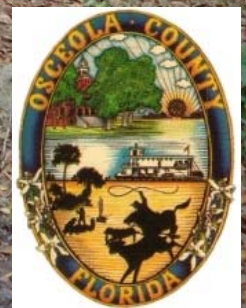




**Lake Runnymede
Land Management
Plan and Design**

Osceola County Natural Resources

Bob Mindick



Executive Summary

Introduction

The Lake Runnymede Conservation Area (LRCA) consists of approximately 43 acres located on the east side of St. Cloud, FL. The park is bordered by Rummell Road to the north and west, a canal connecting to Lake Runnymede and East Lake Tohopekaliga to the west, and to the east by a residential trailer park. This property was acquired by the County in 2007 as part of the Land Conservation Program and opened to the public in 2010. The site consists of natural upland and wetland habitats including upland hardwood forest, upland scrub, freshwater wetland, and the lakeshore of Lake Runnymede. The LRCA was assessed during multiple site visits between May and August 2012.

Existing Conditions

The LRCA is located within the Osceola Plain physiographic region of Florida. There are five soil types found onsite that are all poorly drained and four distinct natural habitats are present. The LRCA is already open to the public and utilized on a routine basis for hiking and other recreational activities. Existing features include two hiking trails, a kiosk, compost restroom, remnant corral, benches, grills, fire pits, and picnic tables.

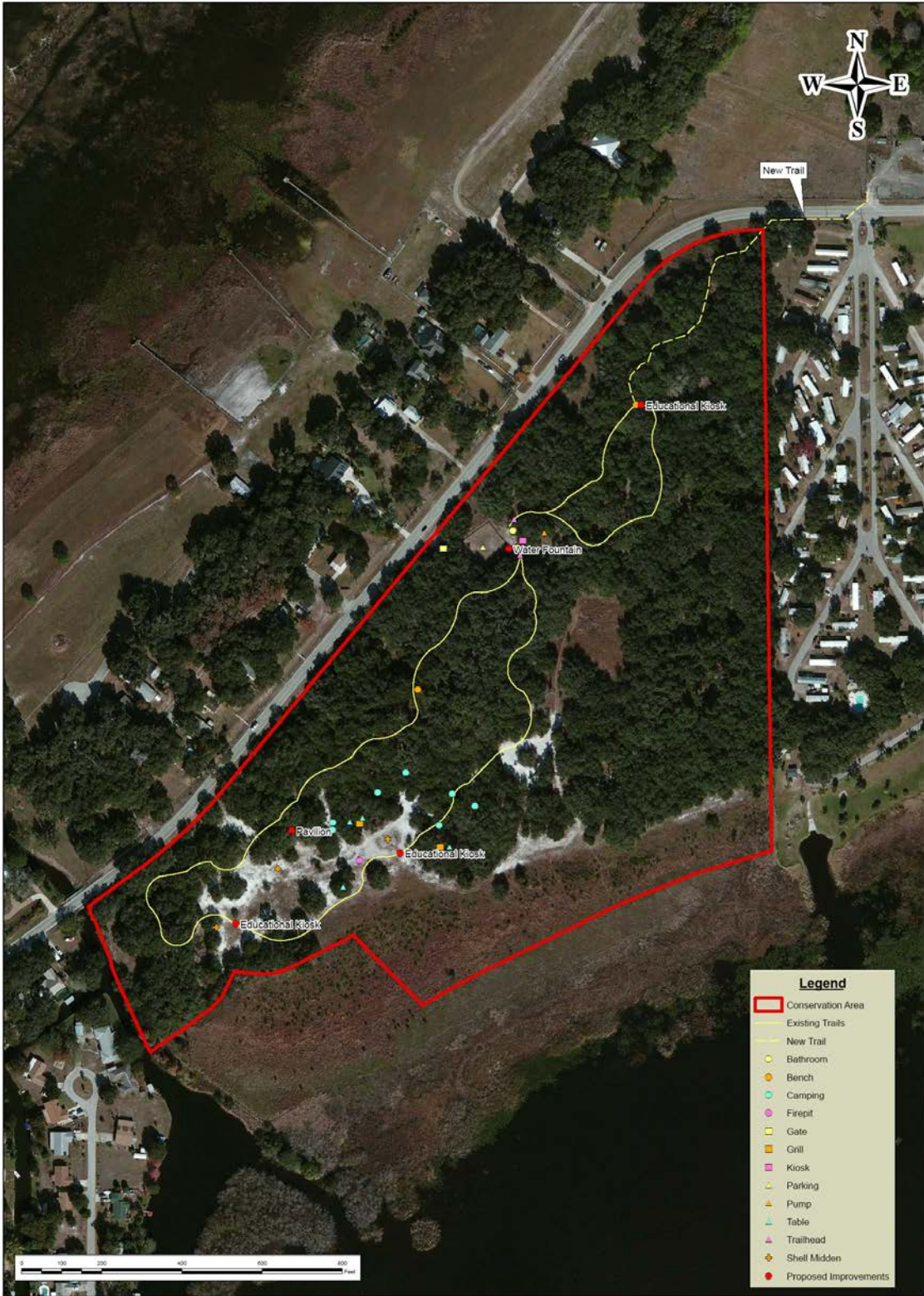
There are several listed wildlife species that utilize the site as well as an endangered air plant. Proposed management efforts are intended to increase the quality of habitat for listed wildlife such as the Sherman's fox squirrel, wading birds, bald eagle, gopher tortoise, and sandhill crane. Several nuisance, exotic, and ornamental plant species are present within the natural habitats of the LRCA. Recommended vegetation maintenance events will target the removal of these undesirable species and desirable vegetation will be introduced through native planting efforts.

Management Recommendations

The proposed management recommendations are intended to increase the park's ability to meet the public needs for outdoor activities as well as restore the natural habitat existing on the LRCA. The following is a summary of the proposed management recommendations:

- Connector trail to Chisholm Park
- 10'x20' pavilion with picnic tables
- Human/dog water fountain
- Educational kiosks
- Nuisance and exotic vegetation maintenance
- Native planting in live oak, scrub, and shoreline habitats
- Spot burning in the wetland

A map summarizing the existing features of the park and the proposed improvements follows.



DATE: 06-29-12
 FILE: Field Map 06-29-12 (24x36)
 PROJECT NO: 11638
 AERIAL: 2011 TC 1ft FDOT
 SCALE : 1" = 100'

**LAKE RUNNYMEDE CONSERVATION AREA
 PROPOSED IMPROVEMENTS MAP**

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Table of Contents

Executive Summary

Table of Contents

Introduction

Existing Natural Resources

Physiographic Setting

Soils

Vegetation Zones

Listed Species

Non-Listed Wildlife Species

Hydrology

Existing Infrastructure

Resource Management

Desired Future Conditions

Historical Features

Ecological Restoration and Enhancement

 Live Oak

 Upland Scrub

 Lake Runnymede Shoreline

 Vegetated Non-Forested Wetland

Nuisance and Exotic Species

Partnerships

Management Recommendation Schedule
and Cost

Summary and Conclusions

Bibliography

Figures

Figure 1 – Location Map

Figure 2 – 2011 Aerial Photograph

Figure 3 - Physiographic Region Map

Figure 4 – Soils

Figure 5 – FLUCCS

Figure 6 – 1944 Aerial Photograph

Figure 7 – 1951 Aerial Photograph

Figure 8 – 1959 Aerial Photograph

Figure 9 – 1970 Aerial Photograph

Figure 10 – 1980 Aerial Photograph

Figure 11 – 1990 Aerial Photograph

Figure 12 – List of Potential Wildlife

Figure 13 – Proposed Improvements Map

Tables

Table 1 – Live Oak Habitat

Table 2 – Upland Scrub, Pine, and Hardwoods
Habitat

Table 3 – Vegetated Non-Forested Wetland Habitat

Table 4 – Live Oak Habitat Plantings

Table 5 – Scrub Planting

Table 6 – Lake Runnymede Shoreline Planting

Table 7 – Cost and Timeline Estimates

Attachments

Attachment 1 - Florida Master Site File Letter

Attachment 2 – FLEPPC List of Exotic Plant Species

Introduction

The Lake Runnymede Conservation Area (LRCA) consists of +43 acres of land in Osceola County, Florida. The site is located on the east side of St. Cloud, in Section 31, Township 25 South, Ranges 30 and 31 East. Rummell Road borders the project area to the north and west. The property address is 4600 Rummell Road, St. Cloud, FL 34741. Lake Runnymede borders the project area to the south and a canal connecting Lake Runnymede and East Lake Tohopekaliga forms the western border. The eastern boundary abuts the Runnymede Trailer Park. A location map is enclosed as **Figure 1**. . Approximately 1 mile of marked trail is present on the property as well as a primitive overnight camping area and a compost restroom.

This property was acquired by the County in 2007 as part of the Land Conservation Program and opened to the public in 2010. The site contains distinctive habitats types and allows the user to observe these habitats within a relatively short distance. The habitats include upland hardwood forest, upland scrub, freshwater wetland, and the lakeshore of Lake Runnymede. The user will observe different native habitats and plant assemblages that occur due to different soil properties, water table, and subtle shifts in elevation. The trails take the walker through a shady forest of large mature oaks covered with native ferns such as resurrection ferns and clumps of hanging Spanish moss then emerge into a scrubby xeric landscape of white sandy soil and xeric plant species and slightly downhill to a small depressional wetland area. A current 2011 aerial photograph is enclosed as **Figure 2**.

The site was originally part of the community of Wharton that established along the lakeshore of Lake Runnymede in 1885. Prior to the County purchasing the property, it was used for cattle grazing and was occupied with a single-family dwelling (mobile home). Upon purchasing the property, the County secured the site with a boundary fence and a gated entry with County locks. The mobile home was removed as well as a metal storage building near the home and two truck frames. Debris from a homeless camp as well as other miscellaneous trash was also removed. Vegetation maintenance to control exotic vegetation was initiated in the most disturbed areas. The following Management Plan was developed to continue the progress made on the LRCA property and provide additional guidance for management of the natural resources and passive recreation on the property.

Existing Natural Resources

Natural resources at the LRCA have been studied informally by County staff and contractors since its purchase in 2007. As part of the preparation of this management plan, County staff was interviewed and available documents associated with initial work plans for the site were reviewed. Biologists completed formal flora and fauna surveys at the LRCA from May – July 2012. Biologists also collected information to document the physiographic setting, soils, vegetation zones, listed plant and wildlife species, hydrology, and existing infrastructure.

Physiographic Setting

The LRCA is located in the Osceola Plain physiographic region of Florida (USDA SCS 1979). A physiographic region map is enclosed as **Figure 3**. The Osceola Plain is the dominant physiographic region in the country, and the dominant region within Osceola County. The Osceola Plain is characterized as predominantly flat land and is situated between the Lake Wales Ridge on the west and the Eastern Valley on the east. Historically, the Osceola Plain was characterized by sandy soils and large expanses of pine flatwoods and palmetto prairie, with scattered wetland depressions and lakes. The majority of native land in this region is used for cattle grazing and there are large areas of improved pasture. The most developed areas are the cities of Kissimmee and St. Cloud and the smaller towns and communities surrounding those cities.

Soils

According to the United States Department of Agriculture Soils Conservation Service Soil Survey of Osceola County, five soil types exist on the Lake Runnymede site. An exhibit indicating the location of these soils types is enclosed as **Figure 4**. All soils types are described in more detail below.

1 – Adamsville Sand

Adamsville sand is the dominant soil type on the LRCA and is described as somewhat poorly drained. The canopy vegetation in this soil type is usually dominated by species such as live oak with scattered laurel oak, water oak, slash pine, and longleaf pine. The shrub layer usually includes saw palmetto, American beautyberry, wild grape, greenbrier, and Virginia creeper. Grasses are usually sparse, but typically include bracken fern, lopsided indiagrass, pineland threawn, and bluestem species.

5- Basinger Fine Sand

Basinger fine sand is described as poorly drained and is found on a small portion of the LRCA site along the eastern boundary. Vegetation usually indicative of this soil includes longleaf pine, saw palmetto, wax myrtle, maidencane, chalky bluestem, and sand cordgrass.



Figure 4 - Soils map

16 – Immokalee Fine Sand

Immokalee fine sand is also listed as poorly drained and is located on the eastern portion of the site. Vegetation species usually observed include longleaf and slash pine with an understory of saw palmetto, fetterbush, running oak, bluestem species, switch grasses, and panicum species.

