

EXHIBIT A

Land Stewardship Division

3301 Gun Club Road MSC 7320
West Palm Beach, Florida 33406

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October 9, 2008



Kissimmee Chain of Lakes
Management Area
Five-Year
General Management Plan
2008-2013
August, 2008



Kissimmee Chain of Lakes Management Area Five-Year General Management Plan (2008 – 2013)

August, 2008

Land Stewardship Division
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, Florida 33406

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1. Executive Summary

The South Florida Water Management District (District) is mandated to acquire and manage lands which are vital to the restoration of the Everglades, including its headwaters in the Kissimmee Chain of Lakes. In the early 1990s it was determined that not enough water would be available in the upper chain of lakes to provide year round base flow for the restored Kissimmee River. The District expanded the scope of the Kissimmee River Restoration project to include the acquisition of land around the shoreline of the Kissimmee Chain of Lakes between elevations 52.5' and 54.0', comprising approximately 36,000 acres. To date, 36,373 acres have been purchased in Polk and Osceola counties with funding from the Save Our Rivers, Preservation 2000, and Florida Forever programs. This plan addresses management for the parcels acquired by the District or the State sovereign submerged lands leased to the District within the project area.

This General Management Plan describes the historical, ecological, and managerial aspects of the area as a means to coordinate effective management programs. The plan guides District land management personnel toward logical and consistent land management practices. It also informs the public of operational procedures and organizational structures within the District and of management activities and objectives for the management areas.

NATURAL SETTING

The natural character of the management area is defined by 6 distinct soil categories as defined by the Natural Soil Landscape Positions soil classification system: flats soils, flatwoods soils, knolls, made lands, muck depression soils, and sand depression soils. Living on these soils are 20 distinct plant communities that are defined by criteria established by the Florida Natural Areas Inventory; the most common of which have the following coverage:

RESOURCE MANAGEMENT

Resource management programs for the management areas consist of:

- Prescribed fire to mimic the natural fire frequency in the fire-dependent natural communities.
- Forestry and vegetation management such as shredding or mowing overgrown understories.
- Wildlife management, including surveys, habitat management, and hunting programs.
- Exotic vegetation treatment.
- Monitoring the health of the natural communities and the impact of management practices on them.
- Restoring sites that have previously been altered by drainage and/or agriculture.

RESTORATION PROJECTS

The District is using in-house and mitigation funds to finance the restoration of several wetland areas including Gardner-Cobb Marsh, Rough Island, Otter Slough, and the Oasis Marsh. This involves hydrologic restoration (primarily ditch plugging), groundcover restoration, exotic species control, vegetation management, and prescribed burning.

MONITORING

The District performs vegetative community monitoring. As part of this effort, the District has installed 6 360 degree photomonitoring points in the Management Area. Species specific surveys are conducted as necessary, typically with a District contractor.

PUBLIC USE

Several recreational activities are provided for and encouraged in the management areas including airboating, bicycling, canoeing, camping, equestrian, fishing, hiking, and hunting. The Management Area also includes several picnic areas and will soon host a new boat ramp that will be constructed by the District and managed by Polk county

2. Introduction and Management Plan Purpose

This General Management Plan consolidates relevant information about the Kissimmee Chain of Lakes Management Area (Management Area) including land management goals and objectives, past and present land uses, resource data, restoration and management needs, public use programs, and administrative duties to guide management actions for the period 2008 to 2013. Management activities described in this plan are based on requirements and directives of Florida Statutes and established District policies. District Policy 140-21 requires that general management plans be developed for each designated Save Our Rivers project.

District policy further states that the Land Stewardship Program's mission is to provide natural resource protection and management while allowing compatible multiple uses on designated public lands. This mission statement and requirements set forth in Florida Statutes provide three primary goals for the Land Stewardship Program:

- Conserve and protect water resources
- Protect and/or restore land to its natural state and condition
- Provide appropriate public use

To accomplish these goals, the Land Stewardship Program performs six major functions:

- Strategic, project, and management planning
- Operation and maintenance of land resources
- Development of public use programs
- Development of restoration projects
- Evaluation of management activities
- Administration of land management contracts and leases

The plan consolidates current site information and general guidelines for management of the area. It also updates and replaces the 2003-2008 General Management Plan for the area. As such, it serves as a collective information source for management staff, partners, and the general public.

2.1 Management Area Goals and Objectives

The Land Stewardship Program's functions are incorporated in the specific management area goals and objectives for the period of this management plan 2008-2013. These goals are based on the Land Stewardship Program's overall success indicators and are necessary to achieve specific targets outlined in the indicators (**Appendix E**).

Goal 1: Manage natural communities and modified habitats to protect and enhance water, floral, and faunal resources.

Objectives:

- Continue to regularly apply fire to fire maintained plant communities through a well-planned and documented prescribed burning program. Prescribe burn 3,000 to 6,000 acres per year
- Continue an aggressive, integrated exotic plant management program. Areas of treatment will be prioritized based on severity of infestation and will be integrated with burning and other land management activities. Treatments will be documented. District staff and contractors will treat approximately 2,000 to 3,000 acres each year.
- Continue understory restoration by using shredding and mowing equipment to open up areas of wet prairies and floodplain marshes that have overgrown concentrations of wax myrtle, dog fennel, coffee senna, and other invasive plants.
- Continue and enhance the monitoring and evaluation of restoration activities on area vegetation and wildlife. Conduct game and non-game wildlife population surveys.
- Provide resource protection through partnership with the Florida Fish and Wildlife Conservation Commission. Review enhanced patrol activities biweekly and review program annually.

Goal 2: Provide resource-based public use opportunities.

Objectives:

- Maintain public use program through continued coordination with the Florida Fish and Wildlife Conservation Commission and local partners and recreation user groups.
- Maintain public-use improvements (roads, trails, signs, entrances, campgrounds, structures) using a combination of District maintenance, construction contracts, and user group involvement.
- Complete the assessment and planning and begin construction of the new Polk County boat ramp on Lake Kissimmee.
- Identify potential new access points for increased pedestrian and motorized vehicle access. Pedestrian access is currently only available at the Lightsey Management Unit.
- Identify a trail route through the East Shore Management Unit with the Florida Trail Association to become part of the Florida National Scenic Trail.
- Provide environmental education through the use of area brochures, signage, and the installation of kiosks at public access points.
- Identify potential trail routes with the Florida Trail Association for the Florida National Scenic Trail throughout the management area.

- Provide public outreach through the Public Use Guide, attending recreational user group meetings, and direct public contact.
- Identify and develop camping sites and install 2 to 4 day use shelters within the management area.

Goal 3: Maintain area infrastructure

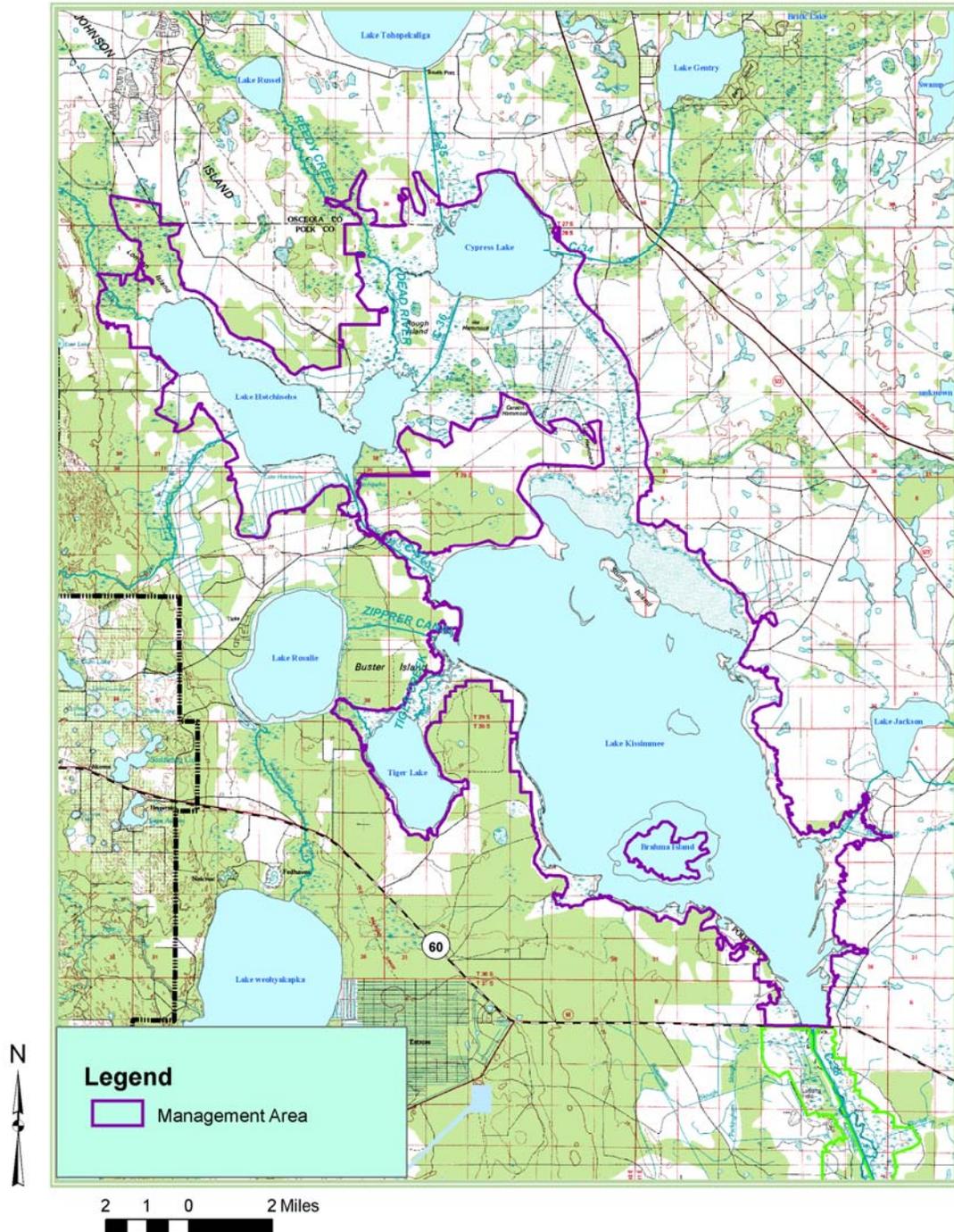
Objectives:

- Construct two airboat crossovers at Gardner-Cobb Marsh.
- Maintain and improve hydrologic restoration projects. Seek funds and permits to restore the hydrology of sites that have been altered by ditching.
- Continue to maintain and manage the management area boundaries through posting, fencing, and fireline maintenance.
- Update and maintain information kiosks at points of public access.

Map 1. Kissimmee Chain of Lakes Management Area and other public lands

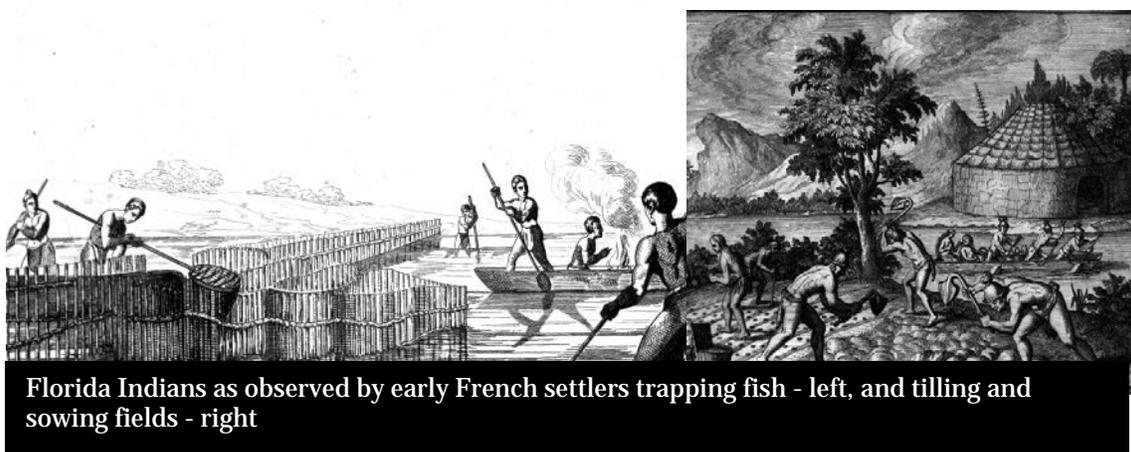


Map 2. Kissimmee Chain of Lakes Management Area U.S. Geological Survey 1:100,000 Quadrangle Map



3. Site History

The Management Area has been inhabited by humans for at least 2000 years. There are scattered early habitation sites present. During the Spanish colonial period the area was regarded as wilderness and was seldom visited, and was not mapped or surveyed during their entire 300 year rule of Florida. The Spaniards apparently had difficulty penetrating the Kissimmee Chain-of-Lakes region. The nearest Franciscan mission was likely either La Concepcion de Atoyquime or San Joseph de Jororo, both occurring just north of present-day Orlando from 1685 to 1697. These frontier outposts had problems with several missionaries being killed by the local population, and were subsequently abandoned.



The first description of what was likely Lake Kissimmee came in 1564 when two Spanish shipwreck survivors were brought to the French's Ft. Caroline on the Atlantic near present-day St. Augustine, after the French heard rumors that two Europeans were living with two nearby Indian kings, Mathiaca and Onachaquara. One of the Spaniards told the French Captain at the fort of a journey he had made while serving as a messenger from the Calusa King Calos at Estero Bay to his close ally King Oathaqua of the Ais who lived at Cape Canaveral. Approximately half way on the journey they came across a large lake five leagues (15 miles) from one end to the other called Sarrope containing a large island of the same name, this matches the location and physical description of Lake Kissimmee and Brahma Island.

The island held a population that was considered to be one of the most fierce and warlike in Florida. The inhabitants of Sarrope cultivated a large quantity and variety of crops that they would trade, particularly coontie root which was used as a meal to make high quality breads. The Spaniard said they had become quite wealthy from this trade and had a sphere of influence that extended in a 15 mile radius from the Lake. The Spaniard also told a tale that demonstrated the island population's strength and their confidence, that they could anger both the Ais and the Calusa without fear of retribution. King Oathaqua sought to secure his

alliance with Calos by arranging a marriage between his daughter and Calos. The bride and her entire retinue of maiden attendants were seized by the Sarrope inhabitants on their way to the Calusa, and were forced to remain on the island and marry the local men instead.

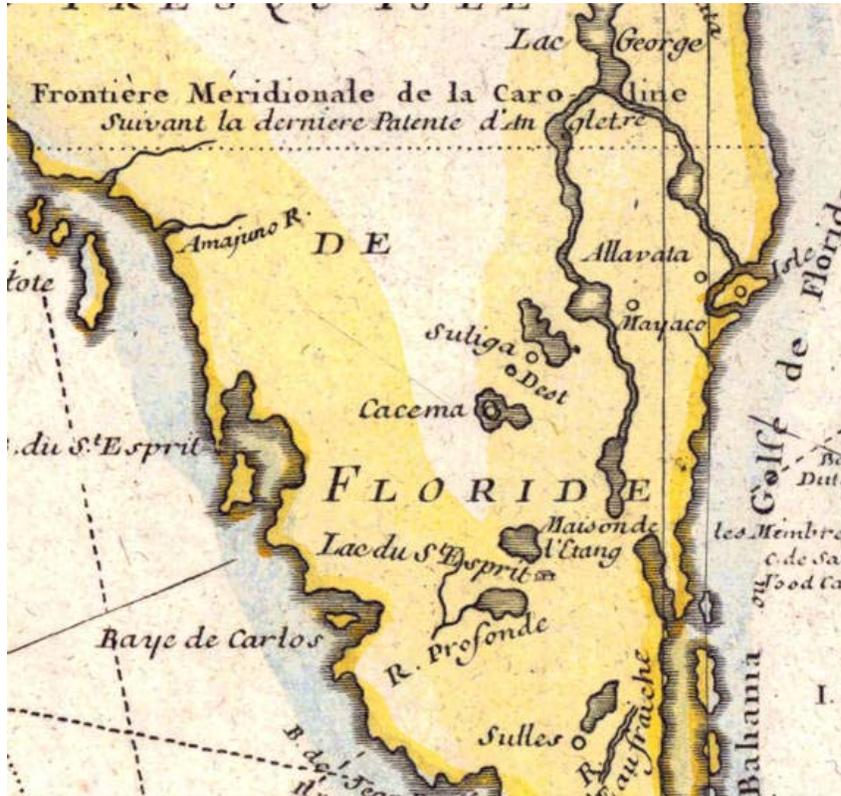


Map 3 & 4. Two early maps showing Lake Kissimmee (then called Sarrope), 1591 – left, and 1703–right

The Kissimmee Chain of Lakes would have fallen within the Jororo territory. The Jororo were hunter-gatherers who also tended small plots of maize and a few other vegetables. It likely remained a relatively unmolested stronghold for the early Native American culture until the Creek raids in the early to mid 1700s, although the impact of the Creek raids isn't certain in this area since nearly all accounts are from the northern Florida tribes and from the coastal areas. It is clear, though, that the raids were the start of massive declines in the tribes that were endemic to Florida. In 1708 a Carolinian named Thomas Nairne traveled with 30 Yamasee warriors on an Indian slaving raid through the central part of Florida; the notes from his journey called the village on Brahma Island Cacema, from which the name "Kissimmee" was derived. The Jororo and most of the surrounding tribes migrated to St. Augustine for protection and became known as the Costas, or Spanish Indians.

During the British period beginning in 1763, the region experienced in-migration from the Creek and Yamasee. Throughout the Second Spanish Period the surviving Costas from the interior worked for Spanish fishing villages and in rounding up native-range cattle from the interior and driving them to the coast for sea-transport to the other Spanish colonies. Two other villages appeared in maps of the Chain-of-Lakes vicinity. One was called Dest and the other Suliga. It isn't clear exactly where these settlements were situated. Dest was described as being situated on the shore of a small lake and is depicted on period maps as

being between Lake Toho and Lake Kissimmee, which makes it seem probable that it was Lake Cypress.



Map 5. A 1780 map showing the Indian towns of Cacema on Brahma Island, Dest, and Suliga near Lake Toho

The Kissimmee Chain of Lakes remained practically unknown to most Floridians until the Second Seminole War. In 1837 the military began making detailed surveys of the area and established a system of frontier forts intended to keep the Seminoles south of Lake Okeechobee. Fort Gardner, named after a lieutenant that was one of the last to die in the Dade battle of the first Seminole War, was an important outpost on the Kissimmee River between Lake Hatchineha and Lake Kissimmee. It was from this fort the Colonel Zachary Taylor (the future President) was stationed with 600 soldiers, it was from there that he marched out in December 1837 to engage in the largest battle of the war, north of Lake Okeechobee on Christmas day.



Zachary Taylor

The Duke of Alagon Land Grant

In 1818, just before the end of the Second Spanish period, the Spanish king granted over 12 million acres to the Duke of Alagon in what was the largest land grant in Florida that would have included the Kissimmee Chain of Lakes and most of the rest of central Florida west of the

St. John's River and north of Lake Okeechobee. The land was given because the Duke had assured the king that if he had possession of it he would work with various private enterprises to see the land settled and improved for agricultural production. The Duke promptly sold the land to Richard S. Hackley, of Virginia, who in turn leased some of it to a private corporation in 1836.

The treaty that ceded Florida to the United States included a written declaration as an exhibit that declared the land grant void, but at the time the Spanish king had just become a constitutional monarch, rather than an absolute monarch; and was limited in powers and could not exercise eminent domain to take private property without compensating the owner and having the action ratified by the Spanish Cortes. After years of being contested by the Territory, then the State of Florida, the U.S. Supreme court decided in 1853 [John Doe vs Braden (Braden was the founder of Bradenton)] that the grant and transfer was not valid because the treaty must be considered supreme law of the land unless it violates the U.S. Constitution, not the Constitution of Spain. Since the transfer to Hackley occurred before the final ratification of the treaty in February, 1821 it became a political decision rather than a judicial one; the treaty assumed the King had the necessary power to annul the grant so the U.S was under no obligation to recognize the validity of the land grant.

