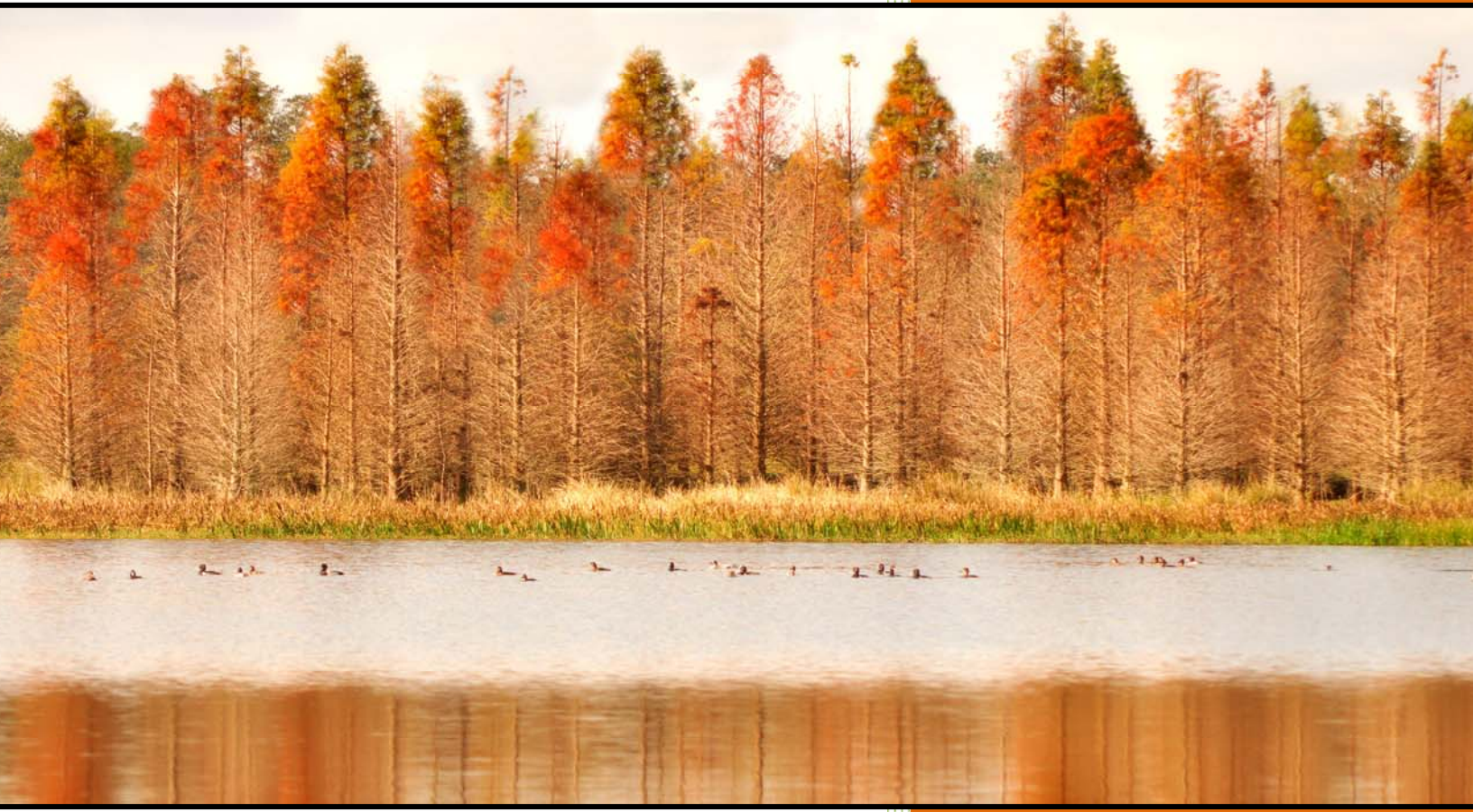
April 2013

Makinson Island Conservation Area

Land Management Plan



Prepared For:

Osceola County Natural Resources

ESA

LAND MANAGEMENT PLAN
Makinson Island - Osceola County
April 2013

TABLE OF CONTENTS

LIST OF MAPS

LIST OF FIGURES

LIST OF TABLES

APPENDICIES

LAND MANAGEMENT PLAN
Makinson Island - Osceola County

1.0 INTRODUCTION

Believed to be the 1807 birthplace of Seminole Indian Chief Coacoochee, the ±131-acre Makinson Island (Makinson Island) was purchased by the State of Florida in 1999. Actively managed by Osceola County, with support from cooperating public partners, the island is an area for passive public recreation which includes: hiking, bird watching, fishing, opportunities for viewing wildlife, canoeing, natural and cultural resource education, and general aesthetic enjoyment of Osceola County's natural resources. This document serves as an update to the 2001 Conceptual Management Plan.

2.0 AREA OVERVIEW

The landscape of Makinson Island is characterized by concentric bands of wetland to upland habitats: from the Lake Tohopekaliga littoral shelf the site contains freshwater marsh and shrub wetlands that slope landward into a mosaic of cypress swamp and cabbage palm hammock. These wetland areas surround upland communities of live oak hammocks, pastures and rangeland, fallow citrus groves, spoil areas, ditches and swales.

2.1 Location

Makinson Island is sited wholly within the northern third of Lake Tohopekaliga, immediately south of Paradise Island and approximately 1 mile north of the Granada Avenue boat ramp. The property lies within Sections 3, 4, 9 and 10 of Township 26 South and Range 29 East in the U.S. Geological Survey's Lake Tohopekaliga and Kissimmee Quadrangles. Access to the site is only obtained by motorized boat or kayak/canoe (**Map 1: 2010 Aerial; Map 2: Location and USGS Topographic Map)**.

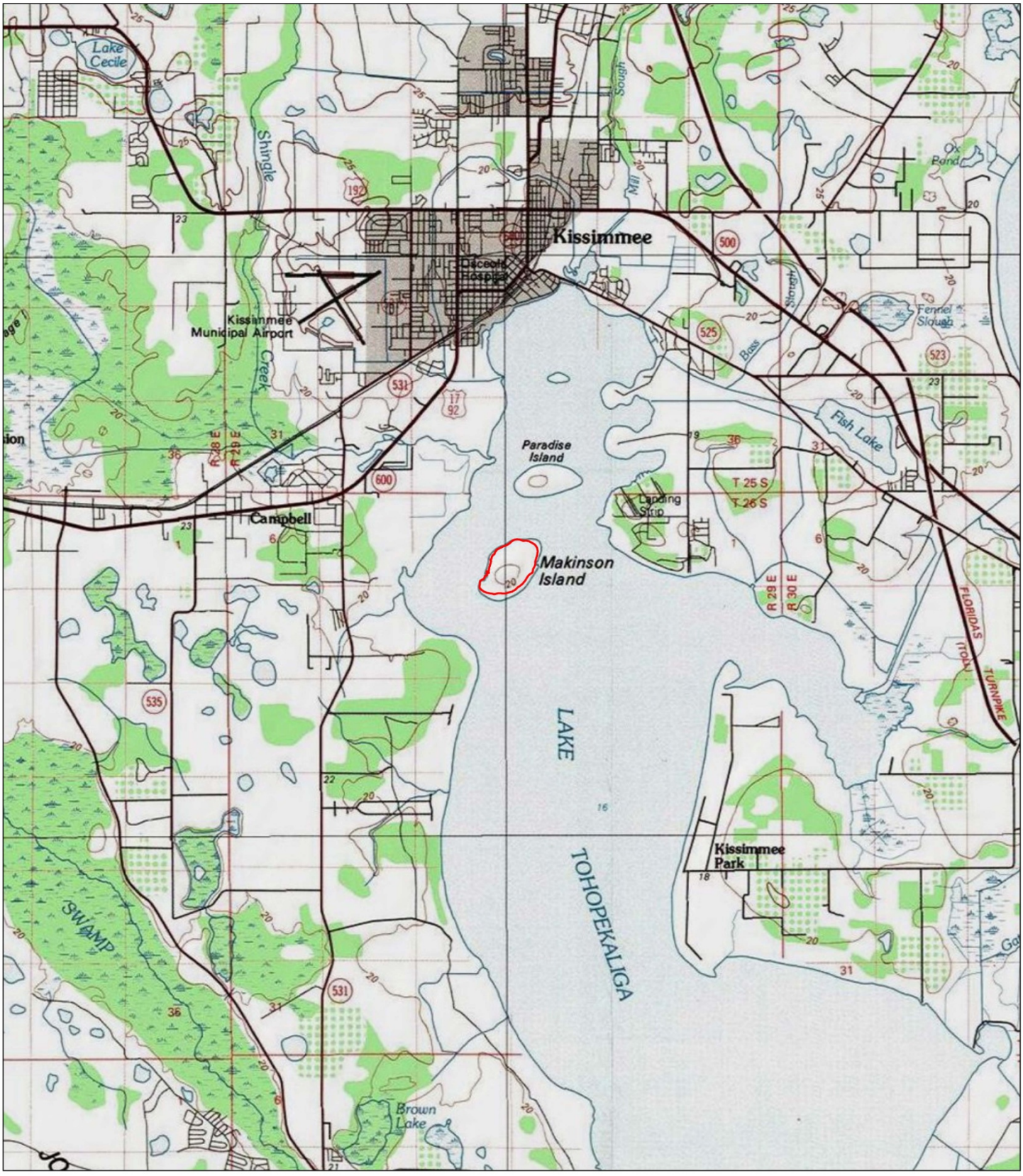
2.2 Acquisition

Makinson Island was purchased in 1999 by the State of Florida. The Florida Fish and Wildlife Conservation Commission (FFWCC) acquired the property using Preservation 2000 monies utilizing the Trust for Public Land as an intermediary. A number of development options, including a golf course and a time share community, were being considered by the owner of the island prior to this acquisition. Such development would likely have resulted in an adverse effect on the water quality in Lake Tohopekaliga. Acquisition of the property has helped to ensure the proper management of the Lake Tohopekaliga Fish Management Area by removing impediments, and potential opposition, to periodic extreme lake drawdowns and habitat enhancement projects on the lake. The island is primarily managed by Osceola County, with input from FFWCC and the City of Kissimmee, a non-managing partner.

2.3 Vegetative Communities

The land use and habitat types within the project area were assigned according to the dominant species for the most relevant vegetative stratum. Habitat types are based on the Florida Department of Transportation (FDOT) Florida Land Use, Cover and Forms Classification System (FLUCFCS, 1999). The land use and habitat boundaries were determined by interpretation of the aerial photographic

ESA N W E S 1 in = 0.12 miles	**Map 1** 2010 Aerial Makinson Island Land Management Plan 2013	



ESA N W E S 1 in = 1.5 miles	**Map 2** USGS Topographic Map Makinson Island Land Management Plan 2013	Makinson Island

signatures and verified through ground truthing (**Map 3: FLUCFCS**). A summary of the major FLUCFCS types occurring on Makinson Island, and a brief description of each, is provided below.

Rangeland (FLUCFCS Code 300)

Rangeland is the dominant land use within the central upland portion of the site and comprises approximately 52.3 acres; 39.4% of the total island area. The improved pastures on the property appear to cover historical oak and pine forests. The pasture areas have been fallow for over a decade and, in addition to a dominance of bahiagrass (*Paspalum notatum*), currently support a significant percentage of native grasses and forbes such as broomgrass (*Andropogon spp.)* and flat-top goldenrod (*Euthamia caroliniana)*. Cabbage palms (*Sabal palmetto*) are also recruiting and growing in this area, in the absence of grazing animals.

Live Oak (FLUCFCS Code 427)

This land cover exists primarily as a mesic oak hammock. It is bordered on the north and east by fallow rangeland and to the south and west by lake swamp. The live oak community occupies ~19 acres, or 14.4% of the site. The canopy in this community is dominated by mature live oaks (*Quercus virginiana*) that exhibit prolific coverage by Spanish moss (*Tillandsia usneoides*). The understory and groundcover in this community is dominated by scattered cabbage palms and bahiagrass. Within this FLUCFCS are remnants of an abandoned citrus grove (FLUCFCS 221). The grove has not been maintained for several decades and the area has colonized with native shrub and groundcover. Many of the citrus trees have been removed or persist only as dead snags. Fruits are sour on remaining individuals. Approximately two dozen viable trees remain, scattered in random sections of relict citrus rows over a 1.5 -2 acre area beneath the canopy of the live oak FLUCFCS.

Cabbage Palm (FLUCFCS Code (428)

A mature cabbage palm hammock forms a concentric band around the island and serves as a transitional area between the lake swamp and the upland communities. This area is approximately 13 acres in size, or 10% of the island area. The dominant canopy vegetation is cabbage palm and common understory plants include foxtail grasses (*Setaria* spp.) and beautyberry (*Callicarpa americana*).

Lake Swamp (FLUCFCS Code 615)

The lake swamp land cover represents approximately 25.5 acres of the island's littoral shelf, 19.6% of the total island area. This zone is well vegetated, and provides diverse habitat for a large variety of wildlife. Bald cypress (*Taxodium distichum*), red maple *(Acer rubrum),* sweetgum *(Liquidambar styraciflua),* and live oak are common canopy species. Common groundcover and understory vegetation in this community includes Egyptian Paspalidium (*Paspalidium geminatum),* maidencane (*Panicum hemitomon*), pickerelweed (*Pontederia cordata*), duck potato (*Sagittaria lancifolia*), cattails (*Typha spp.*), smartweed (*Polygonum spp*.), water primrose (*Ludwigia spp*.), giant bulrush (*Scirpus californicus*) and Carolina willow (*Salix caroliniana*).

Freshwater Marshes (FLUCFCS Code 641)

This land cover occurs waterward of the lake swamp and encircles the island. Approximately 21.8 acres, or 16.6% of the site is comprised of freshwater marsh. Common vegetation within the marsh communities includes Egyptian Paspalidium, maidencane, pickerelweed, duck potato, cattails, smartweed, water primrose, giant bulrush and Carolina willow.

The approximate acreages of the identified FLUCFCS areas on Makinson Island are summarized below.

Rangeland (300)	52.3 acres
Live Oak (427)	19.0 acres
Cabbage Palm (428)	13.0 acres
Lake Swamp (615)	25.5 acres
Freshwater Marshes (641)	21.8 acres
Total	131.6 acres

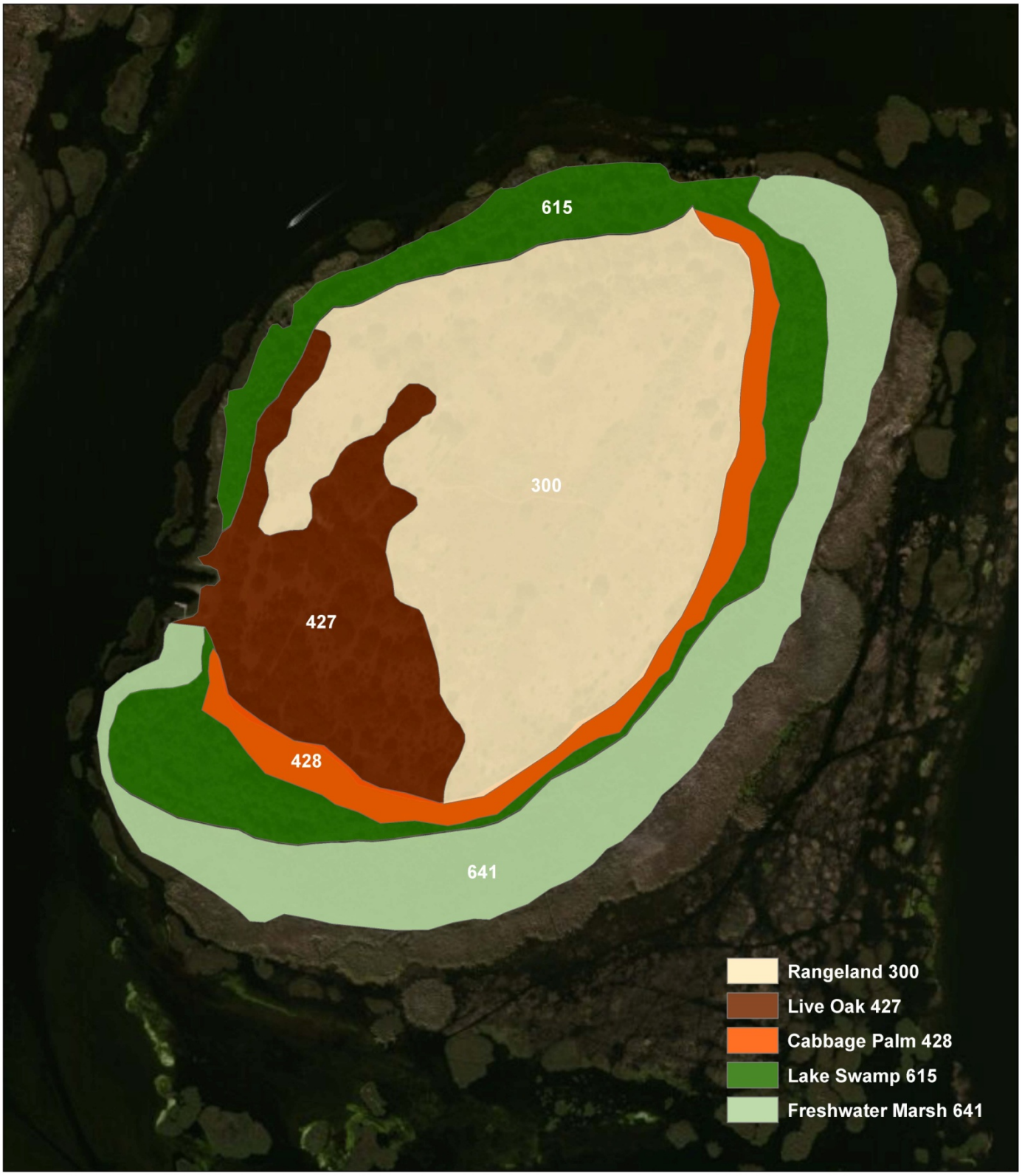
2.4 Soils

Nine different soil map units (as identified by the NRCS Soil Survey for Osceola County Area publication, issued May 2011) are present within Makinson Island (**Map 4: NRCS Soil Survey**). Four the map units meet NRCS hydric soil criteria. A description of each map unit, hydrologic characteristics and associated ecosystems is detailed in **Appendix II**. Also included are descriptions of the expected vegetative communities for the soil type and what exists in the present condition. This information is derived from data included in the Soil Survey for Osceola County and by an examination of adjacent, natural communities with equivalent soils.

2.5 Topography and Hydrology

Topography varies between 55 to 70 feet above the National Geodetic Vertical Datum (NGVD) of 1929. Contours provide for sheet flow run-off from elevation 70 feet NGVD near the southern, central portion of the island waterward to the shore of Lake Tohopekaliga. Wetlands along the littoral zone buffer the island uplands from the open waters of Lake Tohopekaliga; (**Map 2: USGS Topographic)**.

Makinson Island is located within the Lake Tohopekaliga Watershed, which comprises a portion of the upper (northern) reach of the Kissimmee River Basin (**Map 5: SFWMD Watersheds**). Surface water flow in this 2,940 square-mile basin is generally to the south, into Lake Okeechobee. The basin is approximately 105 miles long, with a maximum width of 35 miles, and represents the largest source of surface water for Lake Okeechobee. The northern portion of the basin, termed the “Chain of Lakes”, comprises numerous lakes, some of which have been interconnected by canals, in similar fashion to the C-31 canal connection between East Lake Tohopekaliga and Lake Tohopekaliga. The Chain of Lakes terminates at State Road 60, where the largest lake in the chain, Lake Kissimmee, flows south into the Kissimmee River. The southern portion of the basin includes the Lake Wales Ridge lakes, the Kissimmee River, and its tributary watersheds, including flow from the Lake Istokpoga Watershed.



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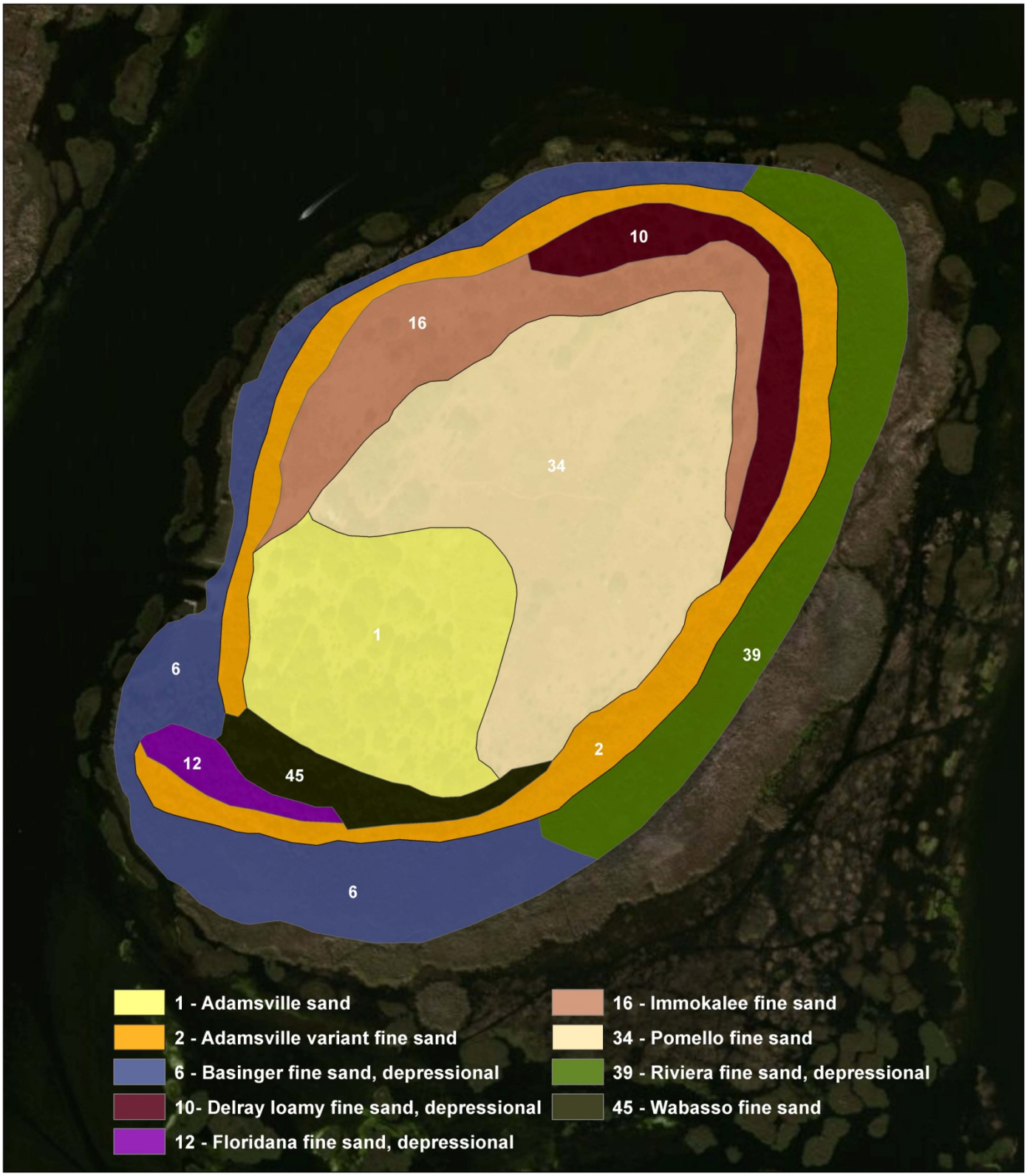
Map 3
FLUCFCS Mapping
Makinson Island
Land Management Plan 2013



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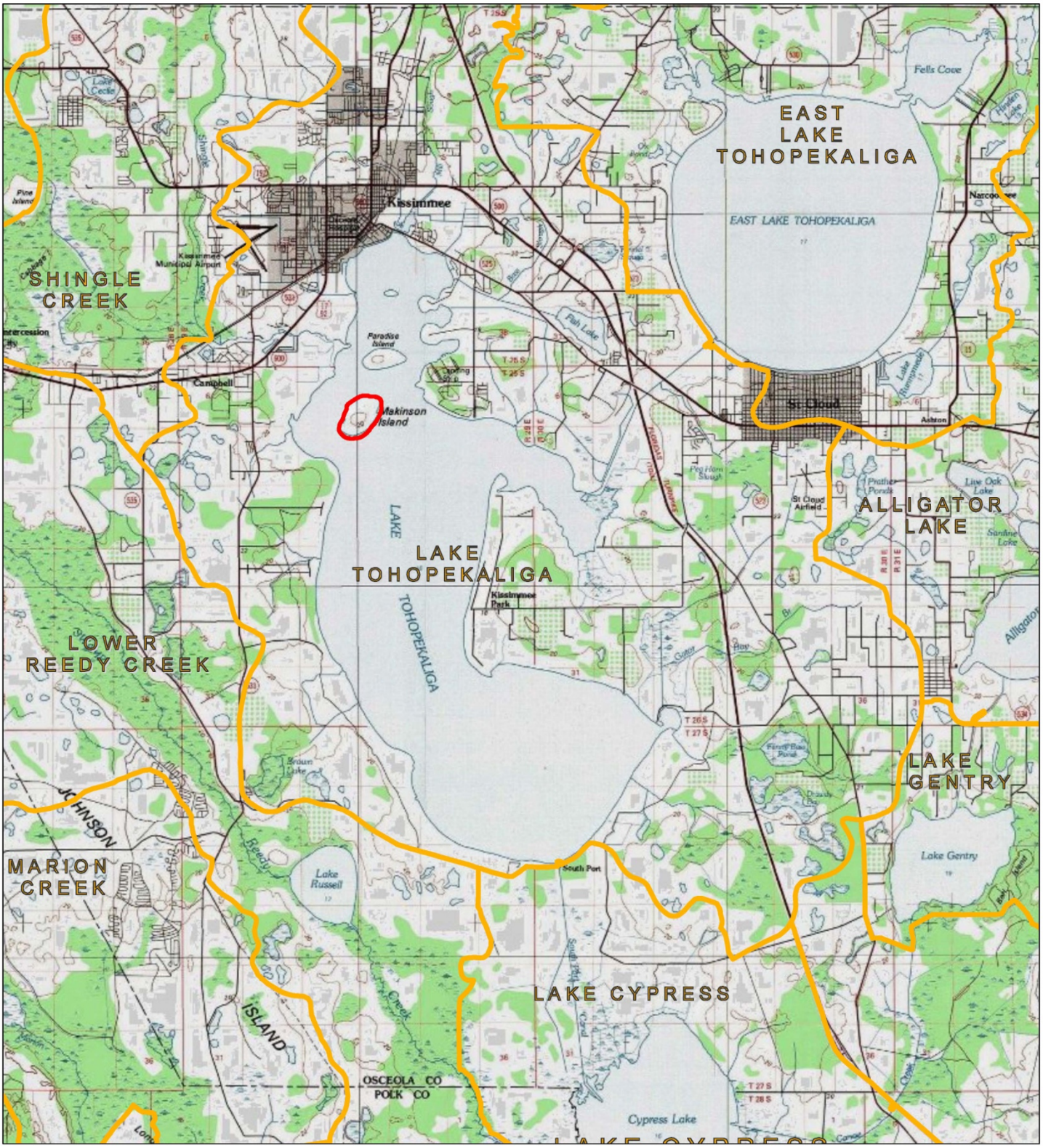
Map 4
NRCS Soil Survey
Makinson Island
Land Management Plan 2013



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Map 5
SFWMD Watersheds
Makinson Island
Land Management Plan 2013

Makinson Island

Watersheds

2.6 Plant and Wildlife Species and Associated Habitats

Faunal Assemblages

Eleven (11) animal species (10 avian, 1 reptile) considered endangered, threatened, or of special concern, as protected by U.S. Fish and Wildlife Service (FWS) and/or FFWCC, or identified as a rare species by Florida Natural Areas Inventory (FNAI) state tracking, were observed (or evidence of the species was observed) during field surveys of the subject property conducted during January 2013 (**Table I, Appendix I**). Direct evidence or observations of non-listed wildlife species utilizing the property include 23 avian, 4 mammal, and 4 reptile/amphibian species (**Table II, Appendix I).**

Floral Assemblages

The interior of the site is largely comprised of fallow rangeland/pasture with a ground cover dominance of bahiagrass interspersed with other forage grasses such as limpograss (*Hemarthria altissima*). Native grasses and forbes, such as broomgrasses and flat-top goldenrod, and an occasional woody species, such as cabbage palm and oak, are recruiting over much of the fallow range. Against the interior sandy uplands, live oak hammock, cabbage palm hammock, hydric hammock and floodplain swamp encircle the island. A floodplain marsh buffers these forested wetlands from the open water of Lake Tohopekaliga, No plant species listed as protected by FWS and/or FFWCC were documented to occur on site. Habitat restoration is proposed for Makinson Island and in the post-restoration state, five target habitat communities have been selected for propagation and/or enhancement and perpetual maintenance and management. These include floodplain marsh, floodplain swamp, hydric hammock, live oak/mesic hammock, and prairie mesic hammock. Details on these communities can be found in Section 3.4, Restoration and Enhancement Activities.

