposed
activities upon and use of the Property during the current/upcoming calendar year
period.

VIII. DUTY OF CARE. Grantor and Grantee recognize and acknowledge the natural,
scenic, aesthetic, ecological, and hydrological character of the Property and have the common
purpose and intent of the conservation and preservation of the Property in perpetuity. Accordingly,
Grantor hereby acknowledges a continuing duty of care to Grantee imposed by this Easement upon
Grantor to carry out the intent and purpose of this Easement in regard to Grantor’s ownership and
occupancy of the Property.

IX. RIGHT OF FIRST REFUSAL. In the event that Grantor receives an offer to
purchase the Property, Grantee shall have the right of first refusal (“Right of First Refusal”) to
purchase the Property upon the following terms. In the event that Grantor receives an offer to
purchase the Property which Grantor has decided, in its sole discretion, to accept, Grantor shall
notify Grantee in writing (the “Notice of Offer”) of the terms of the offer. If Grantee wishes to
purchase the Property upon the terms set forth in the Notice of Offer, then Grantor shall send to
Grantee, within ten (10) days after receipt of the Notice of Offer (the “Acceptance Deadline”), notice
in writing (the “Notice of Purchase”) that Grantee has elected to purchase the Property upon the
terms set forth in the Notice of Offer. Thereafter, the parties shall mutually execute and deliver a
purchase and sale contract at the price and on the terms set forth in the Notice of Offer. If Grantee
fails to give the Notice of Purchase on or before the Acceptance Deadline, Grantee’s Right of First
Refusal shall expire as to the immediate offer only and Grantor shall be free to sell the Property to
the party which has made the offer. Grantor shall have the right (including without limitation the
principals of Grantor existing as principals as of the date of this Easement), and the heirs and lineal
descendants of same, shall have the right to convey one to another and to their heirs and lineal
descendants perpetually free of the Right of First Refusal and the notice requirements hereof.

[Remainder of page intentionally left blank]
IN WITNESS WHEREOF, the parties hereto have duly executed this Easement, to become effective as of the day and year first above written.

Signed, Sealed and Delivered
In the Presence of:

Robert A. Wagner, Trustee
Robert A. Wagner Revocable Trust dated June 3, 1993

Melissa Beth Tulp, Trustee
Melissa Beth Tulp Trust Agreement dated February 26, 2002

"Grantor"

STATE OF FLORIDA
COUNTY OF Orange

I HEREBY CERTIFY that the foregoing instrument was acknowledged before me this 26th day of February, 2003, by ROBERT A. WAGNER, AS TRUSTEE OF THE ROBERT A. WAGNER REVOCABLE TRUST DATED JUNE 3, 1993, on behalf of the Trust, who is personally known to me or produced the certificate of identification.

[Signature]
Notary Public-State of Florida
My Commission Expires:

STATE OF FLORIDA
COUNTY OF Orange

I HEREBY CERTIFY that the foregoing instrument was acknowledged before me this 26th day of February, 2003, by MELISSA BETH TULP, AS TRUSTEE OF THE MELISSA BETH TULP TRUST AGREEMENT DATED FEBRUARY 26, 2002, on behalf of the Trust, who is personally known to me or produced the certificate of identification.

[Signature]
Notary Public-State of Florida
My Commission Expires:
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, a public body existing under Chapter 373, Florida Statutes.

By: DUANE L. OTTENSTROER
Title: Chairman

Attest: ROBERT CLAYTON ALBRIGHT
Title: Secretary

"Grantee"

For use and reliance only by
St. Johns River Water Management District,
Legal Form and Content Approved:
Wright, Fausett, Moorehead & Brown, P.A.

By: (Signature)
Donald F. Wright, Esq.

STATE OF FLORIDA
COUNTY OF DUVAL

I HEREBY CERTIFY that the foregoing instrument was acknowledged before me this 13th day of February, 2003, by DUANE L. OTTENSTROER, as Chairman of the governing board of the St. Johns River Water Management District, on behalf of the District, who is personally known to me and who did not take an oath.

[Signature]
NOTARY PUBLIC, State of Florida
My Commission Expires: 10/29/04

STATE OF FLORIDA
COUNTY OF DUVAL

I HEREBY CERTIFY that the foregoing instrument was acknowledged before me this 11th day of January, 2003, by ROBERT CLAYTON ALBRIGHT, as Secretary of the governing board of the St. Johns River Water Management District, on behalf of the District, who is personally known to me and who did not take an oath.