The Court stated that taking ownership of Florida while so much land was in possession and ownership by a single individual would be "...altogether inconsistent with the principles and policy upon which this government is founded." With the title being cleared by the U.S. Supreme Court and ownership by the Federal Government confirmed, the land was able to pass unchallenged to the State as part of the Swamp and Overflowed Lands Act that was passed by Congress in 1850. It is ironic, then, that the State would transfer nearly all of the Alagon/Hackley lands to another single individual, Hamilton Disston, in 1881 for the same purpose that the king had granted the land to Alagon: improving the land for agricultural production and encouraging settlement, making Disston the largest individual land owner in the United States.



Map 6. 1856 Military Map of Florida

1840s-1860s

English speaking settlers began moving in to present day Polk and Osceola Counties during the 1840s and 1850s and were for the most part cattlemen and homesteaders who lived mainly off the land and had their own small vegetable plots. The government would routinely grant 160 acre tracts to single men or heads of households through successive acts of Congress, such as the Armed Occupation Act of 1842. This act granted 160 acres to anyone who submitted a permit to the regional land office to build and live in a house on the parcel and cultivate at least 5 acres of it for at least 5 years. The 160 acre parcels had to be no closer than 2 miles to an existing military outpost. Since Ft. Gardner was situated between Lake Kissimmee and Lake Hatchineha, most of the early settlements in the area occurred on the southwest and eastern shores of Lake Kissimmee, beyond the two mile radius. Many settlers were veterans of the Second Seminole War who had familiarized themselves with choice parcels during their routine patrols. These early settlers were few and far between, the Armed Occupation Act of 1842 only authorized 1,250 homesteads for the entire peninsula south of Palatka, so the Brighton Seminoles were still largely free to roam the countryside and had hunting and trading camps established on the west shore of Lake Kissimmee.



A Seminole camp on the west shore of Lake Kissimmee

Beginning in the first year of statehood in 1845 the Florida legislature passed a series of resolutions to bring attention to draining the Everglades and interior Florida wetlands. The concept had proven itself when several large areas of wetlands on the east coast were drained and successfully converted to sugar cane and other crops in the late 1700s by English settlers. The feasibility of an Everglades drainage project had been assessed by several military engineers and surveyors since 1823 when the Seminole boundaries were being determined under the Treaty of Ft. Moultrie. It was discovered, to the surprise of the surveyors, that the Everglades were several feet above sea level and could be drained by creating larger outfalls by dredging canals that tie into the natural river systems on the coast. In 1847 U.S. Senator J.D. Westcott, Jr. requested a report on the feasibility of reclaiming interior organic wetland soils through drainage for agricultural production. Buckingham Smith was appointed to create the report and submitted his findings to the U.S. Treasury Department in 1848. His report outlined how high quality organic soils in the Kissimmee Chain of Lakes, around Lake Okeechobee, and within the Everglades basin could be drained and cultivated by lowering the water level of Okeechobee by 5 to 6 feet with a series of drainage canals that would simultaneously create a cross-state navigable waterway through the lake.



Buckingham Smith

In 1850 the U.S. Congress passed the Swamp and Overflowed Lands Act that granted to states federally owned wetlands for the purpose of internal improvements. Florida received ownership of approximately 20 million acres including the lands surrounding the Kissimmee Chain of Lakes and the Everglades. Swamp land would become the currency of the State and would be traded and sold in innumerable schemes to encourage the settlement and development of south Florida.

During the last two years of the Civil War, many of the Seminole War veteran/homesteaders in the Chain of Lakes region had been serving in armies in the northern states of the Confederacy, but were called home to form a special cavalry battalion to help protect and drive cattle from the interior of the peninsula to Georgia. The land around the Kissimmee Chain-of-Lakes was under the command of Captain Francis A. Hendry, from whom Hendry County is named.

Tourism and Settlement in the 1870s

The 1870s and reconstruction brought a railroad line from Sanford to Tampa and through the new town of Kissimmee on Lake Tohopekaliga. The land around the lakes had been essentially depopulated for 40 years since the first part of the Second Seminole War in the mid 1830s, and as a result the land and waters had exploded with game and fish. Kissimmee was the end of the line for many

southbound tourists, a frontier town perched on the edge of a vast wilderness. Several adventure books and articles in Harpers and Field and Stream opened the interior country around the Kissimmee Chain-of-Lakes to tourists and sportsmen from the Northern U.S. and from Europe. These adventure seekers were catered to through the Tropical Hotel which was right off the main pier on Lake Toho. A stay at the tropical cost \$3.50, little steam launches could be rented for \$10 to \$15 per day, a sailboat was \$3 to \$6 per day, and a guide was \$1 or more per day. An out of state hunting license was \$25 and included no restrictions on the type and quantity of game taken, everything from panthers to bears to manatees were fair game with the license.



Returning to the Tropical Hotel in Kissimmee following a bountiful fishing expedition in the Chain of Lakes



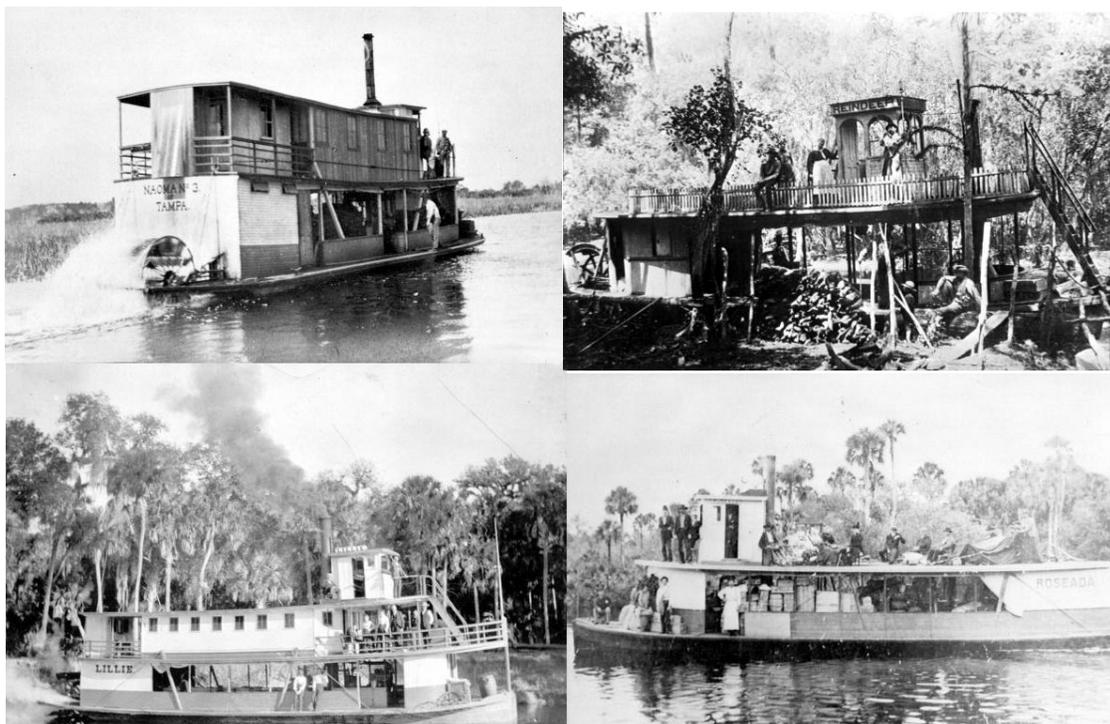
An illustration of a Chain of Lakes outing appearing in Harpers magazine in 1884



A steam launch, by 1890 there were 50 of them operating out of Kissimmee for “wilderness excursions”

Hunting cabins were established on the eastern shore of Lake Kissimmee. Large bass were so plentiful that it was often taken for granted that finding dinner would not be a problem, the hunt guides would dangle a hook behind their boats and receive a strike every few minutes as they traveled down stream. Tourists that came for the hunting rarely ever went home empty-handed, the Seminoles camped on the west shore were only too happy to trade trophy horns and hides to returning tourists who had come up short. Brahma Island (then called Bremer Island) was a popular hunting destination, as was the Gardner Marsh area between Lake Kissimmee and Hatchineha.

More settlers began moving into the area as regular service of several 50 foot steamers began traveling the Chain of Lakes and the Kissimmee River. Owner/operator steamers with a two foot draft were all that could be accommodated by the natural river system, and then only in the wet season. The steamer routes went from Kissimmee to Fort Bassinger on a regular basis, as often as water levels would allow. These workhorses of the river included the Mary Bell (sunk in 1884), the Lillie, the Tallulah (which ran aground near Ft Gardner, but was later raised, refurbished and renamed the Reindeer), the Naoma, and the Roseada.

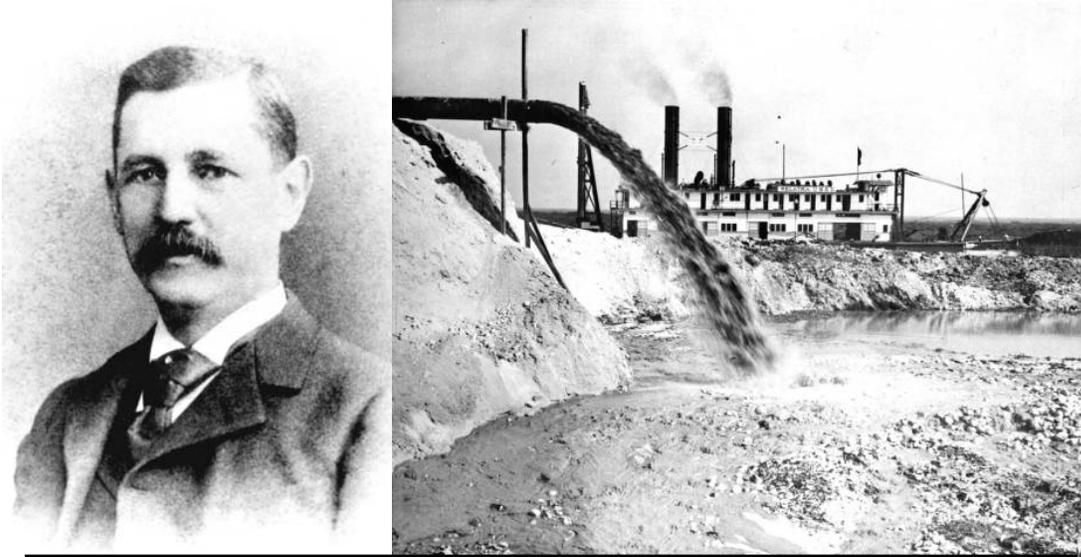


The 50 foot sternwheel steamers of the Kissimmee River system, clockwise from upper left: the Naoma, the Talullah, the Roseada, and the Lillie

These steamers were the primary means of transportation for passengers and commerce. The river system was known to be extremely long and torturous,

sometimes taking three miles to cover by river a distance that was only a quarter mile in a straight line. Every three to four years dry periods in the winter and spring would close the water route for six to eight months and the settlers would be left to fend for themselves and subsist off of their small garden plots, hunting, fishing, and what meager provisions they could get through small boats and horseback. Commerce came to a complete halt during dry conditions and entire citrus and winter vegetable crops were left to rot in the fields. Local politicians began to lobby Congress for improvements to the river system to accommodate larger steamers with a deeper draft over a shorter distance year-round. Congress then directed the Army Corps of Engineers to investigate opening a steamer line from Kissimmee to Florida's southwest coast. The Army Corps completed a feasibility survey in 1882 that provided a cost estimate for dredging shoals, removing snags and overhanging limbs, and creating a series of cutoff canals to shorten the length of the trip and allow for larger steamboats. At about the same time a businessman from Philadelphia, Hamilton Disston, had begun to make these types of improvements to the river under a contract with the State.

Hamilton Disston Drainage Projects 1881-1895



Hamilton Disston and his steam dredge

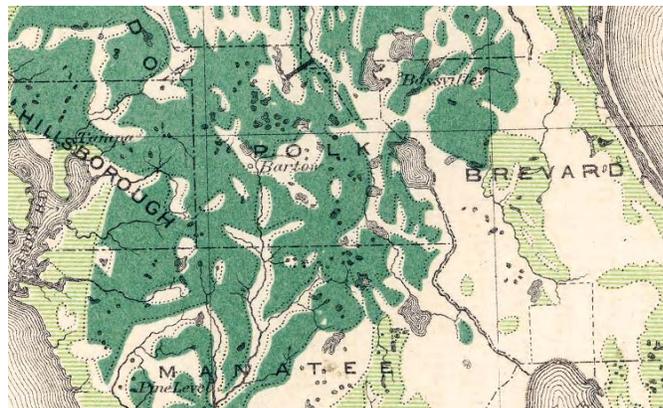
Hamilton Disston was an entrepreneur from Philadelphia who organized the Florida Land and Improvement Company, and the Atlantic and Gulf Coast Canal and Okechobee Company. The state entered into an agreement with Disston in 1881 where Disston purchased four million acres of odd numbered sections of a nine million acre drainage district that included most of the interior peninsula of Florida, south of Kissimmee. Disston paid 25 cents per acre and was also entitled to half of the remaining sections upon their successful reclamation. Railroad companies also received a large portion of the remaining even numbered sections, because the legislature had promised them 4,000 to 10,000 acres for every mile of railroad constructed. It was the general policy of the railroad companies and Disston to sell off the extra land to settlers and other investors.

Disston began his reclamation operation by constructing a large steam-powered bucket chain dredge barge that dug a six foot deep canal 37' wide at 12 linear feet per hour. The barge automatically built up a levee on either side as it moved through the prairies. The dredge began a canal connecting Lake Tohopekaliga and Lake Cypress in the summer of 1882 with a crew of 12. Disston employed the steamer Roseada to move the dredge. Progress was aided by having lake water steadily pushing the barge forwards as it made its way towards Lake Cypress. By May 1883 the canal was finished and a steady current of 2½ miles per hour had drained Lake Tohopekaliga by 5 feet and draining 40,000 acres of land. Only a small portion of this land was ever cultivated by Disston with 2,000 acres planted in sugar cane and 6,000 acres in Rice.

Disston's company also improved the Kissimmee river navigation by creating cut-off canals, removing snags and limbs, and dredging shoals. By 1884 the Kissimmee River and Chain of Lakes was navigable by 100 foot steamers from Ft Myers to the town of Kissimmee. Disston's Florida enterprises were essentially terminated by plummeting land prices following the 1895 great freeze that came on top of a bad freeze in 1894, the economic panic of 1893, and the elimination of a two cent per pound subsidy on sugar in 1894.

Timber and Cattle

The improved navigation of the river greatly increased settlement in the area. Most of the land southwest of Lake Kissimmee remained unfenced with numerous homesteads. These residents incorporated into the Kissimmee Island Cattle Company to coordinate the annual drives of the native range cattle. Livestock grazing continued to increase and relied less and less on the free-roaming Spanish cattle that had for so long been part of the landscape. From 1926 – 1929 over 5,000 "purebred" cattle were imported into the area. Improved navigation also opened much of the pinelands surrounding the lakes to timber and turpentine operations. A turpentine still was located near the southwest shore of Lake Kissimmee, and by 1929 there were 21 sawmills operating in Polk County.



A river steamboat loading rosin for transportation to a turpentine still, **Map 7**, an 1881 timber map with longleaf pine in dark green and slash pine in light green

From 1902 through 1909 more navigational improvements were made to the Kissimmee Chain of Lakes including clearing out shoals, armoring the entrances to Disston's canals to prevent further shoaling, and creating more cut-off canals. This work was done to secure a minimum three foot deep and 30 foot wide channel navigable from Kissimmee to Ft. Bassinger. The first improved roads didn't reach the area until the 1930s and slowly began to replace the Kissimmee River system as the primary means of transportation. Rapid settlement of the area following World War II led to extensive property damage when a severe hurricane occurred within the basin in 1947. The mass flooding during this period intensified public pressure for measures to reduce the threat of flood damage within the Kissimmee system. The State of Florida responded with a request to the federal government to design a flood-control plan for central and southern Florida.

In 1948, Congress authorized the U.S. Army Corps of Engineers to initiate construction of the Central & Southern Florida Project for Flood Control and Protection. In 1954, Congress specifically authorized the Kissimmee River portion of the project, which was planned and designed from 1954 to 1960. Between 1962 and 1971, the meandering river was transformed into a 56 mile-long, 30 foot deep, 300 foot-wide canal. Excavation of the canal and deposition of the resulting spoil eliminated approximately 35 miles of river channel and 6,200 acres of floodplain wetland habitat. The floodplain was transformed into a series of impounded reservoirs (Pools A-E). Inflow from the Kissimmee Chain of Lakes was regulated by six water control structures (S-65s), the first of which was located at the outflow of the Kissimmee River from Lake Kissimmee. Water control structures and canals were built in the upper lakes region which allowed regulation of water flow within and between the lakes of the upper basin.

A major addition to the area's economy was the establishment of Disney World and other tourist attractions in the early 1970s. By the late 1970s, residential development had increased dramatically throughout the Kissimmee-Orlando area. In 1981, the Florida Legislature established the Save Our Rivers program for the five water management districts to acquire environmentally sensitive land. The legislation (Chapter 373.59 F.S.) produced the Water Management Lands Trust Fund and empowered the water management districts to acquire lands needed to manage, protect, and conserve the state's water resources. Once acquired, the lands should be managed in an environmentally acceptable manner and restored to their natural state.

The Kissimmee River Restoration Project was authorized by Congress in the 1992 Water Resources Development Act as a joint partnership between the District and the US Army Corps of Engineers. The project was designed to restore over 40 square miles of river/floodplain ecosystem including 43 miles of meandering river channel and 27,000 acres of wetlands. The restoration plan reestablishes inflows from Kissimmee Chain of Lakes that will provide flow velocities and volumes similar to the ones that existed prior to channelization.

The District began purchasing lands for water storage, quality, and control that comprise the Kissimmee Chain of Lakes Management Area beginning in 1990 through the Save Our Rivers program when scientists and engineers from the District and U.S. Army Corps of Engineers working on the Kissimmee River Restoration Project determined that not enough water would be available in the upper Chain of Lakes to provide year round base flow for the restored river. It was estimated that an additional 100,000 acre-feet of water storage was required to provide longer durations and seasonal variability of flow to the lower river basin. The basic strategy was to modify the regulation schedule and operational rules to allow lake stages to fluctuate more naturally with rainfall and associated inflows from the upper basin watershed. The recommended solution was to raise the top of the existing lake regulation schedule from 52.5' NGVD to 54.0'. Real estate interests including fee title or flowage easements were needed on land around lakes Kissimmee, Cypress, Tiger, and Hatchineha in eastern Polk and southwestern Osceola counties.

To date nearly 36,373 acres have been acquired, the majority of which was acquired from September 1993 to July 1995. Prior to acquisition, the majority of the property was managed as range land owned by area ranchers for beef cattle production. Ranching improvements included the construction of an extensive interior network of drainage ditches and the planting of exotic pasture grasses.

The Land Stewardship Program developed a burn program to reintroduce regular fire to the property including those portions where fire may have been suppressed. The District has initiated programs for exotic plant control, forest management, upland and wetland restoration, and a public use program.

Map 8. Kissimmee Chain of Lakes Management Area with 1941 (Polk County) and 1944 (Osceola County) aerials



4. Resource Inventory

Policy 140-25(3)(e) Inventories of natural and historic resources shall be performed to provide information for effective land management planning, natural community maintenance and ecological restoration.

Floral and faunal species are inventoried, and natural communities are mapped by Land Stewardship personnel, volunteers, or private contractors. The data helps District land managers with resource management planning.

Inventory data is on file within the Planning Section of the Land Stewardship Program. Land Stewardship shares natural areas and species data with the Florida Natural Areas Inventory through a Memorandum of Understanding.

Three District contractors have completed plant inventories in 1997 and 1998 for Lightsey Unit, Catfish Creek, and Gardner-Cobb Marsh. Plant inventories were completed for the Kissimmee Islands, Oasis Levee, Lake Cypress, and Rough Island units by a contractor in 2003. Archaeological and cultural resource inventories were conducted in coordination with the Department of State, Division of Historical Resources and are described in the State's Master Site File.