Several nuisance and/or exotic pest plants were identified within the subject property. Coverage by such vegetation is approximately 25 percent of entire project area. This estimated coverage includes only highly invasive or noxious vegetation as listed by the Florida Exotic Pest Plant Council (FLEPPC), Florida Department of Agriculture and Consumer Services (FDACS) or the United States Department of Agriculture. It does not include all non-native vegetation, such as widespread improved pasture grasses, but does include managed species such as tropical soda apple, Chinese tallow, camphor tree and Brazilian peppertree. **Table IV, Appendix I**, provides a detailed list of nuisance and exotic plants observed and their associated ranking by FLEPPCS, FDACS and USDA.

2.7 Historical, Cultural and Archaeological Resources

Makinson Island has been identified by many names historically, including Cypress, Oliver, Flemings and Jernigan's Island. It is postulated as the birthplace of Coacoochee (1810 – 1857), a Seminole Indian chieftain, the son of King Philip (Emathla) who was the leader of the Seminole nation. Coacoochee would become one of the most respected Seminole war leaders, after the death of the prominent Osceola, who died in military custody. Coacoochee rallied other Seminoles to resist the U.S. Army and used the lake swamps and islands of Lake Tohopekaliga as his sanctuary. Makinson Island was the home of stockade-like encampments where Seminole families had found safe shelter even prior to the Second Seminole War (1835-1842). The Seminoles called the lake *Tohopekaliga*, which translates roughly to "fort site" because the dense swamp and marsh habitats provided protection. It is reported that wild game, fish and coontie (*Zamia pumila*) were the primary food source for those seeking refuge on the island.

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Map 6
Historical Resources
Makinson Island
Land Management Plan 2013

Historic Site
OS02464
Makinson Island

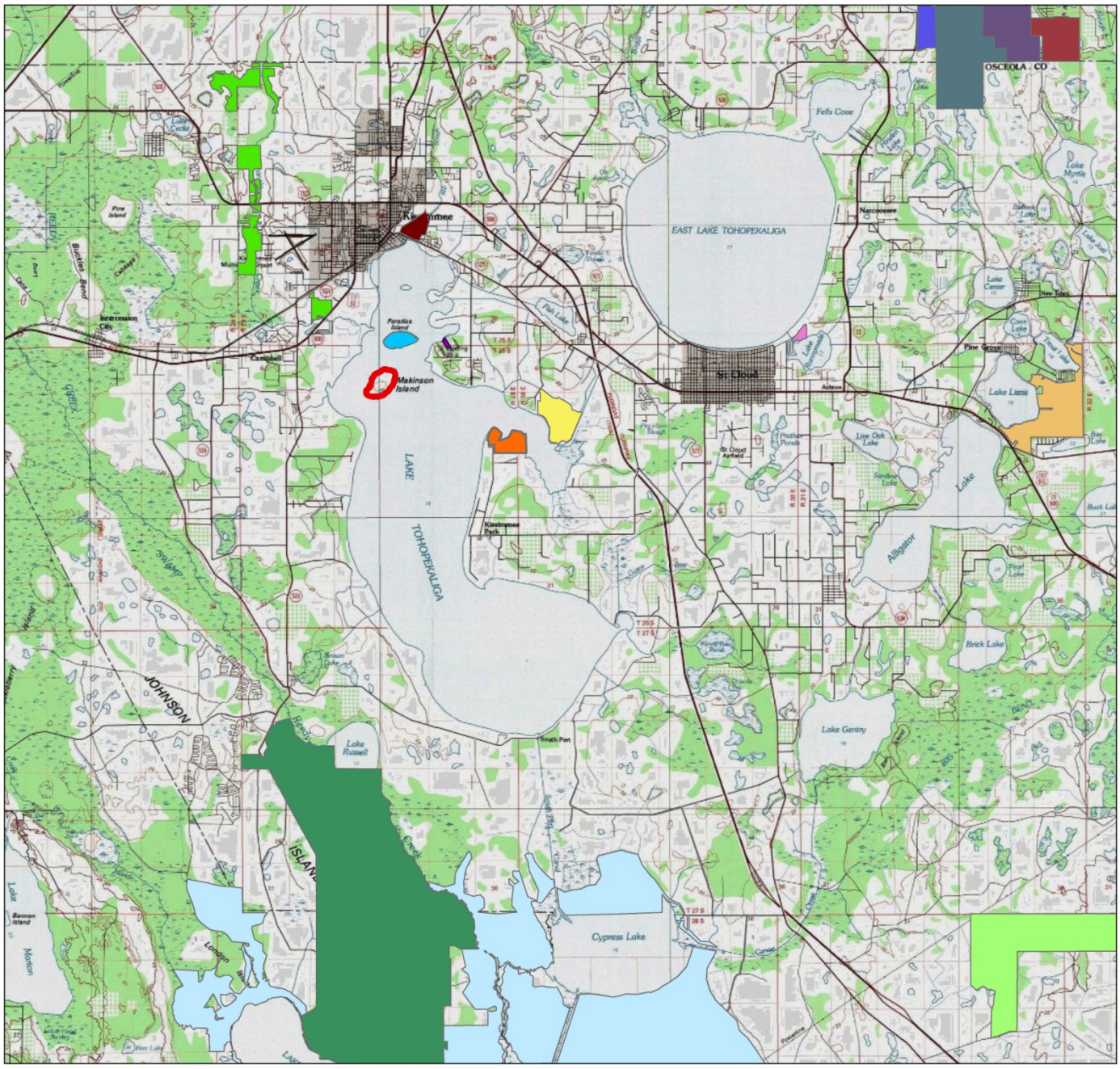
The first known Americans to settle on Makinson Island were Aaron Jernigan and his brother, Isaac. In 1843 they claimed the island, now abandoned by the Seminoles, and named it Jernigan's Island. Although most Seminoles (those who refused to be relocated to reservations outside the state) had been driven by the U.S. Army and militia south into the swamps of Big Cypress and the Everglades, periodic Indian raids on the Jernigan island camp continued, eventually forcing the family to return to safer settlements on the mainland. Soon after the island was vacated by the Jernigan's, the island would become the home of former Confederate Maj. J.H. Allen of Kentucky, one of Lake Tohopekaliga's first commercial steamboat captains. It is presumed at this time the island was referred to as "Flemings Island," as that is it's designation in documents issued by the Army Corp of Engineers in 1901. At the turn of the century, J.W. Oliver, an attorney from Alabama, purchased the island. The Oliver family lived there for over a decade. The island was later owned by a physician, C.D. Christ. Circa 1940, the well-drained, sandy upland areas of the property were cleared and converted to citrus grove. It is reported that the island was also planted with pecan trees and bananas. The current name "Makinson Island" was given to the land when the Makinson family, owner of Kissimmee's first hardware store, purchased the island.

In recent decades prior to being in public land use, the island was owned by R.H. Dickerman and utilized as the exotic wildlife preserve and tourist attraction, Cypress Island. From 1982 to 1995 Mr. Dickerman used it as a habitat sanctuary for his personal collection of more than 250 exotic animals native to Australia, New Zealand, Africa, Asia and South America. Exotic fauna included rheas, emus, llamas, maras, sheep, and goats. Current exotic animal sightings include maras (cavies), goats and feral hogs.

Although the island has a long anecdotal history, it would appear that no significant cultural, historical or archaeological resources persist on the island. It is presumed that any artifacts relating to the Seminole Indian encampments or turn of the century residents have been collected or destroyed by those who have occupied the island for over a century. The only known archaeological site on record with the Florida Department of Historical Resources (DHR) Master File was a cracker-style single family residence, presumably built circa 1950. This historical structure was approved for demolition in 2006 by the DHR (**Map 6: Historical, Cultural and Archeological Resources).** A copy of the demolition approval and reference photographs of the structure can be found in **Appendix III, Cultural Resources.**

2.8 Regional Significance

Makinson Island is a unique public land resource offering a one of a kind old-Florida history and habitat experience which will augment other public lands available in the area (**Map 7: Public Lands Locations**). Makinson Island provides habitats for many fish and wildlife species, including listed species such as the Southern bald eagle, Florida sandhill crane, Everglades snail kite and wood stork. These and many other listed and non-listed species were observed utilizing the site during field investigations. In addition, the island and surrounding marsh landscape offer significant stopover habitat for migratory birds, especially waterfowl.



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Map 7
Public Lands Locations
Makinson Island
Land Management Plan 2013

Lake Tohopekaliga is a popular sport fishing destination in Florida and a popular site for eco-tourism. Several certified, record-sized large-mouth bass have been produced from the lake over the years. FWC currently lists Lake Tohopekaliga as one of the top fishing locations in Florida for bass, crappie and sunfish (bream) species. The protection and enhancements to the shoreline of Lake Tohopekaliga along the property boundary will preserve and enhance the existing sport fishery of the lake.

3.0 LAND MANAGEMENT GOALS AND OBJECTIVES

Understanding that the island was purchased with the intent of preserving management actions for the Lake Tohopekaliga Fish Management Area, the County intends to provide access and facilities in support of the enjoyment of fisheries resources. Additionally, the County's purpose in managing the property includes 3 primary goals;

1) Natural resource protection;
2) Restoration, enhancement and maintenance of aquatic, wetland and upland habitats to support fish and other wildlife; and
3) Support for passive public recreation and educational opportunities.

To best facilitate the integration of these three goals, the land management strategy will be scheduled into three phases, the goals and objectives of each phase to be discussed independently;

- Phase I: Public Access, Basic Facilities and Initiation of Land Management Activities
- Phase II: Enhanced Facilities
- Phase III: Perpetual Management and Maintenance of Natural Areas and Facilities

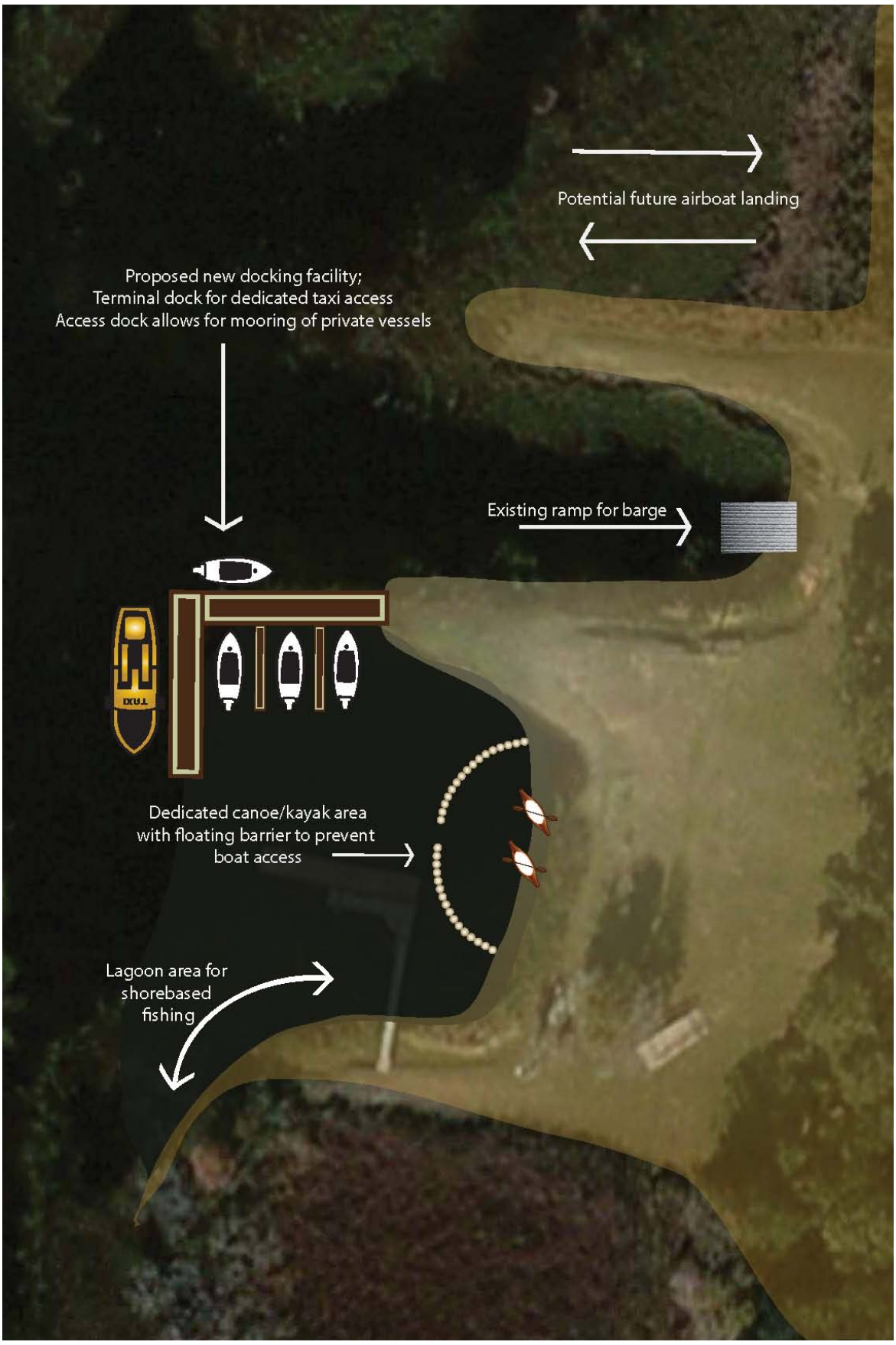
Figure I: Improved Docking Facilities and **Figure II: Park F acility Design and General Habitats** provides a depiction of the proposed improved public access and the location of the various park facilities and amenities for recreational enjoyment. Also depicted are the locations of the general habitat types to be maintained or enhanced with the scheduled land management activities.

3.1 Phase I - Public Access, Basic Facilities and Initiation of Land Management Activities

Phase I will enhance public access to the park and provide opportunities for hiking, camping, fishing and picnicking. There are two goals for Phase I:

1. **Provide for Improved P ublic Access** : Design, permit and install primary facilities; secure utilities; enhance camping amenities (**Figures I** and **II**).
2. **Initiate Land Management Activities** : Initiate fire management, exotic species removal, and habitat restoration (upland pine plantings) and continue nuisance wildlife removal.

Figure 1: Improved Docking Facilities



Goal 1: Provide for Public Access

	OBJECTIVE NUMBER AND DETAILS	IMPLEMENTATION
1.	Design docking facilities, fishing pier and screen-enclosed lodge shelter	Phase I
2.	Coordinate with City of Kissimmee regarding Water Taxi from Kissimmee Lakefront Park to Makinson Island	Phase I
3.	Coordinate with regulatory agencies and submit permit application(s) for improved docking areas, screen-enclosed lodge, improved access to entrance amenities, fishing pier	Phase I-II
4	Install trail markers, information and educational signs/kiosks	Phase I
5.	Install security protection (enclosures) for utility box(es) and pump(s)	Phase I
6.	Construct additional fire pit(s) and campsite improvements	Phase I
7.	Construct improved docking areas, improved stabilized access to entrance amenities	Phase II

Goal 2: Habitat Restoration

	OBJECTIVE NUMBER AND DETAILS	IMPLEMENTATION
1.	Initiate prescribed fire management plan	Phase I
2.	Remove debris/trash	Phase I
3.	Initiate upland pine planting plan	Phase I
4.	Begin exotic/nuisance plant removal and maintenance	Phase I
5.	Implement / continue nuisance wildlife trapping and removal	Phase I

3.2 Phase II - Enhanced Facilities

Phase II will enhance site amenities and provide additional opportunities for fishing and wildlife observation. There are two primary goals for Phase II:

1. **Enhanced Public Recreation**: Expand recreational opportunities with additional facilities for shore-based fishing and amenities for user groups and coordinate with FFWCC to identify additional enhancements and potential interconnection with Paradise Island
2. **Maintenance and Management**: Commence maintenance and management program in upland and wetland habitats to promote plant species diversity and encourage wildlife utilization.

Goal 1: Enhanced Public Recreation

	OBJECTIVE NUMBER AND DETAILS	IMPLEMENTATION
1.	Construct fishing pier at north end of island	Phase II
2.	Obtain approvals and install "fish attractors" / citrus trees at terminus of fishing pier	Phase II
3.	Construct screened lodge for user / group activities	Phase II
4.	Integrate into City of Kissimmee Water Taxi route	Phase II
5.	Add concessionaire to Makinson / Paradise Island	Phase II
6.	Enhance experience with interconnection of Makinson and Paradise Islands (contingent upon Paradise Island improvements)	Phase II

Goal 2: Maintenance and Management

	OBJECTIVE NUMBER AND DETAILS	IMPLEMENTATION
1.	Maintain upland and wetland community structure to provide for plant species diversity and habitat richness for the Southern bald eagle, Everglades snail kite, Florida sandhill crane, and other wildlife.	Phase II
2.	Install pine, coontie plantings and continue habitat restoration	Phase II
3.	Continue exotic/nuisance plant removal and maintenance plan	Phase II
4.	Continue nuisance wildlife controls	Phase II
5.	Maintain coordination with FWC, local partners and recreation user groups	Phase II
6.	Maintain public use facilities/amenities	Phase II

3.3 Phase III: Perpetual Management

Phase III includes the long-term management actions required to enhance and maintain onsite habitats and public use and access. There are three primary goals associated with this long-term management:

1. **Natural Area Main tenance and Manageme nt:** Manage natural communities and restored habitats to protect and enhance water, floral, and faunal resources.

2. **Public Use:** Provide safe, resource-based public use opportunities and education.
3. **Facilities:** Maintain Makinson Island infrastructure and facilities.

Goal 1: Natural Area Maintenance and Management

	OBJECTIVE NUMBER AND DETAILS	IMPLEMENTATION
1.	Continue prescribed fire/vegetation management program	Phase III
2.	Continue exotic/nuisance plant removal and maintenance plan	Phase III
3.	Continue nuisance wildlife control	Phase III
4.	Implement a monitoring/evaluation program for the restored/planted habitats	Phase III
5.	Maintain public use facilities/amenities	Phase III

Goal 2: Provide Safe, Resource Based Public Use and Education

	OBJECTIVE NUMBER AND DETAILS	IMPLEMENTATION
1.	Review site security and access	Phase III
2.	Document public use of Makinson Island and implement adaptive management to address additional facility / amenity needs	Phase III
3.	Routinely update and maintain information kiosks	Phase III

Goal 3: Maintain Makinson Island Infrastructure and Amenities

	OBJECTIVE NUMBER AND DETAILS	IMPLEMENTATION
1.	Maintain docking facilities, fishing piers, lodge	Phase III
2.	Monitor and maintain trails and firebreaks	Phase III
3.	Maintain and update (as needed) facilities and amenities	Phase III

In addition to the identified actions, the County will continue to work with its cooperating partners to identify additional opportunities for enhancement of Makinson Island. One potential future opportunity may include development of FFWCC –owned Paradise Island which is located to the north of Makinson. Development of amenities at Paradise Island may allow for some interconnected use(s), including expanded camping or educational opportunities.

3.4 Land Management and Enhancement Activities;

"Target" communities for the Makinson Island Land Management Plan (LMP) were identified by evaluation of habitats that would provide maximum, self-sustaining ecosystem support for the fish and wildlife of the island and Lake Tohopekaliga, while maintaining compatibility with the passive recreation and education opportunities desired by Osceola County. These target communities are described in this section. The descriptions are generally derived from the Florida Natural Areas Inventory - Guide to the Natural Communities of Florida: 2010 Edition.

On-site wetland communities and the cabbage palm and live oak hammock ecosystems that occupy the site will undergo enhancement activities that include exotic species removal and prescribed fire, where appropriate. These activities will improve the habitat quality provided to fish and wildlife dependent on these community types. The existing reference community types, however, will remain unchanged. Utilizing historical aerial imagery, soil maps and literature research, the target community for the central portion of the island was selected based on the probable natural ecosystem that existed there prior to conversion to rangeland.

Floodplain Marsh (Target Community Type 1)

Floodplain marshes occur along river or lake floodplains and are comprised of grassy, herbaceous and shrubby vegetation. There is a variety of different vegetative assemblages that occur within floodplain marshes that provide suitable habitat for diverse wildlife species. Floodplain marsh in general provides filtration, protecting associated rivers and lakes from eutrophication (nutrient enrichment). This habitat type is endangered in Florida, where much of it has been degraded through drainage alterations and land reclamation for agricultural uses. Such man-made activities have impacted the health and abundance of this ecosystem in the Kissimmee River basin. This community currently exists long the lakeshore of Lake Tohopekaliga, though much of it is in a highly disturbed state from cattle browsing and historic land management activities

Floodplain marshes occur along river or lake floodplains and are comprised of grassy, herbaceous and shrubby vegetation. This community currently exists around the island along the lakeshore of Lake Tohopekaliga and separates the lake from the more inland floodplain swamp community. Characteristic vegetation within this community currently includes:

- American lotus (*Nelumbo lutea*)
- Cattail (*Typha spp*.)
- Duck potato (*Sagittaria latifolia*)
- Maidencane (*Panicum hemitomon)*
- Paspalidium *(Paspalidium geminatum)*
- Pickerelweed (*Pontederia cordata*)
- Plant-like algae (*Nitella sp, Chara sp*.)
- Sand cordgrass (*Spartina bakeri*)
- Soft rush (*Juncus effuses*)
- Softstem bulrush (*Scirpus cyperinus*)
- Spatterdock (*Nuphar lutea*)
- White waterlily (*Nymphaea odorata*)

Shrub species like Carolina willow (*Salix caroliniana*), buttonbush (*Cephalanthus occidentalis*), elderberry (*Sambucus canadensis*), and wax myrtle (*Myrica cerifera*) are also established in the shallow zones of the marsh or upon hummocks, or spots of high elevation within the deeper pools. These areas are sources of beneficial forage, nesting and refugia areas, provided they do not proliferate to monocultures.

Management Considerations: Natural fires probably occasionally burned portions of floodplain marshes at the end of the dry season. Natural seasonal and longer-term fluctuations in water level are important for maintaining the diversity of marsh vegetation. If the water level is artificially stabilized, species such as cattail that can tolerate long periods of inundation will tend to dominate. Stabilized water levels, along with increased nutrient levels from agricultural runoff, can result in the invasion of exotics, such as water hyacinth (*Eichhornia crassip*es) and Cuban bulrush (*Oxycaryum cubensis*) or proliferation of species such cattail *(Adapted from FNAI - Guide to the Natural Communities of Florida: 2010).*

Floodplain Swamp (Target Community Type 2)

Floodplain swamp is a closed-canopy forest of hydrophytic trees occurring on frequently or permanently flooded hydric soils adjacent to floodplains. Trees are often buttressed, and the understory and groundcover are sparse. This community currently exists around the island and separates, generally, the floodplain marsh from the hydric hammock. Characteristic vegetation within this community currently includes:

- Bald cypress (*Taxodium distichum*)
- Cabbage palm *(Sabal palmetto*)
- Pond cypress *(Taxodium ascendens*)
- Red maple *(Acer rubrum*)
- Swamp tupelo (*N. sylvatica* var. *biflora*)

A groundcover of flood tolerant ferns and herbs are found as well including swamp fern (*Blechnum spp*.) cinnamon fern (*Osmunda cinnamomea*), lizard's tail *(Saururus cernuus*) and false nettle (*Boehmeria cylindrical*).

Management Considerations: Floodplain swamp is usually too wet to support fire; however, large cypress trees are somewhat fire-resistant, and thus infrequent fires during very dry conditions may contribute to cypress dominance. Floodplain swamp communities provide important wildlife habitat, contribute to flood attenuation, and help protect overall water quality. Artificial water impoundments can severely limit the effects of seasonal flooding that maintain the health of these systems, including the stabilization of deposits and flushing of detritus. Alteration of the natural hydroperiods of swamps can decrease their productivity *(Adapted from FNAI - Guide to the Natural Communities of Florida: 2010).*

Hydric Hammock (Target Community 3)

This community is an evergreen hardwood and cabbage palm forest with a variable understory typically dominated by palms and ferns occurring on moist soils. On the subject property, the community generally has a closed canopy of oaks and palms, an open understory, and a sparse to a moderate groundcover of grasses and ferns. Characteristic vegetation within this community currently includes:

- Cabbage palm
- Live oak (*Quercus virginiana*)
- Red maple
- Sugarberry (*Celtis laevigata*)
- Sweetgum (*Liquidambar styraciflua*)

Management Considera tions: Species composition is mainly influenced by flooding patterns. Fire is not considered an important component of hydric hammock dynamics; however, they do burn occasionally. Cabbage palms are fire tolerant and intense fires favor this species. Live oak can survive low intensity fires. While most hydric hammock trees are at least somewhat adapted to flooding, the ranges of tolerance vary according to timing and depth of inundation. Effective conservation management primarily consists of maintaining natural hydrology and controlling exotic plant invasion. This community may be the most preferred habitat of feral hogs (*Sus scrofa*). Control of this species is not only important in order to reduce competition with native wildlife, but also to minimize soil disturbance which decreases diversity of native ground cover within hydric hammock. Soil disturbance and canopy openings allow the spread of exotic invasive plants. On the subject site, Brazilian pepper (*Schinus terebinthifolius*), camphor tree (*Cinnamomum camphora*), Caesar's weed (*Urena lobata*), cogon grass (*Imperata cylindrica*) and guava (*Psidium guajava*), have already established in the hydric hammock communities and efforts to remove and control them will be implemented *(Adapted from FNAI - Guide to the Natural Communities of Florida: 2010).*

<u>Live Oak/Mesic Hammock (Target Community 4)</u>

Mesic hammock is a well-developed evergreen hardwood and/or palm forest on soils that are rarely inundated. The canopy is typically closed and dominated by live oak. On the subject property this is the case, and this is the dominant community type sited in the primary amenities and access dock area. Characteristic species on the subject property include;

- American beautyberry (*Callicarpa americana*)
- Cabbage palm
- Live oak
- Wax myrtle

The ground cover is relatively dense with bahiagrass. Native vegetation includes broomgrasses (*Andropogon spp.*) and flattop goldenrod (*Euthamia caroliniana*). Epiphytes, such as golden polypody (*Phlebodium aureum*), resurrection fern (*Pleopeltis polypodioides* var. *michauxiana*), and air-plants (*Tillandsia* spp.) are also common.