32 – Placid Fine Sand

Placid fine sand is a very poorly drained soil and is located on the northeastern boundary of the LRCA. Vegetation typically found in this soil includes wetter species such as maidencane, pickerelweed, giant cutgrass, wax myrtle, sedges, and rushes. Tree species typically include cypress, bays, tupelo, and cabbage palms.

40-Samsula Muck

Samsula muck is also a very poorly drained soil and is located on the southern portion of the LRCA site along the lake shoreline. Canopy vegetation in this soil typically includes cypress, red maple, bays, and sweetgum. Groundcover vegetation and shrub species observed typically includes sawgrass, maidencane, cattails, arrowhead, willow, buttonbush, and elderberry.

Vegetation Zones

LRCA is composed predominantly of upland habitat types including live oak and upland scrub. A small vegetated non-forested wetland is present on the property and a portion of the Lake Runnymede shoreline is also onsite. A grass parking area is also present at the entrance to the site. The five vegetation community types are classified according to the Florida Land Use, Cover, and Forms Classification System (FLUCCS) and enclosed as **Figure 5**. These community types are further described below.

185-1 County Park Parking

A 0.20-acre parking lot (FLUCCS 185-1) is located at the entrance to the LRCA.



Figure 5 - FLUCCS map

This parking lot has a gated entrance that is locked each night preventing access to the park. Vegetation in the parking lot consists predominantly of bahia grass (*Paspalum notatum*) and bare ground. The parking lot is a recreational feature of the park and will be maintained as an open grassy area for public use.

427 - Live Oak

The LRCA is dominated by live oak habitat (FLUCCS 427), which covers approximately 29.59 acres. This habitat includes primarily large live oaks (*Quercus virginiana*), although other oak species are also present. Other dominant vegetation observed within this community includes hemlock witchgrass



(*Dichanthelium portoricense*), St. Andrew's-cross (*Hypericum hypericoides*), saw palmetto (*Serenoa repens*), muscadine grape vine (*Vitis rotundifolia*), and beautyberry (*Callicarpa americana*). A Florida listed endangered plant species, giant airplant (*Tillandsia utriculata*), is also present within this habitat. This species is scattered throughout the live oak habitat in small quantities and can be observed growing in the live oak canopy. A complete list of vegetation within the live oak habitat is included in **Table 1**.

Nuisance and exotic species are prevalent within this habitat and include species such as air potato (*Dioscorea bulbifera*), camphor tree (*Cinnamomum camphora*), and Caesarweed (*Urena lobata*). Muscadine grape vine is a native species, although it is considered a nuisance species in this habitat because it spreads quickly and shades out other desirable vegetation. Ornamental species such as sword fern (*Nephrolepis exaltata*), queen palm (*Syagrus romanzoffiana*), and philodendron (*Philodendron sp.*) are also present on the eastern property line and adjacent to the current Runnymede Trailer Park

This habitat would benefit from a prescribed burn, however, its location adjacent to a mobile home park and a busy road will likely prevent this action. Herbicide and mechanical maintenance to manage nuisance and exotic vegetation will be needed to keep its current native plant diversity.

436 - Upland Scrub, Pine, and Hardwoods

Approximately 2.90 acres of upland scrub, pine, and hardwoods habitat (FLUCCS 436) are located in the southern portion of the LRCA. Dominant species observed within this habitat include broomsedge bluestem (*Andropogon virginicus*), chalky bluestem (*Andropogon virginicus* L. var. *glaucus*), live oak (*Quercus virginiana*), maidencane (*Panicum hemitomon*), muscadine grape vine (*Vitis rotundifolia*), prickly pear cactus (*Opuntia humifusa*), rustweed (*Polypremum procumbens*), Chapman's oak (*Quercus chapmanii*), and scrub oak (*Quercus inopina*). A complete list of species observed within this habitat is included as **Table 2**.



Portions of this habitat are utilized as camp grounds and contain several fire pits and picnic areas. No nuisance or exotic vegetation is present in this habitat; however, the groundcover vegetation is more sparse than desired. Large areas of open white sand are present. Native planting is proposed as part of a restoration effort to increase the coverage of desirable scrub species. This restoration is discussed in more detail within the restoration section of this report.

521 – Lake Runnymede



The shoreline of Lake Runnymede (FLUCCS 521) is present along the southern boundary of the LRCA. There are approximately 2.35 acres of shoreline within the property limits. The shoreline is currently dominated by a thick monoculture of wax myrtle (*Myrica cerifera*). A complete list of species observed within this habitat is enclosed as **Table 3**.

The wax myrtle monoculture has become more dense in recent years as a result of receding water levels due to drought conditions. In the past, the lake shoreline habitat was more open and contained predominantly grass species. Restoration activities to thin out the wax myrtle along the shoreline will make it more suitable for wildlife species such as the Florida sandhill crane (*Grus canadensis pratensis*) that depend on this type of habitat for nesting.

640 - Vegetated Non-Forested Wetland

An approximately 0.60-acre vegetated non-forested wetland (FLUCCS 640) is located near the center of the LRCA. This wetland is dominated by broomsedge species (*Andropogon sp.*) and maidencane (*Panicum hemitomon*). A complete list of species observed within this habitat is enclosed as **Table 4**.



No nuisance or exotic vegetation is present in this habitat. Historic aerials show significant fluctuations in water levels within this wetland over the years. The wetland is hardly visible in the 1944, 1951, 1959, 1970, and 1980 aerials

(**Figures 6 – 10**, respectively), but standing water is visible on the 1990 aerial (**Figure 11**). The FLUCCS map (**Figure 2**) shows the most recent aerial photograph taken in 2011 and the wetland is still visible, but not as hydrated as in the 1990 aerial. Several years of persistent drought conditions have left this wetland dry through most of the year and upland species such as oaks (*Quercus sp.*) and blackberry (*Rubus sp.*) are beginning to encroach into the wetland. There is no way to improve the hydrology of this system because no connections are present and it is entirely dependent on rain and surface water. Restoration efforts to manage the upland undesirable species with herbicide until a wetter weather pattern returns will be necessary.

Listed Species

The LRCA has several habitat communities that lends it itself to use by listed plant and wildlife species. A list of all wildlife potentially occurring on the LRCA is enclosed as **Figure 12**. Listed species that are known to occur on the LRCA are discussed in more detail below.

Gopher Tortoise

The LRCA site has suitable, but marginal, habitat for the threatened Florida gopher tortoise (*Gopherus polyphemus*), because of a high water table. The gopher tortoise is typically found in habitats consisting of well drained sandy soils. While these soils are found on the LRCA, the site is situated between two lakes and has a relatively high water table. Gopher tortoises can be found in a wide range of habitats including scrub, xeric oak, pine, grasslands and disturbed areas. They often forage on broadleaf grasses, wiregrass, legumes, and fruit. No active burrows were observed onsite.



Two abandoned burrows were observed, and a live tortoise was observed walking through the site in the live oak habitat. The upland scrub, pine, and hardwoods habitat and higher portions of the live oak habitat would be suitable habitat for this species, and the proposed management improvements will enhance habitat for the gopher tortoise. Previous mowing activities on the site have likely caused the tortoises to move into more ideal habitat nearby. The high water table hinders gopher tortoise burrowing activity on LRCA, although efforts to restore a more natural groundcover in the scrub and live oak communities may entice a small population of tortoises back to the site.

Snail Kite and Apple Snail

The snail kite (*Rostrhamus sociabilis*) is a bird of prey that is known to exist in South America, the Caribbean, and central and southern Florida. It is considered a federally endangered species in the United States. These birds are typically found nesting near Lake Okeechobee, West Lake Tohopekaliga, East Lake Tohopekaliga, Loxahatchee National Wildlife Refuge, the Everglades, along stretches of the Tamiami Trail, and within Lake Kissimmee. East Lake Tohopekaliga (located directly west of LRCA) is a primary nesting site for the snail kite. The snail kite was observed flying over the LRCA and apple snail shells (the primary diet of the snail kite) are often found along the lakeshore and adjacent habitats. The snail kite likely forages for apple snails in East Lake Tohopekaliga and Lake Runnymede and drops them over LRCA when done feeding.

Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) typically builds nests in large mature pine trees around lakes in which it can forage. Their nests are protected by law in Florida but they are no longer listed as a threatened or endangered species. A bald eagle was observed flying over the LRCA; however, no bald eagle nests are present on the property. The location of the LRCA situated between Lake Runnymede and East Lake Tohopekaliga makes it a prime location for eagle nesting. Restoration planting to add pine trees along the Lake Runnymede shoreline is proposed to entice bald eagles to use the LRCA as a nesting site in the future.

Wading Birds

Wading birds include listed species such as the snowy egret (*Egretta thula*), white ibis (*Eudocimus albus*), tri-colored heron (*Egretta tricolor*), limpkin (*Aramus gurauna*), and woodstork (*Mycteria americana*). All of these species, as well as other wading birds, have been observed foraging in Lake Runnymede and/or the LRCA shoreline. The lake shoreline along LRCA is currently not ideal foraging or nesting habitat for wading birds. Restoration management efforts are proposed to thin wax myrtle and create more suitable habitat for wading birds in the future.

Sandhill Crane

The Florida sandhill crane (*Grus canadensis*) is a threatened species in Florida that has been observed utilizing the shoreline of the LRCA as foraging and nesting habitat in the past, however, sandhill cranes have not been observed on the property recently. The sandhill crane typically forages and nests in open herbaceous wetlands and lake shorelines within tall grass. The small vegetated non-forested wetland on the LRCA is not large enough and does not have the proper hydrology to support sandhill crane nesting. The LRCA shoreline, however, was an ideal nesting location for sandhill cranes in the past and a sandhill crane nest was observed here in 2008. Currently, a thick monoculture of overgrown wax myrtle dominates the shoreline and it is no longer suitable nesting or foraging habitat for this species. With the management efforts proposed to thin wax myrtle along the LRCA shoreline, it will once again be a prime location to observe sandhill cranes in their native habitat.



Sherman's Fox Squirrel

The Sherman's fox squirrel (*Sciurus niger shermani*) is a species of special concern found in central and north Florida. This species is dependent on mature longleaf pine and mature oak species for foraging



and nesting. Both pines and oaks are a necessary part of their diet as they feed on mature pine seeds during the summer months and acorns as they are available the rest of the year. A healthy population of Sherman's fox squirrels is present on the County's Chisholm Regional Park property directly north of the LRCA across Rummell Road. No fox squirrels have ever been observed

on the LRCA, likely because there are only a few mature pine trees. Restoration management efforts to increase the number of pines on the LRCA should offer a more suitable habitat for Sherman's fox squirrels in the future and we will hopefully see this species expand from Chisholm Regional Park into the LRCA.

Giant Airplant

Giant airplant (*Tillandsia utriculata*) is an endangered plant in Florida. This species of bromeliad is native to Florida and was observed within the live oak (FLUCCS 427) habitat on the LRCA. This plant has been observed primarily in the live oak tree canopy between 10 and 20 feet off the ground. If the plant falls out of the tree it will often root itself in the ground at the location it falls. Careful consideration should be taken when planning activities in these areas and care should be taken to avoid non-target herbicide overspray during the proposed groundcover restoration of the live oak understory vegetation.



Non-Listed Wildlife Species

Numerous non-listed wildlife species are present within the LCRA. Notable non-listed species that were observed utilizing the site include the coral snake (*Micrurus fulvius*), flying squirrel (*Glaucomys volans*), red-tailed hawk (*Buteo jamaicensis*), anole (*Anolis sp.*), common squirrel (*Sciurus sp.*), and various song birds. These species are likely to persist under most conservation management approaches. The management efforts proposed for the LRCA that focus on maintaining habitat for listed species such as the gopher tortoise, sandhill crane, wading birds, and Sherman's fox squirrel will also enhance the onsite habitats for non-listed species.

Hydrology

The majority of the site is comprised of upland habitat and the vegetation existing onsite is consistent with these conditions. The small herbaceous wetland in the center of the property is isolated and receives all of its water from rain and limited sheetflow. Lake Runnymede and the canal bordering the western edge of the property are tied to the flood control present for East Lake Tohopekaliga, which further drains the site. No changes are proposed to the existing hydrology for the LRCA.