[Signature]
NOTARY PUBLIC, State of Florida
My Commission Expires: 10/25/04

EXHIBIT "A"
Legal Description

Palm Bluff Conservation Area 63 November 2010- Land Management Plan
VOLUSIA COUNTY, a political subdivision of the State of Florida

Print Name: Jessica Cortes

Print Name: Jessica Cortes

STATE OF FLORIDA
COUNTY OF VOLUSIA

I HEREBY CERTIFY that the foregoing instrument was acknowledged before me this 3rd day of March, 2003, by RAY W. PENNEBAKER, as Deputy County Manager of Volusia County, Florida, a political subdivision of the State of Florida, on behalf of Volusia County, who is personally known to me.

Notary Public, State of Florida
My Commission Expires:
EXHIBIT “A”

ACORN LAKES UNRECORDED PLAT - PARCELS 1 THROUGH 9

A portion of Section 32, Township 18 South, Range 32 East, and a portion of Section 5, Township 19 South, Range 32 East, Volusia County, Florida, more particularly described as follows:

From the Southwest corner of said Section 32, run S87°55'11"E along the South line of said Section 32, a distance of 1550.06 feet; thence departing said line, N02°04'49"E 181.24 feet to a point on the centerline of that certain 60' ingress and egress easement as described in Official Records Book 2264, Page 1097, in the Public Records of Volusia County, Florida and the POINT OF BEGINNING; thence run S42°17'17"E a distance of 239.50 feet to the P.C. of a curve concave Northeast and having a radius of 228.54 feet; thence run Southwesterly along the arc of said curve through a central angle of 21°25'39" a distance of 197.66 feet to the P.T. of said curve; thence S67°40'56"E a distance of 100.00 feet to the P.C. of a curve concave Southeast and having a radius of 1985.24 feet; thence from a tangent bearing of N26°19'04"E, run Northeasterly along the arc of said curve through a central angle of 18°09'21" a distance of 629.08 feet to the P.T. of said curve; thence N44°28'25"E a distance of 200.00 feet to the P.C. of a curve concave Southeast and having a radius of 1705.20 feet; thence run Easterly along the arc of said curve through a central angle of 55°07'23" a distance of 1640.84 feet to the P.T. of said curve; thence S80°24'12"E a distance of 639.24 feet to the P.C. of a curve concave Southwest and having a radius of 639.24 feet; thence run Easterly along the arc of said curve through a central angle of 17°46'35" a distance of 198.39 feet to the P.R.C. of a curve concave to the Northeast and having a radius of 884.99 feet; thence run Easterly along the arc of said curve through a central angle of 22°44'46" a distance of 351.34 feet to the P.C. of a curve concave to the Northwest and having a radius of 374.56 feet; thence run Easterly along the arc of said curve through a central angle of 35°07'42" a distance of 216.37 feet to the P.R.C. of a curve concave Southeast and having a radius of 260.79 feet; thence run Easterly along the arc of said curve through a central angle of 30°29'46" a distance of 138.81 feet to the P.T. of said curve; thence S87°59'59"E a distance of 303.73 feet to a point on the Easterly line of said Section 32; thence run N02°00'48"E 1658.77 feet along said Easter line to the Southeast corner of the Northeast 1/4 of said Section 32; thence run N02°02'33"E 2606.52 feet to the Northeast corner of the Northeast 1/4 of said Section 32; thence run N88°02'30"W 1802.75 feet more or less along the North line of said Section 32 to a point on the Easterly right of way line of State Road 415; thence run along said Easterly right of way line S55°59'57"W 340.65 feet; thence S35°58'26"W 1993.99 feet to the point of curvature of a curve concave to the Southwest and having a radius of 2914.93 feet and a central angle of 11°28'16"; thence run Southwesterly along the arc of said curve S83°59'59"E a distance of 856.12 feet more or less to a point on the East line of the Southwest Quarter of the Southwest 1/4 of said Section 32; thence run S01°43'37"W 1094.56 feet along said East line to the Southeast corner of the Southwest 1/4 of the Southwest 1/4 of said Section 32; thence run S47°55'18"E 436.05 feet along the Northerly line of Parcel 10 of the UNRECORDED PLAT OF ACORN LAKES; thence run S08°59'56"W 809.41 feet along the West line of said lot 10 to the POINT OF BEGINNING.