Management Considerations: Mesic hammocks are of considerable importance to wildlife, providing cover, nesting sites, and hardwood mast. Migratory birds use hammocks for resting cover and foraging,

and animals of neighboring wetland communities may take refuge in mesic hammock islands during floods. Mesic hammocks are not considered fire-adapted communities, although cabbage palms are fire tolerant and live oaks have a limited capacity to re-sprout from rhizomes. Effective conservation management primarily consists of controlling exotic plant invasion. On the subject site, Brazilian pepper, camphor tree, Caesar's weed, cogon grass and tropical soda apple (*Solanum viarum*) have already established in the hydric hammock communities and efforts to remove and control them will be implemented *(Adapted from FNAI - Guide to the Natural Communities of Florida: 2010).*

Prairie Mesic Hammock (Target Community 5)

This is a variant of the mesic hammock community described above. For the Makinson Island this community will be a hybrid between the mesic hammock, dry prairie and mesic flatwoods communities. Specifically, the target community will consist of isolated patches of mesic hammock occurring within a larger matrix of pyrogenic vegetation, a mosaic of dry prairie and low-density mesic flatwoods. In the present condition, this area occurs as fallow range within the central portion of the island and characteristic vegetation includes;

- American beautyberry
- Bahiagrass
- Broomsedge
- Cabbage palm
- Flattop goldenrod
- Live oak
- Wax myrtle

This area will be supplemented with low-density longleaf pine (*Pinus palustris*) and Florida coontie (*Zamia pumila*) plantings during habitat restoration. No pines currently exist on site, a paradox, as pines occur on the neighboring Paradise Island (less than ¼ mile away) and are also plentiful on the surrounding mainland (approximately 1 mile away).

Management Considerations: Prairie Mesic Hammock has similar management considerations as the Mesic Hammock community. Prescribed fire, however, will be an important tool to prevent succession into mesic hammock, as hardwoods will invade from the edges of natural hammocks into pine-dominated communities in the absence of fire. The Prairie Mesic Hammock community should experience low intensity fires on a regular basis, to avoid encroachment by hardwoods over the areas of prairie and flatwoods. Invasive vegetation listed above for the Mesic Hammock community also exists within the future Prairie Mesic Hammock area. In addition to these invasive plants, the area also currently contains large stands of Chinaberry (*Melia azedarach*) and lantana (*Lantana camara*). Efforts to remove and control exotics in this area will be implemented *(Adapted from FNAI - Guide to the Natural Communities of Florida: 2010).*

4.0 RESOURCE PROTECTION AND MANAGEMENT

The Resource Management Sections below include, expressed or implied, the following Desired Future Conditions (DFCs), or goals, for the Makinson Island (Makinson Island):

1. Utilize only objectives/methods that enhance function, integrity, and biodiversity;
2. Implement goals/objectives that maintain/foster habitat for all wildlife;
3. Apply prescribed fire at regimes appropriate to the target natural community;
4. Promote forest management that enhances historical forest densities, structure, and basal area and complements other resource management initiatives;
5. Protect project water resources, especially considering specific restoration activities;
6. Restore/enhance natural habitat to the extent practical;
7. Control nuisance/exotic species;
8. Promote and protect cultural, historical and archeological resources;
9. Provide for compatible, resource-based recreation consistent with restoration goals, sensitive natural resources, and ongoing management; and,
10. Manage and use of conservation lands consistent with adjoining land use/infrastructure.

4.1 Security

Goals: The fundamental goal is to maintain effective security for park patrons, natural resources, fish and other wildlife with an emphasis on threatened or endangered species.

Objectives: To meet this goal, the following objectives have been identified:

1. Conduct biannual inspection of restricted areas fencing, gates, locks, and signage;
2. Collaborate regularly with law enforcement to maintain and enhance security;
3. Consider private contractor or off-duty law enforcement to supplement security needs;
4. Install security monitoring cameras, where appropriate, to record illegal or mischief activities
5. Replace and/or repair security fencing, gates, locks, and signage as needed;
6. Document security problems to foster solutions and provide ongoing data for law enforcement;
7. Report harassment of protected species to FFWCC.

Security concerns within the conservation area include illegal boat or access, dumping, vandalism of structures and amenities and poaching. The County will provide appropriate security for Makinson Island through boundary/internal signage and periodic patrols by County Staff, Osceola County Sheriff Office (OCSO), Florida Fish and Wildlife Conservation Commission (FWC), and/or contractors. Consistent with the mission of Osceola County Natural Resources, resource-based recreation will be encouraged insofar as it does not conflict with County code, state and/or federal law, or site-specific restrictions to protect natural resources and listed species. The following site-specific security measures will be implemented at Makinson Island to protect on-site natural, cultural, water resource, and recreational resources.

Resource-based Recreation

Informational signage will be placed at designated locations in Makinson Island, listing and illustrating approved recreation, appropriate access points, restricted areas (sensitive natural areas, listed species

habitat or nest sites, etc.), trails, and observation platforms. To minimize impacts to vegetation, as well as listed species nesting and foraging habitat, airboats and jet skis will have designated access and docking points. Dogs will be kept on a leash or restrained at all times. Restricted areas will be clearly demarcated by signage to protect ongoing restoration and listed species habitat or sensitive natural communities.

Considering public access the site, coordination with FFWCC wildlife officers will be important. FFWCC officers provide protection to residents and visitors who enjoy Florida's natural resources, while enforcing resource protection and boating safety laws in the woods and on the waters of the state. FFWCC officers have full police powers and statewide jurisdiction. The officers are cross-deputized to enforce federal marine fisheries and wildlife laws, thus ensuring state and federal consistency in resource-protection efforts.

The following site-specific security measures should be implemented at Makinson Island to protect on-site natural, cultural, water resource, and recreational resources;

Law Enforcement

Law enforcement will be administered primarily by the FFWCC. As an island park, enforcement will occur landward and waterward, and may vary according to restoration strategy, extent of sovereign and submerged (state) lands, protected species, and on-site recreation. It is recommended that patrols be adaptive to adjust to periods of high use and/or likelihood of violations, to curtail incompatible behavior. A cooperative agreement with FFWCC for management and/or contractual patrols may be explored.

4.2 Restoration

Although Makinson Island is currently utilized for passive recreation, enhancement of several of the natural areas onsite will facilitate access and enjoyment of the amenities and natural landscape. As described in Section 3.0, habitat restoration and general Land Management activities of the Makinson Island will be initiated under Phase I.

Goals: The fundamental goal is to enhance natural areas onsite to enhance habitat for fish and wildlife while enhancing visitor experience.

Objectives: To meet this goal, the following objectives have been identified:

1. *Habitat Restoration*: Plant longleaf pine within prairie mesic hammock/flatwoods community;
2. *Debris Removal*: Remove structural debris and trash from all areas;
3. *Forest Management*: Restore native canopy and protect mature native species, such as live oak, cabbage palm and cypress;
4. *Noxious Species Control*: Eradicate exotic species / control nuisance species in restoration areas;

1. *Habitat Restoration*

This plan targets native community restoration plantings for the central upland communities of the island.

Prairie Mesic Hammock & Flatwoods (Target Community 5)

The 50-acre restoration area is located in the center of the property and is currently dominated by Bahia grass, with sparse and scattered shrubs, clumps of broomgrass, a few live oaks and cabbage palms.

To facilitate restoration of native groundcover, specific and targeted plantings will be installed to shade and out-compete the Bahia grass over time. Furthermore, although longleaf pine is the primary pine tree species of choice for the Makinson Island, based on plant nursery inventories some substitution of slash pine may be required. The pine canopy will fall away near the mesic hammock community surrounding the area and Florida coontie will be planted in the transitional zone (approximately 10 acres). The following densities will be planted:

Table 1: Makinson Restoration Plantings:

SPECIES	SIZE	DENSITY/PATTERN	TOTAL NUMBER
Longleaf Pine*	3-7G	20'/OC (109/acre)/Scattered	5,450
Florida Coontie	1G	10'/OC (55/acre)/Scattered	550

* Slash pines may be substituted for < 50% of longleaf pines if longleaf is not available in sufficient quantities

2. Debris Removal

Structural debris, primarily consisting of dilapidated structures, will be removed prior to planting. All structural debris and trash will be removed from the site, and legally disposed at an appropriate facility.

3. Forest Management

Goals:

1. Maintain healthy forest density and structure;
2. Protect mature oak, cypress, and cabbage palm (i.e. >12 inch dbh);
3. Document and protect known nesting/roosting trees for listed species;
4. Restore native canopy as appropriate – historical prairie hammock/mesic flatwoods, if applicable;
5. Planted canopy specimens will balance aesthetics with natural canopy diversity in structure, age, density, and species.

Objectives: To meet these goals, the following objectives have been identified:

1. Inspect annually canopy species for possible pruning, disease, and safety considerations, especially in higher public use areas;
2. Avoid prescribed fire in newly planted areas, allowing several years for tree establishment (i.e. mesic flatwoods);
3. Locate listed species nest trees and restrict human activity as dictated by law/regulation.

Makinson Island is dominated by forested communities, including mature mesic hammock. Old growth live oaks in the mesic hammock should be examined periodically by an arborist/forester for health to ensure longevity and protect patrons from hazardous dead/dying limbs. The proposed prairie mesic hammock/flatwoods will be planted with longleaf pine and Florida coontie. Longleaf pine has been selected to ensure significant long-term canopy coverage and additional nesting opportunities within Makinson Island for bald eagle.

Forestry management practices often include the implementation of prescribed fire to maintain desirable stand densities, allowing sufficient light to penetrate the herbaceous layer and preserve the primary source of productivity in many natural systems. Prescribed fire also results in a diverse age class within canopy species – assuring multi-generational propagation and canopy stand viability. In the absence of fire, DFCs for forested ecosystems can be attained through ecologically sensitive equipment (low-ground pressure harvesters) and qualified supervision to achieve goals – community-specific basal area, stem densities, varied structure, species composition/diversity (as appropriate), and snag ecology. The proposed pine-dominated prairie mesic hammock/flatwoods will need many decades to mature and therefore exceed the scope and applicability of this LMP. Plant palettes will be dominated by species typically associated with on-site soil series and like mature natural communities. All planted canopy specimens will provide increased structure, aesthetics, and potential habitat for nesting/resting/perching, shade, and carbon sequestration.

4) Noxious Species Control

During site evaluation, numerous exotic and nuisance species were observed on the Makinson Island property. Management will require implementation of a Nuisance/Exotic Species Management Plan (NEMP) to assure the restoration efforts are successful and sustainable, and that the highest quality habitats can be achieved. This NEMP is discussed in detail in Section 4.7. The following table lists these exotic and nuisance species, their FLEPPC/FDACS/USDA ranking and the communities in which they were observed:

Table 2. Exotic and Nuisance Plant Species

SCIENTIFIC NAME	COMMON NAME	FLEPPC/FDACS/USDA RANKING	COMMUNITY
Alternanthera philoxeroides	Alligator weed	II/P/None	Floodplain Marsh
Cinnamomum camphora	Camphor tree	I/None/None	Mesic Hammock
Dioscorea bulbifera	Air-potato	I/NW/None	Floodplain Swamp
Eichhornia crassipes	Water-hyacinth	I/P/N	Floodplain Marsh
Hydrilla verticillata	Hydrilla	I/P/N	Floodplain Marsh
Imperata cylindrica	Cogon grass	I/NW/N	Mesic Hammock
Lantana camara	Lantana, shrub verbena	I/None/None	Mesic Hammock
Ludwigia peruviana	Peruvian primrose willow	I/None/None	Floodplain Marsh
Melia azederach	Chinaberry	II/P/None	Prairie Hammock
Panicum repens	Torpedo grass	I/None/None	Floodplain Marsh
Pistia stratiotes	Water lettuce	I/P/None	Floodplain Marsh
Psidium guajava	Guava	I/None/None	Mesic Hammock
Sapium sebiferum	Chinese tallow tree	I/None/None	Mesic Flatwoods
Schinus terebinthifolius	Brazilian pepper	I/P/None	Mesic Hammock
Solanum viarum	Tropical soda apple	I/NW/N	Mesic Flatwoods
Urena lobata	Caesar weed	I/None/None	Mesic Flatwoods

FLEPPC Rank:

I = Displace native plants, alter community structures or functions, hybridize with natives

II = Very abundant/frequent but do not alter communities to extent shown by Cat. I

FDACS Rank: Prohibited (P), Noxious Weed (NW)

USDA Rank: Noxious Weed (N)

4.3 Fire Management

Prescribed fire is one of the most important abiotic forces in Florida's ecosystems. Benefits of prescribed fire include perpetuation of fire-dependent natural communities and species, disease control, nutrient cycling, and fuel reduction and resultant wildfire risk reduction. Under the right conditions, prescribed could be applied to Makinson Island. Before it would be applied, major on-site conditions or constraints would be assessed – fuel loads/continuity, hydrological conditions, adjoining restoration status, upcoming public events, and listed species presence.

Goals: The fundamental goals of the fire management plan are:

1. Conduct prescribed burns that are safe for both participants, local communities, and listed species;
2. Reduce wildfire hazards by managing fuels with prescribed fire;
3. Use prescribed fire to maintain and enhance natural communities, diversity, fuel loads, listed species habitat, control exotic/nuisance species;
4. Abide by historical regimes, but consider other human factors in the wildland-urban interface, and potential listed species nesting; adjust management strategies/regimes as necessary.

Objectives: To meet these goals, the following objectives have been identified:

1. Use mechanical (e.g. mowing for interior units) and chemical means in lieu of fire to maintain low-growing herbaceous ecosystems and control woody species;
2. Protect listed species nest sites/habitat and avoid fire in a given unit if listed species nest sites or critical habitat occur within;
3. Consult with appropriate agencies for listed species planning, particularly for Everglade snail kite (*Rostrhamus sociabilis plumbeus*) and American wood stork (*Mycteria americana*) if nesting or rookeries are observed on-site;
4. Conduct prescribed fire during the peak growing season (May – July) as conditions dictate and with exceptions below (avoidance of nesting listed species); if snail kite or other listed species may be impacted by fire and/or smoke, agency consultation should occur to coordinate fire timing/location, and ensure nest protection; accordingly, prescribed fire could occur during the non-nesting season
5. Maintain woody species below twenty (20) percent areal coverage in prairie/mesic hammock, but maintain small amounts, particularly in deeper pockets, can remain to provide roosting/nesting habitat for wading birds;
6. Develop a prescribed fire burn plan for each burn unit;
7. Notify/educate adjacent landowners/public about program and periodically for upcoming burns;
8. Develop burn units and firelines based on final restoration design;
9. Develop prescribed fire database.

Approximately 80 acres of Makinson Island are fire-dependent and, given an average three (3)-year fire rotation, 25+/- acres require prescribed fire each year to maintain or enhance target conditions. The annual acreage benchmark is a general guide; it is understood that in some years more/less burning may be accomplished, primarily due to ambient weather conditions (drought, flooding, winds, etc.). Nearly all natural communities on-site need are fire-suppressed and are scheduled for burning in the next 1-2 years as conditions/funding allows.

The primary management goals for all burn units are:

1. Reduce woody species;
2. Foster longleaf pine recruitment (subsequent to pine planting), primarily through adherence to historical fire regimes; and
3. Increase herbaceous diversity/extent, again primarily through judiciously applied prescribed fire.

These goals have been established largely through analysis of historical aerials and soils, land use, and extant natural communities/composition, resulting in a determination of likely historical natural communities. Desired future conditions for each burn unit/natural community are based on FNAI descriptions, recognizing that there are spatial and temporal variations. Accordingly, broad quantitative management goals are identified in each burn plan; it is assumed that quantitative monitoring will be established for the project to evaluate management effectiveness.

Burn Units have been delineated and prioritized (**Table 3**) and will generally abide by historical fire regimes (**Map 8: Fire Management Plan Burn Units**). Burn Unit design (**Appendix VI**) and size was established through the presence of natural/human-made firebreaks, adjacent natural communities, fuel load/type, firing techniques, and Burn Unit goals. Sufficient firebreaks occur on-site, and no additional firebreaks are currently anticipated. Burn Unit sizes are modest enough to completely fire and mop-up in one (1) day, using multiple firing techniques, while abiding by standard smoke management practices. Prioritization was established through several factors including time since last fire, listed species presence/utilization, ease of implementation, ambient conditions, and natural community DFCs or goals.

Table 3. Burn Unit Prioritization/Goals

Burn Unit ID	**Natural Community** (Predominant)	**Acres**	**Burn Regime** (yrs)*	**Preferred Season****	**Listed Species Presence** (known; potential)	**Primary Mgt Goal (reduction)** W=woody species	**Burn Priority** 1=High 2=Medium 3=Low
PF1	Prairie Hammock/ Flatwoods		3-5	Apr-Jul	known	W=10-25%	1
PF2	Prairie Hammock/ Flatwoods		3-5	Apr-Jul	known	W=10-25%	1
MK1	Mesic Hammock		rare	Nov-Feb	-	W=5-10%	2
MK2	Live Oak Hammock		(b)	any	none	NA	3

** Florida Natural Areas Inventory data; regime may vary according to restoration implementation, environmental factors, ambient conditions.*

***Growing season fire will be preferred, but winter burning is acceptable, particularly if snail kite nests are confirmed and prohibit safe burning*

(a) Regime depends on hydrologic conditions and regime of adjacent natural community.

(b) As needed

Listed species habitat would be fostered through prescribed fire, primarily in prairie hammock/mesic flatwoods and forested/herbaceous wetland habitat for gopher tortoise and wading birds, respectively. County Staff or an approved contractor/fire partner should survey for listed species nest sites before conducting fire through meandering transects in wet prairie/freshwater marsh habitat, particularly if prescribed fire is implemented during snail kite (federally endangered) or sandhill crane (state threatened) nesting season. Special attention should be given for all prescribed fire that may occur adjacent to freshwater marsh/cattail marsh from February through August (snail kite nesting season). Additionally, consultation should occur to determine if active nest sites are known to occur in the marshes surrounding the island.

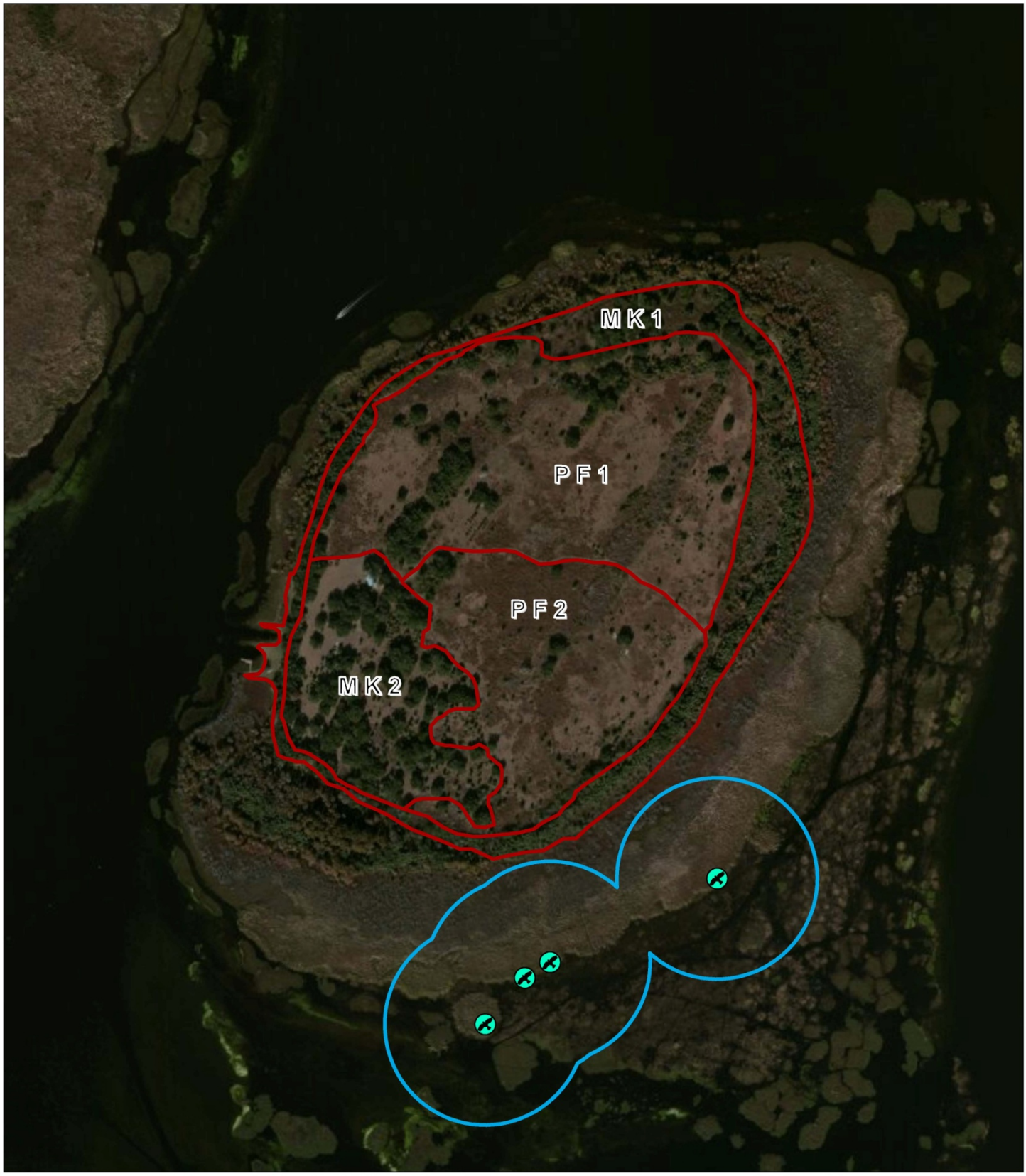
Depending on hydrological and fuel conditions, fire may carry through/under nest sites and potentially disrupt nesting behavior or inadvertently cause chick mortality. If occupied nest sites or nesting behavior are observed, prescribed fire in that burn unit should be postponed until the chicks fledge and can fly away. Additionally, fuel loads under documented nest trees should be managed through mowing, herbicidal control, or hand removal during the non-nesting season to prevent flare-ups and tree mortality.

Given the wildland-urban interface and close proximity to cities, smoke management is another constraint for prescribed fire. In *A Conceptual Management Plan for Makinson Island* (FFWCC document; July, 2001), prescribed fire is supported but should consider future development, smoke placement, and avoidance of smoke sensitive areas (SSAs). Major SSAs include:

- Kissimmee – north, 2.0+/- miles
- St. Cloud – east, 5.5 +/- miles
- Kissimmee Airport – northwest, 2.5 miles
- Canoe Creek Road – east, 6.5 miles
- Florida's Turnpike – east, 4.5 miles
- Highway 441 – north/northwest, 4.0 miles.

Coordination with Florida Forest Service (FFS) for anticipated prescribed fire would facilitate the burning process. County staff and/or an approved contractor should work closely with FFS to discuss smoke placement and SSAs. Fortunately, Makinson Island is an island, and nearly all fire-dependent habitat in Makinson Island is herbaceous and therefore will produce minimal downwind smoke impacts and smoldering potential (if conducted under appropriate conditions). Prescribed fire will also be facilitated through inter-agency cooperation/notification with managing entities including Florida Fish and Wildlife Conservation Commission (FFWCC), and Osceola County Fire Rescue (OCFR). Additionally, County/FFWCC should be consulted regarding scheduled recreational events (e.g. fishing tournaments, etc.) in Lake Tohopekaliga. All concerns, particularly human health and animal welfare, should be addressed before the fire is conducted. Finally, park closure should be conducted during all prescribed fires to reduce risk and potential interference. Prescribed fire notifications will be placed at all Makinson Island public access points before prescribed fire ignition begins.

Monitoring for pre- and post-fire effects could be conducted to measure fire success. Simple photopoints could be established to visually evaluate fire effects over time. Other data could also be collected such observed wildlife, fuel consumption, ambient fire conditions/weather, hydrological conditions, acreage, partners, ecological goals, etc.



ESA

N
W E
S

1 in = 1.16 miles

Map 8
Fire Management Plan Burn Units
Makinson Island
Land Management Plan 2013

Burn Units
Snail Kite Nests 2012
Snail Kite nest 500 ft buffer

4.4 Forest Management

Goals: The fundamental goals of forest management are to maintain healthy forest density and structure and preserve and promote forest habitats for associated wildlife.

Objectives: To meet these goals, the following objectives have been identified;

1. Protect mature oak, cypress, and pine (i.e. >12 inch dbh);
2. Document and protect known nesting/roosting trees for listed species;
3. Restore native canopy as appropriate;
4. Plant canopy specimen to balance aesthetics with natural canopy diversity in structure, age, density, and species;
5. Inspect canopy species annually for possible pruning, disease, and safety considerations;
6. Avoid prescribed fire in newly planted areas, allowing several years for tree establishment;
7. GPS listed species nest trees and restrict human activity as dictated by law/regulations.

Makinson Island is dominated currently by herbaceous natural communities, and forest management will have a diminished role. Approximately 46 acres of Makinson Island are forested, including mature mesic hammock. Old growth live oaks in the mesic hammock should be examined periodically by an arborist/forester for health to ensure longevity and protect patrons from hazardous dead/dying limbs.

Forestry management practices often include the implementation of prescribed fire to maintain desirable stand densities, allowing sufficient light to penetrate the herbaceous layer and preserve the primary source of productivity in many natural systems. Prescribed fire also results in a diverse age class within canopy species – assuring multi-generational propagation and canopy stand viability. In the absence of fire, DFCs for forested ecosystems can be attained through ecologically sensitive equipment (low-ground pressure harvesters) and qualified supervision to achieve goals – community-specific basal area, stem densities, varied structure, species composition/diversity (as appropriate), and snag ecology. The proposed prairie hammock/mesic flatwoods will need many decades to mature and therefore exceed the scope and applicability of this LMP. Plant palettes will be dominated by species typically associated with on-site soil series and like mature natural communities. All planted canopy specimens will provide increased structure, aesthetics, and potential habitat for nesting/resting/perching, shade, and carbon sequestration.

4.5 Water Resources

Makinson Island is located within the SFWMD Lake Tohopekaliga Basin and Kissimmee River Watershed, wholly within the northern third of Lake Tohopekaliga. The water level of this lake is regulated between 52 feet NGVD to 55 feet NGVD. The regulated water levels have an influence on the groundwater littoral zone areas at the site, potentially drawing down the water table and surface water levels during low water elevation regulation cycles.

As a result of the artificial water level manipulation, the littoral wetland fringe of the island experiences a more static water level environment. Historically, the island littoral zone and floodplain would have experienced years of cycling flood stage to drought water levels. The cyclic hydroperiods would have better regulated the diversity and density of the marsh community immediately surrounding the island. As the water levels have been relatively stagnant for several decades, the freshwater marsh is thick with established colonies of cattail, Carolina and primrose willow which have developed into impenetrable

thickets along the southern and southeast limits of the island. Along this aspect of the island, the littoral shelf gently slopes into the lake for several hundred feet. The availability of a shallow benthic substrate has allowed for the easy colonization and expansion by woody shrubs and emergent vegetation. The density of these species is much less where the littoral shelf drops more steeply into the open water of the lake. Although the water regulations of the lake cannot be altered, mechanical or herbicidal control of these excessively dense vegetated areas can be implemented to re-create a more diverse wetland habitat for both flora and fauna.

4.6 Wildlife and Listed Species

Goals: A primary goal in the stewardship of Makinson Island is to promote and maintain healthy fish and wildlife populations. Wildlife management will be directed toward production of native species diversity consistent with the biological community types present.