Existing Infrastructure

LRCA is currently a passive Osceola County Conservation Area. The entrance gate opens into a large open space that is utilized as a parking lot. One compost restroom facility and a bag pick-up and drop-off stand for dog waste is present at the start of the trail systems, as well as a large kiosk containing a park map. Two meandering dirt hiking trails of various lengths traverse the different habitats throughout the park and several benches are placed along these trails. An abandoned cattle corral is present, although it is in disrepair. Picnic tables and charcoal grills are present. The park allows overnight camping for organized youth groups only if prior approval is obtained from the County Natural Resources Department.

Resource Management

Recreational and environmental resources on the LRCA will require long-term management to obtain the desired future conditions of the property. The following sections describe the recreational improvements recommended for the park as well as conservation measures recommended to maintain the desired habitats for flora and fauna.

Desired Future Condition

Connector Trail to Chisholm Park

The southern boundary of Osceola County's 150-acre Chisholm Regional Park property is located across Rummell Road adjacent to the northern boundary of the LRCA. The management plan for Chisholm Regional Park has not been prepared; however, it currently offers picnic pavilions, a playground, ball field, volleyball area, beach area, boat ramp, and approximately two miles of hiking and horse trails. One of the desired conditions of the LRCA is a connector hiking trail to Chisholm Regional Park. The proposed trail has been GPS'd in the field as shown on the Proposed Improvements Map enclosed as **Figure 13**. The trail is proposed in a location that would require little construction, and no removal of existing trees on the LRCA. The crossing location over Rummell Road will be determined as the Chisholm Regional Park Management Plan is developed.

Pavilion

No covered areas exist on the LRCA, therefore a 10-foot by 20-foot pavilion is proposed for construction where the abandoned corral is presently located. The corral is in a state of disrepair and will require removal. Constructing the pavilion in this location provides access near the existing campfire and picnic areas in an open, shady area that will not require damaging existing habitats during construction.

Potable Water

A human/dog water fountain is proposed at the trail entrance near the compost restroom facility. No potable water currently exists on the LRCA.

Ecological Restoration and Enhancement

Vegetative restoration including native planting and exotic plant control is proposed to maintain and restore the native habitats on the LRCA. These restoration and enhancement activities are described in more detail in later sections of this report.

Educational Kiosks

Three educational kiosks are proposed along the existing hiking trails to describe the ecological restoration activities and/or existing habitats on the LRCA. The locations of these proposed kiosks are

shown on the Proposed Improvements Map enclosed as **Figure 13**. The three themed signs will focus individually on the following habitats: 1) live oak hammock, 2) scrub, and 3) freshwater marsh.

Historical Features

A request was sent to the Archaeological Data Analyst with the Florida Master Site File search for any known existing archeological features on the LRCA. A letter from the Florida Master Site File is enclosed as **Attachment 1** indicating that no known records of archeological features are present. Several undocumented historical features are known to occur on the LRCA.

Shell Middens

Three shell middens are located on the LRCA and are shown on the Proposed Improvements Map enclosed as **Figure 13**. These areas are currently not marked to prevent drawing more attention from the public. Native planting is proposed around the more accessible shell middens to incorporate them into the natural landscape and deter the public from walking directly on these historical features.

Ecological Restoration and Enhancement

Vegetative restoration and enhancement within all existing native habitats on the LRCA is recommended as a conservation measure to prevent the site from reverting into an overgrown and weedy condition. The LRCA is a small site that has been heavily influenced by recent drought conditions, lack of prescribed fire, and human disturbance of habitat. The following are proposed conservation improvements for each habitat.

Live Oak

The live oak habitat is the largest habitat on the LRCA and has the largest problem with nuisance and exotic vegetation. The native muscadine grape vine dominates the understory vegetation as a result of previous mowing activities. Caesarweed, camphor trees, and a variety of undesirable ornamental species are also present. We recommend these species be targeted with herbicide to decrease the density of nuisance grape vine and remove exotic vegetation from the LRCA. Care should be taken to avoid damage to the mature live oak canopy in this habitat.

In addition, large quantities of trash debris are located along the eastern property boundary adjacent to the offsite Runnymede Trailer Park. We recommend removal of the trash debris and this area should be checked frequently for additional debris that may be dumped.

A vegetation barrier is recommended along the eastern property boundary to provide a more aesthetic environment for the public when using the hiking trails. Approximately 100 native plants were installed in this area in 2012, however, additional planting is recommended. In addition, we recommend planting longleaf pine throughout this habitat and along the northern boundary to promote the future use of the LRCA by fox squirrels. The recommended plant material for the live oak habitat consists of species typical of the area and is provided in **Table 4** below.

Table 4: Live Oak Habitat Planting			
Common Name	Scientific Name	Size	Quantity
Saw Palmetto	<i>Serenoa repens</i>	3 Gal	200
Red Cedar	<i>Juniperus virginiana</i>	7 Gal	150
American Holly	<i>Ilex opaca</i>	7 Gal	100
Longleaf Pine	<i>Pinus palustris</i>	7 Gal	50
TOTAL			500



Red Cedar



American Holly

Upland Scrub

The historic aerial enclosed as **Figure 9** shows how the upland scrub habitat in 1970 covered a significantly greater portion of the property. The scrub habitat is trending towards conversion to live oak habitat in recent years as a result of prescribed fire suppression. We do not recommend trying to restore the scrub areas that are already functioning as a live oak community; however, the existing scrub area is in need of native planting to restore a more diverse understory. All of the picnic and camping activities are centered in this dry habitat and therefore, public use is expected to be high. Planting is recommended in portions of the uplands scrub that are not near public high-use areas. In addition, some planting will occur around shell middens to discourage public use in or near these features. The recommended scrub plantings are provided in **Table 5** below.

Table 5: Upland Scrub Planting			
Common Name	Scientific Name	Size	Quantity
Gopher Apple	<i>Licania michauxii</i>	1 Gallon	90
Dune Sunflower	<i>Helianthus debilis</i>	1 Gallon	100
Lopsided Indian Grass	<i>Sorghastrum secundum</i>	1 Gallon	100
Prickly pear Cactus	<i>Opuntia humifusa</i>	2 Inch	50
Wiregrass	<i>Aristida stricta</i>	1 Gallon	100
Broomsedge	<i>Andropogon virginicus</i>	1 Gallon	100
Longleaf Pine	<i>Pinus palustris</i>	7 Gal	10
Saw Palmetto	<i>Serenoa repens</i>	1 Gallon	100
Purple Lovegrass	<i>Eragrostis spectabilis</i>	1 Gallon	100
Blanket Flower	<i>Gaillardia pulchella</i>	1 Gallon	150
Railroad Vine	<i>Ipomoea pes-caprae</i>	1 Gallon	100
Paw Paw	<i>Asimina sp.</i>	1 Gallon	100
Wild Coffee	<i>Psychotria nervosa</i>	1 Gallon	100
TOTAL			1,200



Blanket Flower



Dune Sunflower



Paw Paw



Wild Coffee



Morning Glory

Lake Runnymede Shoreline

In previous years, the Lake Runnymede shoreline was dominated by various grasses and sedges as shown in the 2008 photograph below. Drought conditions over the past several years provided an opportunity for woody shrubs, primarily wax myrtle, to dominate the shoreline. Current conditions of the Lake Runnymede shoreline are shown in the 2012 photograph below. Sandhill cranes were routinely observed along this shoreline in previous years, and at least one pair made their nest near the LRCA shoreline in the high aquatic grasses. Restoration efforts to restore this habitat are recommended. Wax myrtle and other shrubby species should be thinned so that native grass species can return. Improvements to this habitat will benefit sandhill cranes as well as other wading bird species.



2008



2012

The Lake Runnymede shoreline is also ideal habitat for bald eagle roosting and nesting. However, the shoreline is lacking mature pines, the preferred nesting and roosting trees for the bald eagle.. Native planting is recommended to start to establish a mature canopy of pines and cypress along the shoreline. Additional native flowering plants are recommended to add to the aesthetics of the natural landscape as seen from the hiking trails. **Table 6** below provides a list of the recommended species, quantities, and sizes of native plant material to be installed within the Lake Runnymede shoreline habitat.

Table 6: Lake Runnymede Shoreline Plantings			
Common Name	Scientific Name	Size	Quantity
Slash Pine	<i>Pinus elliottii</i>	7 Gallon	20
Bald Cypress	<i>Taxodium distichum</i>	7 Gallon	60
Longleaf Pine	<i>Pinus palustris</i>	7 Gallon	20
Tickseed	<i>Coreopsis sp.</i>	2 inch	100
Purple Lovegrass	<i>Eragrostis spectabilis</i>	1 Gallon	100
Swamp Sunflower	<i>Helianthus angustifolius</i>	1 Gallon	200
TOTAL			500



Purple Lovegrass



Swamp sunflower



Slash Pine



Bald Cypress

Vegetated Non-Forested Wetland

Historic aerial photographs do not show a wetland signature for this approximately 0.60-acre wetland in any of the historic aerials that were available prior to 1990 (**Figures 6 - 10**). The wetland is present in the 1990 aerial photograph (**Figure 11**). Currently, the wetland hydrology is between the two extremes of the older aerial photographs, but is trending towards the drier conditions as a result of several years of drought. Although still a jurisdictional wetland, upland species such as live oak and blackberry are now encroaching. Vegetation maintenance is recommended to control woody species during drought years to prevent losing this small wetland to the surrounding live oak habitat. In addition, spot burning is recommended to promote re-growth and spread of native grass species that are already present within this habitat.

Nuisance and Exotic Species

The Florida Exotic Pest Plant Council (FLEPPC) defines two categories of exotic plants in Florida. Category 1 exotics are non-native species that displace native vegetation and alter the native habitat structure. Category 2 exotics are species that spread quickly but do not typically displace native species. All exotic vegetation should be managed if funding allows, however, if funding is limited, the FLEPPC categories give a priority to exotic species management. A copy of the current list of FLEPPC Category 1 and 2 species is enclosed as **Attachment 2**. Other categories of undesirable species include ornamental and nuisance native vegetation. These species are not classified as exotic vegetation; however, they can alter the natural habitat if not managed properly.

Nuisance, exotic, and ornamental vegetation is present throughout the LRCA. A few ornamental species are encroaching from the trailer park on the eastern property boundary. All of the exotic and ornamental vegetation is indicted within the vegetation tables provided for each habitat (**Tables 1-3**). A few of the more prevalent exotic species include air potato (*Dioscorea bulbifera*), camphor tree (*Cinnamomum camphora*), sword fern (*Nephrolepis exaltata*), and Caesarweed (*Urena lobata*). Routine

herbicide maintenance is recommended to control all exotic and ornamental species on the LRCA. The neighboring communities and constant access to the park by the public is a continuing seed source and these species will spread quickly if they are not maintained.

Muscadine grape vine is a native vine that can grow out of control in disturbed areas. This species is problematic in the understory of the live oak habitat and is considered a nuisance species. A small test plot to treat this species with herbicide was established in September 2009. The photographs provided below show the results of the herbicide event. The grape vine was treated successfully with no non-target damage to oak trees and an estimated 75% reduction in the coverage of grape vine after one year as well as an increase in diversity and coverage of native groundcover. Additional herbicide maintenance is recommended throughout the remainder of the live oak habitat to reduce the coverage of the nuisance grape vine species.



Partnerships

Partnerships through grant programs, volunteer efforts, or other funding sources can play an important role in the long-term management of the LRCA. Volunteers such as the Boy Scouts or Master Gardeners could be coordinated to provide assistance with activities such as removing the corral or establishing the new trail. Many high schools require volunteer hours prior to graduation. High School students, along with other youth organizations such as 4-H, and organizations such as the Native Plant Society can be utilized for projects in the LRCA including trash pick-up and native planting relocations events. The Native Plant Society may have opportunities to donate native plants rescued from other properties. The site currently provides a location for overnight camping for the Boy Scouts and proposed educational kiosks will promote additional learning activities for these groups and all Park users.

Grants

Florida has several wildlife grant programs that the LRCA may qualify for. The application process usually runs from September to October and the individual grant programs vary each year. There are also grant programs through the U.S. Fish and Wildlife Service. The website www.grant.gov provides a

wide variety of grant listings associated with natural resources that may provide funding opportunities for small projects. Typically these grants will require a partial funding match by the County or other source.