4.1 Hydrology

Policy 140-25(1) The basis for the Land Stewardship Program is the protection and management of natural hydrologic resources.

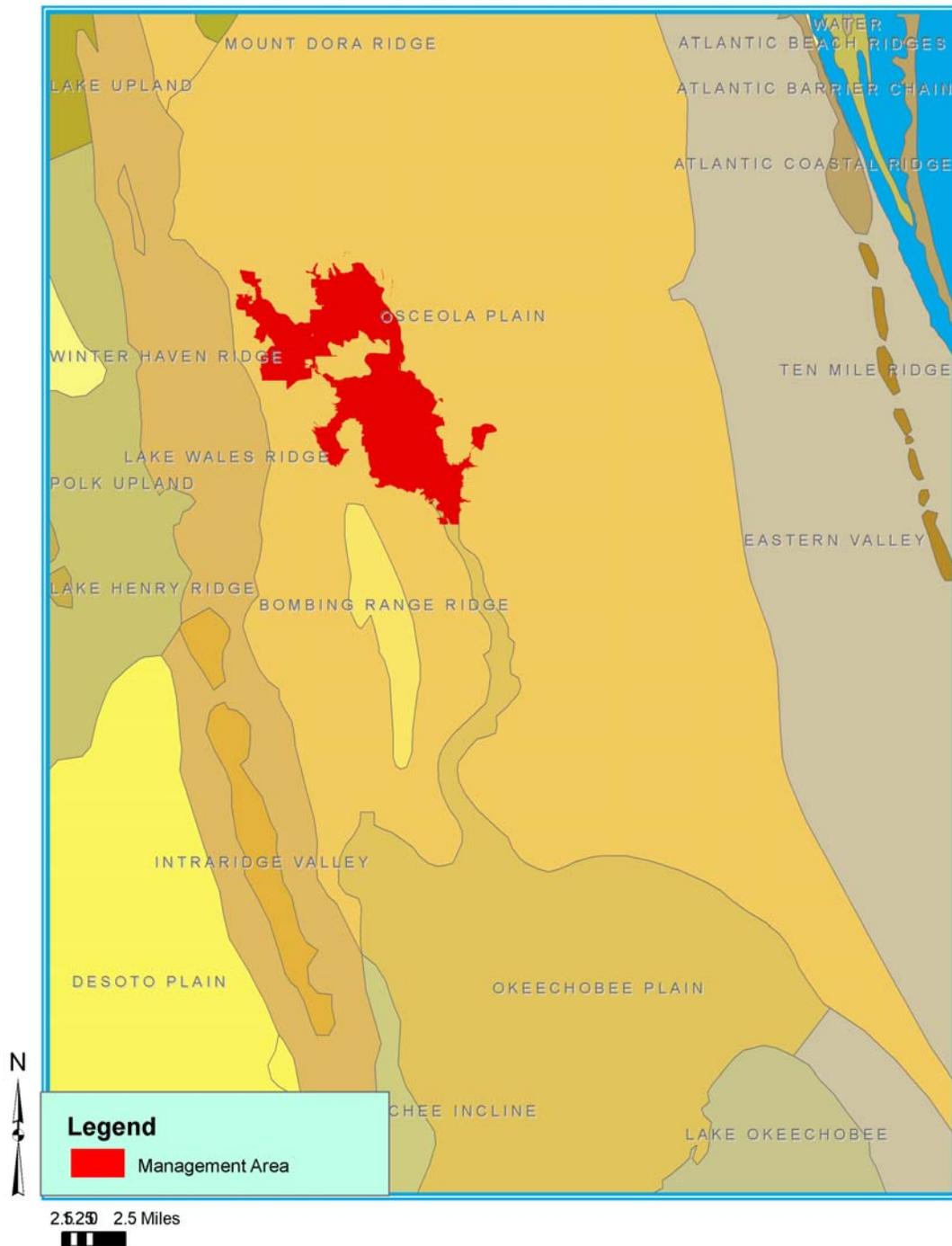
The Kissimmee Chain of Lakes Management Area is located in the middle of the Osceola Plain, slightly west of the centerline roughly parallel with the axis of the peninsula **Map 10**. The Management Area lies within four surface water basins as shown in **Map 13** that drains 709 square miles. It also covers just a portion of the larger Upper Kissimmee basin that encompasses a system of more than 25 interconnected lakes across 1,620 square miles. Water levels historically fluctuated over a range of 2 to 10 feet. The lakes had limited outfall capacity through the wildly winding route of the natural Kissimmee River and functioned as natural detention reservoirs, allowing for storage of water in the wet season, and typically, continual release of water throughout the year.

The flood control mechanisms established by the Central and South Florida Flood Control Project created a system where water levels between the lakes could be controlled following a regulation schedule to minimize the potential for flooding. Nine water control structures were constructed in the Upper Basin portion of the project between 1964 and 1970 to regulate lake levels and outflows. The primary control structure regulating the outfall of the system is the S-65 structure at the south end of Lake Kissimmee. These structures have multiple gates that can be opened and closed; seven stage regulation schedules control their operations. Each regulation schedule defines operational criteria used to

manage lake levels for flood control and water supply. The regulation schedules present seasonal and monthly stage limits needed to provide the designed level of flood protection. The present regulation schedules limit annual water level fluctuations to within about two to three feet.

The regulation schedule will be modified as part the Kissimmee River Restoration Project. The goal of these changes is to improve, enhance and/or sustain lake ecosystem health, while balancing impacts between upstream and downstream ecosystems. The specific changes to the schedule will be outlined in the Kissimmee Chain of Lakes Long-Term Management Plan that will be completed and submitted to the Governing Board of the District for approval in Fiscal Year 2009. The District is the lead agency coordinating the development of the Long-Term Management Plan with six partner agencies including the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, Florida Fish and Wildlife Conservation Commission, Florida Department of Environmental Protection, and Florida Department of Agricultural and Consumer Services.

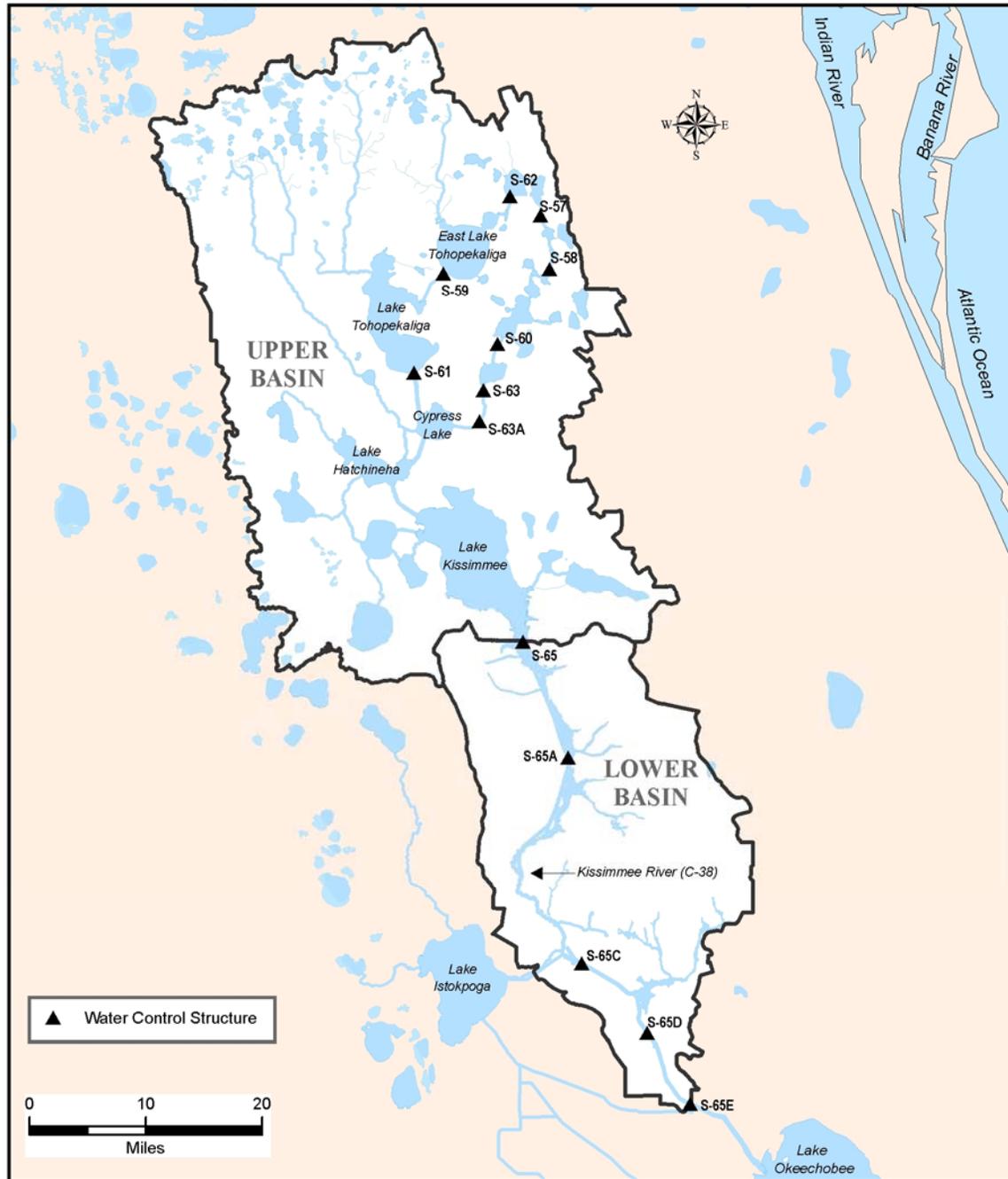
Map 10. Regional Major Geomorphic Features



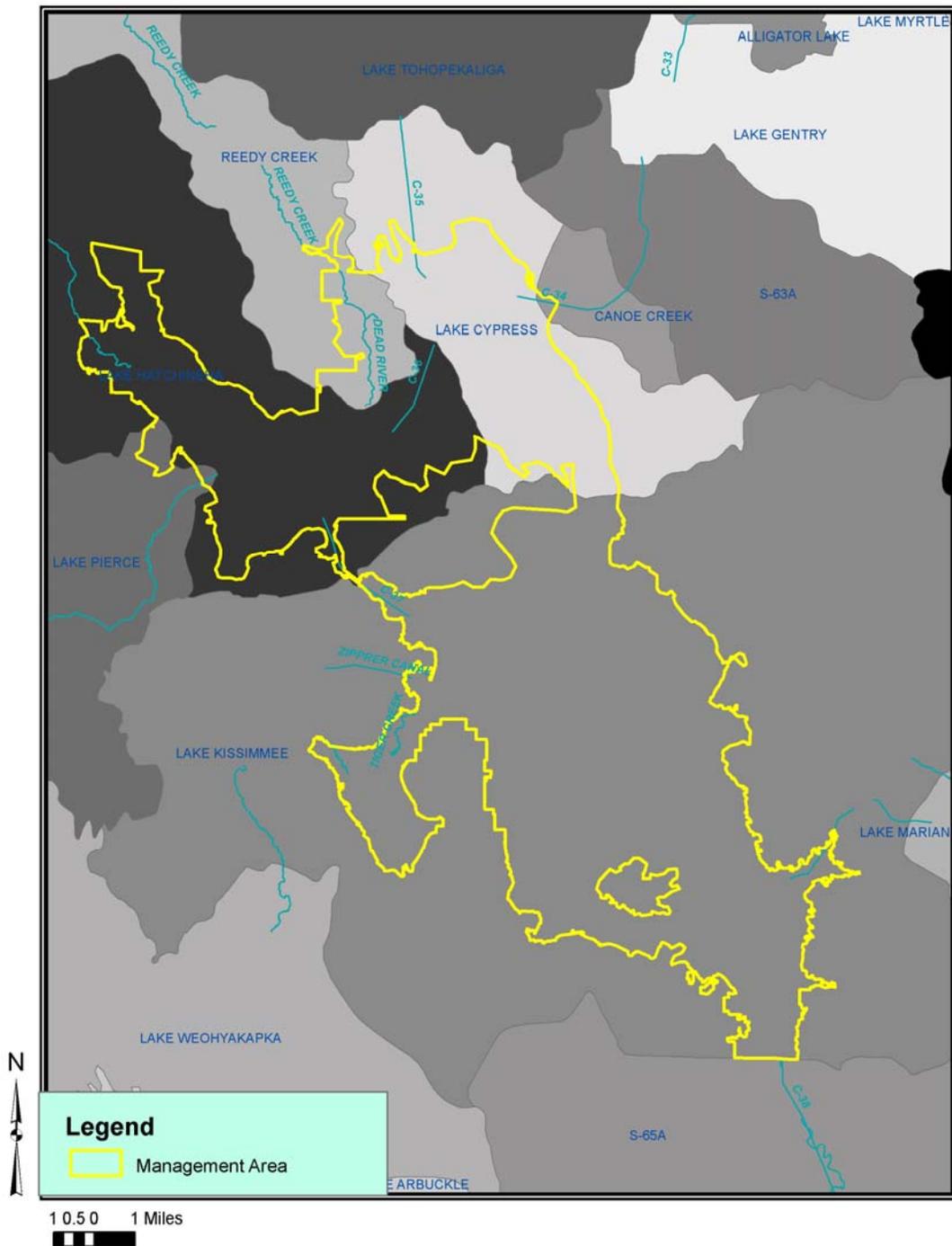
Map 11. Regional Topographic Setting



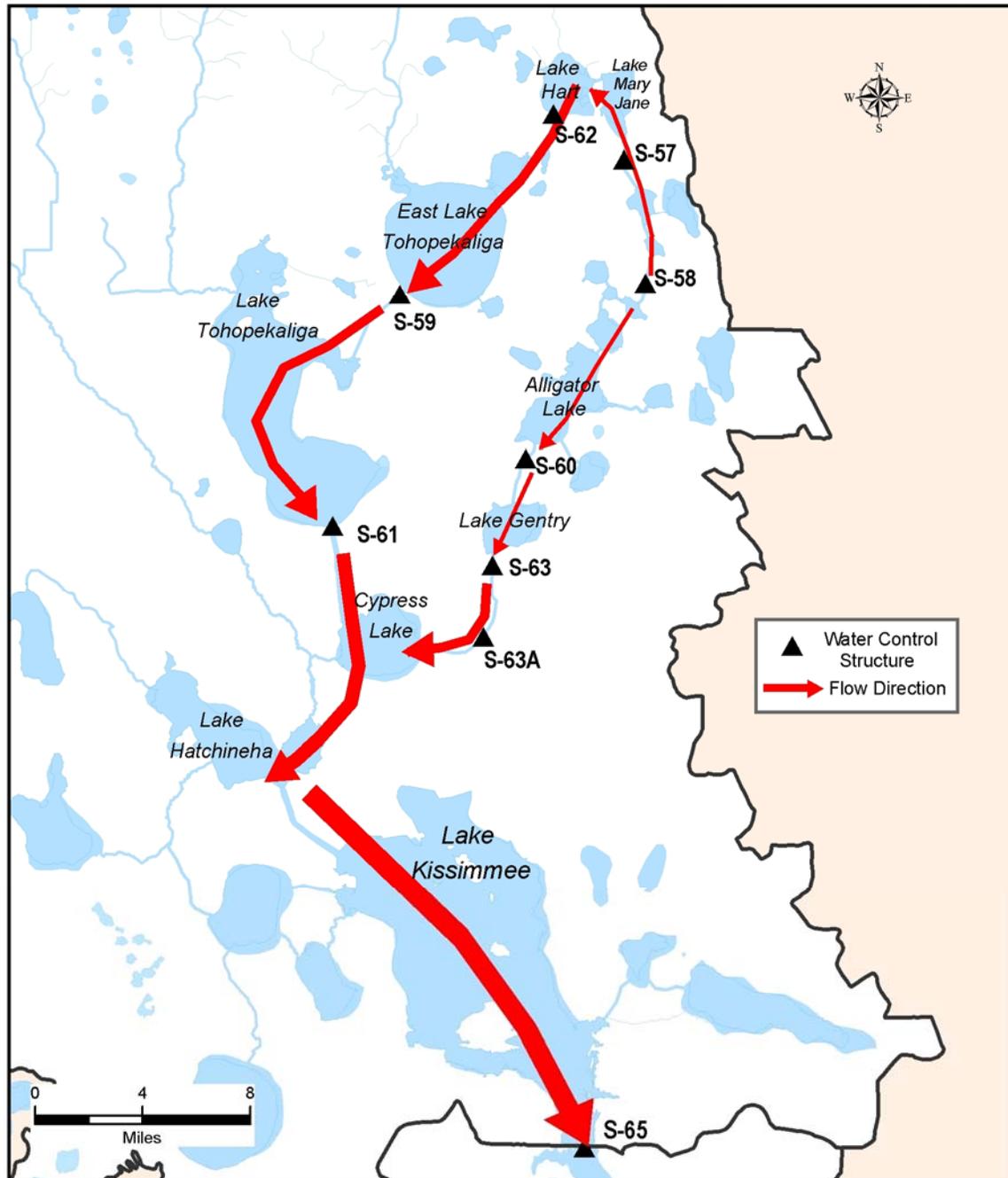
Map 12. The Regional Upper and Lower Kissimmee River Basins



Map 13. Localized Hydrologic Basins



Map 14. Water Flow and Control Structures



4.2 Soils

There are six distinct soil categories within the Kissimmee Chain of Lakes Management Area as defined by the Natural Soil Landscape Positions soil classification system: flats soils, flatwoods soils, knolls, made lands, muck depression soils, and sand depression soils. This classification system groups South Florida soils into 12 categories based on hydrology and soil morphology that reflect the local relative topography, hydrology, and vegetation of the area. Soil classification descriptions are included as **Appendix B**.

Soil Contamination and Excavation Sites

A review of pre-acquisition Phase I Environmental Assessments for the Kissimmee Chain of Lakes Management Area revealed no major soil contamination sites. A small area within the Drasdo unit contained a sawmill that had a small area of stained soil beneath the motor which was satisfactorily excavated. This area was remediated prior to acquisition.

Cattle dip vats were located on Strum Island, Lemon Point, and in Gardner-Cobb Marsh within Ike Hammock. Contaminated soil at these sites were excavated and replaced with clean soil. The Department of Environmental Protection concurred that no further action was required at these sites following clean up.

Map 15. Soils



4.3 Natural Communities

The Land Stewardship Program classifies natural community types by the Florida Natural Areas Inventory classification system. Twenty natural community types comprise the Management Areas. Community condition varies widely, depending on previous and current land use, hydrologic alteration, exotic infestation, and current management activities. Descriptions are included as **Appendix C**.