I, SS AND EXCEPT all lands lying within that certain ingress, egress, drainage and utility easement as recorded in Official Records Book 2264, Page 1097, Public Records of Volusia County, Florida.

TOGETHER WITH an easement for ingress and egress over and across the Southwesterly 30 feet of the following described property:

A portion of Section 5, Township 19 South, Range 32 East and a portion of Section 32, Township 18 South, Range 32 East, Volusia County, Florida, more particularly described as follows:

From the Southwest corner of said Section 32 run S87°55'11"E along the South line of said Section 32, a distance of 2137.78 feet; thence departing the South line of said Section 32, run N02°04'49"E, a distance of 156.90 feet to the POINT OF BEGINNING and the P.C. of a curve concave Southeast and having a radius of 1985.24 feet; thence from a tangent bearing of N36°16'12"E run Northeasterly along the arc of said curve through a central angle of 08°12'13" a distance of 264.24 feet to the PT.
of said curve; thence N44°28'25"E a distance of 200.00 feet to the P.C. of a curve concave Southeast and having a radius of 1705.20 feet; thence run Northeasterly along the arc of said curve through a central angle of 19°09'57" a distance of 570.40 feet to the P.T. of said curve; thence from a tangent bearing of N61°38'42"E run S34°22'52"E a distance of 1803.70 feet; thence S39°16'05"W a distance of 200.00 feet; thence N60°50'29"W a distance of 1933.67 feet to the POINT OF BEGINNING.

AND TOGETHER WITH an ingress/egress, drainage and utility easement as described in Official Records Book 2264, Page 1097, Public Records of Volusia County, Florida.

TOGETHER WITH

ACORN LAKES RANCHES PARCEL 33

A portion of Section 32, Township 18 South, Range 32 East, and a portion of Section 5, Township 19 South, Range 32 East, Volusia County, Florida, more particularly described as follows:

From the Southeast corner of said Section 32, run N02°00'48"E along the East line of said Section 32, a distance of 410.00 feet to the POINT OF BEGINNING; thence continue N02°00'48"E along the East line of said Section 32 a distance of 580.00 feet; thence departing the East line of said Section 32, run N87°59'59"W a distance of 303.73 feet to the P.C. of a curve concave Southeast and having a radius of 260.79 feet; thence run Westerly along the arc of said curve through a central angle of 30°29'46" a distance of 138.81 feet to the P.R.C. of a curve concave Northwest and having a radius of 374.56 feet; thence run Westerly along the arc of said curve through a central angle of 33°97'42" a distance of 216.57 feet to the P.C.C. of a curve concave Northeast and having a radius of 885.00 feet; thence run Westerly along the arc of said curve through a central angle of 22°44'46" a distance of 351.34 feet to the P.R.C. of a curve concave Southwest and having a radius of 639.24 feet; thence run Westerly along the arc of said curve through a central angle of 17°40'55" a distance of 198.39 feet to the P.T. of said curve; thence from a tangent bearing of N80°24'12"W, run S02°43'07"W a distance of 1431.04 feet; thence N58°08'36"E a distance of 1432.15 feet to the POINT OF BEGINNING.

LESS AND EXCEPT all lands lying within that certain Ingress, Egress, Drainage and Utility Easement as recorded in Official Records Book 2264, Page 1097, Public Records of Volusia County, Florida.

TOGETHER WITH an ingress/egress, drainage and utility easement as described in Official Records Book 2264, Page 1097, Public Records of Volusia County, Florida.
EASEMENT DOCUMENTATION REPORT
FOR
W.T. RANCH
VOLUSIA COUNTY, FLORIDA

Prepared by:
St. Johns River Water Management District
January 2004
W.T. RANCH CONSERVATION EASEMENT
Easement Documentation Report

Location: Volusia County
Total Acres: 349.4

The attached baseline documentation report, Pages 1-4 and Figure pages a-d, written for the W.T. Ranch Conservation Easement, is a description of the conservation easement property. The report accurately describes all existing physical improvements and natural features on the property.

[Signature]
Grantor

1-30-04
Date

[Signature]
Grantee, St. Johns River Water Management District

2-24-04
Date
Prohibitions/Restrictions

1. Uses - With the exception of what is allowed under Article III, there is no commercial, agricultural, or industrial activity allowed, nor any right of passage for such use. No residential land development is allowed except for that which is allowed under Article III.