Gopher Tortoise

The Florida Fish and Wildlife Conservation Commission (FWC) offers funding opportunities for preserved lands that can be used as gopher tortoise recipient sites. The LRCA is not a good candidate for a gopher tortoise recipient site. The LRCA site is too small and the habitats are not ideal for a large population of gopher tortoises. Tortoises have occupied this site in the past and may occupy the site in the future; however, the population is likely to remain small because of habitat constraints. The management requirements for FWC gopher tortoise recipient sites are also extensive (fencing, monitoring, habitat maintenance, etc.) and would not be cost effective.

Management Recommendation Schedule and Cost

The proposed management recommendations will take place over a 10-year timeline. The proposed schedule spreads out the proposed management recommendations and associated costs over the 10-year timeline. Table 7 provides an estimated schedule and cost for each management recommendation for within the LRCA site.

Table 7 – Recommended Schedule and Cost			
Year	Task	Quantity	Cost
1	Vegetation Maintenance	1 Event	\$8,500.00
	Scrub Planting	1 Event	\$8,000.00
	Educational Kiosk	1	\$2,000.00
Total Year 1 Cost			\$18,500.00
2	Vegetation Maintenance	1 Event	\$8,500.00
	Live Oak Planting	1 Event	\$12,000.00
	Educational Kiosk	1	\$2,000.00
Total Year 2 Cost			\$22,500.00
3	Vegetation Maintenance	1 Event	\$8,500.00
	Shoreline Planting	1 Event	\$6,500.00
	Educational Kiosk	1	\$2,000.00
Total Year 3 Cost			\$17,000.00
4	Vegetation Maintenance	1 Event	\$5,000.00
	Pavilion 10' x 20'	1	\$6,500.00
	Picnic Tables	4	\$1,200.00
Total Year 4 Cost			\$12,700.00
5	Vegetation Maintenance	1 Event	\$5,000.00
	New Trail Markers, Bench, and Gate	1	\$1,000.00
Total Year 5 Cost			\$6,000.00
6	Vegetation Maintenance	1 Event	\$5,000.00
	Human/Dog Water Fountain	1	\$5,000.00

	Well	1	\$7,000.00
Total Year 6 Cost			\$17,000.00
7	Vegetation Maintenance	1 Event	\$5,000.00
Total Year 7 Cost			\$5,000.00
8	Vegetation Maintenance	1 Event	\$5,000.00
Total Year 8 Cost			\$5,000.00
9	Vegetation Maintenance	1 Event	\$5,000.00
Total Year 9 Cost			\$5,000.00
10	Vegetation Maintenance	1 Event	\$5,000.00
Total Year 10 Cost			\$5,000.00
Total 10-Year Cost			\$113,700.00

Summary and Conclusions

The LRCA is a highly visited Osceola County Conservation Area. It offers unique habitats and is home to variety of native wildlife and plant species. The park offers pet-friendly shaded walking trails and other outdoor activities. The improvements proposed within the management plan are simple efforts to add to the park's appeal for the public while preserving and restoring the native onsite habitats. The following is a summary of the proposed management recommendations:

- Connector trail to Chisholm Park
- 10'x20' pavilion with picnic tables
- Human/dog water fountain
- Educational kiosks
- Nuisance and exotic vegetation maintenance
- Native planting in live oak, scrub, and shoreline habitats
- Spot burning in the wetland

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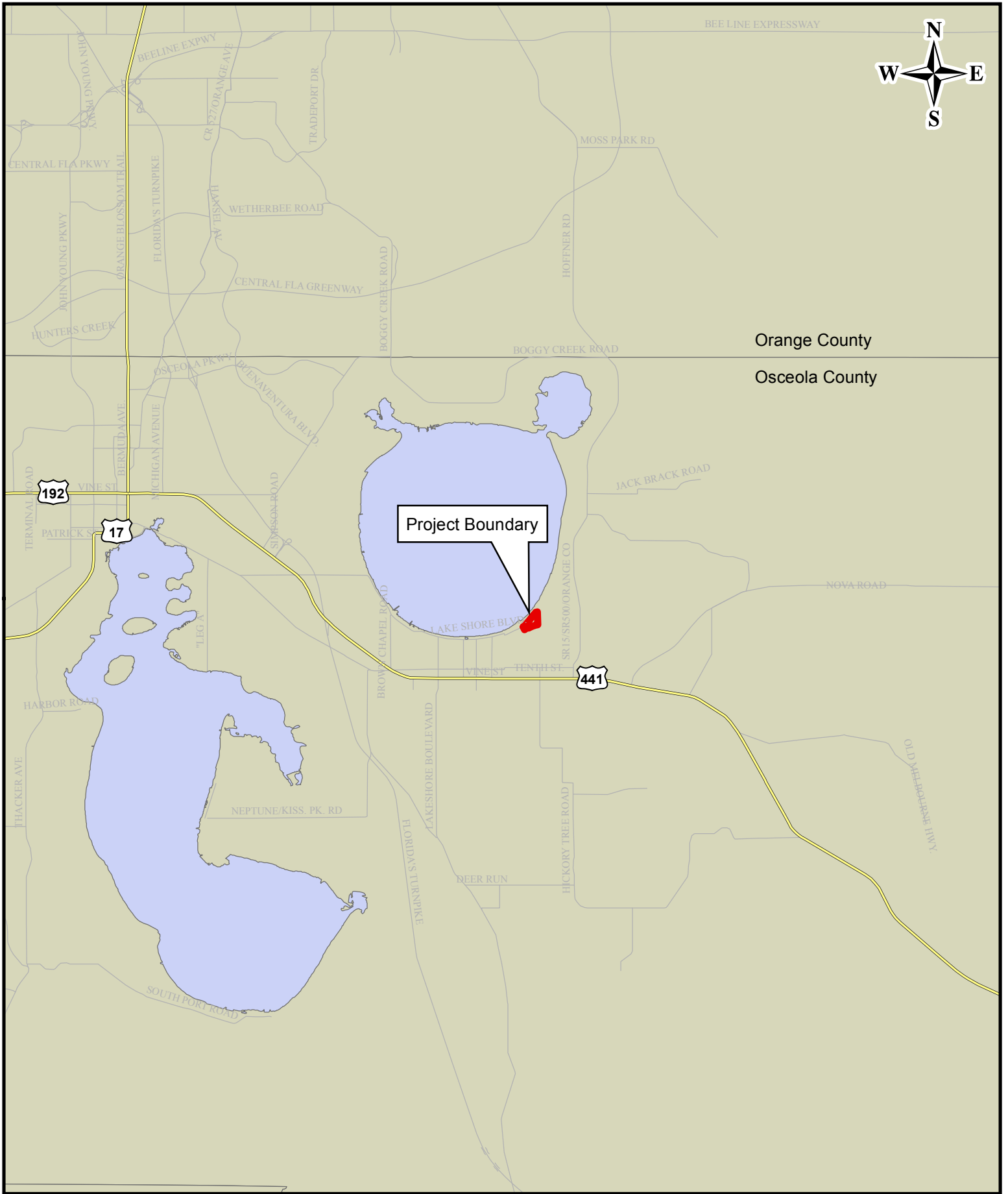
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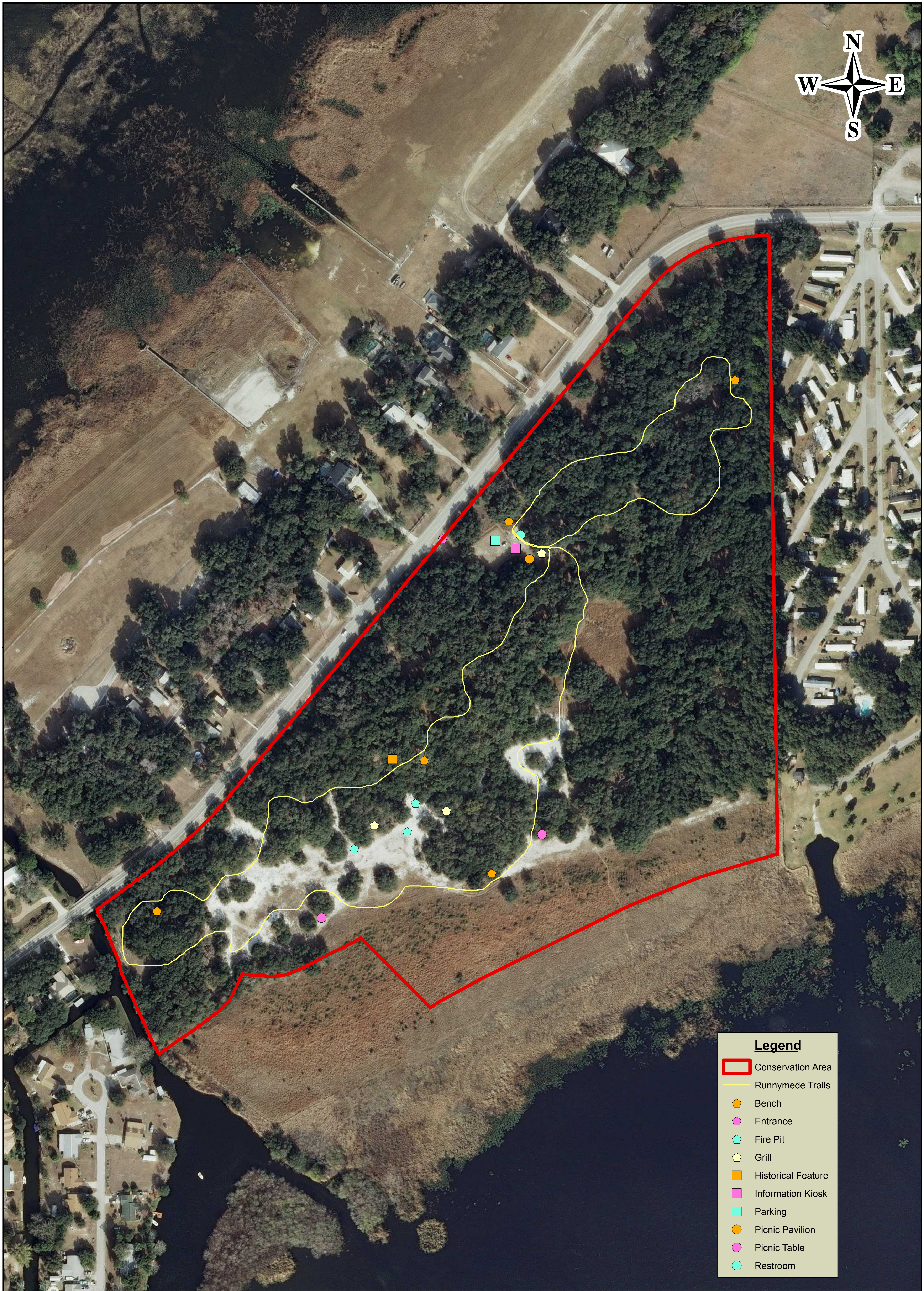
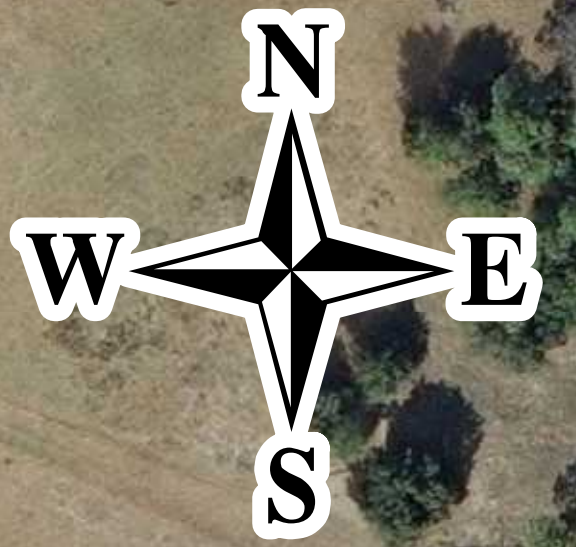
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DATE: 06-19-12
 FILE: Location Map 06-19-12
 PROJECT NO: 11638
 AERIAL: N/A
 SCALE : N/A