Objectives: To meet these goals, the following objectives have been identified;

- Perform land management activities that maintain and/or improve native wildlife habitat;
- Conduct specific management beneficial to protected species;
- Conduct wildlife inventories through the FFWCC in areas where management activities have the potential to impact listed species;
- Follow management guidelines for listed species protection as determined by the *Multi-species Recovery Plan for the Threatened and Endangered Species of South Florida, Volume 1,* (U.S. Fish and Wildlife Service. 1998) and its amendments;
- Reduce non-native wildlife species populations where appropriate;
- Maintain a master file of confirmed and potential wildlife species;
- Cooperate with the FFWCC and USFWS on wildlife management issues, including wildlife inventories and evaluating management actions.

Rare, Threatened and Endangered Species

Several listed wildlife species are present or have been observed historically within the subject property. Impacts to these species from planned land management and recreational activities are of special concern. Activities that might jeopardize the well being of these species may be altered or cancelled. Land management activities including prescribed burning, hydrologic restoration, or exotic vegetation eradication improve natural environmental characteristics that benefit listed species as well as a variety of other indigenous wildlife. Management emphasis concerning rare and/or listed wildlife species within Makinson Island will be concentrated on the following species;

- American wood stork (*Mycteria americana*)
- Everglades snail kite (*Rostrhamus sociabilis plumbeus*)
- Florida sandhill crane (*Grus Canadensis pratensis*)
- Southern bald eagle (*Haliaeetus leucocephalus*)

American Wood Stork - *Threatened*

Wood storks were observed flying over or foraging within the Makinson Island boundary during the field inspections of the property conducted during January and February 2013. However, no wood stork colonies are located within, or immediately adjacent to the subject property. Of particular foraging use for wood storks is the expanse of littoral marsh fringing the

island that support significant habitat for aquatic vertebrates and invertebrates. These shallow areas of surface water create attractive feeding areas for wood storks and other wading birds. Around the circumference of the island, bands of cypress swamp border the freshwater marsh. These areas do provide potential roost or nest sites for the species.

Current regulations restrict human activity within 100 meters of any documented wood stork colony 24 hours a day, between February 15 and August 15. Closure dates established in the rule were determined based on the breeding and nesting season, and sought to provide a temporal buffer to permit wood storks begin nest building as well as to allow chicks extra time to successfully fledge. Should wood storks develop a rookery within Makinson Island these required measures, or the most current regulations and management guidelines, will be strictly followed.

Everglades Snail Kite - *Endangered*

During the field inspections conducted during January 2013, several male snail kites were observed actively foraging over the emergent marsh areas on the southern limits of the island. Additional kites were also observed loafing on navigational signs on the western shore of Lake Tohopekaliga within 1 mile of the Makinson Island. Several active nests have been documented within the southeast marsh that abuts the island (**Map 9: Snail Kite Nesting Locations**). Additionally, the floodplain marsh and littoral wetland areas surrounding the island provide excellent foraging, breeding and nesting opportunities for the snail kite. Any recreational or habitat restoration activities posed within, or near to, these key areas of snail kite habitat will be conducted as using the following conservation measures (directly adapted from *USFWS Snail Kite Management Guidelines*) will be implemented;

1. USFWS an FFWCC will be provided notification of nest sites during the nesting season (generally December 1 to July 31, but including all periods when active nests are known), Locations of all known snail kite nests, including maps and coordinates of nest sites, kite protection buffers, and priority kite management zones will be provided by the land manager.

2. Two buffer zones will be established around every active snail kite nest. This includes all nests reported and any unreported nest that is encountered during other activities. These buffer zones will be in effect from when kites begin nest building through the time when breeding activity is no longer observed at the site. Buffer zones may remain in place past the time when fledglings leave the area if adult kites continue to show breeding activity, including courtship, in the general area.

    A. No-entry Buffer Zones - A 500-foot (ft) (~150 meter) radius no-entry buffer zone will be established around all active nests that are discovered. The purpose of this buffer zone is to protect kites from direct disturbance that may affect the fate of nesting. Personnel, pedestrians, horses, bicycles, vehicles, airboats, helicopters, other equipment and activity must stay outside of these areas at all times when kite breeding activity is occurring.

B. Limited Activity Buffer Zones - A 1,640 ft (500 meter) radius limited-activity buffer zone will be established around all active kite nests. This buffer zone is intended to maintain and protect foraging opportunities and habitat conditions around each nest to allow the nest to succeed. The goal is to maintain habitat conditions for the entire nesting period similar to those that were present when the birds selected the site. Personnel, pedestrians, horses, bicycles, vehicles, airboats, helicopters, other equipment and activity must stay outside of this buffer when possible, and activity within the buffer should be limited to the minimum time necessary to complete appropriate management activities.

i. Only management activities that are expected to maintain or improve the existing kite foraging and nesting habitat within these areas will occur while there is evidence of kite breeding activity;

ii. Exotic and invasive plant control efforts, including water hyacinth, water lettuce, hydrilla and similar invasive species that may rapidly encroach on native vegetation communities may be treated within limited-activity buffer zones during kite breeding, so long as treatments are not expected to result in impacts to vegetation species that contribute to snail kite and apple snail habitat.

iii. Herbicide or other land management activities expected to result in changes > 10 percent in the cover or occurrence of native vegetation species including spike rushes, bulrushes, maidencane and other emergent vegetation will be avoided.

iv. Treatments of invasive and undesirable woody plants, cattails, tussocks, and other similar vegetation will not occur within these buffer zones during kite nesting.

Florida Sandhill Crane - *Threatened*

Although no sandhill cranes were observed during on the subject property during the field inspections, the freshwater marsh, open rangeland and grassy hammock communities are all potential areas for foraging by cranes. Sandhill cranes are routinely observed in areas along the shore of Lake Tohopekaliga and the abundant freshwater marshes flanked by open upland grassland habitats are all very good for the breeding and nesting requirements of the species. The following management guidelines will be implemented to protect the species and conserve existing breeding, nesting and foraging habitats.

1. Known nests will be protected by a 400 foot buffer to reduce the likelihood of disturbance by human activities.
2. Seasonality of human operated wetland management activities will avoid flooding existing nests or detrimentally impacting foraging habitat.
3. Prescribed burning will be used (see Section 4.3; Fire Management) to maintain upland habitats in suitable conditions for use by Florida sandhill cranes.

4. Burning will be conducted outside of the nesting season and after the young are able to sustain flight.

Southern Bald Eagle - *Managed*

USFWS removed the bald eagle from Endangered Species Act listing in 2007. However, eagles, their nests, or eggs are still afforded protection from hunting, killing, selling or otherwise harming under both the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Since de-listing, USFWS has developed categorical guidelines to minimize human disturbance to roosting, nesting and foraging sites of bald eagles. Activities proposed within Makinson Island are encompassed in Category F (Non-motorized recreation and human entry; hiking, camping, fishing, hunting, birdwatching, kayaking, canoeing) of the *USFWS National Bald Eagle Management Guidelines*.

The bald eagle is an extensive user of the habitats found within and surrounding Makinson Island Conservation Area. Lake Tohopekaliga provides an excellent foraging area and hosts many ideal nesting areas. On each field investigation of the subject property one or more bald eagles was been observed foraging near the island within the lake or flying/soaring in the vicinity. Although there are no current nesting locations on Makinson Island, Paradise Island (due north of the subject property) does contain an active eagle nest. Within a 2 mile radius of the subject property, five known bald eagle nests have been recorded (**Map 10: Active Bald Eagle Nest Locations**). Due to the intensive use of the areas surrounding the island by the bald eagles for roosting and foraging, and the potential for nest development, measures consistent with USFWS management guidelines will be implemented to lessen human disturbance in the area:

1. A 330-foot no-access protection buffer around the preferred bald eagle roosting location (dead live oak at south tip of property) will be demarcated throughout the year (Note: no buffer is currently required around nest sites outside the breeding season, per management guidelines).
2. Potentially disruptive activities (hiking, camping, fishing, birdwatching, kayaking, canoeing) will be restricted in the eagles' direct flight path between the roost sites and important foraging areas.
3. Long-term and permanent water-dependent facilities, such as kayak ramps and fishing piers have been located more than 1000 feet from the known eagle roost tree and associated foraging areas.
4. Existing or potential roosting and nesting sites will be protected and preserved by retaining mature trees and old growth stands (see Section 4.4: Forest Management).
5. Should nests be constructed, and should such nests be blown from trees or otherwise destroyed by stochastic events, these areas will continue to be protected in the absence of the nest for up to three (3) complete breeding seasons (as many eagles will rebuild the nest and reoccupy the site).
6. Feeding bald eagles will be prohibited. This includes exclusion of fish cleaning activities within the conservation area as an unintentional source of artificial feeding.
7. Pesticides, herbicides, fertilizers and other chemicals will be used only in accordance with federal and state laws.

ESA

N
W E
S

1 in = 0.12 miles

Map 9
Snail Kite Nesting Locations
Makinson Island
Land Management Plan 2013

Snail Kite Nests
Makinson Island

ESA

N
W E
S

1 in = 0.57 miles

Map 10
Active Bald Eagle Nesting Locations
Makinson Island
Land Management Plan 2013

FWC Bald Eagle Nests
Observed Nesting Activity
2 Mile Radius
Makinson Island

4.7 Exotic and Nuisance Species Control

Goals: The fundamental goal of the plan is to maintain natural community diversity, structure, function, and extent, through ongoing exotic plant and animal species control.

Objectives: To meet this goal, the following objectives have been identified:

1. Maintain areal coverage of exotic species below acceptable thresholds;
2. Document location and extent of exotic occurrence;
3. Treat exotic/nuisance species with methods that are sensitive to listed species, water resources, and native vegetation;
4. Use preventive measures, if applicable (i.e. hog fencing), particularly for restoration areas;
5. Minimize spread of exotic seeds through reasonable decontamination procedures for staff and contractors;
6. Conduct quarterly inspections of the project perimeter (areas of high infestation likelihood);
7. Conduct biannual meandering surveys through the remainder of the project;
8. GPS new infestations/occurrences and record in geo-database;
9. Maintain GIS/geo-database for all exotic species occurrence and treatment;
10. Control and treat exotic occurrences quickly to prevent spread, ecological disruption, and reduce maintenance costs;
11. Prioritize Category I exotics for treatment, and Category II species as funding allows;
12. Monitor treatment success to determine effectiveness and need for re-treatment;
13. Decontaminate County vehicles and clothing if they contact exotic propagules;
14. Mow entry-area oak hammock as necessary to maintain openness;
15. Post signage prohibiting the release of exotic animals on the property.

Invasive exotic plant control will be necessary to preserve, enhance, or restore natural communities. Exotic species infestations will be prioritized for treatment, depending on funding availability and species' aggressiveness. Data collected by County/contractors or ongoing site investigations may be compiled in a Geographical Information System (GIS) relational database that could include species name, FLEPPC category, treatment date and method(s), chemical usage, GPS location, infestation extent, and cost. Pre- and post-treatment data and monitoring are important to determine the success of exotic control; site specific photography functions well and is cost-effective.

Known exotic infestations and isolated occurrences include the species noted in **Table IV, Appendix I.** Chemical control will typically be the primary means of control, but other methods (mechanical, fire, hand removal, seed collection) may be used at the discretion County staff. Treatment method will be driven by its effectiveness and efficiency to control the infestation, given ambient conditions and infestation response.

Currently, the greatest threat to site biodiversity and ongoing restoration is the population of feral hog (*Sus scrofa*) observed on-site. Currently, hog damage appears extensive in the wetland communities. As an island, Makinson provides a unique population "sink" advantage. Hogs are unlikely to swim the +1-mile distance from the mainland to the island, so the "source" population of hogs has a significant obstacle to re-colonizing. It is therefore possible to eradicate hogs from the island by implementing hog trapping and other control methods.

In addition to feral hog, other observed exotic animal species include the giant apple snail, brown anole (*Anolis sagrei*) and Cuban tree frog (*Osteopilus septentrionalis*). Relative to Category I exotic flora and feral hog damage, these species are not typically problematic and therefore will be monitored as site conditions, local populations, science, and industry standards dictate.

Decontamination and monitoring protocols will be contingent upon potential on-/off-site contamination and infestation treatment. All staff and contractor vehicles travelling through known exotic infestations shall be required to pressure wash/remove mud, vegetation, and seeds from the vehicles before and after entering Makinson Island. To the extent practical, vehicles should avoid on-site torpedo grass infestations to reduce the spread of seeds. Monitoring of known infestations and project boundaries will occur biannually. New infestations and recent treatments will be monitored monthly until treatment success is established.

Other vegetation management may include pasture grass maintenance in the improved areas and periodic removal of deadfall of limbs from the mature oaks. Grassy areas (e.g. oak hammock) will be mowed several times per year to maintain open, aesthetically pleasing views of the project and the lake. Snags and standing dead limbs will be left in place, provided they do not present a safety hazard to park patrons. Deadfall will be removed as necessary.

Finally, consistent with the TDFR, woody vegetation management through chemical control or other means will be used to maintain open, herbaceous natural communities and generally facilitate listed species nesting and foraging, especially in lieu of periodic fire. The NEMP will employ adaptive management to assure the species targeted are accurate and that treatment frequency is sufficient to maintain restoration and habitat quality goals. The following summarizes the extent of exotic and nuisance vegetation in Phase I, and the proposed restoration actions:

Table 4. Exotic and Nuisance Vegetation Control

SCIENTIFIC NAME	COMMON NAME	COMMUNITY	EXTENT OF IMPACT	PROPOSED ACTION
Alternanthera philoxeroides	Alligator weed	Floodplain Marsh	Minimal	No action at this time. Monitor species.
Cinnamomum camphora	Camphor tree	Mesic Hammock	Moderate	Trees and seedlings will be treated with herbicide. Foliar application for seedlings and basal or cut-stump application for mature.
Dioscorea bulbifera	Air-Potato	Floodplain Swamp Hydric Hammock	Minimal	To prevent further spread, application of herbicide and collection and removal of tubers will be performed routinely.
Eichhornia crassipes	Water-hyacinth	Floodplain Marsh	Minimal	No action at this time. Monitor species.

Imperata cylindrica	Cogon Grass	Mesic Hammock	Moderate	Clumps throughout mesic hammock. To prevent spread, mowing and herbicide
Lantana camara	Lantana, shrub verbena	Mesic Hammock	Moderate	Individuals mow or cut, stump treat with herbicide.
Ludwigia peruviana	Peruvian primrose willow	Floodplain Marsh and Swamp	Moderate	To prevent further spread, repeated mechanical removal and herbicide treatment required.
Melia azederach	Chinaberry	Prairie Mesic Hammock/Flatwoods	Moderate	Trees to be cut and stumps chemically treated for eradication.
Panicum repens	Torpedo grass	Nearshore Floodplain Marsh	Moderate	Treatment as necessary during low water stages, if coverage is expanding or aggressively overtaking native vegetation. Monitor species.
Pistia stratiotes	Water lettuce	Floodplain Marsh	Minimal	No action at this time. Monitor species.
Psidium guava	Guava	Mesic Hammock	Minimal	Trees to be cut and stumps chemically treated for eradication.
Salvinia minima	Water spangles	Floodplain Marsh	Minimal	No action at this time. Monitor species.
Sapium sebiferum	Chinese tallow tree	Floodplain Swamp Mesic Hammock	Moderate	Trees to be cut and stumps chemically treated for eradication.
Schinus terebinthifolius	Brazilian pepper	Hydric Hammock Mesic Hammock	Minimal	Trees to be cut and stumps chemically treated for eradication.
Solanum viarum	Tropical soda apple (TSA)	Mesic Flatwoods Mesic Hammock	Moderate	To prevent spread, repeated mowing and herbicide treatment required.
Urena lobata	Caesar weed	Mesic Flatwoods	Moderate	Individuals treated with suitable herbicide.

4.8 Historical, Cultural and Archeological Resources

There are no known remaining archeological sites within Makinson Island, however, public education regarding the regional and local historical significance of the Makinson Island Property will be provided to park guests through informational kiosks and park brochures.

5.0 LAND USE MANAGEMENT

Makinson Island is currently open to the public for passive recreational uses which include camping, fishing, wildlife observation and general day-use. Limitations to public use are mainly due to the location wholly within Lake Tohopekaliga which makes the area accessible only by watercraft. Potential expanded uses are possible, but based upon enhanced access and opportunities for recreation. In particular, the FFWCC-owned Paradise Island is immediately north of Makinson and was also acquired for the purpose of fisheries management. Paradise Island is inferior in condition when compared to Makinson, which may present an opportunity for more active recreation and accommodations on that island. Though not presently in development, there is potential to develop complimentary facilities, such as cabins, lodges, research / education lab, and others on Paradise Island. If such accommodations are developed, access between the two islands could be further enhanced, and the addition of concessionaire amenities to one or both of the islands could be facilitated.

Presently, there are no plans in place to develop Paradise Island, so the following sections focus on the land use management at Makinson inclusive of the planned and proposed actions identified in this land management plan.

5.1 Public Access

There is currently a single public boat access location on the western shore of the island. This access will be improved to include expanded docking and kayak/canoe landing areas. The dock will allow for mooring of privately owned vessels and a dedicated mooring area for future water taxi/ferry service. Current site conditions include a stabilized boat ramp that accommodates a maintenance barge responsible for delivering equipment and county maintenance vehicles to the island. This area will be maintained for this continued purpose. Kayak and canoe access and landing will be provided near the public boat ramp. The landing will be sectioned off with floating buoy and rope to deter access by motorized boats. This will better allow kayak/canoers a safe area to navigate to and from the island and avoid boat traffic (see **Figure 1**).

The trail is a single loop, ~ 2 miles in length, which encircles the island with a secondary trail that bisects the island through the center (~½ mile in length). Portions of these trails double as unimproved management roads which have limited stabilization and associated ditches. Maintenance for these roads will be limited to mowing and occasional grading. Portions of the trail system and roads may also double as firelines and will be subject harrowing or disking as needed to facilitate fire management needs.

Access to the trails is limited to a single location adjacent to the docking area. The entrance to the trail will have signage and information on trail length and points of interest to inform the public users. Use of the trail will be limited to non-motorized public access. Management strategies for access include:

- Maintenance of docking area, signs, gates, roads, and trails.
- Clear identification of trailhead
- Monitoring and replacement of trail markers (as required)

5.2 Recreation and Access Management

Osceola County has taken steps to preserve the natural beauty of the county and to ensure that there will be natural lands and water resources for future generations. The Environmental Lands Conservation

Program was created to acquire and manage environmentally significant lands with a voter-endorsed ad valorem funding source. This property tax enables the program to issue bonds for the purchase of land for water resource protection, wildlife habitat, public green space and resource-based passive recreation. Dispersed recreation activities generally require large tracts of land with some level of isolation. This type of recreation blends well with the Makinson Island, which provides numerous opportunities for passive recreation in a manner harmonious with the site's natural resources.


Sample lodge amenity

Makinson Island will support numerous public recreational opportunities. The opportunities include hiking, fishing, camping, canoeing, picnicking, and wildlife viewing. The site will include a trailhead with designated docking areas, informational kiosks, campsites, pavilions and a fishing pier to facilitate shore based fishing. Approximately 2.5 miles of marked trails will be available for recreation within the conservation area. The camping area of the site includes a composting restroom facility, barbecue grills, a potable water source, and Americans with Disabilities Act (ADA) compliant docking and access. Future facilities include an additional fishing pier on the north side of the island, a lodge facility for group meeting / activities, and possible concessionaire and interconnection with Paradise Island. The facilities will be maintained either by the County or through a County managed service contract. Management strategies for Recreational Use include:

- Maintenance of docking area, kiosks, and trails.
- Maintenance of current information in recreation guide, trail guides, kiosks, and County website.
- Maintenance of fishing piers, pavilions and associated structures and amenities.
- Maintenance of security for users through patrols or resident caretaker


Sample lodge amenity

5.3 Trail Maintenance

Trails and trailheads will be maintained by the County, either directly or through a trail maintenance contract. Management strategies for Trail Maintenance include:

- Mowing of grassy trails a minimum of four (4) times yearly.
- Trail blazing / trimming of overhanging branches as needed.
- Trail and trailhead maintenance as needed.

5.4 Restrictions

Security concerns include illegal motorized boat access, dumping, vandalism of structures, and poaching. The County, primarily in coordination with FFWCC and local law enforcement, will administer law enforcement for the property.

5.5 Agreements

In accordance with County Ordinance, the Environmental Land Conservation Program's Management Sub-Fund may receive monies in the form of Federal, State, or other governmental grants, allocations or appropriations, as well as foundation or private grants and donations, for management of lands acquired through this Program or otherwise approved for management. Disbursements from the Management Sub-Fund may be to carry out the management of land acquired pursuant to the Program. As such, the County will seek grants and other funding partnerships to defray restoration costs and to enhance the management and public value of the land. A list of some of the potential alternate funding opportunities is included in Appendix VI of this document.

6.0 SCHEDULE OF IMPLEMENTATION

The schedule of implementation for LMP actions is included in this section. The majority of actions will occur within years 1 to 3, with a transition from implementation to maintenance in Year 3. The schedule includes management actions through Year 10, and is intended to be updated and refined at the beginning of each year. Year 1 is intended to reflect actions required in 2013-2014.

Table 5. Implementation Schedule

Phase	MANAGEMENT ACTION	OCCURRENCE
I	Secure facility / improvement permits	
	Construct docking facility	
	Coordinate with City of Kissimmee on Water Taxi schedule	
	Implement exotic/nuisance species control	
	Remove structural debris from site	
	Implement prescribed fire management plan	
	Install utility protection(s), additional fire pit(s)	
II	Construct screened lodge facility	
	Construct fishing pier	
	Nuisance species maintenance	
	Install upland plantings	
	Continue prescribed fire program	
III – Year 1	Nuisance species maintenance	Quarterly
	Trail maintenance	As needed
	Docking facilities and fishing pier maintenance	As needed
	Facilities maintenance (signage, lodge, pavilions, toilets, etc.)	As needed
	Continue prescribed fire program	As needed
III – Year 2	Nuisance species maintenance	Quarterly
	Trail maintenance	As needed
	Docking facilities and fishing pier maintenance	As needed
	Facilities maintenance (signage, lodge, pavilions, toilets, etc.)	As needed
	Continue prescribed fire program	As needed
III – Year 3	Nuisance species maintenance	Quarterly
	Trail maintenance	As needed
	Facilities maintenance (signage, lodge, pavilions, toilets, etc.)	As needed
	Continue prescribed fire program -mesic hammock/oak	As needed
III – Year 4	Nuisance species maintenance	Semi-annually
	Trail maintenance	As needed
	Docking facilities and fishing pier maintenance	As needed
	Facilities maintenance (signage, lodge, pavilions, toilets, etc.)	As needed
	Continue prescribed fire program – mesic hammock/oak	As needed
III – Year 5	Nuisance species maintenance	Semi-annually
	Trail maintenance	As needed
	Docking facilities and fishing pier maintenance	As needed

YEAR	MANAGEMENT ACTION	
III – Year 5 cont.	Facilities maintenance (signage, lodge, pavilions, toilets, etc.)	As needed
	Continue prescribed fire program – prairie/flatwoods	As needed
III – Year 6+	Nuisance species maintenance	Semi-annually
	Trail maintenance	As needed
	Docking facilities and fishing pier maintenance	As needed
	Facilities maintenance (signage, lodge, pavilions, toilets, etc.)	As needed
	Continue prescribed fire program – mesic hammock/oak	As needed

7.0 BUDGETARY CONSIDERATIONS

The budgetary considerations for the implementation and management of the Makinson Island represent a significant investment by Osceola County. This investment was acknowledged when the property was acquired and a preliminary budget for the improvements was included in the Interim Management Plan for the site. Those cost estimates have been updated to reflect the management actions in this LMP and are included in the table in **Appendix VIII.**

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APPENDIX I

Tables

Table I: Observed Listed Wildlife Species

		Listed Status		
Scientific Name	Common Name	Federal	State	FNAI
Alligator mississippiensis	American Alligator	TSA	M	
Aramus guarauna	Limpkin		SSC	S3
Egretta caerulea	Little Blue Heron		SSC	
Drymarchon corais couperi	Eastern Indigo Snake	T	T	S1
Egretta thula	Snowy Egret		SSC	S3
Egretta tricolor	Tri-colored Heron		SSC	
Elanoides forficatus	Swallow-tailed Kite			S2
Eudocimus albus	White Ibis		SSC	
Grus canadensis pratensis	Florida Sandhill Crane		T	S2/S3
Haliaeetus leucocephalus	Southern Bald Eagle	DL	M	S3
Mycteria americana	Wood Stork	E	E	S2
Plegadis falcinellus	Glossy Ibis			S3
Rostrhamus sociabilis plumbeus	Everglades Snail Kite	E	E	S2

FWC/USFWS Rank:

DL = Delisted due to recovery
M = Managed Species
TSA= Threatened Due to Similarity of Appearance
SSC = Species of Special Concern
T = Threatened
E = Endangered

FNAI Rare Species Ranking:

S1 = Critically imperiled in Florida, less than 1,000 individuals, vulnerable to extinction
S2 = Critically imperiled in Florida, less than 3,000 individuals, vulnerable to extinction
S3 = Very rare or found locally in restricted range, less than 10, 000 individuals

Table II: Observed Non-Listed Species

Avian

Scientific Name	Common Name
Agelaius phoeniceus	Red-winged blackbird
Anhinga anhinga	Anhinga
Ardea alba	Great egret
Ardea herodias	Great blue heron
Bubo virginianus	Great horned owl
Buteo jamaicensis	Red-tailed hawk
Cardinalis cardinalis	Northern cardinal
Cathartes aura	Turkey vulture
Charadrius vociferus	Killdeer
Coragyps atratus	Black vulture
Corvus brachyrhynchos	American crow
Corvus ossifragus	Fish crow
Cyanocitta cristata	Blue Jay
Fulica americana	American coot
Gallinago gallinago	Common snipe
Gallinula chloropus	Common moorhen
Mimus polyglottos	Northern mockingbird
Mniotilta varia	Black and white warbler
Pandion haliaetus	Osprey
Pelecanus erythrorhynchos	White pelican
Phalacrocorax auritus	Double crested cormorant
Pipilo erythrophthalmus	Eastern towhee
Porphyrula martinica	Purple gallinule
Quiscalus major	Boat-tailed grackle
Quiscalus quiscula	Common grackle
Setophaga palmarum	Palm warbler

Strix varia	Barred Owl
Thryothorus ludovicianus	Carolina wren
Tringa flavipes	Lesser Yellowlegs
Vireo griseus	White-eyed vireo
Vireo solitarius	Blue-headed vireo
Zenaida macroura	Mourning dove

Mammal

Scientific Name	Common Name
Dasypus novemcinctus	Nine-banded armadillo
Procyon lotor	Raccoon
Sciurus carolinensis	Eastern grey squirrel

Reptiles and Amphibians

Scientific Name	Common Name
Hyla cinerea	Green treefrog
Pseudemys floridana spp.	Peninsula cooter
Kinosternon subrubrum	Eastern mud turtle
Rana grylio	Pig Frog
Rana sphenocephala utricularia	Southern Leopard frog

Table III: Lake Tohopekaliga Fish Species; species either observed during field investigations (*), reported to occur by FWC or local fishermen (+) or expected to occur due presence in connected waters.