2. Roads - No additional roads, or paving of existing roads, however, Grantee may maintain the existing roads and trails and may construct two all weather unpaved roads to access the additional homesite areas. Grantee may also relocate an existing all weather roads to accommodate the relocation of a homesite. Road construction may include ancillary ditches, culverts and crossings providing the hydrology is not altered. Typical road construction and maintenance activities may include discing, plowing, grading, side-sloping, excavation, and the application of clay, gravel, and shell or other like material. Grantee may use the spoil from any pond excavation. Grantee may maintain existing fire lines and breaks and may plow new fire lines and breaks as reasonably required.

3. Waters - No hydrological modifications or activities, which cause substantial or permanent degradation to water quality or quantity. Grantee retains right to negotiate the sale or transfer or public water supply well sites. Grantee may maintain existing culverts, ditches, drains and swales. Grantee may install wells under activities in Article III.

4. Improved Pasture - No conversion of natural areas to improved pasture except as is allowed in Article III.

5. Construction - No construction of or placing of buildings, utilities, infrastructure, or roads except as is allowed in Article III. Construction and maintenance of fences is allowed, but must not substantially impede movement of wildlife.

6. Dumping - No dumping, placing of trash, solid or liquid waste, hazardous materials, wastes or substances.

7. Concentrated Animal Feeding Operation - No concentrated feeding for bovine, swine, poultry or other animals.

8. Exotics and Invasive Species - Shall not plant, and must use reasonable efforts to control the spread of nuisance, exotic and non-native invasive vegetation on the property, including planting in the game food plots and the improved pasture.

9. Pesticides/Herbicides - Must be applied according to BMP's and label.

10. Fertilizer - Must be applied according to Article III and BMP's.

11. Mining and Excavation - No mining, excavation, filling or dredging, except as allowed in previous paragraphs. May not sell any spoil.

12. Commercial Signs or Billboards - Except for signs marketing or identifying the property or allowed activities thereon, no commercial signs or billboards, temporary
or permanent, constructed, placed or maintained. Total square footage of all allowed signage shall not exceed fifty (50) square feet.

Rights Reserved to Grantor (Article III)

1. Fee Simple Title - Grantor has retained underlying fee simple title.

2. Sale of Property - Grantor has the right to sell, rent or mortgage the property provided the maximum number of parcels divided or sold is three (3). Conservation easement goes with subdivisions.

3. Homesteads and Buildings - Within each subdivided parcel grantor may construct structures not to exceed more than 10,000 square feet of rooftop. The structures shall be located in a 5-acre footprint. Semi-affixed structures shall not be included within the footprint limitations. Within each footprint, owner may plant and maintain sod, ornamental trees, shrubs and fruit bearing trees for landscaping purposes provided such plants are not listed as Category I or II invasive plants by the Florida Exotic Pest Plant Council.

4. Improved Pasture - Pastures currently improved for cattle and equine operations can continue to be used. Grantor may plant cover crops in existing pasture areas. Grantor may also manage the improved pasture areas as a pine plantation or native range.

5. Silviculture and Timber Harvesting - Grantor shall have the right to conduct commercial forestry operations and timber harvest.
   a. Wetland Harvesting - Except for salvage harvesting under 5(e), no harvesting in wetlands.
   b. Pine Plantation Harvesting - Harvesting and planting of existing pine plantation is allowed. Pine plantation areas can be managed as native range, however, they cannot be converted to improved pasture.
   c. Management of Pine Plantation - Must follow BMP’s and allowed to burn, mow, rotary chop, and disk.
   d. Upland Harvesting - No timber harvesting in uplands except in the pine plantation area, improved pastures, forested uplands with selective hardwood harvesting and selective palm tree harvesting, and residential clearing within the 5-acre footprint.
   e. Salvage Harvesting - Salvage harvesting allowed following natural disasters.

6. Ranch Operations - Grantor retains right to ranch and maintain commercial cattle and equine operations. Allowed a minimum of one animal unit per ten (10) upland acres.

7. Hunting, Fishing, Wildlife Viewing - Grantor reserves right to observe, maintain, photograph, introduce and stock native fish or wildlife. Hunting shall be by family members and guests only. May maintain existing game food fields and plots.