Table 1: Natural Community Type Summary by Management Unit

FNAI Community Type	Catfish Creek	Gardner-Cobb	Lake Cypress	Drasdo	Kissimmee Islands	East Shore	Lights ey	Oasis Levee
Basin Marsh	X	X	X	X	X	X		X
Basin Swamp	X		X	X	X	X		X
Baygall	X							
Depression Marsh	X	X	X	X	X	X	X	X
Dome Swamp	X	X			X			
Dry Prairie		X				X		
Floodplain Marsh		X					X	
Floodplain Swamp		X					X	
Hydric Hammock				X				
Mesic Flatwoods		X		X			X	
Prairie Hammock	X	X		X		X	X	X
Scrub				X			X	
Scrubby Flatwood				X			X	
Seepage Stream	X							
Strand Swamp		X						
Swale						X		
Swamp Lake		X		X				
Wet Flatwoods	X						X	
Wet Prairie	X	X	X	X	X	X	X	X
Xeric Hammock							X	

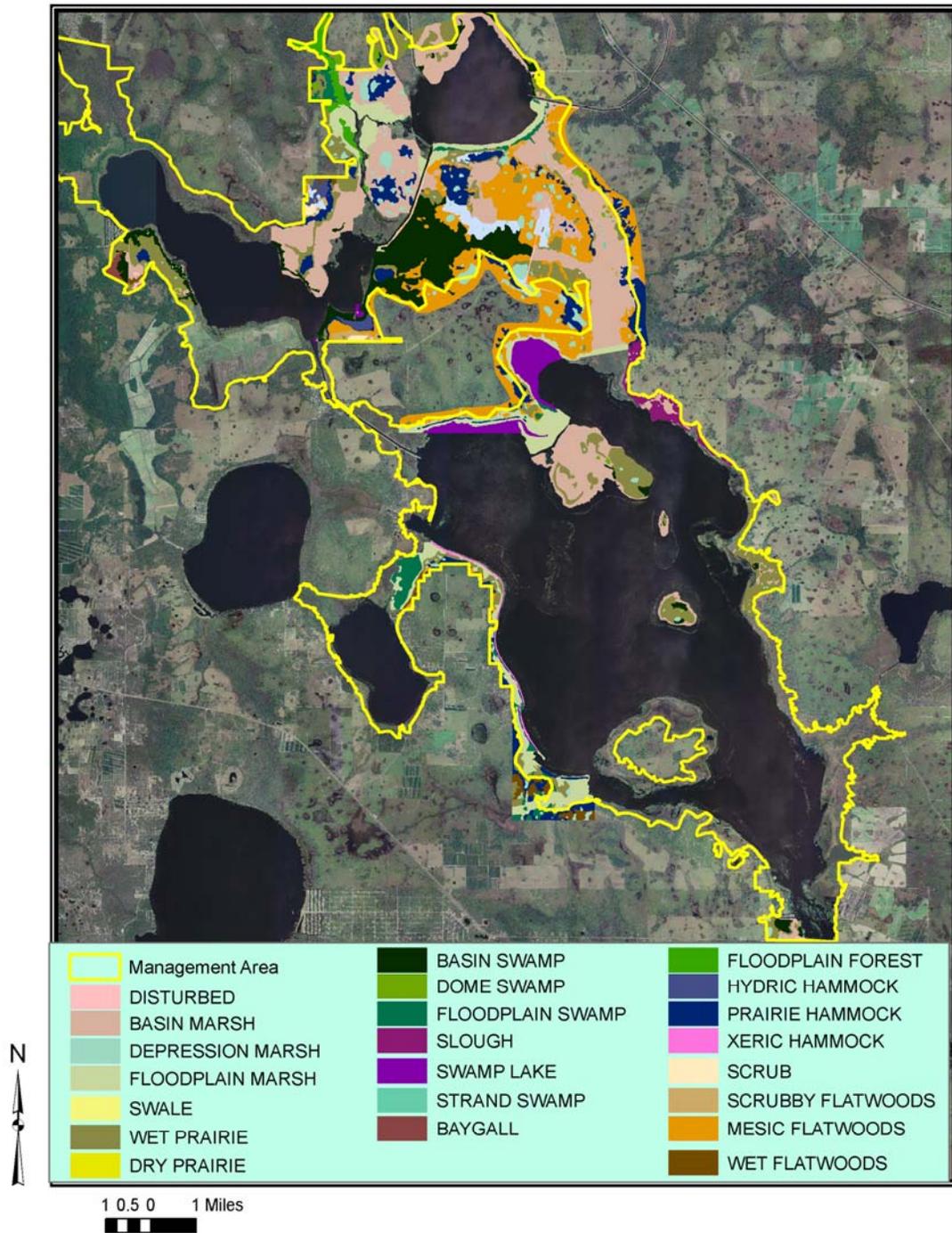
FNAI Community Type	Rough Island North	Rough Island South	Johnson Island
Basin Marsh	X	X	X
Basin Swamp	X		X
Depression Marsh	X	X	X
Dry Prairie			X
Dome Swamp			
Hydric Hammock			X
Mesic Flatwoods			X
Mesic Hammock			
Prairie Hammock	X	X	X
Sandhill			
Scrub			X
Scrubby Flatwoods			X
Scrubby Flatwoods (disturbed)			
Seepage Slope			
Wet Flatwoods			X
Wetlands (disturbed)			
Wet Prairie	X	X	X

Plant inventories were completed by District interns within the Catfish Creek and Lightsey Management Unit. Contractors completed flora surveys for Gardner-Cobb, Lake Cypress, Kissimmee Islands, and Oasis Levee (**Appendix D**). East Shore and the Otter Slough Subunits remain to be inventoried. The number of documented species is listed in **Table 4**:

Table 2: Plant Species by Management Unit

MANAGEMENT UNIT	SPECIES
Catfish Creek	131
Gardner-Cobb	225
Lightsey	356
Lake Cypress	140
Oasis Levee	157
Bird Island	57
Strum Island	174
Rabbit Island	50

Map 16. Natural Communities



4.4 Wildlife

The natural communities within the project provide habitat for numerous bird, fish, amphibian, reptile, and mammal species, several of which are listed federally or by the state. Initial wildlife inventories on the Management Area were conducted from 1987-1989. As species observations and listing classification change, the species lists are updated accordingly. Wildlife species observed utilizing the property include 133 bird, 17 mammal, and 40 reptile and amphibian species (**Appendix D**). At least 10 species considered rare, endangered, threatened, or of special concern have been noted.

4.5 Cultural Resources

Policy 140-25(3)(j) Archaeological and historic resources are protected by site identification and inter-agency coordination with the Florida Division of Historical Resources. Land Stewardship planning shall include an analysis of archaeological data accompanied by appropriate public education opportunities.

The District's management goal for cultural resources is historic preservation by identification, evaluation, documentation, protection, and stabilization of known historic or prehistoric sites. The Land Stewardship Program maintains a database of all known archeological and historical sites on District properties that is periodically updated through the Department of State's Master Site File. Due to its sensitive nature, site-specific data may not be made available to the general public.

Fifteen archaeological sites of Native American earthworks have been identified in the Management Area and are registered in the Florida Master Site File as sites of archaeological significance. During the summer of 2002 the District contracted for a survey to be conducted for archaeological/historical sites in Gardner-Cobb Marsh and Drasdo Units. The goal was to locate and identify significant sites within the project tracts for protection, preservation and management. Eleven sites were located; ten had been previously identified by District staff. Analysis of artifacts consisted of separating the artifacts into their respective categories: lithics, ceramics, historic artifacts, and faunal or botanical remains. Management of these sites include monitoring for signs of disturbance and coordinating with law enforcement officers when suspicious activity is identified.

5. Natural Resource Management

Policy 140-23 The Land Stewardship Program mission is to provide natural resource protection and management while allowing compatible multiple uses on designated public lands.

Resource management includes all applied programs wherein activities manipulate, modify, and control natural features within the Management Area. All lands that were acquired through the Save Our Rivers program are managed and maintained in an environmentally acceptable manner and, to the extent practicable, restored and protected in their natural state and condition. Management responsibilities are defined by statute, and directed by best management practices. Goals and objectives for the Management Area clarify resource management guidelines necessary to fulfill the District's land stewardship responsibilities. Land Stewardship resource management activities include the implementation of a large scale project to restore a more natural hydrologic regime, the application of vegetation control activities to restore natural forest structure and composition, the continuation of an aggressive exotic plant control program, and the application of a prescribed burn program for fire dependent plant communities.

5.1 Restoration Projects

Policy 140-25(1) The basis for the Land Stewardship Program is the protection and management of natural hydrologic resources.

Policy 140-25(1)(c) Where feasible, an attempt shall be made to restore a more natural hydroperiod on tracts where the drainage patterns have been altered.

Wetland Restoration

In 2003, the District developed plans to restore approximately 4,000 acres of shoreline and interior wetlands to enhance wading bird/waterfowl habitat in Rough Island, Gardner-Cobb Marsh and Otter Slough management units. Rough Island and Otter Slough were permitted by the Florida Department of Environmental Protection as mitigation for wetland impacts associated with the construction of a pump station at Packer Slough. Plans for the three projects are essentially the same; all address planning and design, hydrologic restoration methods, exotic plant treatment, vegetation management to control nuisance exotics and natives, prescribed burning, and long-term monitoring. The District conducted detailed site investigations of each restoration area to determine restoration needs in terms of hydrologic enhancement, exotic treatment, vegetation management, prescribed burning, and monitoring.

Surveys were conducted to identify ditch plug and water control structure locations, elevations, and cross-sectional information needed for project design. The shallow swales and ditches that were excavated to enhance drainage and increase grazeable areas will be blocked with earthen plugs. Plug widths vary from 5'-25', and plug lengths range from 25'-100'. All plugs will be constructed to one foot above natural grade, following compaction and final grading, and seeded with grass. Baseline inventories have been established for each site. Permanent photo monitoring stations were installed that will enable panoramic photos to be

taken to document changes over time. Pre-construction photos have been taken and will be followed up annually and supplemented with photos documenting wildlife, listed plant species, and reaction of the sites to various management activities.

Rough Island

Rough Island (**Map 17**) is a 1,750 acre tract that was historically wet most of the year before lake stages in the Kissimmee Chain of Lakes were regulated in the 1960s as part of the Kissimmee River channelization project. Rough Island contains numerous depression marshes and wet prairies that have been drained with a network of swales and shallow ditches that were constructed to provide more land for cattle grazing. It is estimated that wetland conditions can be enhanced on more than 1,000 acres by constructing 25 earthen ditch plugs in the shallow ditches exiting the marshes. Plugs will be constructed using available onsite material; no fill will be imported, and plugs will be filled to one foot above natural grade. Ditch plug locations have been evaluated by District engineers and no offsite landowners will be impacted by their construction.

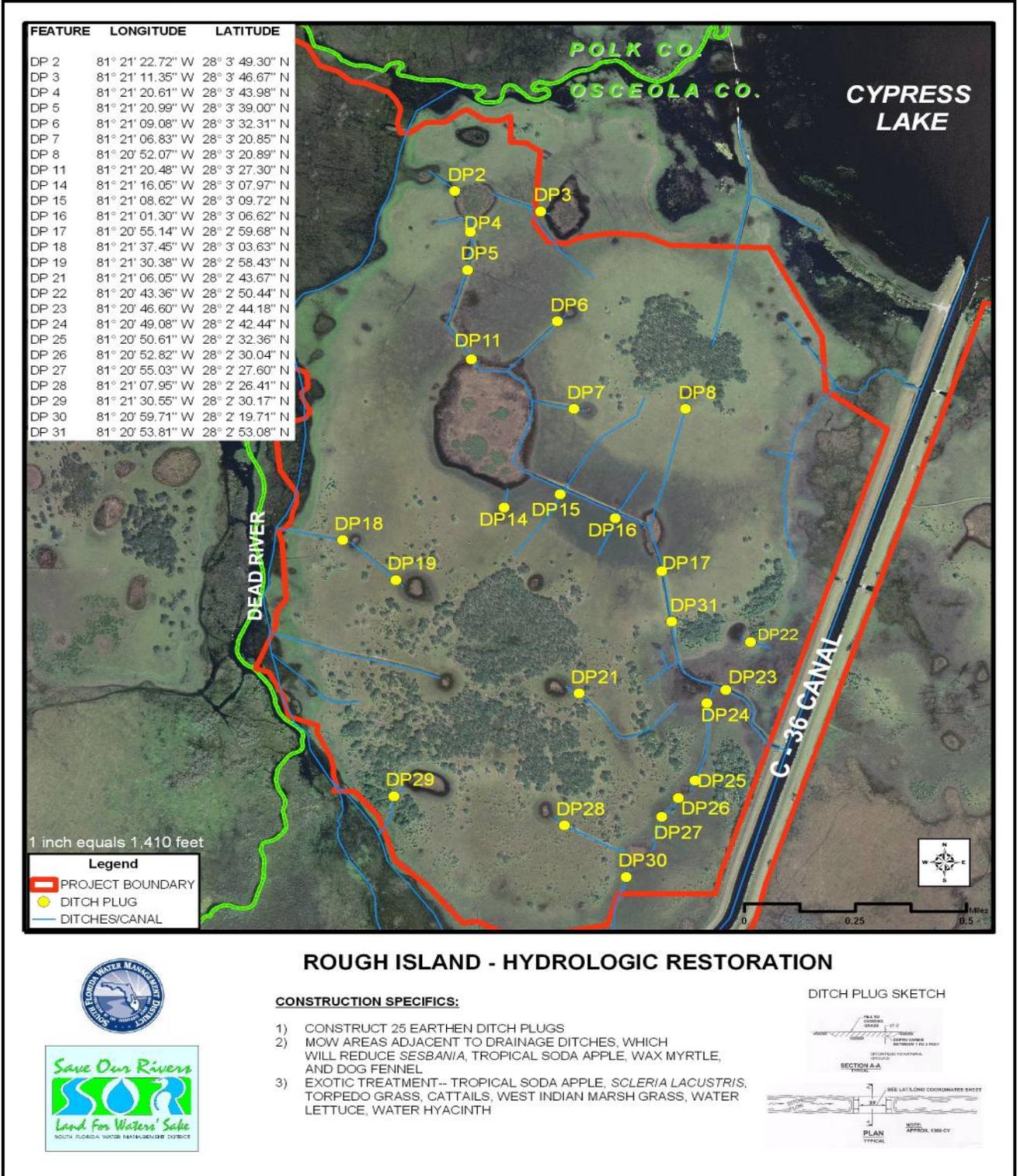
Gardner-Cobb Marsh

Gardner-Cobb Marsh (**Map 18**) covers 11,000 acres that were historically floodplain marsh. Aerial photography from the 1940s shows construction of a drainage system that was installed to allow row crop farming. The proposed restoration project will enhance 2500 ac. of over-drained marshes and wet prairies that have been impacted by drainage. A large drainage ditch runs through a central slough on the east side of the property. This ditch continues to drain offsite property and no attempts will be made to restrict its flow. A second large ditch drains into Lake Cypress. Since it carries a large volume of water an at-grade earthen impoundment hardened with sand cement rip-rap will be constructed.

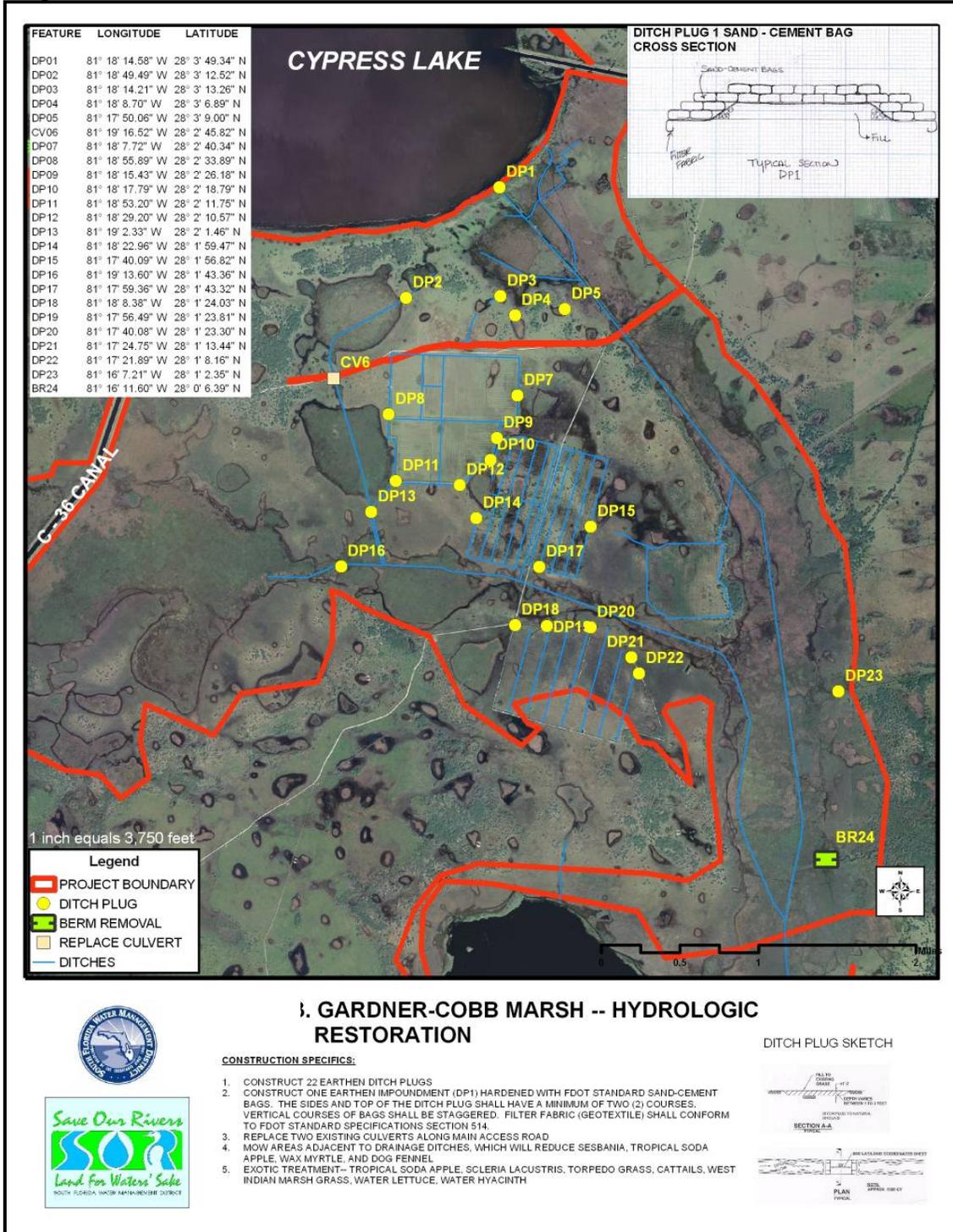
Otter Slough

Otter Slough (**Map 19**) covers 500 acres that were historically part of the Lake Kissimmee floodplain. The proposed restoration project will enhance the entire site. The State of Florida owns 4800 acres of adjacent land that is managed by the Florida Division of Forestry as the Lake Wales Ridge State Forest--Prairie Tract. A single large ditch drains Otter Slough as well as state forest land. The restoration plan consists of two large earthen plugs to be installed in the main ditch, as well as three smaller plugs and two backfill sites. The Division of Forestry is undertaking a similar ditch plugging project further upstream under the Wetland Reserve Program. The state forest portion of the project is being designed by the Natural Resource Conservation Service.