Scientific Name	Common Name
Ameiurus nebulosus	Brown bullhead +
Amia calva	Bowfin +
Dorosoma cepediamum	Gizzard shad +
Dorosoma petenense	Threadfin shad +
Erimyzon sucetta	Lake chubsucker
Esox niger	Chain pickerel +
Fundulus seminolis	Seminole killifish *
Gambusia holbrooki	Eastern mosquitofish *
Ictalurus punctatus	Channel catfish +
Lepomis auritus	Redbreast sunfish +
Lepomis gulosus	Warmouth+
Lepomis macrochirus	Bluegill *+
Lepomis microlophus	Redear sunfish+
Lepomis punctatus	Spotted sunfish+
Lepisosteus oculatus	Spotted gar *
Lepisosteus osseus	Longnose gar +
Lepisosteus platyrhincus	Florida gar +
Micropterus salmoides floridanus	Largemouth bass *+
Notemigonus crysoleucas	Golden shiner +
Poecilia latipinna	Sailfin molly *
Pomoxis nigromaculatus	Black crappie +
Strongylura spp.	Needlefish +

Table IV: Exotic or nuisance plants observed within the Makinson Island Conservation Area boundary.

Scientific Name	Common Name	FLEPPC	FDACS	USDA
Alternanthera philoxeroides	Alligator weed	II	P	
Cinnamomum camphora	Camphor tree	I		
Dioscorea bulbifera	Air-potato	I	NW	
Eichhornia crassipes	Water-hyacinth	I	P	
Epipremnum pinnatum	Pothos	II		
Hemarthria altissima	Limpograss	II		
Hydrilla verticillata	Hydrilla	I	P	N
Imperata cylindrica	Cogon grass	I	NW	N
Lantana camara	Lantana, shrub verbena	I		
Ludwigia peruviana	Peruvian primrose willow	I		
Melia azederach	Chinaberry	I	NW	
Panicum repens	Torpedo grass	I		
Phyllostachys aurea	Golden bamboo	II		
Pistia stratiotes	Water lettuce	I	P	
Psidium guajava	Guava	I		
Sapium sebiferum	Chinese tallow tree	I	NW	
Schinus terebinthifolius	Brazilian peppertree	I	P	
Solanum viarum	Tropical soda apple	I	NW	N
Urena lobata	Caesar's weed	I		

FLEPPC Rank:

I = displace native plants, alter community structures or functions, hybridize with natives

II = very abundant/frequent but do not alter native communities to extent shown by Cat. I

FDACS Rank:

P = Prohibited

NW = Noxious Weed

USDA Rank:

N = Noxious Weed

APPENDIX II

Soil Descriptions

1 - Adamsville sand

This map component is on rises of marine terraces on coastal plains. The parent material consists of sandy marine deposits. Slopes range from 0 to 2 percent. Depth to a root-restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at a depth of 33 inches in months June through November. The content of organic matter in the surface horizon is about 1 percent. This soil does not meet hydric criteria.

This soil is typically associated with upland hardwood hammock communities comprised of a mixture of hardwood species; southern magnolia (*Magnolia grandiflora*), live oak (*Quercus virginiana*), laurel oak (Quercus laurifolia), water oak (Quercus nigra), red maple (*Acer rubrum*) and sweetgum (*Liquidambar styraciflua*). On the subject property in the present condition, the vegetation correlated with this soil type is comprised of live oak canopy and a thick understory of forbs and grasses where the canopy is present. Adjacent areas are comprised of herbaceous communities, predominantly unimproved pasture or rangeland, and include a groundcover of bahia as well as native grasses such as broomgrasses (*Andropogon* spp.) and flattop goldenrod (*Euthamia carolinina).*

2—Adamsville variant fine sand, 0 to 5 percent slopes

The Adamsville variant is on rises on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Depth to a root-restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at a depth of 33 inches during June through November. The content of organic matter in the surface horizon is about 1 percent. This soil does not meet hydric criteria.

The soil is also associated with upland hardwood hammocks. On the subject property this soil rings the island between the upland and wetland communities. It is the predominant soil type at the Live oak/cabbage palm hammock interface and along the exterior trailway. The vegetation correlated with this soil type is comprised largely of cabbage palms (*Sabal palmetto*) and live oak (*Quercus virginiana*), though laurel oak (Quercus laurifolia), water oak (Quercus nigra), red maple (*Acer rubrum*) and sweetgum (*Liquidambar styraciflua)* can also be found. The understory contains American beautyberry (*Calicarpa americana*) and various forbs and grasses. Adjacent areas are comprised of herbaceous communities, predominantly unimproved pasture or rangeland, and include a groundcover of bahia as well as native grasses such as broomgrasses (*Andropogon* spp.) and flattop goldenrod (*Euthamia carolinina).*

6 - Basinger fine sand, depressional

This map component is in depressions on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Slopes range from 0 to 2 percent. Depth to a root-restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is very high. This soil is not flooded but is frequently ponded. A seasonal zone of water saturation is at the surface in months June through December. The content of organic matter in the surface horizon is about 1percent. This soil meets hydric criteria.

This soil is often associated with freshwater marsh communities and this expected community type is observed in the present condition. On the subject property the vegetation correlated with this soil type is the littoral marsh located along the shoreline of Lake Tohopekaliga. The community includes pickerelweed *(Pontederia cordata*), duck potato *(Sagittaria sp.),* cattail *(Typha spp.),* bulrush (*Scirpus spp.*) and various other sedges, grasses, rushes and forbs.

10 - Delray loamy fine sand, depressional

This map component is in depressions on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root-restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at the surface during June through December. The content of organic matter in the surface horizon is about 4percent. This soil meets hydric criteria.

This soil is often associated with freshwater marsh communities and this expected community type is observed in the present condition. On the subject property the vegetation correlated with this soil type is an interior wetland community on the northeast aspect of the island.. Historical aerials show this area is being cleared in the 1950s. Presently, the community includes a forested wetland system comprised of red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), Carolina willow *(Salix caroliniana),* primrose-willow *(Ludwigia* spp.), swamp hibiscus (*Hibiscus grandiflorus*) and various sedges, grasses, rushes and forbs.

12 - Floridana fine sand, depressional

This map component is in depressions on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Slopes range from 0 to 2 percent. Depth to a root-restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately low. This soil is not flooded but is frequently ponded. A seasonal zone of water saturation is at the surface in months June through December. The content of organic matter in the surface horizon is about 11 percent. This soil meets hydric criteria.

On the subject property this soil is associated with a cypress (*Taxodium spp*.) strand that runs east-west through the southwest aspect of the island.

16 - Immokalee fine sand

This map component is in flatwoods on marine terraces on coastal plains. The parent material consists of sandy marine deposits. Slopes range from 0 to 2 percent. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at a depth of 12 inches in months June through September. The content of organic matter in the surface horizon is about 2 percent. This soil does not meet hydric criteria.

This soil is typically associated with flatwoods on nearly level, poorly drained, coarse textured soils that typically have a spodic horizon. In natural areas, the vegetative community may consist of scattered slash pine (*Pinus elliotti*). In places, longleaf pine is common. The plant community includes a shrubby

understory of saw palmetto, gallberry, and other woody plants. On the subject property, the vegetation correlated with this soil type is a mixture of an open canopy that includes cabbage palm and oaks and an understory of forbes and grasses. It is likely that this area was historically a pine-cabbage palm- oak community prior to being converted to rangeland.

34—Pomello fine sand, 0 to 5 percent slopes

The Pomello component is on marine terraces on coastal plains, specifically on ridges and knolls. The parent material consists of sandy marine deposits. Depth to a root-restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is high. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at a depth of 33 inches during July through November. The content of organic matter in the surface horizon is about 1 percent. This soil does not meet hydric criteria.

This soil is typically associated with longleaf pine and xerophytic oaks. On the subject property, the ecological community on this map unit is comprised of mostly rangeland/ pasture vegetation with sparse canopy species including cabbage palm and oaks. Native forbes and grasses are recruiting over pasture grassers and include broomgrasses (*Andropogon* spp.) and flattop goldenrod (*Euthamia carolinina).*

39 - Riviera fine sand, depressional

The Riviera, depressional, component is in depressions on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root-restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at the surface during June through December. The content of organic matter in the surface horizon is about 1percent. This soil meets hydric criteria.

On the subject property this soil is associated with the forested and herbaceous wetlands located on the eastern edge of the island. These areas contain cypress and hardwood hammock communities comprised of laurel oak, live oak, water oak and scattered cabbage palms, red maple, sweetgum, and cypress *(Taxodium* spp.). Herbaceous vegetation is comprised highly of hydrophytic sedges, rushes and grasses.

45 - Wabasso fine sand

The Wabasso component is on flats on marine terraces on coastal plains. The parent material consists of sandy and loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water capacity to a depth of 60 inches is moderate. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at a depth of 12 inches during June through September. The content of organic matter in the surface horizon is about 6 percent. This soil does not meet hydric criteria.

On the subject property this soil is associated with the wetland hardwood hammock areas on the southern portion of the island. This area is largely dominated by cabbage palms but red maple, sweetgum, and cypress *(Taxodium* spp.) are also observed. Herbaceous vegetation is comprised highly of hydrophytic sedges, rushes and grasses.

APPENDIX III

Cultural Resources

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.

January 16, 2013

Florida Master Site File

Jessie M. Wheeler
ESA Biological Resources
5401 South Kirkman Road, Suite 405
Orlando, Florida 32819
Phone: 407.968.0348
Email: JWheeler@esassoc.com

In response to your inquiry of January 16, 2013, the Florida Master Site File lists no previously recorded archaeological sites and one standing structure found in the following sections of Osceola County:

T26S R29E Sections 3, 4, 9, and 10

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,

Sarah Liko
Archaeological Data Analyst
Florida Master Site File
Sarah.Liko@DOS.MyFlorida.com

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

Cultural Resource Roster

SiteID	Type	Site Name	Address	Additional Info	SHPO Eval	NR Status
OS02464	SS	Dickerman Island FKA Makinson Island		-RESOURCE DESTROYED- 1960 Frame Vernacular		

CHANGE OF STATUS, Version 3.1, 5/03 *Site #8__OS02464_____*

Florida Master Site File Date This Form Completed (date of status change is below) 08/29/06__

DHR Staff Only

Reporter__Mary Glowacki _____ X DHR ☐ Not DHR: Give organization, address, phone, email:

_____

X Site File file number KNOWN (give it): __OS02464_____

☐ Site File file number NOT KNOWN (attach map and complete next three lines)

Resource Name _____

TRS: Twp __ N / S Range __ E /W Section: ___ Other location info: _____

_____

CHANGE IN PHYSICAL CONDITION (write date before each applicable change, omit day &/or month if exact date unknown; describe change as suggested; give DHR file number or attach documentation)

__/___/___ Altered without reference to the Secretary's Standards--describe: _____

_____

__/___/___ Correction of ☐address, ☐map, or ☐TRS (Give old & corrected info) _____

_____

__/___/___ Restored to historical condition as of _____ (year)

__/___/___ Moved to new site (attach map)--new address: _____

__/___/___ Approved for demolition—by (authority): _____

05/15/06__ Demolished (structures/bridges only)-__Florida Fish and Wildlife_____

__/___/___ Accidentally destroyed--cause: _____

__/___/___ Disturbed (archaeological)—describe: _____

__/___/___ Human remains—ANY evidence? Describe: _____

DHR only-INVOLVEMENT IN PRESERVATION PROGRAMS (write earliest date this property involved)

__/___/___ Ad valorem tax relief (Give CLG, BHP/CR file #): _____

__/___/___ Section 106 review (BHP/CR file #): _____

__/___/___ Chapter 267 FS review (BHP/CR file #): _____

__/___/___ Federal investment tax credit (BHP/APS file #): _____

__/___/___ Acquisition & development grant (BHP/Grants file #): _____

__/___/___ FS 872, unmarked human remains encountered _____

__/___/___ 1A32, state lands permit (BAR/AR file #): _____

__/___/___ CARL, conservation lands project (BAR/AR file #): _____

DHR only--CHANGE IN EVALUATION (write date before each applicable change)

__/___/___ Listed on National Register of Historic Places (Give NRIS#, federal id #) _____

__/___/___ Officially removed from the National Register of Historic Places (NRIS#, federal id) ____

__/___/___ Keeper: ☐ eligible ☐ ineligible__/___/___ SHPO: ☐ eligible ☐ ineligible (SHPO office, file#) _____

__/___/___ Opinion of technical DHR staff, not through 106 process—justification required per Director: ☐ eligible ☐ ineligible ☐ insufficient information -- Explanation: _____

_____

_____

__/___/___ Rehabilitated to Secretary's Standards (SHPO office, file #)_____

__/___/___ Local register or landmark commission: ☐ eligible ☐ ineligible ☐CLG ☐non-CLG

Name, address of local register: _____

_____

DOCUMENTATION X attached ☐already in Site File, specify file no _____

FMSF, Division of Historical Resources, R.A. Gray Bldg, 500 S. Bronough, Tallahassee, FL 32399-0250/ 850-245-6440/ Fax 850-245-6439 HR6I05701-02

FLORIDA DEPARTMENT OF STATE
Sue M. Cobb
Secretary of State
DIVISION OF HISTORICAL RESOURCES

Mr. Tim Coughlin, Project Leader
Kissimmee Field Office
Florida Fish and Wildlife Conservation Commission
1601 Scottys Road
Kissimmee, Florida 34744

May 10, 2006

Re: Demolition of Building on Makinson (Dickerman) Island
Osceola County / DHR Project File No. 2006-2253B

Dear Mr. Coughlin:

In accordance with this agency's responsibilities under Section 267.061, *Florida Statutes,* we revisited the referenced project based on issues presented by staff from the Bureau of Archaeological Research (BAR). Because of past disturbances associated with the construction of the building proposed for demolition, it is BAR's opinion that the removal of this structure will cause minimal new ground disturbance, and that the house location does not need to be investigated for cultural resources prior to demolition. Therefore, the demolition project may proceed. However, we request that the building be documented prior to demolition as we believe that it is older than indicated by the county tax appraiser's office. **Please have the attached Florida Master Site File *Historical Structure Form* completed and returned to this office with a black and white photo of the building.**

Nevertheless, BAR staff still plans to conduct archaeological investigations on Makinson Island to include the locations of the new interpretive center and caretaker residence. BAR staff can also assist in locating these proposed structures based on the results of archaeological testing. Again, Ms. Mary Glowacki at (850) 245-6444 is the contact person who will schedule the archaeological investigations.

If you have any questions concerning our comments, please do not hesitate to contact Susan Harp at (850) 245-6333. Thank you for your interest in protecting Florida's historic resources.

Sincerely,

Frederick P. Gaske

Frederick P. Gaske, Director

Enclosure

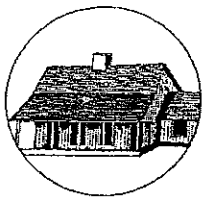
Xc: Ms. Mary Glowacki, BAR

500 S. Bronough Street • Tallahassee, FL 32399-0250 • http://www.flheritage.com

☐ Director's Office (850) 245-6300 • FAX: 245-6436
☐ Archaeological Research (850) 245-6444 • FAX: 245-6452
✓ Historic Preservation (850) 245-6333 • FAX: 245-6437
☐ Historical Museums (850) 245-6400 • FAX: 245-6433
☐ Southeast Regional Office (954) 467-4990 • FAX: 467-4991
☐ Northeast Regional Office (904) 825-5045 • FAX: 825-5044
☐ Central Florida Regional Office (813) 272-3843 • FAX: 272-2340

Page 1

☒ Original
☐ Update
(give site#)



HISTORICAL STRUCTURE FORM
FLORIDA MASTER SITE FILE
Version 3.1 6/05
Consult *Guide to Historical Structure Forms* for detailed instructions.

Site #8 OS2464
Recorder #
Field Date 5/15/06
Form Date 5/15/06

Site Name(s) (address if none) DICKERMAN ISLAND FKA MAKINSON ISLANDS — Multiple Listing (DHR only)
Survey — Survey #
National Register Category (Please check one: consult with Site File before using last four): ☐ building ☐ structure ☐ district ☐ site ☐ object

LOCATION & IDENTIFICATION

Address (Include N,S,E,W; #; St., Ave., etc.) MAKINSON ISLAND, LAKE TOHOPEKALIGA, ADDRESS UNKNOWN
Cross Streets (nearest / between) NO STREETS
City / Town (within 3 miles) KISSIMMEE — In Current City Limits: ☒y ☐n ☐unknown
County OSCEOLA — Tax Parcel #(s)
Subdivision name — Block — Lot
Ownership (Please check one): ☐private-profit ☐private-individual ☐city ☐county ☐Native American ☐private-nonprofit ☐private-unspecified ☒state ☐federal ☐foreign ☐unknown
Name of Public Tract (e.g., park) MAKINSON ISLANDS
Route to (especially if no street address)

MAPPING

USGS 7.5' Map Name & Date LAKE TOHOPEKALIGA QUADRANGLE
Township 26S Range 29E Section ~~2,3,4,9,10~~ ¼ section: ☐NW ☐SW ☐SE ☐NE ☐Irregular-name:
Landgrant — UTM: Zone ☐16 ☐17 Easting _____0 Northing _____0
Plat or other map (map's name, location)

DESCRIPTION

Style* SINGLE FAMILY - Frame Vern — Exterior Plan* — Number of Stories 1
Structural System(s)* Wood Balloon
Foundation: Type(s)* Piers — Material(s)* BRICK
Exterior Fabric(s)* wood siding
Roof: Type(s)* metal - Gable & Hip — Material(s)* TIN
Roof secondary strucs. (dormers etc.)*
Chimney: No. 0 Material(s)* — Location(s)*
Windows (types, materials, etc.)*

Main Entrance (stylistic details)
Porches: #open 1 #closed 1 #incised — Location(s) FRONT AND SIDE
Porch roof type(s) Shed
Exterior Ornament

Interior Plan*
Condition (Please check one): ☐excellent ☐good ☐fair ☐deteriorated ☒ruinous
Surroundings (N=None, S=Some, M=Most, A=All/nearly all): N commercial N residential N institutional A undeveloped
Ancillary Features (No., type of outbuildings; major landscape features. Use continuation sheet for descriptions of interior, landscaping, etc)

Archaeological Remains ☐ Check if Archaeological Form completed
ς Consult *Guide to Historical Structure Forms* for preferred descriptions (coded fields at the Site File).

DHR USE ONLY ♣♣♣♣♣ OFFICIAL EVALUATIONS ♣♣♣♣♣ DHR USE ONLY

NR DATE / /	KEEPER-NR ELIGIBILITY: ☐yes ☐no Date / /
DELIST DATE / /	SHPO-NR ELIGIBILITY: ☐yes ☐no ☐potentially elig ☐insufficient info Date / /
	LOCAL DESIGNATION: Date / /
	Local office:

National Register Criteria for Evaluation: ☐a ☐b ☐c ☐d (See National Register Bulletin 15, p. 2)

HISTORICAL STRUCTURE FORM

Site #8 _____

Consult *Guide to Historical Structure Forms* for detailed instructions.

HISTORY

Construction date: Exactly_____(year) Approximately 1960 (year) Earlier than_____(year) Later than_____(year)
Architect (last name first): UNKNOWN Builder (last name first): UNKNOWN
Moves: ☐yes ☐no ☒unknown Dates _____ Original address _____
Alterations: ☐yes ☐no ☒unknown Dates _____ Nature* _____
Additions: ☐yes ☐no ☒unknown Dates _____ Nature* _____
Original Use* (give date ranges) PRIOR TO 1982: CITRUS GROVE AND REHABILITATION CENTER FOR ALCOHOLICS
Intermediate Uses* (give date ranges) 1982-1999: ISLAND USED FOR EXOTIC ANIMAL COLLECTION, NOT SURE IF RESIDENCE WAS USED
Present Use* (give date ranges) 1999 - PRESENT: RESIDENCE NOT USED, ISLAND USED BY PUBLIC FOR HIKING, PICNICKING, CAMPING
Ownership History (especially original owner, dates, profession, etc.) PURCHASED BY R.H. DICKERMAN IN 1982 FROM A TRUST OF 120 INVESTORS. PRIOR OWNERSHIP UNKNOWN. ISLAND PURCHASED BY THE STATE OF FLORIDA IN 1999, LEASE # 4270

ς Consult *Guide to Historical Structure Forms* for preferred descriptions (coded fields at the Site File).

RESEARCH METHODS (Check all choices that apply; if needed write others at bottom)

- ☐ formal archaeological survey
- ☐ informal archaeological inspection
- ☐ Public Lands Survey (DEP)
- ☐ tax records/property deeds
- ☐ tax records only
- ☐ interior inspection
- ☒ past surveys search at FMSF
- ☒ past sites search at FMSF
- ☐ FL Archives (Gray Building)
- ☐ FL Photo Archives (Gray Building)
- ☐ occupant/owner interview
- ☐ neighbor interview
- ☐ local library research
- ☐ non-local library research
- ☐ building permits
- ☐ demolition permits
- ☐ commercial permits
- ☐ occupation permits
- ☐ Sanborn maps
- ☐ subdivision maps
- ☐ plat maps
- ☐ local newspaper files
- ☐ other methods (specify) _____

RECORDER'S OPINION OF EVALUATION (NOT OFFICIAL; Check one choice on each line)

Potentially eligible individually for National Register of Historic Places? ☐yes ☒no ☐insufficient information
Potentially eligible as contributor to a National Register district? ☐yes ☒no ☐insufficient information
Area(s) of Historical Significance (See *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

Explanation of Evaluation (**required**, whether positive or not; limit to three lines; attach longer statement, if needed, on separate sheet)
TAX RECORDS SHOW INCREASES IN VALUE IN 1960, INDICATING DATE OF RESIDENCE CONSTRUCTION. THE RESIDENCE HAS BEEN VACANT FOR DECADES, IS IN DISREPAIR, WAS DAMAGED BY THREE HURRICANES IN 2004, AND IS A HEALTH HAZARD.

DOCUMENTATION (Photos, Plans, etc.)

Bibliographic References (Use Continuation Sheet, give FMSF Manuscript # if relevant) _____

Photographs (**required**) B&W print(s) at least 3 x 5, at least one main facade.
Location of negatives & negative numbers OSCEOLA COUNTY PARK + RECREATION PH: (407) 343-7173

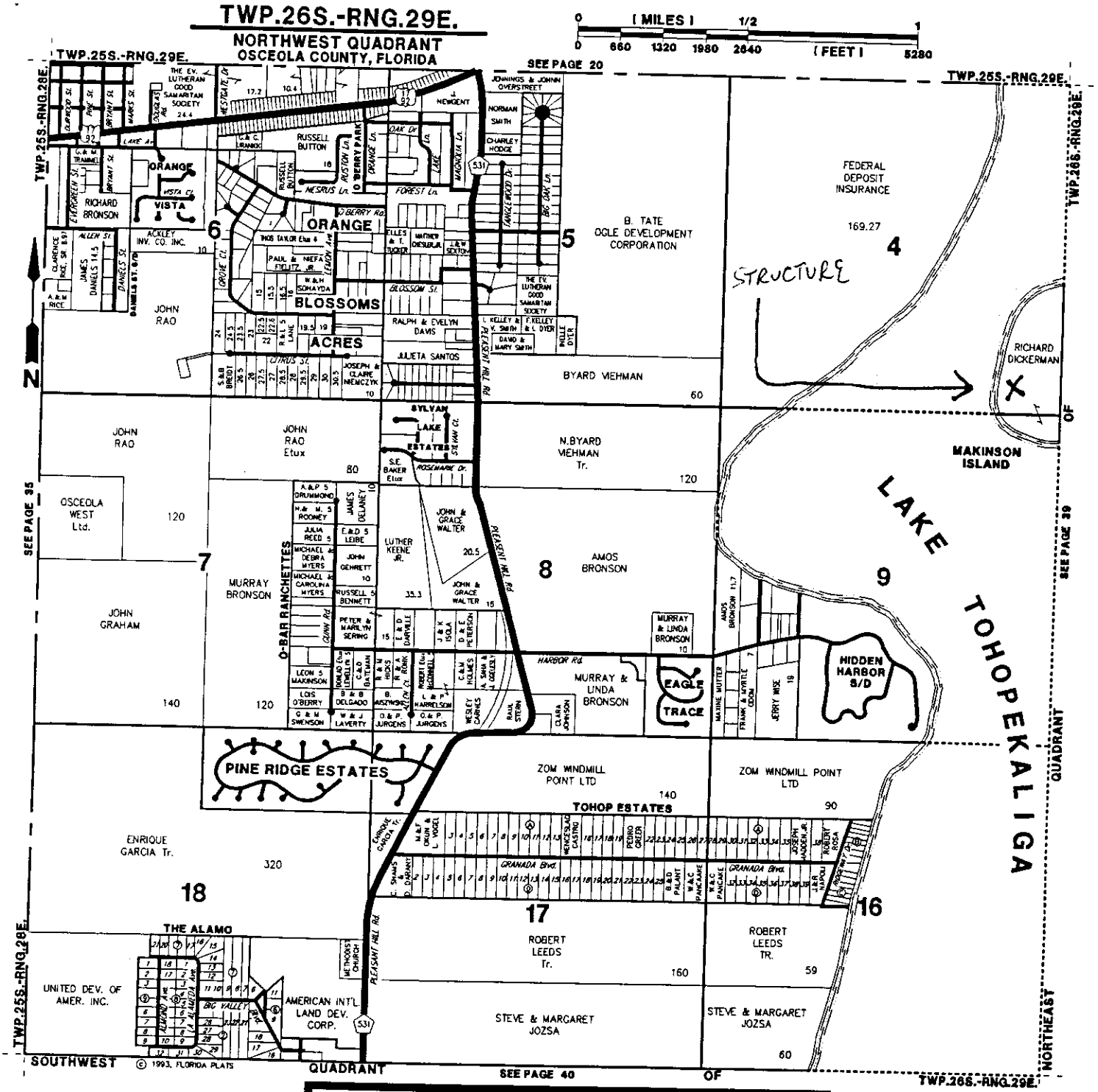
RECORDER

Name (last name first) / Address / Phone / Fax / Email / Affiliation TIM COUGHLIN - FLORIDA FISH + WILDLIFE CONSERVATION COMMISSION, 1601 SCOTTY'S ROAD, KISSIMMEE FL 34744
PH: (407) 846-5300 FAX: (407) 846-5310 EMAIL: TIM.COUGHLIN@MYFWC.COM

Remember: Use a *Supplement for Site Forms* or other continuation sheet for descriptions that do not fit in the spaces above.