8. Ponds and Restoration - Grantor retains right to excavate additional ponds or expand existing man-made ponds in the improved pasture, pine plantation, or native range uplands only, not to exceed a total of ten (10) acres for the entire property. Habitat or wetland enhancement projects are not included under the ten-acre limitation.
Grantee’s Affirmative Rights
1. Grantee shall have visual and physical access to the property for the purposes of monitoring and enforcement with advance notice.
2. Right to enforce conservation easement limitations.
3. Grantee has the right of first refusal in the event that the Grantor receives an offer to purchase the property.
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CONSERVATION EASEMENT DOCUMENTATION REPORT

PROJECT SUMMARY

The St. Johns River Water Management District Governing Board on February 28, 2003, approved a less-than-fee acquisition of the 349.3-acre W.T. Ranch property in Volusia County. The property is located within sections 5 and 32, Townships 18 and 19 South; and Range 32 East, along the southeast side of State Road 415, northeast of Osteen (Figure 1). The District partnered with Volusia County for the purchase of the conservation easement, with 75% of the cost being paid by the District and 25% by Volusia County. This acquisition is designated in the District’s Florida Forever Work Plan as part of the Volusia Conservation Corridor and provides for the protection of the area’s water resources. Increasing development pressures from the Orlando metropolitan area and Deltona make acquisition of development rights in this area particularly important. Approximately 213 acres of the property are uplands and approximately 136 acres are wetlands. Upland portions of the property consist of mesic flatwoods, oak hammock, xeric shrub, and a small amount of pasture. The wetlands consist of a mosaic of freshwater marshes and forested wetlands.

TERMS AND CONDITIONS OF THE CONSERVATION EASEMENT

The purpose of the conservation easement is to conserve the property as in its existing condition, as a working ranch and silviculture operation, to provide sustainable and relatively natural habitat for fish, wildlife, plants and the ecosystem as a whole; and to preserve the property as productive timberland and ranch land that sustain for the long term the economic and conservation values of the current uses of the property.

The Seller will retain fee simple ownership in the Property. The Buyer’s interest will be in the form of a recorded deed noting the perpetual conservation easement. All rights concerning the Property will be transferred to the Buyer, except those retained by the Seller in the conservation easement. The perpetual conservation easement will run with the land and be binding on the heirs, assigns, legal representatives, and successors in title of the Seller (Exhibit A to be added after closing).

PROPERTY ASSESSMENT

The W.T. Ranch property lies within the Talbot (marine) terrace, formed by the retreat of the sea during the Pleistocene. This region, especially around Lake Ashby, is still predominantly divided into small ranches and has retained its rural character and supports a landscape dominated by a mosaic of pine flatwoods, swamps, marshes, native prairies and improved pastures. However, most of these ranches have been managed for wildlife as well as cattle.

Habitat Profile

The W.T. Ranch conservation easement area is mostly intact natural plant communities with some disturbance in the northeast corner where a lodge and fish pond are located, in the
The southeast corner of the property where uplands have been converted to pasture, and in areas where the timber has been harvested. The property is a mosaic of uplands and wetlands including mesic flatwoods, oak hammocks, cypress domes and hardwood swamps. The location of these upland and wetland communities are depicted in Figure 2. Approximately 60% of the conservation easement property is uplands and 40% wetlands. There are a number of areas that contain planted pine trees.

The vegetative composition of the wetlands are water oak (Quercus nigra), wax myrtle (Myrica cerifera), cabbage palm (Sabal palmetto), and cypress (Taxodium sp.). The uplands consist mostly of slash pine (Pinus elliottii), some longleaf (Pinus palustris), wiregrass (Aristida beyrichiana), saw palmetto (Serenoa repens), gallberry (Hex glabra) and various native herbs and grasses. Stormwater and surface water flows south and east towards the ditches and canals around the property that connect to Deep Creek and Acorn Fish Lake.

**Soil Types**

There are nine primary associations of soil types on the conservation easement including Placid fine sand depressional; Daytona sand, 0 to 5 percent slopes; Myakka fine sand, Myakka-St. Johns complex, Canaveral sand, 0-5 percent slope; Smyrna fine sand, Samsula muck, St. Johns fine sand, and Imnokalee sand, depressional. These soils are generally described as nearly level and poorly drained. They are often found in depressions bordering swamps, sandhills, flatwoods, and drainage-ways. The water table is within 30 inches of land surface during most months of the year in all of these soil types, and at or above land surface for part of the year in most. These soils are often found in use for pine production or as improved pasture.