Map 17. Rough Island South Restoration



Map 18. Gardner-Cobb Marsh Restoration



Map 19. Otter Slough Marsh Restoration

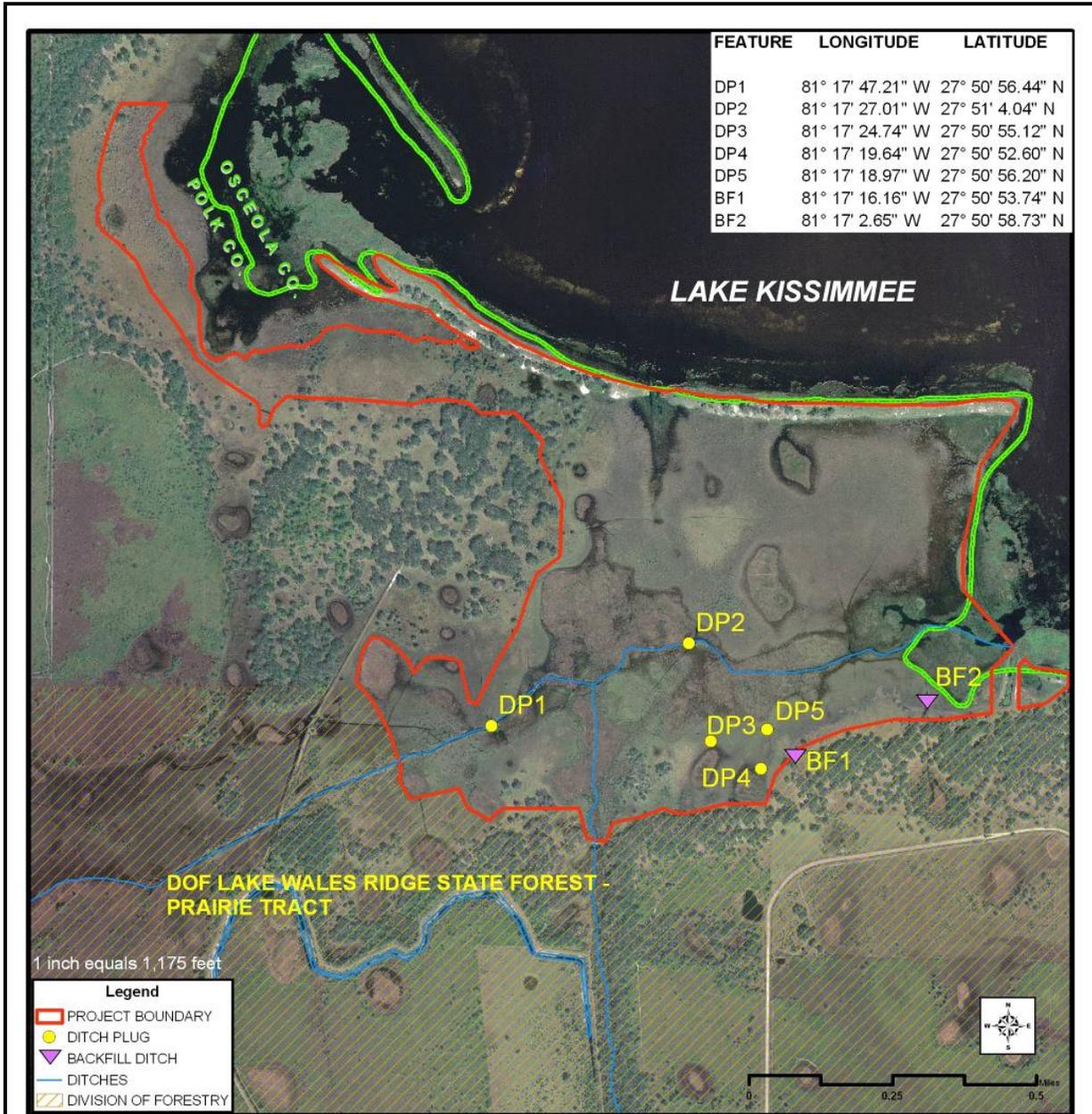


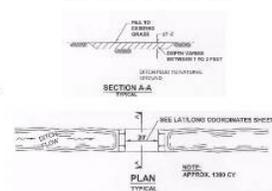
FIGURE 4. OTTER SLOUGH -- HYDROLOGIC RESTORATION



CONSTRUCTION SPECIFICS:

- 1) CONSTRUCT TWO LARGE EARTHEN DITCH PLUGS (100' LONG X 25' WIDE) EROSION BARRIERS WILL BE INSTALLED TO KEEP THE PLUGS INTACT
- 2) IMPROVE APPROXIMATELY 0.6 MILES OF EXISTING ACCESS ROAD LEADING TO THE DITCH PLUGS
- 3) ROAD IMPROVEMENTS CONSIST OF ADDITION OF 4-8" OF SHELLROCK TO STABILIZE ROAD FOR TRUCKS HAULING FILL MATERIAL
- 4) REPLACE 2-36" X 25' LONG PVC EQUALIZER CULVERTS
- 5) CONSTRUCT 3 SMALL EARTHEN PLUGS (10' X 15') TO RESTORE 3 DEPRESSION MARSHES
- 6) BACKFILL 2 EROSION DITCHES TO NATURAL GRADE
- 7) MOW AREAS ADJACENT TO DRAINAGE DITCHES, WHICH WILL REDUCE *SESBANIA*, TROPICAL SODA APPLE, WAX MYRTLE, AND DOG FENNEL

DITCH PLUG SKETCH



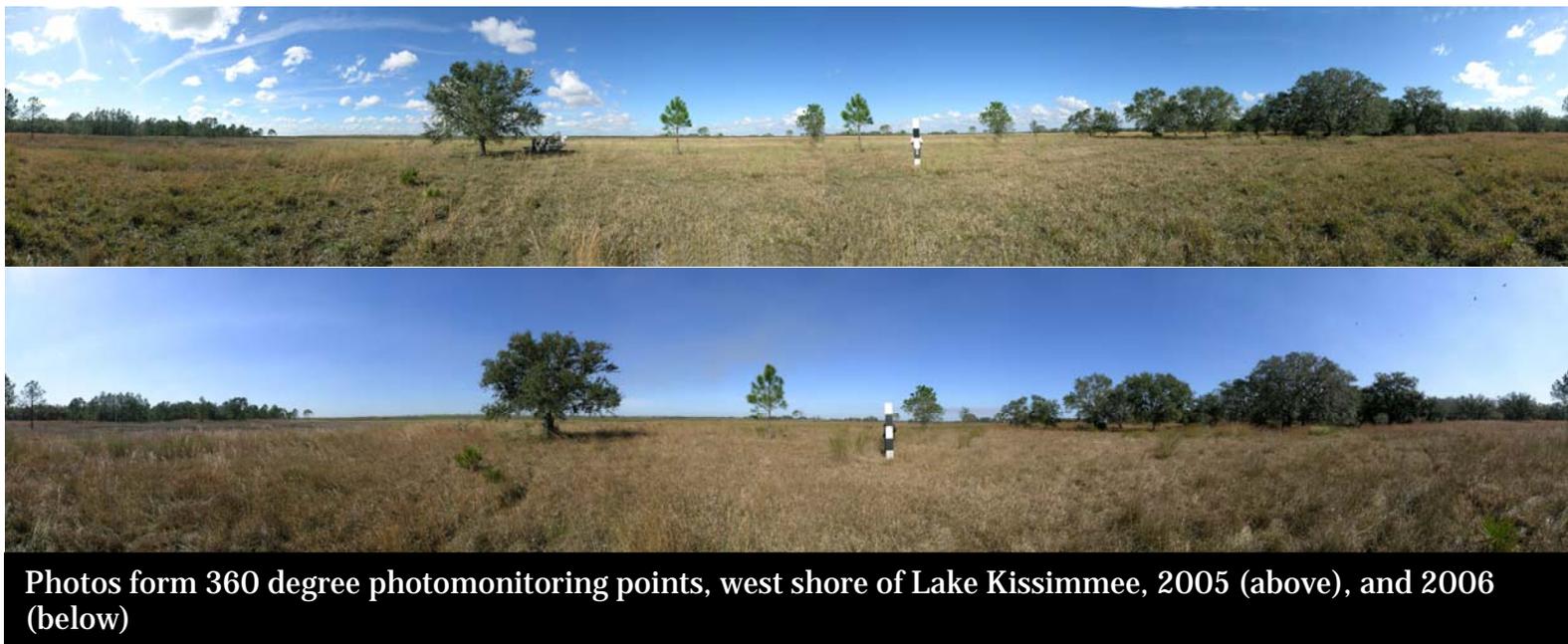
5.1.1 Monitoring

Policy 140-25(3)(f)(2) Monitoring shall be conducted to identify landscape changes resulting from management activities.

Tracking environmental response to management and restoration activities provides valuable information on progress toward restoration objectives. Information obtained by monitoring specific sites assists land managers in making sound ecological choices for each unique parcel.

Monitoring has focused on documenting vegetative changes from restoration of the area's hydroperiod. Baseline inventories have been established for each site under section 5.1. Six permanent photo monitoring stations were installed that will enable panoramic photos to be taken to document changes over time. Pre-construction photos have been taken and will be followed up annually and supplemented with photos documenting wildlife, listed plant species, and reaction of the sites to various management activities.

Additionally, the District has initiated vegetative monitoring and water quality monitoring throughout the Management Area as part of the Kissimmee River Restoration Project, the Kissimmee Basin Modeling and Operations Study, and the Kissimmee Chain-of-Lakes long-term management plan. These programs will provide baseline information for future studies and will help plan and determine the effects of restoration projects in the Management Area.



5.2 Vegetation Management

Policy 140-25(2)(d) Where practicable, an attempt shall be made to restore and maintain desirable vegetation to promote habitat diversity in areas where invasive exotic vegetation, grazing practices, or improved land uses have substantially altered the historic landscape.

Policy 140-25(3)(l) Mechanical equipment may be used in conjunction with prescribed burning and other management tools to control vegetation and restore habitat structure.

Vegetation management is a program component where the composition and/or structure of a vegetative community is physically altered to meet a management objective. The techniques used in vegetation management include mowing, disking, shredding, roller-chopping, timber thinning, and planting. These techniques are applied to one or more management objectives that may include:

- Restoring a degraded vegetative community
- Improving an area's suitability as wildlife habitat
- Exotic species control or weed management
- Fuel management in relation to prescribed burning or minimizing wildfires
- Clearing for maintenance or project management purposes

Vegetation maintenance practices are detailed in activity plans produced by the region's acting land manager. These plans are available at the regional office or the Land Stewardship main office in West Palm Beach. Vegetation control and maintenance is executed by District staff or through contracts. Understory restoration will continue in overgrown areas of the Management Area that would benefit from this work.

The west shore of Lake Kissimmee has been experiencing erosion and damage to the oaks in the hammock along the shore berm. An arborist under a District contract conducted a field investigation in 2008 and determined that the erosion was having a negative impact to the oaks and continued erosion will result in a high level of mortality from ganoderma root rot and root exposure. The arborist also concluded that the lack of young trees and seedlings was also due to the erosion. To protect the oaks, the Land Stewardship Program will be implementing erosion control measures including signage to remind air boat operators to take care to prevent their prop-wash from exposing the roots.

5.2.1 Exotic/Invasive Plants

Policy 140-25(2)(c) Management practices will strive to identify existing infestations and implement appropriate control or eradication measures.

Policy 140-25(3)(b) Exotic plant control in all management areas shall strive to attain a level of success where periodic maintenance eliminates the infestation or reduces the coverage of exotic plants.

South Florida's subtropical climate provides an excellent growth environment for the rapid spread of exotic plants that can cause extensive alterations to natural ecosystems. Environmental changes caused by extensive hydroperiod alterations have been an important factor in exotic plant invasion. Exotic plant invasion can result in partial or total displacement of native plants, loss of wildlife habitat, and the degradation of public use areas.

Land Stewardship targets Category I and II non-native plant species as identified in the Florida Exotic Pest Plant Council's biennially updated list of *Florida's Most Invasive Species* (<http://www.fleppc.org/>). Category I species include non-native plants that invade and disrupt Florida native plant communities. Category II plants have the potential to invade and disrupt natural successional processes. Both Category I and II exotics are considered invasive and a threat to the function and ecological stability of Florida's natural communities.

Invasive and exotic plant control measures include a combination of herbicide application, biological control, prescribed fire, roller chopping, mowing, cattle grazing and physical removal. Selection of control measures is dependent upon species type, environmental factors, and natural communities impacted. Private contractors conduct exotic plant control activities in cooperation with the District's Vegetation Management Division. In addition, the use of biological control with existing treatment programs provide a comprehensive approach. As an example of biocontrol, the University of Florida Institute of Food and Agricultural Sciences has released the Tropical Soda Apple Leaf Beetle and the Colorado Potato Beetle as biological control agents that have brought some improvements in the control of Tropical Soda Apple.

Exotic plant control is conducted primarily by a contracted crew of applicators, hired by the Vegetation Management Division. District field technicians also provide supplemental support especially on small or sporadically distributed infestations. Generally, treatments are scheduled so that each unit is covered bi-annually, however schedules are adjusted based on current conditions. The District treats and surveys the climbing fern-infested areas several times a year to control established infestations and locate new ones. Areas of treatment are scheduled based on groundwater conditions, time since last treatment, virulence of infestation, public use, in accordance with other management operations. All treatments follow herbicide best management practices and use the best available science. Treatment dates, locations, and herbicide are noted and recorded in a GIS database. Additional procedures are being developed to provide more specific plant locations and herbicide use data so that treatment efficacy may be better estimated.

Plant inventories have documented 27 exotic species within the Management Area (see Appendix D for a complete plant list):

- Alligator weed (*Alternanthera philoxeroides*)
- Paragrass (*Brachiaria mutica*)
- Climbing cassia (*Cassia coluteoides*)
- Camphor tree (*Cinnamomum camphora*)
- Sour orange (*Citrus aurantium*)
- Bermuda grass (*Cynodon dactylon*)
- Air potato (*Dioscorea bulbifera*)
- Water hyacinth (*Eichhornia crassipes*)
- Hydrilla (*Hydrilla verticillata*)
- Water spinach (*Ipomoea aquatica*)
- Pineland elder (*Iva microcephala*)
- Shrub lantana (*Lantana camara*)
- Old World climbing fern (*Lygodium microphyllum*)
- Chinaberry (*Melia azedarach*)
- Torpedo grass (*Panicum repens*)
- Sour paspalum (*Paspalum conjugatum*)
- Bahia grass (*Paspalum notatum*)
- Water lettuce (*Pistia stratiotes*)
- Guava (*Psidium guajave*)
- Indian cupscale grass (*Sacciolepis indica*)
- Chinese tallow tree (*Sapium sebiferum*)
- Brazilian pepper (*Schinus terebinthifolius*)
- Bladderpod (*Sesbania punicea*)
- Jamaican nightshade (*Solanum jamaicensa*)
- Turkeyberry (*Solanum torvum*)
- Tropical soda apple (*Solanum viarum*)
- Caesar weed (*Urena lobata*)

Exotic plant management within the area consists of follow up treatments to maintain minimum population levels or further reduce populations of exotic and nuisance native plants. The follow-up treatments may be conducted on an annual basis by District contractors or directly by District staff.

Management Actions

Johnson and Rough Island Management Units: Tropical soda apple shall be the primary exotic plant species targeted for mechanical and chemical removal. Other species include Brazilian pepper, Chinese tallow, and guava. Tropical soda apple shall be controlled by foliar herbicide application while bladder pod (*Sesbania* sp.) shall be controlled through mowing. The primary means of eradication for Brazilian pepper shall be herbicide application by cut stump or

basal bark treatment. Wax myrtle is a native nuisance species that occurs in the historical marsh areas of the management units. This plant shall be controlled using prescribed fire and mechanical removal.

Rough Island-West Management Unit: Bladder pod and wax myrtle are the major problem plants targeted for eradication. Bladderpod populations shall be reduced by repeated mowings, prior to seed production.

Gardner-Cobb Marsh, Lake Cypress, and Drasdo Management Units: Tropical soda apple and bladder pod shall be the primary exotic plant species targeted for mechanical and chemical removal. Other species include Brazilian pepper, Chinese tallow, old world fern, and guava. Tropical soda apple shall be controlled by foliar herbicide application. The primary means of eradication for Brazilian pepper and Chinese tallow shall be herbicide application by cut stump or basal bark treatment. Wax myrtle is a native nuisance species that occurs in the historical marsh areas of the management units. This plant shall be controlled using prescribed fire and mechanical removal. Several small populations of Lygodium fern have been found in Gardner-Cobb Marsh and Drasdo. Immediate treatment following discovery by foliar application has been applied.

Lightsey, East Shore, and Oasis Levee Management Units: Tropical soda apple shall be the primary exotic plant species targeted for mechanical and chemical removal. Other species include Brazilian pepper, Chinese tallow, and guava. Tropical soda apple shall be controlled by foliar herbicide application. Bladder pod and wax myrtle are also major problem plants targeted for reduction by staff. Bladderpod populations shall be reduced by repeated mowing, prior to seed production. Wax myrtle is a native nuisance species that occurs in the historical marsh areas of the management units. This plant shall be controlled using prescribed fire and mechanical removal.

Catfish Creek Management Unit: Chinese tallow is the primary exotic plant species targeted for control. Other exotic plant species include Brazilian pepper, tropical soda apple, and guava. Most of the exotic species are located in the cypress strand along Lake Hatchineha. Bladderpod and wax myrtle are minor problems in the historical marsh areas and are controlled using prescribed fire and mowing.

Kissimmee Islands Management Unit: Brazilian pepper, Chinese tallow, and guava are the primary category I exotics in this unit. Guava is the primary problem on Bird and Rabbit islands. Brazilian pepper is the primary exotic species targeted for removal on Strum Island. There is some Chinese tallow on all three islands. Wax myrtle is dense along the shoreline and will be thinned using prescribed fire.

5.2.2 Rare, Threatened and Endangered Species

Policy 140-25(2)(b) Particular emphasis shall be placed on the identification, protection and management of rare, threatened and endangered species.

Listed species are those plants and animals considered rare within a specific geographic area by the U.S. Fish and Wildlife Service, the Florida Fish and Wildlife Conservation Commission, Florida Natural Areas Inventory, or the Florida Department of Agriculture and Consumer Services. The plant list of the Management Area (Appendix D) contain several listed species.

Land Stewardship establishes appropriate fire and hydrologic regimes, and controls invasive exotics in natural communities with the intent of perpetuating listed plant species. District Public Use Rules aid in the protection of native habitat and specifically prohibit destroying, defacing, or removing any natural feature or native plant on District lands. In this manner, listed plants are given lawful protection and environmental conditions suitable for their growth and reproduction.

In 1999, a population of state-designated endangered celestial lily, *Nemastylis floridana*, was found in numbers not previously reported in Florida. This population was observed following a prescribed burn in this unit the previous summer. Management efforts to protect this species will include prescribed burning every 2-4 years, control of exotic vegetation within the area, and continued limited public access (foot travel only). Periodic surveys will be conducted to evaluate the species status and determine the effects of management efforts.

Several listed bromeliad species occurring in the Management Area may be threatened by the exotic Mexican weevil (*Metamasius callizona*) that have caused destruction of native bromeliads in other south Florida locations. Two species of once abundant bromeliads, *Tillandsia utriculata* and *Tillandsia fasciculata*, have been placed on the state's list of endangered plant species as a direct result of this weevil. Land Stewardship staff will conduct periodic surveillance of areas of potential infestations to assess management needs.



Mexican weevil (*Metamasius callizona*)

5.2.3 Forest Resources

Policy 140-25(3)(h) Sustainable use of forest resources shall be conducted where these activities adhere to a series of environmental criteria (see 1999 Forest Management Plan) that meet Land Stewardship Program goals. Timber contractors will be required to meet silvicultural Best Management Practices (BMP) developed for Florida forests.

Policy 140-25(5)(b)(3) Timber sales will be conducted to improve forest health or to support specific forest management goals.

District policy designates its properties as multiple-use resources, which include timber harvesting. However, such activity must be compatible with Land Stewardship goals and objectives and meet strict environmental criteria:

- The area planned for silvicultural rotation is currently in an “improved” or disturbed state (i.e. bahia pasture, existing pine plantation)
- The site to be planted is not scheduled for future hydrologic restoration, or the site to be harvested is scheduled for hydrologic restoration and existing timber will be lost as a result of flooding
- The area does not contain any valuable resources (e.g. endangered species) that may be harmed by changes in land use
- Forest operations would not require major road construction or improvement for accessing and processing timber, particularly within or across wetlands or other sensitive plant communities
- The area to be managed currently requires maintenance (i.e., burning, mowing)

- District costs would be reduced as a result of inclusion in the forest management plan
- The area contains timber that requires salvage following fire and/or insect or disease damage, and could be subject to a sanitation harvest with minimal environmental impact
- The area provides special needs for endangered species (e.g., red-cockaded woodpecker) management that requires timber stand improvement
- Harvest or planting will not create an aesthetically unpleasant scene or an impediment to public use
- Timber harvests will return forests to a more natural structure and improve forest health

The Lightsey Unit had a total of 90 acres of timber harvested in June 2002 and April 2003. Additional thinning may need to occur within another decade.