REQUIRED:

(1) USGS 7.5' MAP WITH STRUCTURE PINPOINTED IN RED
(2) LARGE SCALE STREET OR PLAT MAP
(3) PHOTO OF MAIN FACADE, B&W, AT LEAST 3X5



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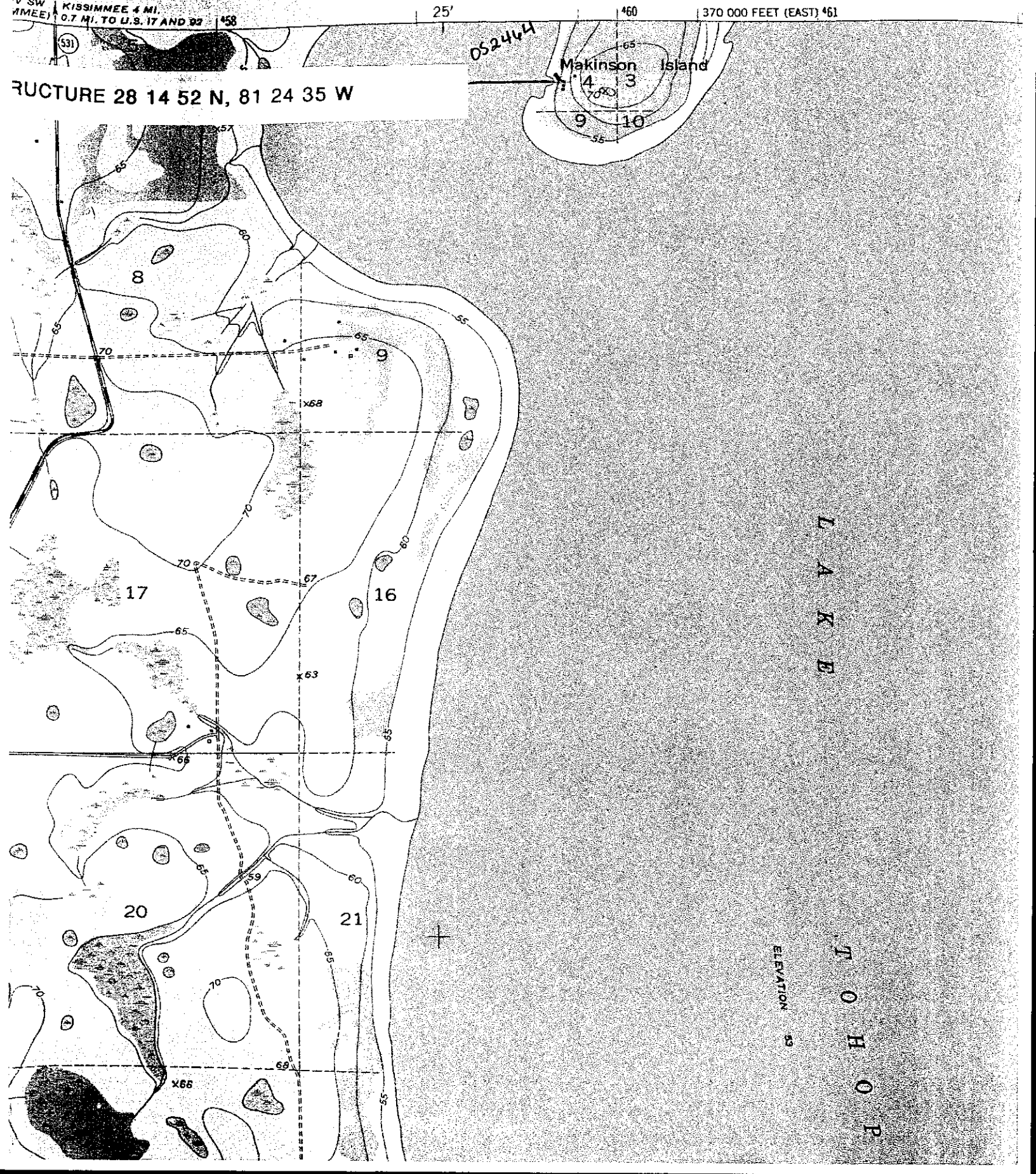

APPENDIX IV

Representative Photos

1. Existing cabbage palm hammock trail

2. Shrubby wetlands on southeast aspect of island

3. Central uplands – fallow rangeland

4. Live Oak Hammock near dock access. Building shown to be replaced by screened lodge.

5. Overlook to Paradise Island, point for proposed fishing pier.

APPENDIX V

Potential Funding

Potential Sources for Supplemental/Alternative Funding

*This list is not exhaustive

US Fish and Wildlife Service Funding Opportunities

Program Name	Eligible Activities	Total Funding Limit	Source of Aid	Due Date
NAWCA (standard)	Conservation of wetlands and wetland-dependent fish & wildlife	$75,000 - $1,000,000	Federal	March 1 and July 26
NAWCA (small grants)	Wetland acquisition, creation, enhancement, & restoration	$75,000	Federal	October 31
Wildlife Restoration Program Funds	Projects that restore and manage wildlife populations, provide public access to wildlife resources and teach safety to hunters	Variable	Federal	N/A
Sport Fish Restoration Program Funds	Support for projects that restore and manage fish populations used for sport fishing	Variable	Federal	N/A

Details on these opportunities can be found at:
http://wsfrprograms.fws.gov/Subpages/GrantPrograms/GrantProgramsIndex.htm

NOAA Administered Funding Opportunities

Program Name	Eligible Activities	Total Funding Limit	Source of Aid	Due Date
FishAmerica	Restore and protect fisheries habitat	$5,000 - $50,000	Federal	April 30

Details on these opportunities can be found at:
http://www.fishamerica.org/grants.html

Environmental Protection Agency Funding Opportunities

Program Name	Eligible Activities	Total Funding Limit	Source of Aid	Due Date
Watershed Program Development Grant	TMDLs and nonpoint source priorities	$30,000 - $180,000	Federal	varies

Details on these opportunities can be found at:
http://water.epa.gov/grants_funding/

U.S. Army Corp of Engineers

Program Name	Eligible Activities	Total Funding Limit	Source of Aid	Due Date
Section 206	Aquatic ecosystem restoration	$5,000,000	Federal	varies
Aquatic Plant Control	Financial and technical assistance to state agencies to control undesirable aquatic plants in rivers, harbors, and allied water	Variable	Federal	varies

Details on these opportunities can be found at:
http://www.federalgrants.com/Agency/Dept-of-the-Army-Corps-of-Engineers.html

National Fish and Wildlife Foundation Administered Funds

Program Name	Eligible Activities	Total Funding Limit	Source of Aid	Due Date
Keystone Initiatives	Conservation of fish, wildlife, plants,, including invasive sp. control, enhancing delivery or ecosystem services in ag systems	$50,000 - $300,000	Federal and Non-Federal	June 1
Five-Star Restoration Grant Program	Wetland, riparian, and coastal habitat restoration	$10,000 - $40,000	Federal and Non-Federal	February 15
Native Plant Conservation Initiative	Conservation of native plants	$5,000 - $40,000	Federal and Non-Federal	May 25
Pulling Together Initiative	Prevent, manage, & eradicate invasive and noxious plants	$10,000 - $100,000	Federal	May 18

Details on these opportunities can be found at:
http://www.nfwf.org/AM/Template.cfm?Section=Charter_Programs_List&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=61&ContentID=13554

Florida Fish and Wildlife Conservation Commission Funds

Program Name	Eligible Activities	Total Funding Limit	Source of Aid	Due Date
State Wildlife Grant	Conservation projects that benefit Florida's wildlife and their habitat	$10,000 - $400,000	State	October 5
Florida Boating Improvement Program	Grants to county governments to improve recreational boating related activities for the general public	Variable	State	varies

Native Plant Conservation Initiative	Conservation of native plants	Variable	Federal and Non-Federal	varies

Details on these opportunities can be found at:
http://myfwc.com/conservation/special-initiatives/fwli/grant/

Florida Department of Environmental Protection Administered Funds

Program Name	Eligible Activities	Total Funding Limit	Source of Aid	Due Date
Recreational Trails Program	Development of recreational trails, trailheads and trailside facilities	$250,000	Federal	varies
Florida Recreation Development Assistance Program	Grants with to local governments to acquire or develop land for public outdoor recreation	Variable	State	Sept 28
Land and Water Conservation Fund	Funds to local governments to acquire or develop land for outdoor recreation purposes	Variable	State	varies

Details on these opportunities can be found at:
http://www.dep.state.fl.us/parks/OIRS/default.htm

Water Management District Administered Funding

Program Name	Eligible Activities	Total Funding Limit	Source of Aid	Due Date
Community Education Grant Program	Projects providing opportunities community-based educational experiences that lead to the protection and conservation of Florida's ecosystems	$5,000 - $50,000	State	varies

Details on these opportunities can be found at:
www.WaterMatters.org/communitygrants

Education Partnerships/Cooperation Possibilities:

*This list is not exhaustive

The Great Florida Birding and Wildlife Trail (GFBWT)

This is a program of the Florida Fish and Wildlife Conservation Commission, supported in part by the Florida Department of Transportation and the Wildlife Foundation of Florida. This self-guided highway trail connects and unifies nearly 500 birding and wildlife viewing sites throughout Florida. Modeled after the successful Great Texas Coastal Birding Trail, this ambitious project features detailed guide booklets, a mobile device application, and special highway signs identifying GFBWT sites. Guide booklets contain site descriptions, directions, and maps showcasing the wonderful birding and wildlife watching opportunities in Florida. The Trail is possible thanks to dozens of federal, state, and local government agencies, non-governmental organizations and private landowners.

New GFBWT sites can be nominated by any individual or group. Landowners may also nominate their own lands. A steering committee meets to review the nominated sites and to make the final selection. The committee is comprised of representatives from the Florida Fish & Wildlife Conservation Commission, Florida Department of Environmental Protection, US Fish and Wildlife Service, Audubon, and Florida's tourism industry. The nomination process for each section of the trail will be reopened periodically (as funding permits) so that new sites may be included. The next statewide selection will be conducted, tentatively, during 2013 or 2014. www.floridabirdingtrail.com

Imperiled Butterfly Conservation and Management (IBCM)

Led by the Florida Museum of Natural History's McGuire Center for Lepidoptera and Biodiversity at the University of Florida and the Butterfly Conservation Initiative, IBCM is a broad partnership that also involves the several museums and zoos throughout the US as well as Fairchild Tropical Botanic Garden in Miami, FL and the University of Florida IFAS Department of Entomology and Nematology.

IBCM was funded by a grant from Institute of Museum and Library Services 21st Century Museum professionals program. The Institute works at the national level and in coordination with state and local organizations to sustain heritage, culture, and knowledge; enhance learning and innovation; and support professional development, www.imls.gov.

Florida Wildflower Foundation - *La Florida*, "Land of Flowers," Community Grants

Program offers micro -grants to purchase native wildflower plants or seeds. Projects include demonstration gardens, community beautification and roadside plantings. Up to 16 grants are available in counties that have passed a Wildflower Resolution (Osceola County not currently listed). www.flawildflowers.org

APPENDIX VI

Fire Managment Plan

BURN UNIT MK1

Phone Numbers

Emergency – 911
Osceola Regional Medical Ctr Hospital: (407) 846 -2266
ORMC (Burn treatment facility): (321) 841-5111
Osceola Cty Fire Rescue: (407) 933-1155
Division of Forestry (Orlando District): (407) 856-6512
Division of Forestry (Tom Donohoe): (407) 892-3024/2963 (Joe Burroughs)
Osceola Co Fire/Rescue: (407) 742-7000; dispatch, 407-348-8688
Sandy Bean/Osceola Cty: (407)742-8650

Adjacent Landowners:
Marty Mann, Fisheries, 321-624-6090, Marty.mann@myfwc.com
Tim Coughlin, Aquatic Habitat, 407-908-5296, Tim.coughlin@myfwc.com
Zach Welch, Snail Kites, 352-266-6139, Zach.welch@myfwc.com

Prescribed Fire Prescription - Site Description and Objectives	**Unit Name: MK1**	
Admin. Unit: Makinson Island – Osceola County	Prepared By: M. Green	Date:
Authorization No.: Cust. No.	Approved By:	Date:
Legal Desc.: at intersection of Sections 3,4,9,10/26S/29E	UTM: Zone____N_____E___	Owner: **Os. Co. Natural Resources**
Lat.: 28 14 55 Long: 81 24 25 DD MM SS DD MM SS	County: Osceola	Burn Acres: 26
Site Description (**Figure 1**):		
Topography: Flat	Soil: sandy, changing into muck in wetlands	Aspect: NA
Understory and Surface Fuels: spare in hammocks, predominantly native herbs and grasses		
Overstory and Canopy Fuels: live oak and cabbage palm dominate/closed canopy along edges of island, cypress and shrubs in wetlands		Crown Base Ht: 30-50
		Canopy Closure: 50-95% edges, mostly open in field
Fuels outside the burn unit: oak hammock, pasture, scattered marsh		
Purpose of Treatment: fuel reduction and ecological enhancement		
Specific Treatment Objectives: Reduce deadfall fuel / leaf litter by 50%, increase native herbaceous diversity/extent ; reduce woody encroachment by up to 50%, particularly in pasture/field		

Prescribed Fire Prescription - Personnel and Equipment Summary	Unit Name: MK1	
Implementation * = Required		
Position / Personnel	**Equipment / Operator**	**Notes**
Burn Boss	1 w/ 4x4 truck, ATV, or airboat	
Line Boss		
Suppression (truck, 150 gal), or	1-2 w/ skid pump	
Suppression (1000 gal); *optional*	1 operator	
Suppression – Polaris UTV, *optional*	50 gal/ 2 person crew	
Ignition personnel	*Included in above/below*	
Information Officer	Landowner, if necessary	
Weather observer	Burn boss, line boss	

Prescribed Fire Prescription - Pre-Burn Preparations and Checklist -	Unit Name: MK1

Onsite (e.g. line construction, warning signs etc.):

- Establish refill sites for engines – lake edge, County well at landing
- Screen burn unit for T&E species – none observed
- Ensure adjacent wetlands have standing water/high soil moisture
- Mineral line has minimal plant material; wetline may be used in light fuels

Offsite (e.g. permits, road closures, press releases):

- Notify Osceola County Fire Rescue **407-348-8688** (dispatch)
- Notify Os. Co. Parks
- Notify local DOF office/FAS
- Notify adjacent neighbors (noted above)

GO/NO GO Checklist for Day of Burn:

- ❑ Burn Plan Complete and Approved; all prescription requisites met
- ❑ Current weather and projected forecast discussed and favorable
- ❑ Required Environmental and Fire Behavior Factors Verified Within Prescription
- ❑ Authorization obtained
- ❑ Adjacent landowners notified
- ❑ Local contacts made, including Fire/Rescue and Police
- ❑ LVORI checked
- ❑ Smoke screening performed and documented
- ❑ Smoke on the Highway signs in place, if needed.
- ❑ All equipment and personnel required on scene
- ❑ All equipment fully operational
- ❑ Each crew member is qualified for assignment, has PPE, map and clothing
- ❑ Crew members briefed
- ❑ Crew members given an opportunity to decline participation
- ❑ Prescription location made known
- ❑ Exceptions to checklist noted, explained, and mitigated

Briefing Outline

- ❑ Objectives of Burn
- ❑ Exact area of burn
- ❑ Hazards Discussed (volatile fuels, spotting potential, points of concern, terrain features)
- ❑ Crew assignments made
- ❑ Ignition pattern and technique
- ❑ Location of extra equipment, fuel, water, vehicle keys
- ❑ Authority and communications
- ❑ Location of extra equipment, fuel, water, keys, nearest source of assistance
- ❑ Communications reviewed, radios tested, authority explained
- ❑ Contingencies covered including escape routes or procedures
- ❑ Medical concerns discussed, if any – allergies, asthma
- ❑ Sources of nearest assistance. Nearest phone and emergency numbers
- ❑ Special instructions regarding smoke management, contact with the public and others.
- ❑ Questions
- ❑ Test burn performed and fire behavior within expectations.

Prescribed Fire Operations Plan - Monitoring -	Unit Name: **MK1**
Prepared By: M. Green	Date:

General Monitoring Objectives

Weather

Monitor weather every 60 minutes if no weather-related surprises occur. If abrupt changes occur increase weather observations to every 30 minutes. Observations shall pay special attention to relative humidity, wind speed and direction. All weather observations shall be announced over the radio.

Fire Behavior

Monitor flame length, rate of spread and spotting in order to provide feedback to ignition resources. Observe fire behavior and report variances that exceed sustained flame lengths of 8 feet. Observe and report spotting and fire whirl or dust devil development. Flame lengths should be much less throughout most of the grass-dominated habitat – <2-4 ft

Smoke (**Figure, attached**)

Monitor smoke production and dispersal to minimize impacts to the following roads—Florida Turnpike (4.5> miles to east), towns of Kissimmee and St. Cloud (2.0/5.5 miles to the north and east);
Smoke Screeing: Step 1-5: 1) fuel types A,E, and F (.25-1.5 impact distance, all firing techniques, <1.5miles impact distance; 2) no SSAs id in 500ft buffer or ¼ or ¾ downwind; 4); 4) Screening requirements met with the following: no adjacent homes, no SSAs w/in impact distance.

Fuels

Monitor fuels and consumption to ensure that objectives are accomplished

Fire Effects (First Order)

Monitor scorch and related overtstory mortality—the primary objective is ecological enhancement and reducing woody encroachment

Miscellaneous

Prescribed Fire Operations Plan - Monitoring -	Unit Name: **MK1**

Specific Monitoring Actions

Weather (How, Where, When,Who):
A specific line person will be responsible for providing weather updates every hour. Weather observations will begin 30-minutes prior to beginning and continue every 60 minutes until the burn is completed. Weather observations will be provided using Kestrel 3500, NOAA weather radio updates, or belt weather kit

Fire Behavior (How, Where, When,Who):
Fire behavior should be observed by all personnel, but primary the responsibility will be with Burn Boss, Line Boss, and holding resources. Particular attention should be paid to observed rates of spread and flame lengths and comparing them to the range necessary to meet objectives

Smoke (How, Where, When,Who):
Smoke will be monitored by the burn boss and crew throughout the burn. Primary concerns are the smoke near the residences and roads noted above.

Fuels (How, Where, When,Who):
Fuels will be monitored by the Ignition Boss to ensure that no unexpected changes in fuels occur in advance of ignition. The Mop-up Boss will monitor fuel consumption after the fire has passed.

Fire Effects (First Order) (How, Where, When,Who):
Fire effects will be monitored post-fire by the land manager assigned to the property using photopoints and vegetation transects in accordance with the proposed monitoring plan .

Miscellaneous (How, Where, When,Who):

Prescribed Fire Operations Plan - Smoke Management -	Unit Name: **MK1**
Prepared By:	Date:

Smoke Management Objectives:
Prevent smoke impacts to communities to the north/northeast (Kiss, St. Cloud), development to southwest, and the following roads—Turnpike (to the east). Place smoke over rural/conservaton land to the south, east/southeast. Minimize smoke impacts by utilizing the appropriate wind direction, dispersion, and firing technique.

Smoke Sensitive Areas and Targets :

- Roads—Florida Turnpike, approx 4.5 to east
- Towns of Kissimmee/St. Cloud (2 and 5.5 miles to the north, northeast respectively)

Ranges for Selections Used in the WUI Smoke Screening System

Dispersion Index		Relative Humidity		Fuel Category	Firing Technique	Impact Distance	LVORI Forecast
Day >40	**Night** >3	40-60%		FBPS models A,E,F	Backing, Point Source, Strip Head	Up to 2.0 miles	< 7; recommended
Transport Wind		Surface Wind/20ft		Minimum Mixing Ht.	KBDI	Organic Soil	
Min >9	**Dir** N,NW	**Speed** 5-15 mph	**Dir** N,NW	1,700 feet	100-450	**Yes (**in wetland) No	
Initial Smoke Screening Passed: (Yes) No					By Whom: M. Green		Date:
Burn Day Smoke Screening Passed: Yes No					By Whom:		Date:

Prescribed Fire Prescription - Smoke Management -	Unit Name: **MK1**
Prepared by: M. Green	Date:

Special Precautions	
❑	Snags or stumps present
❑	Complete firing by 1500
❑	Mop-up completely by dusk
❑	Re-route or direct local road traffic. If so, which roads:
❑	Split into subunits. Assign additional prescriptions/forms as necessary
❑	SSA's within fire ¼ mile unavoidable: highlight on attached map
❑	Monitor smoke all night if present
❑	Other: power lines, structures, signage, benches
❑	

Other Precautions:

Prescribed Fire Prescription - Prescription Parameters-		**Unit Name: MK1**		
Environmental Factor	R/G*	Desired Range	Predicted Range	Actual Range
Month of Year	G			
Time of Day	G	9AM-6PM		
Days Since _ Inches Rain	G	< 14 days		
Drought Indicator	G	100-450 KBDI		
Temperature	G	< 90º		
Relative Humidity	R	40-60 %		
Fine Fuel Moisture	G	8-15%		
Surface (20-ft) Winds	G	N/NW @5-15		
Transport Winds	G	N/NW@>9		
Min. Mixing Ht.	R	1,700		
Disp. Index (Day)	G	40-60		
Disp Index (Night)	G	>3		
LVORI	G	<7		
Calculated Factors	R/G*	Desired Range	Predicted Range	Actual Range
Rate of Spread (inside)	G	13-135 ch./hr		
Rate of Spread (outside)	G	13-135 ch./hr		
Flame Length (inside)	G	.5-8		
Flame Length (outside)	G	.5-8		
Prob. Of Ignition	G	<50		
Scorch Height	G	NA		
* **R** = Required; **G** = Guidance				

DIVISION ASSIGNMENT LIST	1. Branch	2. Division/Group **NA**
3. Incident Name	4. Operational Period Date: Time:	

5. Operations Personnel

Operations Chief		Division/Group Supervisor	
Branch Director		Air Attack Supervisor No.	

6. Resources Assigned this Period

Strike Team/Task Force/ Resource Designator	Leader	Number Persons	Trans. Needed	Drop Off PT./Time	Pick Up PT./Time
Suppression Unit		2-4			
Ignition Personnel		2			

7. Control Operations

Ignite, monitor and hold fire within Division. If fire escapes boundary, ignition will stop until Burn Boss decides whether safer to resume ignition or not. All escapes will be announced over designated channel. Ignitions will focus on using various fire techniques, as conditions dictate, primarily backing and spot.

8. Special Instructions

If escape occurs contingency resources may be called upon as necessary. During an escape the burn boss must ensure the proper balance between assigning resources to the escape and holding the prescribed burn. Do not allow all resources to become distracted by the escape.

9. Division/Group Communication Summary

Function	Frequency	System	Channel	Function	Frequency	System	Channel
Command		King NIFC		Logistics		King NIFC	
Tactical Div/Group		King NIFC		Air to Ground		King NIFC	

Prepared by (Resource Unit Leader)	Approved by (Planning Section Chief)	Date	Time

DIVISION ASSIGNMENT LIST	1. Branch	2. Division/Group **Information Group**
3. Incident Name	4. Operational Period Date: Time:	

5. Operations Personnel

Operations Chief		Division/Group Supervisor	
Branch Director		Air Attack Supervisor No.	

6. Resources Assigned this Period

Strike Team/Task Force/ Resource Designator	Leader	Number Persons	Trans. Needed	Drop Off PT./Time	Pick Up PT./Time
Burn/Line Boss/Owner		1			

7. Control Operations

Provide information to residents/general public and the media.

8. Special Instructions

Make contact with any resident and member of the general public near the burn area. Media must check w/ burn boss before property entry. No smoke signs necessary. Notice placed at gates/points of entry.

9. Division/Group Communication Summary

Function	Frequency	System	Channel	Function	Frequency	System	Channel
Command	TBD		TBD				
Tactical Div/Group	TBD		TBD				

Prepared by (Resource Unit Leader)	Approved by (Planning Section Chief)	Date	Time

Prescribed Fire Prescription - Safety -	**Unit Name: MK1**
Safety Objectives: 1. Provide for the safety of residents, motorists and firefighters. 2. Protect all improvements, such as: structures, power lines, fences, etc.; keep fire out of improved park areas, protect signs/benches, pavillions 3. Ensure that the fire is kept within the burned area boundary.	
Safety Issue	Mitigation Measures
Provide for the safety of residents.	Establish firebreaks that are substantial enough to contain fire. Provide sufficient personnel and equipment, including structural equipment (if applicable) to deal with burn and contingencies. Keep adjacent owners informed.
Provide for the safety of motorists.	Plan and execute burn in such a way that smoke and fire impact to highway are minimized. Provide sufficient personnel and equipment to deal with traffic hazards. Close road if necessary, in coordination with Osceola County Sheriff, Fire/Rescue, Florida Highway Patrol.
Provide for the safety of fire personnel.	Ensure PPE is complete. Establish firebreak which are substantial enough to contain fire. Provide safety zones and escape routes. Prepare adequate plan and provide adequate briefing to insure all personnel are informed. Maintain effective communications.
Protect improvements.	Identify all improvements that can potentially be threatened by burn or escape. Establish firebreaks that are sufficient to contain the fire.
Ensure the fire remains within the designated boundaries.	Establish firebreaks that are sufficient to contain the fire. Provide sufficient personnel and equipment, including structural equipment (if applicable) to deal with burn and contingencies.

MEDICAL PLAN	1. Incident Name	2. Date Prepared	3. Time Prepared	4. Operational Period
				Daytime Burn

5. Incident Medical Aid Station

Medical Aid Stations	Location	Paramedics Yes	Paramedics No
None	Located on structure engines, if applicable		X

6. Transportation

A. Ambulance Services

Name	Address	Phone	Paramedics Yes	Paramedics No
None				

B. Incident Ambulances

Name	Location	Paramedics Yes	Paramedics No
None			

7. Hospitals

Name	Address	Travel Time Air	Travel Time Ground	Phone	Helipad Yes	Helipad No	Burn Center Yes	Burn Center No
Osceola Reg. Med. Center	700 W Oak St Kissimmee	20 min.	30 min.	(407) 846-2266	X			X
ORMC (burn unit)	Orlando	30	50	**321-841-5111**			X	

8. Medical Emergency Procedures

If anyone is injured notify that person's supervisor. That supervisor will arrange an assessment and ensure the proper attention will be obtained.

Prepared by (Medical Unit Leader)	10. Reviewed by (Safety Officer)

CREW EMERGENCY CONTACT INFORMATION				
Name	**Home Base**	**Emergency Contact (Name)**	**Contact Number**	**Relationship**

BURN UNIT MK2

Phone Numbers

Emergency – 911
Osceola Regional Medical Ctr Hospital: (407) 846 -2266
ORMC (Burn treatment facility): (321) 841-5111
Osceola Cty Fire Rescue: (407) 933-1155
Division of Forestry (Orlando District): (407) 856-6512
Division of Forestry (Tom Donohoe): (407) 892-3024/2963 (Joe Burroughs)
Osceola Co Fire/Rescue: (407) 742-7000; dispatch, 407-348-8688
Sandy Bean/Osceola Cty: (407)742-8650

Adjacent Landowners:
Marty Mann, Fisheries, 321-624-6090, Marty.mann@myfwc.com
Tim Coughlin, Aquatic Habitat, 407-908-5296, Tim.coughlin@myfwc.com
Zach Welch, Snail Kites, 352-266-6139, Zach.welch@myfwc.com

Prescribed Fire Prescription - Site Description and Objectives	**Unit Name: MK2**	
Admin. Unit: Makinson Island – Osceola County	Prepared By: M. Green	Date:
Authorization No.: Cust. No.	Approved By:	Date:
Legal Desc.: at intersection of Sections 3,4,9,10/26S/29E	UTM: Zone____N_____E___	Owner: **Os. Co. Natural Resources**
Lat.: 28 14 55 Long: 81 24 25 DD MM SS DD MM SS	County: Osceola	Burn Acres: 21
Site Description (**Figure 1**):		
Topography: Flat	Soil: sandy, changing into muck in wetlands	Aspect: NA
Understory and Surface Fuels: spare in hammocks, predominantly native herbs and grasses		
Overstory and Canopy Fuels: live oak and cabbage palm dominate/closed canopy along edges of island, cypress and shrubs in wetlands		Crown Base Ht: 30-50
		Canopy Closure: 50-95% edges, mostly open in field
Fuels outside the burn unit: oak hammock, pasture, scattered marsh		
Purpose of Treatment: fuel reduction and ecological enhancement		
Specific Treatment Objectives: Reduce deadfall fuel / leaf litter by 50%, increase native herbaceous diversity/extent ; reduce woody encroachment by up to 50%, particularly in pasture/field		

Prescribed Fire Prescription - Personnel and Equipment Summary	Unit Name: MK2	
Implementation * = Required		
Position / Personnel	**Equipment / Operator**	**Notes**
Burn Boss	1 w/ 4x4 truck, ATV, or airboat	
Line Boss		
Suppression (truck, 150 gal), or	1-2 w/ skid pump	
Suppression (1000 gal); *optional*	1 operator	
Suppression – Polaris UTV, *optional*	50 gal/ 2 person crew	
Ignition personnel	*Included in above/below*	
Information Officer	Landowner, if necessary	
Weather observer	Burn boss, line boss	

Prescribed Fire Prescription - Pre-Burn Preparations and Checklist -	Unit Name: MK2

Onsite (e.g. line construction, warning signs etc.):

- Establish refill sites for engines – lake edge, County well at landing
- Screen burn unit for T&E species – none observed
- Ensure adjacent wetlands have standing water/high soil moisture
- Mineral line has minimal plant material; wetline may be used in light fuels

Offsite (e.g. permits, road closures, press releases):

- Notify Osceola County Fire Rescue **407-348-8688** (dispatch)
- Notify Os. Co. Parks
- Notify local DOF office/FAS
- Notify adjacent neighbors (noted above)

GO/NO GO Checklist for Day of Burn:

- ❑ Burn Plan Complete and Approved; all prescription requisites met
- ❑ Current weather and projected forecast discussed and favorable
- ❑ Required Environmental and Fire Behavior Factors Verified Within Prescription
- ❑ Authorization obtained
- ❑ Adjacent landowners notified
- ❑ Local contacts made, including Fire/Rescue and Police
- ❑ LVORI checked
- ❑ Smoke screening performed and documented
- ❑ Smoke on the Highway signs in place, if needed.
- ❑ All equipment and personnel required on scene
- ❑ All equipment fully operational
- ❑ Each crew member is qualified for assignment, has PPE, map and clothing
- ❑ Crew members briefed
- ❑ Crew members given an opportunity to decline participation
- ❑ Prescription location made known
- ❑ Exceptions to checklist noted, explained, and mitigated

Briefing Outline

- ❑ Objectives of Burn
- ❑ Exact area of burn
- ❑ Hazards Discussed (volatile fuels, spotting potential, points of concern, terrain features)
- ❑ Crew assignments made
- ❑ Ignition pattern and technique
- ❑ Location of extra equipment, fuel, water, vehicle keys
- ❑ Authority and communications
- ❑ Location of extra equipment, fuel, water, keys, nearest source of assistance
- ❑ Communications reviewed, radios tested, authority explained
- ❑ Contingencies covered including escape routes or procedures
- ❑ Medical concerns discussed, if any – allergies, asthma
- ❑ Sources of nearest assistance. Nearest phone and emergency numbers
- ❑ Special instructions regarding smoke management, contact with the public and others.
- ❑ Questions
- ❑ Test burn performed and fire behavior within expectations.