**Wildlife**

Species found on the property include white-tailed deer, wild turkey, feral hogs, gray squirrels, sandhill cranes, southeastern kestrels and cattle egrets.

**Built Structures and Roads**

Based on a few field trips, there appears to be only two structures located on the property; a hunt lodge measuring approximately 2,500 square feet, and a barn measuring approximately 1,440 square feet. There is one well located near the hunt lodge that provides potable water. The grantor may subdivide the property into three (3) parcels, however, structures are limited to a total of 10,000 square feet per subdivided area and this includes the existing structures. There are few roads located on the conservation easement and they total XX miles in length.

**Ponds and Restoration**

The conservation easement currently has only one pond (Figure 4) located by the lodge that appears to be approximately ½ acre in size. The Grantor has retained the right to excavate ponds in the improved pasture or native range upland areas only, not to exceed a total of ten (10) acres for the entire property. This may include increasing the size of the existing pond. The Grantor may excavate ponds on the property pursuant to a habitat or wetlands restoration or
enhancement plan approved by the United States Department of Agriculture Natural Resources Conservation Service or Grantee. The ponds excavated under a habitat wetland restoration or enhancement plan would not be included in the 10-acre limitation on ponds.

**Improved Pastures and Pine Plantation Area**

There is one area of improved pasture located in the southeast corner of the property (Figure 4). There are a number of areas on the conservation easement that are periodically harvested and planted (Figure 4). The Grantor may also maintain these areas as native range. Upland harvesting is restricted to the pine plantation areas, improved pasture area, forested uplands with selective hardwood harvesting and selective palm tree harvesting, and residential site clearing (5 acre footprint). Salvage harvesting is allowed in the uplands and wetlands following natural disasters only, otherwise there is no harvesting allowed in the wetlands.

**Game Fields/Food Plots**

Grantor has indicated that only the roadways and fire lines are used for food plots.

**Archeological Sites**

According to the Florida Division of Historical Resources, the conservation easement area has no historical sites or cultural sites.
REFERENCES


Florida Natural Areas Inventory. 1990. *Guide to Natural Communities of Florida.* Tallahassee, FL.

Personal Communications with District Staff and the Tucker family.

United States Department of Agriculture, Soil Conservation District. *Soil Survey of Volusia County, FL.*

FIGURES
ADDENDUM 4 – FDOT Mitigation Plan and Map

The District’s FDOT Mitigation Program (F.S. 373.4137) funded the acquisition of 993 acres of the PBCE for the purposes of mitigation. The mitigation would offset permitted wetland impacts associated with these FDOT roadway projects that occur within SJRWMD Regulatory Basin 18 (St. Johns River-Canaveral Marshes to Wekiva). In order to provide the mitigation for the functional loss of the permitted wetland impacts, the District will implement preservation, enhancement and long-term management of the 993 acres.

Objectives
The proposed management goals include the reestablishment of historic habitat communities through a prescribed burn schedule, ceasing silviculture and cattle operations, selective pine thinning within the pine plantation areas, replanting of native communities, and the control of nuisance and exotic species. Future goals set forth to promote the restoration efforts are detailed below. The attached figure depicts the specific mitigation objectives.

Preservation & Enhancement

A large part of the mitigation value of the PBCA is the preservation of floodplain swamp, basin marsh, depression marsh, dome swamp, mesic flatwoods, and pasturelands. The enhancement component of the PBCA will be the active management which primary entails the return of fire intervals appropriate for each community type.

Pine Plantation-Flatwoods Restoration

The management of the plantation areas will include implementing prescribed burn plans, selective thinning of slash pine and the planting of longleaf pine.

Pasture-Upland and Wet flatwoods Restoration

The cattle were removed from the pasture areas of the mitigation portion of the PBCA in the spring of 2010. The pasture areas within the mitigation parcel will initially be planted with dense slash and longleaf pine to shade out the bahia grass. Eventually the pines will be thinned and with a combination of a burn regime are anticipated to regain the characteristics of natural flatwood communities within 25-30 years.

Exotic Species Control
The PBCA 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. The District will conduct treatment activities necessary to attain a maintenance control level within one year and anticipates conducting a minimum of two (2) treatment events each year.
thereafter, monitoring/re-treating previously treated areas and identifying new/additional infestations.