LAKE RUNNYMEDE
 LOCATION MAP
 OSCEOLA COUNTY FLORIDA

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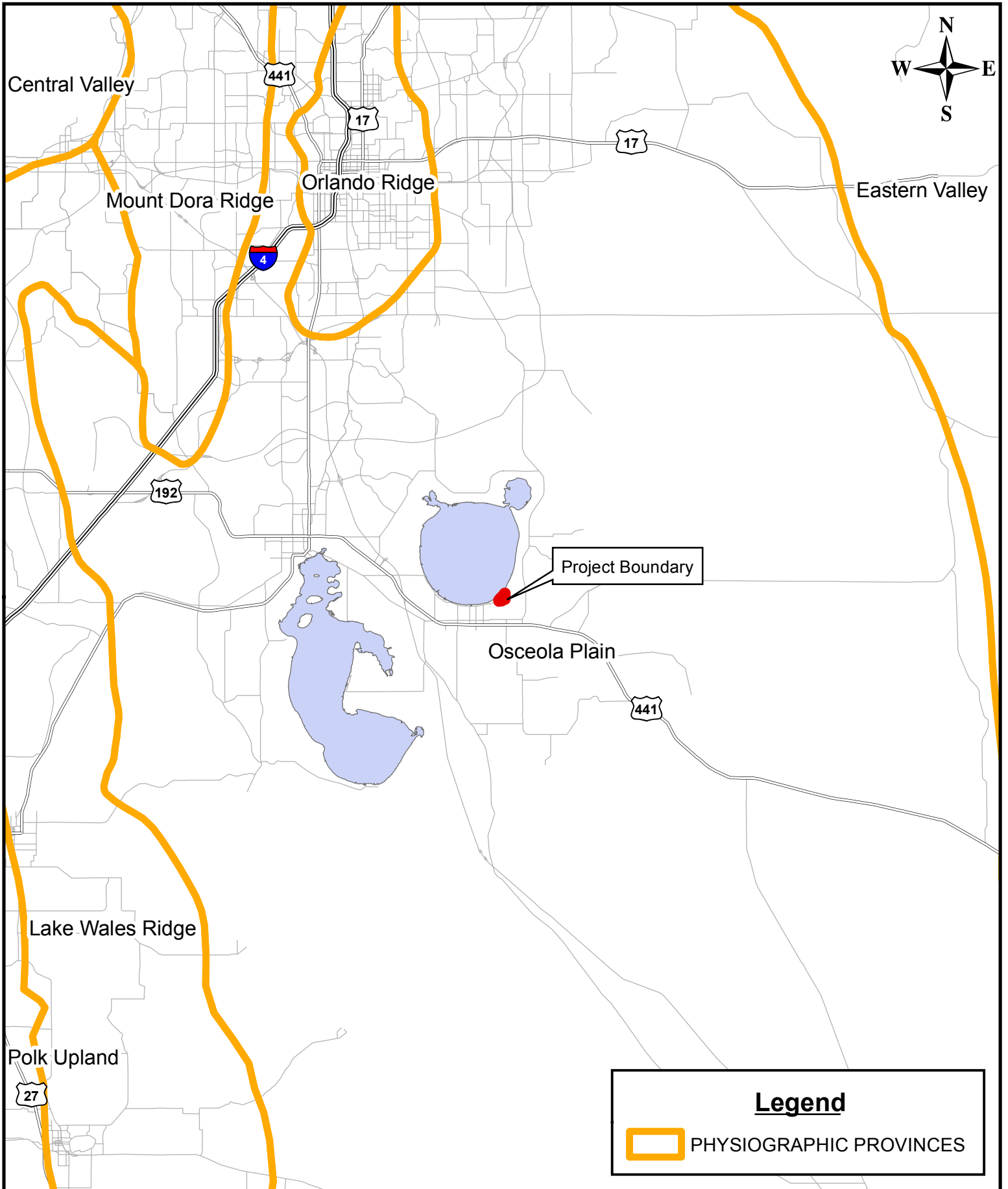
-  Conservation Area
-  Runnymede Trails
-  Bench
-  Entrance
-  Fire Pit
-  Grill
-  Historical Feature
-  Information Kiosk
-  Parking
-  Picnic Pavilion
-  Picnic Table
-  Restroom

DATE: 06-29-12
FILE: Field Map 06-29-12 (24x36)
PROJECT NO: 11638
AERIAL: 2011 TC 1ft FDOT
SCALE : 1" = 100'

LAKE RUNNYMEDE
FIELD MAP
OSCEOLA COUNTY FLORIDA



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 PHYSIOGRAPHIC PROVINCES

DATE: 07-19-12
 FILE: Physiographic Map 07-19-12
 PROJECT NO: 11638
 AERIAL: N/A
 SCALE : 1" = 30,000'

LAKE RUNNYMEDE
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Project Boundary

Soils

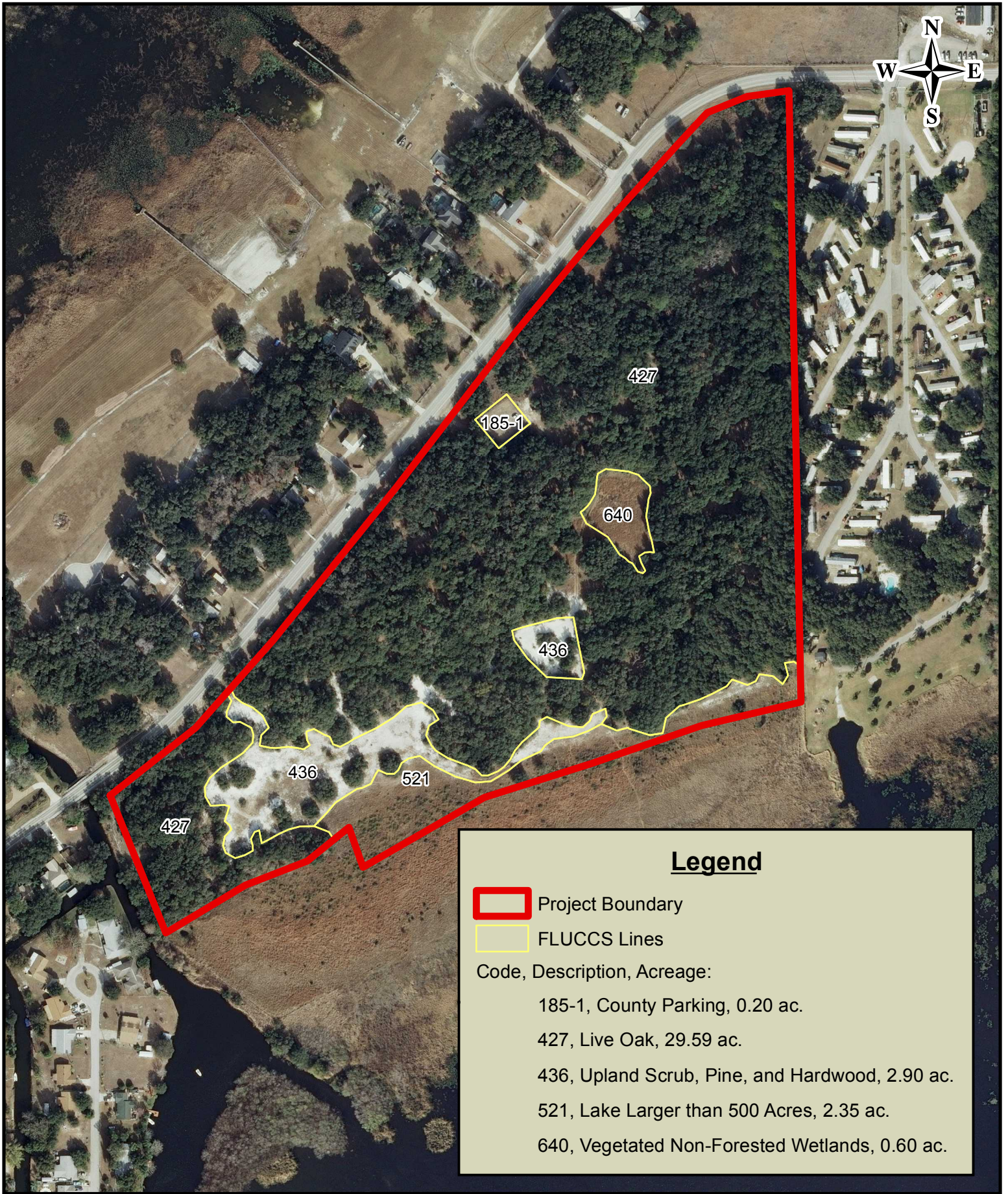
Code, Description:

- 1, ADAMSVILLE SAND
- 5, BASINGER FINE SAND
- 16, IMMOKALEE FINE SAND
- 32, PLACID FINE SAND
- 40, SAMSULA MUCK


DATE: 06-19-12
 FILE: Soils Map 06-19-12
 PROJECT NO: 11638
 AERIAL: 2011 TC 1ft FDOT
 SCALE : 1"= 300'


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 SOILS MAP
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 Project Boundary

 FLUCCS Lines

Code, Description, Acreage:

185-1, County Parking, 0.20 ac.

427, Live Oak, 29.59 ac.

436, Upland Scrub, Pine, and Hardwood, 2.90 ac.

521, Lake Larger than 500 Acres, 2.35 ac.

640, Vegetated Non-Forested Wetlands, 0.60 ac.


DATE: 06-19-12
 FILE: FLUCCS Map 06-19-12
 PROJECT NO: 11638
 AERIAL: 2011 TC 1ft FDOT
 SCALE : 1"= 300'

LAKE RUNNYMEDE
 FLUCCS MAP
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DATE: 09-12-12
FILE: 1944 Aerial Map 09-12-12
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SCALE : 1"= 400'