Prescribed Fire Operations Plan - Monitoring -	Unit Name: **MK2**
Prepared By: M. Green	Date:

General Monitoring Objectives

Weather

Monitor weather every 60 minutes if no weather-related surprises occur. If abrupt changes occur increase weather observations to every 30 minutes. Observations shall pay special attention to relative humidity, wind speed and direction. All weather observations shall be announced over the radio.

Fire Behavior

Monitor flame length, rate of spread and spotting in order to provide feedback to ignition resources. Observe fire behavior and report variances that exceed sustained flame lengths of 8 feet. Observe and report spotting and fire whirl or dust devil development. Flame lengths should be much less throughout most of the grass-dominated habitat – <2-4 ft

Smoke (**Figure, attached**)

Monitor smoke production and dispersal to minimize impacts to the following roads—Florida Turnpike (4.5> miles to east), towns of Kissimmee and St. Cloud (2.0/5.5 miles to the north and east);
Smoke Screeing: Step 1-5: 1) fuel types A,E, and F (.25-1.5 impact distance, all firing techniques, <1.5miles impact distance; 2) no SSAs id in 500ft buffer or ¼ or ¾ downwind; 4); 4) Screening requirements met with the following: no adjacent homes, no SSAs w/in impact distance.

Fuels

Monitor fuels and consumption to ensure that objectives are accomplished

Fire Effects (First Order)

Monitor scorch and related overtstory mortality—the primary objective is ecological enhancement and reducing woody encroachment

Miscellaneous

Prescribed Fire Operations Plan - Monitoring -	Unit Name: **MK2**

Specific Monitoring Actions

Weather (How, Where, When,Who):
A specific line person will be responsible for providing weather updates every hour. Weather observations will begin 30-minutes prior to beginning and continue every 60 minutes until the burn is completed. Weather observations will be provided using Kestrel 3500, NOAA weather radio updates, or belt weather kit

Fire Behavior (How, Where, When,Who):
Fire behavior should be observed by all personnel, but primary the responsibility will be with Burn Boss, Line Boss, and holding resources. Particular attention should be paid to observed rates of spread and flame lengths and comparing them to the range necessary to meet objectives

Smoke (How, Where, When,Who):
Smoke will be monitored by the burn boss and crew throughout the burn. Primary concerns are the smoke near the residences and roads noted above.

Fuels (How, Where, When,Who):
Fuels will be monitored by the Ignition Boss to ensure that no unexpected changes in fuels occur in advance of ignition. The Mop-up Boss will monitor fuel consumption after the fire has passed.

Fire Effects (First Order) (How, Where, When,Who):
Fire effects will be monitored post-fire by the land manager assigned to the property using photopoints and vegetation transects in accordance with the proposed monitoring plan .

Miscellaneous (How, Where, When,Who):

Prescribed Fire Operations Plan - Smoke Management -	Unit Name: **MK2**
Prepared By:	Date:

Smoke Management Objectives:
Prevent smoke impacts to communities to the north/northeast (Kiss, St. Cloud), development to southwest, and the following roads—Turnpike (to the east). Place smoke over rural/conservaton land to the south, east/southeast. Minimize smoke impacts by utilizing the appropriate wind direction, dispersion, and firing technique.

Smoke Sensitive Areas and Targets :

- Roads—Florida Turnpike, approx 4.5 to east
- Towns of Kissimmee/St. Cloud (2 and 5.5 miles to the north, northeast respectively)

Ranges for Selections Used in the WUI Smoke Screening System

Dispersion Index		Relative Humidity		Fuel Category	Firing Technique	Impact Distance	LVORI Forecast
Day >40	**Night** >3	40-60%		FBPS models A,E,F	Backing, Point Source, Strip Head	Up to 2.0 miles	< 7; recommended
Transport Wind		Surface Wind/20ft		Minimum Mixing Ht.	KBDI	Organic Soil	
Min >9	**Dir** N,NW	**Speed** 5-15 mph	**Dir** N,NW	1,700 feet	100-450	**Yes (**in wetland) No	
Initial Smoke Screening Passed: (Yes) No					By Whom: M. Green		Date:
Burn Day Smoke Screening Passed: Yes No					By Whom:		Date:

Prescribed Fire Prescription - Smoke Management -	Unit Name: **MK2**
Prepared by: M. Green	Date:

Special Precautions

❑	Snags or stumps present
❑	Complete firing by 1500
❑	Mop-up completely by dusk
❑	Re-route or direct local road traffic. If so, which roads:
❑	Split into subunits. Assign additional prescriptions/forms as necessary
❑	SSA's within fire ¼ mile unavoidable: highlight on attached map
❑	Monitor smoke all night if present
❑	Other: power lines, structures, signage, benches
❑	

Other Precautions:

Prescribed Fire Prescription - Prescription Parameters-		**Unit Name: MK2**		
Environmental Factor	R/G*	Desired Range	Predicted Range	Actual Range
Month of Year	G			
Time of Day	G	9AM-6PM		
Days Since _ Inches Rain	G	< 14 days		
Drought Indicator	G	100-450 KBDI		
Temperature	G	< 90º		
Relative Humidity	R	40-60 %		
Fine Fuel Moisture	G	8-15%		
Surface (20-ft) Winds	G	N/NW @5-15		
Transport Winds	G	N/NW@>9		
Min. Mixing Ht.	R	1,700		
Disp. Index (Day)	G	40-60		
Disp Index (Night)	G	>3		
LVORI	G	<7		
Calculated Factors	R/G*	Desired Range	Predicted Range	Actual Range
Rate of Spread (inside)	G	13-135 ch./hr		
Rate of Spread (outside)	G	13-135 ch./hr		
Flame Length (inside)	G	.5-8		
Flame Length (outside)	G	.5-8		
Prob. Of Ignition	G	<50		
Scorch Height	G	NA		
* **R** = Required; **G** = Guidance				

DIVISION ASSIGNMENT LIST	1. Branch	2. Division/Group **NA**
3. Incident Name	4. Operational Period Date: Time:	

5. Operations Personnel

Operations Chief		Division/Group Supervisor	
Branch Director		Air Attack Supervisor No.	

6. Resources Assigned this Period

Strike Team/Task Force/ Resource Designator	Leader	Number Persons	Trans. Needed	Drop Off PT./Time	Pick Up PT./Time
Suppression Unit		2-4			
Ignition Personnel		2			

7. Control Operations

Ignite, monitor and hold fire within Division. If fire escapes boundary, ignition will stop until Burn Boss decides whether safer to resume ignition or not. All escapes will be announced over designated channel. Ignitions will focus on using various fire techniques, as conditions dictate, primarily backing and spot.

8. Special Instructions

If escape occurs contingency resources may be called upon as necessary. During an escape the burn boss must ensure the proper balance between assigning resources to the escape and holding the prescribed burn. Do not allow all resources to become distracted by the escape.

9. Division/Group Communication Summary

Function	Frequency	System	Channel	Function	Frequency	System	Channel
Command		King NIFC		Logistics		King NIFC	
Tactical Div/Group		King NIFC		Air to Ground		King NIFC	

Prepared by (Resource Unit Leader)	Approved by (Planning Section Chief)	Date	Time

DIVISION ASSIGNMENT LIST	1. Branch	2. Division/Group **Information Group**
3. Incident Name	4. Operational Period Date: Time:	

5. Operations Personnel

Operations Chief		Division/Group Supervisor	
Branch Director		Air Attack Supervisor No.	

6. Resources Assigned this Period

Strike Team/Task Force/ Resource Designator	Leader	Number Persons	Trans. Needed	Drop Off PT./Time	Pick Up PT./Time
Burn/Line Boss/Owner		1			

7. Control Operations

Provide information to residents/general public and the media.

8. Special Instructions

Make contact with any resident and member of the general public near the burn area. Media must check w/ burn boss before property entry. No smoke signs necessary. Notice placed at gates/points of entry.

9. Division/Group Communication Summary

Function	Frequency	System	Channel	Function	Frequency	System	Channel
Command	TBD		TBD				
Tactical Div/Group	TBD		TBD				

Prepared by (Resource Unit Leader)	Approved by (Planning Section Chief)	Date	Time

Prescribed Fire Prescription - Safety -	**Unit Name: MK2**
Safety Objectives: 1. Provide for the safety of residents, motorists and firefighters. 2. Protect all improvements, such as: structures, power lines, fences, etc.; keep fire out of improved park areas, protect signs/benches, pavillions 3. Ensure that the fire is kept within the burned area boundary.	
Safety Issue	Mitigation Measures
Provide for the safety of residents.	Establish firebreaks that are substantial enough to contain fire. Provide sufficient personnel and equipment, including structural equipment (if applicable) to deal with burn and contingencies. Keep adjacent owners informed.
Provide for the safety of motorists.	Plan and execute burn in such a way that smoke and fire impact to highway are minimized. Provide sufficient personnel and equipment to deal with traffic hazards. Close road if necessary, in coordination with Osceola County Sheriff, Fire/Rescue, Florida Highway Patrol.
Provide for the safety of fire personnel.	Ensure PPE is complete. Establish firebreak which are substantial enough to contain fire. Provide safety zones and escape routes. Prepare adequate plan and provide adequate briefing to insure all personnel are informed. Maintain effective communications.
Protect improvements.	Identify all improvements that can potentially be threatened by burn or escape. Establish firebreaks that are sufficient to contain the fire.
Ensure the fire remains within the designated boundaries.	Establish firebreaks that are sufficient to contain the fire. Provide sufficient personnel and equipment, including structural equipment (if applicable) to deal with burn and contingencies.

MEDICAL PLAN	1. Incident Name	2. Date Prepared	3. Time Prepared	4. Operational Period
				Daytime Burn

5. Incident Medical Aid Station

Medical Aid Stations	Location	Paramedics Yes	Paramedics No
None	Located on structure engines, if applicable		X

6. Transportation

A. Ambulance Services

Name	Address	Phone	Paramedics Yes	Paramedics No
None				

B. Incident Ambulances

Name	Location	Paramedics Yes	Paramedics No
None			

7. Hospitals

Name	Address	Travel Time Air	Travel Time Ground	Phone	Helipad Yes	Helipad No	Burn Center Yes	Burn Center No
Osceola Reg. Med. Center	700 W Oak St Kissimmee	20 min.	30 min.	(407) 846-2266	X			X
ORMC (burn unit)	Orlando	30	50	**321-841-5111**			X	

8. Medical Emergency Procedures

If anyone is injured notify that person's supervisor. That supervisor will arrange an assessment and ensure the proper attention will be obtained.

Prepared by (Medical Unit Leader)	10. Reviewed by (Safety Officer)

CREW EMERGENCY CONTACT INFORMATION				
Name	**Home Base**	**Emergency Contact (Name)**	**Contact Number**	**Relationship**

BURN UNIT PF1

Phone Numbers

Emergency – 911
Osceola Regional Medical Ctr Hospital: (407) 846 -2266
ORMC (Burn treatment facility): (321) 841-5111
Osceola Cty Fire Rescue: (407) 933-1155
Division of Forestry (Orlando District): (407) 856-6512
Division of Forestry (Tom Donohoe): (407) 892-3024/2963 (Joe Burroughs)
Osceola Co Fire/Rescue: (407) 742-7000; dispatch, 407-348-8688
Sandy Bean/Osceola Cty: (407)742-8650

Adjacent Landowners:
Marty Mann, Fisheries, 321-624-6090, Marty.mann@myfwc.com
Tim Coughlin, Aquatic Habitat, 407-908-5296, Tim.coughlin@myfwc.com
Zach Welch, Snail Kites, 352-266-6139, Zach.welch@myfwc.com

Prescribed Fire Prescription - Site Description and Objectives	**Unit Name: PF1**	
Admin. Unit: Makinson Island – Osceola County	Prepared By: M. Green	Date:
Authorization No.: Cust. No.	Approved By:	Date:
Legal Desc.: at intersection of Sections 3,4,9,10/26S/29E	UTM: Zone____N_____E___	Owner: **Os. Co. Natural Resources**
Lat.: 28 14 55 Long: 81 24 25 DD MM SS DD MM SS	County: Osceola	Burn Acres: 49
Site Description (**Figure 1**):		
Topography: Flat	Soil: sandy, changing into muck in wetlands	Aspect: NA
Understory and Surface Fuels: predominantly native bahiagrass and *Andropogon* w/ scattered live oak; live oak and cabbage palm dominate/closed canopy along edges of units		
Overstory and Canopy Fuels: scattered live oak in field; mature cabbage palm and live oak in hammocks at island edges/fringe		Crown Base Ht: 30-50
		Canopy Closure: 10-15%; 95% edges
Fuels outside the burn unit: oak hammock, pasture, scattered marsh		
Purpose of Treatment: fuel reduction and ecological enhancement		
Specific Treatment Objectives: Reduce deadfall fuel / leaf litter by 50%, increase native herbaceous diversity/extent ; reduce woody encroachment by up to 50%, particularly in pasture/field		

Prescribed Fire Prescription - Personnel and Equipment Summary	Unit Name: PF1	
Implementation * = Required		
Position / Personnel	**Equipment / Operator**	**Notes**
Burn Boss	1 w/ 4x4 truck, ATV, or airboat	
Line Boss		
Suppression (truck, 150 gal), or	1-2 w/ skid pump	
Suppression (1000 gal); *optional*	1 operator	
Suppression – Polaris UTV, *optional*	50 gal/ 2 person crew	
Ignition personnel	*Included in above/below*	
Information Officer	Landowner, if necessary	
Weather observer	Burn boss, line boss	

Prescribed Fire Prescription - Pre-Burn Preparations and Checklist -	Unit Name: PF1

Onsite (e.g. line construction, warning signs etc.):

- Establish refill sites for engines – lake edge, County well at landing
- Screen burn unit for T&E species – none observed
- Ensure adjacent wetlands have standing water/high soil moisture
- Mineral line has minimal plant material; wetline may be used in light fuels
- Use caution around power lines

Offsite (e.g. permits, road closures, press releases):

- Notify Osceola County Fire Rescue **407-348-8688** (dispatch)
- Notify Os. Co. Parks
- Notify local DOF office/FAS
- Notify adjacent neighbors (noted above)

GO/NO GO Checklist for Day of Burn:

- ❑ Burn Plan Complete and Approved; all prescription requisites met
- ❑ Current weather and projected forecast discussed and favorable
- ❑ Required Environmental and Fire Behavior Factors Verified Within Prescription
- ❑ Authorization obtained
- ❑ Adjacent landowners notified
- ❑ Local contacts made, including Fire/Rescue and Police
- ❑ LVORI checked
- ❑ Smoke screening performed and documented
- ❑ Smoke on the Highway signs in place, if needed.
- ❑ All equipment and personnel required on scene
- ❑ All equipment fully operational
- ❑ Each crew member is qualified for assignment, has PPE, map and clothing
- ❑ Crew members briefed
- ❑ Crew members given an opportunity to decline participation
- ❑ Prescription location made known
- ❑ Exceptions to checklist noted, explained, and mitigated

Briefing Outline

- ❑ Objectives of Burn
- ❑ Exact area of burn
- ❑ Hazards Discussed (volatile fuels, spotting potential, points of concern, terrain features)
- ❑ Crew assignments made
- ❑ Ignition pattern and technique
- ❑ Location of extra equipment, fuel, water, vehicle keys
- ❑ Authority and communications
- ❑ Location of extra equipment, fuel, water, keys, nearest source of assistance
- ❑ Communications reviewed, radios tested, authority explained
- ❑ Contingencies covered including escape routes or procedures
- ❑ Medical concerns discussed, if any – allergies, asthma
- ❑ Sources of nearest assistance. Nearest phone and emergency numbers
- ❑ Special instructions regarding smoke management, contact with the public and others.
- ❑ Questions
- ❑ Test burn performed and fire behavior within expectations.

Prescribed Fire Operations Plan - Monitoring -	Unit Name: **PF1**
Prepared By: M. Green	Date:

General Monitoring Objectives

Weather

Monitor weather every 60 minutes if no weather-related surprises occur. If abrupt changes occur increase weather observations to every 30 minutes. Observations shall pay special attention to relative humidity, wind speed and direction. All weather observations shall be announced over the radio.

Fire Behavior

Monitor flame length, rate of spread and spotting in order to provide feedback to ignition resources. Observe fire behavior and report variances that exceed sustained flame lengths of 8 feet. Observe and report spotting and fire whirl or dust devil development. Flame lengths should be much less throughout most of the grass-dominated habitat – <2-4 ft

Smoke Mgt

Monitor smoke production and dispersal to minimize impacts to the following roads—Florida Turnpike (4.5> miles to east), towns of Kissimmee and St. Cloud (2.0/5.5 miles to the north and east);
Smoke Screeing: Step 1-5: 1) fuel types A,E, and F (.25-1.5 impact distance, all firing techniques, <1.5miles impact distance; 2) no SSAs id in 500ft buffer or ¼ or ¾ downwind; 4); 4) Screening requirements met with the following: no adjacent homes, no SSAs w/in impact distance.

Fuels

Monitor fuels and consumption to ensure that objectives are accomplished

Fire Effects (First Order)

Monitor scorch and related overtstory mortality—the primary objective is ecological enhancement and reducing woody encroachment

Miscellaneous

Prescribed Fire Operations Plan - Monitoring -	Unit Name: **PF1**

Specific Monitoring Actions

Weather (How, Where, When,Who):
A specific line person will be responsible for providing weather updates every hour. Weather observations will begin 30-minutes prior to beginning and continue every 60 minutes until the burn is completed. Weather observations will be provided using Kestrel 3500, NOAA weather radio updates, or belt weather kit

Fire Behavior (How, Where, When,Who):
Fire behavior should be observed by all personnel, but primary the responsibility will be with Burn Boss, Line Boss, and holding resources. Particular attention should be paid to observed rates of spread and flame lengths and comparing them to the range necessary to meet objectives

Smoke (How, Where, When,Who):
Smoke will be monitored by the burn boss and crew throughout the burn. Primary concerns are the smoke near the residences and roads noted above.

Fuels (How, Where, When,Who):
Fuels will be monitored by the Ignition Boss to ensure that no unexpected changes in fuels occur in advance of ignition. The Mop-up Boss will monitor fuel consumption after the fire has passed.

Fire Effects (First Order) (How, Where, When,Who):
Fire effects will be monitored post-fire by the land manager assigned to the property using photopoints and vegetation transects in accordance with the proposed monitoring plan .

Miscellaneous (How, Where, When,Who):

Prescribed Fire Operations Plan - Smoke Management -	Unit Name: **PF1**
Prepared By:	Date:

Smoke Management Objectives:
Prevent smoke impacts to communities to the north/northeast (Kiss, St. Cloud), development to southwest, and the following roads—Turnpike (to the east). Place smoke over rural/conservaton land to the south, east/southeast. Minimize smoke impacts by utilizing the appropriate wind direction, dispersion, and firing technique.

Smoke Sensitive Areas and Targets :

- Roads—Florida Turnpike, approx 4.5 to east
- Towns of Kissimmee/St. Cloud (2 and 5.5 miles to the north, northeast respectively)

Ranges for Selections Used in the WUI Smoke Screening System

Dispersion Index		Relative Humidity		Fuel Category	Firing Technique	Impact Distance	LVORI Forecast
Day >40	**Night** >3	40-60%		FBPS models A,E,F	Backing, Point Source, Strip Head	Up to 2.0 miles	< 7; recommended
Transport Wind		Surface Wind/20ft		Minimum Mixing Ht.	KBDI	Organic Soil	
Min >9	**Dir** N,NW	**Speed** 5-15 mph	**Dir** N,NW	1,700 feet	100-450	**Yes (**in wetland) No	
Initial Smoke Screening Passed: (Yes) No					By Whom: M. Green		Date:
Burn Day Smoke Screening Passed: Yes No					By Whom:		Date:

Prescribed Fire Prescription - Smoke Management -	Unit Name: **PF1**
Prepared by: M. Green	Date:

Special Precautions

❑	Snags or stumps present
❑	Complete firing by 1500
❑	Mop-up completely by dusk
❑	Re-route or direct local road traffic. If so, which roads:
❑	Split into subunits. Assign additional prescriptions/forms as necessary
❑	SSA's within fire ¼ mile unavoidable: highlight on attached map
❑	Monitor smoke all night if present
❑	Other: power lines, gopher tortoise burrows, debris piles
❑	

Other Precautions:

Prescribed Fire Prescription - Prescription Parameters-			**Unit Name: PF1**	
Environmental Factor	R/G*	Desired Range	Predicted Range	Actual Range
Month of Year	G			
Time of Day	G	9AM-6PM		
Days Since _ Inches Rain	G	< 14 days		
Drought Indicator	G	100-450 KBDI		
Temperature	G	< 90º		
Relative Humidity	R	40-60 %		
Fine Fuel Moisture	G	8-15%		
Surface (20-ft) Winds	G	N/NW @5-15		
Transport Winds	G	N/NW@>9		
Min. Mixing Ht.	R	1,700		
Disp. Index (Day)	G	40-60		
Disp Index (Night)	G	>3		
LVORI	G	<7		
Calculated Factors	R/G*	Desired Range	Predicted Range	Actual Range
Rate of Spread (inside)	G	13-135 ch./hr		
Rate of Spread (outside)	G	13-135 ch./hr		
Flame Length (inside)	G	.5-8		
Flame Length (outside)	G	.5-8		
Prob. Of Ignition	G	<50		
Scorch Height	G	NA		
* **R** = Required; **G** = Guidance				

DIVISION ASSIGNMENT LIST	1. Branch	2. Division/Group **NA**
3. Incident Name	4. Operational Period Date: Time:	

5. Operations Personnel

Operations Chief		Division/Group Supervisor	
Branch Director		Air Attack Supervisor No.	

6. Resources Assigned this Period

Strike Team/Task Force/ Resource Designator	Leader	Number Persons	Trans. Needed	Drop Off PT./Time	Pick Up PT./Time
Suppression Unit		2-4			
Ignition Personnel		2			

7. Control Operations

Ignite, monitor and hold fire within Division. If fire escapes boundary, ignition will stop until Burn Boss decides whether safer to resume ignition or not. All escapes will be announced over designated channel. Ignitions will focus on using various fire techniques, as conditions dictate, primarily backing and spot.

8. Special Instructions

If escape occurs contingency resources may be called upon as necessary. During an escape the burn boss must ensure the proper balance between assigning resources to the escape and holding the prescribed burn. Do not allow all resources to become distracted by the escape.

9. Division/Group Communication Summary

Function	Frequency	System	Channel	Function	Frequency	System	Channel
Command		King NIFC		Logistics		King NIFC	
Tactical Div/Group		King NIFC		Air to Ground		King NIFC	

Prepared by (Resource Unit Leader)	Approved by (Planning Section Chief)	Date	Time

DIVISION ASSIGNMENT LIST	1. Branch	2. Division/Group **Information Group**
3. Incident Name	4. Operational Period Date: Time:	

5. Operations Personnel

Operations Chief		Division/Group Supervisor	
Branch Director		Air Attack Supervisor No.	

6. Resources Assigned this Period

Strike Team/Task Force/ Resource Designator	Leader	Number Persons	Trans. Needed	Drop Off PT./Time	Pick Up PT./Time
Burn/Line Boss/Owner		1			

7. Control Operations

Provide information to residents/general public and the media.

8. Special Instructions

Make contact with any resident and member of the general public near the burn area. Media must check w/ burn boss before property entry. No smoke signs necessary. Notice placed at gates/points of entry.

9. Division/Group Communication Summary

Function	Frequency	System	Channel	Function	Frequency	System	Channel
Command	TBD		TBD				
Tactical Div/Group	TBD		TBD				

Prepared by (Resource Unit Leader)	Approved by (Planning Section Chief)	Date	Time

Prescribed Fire Prescription - Safety -	**Unit Name: PF1**
Safety Objectives: 1. Provide for the safety of residents, motorists and firefighters. 2. Protect all improvements, such as: structures, power lines, fences, etc. ; keep fire out of improved park areas, protect signs/benches, pavillions 3. Ensure that the fire is kept within the burned area boundary.	
Safety Issue	Mitigation Measures
Provide for the safety of residents.	Establish firebreaks that are substantial enough to contain fire. Provide sufficient personnel and equipment, including structural equipment (if applicable) to deal with burn and contingencies. Keep adjacent owners informed.
Provide for the safety of motorists.	Plan and execute burn in such a way that smoke and fire impact to highway are minimized. Provide sufficient personnel and equipment to deal with traffic hazards. Close road if necessary, in coordination with Osceola County Sheriff, Fire/Rescue, Florida Highway Patrol.
Provide for the safety of fire personnel.	Ensure PPE is complete. Establish firebreak which are substantial enough to contain fire. Provide safety zones and escape routes. Prepare adequate plan and provide adequate briefing to insure all personnel are informed. Maintain effective communications.
Protect improvements.	Identify all improvements that can potentially be threatened by burn or escape. Establish firebreaks that are sufficient to contain the fire.
Ensure the fire remains within the designated boundaries.	Establish firebreaks that are sufficient to contain the fire. Provide sufficient personnel and equipment, including structural equipment (if applicable) to deal with burn and contingencies.