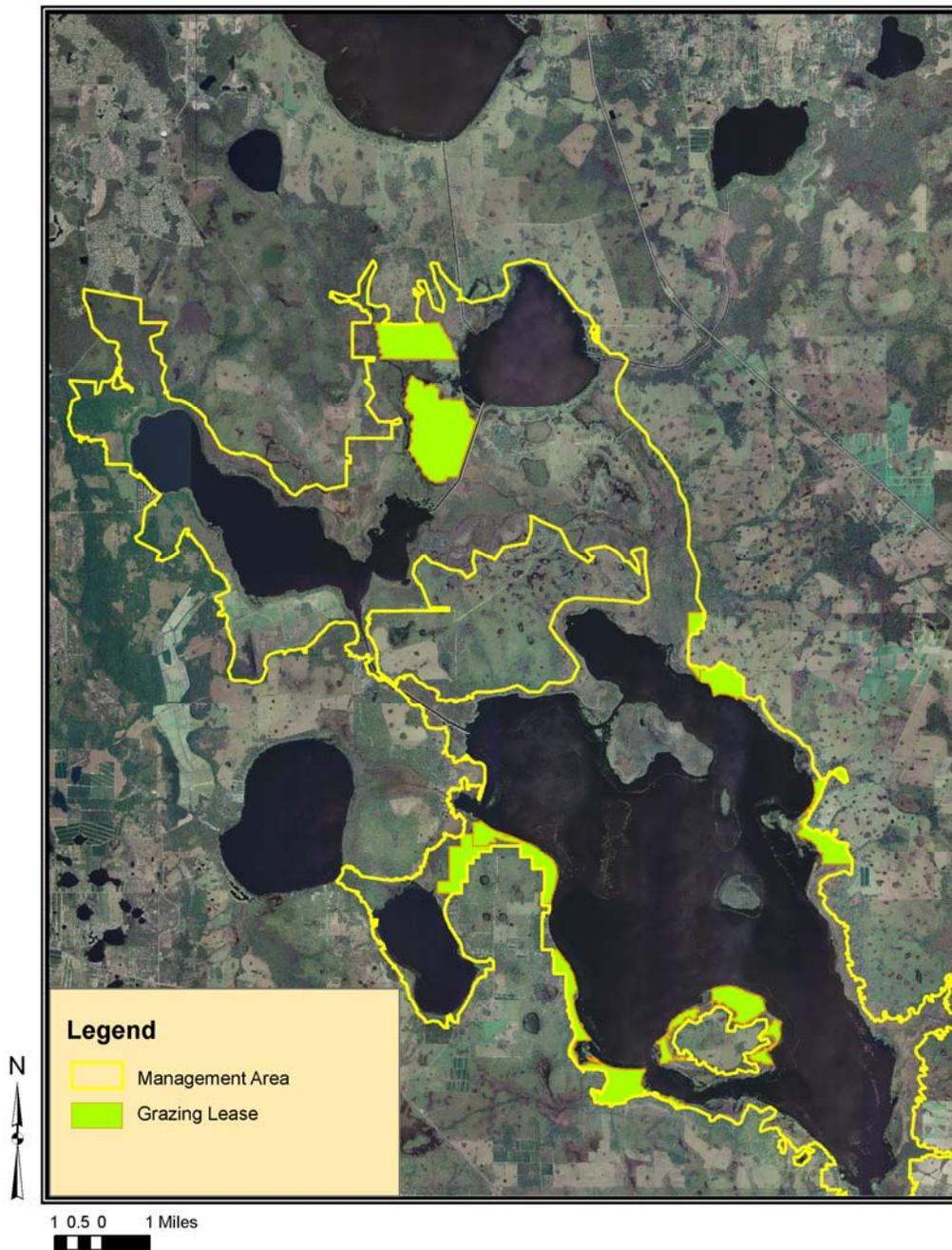
5.2.4 Agricultural and Range Resources

Policy 140-25(3)i Range management and grazing will be considered on improved or native ranges when the introduction of cattle will not conflict with other natural resource management and public use goals.

The District often exercises the option to lease grazing rights to the public when a property is acquired. Lease terms are based on carrying capacity and agreement to certain management responsibilities by the lessee that may include non-native and nuisance plant control and/or fence construction and repair. The District limits certain activities deemed detrimental to the environmental integrity of each parcel leased, with each lease customized to ensure best management practices. Leased lands are on the county property tax rolls, and these tax payments become the responsibility of the lessee.

The District has instituted a procedure to seek recommendations from the U.S. Department of Agriculture, Natural Resource Conservation Service prior to the establishment or renewal of cattle leases. These recommendations include appropriate stocking rates for the site to avoid degradation from over grazing, as well as identifying any sensitive areas that should be excluded from grazing. There are currently 10 active grazing leases within the Kissimmee Chain of Lakes Management Area covering 4,985 acres. In addition, the Land Stewardship Program is seeking to put approximately 15,000 acres of the Gardner-Cobb Unit out to lease.

Map 20. Grazing Leases



5.3 Fire

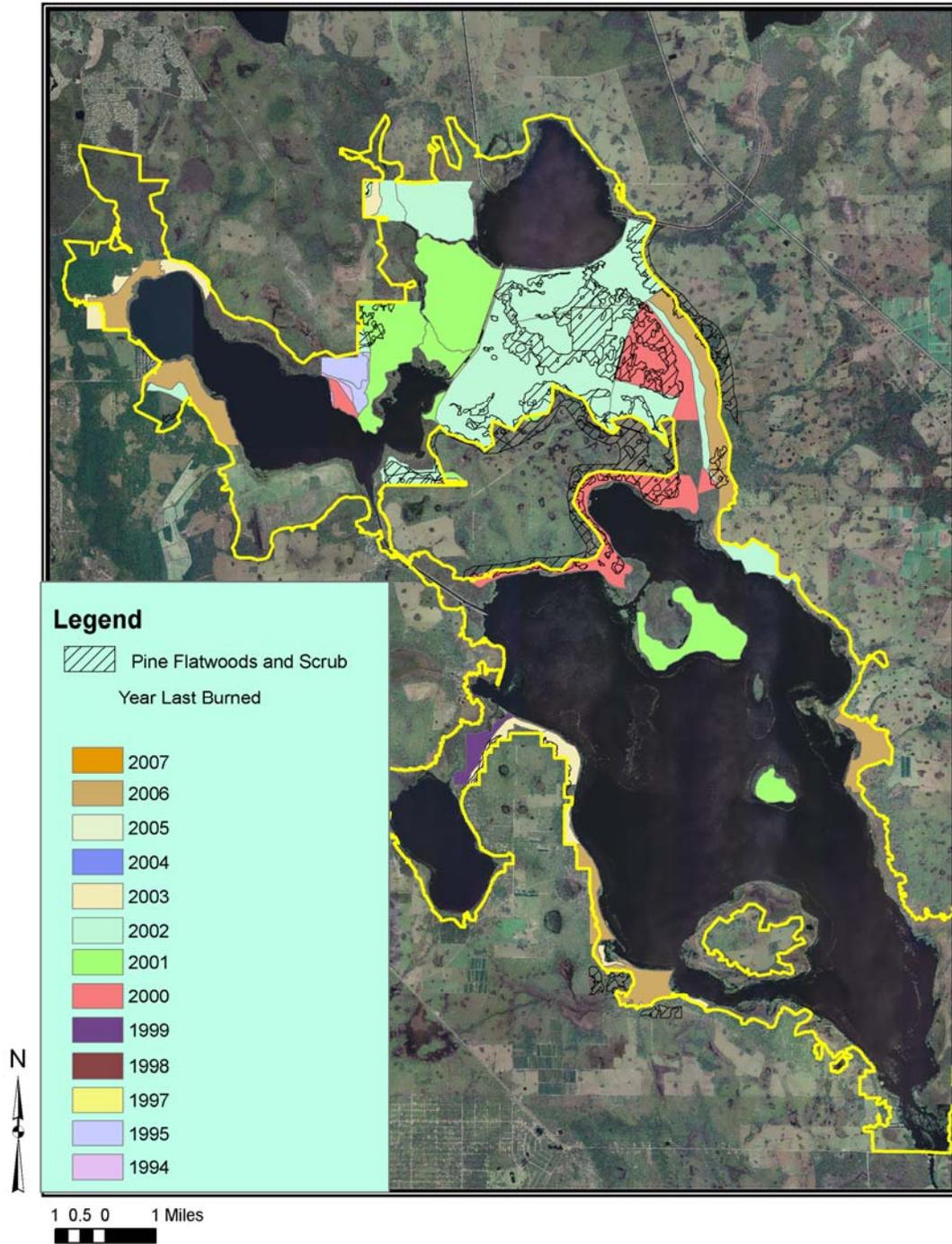
Policy 140-25(5)(c)(3) Prescribed fire will be a primary management tool on District lands and will be applied within fire-maintained communities at appropriate intervals.

The majority of natural communities on District lands rely on frequent fire to maintain their vegetative characteristics and biodiversity. Wildfires no longer occur with historical frequency or extent, and this has altered natural community structure and function. Prescribed fire attempts to mimic the benefits of natural wildfires that historically reduced fuel loads, recycled soil nutrients, and maintained natural communities by inhibiting hardwood encroachment and stimulating fire-adapted plant growth and reproduction. The Land Stewardship Program recognizes the benefits of fire and has integrated prescribed fire planning and application into its land management strategy.

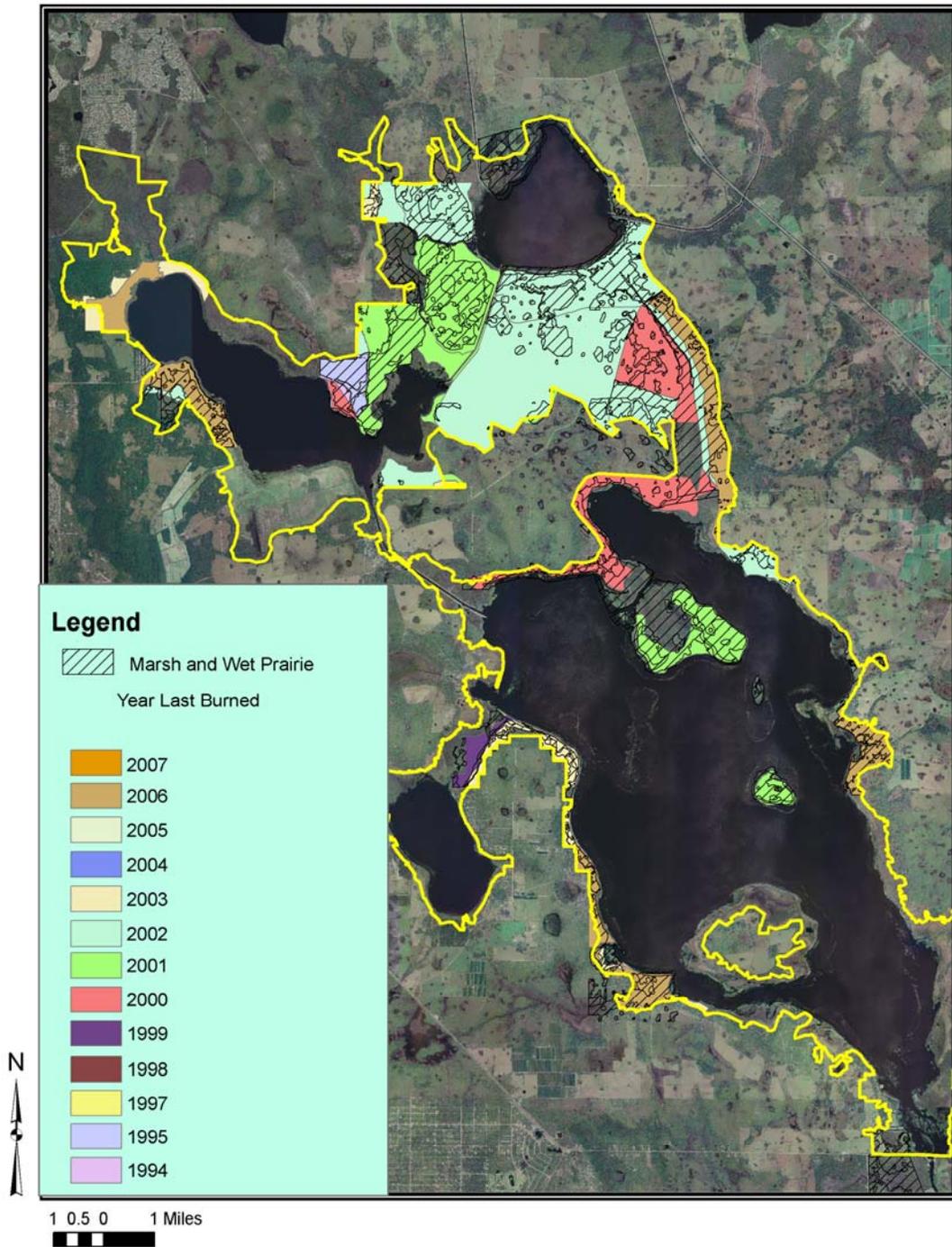
5.3.1 Fire History

Recent fires within parcels owned by the District in the KCOL were both prescribed burns and wildfires. Prescribed fires total 39,932 acres from 1994 to spring 2007. Dates and locations of prescribed fires are shown in Maps 21 - 23. Most units have experienced at least two fires since District acquisition. The prescribed fire program will apply fire to unburned units, and maintain natural fire regimes in all units.

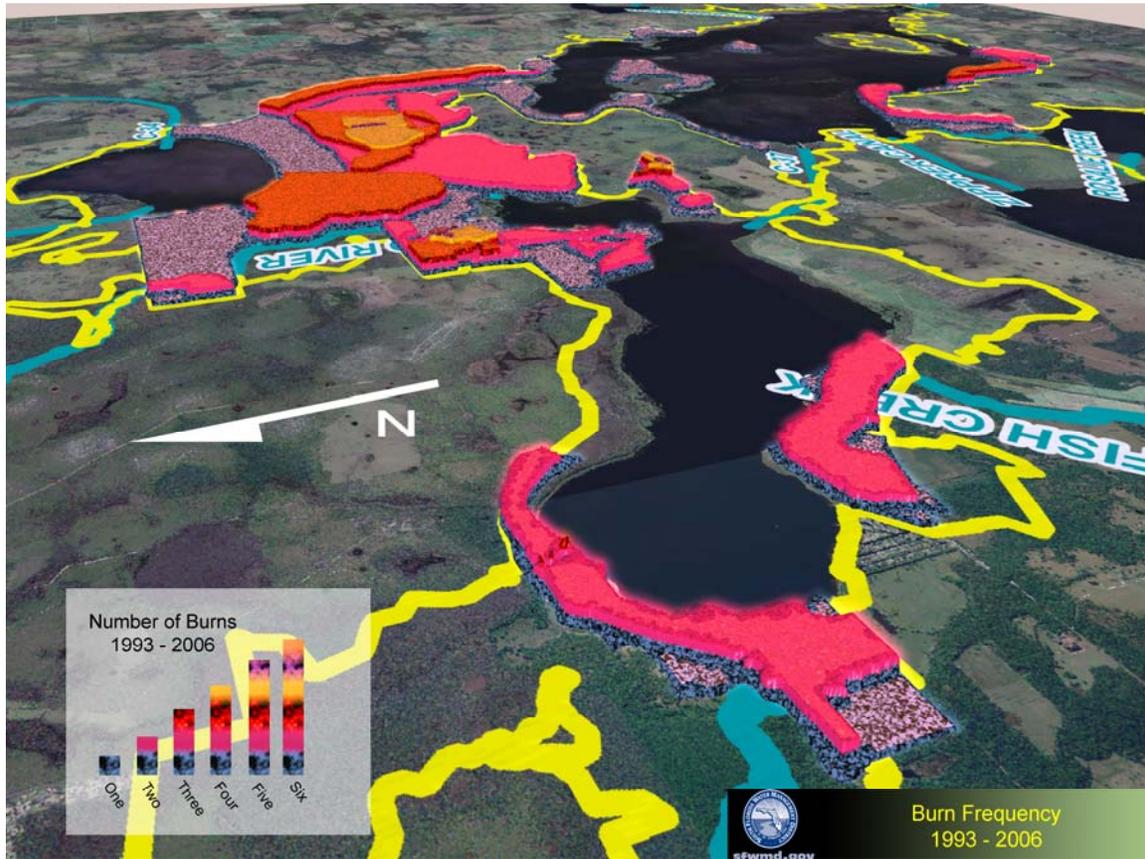
Map 21. Fire History for Upland Fire-Dependent Communities



Map 22. Fire History for Wetland Fire-Dependent Communities



Map 24. Fire Frequency Map since 1993



5.3.2 Prescribed Fire Planning

A fire management plan is developed for each Management Area. Each plan includes a description of location and natural community types, fire history, fire management objectives and constraints, and a burn prescription. The Land Stewardship Program bases all fire management plans on ecological research and professional experience. Fire frequency schedules for each natural community consider recommendations provided in *The Natural Communities of Florida* (Florida Natural Areas Inventory, 1990). To mimic historic fire conditions, Land Stewardship emphasizes growing or lightning season burns (March-June) where practical. Natural firebreaks are utilized where possible to promote historic fire patterns, avoid soil disturbance, and reduce hydrologic flow disruption created by fire lines. Listed species life requirements are elements of prescribed fire planning. Application of fire, with appropriately timed herbicide treatments, is used as a tool for control of invasive and nuisance plants.

Burns are executed using proven methods as defined by the Prescribed Burning Act of 1990, Chapter 590.026, Florida Statutes. This legislation and associated administrative rules outline accepted forestry burn practices and are

administered through the Division of Forestry. Land Stewardship has a three person prescribed fire crew in the Upper Lakes Land Management Region and utilizes other cooperating agency staff— especially the Division of Forestry and the Florida Fish and Wildlife Conservation Commission to conduct burns. All Land Stewardship staff on the fire crew have completed the state certified burn course to ensure safety and proper technique.

Prescribed fire is applied within the Management Area at appropriate fire intervals for each natural community. The District concentrates on applying fire to each area of the property, in order to reduce accumulated fuel loads, improve habitat, and provide a safer basis for future burns of increased frequency and lower intensity. Planning will emphasize yearly burn acreage to attain a 3 year rotation for flatwoods and 5-10 year rotation for marsh communities. Typically burns are conducted by ground crews and are no larger than 1500 acres.

Prescribed Fire and Carbon Sequestration

The District currently stores carbon on the lands it manages in vegetation and organic soils. Each year, the amount of carbon increases as young forests grow and marshes steadily fix carbon into peat. This is also known as carbon sequestration. It is important to manage the District's land resources in a manner to maximize the amount of carbon that is sequestered, while minimizing carbon dioxide and other greenhouse gas emissions. Prescribed fire is a tool that if used under the right conditions and with the right frequency can increase the rate at which a fire-dependent natural community can grow and store carbon. A typical prescribed fire more than replaces the greenhouse gases released by the fire in the understory. There is a subsequent spike in primary productivity caused by a release of nutrients and exposure of more surface area to sunlight, as well as a post-burn swelling of both above and below ground carbon stores.

Some prescribed fire guidelines for maximizing carbon storage that the District follows include:

- A return interval of 3 to 5 years
- Late winter burns are best for storing carbon
- A proper mop-up phase of the prescribed fire to extinguish smoldering stumps is important to reduce unnecessary carbon and nitrous oxide releases, flaming combustion releases much less carbon than smoldering combustion
- Avoid muck fires and conditions that lead to muck fires as they release large quantities of carbon and nitrous oxide
- Keep fuel density low to avoid the possibility of massive carbon releases in wildfire

5.3.3 WILDFIRE SUPPRESSION

Policy 140-25(3)(d) The Division of Forestry will be notified of all wildfires on District lands. Land Stewardship will provide initial suppression when commensurate personnel and equipment are available.

Wildfires ignited by lightning are a common occurrence throughout Florida, and the Management Area receives numerous lightning strikes as indicated by past wildfires. It is District policy, and state law, that the Division of Forestry is notified when a wildfire occurs on Land Stewardship-managed properties. The Land Stewardship staff assigned to the area will respond to and, if appropriate, begin suppression of area wildfires when detected. The Division of Forestry will be called immediately and a fire assessment is made.

If District manpower is available and other conditions are favorable, a permit will be requested from the Division of Forestry to incorporate the wildfire into a controlled burn. Although infrequent, allowing these wildfires to burn will help achieve burn objectives and will prevent counterproductive and unnecessary suppression efforts. It is recognized that the best wildfire mitigation for the Management Area is to maintain the area with frequent prescribed fires promoting a healthy open forest of light fire fuel loads.

The Division of Forestry regional office that is responsible for Gardner-Cobb, Lake Cypress, Drasdo, East Shore lake Kissimmee, and Kissimmee Islands management units (in Osceola County) is located in Orlando. The Osceola County Fire Station responsible for the same area is based out of Kissimmee. The Division of Forestry regional office that is responsible for Catfish Creek, Lightsey, and Oasis Marsh management units is located in Lakeland. The Polk County Fire Station responsible for the same area is based out of Bartow.