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1944 AERIAL MAP
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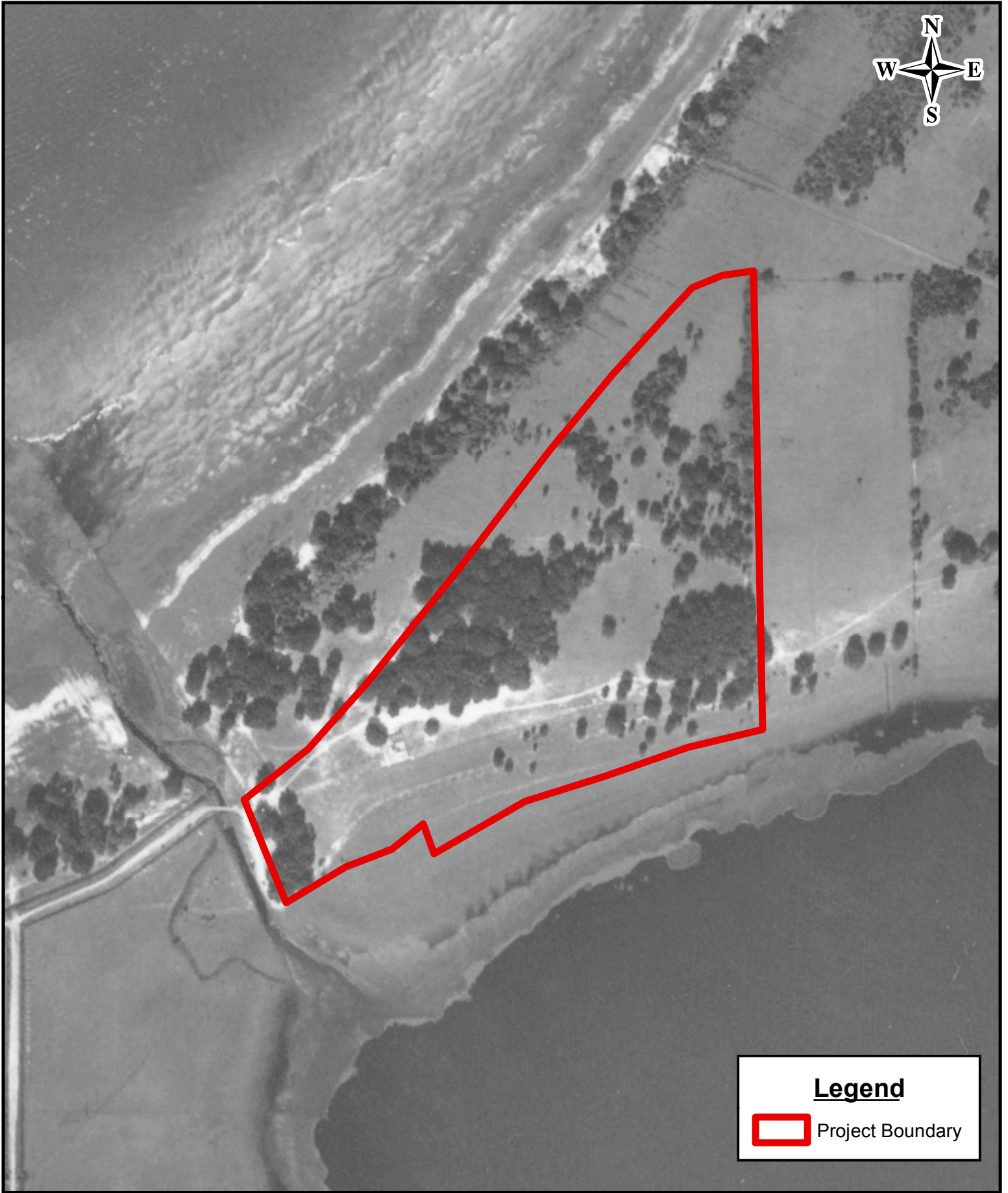
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1951 AERIAL MAP
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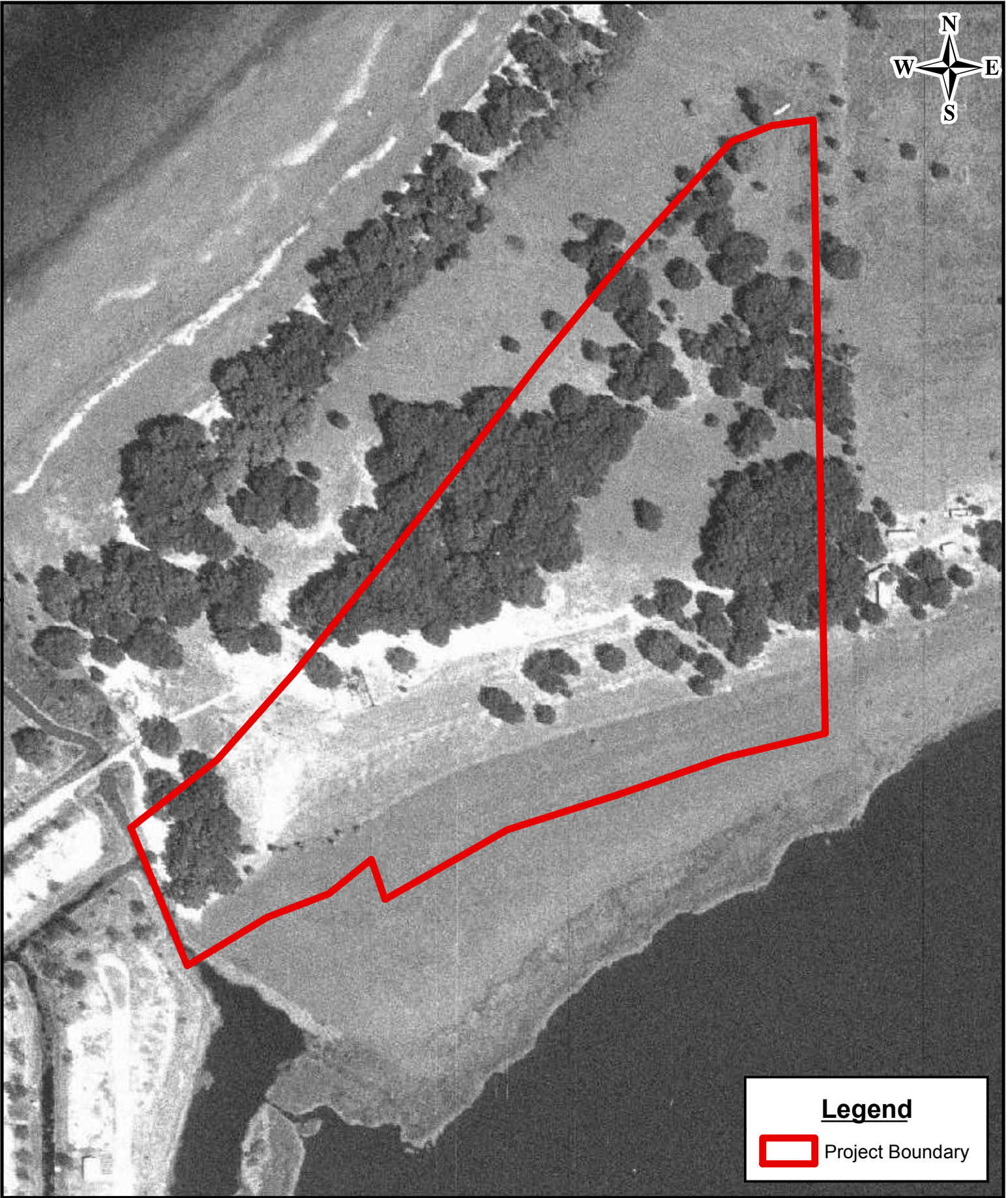
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1959 AERIAL MAP
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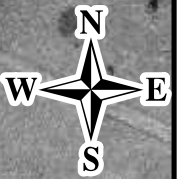
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SCALE : 1"= 300'

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1970 AERIAL MAP
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AERIAL: 1980 FDOT
SCALE : 1"= 300'

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1980 AERIAL MAP
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LIST OF POTENTIAL WILDLIFE

Group	Name	Population	Status
Birds	Whooping crane (<i>Grus americana</i>)	U.S.A. (CO, ID, FL, NM, UT, and t	Experimental Population, Non-Essential
Birds	Everglade snail kite (<i>Rostrhamus sociabilis plumbeus</i>)	FL pop.	Endangered
Birds	Red-cockaded woodpecker (<i>Picoides borealis</i>)		Endangered
Birds	Wood stork (<i>Mycteria americana</i>)	AL, FL, GA, SC	Endangered
Birds	Audubon's crested caracara (<i>Polyborus plancus audubonii</i>)	FL pop.	Threatened
Birds	Florida grasshopper sparrow (<i>Ammodramus savannarum floridanus</i>)		Endangered
Birds	Florida scrub-jay (<i>Aphelocoma coerulescens</i>)		Threatened
Flowering Plants	Papery whitlow-wort (<i>Paronychia chartacea</i>)		Threatened
Flowering Plants	Lewton's polygala (<i>Polygala lewtonii</i>)		Endangered
Flowering Plants	Sandlace (<i>Polygonella myriophylla</i>)		Endangered
Flowering Plants	Scrub plum (<i>Prunus geniculata</i>)		Endangered
Flowering Plants	Florida bonamia (<i>Bonamia grandiflora</i>)		Threatened
Flowering Plants	Pygmy fringe-tree (<i>Chionanthus pygmaeus</i>)		Endangered
Flowering Plants	Scrub buckwheat (<i>Eriogonum longifolium</i> var. <i>gnaphalifolium</i>)		Threatened
Flowering Plants	Britton's beargrass (<i>Nolina brittoniana</i>)		Endangered
Flowering Plants	Wide-leaf warea (<i>Warea amplexifolia</i>)		Endangered
Flowering Plants	Scrub lupine (<i>Lupinus aridorum</i>)		Endangered
Mammals	West Indian manatee (<i>Trichechus manatus</i>)		Endangered
Mammals	West Indian manatee (<i>Trichechus manatus</i>)		Endangered
Mammals	Florida panther (<i>Puma (=Felis) concolor coryi</i>)		Endangered
Mammals	Puma (=mountain lion) (<i>Puma (=Felis) concolor</i> (all subsp. except <i>coryi</i>))	FL	Similarity of Appearance (Threatened)
Reptiles	American alligator (<i>Alligator mississippiensis</i>)		Similarity of Appearance (Threatened)
Reptiles	Eastern indigo snake (<i>Drymarchon corais couperi</i>)		Threatened
Reptiles	Bluetail mole skink (<i>Eumeces egregius lividus</i>)		Threatened
Reptiles	Sand skink (<i>Neoseps reynoldsi</i>)		Threatened
Reptiles	Gopher tortoise (<i>Gopherus polyphemus</i>)	eastern	Threatened

Lake Runnymede Conservation Area Management Plan Summary

Existing Live Oak



Desired Live Oak

Existing Scrub



Desired Scrub



Desired Future Conditions



Legend			
	Conservation Area		Bathroom
	Existing Trails		Bench
	New Trail		Camping
	Kiosk		Parking
	County Park Parking		Pump
	Lake larger than 500 acres		Table
	Live Oak		Trailhead
	Upland Scrub, Pine, and Hardwood		Shell Midden
	Vegetated Non-Froested Wetlands		
	Gate		
	Grill		