MEDICAL PLAN	1. Incident Name	2. Date Prepared	3. Time Prepared	4. Operational Period
				Daytime Burn

5. Incident Medical Aid Station

Medical Aid Stations	Location	Paramedics Yes	Paramedics No
None	Located on structure engines, if applicable		X

6. Transportation

A. Ambulance Services

Name	Address	Phone	Paramedics Yes	Paramedics No
None				

B. Incident Ambulances

Name	Location	Paramedics Yes	Paramedics No
None			

7. Hospitals

Name	Address	Travel Time Air	Travel Time Ground	Phone	Helipad Yes	Helipad No	Burn Center Yes	Burn Center No
Osceola Reg. Med. Center	700 W Oak St Kissimmee	20 min.	30 min.	(407) 846-2266	X			X
ORMC (burn unit)	Orlando	30	50	**321-841-5111**			X	

8. Medical Emergency Procedures

If anyone is injured notify that person's supervisor. That supervisor will arrange an assessment and ensure the proper attention will be obtained.

Prepared by (Medical Unit Leader)	10. Reviewed by (Safety Officer)

CREW EMERGENCY CONTACT INFORMATION				
Name	**Home Base**	**Emergency Contact (Name)**	**Contact Number**	**Relationship**

BURN UNIT PF2

Phone Numbers

Emergency – 911
Osceola Regional Medical Ctr Hospital: (407) 846 -2266
ORMC (Burn treatment facility): (321) 841-5111
Osceola Cty Fire Rescue: (407) 933-1155
Division of Forestry (Orlando District): (407) 856-6512
Division of Forestry (Tom Donohoe): (407) 892-3024/2963 (Joe Burroughs)
Osceola Co Fire/Rescue: (407) 742-7000; dispatch, 407-348-8688
Sandy Bean/Osceola Cty: (407)742-8650

Adjacent Landowners:
Marty Mann, Fisheries, 321-624-6090, Marty.mann@myfwc.com
Tim Coughlin, Aquatic Habitat, 407-908-5296, Tim.coughlin@myfwc.com
Zach Welch, Snail Kites, 352-266-6139, Zach.welch@myfwc.com

Prescribed Fire Prescription - Site Description and Objectives	**Unit Name: PF2**	
Admin. Unit: Makinson Island – Osceola County	Prepared By: M. Green	Date:
Authorization No.: Cust. No.	Approved By:	Date:
Legal Desc.: at intersection of Sections 3,4,9,10/26S/29E	UTM: Zone____N_____E___	Owner: **Os. Co. Natural Resources**
Lat.: 28 14 55 Long: 81 24 25 DD MM SS DD MM SS	County: Osceola	Burn Acres: 30
Site Description (**Figure 1**):		
Topography: Flat	Soil: sandy, changing into muck in wetlands	Aspect: NA
Understory and Surface Fuels: predominantly native bahiagrass and *Andropogon* w/ scattered live oak; live oak and cabbage palm dominate/closed canopy along edges of units		
Overstory and Canopy Fuels: scattered live oak in field; mature cabbage palm and live oak in hammocks at island edges/fringe		Crown Base Ht: 30-50
		Canopy Closure: 10-15%; 95% edges
Fuels outside the burn unit: oak hammock, pasture, scattered marsh		
Purpose of Treatment: fuel reduction and ecological enhancement		
Specific Treatment Objectives: Reduce deadfall fuel / leaf litter by 50%, increase native herbaceous diversity/extent ; reduce woody encroachment by up to 50%, particularly in pasture/field		

Prescribed Fire Prescription - Personnel and Equipment Summary	Unit Name: PF2	
Implementation * = Required		
Position / Personnel	**Equipment / Operator**	**Notes**
Burn Boss	1 w/ 4x4 truck, ATV, or airboat	
Line Boss		
Suppression (truck, 150 gal), or	1-2 w/ skid pump	
Suppression (1000 gal); *optional*	1 operator	
Suppression – Polaris UTV, *optional*	50 gal/ 2 person crew	
Ignition personnel	*Included in above/below*	
Information Officer	Landowner, if necessary	
Weather observer	Burn boss, line boss	

Prescribed Fire Prescription - Pre-Burn Preparations and Checklist -	Unit Name: PF2

Onsite (e.g. line construction, warning signs etc.):

- Establish refill sites for engines – lake edge, County well at landing
- Screen burn unit for T&E species – none observed
- Ensure adjacent wetlands have standing water/high soil moisture
- Mineral line has minimal plant material; wetline may be used in light fuels
- Use caution around power lines

Offsite (e.g. permits, road closures, press releases):

- Notify Osceola County Fire Rescue **407-348-8688** (dispatch)
- Notify Os. Co. Parks
- Notify local DOF office/FAS
- Notify adjacent neighbors (noted above)

GO/NO GO Checklist for Day of Burn:

- ❑ Burn Plan Complete and Approved; all prescription requisites met
- ❑ Current weather and projected forecast discussed and favorable
- ❑ Required Environmental and Fire Behavior Factors Verified Within Prescription
- ❑ Authorization obtained
- ❑ Adjacent landowners notified
- ❑ Local contacts made, including Fire/Rescue and Police
- ❑ LVORI checked
- ❑ Smoke screening performed and documented
- ❑ Smoke on the Highway signs in place, if needed.
- ❑ All equipment and personnel required on scene
- ❑ All equipment fully operational
- ❑ Each crew member is qualified for assignment, has PPE, map and clothing
- ❑ Crew members briefed
- ❑ Crew members given an opportunity to decline participation
- ❑ Prescription location made known
- ❑ Exceptions to checklist noted, explained, and mitigated

Briefing Outline

- ❑ Objectives of Burn
- ❑ Exact area of burn
- ❑ Hazards Discussed (volatile fuels, spotting potential, points of concern, terrain features)
- ❑ Crew assignments made
- ❑ Ignition pattern and technique
- ❑ Location of extra equipment, fuel, water, vehicle keys
- ❑ Authority and communications
- ❑ Location of extra equipment, fuel, water, keys, nearest source of assistance
- ❑ Communications reviewed, radios tested, authority explained
- ❑ Contingencies covered including escape routes or procedures
- ❑ Medical concerns discussed, if any – allergies, asthma
- ❑ Sources of nearest assistance. Nearest phone and emergency numbers
- ❑ Special instructions regarding smoke management, contact with the public and others.
- ❑ Questions
- ❑ Test burn performed and fire behavior within expectations.

Prescribed Fire Operations Plan - Monitoring -	Unit Name: **PF2**
Prepared By: M. Green	Date:

General Monitoring Objectives

Weather

Monitor weather every 60 minutes if no weather-related surprises occur. If abrupt changes occur increase weather observations to every 30 minutes. Observations shall pay special attention to relative humidity, wind speed and direction. All weather observations shall be announced over the radio.

Fire Behavior

Monitor flame length, rate of spread and spotting in order to provide feedback to ignition resources. Observe fire behavior and report variances that exceed sustained flame lengths of 8 feet. Observe and report spotting and fire whirl or dust devil development. Flame lengths should be much less throughout most of the grass-dominated habitat – <2-4 ft

Smoke Mgt

Monitor smoke production and dispersal to minimize impacts to the following roads—Florida Turnpike (4.5> miles to east), towns of Kissimmee and St. Cloud (2.0/5.5 miles to the north and east);
Smoke Screeing: Step 1-5: 1) fuel types A,E, and F (.25-1.5 impact distance, all firing techniques, <1.5miles impact distance; 2) no SSAs id in 500ft buffer or ¼ or ¾ downwind; 4); 4) Screening requirements met with the following: no adjacent homes, no SSAs w/in impact distance.

Fuels

Monitor fuels and consumption to ensure that objectives are accomplished

Fire Effects (First Order)

Monitor scorch and related overtstory mortality—the primary objective is ecological enhancement and reducing woody encroachment

Miscellaneous

Prescribed Fire Operations Plan - Monitoring -	Unit Name: **PF2**

Specific Monitoring Actions

Weather (How, Where, When,Who):
A specific line person will be responsible for providing weather updates every hour. Weather observations will begin 30-minutes prior to beginning and continue every 60 minutes until the burn is completed. Weather observations will be provided using Kestrel 3500, NOAA weather radio updates, or belt weather kit

Fire Behavior (How, Where, When,Who):
Fire behavior should be observed by all personnel, but primary the responsibility will be with Burn Boss, Line Boss, and holding resources. Particular attention should be paid to observed rates of spread and flame lengths and comparing them to the range necessary to meet objectives

Smoke (How, Where, When,Who):
Smoke will be monitored by the burn boss and crew throughout the burn. Primary concerns are the smoke near the residences and roads noted above.

Fuels (How, Where, When,Who):
Fuels will be monitored by the Ignition Boss to ensure that no unexpected changes in fuels occur in advance of ignition. The Mop-up Boss will monitor fuel consumption after the fire has passed.

Fire Effects (First Order) (How, Where, When,Who):
Fire effects will be monitored post-fire by the land manager assigned to the property using photopoints and vegetation transects in accordance with the proposed monitoring plan .

Miscellaneous (How, Where, When,Who):

Prescribed Fire Operations Plan - Smoke Management -	Unit Name: **PF2**
Prepared By:	Date:

Smoke Management Objectives:
Prevent smoke impacts to communities to the north/northeast (Kiss, St. Cloud), development to southwest, and the following roads—Turnpike (to the east). Place smoke over rural/conservaton land to the south, east/southeast. Minimize smoke impacts by utilizing the appropriate wind direction, dispersion, and firing technique.

Smoke Sensitive Areas and Targets :

- Roads—Florida Turnpike, approx 4.5 to east
- Towns of Kissimmee/St. Cloud (2 and 5.5 miles to the north, northeast respectively)

Ranges for Selections Used in the WUI Smoke Screening System

Dispersion Index		Relative Humidity		Fuel Category	Firing Technique	Impact Distance	LVORI Forecast
Day >40	**Night** >3	40-60%		FBPS models A,E,F	Backing, Point Source, Strip Head	Up to 2.0 miles	< 7; recommended
Transport Wind		Surface Wind/20ft		Minimum Mixing Ht.	KBDI	Organic Soil	
Min >9	**Dir** N,NW	**Speed** 5-15 mph	**Dir** N,NW	1,700 feet	100-450	**Yes (**in wetland) No	
Initial Smoke Screening Passed: (Yes) No					By Whom: M. Green		Date:
Burn Day Smoke Screening Passed: Yes No					By Whom:		Date:

Prescribed Fire Prescription - Smoke Management -	Unit Name: **PF2**
Prepared by: M. Green	Date:

Special Precautions	
❑	Snags or stumps present
❑	Complete firing by 1500
❑	Mop-up completely by dusk
❑	Re-route or direct local road traffic. If so, which roads:
❑	Split into subunits. Assign additional prescriptions/forms as necessary
❑	SSA's within fire ¼ mile unavoidable: highlight on attached map
❑	Monitor smoke all night if present
❑	Other: power lines, gopher tortoise burrows, debris piles
❑	

Other Precautions:

Prescribed Fire Prescription - Prescription Parameters-			**Unit Name: PF2**	
Environmental Factor	R/G*	Desired Range	Predicted Range	Actual Range
Month of Year	G			
Time of Day	G	9AM-6PM		
Days Since _ Inches Rain	G	< 14 days		
Drought Indicator	G	100-450 KBDI		
Temperature	G	< 90º		
Relative Humidity	R	40-60 %		
Fine Fuel Moisture	G	8-15%		
Surface (20-ft) Winds	G	N/NW @5-15		
Transport Winds	G	N/NW@>9		
Min. Mixing Ht.	R	1,700		
Disp. Index (Day)	G	40-60		
Disp Index (Night)	G	>3		
LVORI	G	<7		
Calculated Factors	R/G*	Desired Range	Predicted Range	Actual Range
Rate of Spread (inside)	G	13-135 ch./hr		
Rate of Spread (outside)	G	13-135 ch./hr		
Flame Length (inside)	G	.5-8		
Flame Length (outside)	G	.5-8		
Prob. Of Ignition	G	<50		
Scorch Height	G	NA		
* **R** = Required; **G** = Guidance				

DIVISION ASSIGNMENT LIST	1. Branch	2. Division/Group **NA**
3. Incident Name	4. Operational Period Date: Time:	

5. Operations Personnel

Operations Chief		Division/Group Supervisor	
Branch Director		Air Attack Supervisor No.	

6. Resources Assigned this Period

Strike Team/Task Force/ Resource Designator	Leader	Number Persons	Trans. Needed	Drop Off PT./Time	Pick Up PT./Time
Suppression Unit		2-4			
Ignition Personnel		2			

7. Control Operations

Ignite, monitor and hold fire within Division. If fire escapes boundary, ignition will stop until Burn Boss decides whether safer to resume ignition or not. All escapes will be announced over designated channel. Ignitions will focus on using various fire techniques, as conditions dictate, primarily backing and spot.

8. Special Instructions

If escape occurs contingency resources may be called upon as necessary. During an escape the burn boss must ensure the proper balance between assigning resources to the escape and holding the prescribed burn. Do not allow all resources to become distracted by the escape.

9. Division/Group Communication Summary

Function	Frequency	System	Channel	Function	Frequency	System	Channel
Command		King NIFC		Logistics		King NIFC	
Tactical Div/Group		King NIFC		Air to Ground		King NIFC	

Prepared by (Resource Unit Leader)	Approved by (Planning Section Chief)	Date	Time

DIVISION ASSIGNMENT LIST	1. Branch	2. Division/Group **Information Group**
3. Incident Name	4. Operational Period Date: Time:	

5. Operations Personnel

Operations Chief		Division/Group Supervisor	
Branch Director		Air Attack Supervisor No.	

6. Resources Assigned this Period

Strike Team/Task Force/ Resource Designator	Leader	Number Persons	Trans. Needed	Drop Off PT./Time	Pick Up PT./Time
Burn/Line Boss/Owner		1			

7. Control Operations

Provide information to residents/general public and the media.

8. Special Instructions

Make contact with any resident and member of the general public near the burn area. Media must check w/ burn boss before property entry. No smoke signs necessary. Notice placed at gates/points of entry.

9. Division/Group Communication Summary

Function	Frequency	System	Channel	Function	Frequency	System	Channel
Command	TBD		TBD				
Tactical Div/Group	TBD		TBD				

Prepared by (Resource Unit Leader)	Approved by (Planning Section Chief)	Date	Time

Prescribed Fire Prescription - Safety -	**Unit Name: PF2**
Safety Objectives: 1. Provide for the safety of residents, motorists and firefighters. 2. Protect all improvements, such as: structures, power lines, fences, etc. ; keep fire out of improved park areas, protect signs/benches, pavillions 3. Ensure that the fire is kept within the burned area boundary.	
Safety Issue	Mitigation Measures
Provide for the safety of residents.	Establish firebreaks that are substantial enough to contain fire. Provide sufficient personnel and equipment, including structural equipment (if applicable) to deal with burn and contingencies. Keep adjacent owners informed.
Provide for the safety of motorists.	Plan and execute burn in such a way that smoke and fire impact to highway are minimized. Provide sufficient personnel and equipment to deal with traffic hazards. Close road if necessary, in coordination with Osceola County Sheriff, Fire/Rescue, Florida Highway Patrol.
Provide for the safety of fire personnel.	Ensure PPE is complete. Establish firebreak which are substantial enough to contain fire. Provide safety zones and escape routes. Prepare adequate plan and provide adequate briefing to insure all personnel are informed. Maintain effective communications.
Protect improvements.	Identify all improvements that can potentially be threatened by burn or escape. Establish firebreaks that are sufficient to contain the fire.
Ensure the fire remains within the designated boundaries.	Establish firebreaks that are sufficient to contain the fire. Provide sufficient personnel and equipment, including structural equipment (if applicable) to deal with burn and contingencies.

MEDICAL PLAN	1. Incident Name	2. Date Prepared	3. Time Prepared	4. Operational Period
				Daytime Burn

5. Incident Medical Aid Station

Medical Aid Stations	Location	Paramedics Yes	Paramedics No
None	Located on structure engines, if applicable		X

6. Transportation

A. Ambulance Services

Name	Address	Phone	Paramedics Yes	Paramedics No
None				

B. Incident Ambulances

Name	Location	Paramedics Yes	Paramedics No
None			

7. Hospitals

Name	Address	Travel Time Air	Travel Time Ground	Phone	Helipad Yes	Helipad No	Burn Center Yes	Burn Center No
Osceola Reg. Med. Center	700 W Oak St Kissimmee	20 min.	30 min.	(407) 846-2266	X			X
ORMC (burn unit)	Orlando	30	50	**321-841-5111**			X	

8. Medical Emergency Procedures

If anyone is injured notify that person's supervisor. That supervisor will arrange an assessment and ensure the proper attention will be obtained.

Prepared by (Medical Unit Leader)	10. Reviewed by (Safety Officer)

CREW EMERGENCY CONTACT INFORMATION				
Name	**Home Base**	**Emergency Contact (Name)**	**Contact Number**	**Relationship**

APPENDIX VII

Public Charrette Details

(Held concurrent with Chisholm Charette)

Ralph V. Chisholm Regional Park Public Charrette Sign-In

Name	Affiliation	Address	Phone No.	Email
PATTY MCCUEOY	PARKS & REC. BRD	7250 BRIDLE PATH ST. CLOUD, FL 34771	407-908-3431	PATMAE@gmail.com
Mary Beth Salisbury				
JOE VOLPE	OSCEOLA PARK + REC	227 STRATHMOR CIR		VOLPE_2@MSN.COM
Jennifer Loch				
SANDY WEBB	AUDUBON MASTER NATURALIST	2660 ANN AVENUE KISSIMMEE	407-847-8810	SLWEBBZEIT@gmail.com
Debbie Lee	Osceola Cty	1 Courthouse Sq Ste 1100 Kissimmee, FL 34741	407-742-8654	DGEE@OSCEOLA.ORG
FRANK GIZZO		2501 HARRIS BLV. KISS.	407-350-4218	FTG242@YAHOO.COM
JOHN MIKEL	SCV	722 N CENTRAL AV. KISS	407 847 4421	
GARY SCHMIDT	SCV, BSA	22 IDOLA BLVD KISS	407 908 1970	GSCHMIDT22@CFL.RR.COM
Vince Bronson				
Art Heiter				

Thursday March 7, 2013, 5:00 – 7:00 p.m.

Ralph V. Chisholm Regional Park Public Charrette Sign-In

Name	Affiliation	Address	Phone No.	Email
Jenny Welch				
Mark Johnson	Ecotone Landdesign FNPS			
Eleanor Foerste				
Bridgett Tolley	OSC City			
Herald Clark		4245 Story Rd St. Cloud	407-908-1564	jamesherald clark@gmail.com

Thursday March 7, 2013, 5:00 – 7:00 p.m.

Please stop mowing so much!
Flowers disappear along roadsides.
Orchids disappear, as do their pollinators
If insects can't eat plants, they
can't survive... if insects don't
survive, birds have nothing
(or less) to feed their young.
People see the roadsides.

over

TOURISTS TO OUR AREA
LOVE TO BIRD WATCH.

① HOW ABOUT ADDING SOME
TELEPHONE POLES WITH PLATFORMS
FOR THE OSPREY

② ! FOR BAT HOUSES !

Can we get some bathhouses put up in appropriate areas?

Can we get poles with platforms for the eagles? (Neptune Road is now going to concrete poles.)

Plant more plants around ponds, not fewer — stop mowing to the edges.

570 → 192

92 - W Lake

Saddle Creek Par

By Tenoroc

From: Jenny Welch [mailto:mwelch@cfl.rr.com]
Sent: Tuesday, March 19, 2013 11:04 AM
To: Marc von Canal
Subject: Makinson Island input
Here are my comments and suggestions for Makinson Island:

Here is my main comment. I made a comment that not enough is being done for us birders and wildlife watchers and I was put in my place so to speak because this Island was bought specifically for the fish hatcheries. However, at the meeting partners were listed as FWC which does not cover ONLY fishing but also covers birding and wildlife watching, Osceola County, City of Kissimmee, and the School District- who I work with. All of these partners do not ONLY want fishing from this island.
As an Osceola County resident, as a business partner with the school district, as a person who gives out FWC educational information, and as an avid bird watcher and wildlife watcher I have just as much right to this island as any fisherman!

Sorry, but I am getting tired of being told my opinion does not count because I am not a fisherman or boater.
Suggestions:
**I want to be absolutely sure that the snail kite habitat is protected no matter what.
Airboat/shallow vessel (canoe/kayak) access point through marsh –make this more accessible and add fishing pier at north side of island
Is this in the snail kite habitat???
** All boat ramps and fishing piers should have signs showing what to do for injured wildlife and who to call to get the wildlife help.
**Wildlife Proof Garbage Cans. This does NOT mean garbage cans with lids. Please place wildlife proof garbage cans everywhere on the island even on the docks and piers.
Garbage cans with lids means lazy humans will leave the lids off and wildlife will eat our leftover plastic and other things that will harm them.
*Birders do NOT like to share fishing piers. It is gross! Fish guts everywhere. Flies everywhere. Plus the very real danger of getting stuck with a fish hook.
*Birders want our own lookout/pier/observation tower where fishing is NOT allowed.
*More diversity of trees such as native persimmon, mulberry, plum, hickory, etc. to bring in more birds.
*Want to see all bat species protected (they are all protected by law now).
*Suggest bat houses with educational information.
*Educational signs about birds
*Educational signs about native plants/flowers
If you take down the old building, where are the barn owls going to nest?

Thank you,
Jenny
Jenny Welch
407-847-2488 home
407-319-2488 cell
Kissimmee Valley Audubon Society
President Pine Lily Chapter of Florida Native Plant Society
Audubon Eagle Watch Volunteer

APPENDIX VIII

Budgetary Detail

Construction and Implementation Cost Estimates:
Phases I and II

	Units	Phase I		Phase II	
		Quantity Phase I	Cost Phase I	Quantity Phase II	Cost Phase II
Construction & Structures					
Design & Permitting (piers, docks, improvments)	*N/A*	*N/A*	**$125,000.00**	*N/A*	**$55,000.00**
Trail Installation - Grading	*bid based*	*1 mile*	**$5,000.00**	*0.00*	**$0.00**
Utility security enclosure(s)	*estimate*	*N/A*	**$2,500.00**	*N/A*	**$500.00**
Hydrologic Restoration (ditch block, weir, culverts)	*engineer estimate*	*0.00*	**$0.00**	*N/A*	**$50,000.00**
Debris Removal	*estimate*	*N/A*	**$30,000.00**	*N/A*	**$20,000.00**
Sign Installation	*$500 per sign*	*4signs / kiosks*	**$2,000.00**	*2 signs / kiosks*	**$1,000.00**
Bench Installation	*$400 per bench*	*6 benches*	**$2,400.00**	*4 benches*	**$1,600.00**
Pavillion screening (existing)	*estimate*	*0.00*	**$0.00**	*1 20'x40'*	**$8,500.00**
Picnic Table	*$400 per table*	*6.00*	**$2,400.00**	*6.00*	**$2,400.00**
Lodge Amenity	*bid based*	*0.00*	**$0.00**	*1.00*	**$90,000.00**
Docking Faility installation	*$40 / sf*	*2500.00*	**$100,000.00**	*0.00*	**$0.00**
Fishing Pier installation	*$40 / sf*	*0.00*	**$0.00**	*2500 ft sq*	**$100,000.00**
Kayak Landing (exclusion buoys, grading)	*unit price*	*0.00*	**$7,500.00**	*0.00*	**$0.00**
Aquatic vegetation / shoreline alteration permitting	*estimate*	*N/A*	**$2,500.00**	*N/A*	**$0.00**
Aquatic vegetation removal and grading	*estimate*	*N/A*	**$7,500.00**	*N/A*	**$4,500.00**
Construction Monitoring	*avg $90 / per hour*	*80.00*	**$7,200.00**	*140 hr*	**$12,600.00**
Sub Total			**$286,800.00**		**$333,500.00**
Planting					
Tree Cost - Installed	*$35 per 3-7 gallon*	*3155.00*	**$110,425.00**	*2500.00*	**$87,500.00**
Coontie Cost - Installed	*$12 per 1 gallon*	*550.00*	**$6,600.00**	*0.00*	**$0.00**
Herbaceous - Installed	*$4 per 1 gallon*	*0.00*	**$0.00**	*2500.00*	**$10,000.00**
Sub Total			**$117,025.00**		**$97,500.00**
Administrative Costs					
Project Management	*$85 per hour*	*120 hours*	**$10,200.00**	*120.00*	**$10,200.00**
Other Administrative Costs	*$65 per hour*	*80 hours*	**$5,200.00**	*80 hours*	**$5,200.00**
Sub Total			**$15,400.00**		**$15,400.00**
Total cost			**$419,225.00**		**$446,400.00**
Total @110%			**$461,147.50**		**$491,040.00**

Post Construction Management Cost Estimates:
Phase III

		Phase III - Management Phase				
	Cost	Year 1	Year 2	Year 3	Year 4	Year 5+
Structure & Earthwork Maintenance						
Trail Maintenance	*$0.75 / linear ft*	**$8,000.00**	**$8,000.00**	**$8,000.00**	**$8,000.00**	**$8,000.00**
Weir / Structure / culvert Maintenance	*varies*	**$500.00**	**$500.00**	**$1,500.00**	**$1,000.00**	**$1,000.00**
Facility Maintenance	*estimate*	**$2,200.00**	**$2,200.00**	**$2,200.00**	**$2,200.00**	**$2,200.00**
Sign Maintenance / Replacement		**$200.00**	**$200.00**	**$200.00**	**$200.00**	**$200.00**
Sub Total		**$10,900.00**	**$10,900.00**	**$11,900.00**	**$11,400.00**	**$11,400.00**
Nuisance, Exotic, Inappropriate Species Control						
		quarterly	**quarterly**	**quarterly**	**semi-annually**	**semi-annually**
Inspection, Chemicals and Application	*$50 per acre / event*	**$20,000.00**	**$20,000.00**	**$20,000.00**	**$18,000.00**	**$18,000.00**
Nuisance Fauna (Hogs, etc.)	*$75 / hr*	**$3,000.00**	**$3,000.00**	**$3,000.00**	**$3,000.00**	**$3,000.00**
Sub Total		**$23,000.00**	**$23,000.00**	**$23,000.00**	**$21,000.00**	**$21,000.00**
Burn Management						
Rx Fire scehdule dependent upon fire conditions and vegetation growth						
Burning	*$65 per acre*	**$3,250.00**	**$3,250.00**	**$3,250.00**	**$3,250.00**	**$3,250.00**
Rx Mobilization	*$250 / event*	**$500.00**	**$500.00**	**$500.00**	**$500.00**	**$500.00**
Fire line Maintenance (2 x / yr)	*0.10 lf*	**$2,200.00**	**$2,200.00**	**$2,200.00**	**$2,200.00**	**$2,200.00**
Fire Line Mobilization	*$250 per event*	**$250.00**	**$250.00**	**$250.00**	**$250.00**	**$250.00**
Sub Total		**$6,200.00**	**$6,200.00**	**$6,200.00**	**$6,200.00**	**$6,200.00**
Administrative Costs						
Consulting	*$85 per hour*	**$3,400.00**	**$3,400.00**	**$3,400.00**	**$3,400.00**	**$3,400.00**
Other Administrative Costs	*estimate*	**$250.00**	**$2,500.00**	**$2,500.00**	**$2,500.00**	**$2,500.00**
Sub Total		**$3,650.00**	**$5,900.00**	**$5,900.00**	**$5,900.00**	**$5,900.00**
Total annual cost		**$43,750.00**	**$46,000.00**	**$47,000.00**	**$44,500.00**	**$44,500.00**
Total @110%		**$48,125.00**	**$50,600.00**	**$51,700.00**	**$48,950.00**	**$48,950.00**

For Information Contact:
Bob Mindick rmin2@osceola.org
Public Lands Manager, Natural Resources 407-742-7805

Osceola County Natural Resources