5.4 WILDLIFE MANAGEMENT

A primary objective in the stewardship of the Management Area is to maintain healthy fish and wildlife populations. Wildlife management in the Management Area is directed toward production of native species diversity consistent with the biological community types present. Land Stewardship accomplishes this in several ways:

- Performing land management activities that maintain and/or improve native wildlife habitat
- Conducting specific management beneficial to protected species
- Conducting wildlife inventories through the Florida Fish and Wildlife Conservation Commission where management operations may negatively impact listed species

- Following 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)
- Reducing non-native wildlife species populations where appropriate
- Maintaining a master file of confirmed and potential wildlife species
- Cooperating with the Commission on wildlife management issues, including wildlife inventories and evaluating management actions.

5.4.1 Game Management

Policy 140-25(4)(b)(4) Florida Fish and Wildlife Conservation Commission regulations shall govern hunting in areas opened for such use.

Game density is believed to be relatively high due to the wide array of natural communities within the Kissimmee Chain of Lakes basins. Since 1999, District staff discussed scenarios with the Fish and Wildlife Conservation Commission under which they would manage portions of the Kissimmee Chain of Lakes as a designated hunting area. This program would potentially include all District-managed properties adjoining the Kissimmee Chain of Lakes.

Game management, regulation of hunting activities, and enforcement of hunting laws within areas opened for hunting are conducted under statewide laws and regulations.

Catfish Creek, Gardner-Cobb, and Lake Kissimmee Islands are areas that are posted with green District boundary signs open for statewide regulated hunting activities. Green District signs are used to post a management area boundary and authorize airboat operation in marshes and hunting in non-posted areas.

All persons wishing to hunt on District-owned and/or managed lands within the Kissimmee Chain of Lakes should first consult with regional District land managers, Fish and Wildlife Conservation Commission wildlife officers, current Commission hunting pamphlets, or by calling the Commission at (352) 732-1225.

5.4.2 Exotic/Invasive Species

Exotic wildlife species are those non-native species that are harmful to native wildlife, that negatively impact native vegetation or seriously interfere with management objectives. The Land Stewardship's goal for wildlife pest management is to reduce populations to attain an acceptable level of impact to natural plant and animal communities. The District's Land Manager uses personal knowledge of the problem and consultation with the Commission to define the acceptable level of impact. When population control measures are warranted, land managers consult with the Commission to determine an appropriate control technique that is humane and cognizant of public safety. The

effects of pest population control efforts are monitored by periodic site evaluations.

The feral hog is a pest species within the Management Area. Disturbance caused by this species negatively impacts natural communities and interferes with land management operations. Although valued by some members of the public as a game animal, wild hogs are an exotic species and the hogs' high fecundity, adaptability, rooting behavior, omnivorous diet, and ability to quickly colonize areas raises serious environmental concerns. Their disruption of soil and vegetation alter natural communities and can be especially damaging in sensitive habitats that are slow to recover. Hog disturbance has occurred within most of the Management Area including wetland communities. Land management objectives are affected when rooting disturbance disrupts prescribed burns by preventing the spread of fire. Areas of disturbed soil are also more susceptible to exotic plant invasion. Soil rooting can create perilous conditions on hiking trails, and hog foraging can have a detrimental impact on small animal populations, ground-nesting birds, and infrastructure.

Feral hogs are considered an exotic species in the Management Area and their harvest is regulated under Commission rules. Public hunting under statewide regulations is the primary method used for hog removal. A trapping program—coordinated by the U.S. Department of Agriculture and the Florida Department of Agriculture—was also used in the Johnson Island Unit in 1998 and 1999 with limited success. Since 2005, volunteer trappers have removed some hogs from most of the management units.

5.4.3 Rare, Threatened and Endangered Species

Policy 140-25(2)(b) Particular emphasis shall be placed on the identification, protection and management of rare, threatened and endangered species.

Several listed wildlife species are present or have been observed historically on the Management Area. 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. District land management activities including prescribed burning, hydrologic restoration, exotic vegetation eradication, understory control, and selective forest thinning 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 the Management Area has centered around three species: the American wood stork, whooping cranes, and the Southeastern big-eared bat.

American Wood Storks

A nesting colony (# 612048 as identified by the Fish and Wildlife Conservation Commission 1991) of American wood storks is located within the Rough Island Management Unit. The wood stork is a colonial wading bird, generally found socializing with other storks or wading birds. Nesting occurs in wetlands throughout the Southeastern United States, but Florida maintains the largest population of wood storks.

District regulations governing public access to the southern terminus of Reedy Creek within the Rough Island Management Unit, restricted human activity within 100 meters of the historical wood stork colony 24 hours a day between February 15 - 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 to enter the creek earlier and begin nest building, as well as to allow chicks extra time to successfully fledge.

In the past, the storks have nested directly north of the Reedy Creek-Dead River divergence. However, wood storks are highly mobile and may roost at other locations along the creek. Concern has been raised about protection of feeding and roosting sites for wood storks during the non-nesting season.

Southeastern Big-Eared Bats

A colony of southeastern big-eared bats was discovered in an abandoned trailer on District property in September 1993. It is possible the bats had been roosting undetected at the site for up to 15 years. It is the southernmost maternity colony of *Corynorhinus* species yet confirmed.

The abandoned trailer is located within a fairly remote hardwood hammock in the Rough Island-West Management Unit. In 1996, Land Stewardship Division staff built a “bat house” near the north perimeter of the management unit, adjacent to the existing abandoned trailer. The bat house was built in an attempt to relocate the bats to the new house, leaving the abandoned trailer to be removed from the site. The site has been monitored for presence of bats. The majority of the bats continue to use the abandoned trailer as their colony site.

Seven alternate roosts were found in cypress trees, ranging in distance from the creek from 3.6 to 182 meters; three of these trees were night roosts, used for foraging and feeding, and four were day roosts, used for resting and socializing. Fish and Wildlife Conservation Commission biologists and private scientists studying the colony have suggested maintaining nighttime public use restrictions until results of radio-telemetry research can be analyzed. A portion of the research attempted to track bat foraging and roosting habits as they related to airboat traffic within the creek corridor.

Whooping Cranes

The federally endangered Whooping Cranes are regularly encountered along the eastern shore of Lake Kissimmee and are occasionally seen along the shore of

Lake Hatchineha. Whooping cranes had disappeared from Florida in the 1930s. In 1990 the Florida Fish and Wildlife Conservation Commission implemented a program to reintroduce a non-migratory population into Florida centered around Lake Kissimmee and the Kissimmee Prairie. Birds have been released annually since 1993. The cranes began establishing nests in 1998. In 2008 there were 37 regularly monitored birds, including 13 adult pairs that produced 1 fledged chick.

Table 3. Listed Animal Species: (T) Threatened, (E) Endangered, (SSC) Species of Special Concern

Scientific Name	Common Name	Status	
		Fed	State
<i>Alligator mississippiensis</i>	American alligator	T	SSC
<i>Aramus guarauna</i>	Limpkin		SSC
<i>Caracara cheriway</i>	Crested caracara	T	T
<i>Drymarchon corais couperi</i>	Eastern indigo snake	T	T
<i>Egretta caerulea</i>	Little blue heron		SSC
<i>Egretta thula</i>	Snowy egret		SSC
<i>Egretta tricolor</i>	Tri-colored heron		SSC
<i>Eudocimus albus</i>	White ibis		SSC
<i>Falco sparverius paulus</i>	Southeastern American kestrel		T
<i>Gopherus polyphemus</i>	Gopher tortoise		T
<i>Grus canadensis pratensis</i>	Florida sandhill crane		T
<i>Grus Americana</i>	Whooping Crane	E	SSC
<i>Haliaeetus leucocephalus</i>	Bald eagle		T
<i>Mycteria americana</i>	Wood stork	E	E
<i>Pituophis melanoleucus mugitus</i>	Florida pine snake		SSC
<i>Sciurus niger shermani</i>	Sherman's fox squirrel		SSC

6. Public Use

Policy 140-23 The Land Stewardship Program mission is to provide natural resource protection and management while allowing compatible multiple uses on designated public lands.

Section 373.1391(1)(a), Florida statutes states that wherever practical, lands acquired by the Land Stewardship Program shall be open to the general public for recreational uses. The District encourages public use of management areas for appropriate natural resource-based activities. All District lands are available for public use, except in rare instances where there is no legal public access or where lease restrictions or construction activities prohibit public entry.

The determination of compatible public uses will be based on the following criteria:

- Consistency with the reason the lands were acquired
- Restrictions and/or prohibitions imposed by easements, leases, reservations, adjacent land ownership, and other conditions of the purchase agreement
- Infrastructure and support facility requirements, such as fences, gates, signage, entry design, stabilized off-road parking, trails, campsites, maintenance, and other operational and budgetary impacts
- Opportunities for persons with disabilities
- Limitations on use resulting from endangered species, other sensitive natural resources, archeological resources, or land management practices
- Public health, safety and welfare
- Environmental education program opportunities

A wide variety of recreational activities are appropriate and encouraged in the Management Areas including airboating, bicycling, canoeing, camping, equestrian use, fishing, hiking, amateur astronomy, and hunting. User information concerning recreational activities is located at the District's regional service centers and West Palm Beach offices, and at each entrance to the Management Area. Information may also be obtained at: www.sfwmd.gov and selecting Recreation.

6.1 Resource Protection

Policy 140-25(1)(d) Public use shall not result in detrimental impacts to water resources. When a public use activity produces detrimental effects on water resources, it shall be discontinued until an evaluation determines that such use is compatible.

Policy 140-25(3)(g) Resource protection shall be provided by professional law enforcement services through funded and unfunded contractual agreements to safeguard the public and protect natural and cultural resources on District-managed natural areas.

Policy 140-25(4)(b)(1) Public use regulations are set forth in 40E-7.511, Florida Administrative Code, to implement Section 373.1391(1)(b), Florida Statutes. Accordingly, the District shall publish and make available to the public a "Recreational Guide" for designated land management areas.

Regulations that govern activities within the Management Area are in the District's 40E-7 rule and the Commission's regulations. The 40E-7 rules are available at agency headquarters in West Palm Beach. Allowed activities include hiking, fishing, boating, canoeing, camping, hunting, equestrian use, biking, and nature study. The Florida Fish and Wildlife Conservation Commission is responsible for enforcing laws, rules, and regulations applicable to the

Management Area, along with the local county sheriffs' offices. The Florida Fish and Wildlife Conservation Commission has two officers housed within the Management Area within the Lightsey Management Unit on the west shore of Lake Kissimmee.

Management of public activities on District lands requires a commitment to resource protection while simultaneously promoting all appropriate public uses. The Land Stewardship Program emphasizes the enforcement of pertinent rules and regulations to protect natural resources and also provide a safe recreational opportunity. The resource protection program integrates contractual law enforcement to protect the natural resources and District assets. As part of the District's enhanced patrol contract with the Commission, law enforcement officers conduct regular patrols throughout the year, increasing their presence during hunting seasons and at other times when public use is high. Law enforcement surveillance protects natural and cultural resources, deters illegal activity, and safeguards the public. Patrols are conducted with 4-wheel drive vehicles, all terrain vehicles, boats and airboats, aircraft, and on foot. The District's resource protection coordinator and the regional land manager review biweekly reports and meet with officers to structure patrols based on resource needs.

Resource protection is also greatly enhanced by the establishment and maintenance of posted fence lines that delineate property boundaries. The Management Area perimeter is partially fenced and posted annually and its maintenance and repair are addressed as necessary.

6.2 Environmental Education

Educational programs may be developed for select management areas by cooperators interested in promoting increased visitor awareness of and appreciation for natural and cultural resources. The Land Stewardship Program encourages educational partnerships through memoranda of understanding, leases, and contract agreements.

Public outreach and government affairs programs for the Kissimmee Chain of Lakes are coordinated and implemented by District representatives based out of the Orlando Service Center. The staff serves as the primary contacts for media relations, government representative communications, and classroom presentations.

7. Administration

Administration of Land Stewardship Program lands is directed through the Land Stewardship Division. Policy decisions, planning and budgeting, procurement of personnel and equipment, contract administration, and issues of program development are administrative tasks coordinated through the Division. Input is provided from the public and regional land managers located at District Service

Centers over the 16-county area. Public input into the management of the area is solicited at bi-monthly Water Resource Advisory Committee Recreational Issues Workshops. Regional land stewards handle regular administrative duties from their field locations to assure quick response to local concerns and management issues. Administrative activities for the Management Area are handled through the Orlando Service Center.

7.1 Planning and Budgeting

Planning is a major function of the Land Stewardship Program mission and is critical to maintain proper program focus, direction, and coordination with other agencies. Planning is accomplished by division planning staff in coordination with land stewards. Division level planning develops land acquisition strategy and project evaluation, produces the Land Stewardship Activity Report for the Florida Forever Workplan, and coordinates acquisition planning with other District and outside agency personnel.

Policy 140-25(6)(b) General Management Plan: Provides a description of recommended management and is required for each Land Stewardship Management Area. The GMP follows a designated format and is updated every five years.

General Management Plans are developed that detail strategies to guide management activities on individual project areas. These plans define goals and objectives, identify major management issues, and describe management activities. Each plan is subject to a draft revision period where public comment and professional review is requested prior to plan approval. Each plan is revised on a five-year cycle by planning team staff.

Policy 140-25(6)(d) Annual Work Plan: Summarizes activities corresponding with annual budget development and is prepared by the Operations Section of the Land Stewardship Program.

Annual work plans are developed each fiscal year for budget preparation and to address activities and projects targeted for completion within the upcoming fiscal year on individual properties. The Annual Work Plan includes performance objectives for exotic plant control, vegetation management, prescribed burning, resource protection, public use development, environmental monitoring, and contract administration.

For the Kissimmee Chain of Lakes Management Area the Annual Work Plan and budget are developed in concert with program-wide operational priorities and the budgetary cycle. Current year annual plans are available at the District headquarters in West Palm Beach.

Policy 140-25(6)(e) Summaries of management activities for each management area will be reported quarterly within the District and annually as part of the Florida Forever Work Plan.

Each month land managers submit regional management reports to document progress toward achieving annual work plan objectives. The monthly reports are kept on file at District headquarters. Land Stewardship semiannual meetings address management problems and plan for future management operations.

Policy 140-25(5) The District will secure dedicated funding sources, personnel and other resources to support program goals and objectives. Project funding needs and sources for cooperative management agreements with government and non-government entities will be identified during acquisition. A cooperative management agreement will designate a lead manager and identify whether District funding is required.

The principal source of funding for the Land Stewardship Program is the Water Management Lands Trust Fund, administered by the Florida Department of Environmental Protection. Money for this dedicated fund is generated from the sale of state documentary tax stamps and is used for property acquisition and management. Additional funding and support have been obtained from grants, mitigation, the harvest of renewable resources, land use leases, in-kind management services from cooperating management partners, or no-cost services from user groups and volunteers.

Budget planning begins in March during the work planning process for the following fiscal year (October-September). Overall funding availability generally determines management activities. Budget distribution among the District's five land management regions is based on a programmatic prioritization of management activities. Operational funds are distributed to most effectively accomplish the management objectives of each management area.

7.2 Infrastructure

Policy 140-25(3)(k) Infrastructure support shall be developed and maintained to provide safe access for responsible management and public use on District lands. Such infrastructure may include access points, roads, trails, signs, utilities, and minimal public facilities.

The development of adequate infrastructure for public use and management activities has received support from the Commission and the Kissimmee Division of the District. Current infrastructure which requires regular maintenance includes recreation access points and trailheads, perimeter posting and fencing, firelines, hiking trails and roads, kiosks, camp sites and picnic areas, law enforcement officer's housing, and other structures.

7.3 Personnel and Equipment

The Land Stewardship Program is separated into five geographic regions, each staffed with professional land managers directed by the supervising land manager. Highly trained land management technicians are based at the DuPuis Management Area, the West Coast Field Office, and at the Orlando, Okeechobee, and Miami Service Centers. The Land Stewardship Division director and additional planning staff are headquartered at the main West Palm Beach office.

Stewardship of the Management Area is the primary responsibility of the District's Upper Lakes regional land manager. Currently, there are two full-time professional land manager positions and a land management technician—based in the Orlando Service Center—who are responsible for management activities within the Management Area and serve as primary contacts. District staff located outside of the region is available to assist the regional land managers for project-specific activities. Field crew members, from the District's Kissimmee Field Station are available from time to time on a project basis.

Staff has access to tools, supplies, equipment, four-wheel drive vehicles, vessels, fire suppression trucks, all terrain vehicles, swamp buggies, an airboat, a dump truck, tractors, a road grader, a backhoe, and a large plow. The District's Kissimmee Field Station crew and equipment, as well as leased equipment, are also available to assist in the Management Area on a limited basis.

7.4 Volunteers and Alternative Work Force

Policy 140-25(5)(d)(1) Volunteers, interns and alternative work forces will be used when possible to supplement existing staff and services.

Section 373.1391(3) F.S. encourages the District to use volunteers for land stewardship and other services. The District recognizes the merits of volunteerism and welcomes participation in activities appropriate for public involvement. Land managers have worked with volunteers from the Kissimmee River Valley Sportsmen's Association, Florida Sportsman Association, and the Osceola County Airboat Club when implementing land management activities. The volunteer activities included research, fencing and fence removal, perimeter sign posting, bat study, trash pickup, and airboat transportation.

7.5 Contractual Management

Policy 140-25(5)(a). The private sector may be solicited to furnish certain management-related facilities and services through the execution of leases and agreements. These leases/agreements will assure mutual benefits to both the District and private parties and be consistent with the program management objectives.

Effective operation and management of District properties requires the services and cooperation of private organizations, other governmental agencies, and volunteers. Contractual management is legalized through a management agreement signed by both the District and contracting entity with the document defining responsibilities of each party.

The District has established and maintains a couple contractual management agreements to assist with management:

Contract #4600000643

A cooperative agreement with Polk County where the District is funding the construction of a boat ramp park on the southwestern shore of Lake Kissimmee and will be transferring the fee interest in the property and the management responsibilities to the County.

Contract #LS040808

A 50 year lease from the Trustees of the Internal Improvement Trust Fund to the District that gives the District the management responsibility for sovereign submerged lands throughout the Kissimmee Chain of Lakes system.

Contract # LS060958

A lease from the District to the Florida Department of Environmental Protection, Division of Recreation and Parks to manage the western half of the District's Catfish Creek property as part of the Allen David Broussard Catfish Creek State Park.

7.6 Management Review

Policy 140-22(j) Section 373.591, Florida Statutes, mandates the District to solicit input on current management programs through professional peer reviews.

Each District project area has a land management review team comprised of state, county, and private entities that periodically review management activities to assure they are consistent with acquisition intent and program objectives. Management assessments are conducted in light of the goals and objectives defined in the area's general management plan. If the review team determines that management is not in accordance with the management plan, the lead management agency provides a written explanation to the review team.

A management review of the Kissimmee Chain of Lakes was conducted in August, 2008. The review team provided comments on the condition of the land and the management of the site.

Positive comments were received on the ongoing hydrologic restoration of pasture lands. Positive comments were also received on the prescribed fire program including that fire dependant communities are burned at the appropriate return interval, that exotic species are being kept under control, and that the history and cultural significance of the site had been well researched. The new boat ramp being built in partnership with Polk County on Lake Kissimmee was well received by the management review team, as were the other recreation capital improvements that are planned for the site.