Existing Non-Forested Wetland



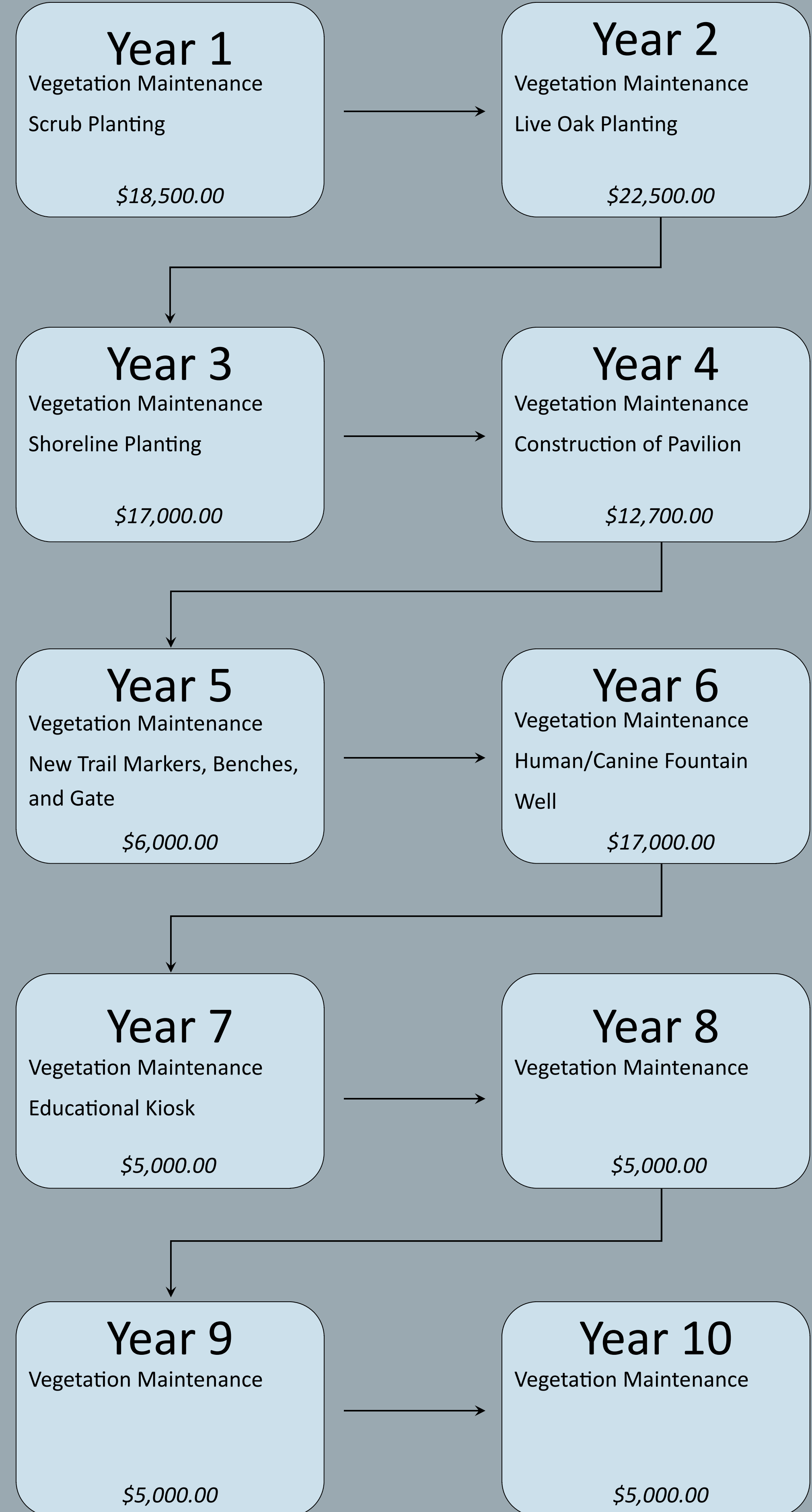
Desired Non-Forested Wetland

Existing Shoreline



Desired Shoreline

Time Line



Picnic Pavilion



Educational Kiosk



Human/
Canine
Water
Fountain

Table 1: Live Oak Habitat

Common Name	Scientific Name
Air potato*	<i>Dioscorea bulbifera</i>
American holly	<i>Ilex opaca</i>
Bahiagrass*	<i>Paspalum notatum</i>
Bald cypress	<i>Taxodium distichum</i>
Ballmoss	<i>Tillandsia recurvata</i>
Beautyberry	<i>Callicarpa americana</i>
Blackberry	<i>Rubus sp.</i>
Beggarticks	<i>Bidens alba</i>
Blackroot	<i>Pterocaulon pycnostachyum</i>
Blaspheme vine	<i>Smilax laurifolia</i>
Broomsedge bluestem	<i>Andropogon virginicus</i>
Cabbage fern	<i>Sabal palmetto</i>
Caesarweed	<i>Urena lobata</i>
Camphor tree*	<i>Cinnamomum camphora</i>
Chalky bluestem	<i>Andropogon virginicus L. var. glaucus</i>
Climbing hempvine	<i>Mikania scandens</i>
Common carpetgrass	<i>Axonopus fissifolius</i>
Dogfennel	<i>Eupatorium capillifolium</i>
Flatsedge	<i>Cyperus sp.</i>
Giant airplant**	<i>Tillandsia utriculata</i>
Globe breaksedge	<i>Rhynchospora globularis</i>
Golden polypody	<i>Phlebodium aureum</i>
Greenbrier	<i>Smilax sp.</i>
Guineagrass*	<i>Panicum maximum</i>
Hemlock witchgrass	<i>Dichanthelium portoricense</i>
Japanese honeysuckle*	<i>Lonicera japonica</i>
Live oak	<i>Quercus virginiana</i>
Longleaf spiderwort	<i>Tradescantia roseolens</i>
Maidencane	<i>Panicum hemitomon</i>
Muscadine grape vine	<i>Vitis rotundifolia</i>
Narrowleaf silkgrass	<i>Pityopsis graminifolia</i>
Nuttall's thistle	<i>Cirsium nuttallii</i>
Oakleaf fleabane	<i>Erigeron quercifolius</i>
Pale meadowbeauty	<i>Rhexia mariana</i>
Philodendron*	<i>Philodendron sp.</i>
Peppervine	<i>Ampelopsis arborea</i>
Podocarpus*	<i>Podocarpus sp.</i>
Red cedar	<i>Juniperus virginiana</i>
Red maple	<i>Acer rubrum</i>
Resurrection fern	<i>Pleopeltis polypodioides</i>
Rosary pea*	<i>Abrus precatorius</i>
Rose natalgrass*	<i>Melinis repens</i>
Sand pine	<i>Pinus clausa</i>

Saw palmetto	<i>Serenoa repens</i>
Scratchthroat*	<i>Ardisia crenata</i>
Slash pine	<i>Pinus elliottii</i>
Smooth rattlebox*	<i>Crotalaria pallida</i>
Southern magnolia	<i>Magnolia grandiflora</i>
Spanish moss	<i>Tillandsia usneoides</i>
Sphagnum moss	<i>Sphagnum sp.</i>
St. Andrew's-cross	<i>Hypericum hypericoides</i>
Swamp fern	<i>Blechnum serrulatum</i>
Sword fern*	<i>Nephrolepis exaltata</i>
Queen palm*	<i>Syagrus romanzoffiana</i>
Virginia chain fern	<i>Woodwardia virginica</i>
Water oak	<i>Quercus nigra</i>
Wax myrtle	<i>Baccharis halimifolia</i>

Exotic Species*

State-Endangered**

Table 2: Upland Scrub, Pine, and Hardwoods Habitat

Common Name	Scientific Name
Bahiagrass*	<i>Paspalum notatum</i>
Baldwin's spikerush	<i>Eleocharis baldwinii</i>
Broomsedge bluestem	<i>Andropogon virginicus</i>
Chalky bluestem	<i>Andropogon virginicus L. var. glaucus</i>
Chapman's oak	<i>Quercus chapmanii</i>
Common carpetgrass	<i>Axonopus fissifolius</i>
Dogfennel	<i>Eupatorium capillifolium</i>
Flatsedge	<i>Cyperus sp.</i>
Globe breaksedge	<i>Rhynchospora globularis</i>
Hemlock witchgrass	<i>Dichanthelium portoricense</i>
Licoriceweed	<i>Scoparia dulcis</i>
Live oak	<i>Quercus virginiana</i>
Maidencane	<i>Panicum hemitomon</i>
Muscadine grape vine	<i>Vitis rotundifolia</i>
Narrowleaf silkgrass	<i>Pityopsis graminifolia</i>
Pinebarren frostweed	<i>Helianthemum corymbosum</i>
Prickly pear	<i>Opuntia humifusa</i>
Reindeer lichen	<i>Cladonia rangiferina</i>
Rushfoil	<i>Croton michauxii</i>
Rustweed	<i>Polypremum procumbens</i>
Sand post oak	<i>Quercus margarettae</i>
Scrub oak	<i>Quercus inopina</i>
Shrubby primrosewillow	<i>Ludwigia suffruticosa</i>
Slender sandbur	<i>Cenchrus gracillimus</i>
St. Andrew's-cross	<i>Hypericum hypericoides</i>
Tropical Mexican clover*	<i>Richardia brasiliensis</i>

Exotic Species*

Table 3: Non-Vegetative Wetland Habitat	
Common Name	Scientific Name
Blackberry	<i>Rubus sp.</i>
Broomsedge bluestem	<i>Andropogon virginicus</i>
Caesarweed *	<i>Urena lobata</i>
Chalky bluestem	<i>Andropogon virginicus L. var. glaucus</i>
Dogfennel	<i>Eupatorium capillifolium</i>
Globe breaksedge	<i>Rhynchospora globularis</i>
Licoriceweed	<i>Scoparia dulcis</i>
Maidencane	<i>Panicum hemitomon</i>
Pale meadowbeauty	<i>Rhexia mariana</i>
Rosy camphorweed	<i>Pluchea baccharis</i>

Exotic Species*

Florida Master Site File Letter



This record search is for informational purposes only and does **NOT** constitute a project review. This search only identifies resources recorded at the Florida Master Site File and does **NOT** provide project approval from the Division of Historical Resources. Contact the Compliance and Review Section of the Division of Historical Resources at 850-245-6333 for project review information.

June 14, 2012



Marcy Kostenbauder
Earth Balance
21 South Randolph Avenue
Kissimmee, FL 34741
Phone: 407.518.5592
Fax: 407.518.9131
Email: marcyK@earthbalance.com

In response to your inquiry of June 14, 2012, the Florida Master Site File lists one previously recorded archaeological site and no standing structures found in the following section in Osceola County:

T25S R31E Section 31

When interpreting the results of our search, please consider the following information:

- This search area may contain *unrecorded* archaeological sites, historical structures or other resources even if previously surveyed for cultural resources.
- Because vandalism and looting are common at Florida sites, we ask that you limit the distribution of location information on archaeological sites.
- While many of our records document historically significant resources, the documentation of a resource at the Florida Master Site File does not necessarily mean the resource is historically significant.
- Federal, state and local laws require formal environmental review for most projects. This search DOES NOT constitute such a review. If your project falls under these laws, you should contact the Compliance and Review Section of the Division of Historical Resources at 850-245-6333.

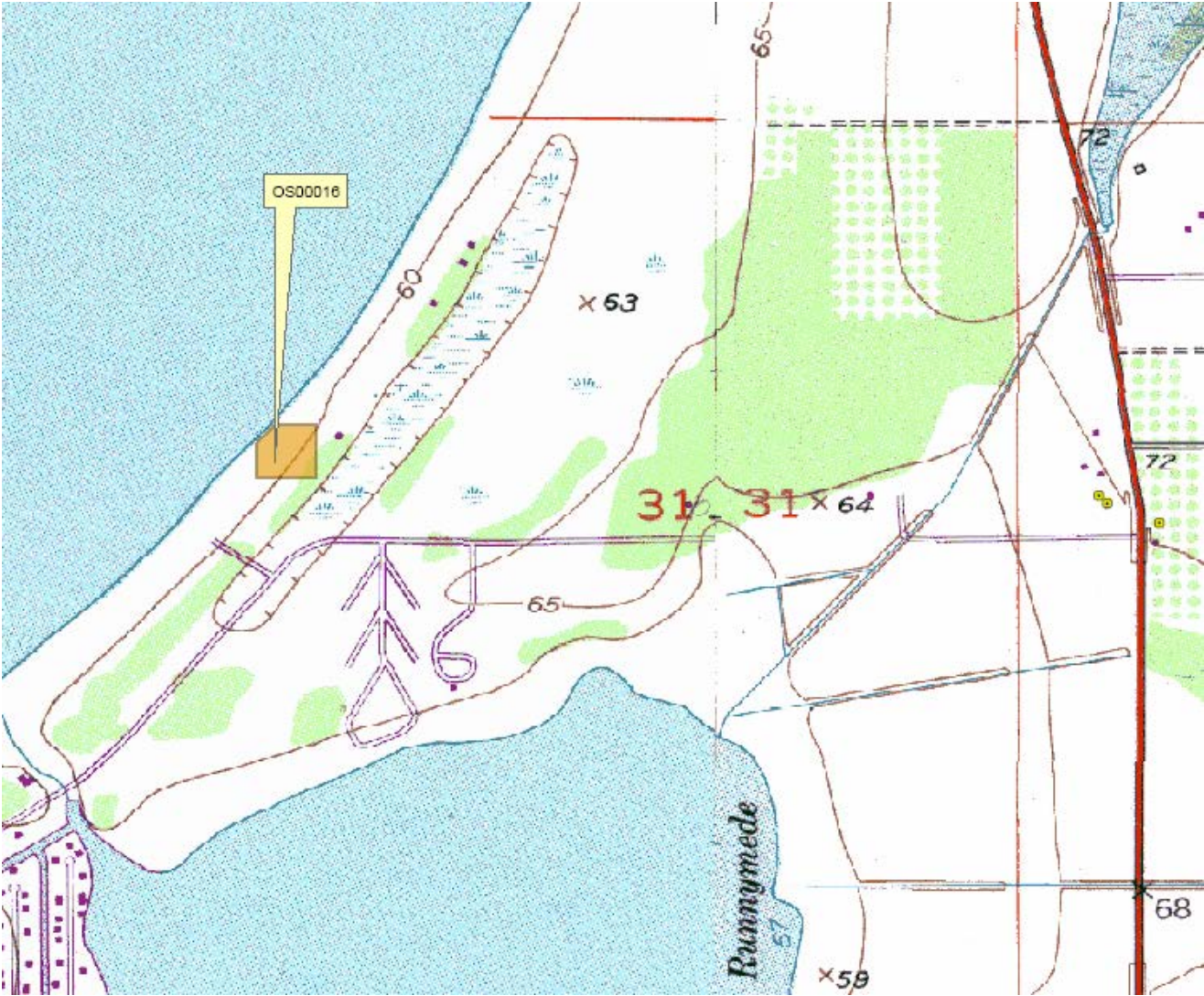
Please do not hesitate to contact us if you have any questions regarding the results of this search.

Sincerely,

A handwritten signature in black ink that reads "Lindsey Morrison".

Lindsey Morrison
Archaeological Data Analyst
Florida Master Site File
Lindsey.Morrison@dos.myflorida.com

Florida Master Site File Letter (cont.)



Florida Master Site File Letter (Cont.)