Performance Standards
The SJRWMD performance standards for the PBCA include the following:

a. nuisance/exotic species controlled and kept less than 5% of the total percent cover;

b. increase or stable appropriate species diversity;

c. maintain the ecological conditions so that the enhancement goals are met for each of the specified community types

Performance standards will be achieved by the end of the 5-year monitoring period discussed below.

Monitoring
Monitoring requirements: The District will provide time–zero monitoring report as well as 5 years of annual monitoring reports documenting the enhancement activities on the mitigation area. The annual monitoring reports will include photographic monitoring stations, a qualitative assessment documenting whether performance standards are being met, dates of maintenance events, and proposed corrective actions (if needed). The SJRWMD will provide a Five Year update of the Land Management Plan, which will address any adjustments to the management goals.
ADDENDUM 5 – Fire Management Plan

Palm Bluff Conservation Area

FIRE MANAGEMENT PLAN

PREPARED BY

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
DIVISION OF LAND MANAGEMENT
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 Palm Bluff Conservation Area (PBCA).

**Introduction and Objectives**

The PBCA covers approximately 3,321 acres in Volusia County along a portion of Deep Creek. This conservation area is located in numerous sections of Townships 18 and 19 South and Range 32 East.

The property is located State Road (SR) 415 near the town of Osteen and the City of Deltona. A small portion of the southern boundary of the conservation area fronts Osteen Maytown Road. 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 increases the risk for catastrophic wildfires. The goals for the implementation of fire management activities within the conservation area include:

- Reduction of fuel loads through the application of dormant season burns to decrease potential risk of damaging wildfires
- Reintroduction of growing season burns to encourage the 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

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 PBCA.
Fire Return Interval

The general frequency to which fire returns to a community type under natural conditions 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. Table 1 and the following 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.

<table>
<thead>
<tr>
<th>Community Type</th>
<th>Fire Return Interval*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floodplain Swamp</td>
<td>This is not a fire-adapted community.</td>
</tr>
<tr>
<td>Basin Swamp</td>
<td>Infrequent – Edges may burn with adjacent communities.</td>
</tr>
<tr>
<td>Dome Swamp</td>
<td>3-150 years with the lower intervals along edges.</td>
</tr>
<tr>
<td>Basin Marsh</td>
<td>This community burns with adjacent communities.</td>
</tr>
<tr>
<td>Depression Marsh</td>
<td>This community burns with adjacent communities.</td>
</tr>
<tr>
<td>Wet Flatwoods</td>
<td>1-10 years.</td>
</tr>
<tr>
<td>Mesic Flatwoods</td>
<td>2-10 years.</td>
</tr>
<tr>
<td>Scrubby Flatwoods</td>
<td>5-15 years.</td>
</tr>
<tr>
<td>Scrub</td>
<td>5-80 years.</td>
</tr>
<tr>
<td>Pine Plantation**</td>
<td>2-10 years.</td>
</tr>
</tbody>
</table>

*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.

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 and wet flatwoods are the most prevalent fire adapted natural community types found within the PBCA. This includes the pine plantations, which are bedded and planted in slash pine (*Pinus elliottii*). Shrub and groundcover components include a coverage of herbaceous and shrub components including some wiregrass and saw palmetto and will contribute to the spread of fire. In most areas of mesic flatwoods, the shrub layer will be the primary carrier of fire. Some of the pine plantations where excessive shading has caused the suppression of the shrub and groundcover layers, pine litter will be the primary carrier of fire.

Scrub and scrubby flatwoods occur on the western portions of the property and are intermixed. Portions of these areas are altered from past land uses and include fallow game food plots and the remnants of an airstrip. More intact examples of these communities include a sparse overstory of sand pine and a thick, contiguous shrub layer, which will be the primary carrier of fire.
Fire management within the remaining pyric plant communities (below) will be in conjunction with the associated flatwoods and scrub communities. These plant communities will burn as site conditions permit during the implementation of controlled burns in adjacent plant communities. Additionally, these areas will not be excluded from fire activities unless warranted by safety or smoke management issues.

Depression and basin marshes are fire-adapted communities. Though fire may not carry entirely across each marsh during every burn, it is an important factor in the maintenance of the edge habitats surrounding them. These marshes are embedded within the uplands across the conservation area. In general, depression and basin marsh fires are carried through the herbaceous layer. Many of these marshy areas have been disturbed by past land use and are small, 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.