Florida Master Site File

Created: 6/14/2012



AR=1
SS=0
CM=0
RG=0
BR=0
Total=1

Cultural Resource Roster

SiteID	Type	Site Name	Address	Additional Info	SHPO Eval	NR Status
0500016	AR	LITTLE TOHOPEKALIGA				

FLEPPC List of Exotic Plant Species

Category I

Scientific Name	Common Name	Gov. List	Reg. Dist.
<u>Abrus precatorius</u>	rosary pea	N	C, S
<u>Acacia auriculiformis</u>	earleaf acacia		C, S
<u>Albizia julibrissin</u>	mimosa, silk tree		N, C
<u>Albizia lebeck</u>	woman's tongue		C, S
<u>Ardisia crenata</u> (=A. <i>crenulata</i> misapplied)	coral ardisia		N, C, S
<u>Ardisia elliptica</u> (=A. <i>humilis</i> misapplied)	shoebutton ardisia	N	C, S
<u>Asparagus aethiopicus</u> (=A. <i>sprengeri</i> ; A. <i>densiflorus</i> misapplied)	asparagus-fern		N, C, S
<u>Bauhinia variegata</u>	orchid tree		C, S
<u>Bischofia javanica</u>	bishopwood		C, S
<u>Calophyllum antillanum</u> (=C. <i>calaba</i> and C. <i>inophyllum</i> misapplied)	santa maria (names "mast wood", "Alexandrian laurel" used in cultivation)		S
<u>Casuarina equisetifolia</u>	Australian-pine, beach sheoak	P, N	N, C, S
<u>Casuarina glauca</u>	suckering Australian-pine, gray sheoak	P, N	C, S
<u>Cinnamomum camphora</u>	camphor tree		N, C, S
<u>Colocasia esculenta</u>	wild taro		N, C, S
<u>Colubrina asiatica</u>	lather leaf	N	S
<u>Cupaniopsis anacardioides</u>	carrotwood	N	C, S
<u>Deparia petersenii</u>	Japanese false spleenwort		N, C
<u>Dioscorea alata</u>	winged yam	N	N, C, S
<u>Dioscorea bulbifera</u>	air-potato	N	N, C, S
<u>Eichhornia crassipes</u>	water-hyacinth	P	N, C, S
<u>Eugenia uniflora</u>	Surinam cherry		C, S
<u>Ficus microcarpa</u> (F. <i>nitida</i> and F. <i>retusa</i> var. <i>nitida</i> misapplied)	laurel fig		C, S
<u>Hydrilla verticillata</u>	hydrilla	P, U	N, C, S
<u>Hygrophila polysperma</u>	green hygro	P, U	N, C, S
<u>Hymenachne amplexicaulis</u>	West Indian marsh grass		C, S
<u>Imperata cylindrica</u> (I. <i>brasiliensis</i> misapplied)	cogon grass	N, U	N, C, S
<u>Ipomoea aquatica</u>	water-spinach	P, U	C
<u>Jasminum dichotomum</u>	Gold Coast jasmine		C, S
<u>Jasminum fluminense</u>	Brazilian jasmine		C, S
<u>Lantana camara</u> (= L. <i>strigocamara</i>)	lantana, shrub verbena		N, C, S
<u>Ligustrum lucidum</u>	glossy privet		N, C
<u>Ligustrum sinense</u>	Chinese privet, hedge privet		N, C, S
<u>Lonicera japonica</u>	Japanese honeysuckle		N, C, S

<i>Ludwigia peruviana</i>	Peruvian primrosewillow		N, C, S
<i>Lumnitzera racemosa</i>	kripa; white-flowered mangrove; black mangrove		S
<i>Luziola subintegra</i>	Tropical American water grass		S
<u>Lygodium japonicum</u>	Japanese climbing fern	N	N, C, S
<u>Lygodium microphyllum</u>	Old World climbing fern	N	C, S
<u>Macfadyena unguis-cati</u>	cat's claw vine		N, C, S
<i>Manilkara zapota</i>	sapodilla		S
<u>Melaleuca quinquenervia</u>	melaleuca, paper bark	P, N, U	C, S
<i>Melinis repens</i> (= <i>Rhynchelytrum repens</i>)	Natal grass		N, C, S
<u>Mimosa pigra</u>	catclaw mimosa	P, N, U	C, S
<u>Nandina domestica</u>	nandina, heavenly bamboo		N, C
<u>Nephrolepis cordifolia</u>	sword fern		N, C, S
<i>Nephrolepis brownii</i> (= <i>N. multiflora</i>)	Asian sword fern		C, S
<u>Neyraudia reynaudiana</u>	Burma reed, cane grass	N	S
<u>Nymphoides cristata</u>	snowflake		C, S
<i>Paederia cruddasiana</i>	sewer vine, onion vine	N	S
<u>Paederia foetida</u>	skunk vine	N	N, C, S
<u>Panicum repens</u>	torpedo grass		N, C, S
<u>Pennisetum purpureum</u>	Napier grass		N, C, S
<i>Phymatosorus scolopendria</i>	serpent fern, wart fern		S
<u>Pistia stratiotes</u>	water-lettuce	P	N, C, S
<u>Psidium cattleianum</u> (= <i>P. littorale</i>)	strawberry guava		C, S
<u>Psidium quajava</u>	guava		C, S
<u>Pueraria montana</u> var. <i>lobata</i> (= <i>P. lobata</i>)	kudzu	N	N, C, S
<u>Rhodomyrtus tomentosa</u>	downy rose-myrtle	N	C, S
<i>Rhynchelytrum repens</i> (= <i>Melinis repens</i>)	Natal grass		N, C, S
<i>Ruellia brittoniana</i> (= <i>R. tweediana</i> misapplied)	Mexican petunia		N, C, S
<i>Salvinia minima</i>	water spangles		N, C, S
<u>Sapium sebiferum</u> (= <i>Triadica sebifera</i>)	popcorn tree, Chinese tallow tree	N	N, C, S
<u>Scaevola taccada</u> (= <i>Scaevola sericea</i> , <i>S. frutescens</i>)	scaevola, half-flower, beach naupaka	N	C, S
<u>Schefflera actinophylla</u> (= <i>Brassaia actinophylla</i>)	schefflera, Queensland umbrella tree		C, S
<u>Schinus terebinthifolius</u>	Brazilian pepper	P, N	N, C, S
<i>Scleria lacustris</i>	Wright's nutrush		N, C, S
<u>Senna pendula</u> var. <i>glabrata</i> (= <i>Cassia coluteoides</i>)	climbing cassia, Christmas cassia, Christmas senna		C, S
<u>Solanum tampicense</u> (= <i>S. houstonii</i>)	wetland nightshade, aquatic soda apple	N, U	C, S
<u>Solanum viarum</u>	tropical soda apple	N, U	N, C, S
<i>Syngonium podophyllum</i>	arrowhead vine		N, C, S
<u>Syzygium cumini</u>	jambolan plum, Java plum		C, S

<u>Tectaria incisa</u>	incised halberd fern		S
<u>Thespesia populnea</u>	seaside mahoe		C, S
<u>Tradescantia fluminensis</u>	small-leaf spiderwort		N, C
<u>Urena lobata</u>	Caesar's weed		N, C, S
<u>Urochloa mutica</u> (= <i>Brachiaria mutica</i>)	Para grass		C, S

Category II

Scientific Name	Common Name	Gov. List	Reg. Dist.
<i>Adenanthera pavonina</i>	red sandalwood		S
<i>Agave sisalana</i>	sisal hemp		C, S
<i>Aleurites fordii</i> (= <i>Vernicia fordii</i>)	tung oil tree		N, C
<i>Alstonia macrophylla</i>	devil tree		S
<i>Alternanthera philoxeroides</i>	alligator weed	P	N, C, S
<i>Antigonon leptopus</i>	coral vine		N, C, S
<i>Ardisia japonica</i>	Japanese ardisia		N
<i>Aristolochia littoralis</i>	calico flower		N, C, S
<i>Asystasia gangetica</i>	Ganges primrose		C, S
<i>Begonia cucullata</i>	wax begonia		N, C, S
<i>Blechnum pyramidatum</i>	green shrimp plant, Browne's blechnum		N, C, S
<i>Broussonetia papyrifera</i>	paper mulberry		N, C, S
<i>Bruguiera gymnorrhiza</i>	large-leaved mangrove		S
<i>Callisia fragrans</i>	inch plant, spironema		C, S
<i>Callistemon viminalis</i>	bottlebrush, weeping bottlebrush		S
<i>Casuarina cunninghamiana</i>	river sheoak, Australian-pine	P	C, S
<i>Cecropia palmata</i>	trumpet tree		S
<u>Cestrum diurnum</u>	day jessamine		C, S
<i>Chamaedorea seifrizii</i>	bamboo palm		S
<i>Clematis terniflora</i>	Japanese clematis		N, C
<i>Cocos nucifera</i>	coconut palm		S
<i>Cryptostegia madagascariensis</i>	rubber vine		C, S
<i>Cyperus involucratus</i> (<i>C. alternifolius</i> misapplied)	umbrella plant		C, S
<i>Cyperus prolifer</i>	dwarf papyrus		C, S
<i>Dactyloctenium aegyptium</i>	Durban crowfootgrass		N, C, S
<i>Dalbergia sissoo</i>	Indian rosewood, sissoo		C, S
<i>Elaeagnus umbellata</i>	silverberry, autumn olive		N
<i>Elaeagnus pungens</i>	silverthorn, thorny olive		N, C
<i>Epipremnum pinnatum</i> cv. 'Aureum'	pothos		C, S
<i>Ficus altissima</i>	false banyan, council tree		S
<i>Flacourtia indica</i>	governor's plum		S
<i>Hemarthria altissima</i>	limpo grass		C, S

<i>Hibiscus tiliaceus</i> (= <i>Talipariti tiliaceum</i>)	mahoe, sea hibiscus		C, S
<i>Hyparrhenia rufa</i>	jaragua		N, C, S
<i>Ipomoea fistulosa</i> (= <i>I. carnea</i> ssp. <i>fistulosa</i>)	shrub morning-glory	P	C, S
<i>Kalanchoe pinnata</i>	life plant		C, S
<i>Koelreuteria elegans</i> ssp. <i>formosana</i> (= <i>K. formosana</i> ; <i>K. paniculata</i> misapplied)	flamegold tree		C, S
<i>Leucaena leucocephala</i>	lead tree	N	N, C, S
<i>Landoltia punctata</i> (= <i>Spirodela punctata</i>)	Spotted Duckweed		N, C, S
<i>Limnophila sessiliflora</i>	Asian marshweed	P, U	N, C, S
<i>Livistona chinensis</i>	Chinese fan palm		C, S
Melia azedarach	Chinaberry		N, C, S
<i>Melinis minutiflora</i>	Molassesgrass		C, S
<i>Merremia tuberosa</i>	wood-rose		S
<i>Mikania micrantha</i>	mile-a-minute vine	N, U	S
<i>Murraya paniculata</i>	orange-jessamine		S
<i>Myriophyllum spicatum</i>	Eurasian water-milfoil	P	N, C, S
<i>Panicum maximum</i> (= <i>Urochloa maxima</i> , <i>Megathyrsus maximus</i>)	Guinea grass		N, C, S
<i>Passiflora biflora</i>	two-flowered passion vine		S
<i>Pennisetum setaceum</i>	green fountain grass		S
<i>Phoenix reclinata</i>	Senegal date palm		C, S
<i>Phyllostachys aurea</i>	golden bamboo		N, C
<i>Pittosporum pentandrum</i>	Philippine pittosporum, Taiwanese cheesewood		S
<i>Pteris vittata</i>	Chinese brake fern		N, C, S
<i>Ptychosperma elegans</i>	solitaire palm		S
<i>Rhoeo spathacea</i> (see <i>Tradescantia spathacea</i>)			
<i>Ricinus communis</i>	castor bean		N, C, S
<i>Rotala rotundifolia</i>	roundleaf toothcup, dwarf Rotala		S
<i>Sansevieria hyacinthoides</i>	bowstring hemp		C, S
<i>Sesbania punicea</i>	purple sesban, rattlebox		N, C, S
<i>Solanum diphyllum</i>	two-leaf nightshade		N, C, S
Solanum torvum	susumber, turkey berry	N, U	N, C, S
<i>Sphagneticola trilobata</i> (= <i>Wedelia trilobata</i>)	wedelia		N, C, S
<i>Stachytarpheta cayennensis</i> (= <i>S. urticifolia</i>)	nettle-leaf porterweed		S
<i>Syagrus romanzoffiana</i> (= <i>Arecastrum romanzoffianum</i>)	queen palm		C, S
<i>Syzygium jambos</i>	Malabar plum, rose-apple		N, C, S
<i>Talipariti tiliaceum</i> (= <i>Hibiscus tiliaceus</i>)	mahoe, sea hibiscus		C, S
<i>Terminalia catappa</i>	tropical-almond		C, S
<i>Terminalia muelleri</i>	Australian-almond		C, S
Tradescantia spathacea (= <i>Rhoeo spathacea</i> , <i>Rhoeo discolor</i>)	oyster plant		S
<i>Tribulus cistoides</i>	puncture vine, burr-nut		N, C, S

<i>Vitex trifolia</i>	simple-leaf chaste tree		C, S
<i>Washingtonia robusta</i>	Washington fan palm		C, S
<i>Wedelia</i> (see <i>Sphagneticola</i> above)			
<i>Wisteria sinensis</i>	Chinese wisteria		N, C
<i>Xanthosoma sagittifolium</i>	malanga, elephant ear		N, C, S

Recorded Onsite