Dome swamps are scattered throughout the conservation area. As site conditions and safety permits, fire will be allowed to burn into the domes in order to maintain the characteristic open edges of the domes while preventing excessive peat accumulation.

The basin swamp is not a primary target for fire management at the PBCA; however, this natural community grades into wet and mesic 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 in the westernmost portions of the property, in the area of the conservation easement, are high. Fuel loads are moderate across the central portions of the property and low in the areas prescribed burned in June 2010. Heavy duff and needle litter accumulation in the unburned portions of the property 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 anticipates the transition to growing season burns to occur only after a sufficient reduction of fuel levels and tree growth is achieved.

Most of the upland acres east of the powerline have row-based silviculture present in various stages of development. It is not the purpose of this prescribed fire program to harm existing mature pine within the conservation area and furthermore, extra caution will be taken when applying fire to a pine plantation, especially a young plantation where the height to the crown is short. Severe scorch can detrimentally harm or even cause mortality in young pine trees. This type of damage will be mitigated by burning during the dormant season when the trees are not actively growing and the meristem areas are protected by a needle layer.

Prescribed fire should not be applied to a recently thinned area of pines. A period of at least one (1) growing season, post harvest will allow the residual trees adequate recovery time. The implementation of prescribed fire inside the recovery window may further stress, weaken, and potentially cause mortality on the remaining trees.

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, natural communities, staff and equipment hours, and contractor hours. 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. Since acquisition, of 488 acres have been prescribed burned. The prescribed fire was accomplished within the pine plantations east of the powerline. Fuel accumulation (dead and live) across the unburned flatwoods is moderate and heavy along SR 415. This accumulation of fuels has the potential to produce a tremendous amount of smoke as areas are burned. As 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.

While the PBCA has an acceptable smoke shed in which to place a smoke column from a prescribed fire, there are smoke sensitive areas that surround the conservation area and
may affect the smoke management of each burn unit. Smoke management is a limiting factor in the application of prescribed fire with in the conservation area. Figure 2 illustrates smoke sensitive areas in relation to the PBCA. As development increases in the area, fire management will become more difficult. Increasing daily traffic on SR 415, Osteen Maytown Road and other local roads will further impair the District’s ability to implement prescribed burns at the appropriate fire return intervals within the conservation area.

The majority of fire dependent areas at the PBCA fall within fuel model 7. Depending on the arrangement and composition of fuels, fire spread primarily through the shrub layer, however, in some areas, grasses and/or needle litter, or logging slash may contribute to the spread of fire. Areas within the conservation area having heavier shrub and midstory fuel accumulation or logging slash can burn for long periods of time causing additional smoke management issues.

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. 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 only be selected if other weather and/or site conditions mitigate the potential for extreme 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.

**Mechanical 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. 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 PBCA 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.

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 F.S. 590.026 are protected from liability for damage or injury caused by fire or resulting smoke, unless negligence is proven.

Fire Management Units

With the exception of the acres within the conservation easement area, fire management units (FMUs) have been delineated on the conservation area. FMUs will be delineated and finalized within the easement area during the scope of this plan. Where logical, the District used (or will use) existing timber stand boundaries, existing roads and trails, and natural breaks such as wetlands and water bodies to delineate fire management units. Occasionally, multiple fire management units with similar fire needs will be burned simultaneously and these delineations provide a break in fuels so that staff may burn smaller areas than initially planned if needed.

Ideally, District staff would thoroughly address and describe each fire management unit in terms of its fire management needs. 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 FMUs currently delineated and the 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 3 illustrates the FM associated with individual fire management units.
Fuel Models

Fuel Model 7 – Southern Rough
This category includes fire management units that are best described as mesic, wet, and scrubby flatwoods and the areas of 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 on the conservation area include saw palmetto, gallberry and other ericaceous shrubs between 3 and 5 feet tall and are contiguous across most of the units. The herbaceous layer includes wiregrass, with heavier distributions occurring in those flatwoods not dominated by pine plantations.
Exhibit 1
Aerial Burn Safety Plan
Palm Bluff 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. **IGNITION MACHINE 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 Volusia County Fire Rescue (352)955-1818
3. Notify Volusia Sheriff’s Office (352)367-4040
5. Notify NTSB (305)957-4610 OR 404-462-1666
6. 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. ORMC – Orlando - 321-841-5111
2. Halifax – Daytona - 386-254-4000

**DIVISION OF FORESTRY**
1. Bunnell Dispatch 386-446-6786

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