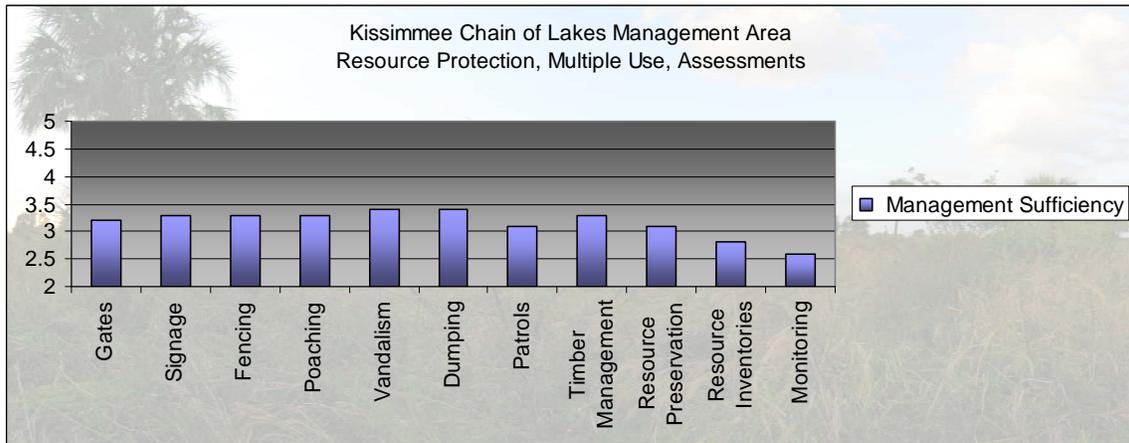
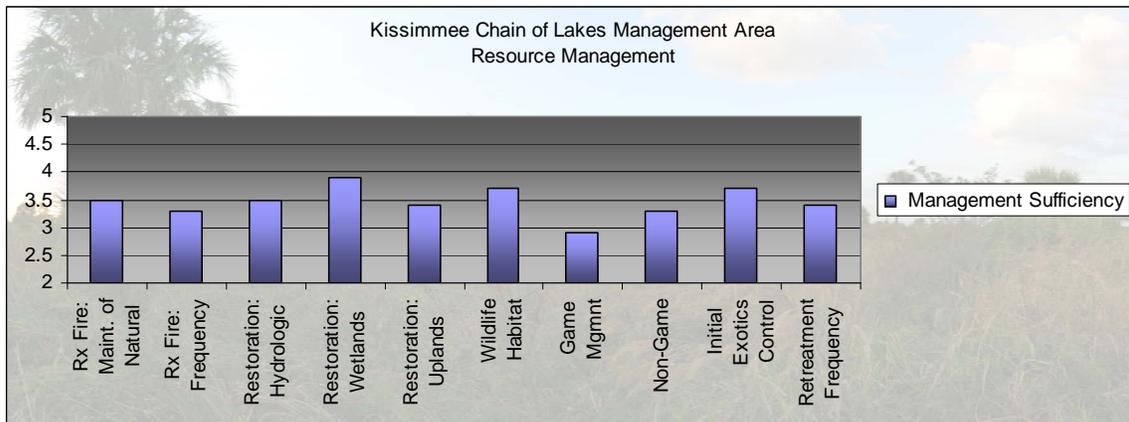
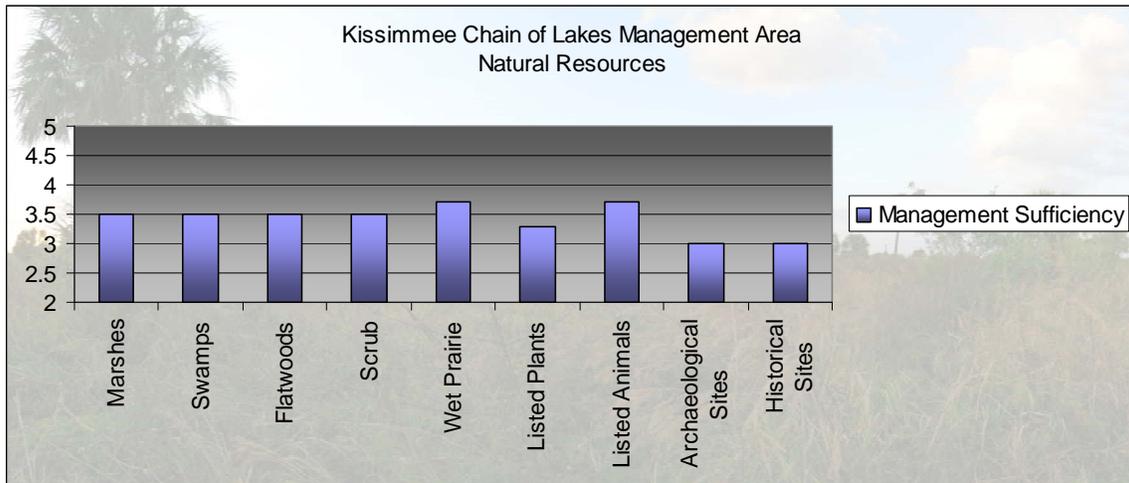
Two members of the review team raised the issue of a lack of natural resource interpretive facilities and programming for the management area as a concern. To address this additional interpretive kiosks are planned to be installed during the term of the management plan. In addition, three review team members were concerned that the District had too few land management staff dedicated to the area, also that there needed to be a greater law enforcement presence.

The team rated the management sufficiency of the lands on a scale from 1 to 5 on criteria such as: natural resources, resource management, public use, budget, goals and objectives, resource protection, multiple use, biological assessments and monitoring. Other than the lack of interpretive facilities (addressed above), the only scores that showed that management activities did not meet the reviewers' expectations (average score less than 3.0) were game management, resource inventories, and monitoring; all related to game management and wildlife survey concerns.

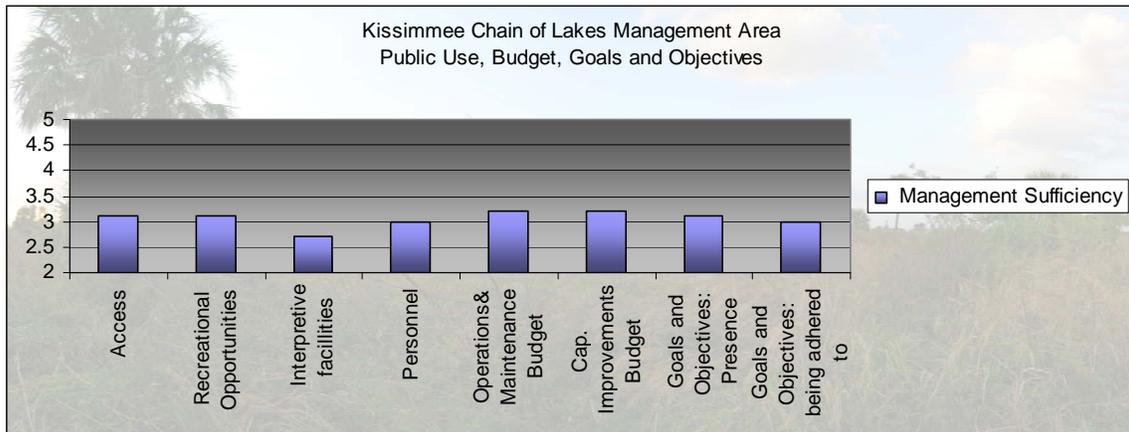
There was a universal concern among all of the review members on game management and wildlife surveys. Specifically, the concern related to the lack of ongoing monitoring of both game and non-game wildlife species, and the lack of updated population surveys. Most review team members shared an anecdotal impression that game populations, white tail deer in particular, were being over harvested and were more abundant on surrounding private property. The one exception was hogs, which a couple review team members felt were becoming more numerous and problematic. The Land Stewardship Program will develop a strategy to use appropriate survey methodologies with internal resources and assistance from partners to get a better handle on game populations and to obtain updated wildlife surveys.

The average scores by category are indicated on the graphs below:

Kissimmee Chain of Lakes Management Area General Management Plan 2008 – 2013
 South Florida Water Management District, Land Stewardship Division



Kissimmee Chain of Lakes Management Area General Management Plan 2008 – 2013
South Florida Water Management District, Land Stewardship Division



Appendix A

Land Stewardship Program Goals and Policies

ARTICLE II. LAND STEWARDSHIP

Sec. 140-21. Scope.

This policy shall apply to all lands managed by the Land Stewardship Program, including property acquired with Save Our Rivers, Preservation 2000 or mitigation funding. Nothing in this policy shall negate any statute, administrative rule, or other policy requirement. This policy may be reviewed and approved by the District Governing Board at five-year intervals or earlier and updated as required. Public comment may be solicited as part of the review process.

(R.M. No. 139)

Sec. 140-22. Purpose.

(a) This policy establishes a commitment to the responsible management of District lands in a manner consistent with legislative directives and the District's mission.

(b) In 1981, the Florida Legislature established the "Save Our Rivers" program (SOR) for the five water management Districts to acquire water resource lands. This legislation (Section 373.59, Florida Statutes) produced the Water Management Lands Trust Fund, empowering the water management Districts to acquire lands needed to protect, manage, and conserve the state's water resources. Preservation 2000 (P2000), enacted by the Legislature in 1990, also added land acquisition funds to the Save Our Rivers program. The 1999 Florida Forever Act consolidated the legislative directives of SOR/P2000 and expanded the funding to take over when P2000 terminates. The 1999 legislation authorized funds to be appropriated for acquisition, management, maintenance and capital improvements, including perimeter fencing, signs, control of invasive exotic species, controlled burning, habitat inventory and restoration, law enforcement, access roads and trails, and minimum public accommodations.

(c) Land acquired by the District's Save Our Rivers program and managed by the Land Stewardship program must satisfy several requirements set forth in Sections 373.139 and 373.1391, Florida Statutes. Section 373.139, Florida Statutes, declares it necessary for the public health and welfare that water and water-related resources be conserved and protected. The acquisition of real property for this objective shall constitute a public purpose for which public funds may be budgeted.

(d) Section 373.1391(1)(a), Florida Statutes, states that lands titled to the water management districts shall be managed and maintained to the extent practicable to ensure a balance between public access, general public recreational purposes, and restoration and protection of their natural state and condition.

(e) Section 373.1391(1)(b), Florida Statutes, states, in part, that "Whenever practicable, such lands shall be open to the general public for recreational uses. General public recreational uses shall include, but not be limited to, fishing,

hunting, horseback riding, swimming, camping, hiking, canoeing, boating, diving, birding, sailing, jogging, and other related outdoor activities to the maximum extent possible considering the environmental sensitivity and suitability of those lands."

(f) Section 373.1391(1)(d), Florida Statutes, states that the District shall first consider using soil and water conservation Districts to administer agricultural leases.

(g) Section 373.1391(3), Florida Statutes, encourages each District to use volunteers to provide land management and other services.

(h) Section 373.1391(4), Florida Statutes, encourages each District to enter into cooperative land management agreements with state agencies or local governments to provide the coordinated and cost-effective management of lands.

(i) Section 373.1391(5), Florida Statutes, authorizes water resource and supply projects, stormwater management projects, linear facilities, and sustainable agriculture and forestry where it is compatible with the natural resource values and the public interest and is consistent with the project management plan, the proposed use is appropriately located on the property and other lands have been considered, and the titleholder of the property has been properly compensated.

(j) Section 373.591, Florida Statutes, mandates the District to solicit input on current management programs through professional peer reviews.

(R.M. No. 139)

Sec. 140-23. Statements of Policy.

The Land Stewardship Program mission is to provide natural resource protection and management while allowing compatible multiple uses on designated public lands. The mission statement, together with requirements set forth in the Florida Statutes, provide three primary goals for the District Land Stewardship Program, each of which is linked to sections in this Land Stewardship Policy document:

- (1) Conservation and protection of water resources (section 140-25(1)).
- (2) Protection and/or restoration of land to its natural state and condition:
 - a. Restoration and Protection of Natural Communities (section 140-25(2)); and
 - b. Resource Operations and Maintenance (section 140-25(3)).
- (3) Provide public use (section 140-25(4)).

(R.M. No. 139)

Sec. 140-24. Definitions.

For the purpose of this article, the following words and terms shall have the meanings respectively ascribed:

Archaeological/Historic Resources means any prehistoric or historic district site, building, object, or property of historic, architectural, or archaeological value relating to the history, government, and culture of a historic or pre-historic people.

Best Management Practice (BMP) means the best available technology or process that is practical and achieves the desired goal or objective.

Capital Improvement means activities relating to the restoration, public access, recreational uses and necessary services for land and water areas, including the

initial removal of invasive plants, and the construction, improvement, enlargement or extension of facilities' signs, fire lines, access roads, and trails. Such activities shall be identified prior to the acquisition of a parcel or the approval of a project.

Cooperating Agencies means two or more agencies working together to operate a specific management area.

Cooperative Management Agreement means an agreement between two or more agencies outlining the respective duties and responsibilities of each agency in the management of a specific tract of land.

Critical Habitat means areas designated for the survival and recovery of state/federally listed rare, threatened, endangered or other sensitive species.

Desirable Vegetation means native plant species that are appropriate for a specific community type and provide benefits to wildlife in the form of food, cover and nesting.

Habitat Diversity means richness and variety of native plant communities within a particular area of the landscape.

Hydroperiod means flooding duration, depth, and timing that influences species composition, ecosystem structure and function.

Interim Land Management means management of non-natural areas that provides revenue without impacting long-term water-development projects.

Invasive/Exotic Vegetation means certain plants that displace native species and adversely affect wildlife habitat, water quality, recreation, and biological diversity.

Lead Manager means the prime managing entity designated for a given tract of land; generally provides the on-site staff.

Management Area means a single tract or combination of tracts under one management program.

Mitigation means, for purposes of this policy, the actual acquisition, restoration, creation, or enhancement of wetlands to compensate for permitted wetland impacts.

Mitigation Banking means wetland acquisition, restoration, creation or enhancement undertaken expressly to provide compensation in advance of wetland losses from development activities.

Multiple-Use means the management of renewable resources for a variety of purposes such as recreation, range, timber, wildlife habitat, and water resource development.

Prescribed Fire means burning of vegetative fuels using controlled application of fire within specified environmental conditions.

Primary Resource Lands means lands having high water resource, fish, wildlife, and recreational values requiring acquisition or protection.

Regional Mitigation Area means, for purposes of this policy, permitted wetland impacts offset through payment for the acquisition, restoration and perpetual management of a Save Our Rivers identified and duly noticed project.

Responsible Management means level of management described in the General Management Plan.

Sustainable Use means to provide continued use of a natural resource without degradation or loss of that resource.

Water Resource Buffer means that portion of a Preservation 2000 or Save Our Rivers project necessary to protect the aquatic environment.

Wildlife Corridor means a connection between natural areas that allows the safe movement of wildlife.

(R.M. No. 139)

Cross references: Definitions and rules of construction, § 100-2.

Sec. 140-25. Responsibilities.

The Land Stewardship Program is responsible for:

(1) Water Resource Protection. The basis for the Land Stewardship Program is the protection and management of natural hydrologic resources. The following policies guide implementation of this objective:

a. Acquired lands shall be managed to provide water resource-related benefits.

b. Land uses or activities that significantly or permanently alter or degrade the quality, quantity and/or natural movement of ground or surface water are not allowed unless they are a part of a regional water management system.

c. Where feasible, an attempt shall be made to restore a more natural hydroperiod on tracts where the drainage patterns have been altered.

d. Public use shall not result in detrimental impacts to water resources. When a public use activity produces detrimental effects on water resources, it shall be discontinued until an evaluation determines that such use is compatible.

e. Water resource lands designated as necessary to implement the Central and Southern Florida "Restudy" Project shall, upon acquisition, become the responsibility of the (Interim) Land Management Program, and follow the guidelines set forth under Section 373.1391(5), Florida Statutes.

(2) Restoration and Protection of Natural Communities:

a. The Land Stewardship Program will encourage the acquisition of large or regionally significant areas that protect important natural resources and provide wildlife corridors.

b. Particular emphasis shall be placed on the identification, protection and management of rare, threatened and endangered species.

c. The planting of invasive exotic plant species shall be prohibited in all management areas. Management practices will strive to identify existing infestations and implement appropriate control or eradication measures.

d. Where practicable, an attempt shall be made to restore and maintain desirable vegetation to promote habitat diversity in areas where invasive exotic vegetation, grazing practices, or improved land uses have substantially altered the historic landscape.

(3) Resource Operations and Maintenance:

a. Lands acquired for natural and/or hydrologic resource benefits shall be managed to conserve and protect those resources.

b. Exotic plant control in all management areas shall strive to attain a level of success where periodic maintenance eliminates the infestation or reduces the coverage of exotic plants.

c. Prescribed fire will be a primary management tool on District lands and will be applied within fire-maintained communities at appropriate intervals.

d. The Division of Forestry will be notified of all wildfires on District lands. Land Stewardship will provide initial suppression when commensurate personnel and equipment are available.

e. Inventories of natural and historic resources shall be performed to provide information for effective land management planning, natural community maintenance and ecological restoration.

f. Evaluation and monitoring of management activities shall be conducted to improve program effectiveness and efficiency.

1. Research shall evaluate the environmental response of certain management activities to assist staff in making appropriate management decisions.

2. Monitoring shall be conducted to identify landscape changes resulting from management activities.

3. Legislative-mandated management reviews will provide input from professional peers.

g. Resource protection shall be provided by professional law enforcement services through funded and unfunded contractual agreements to safeguard the public and protect natural and cultural resources on District-managed natural areas.

h. Sustainable use of forest resources shall be conducted where these activities adhere to a series of environmental criteria (see 1999 Forest Management Plan) that meet Land Stewardship Program goals. Timber contractors will be required to meet silvicultural Best Management Practices (BMP) developed for Florida forests.

i. Range management (grazing) will be considered on improved or native ranges when the introduction of cattle will not conflict with other natural resource management and public use goals.

j. Archaeological and historic resources are protected by site identification and inter-agency coordination with the Florida Division of Historical Resources. Land stewardship planning shall include an analysis of archeological data accompanied by appropriate public education opportunities.

k. Infrastructure support shall be developed and maintained to provide safe access for responsible management and public use on District lands. Such infrastructure may include access points, roads, trails, signs, utilities, and minimal public facilities.

l. Mechanical equipment may be used in conjunction with prescribed burning and other management tools to control vegetation and restore habitat structure.

m. Agricultural developments previously existing on acquired natural areas may be maintained if management of these developments is consistent with other land stewardship goals.

(4) Public Use and Environmental Education:

a. Public use of management areas that is consistent with other management goals shall be encouraged. Public use that may have detrimental impacts on sensitive environmental resources shall be restricted until an evaluation determines such use is compatible. A public use compatibility assessment will be included in the General Management Plan completed for each management area and will be based on the following criteria:

1. Consistency with the reason the lands were acquired.
2. Restrictions and/or prohibitions imposed by easements, leases, reservations, adjacent land ownership, conditions of the purchase agreement, and any other agreements concerning the property.
3. Infrastructure and support facility requirements, such as fences, gates, signage, entry design, stabilized off-road parking, trails, campsites, maintenance, and other operational and budgetary impacts.
4. Opportunities for persons with disabilities.
5. Limitations resulting from endangered species, other sensitive natural resources, archaeological resources, or land management practices.
6. Public health, safety and welfare.
7. Environmental education program opportunities.

b. Public Use Regulation:

1. Public use regulations are set forth in 40E-7.511, Florida Administrative Code, to implement Section 373.1391(1)(b), Florida Statutes. Accordingly, the District shall publish and make available to the public a "Public Use Guide" for designated land management areas. The Public Use Guide will be adopted by the Governing Board at a public meeting advertised in accordance with Chapter 120, Florida Statutes.

2. Rules and regulations governing the public use of each management area shall be enforced by agencies with appropriate law enforcement jurisdiction.

3. Pursuant to Section 373.609, Florida Statutes, the District shall seek the cooperation of every state and county attorney, sheriff, police officer, and appropriate city and county official in the enforcement of the provisions set forth according to 40E-7.511, Florida Administrative Code.

4. Florida Fish and Wildlife Conservation Commission regulations shall govern hunting in areas opened for such use.

(5) Implementation Strategies. The District will secure dedicated funding sources, personnel and other resources to support program goals and objectives. Project funding needs and sources for cooperative management agreements with government and non-government entities will be identified during acquisition. A cooperative management agreement will designate a lead Manager and identify whether District funding is required.

a. The private sector may be solicited to furnish certain management-related facilities and services through the execution of leases and agreements. These leases/agreements will assure mutual benefits to both the District and private parties and be consistent with the program management objectives.

b. Mitigation:

1. Mitigation Banking: Mitigation banking provides an opportunity to accomplish large-scale restoration that may otherwise go unfunded. Pursuant to Section 373.4135, Florida Statutes, the District is encouraged to develop mitigation banks. Land managers will evaluate opportunities in their regions to implement mitigation banks that are consistent with the guidelines established in the Joint State and Federal Mitigation Bank Review Team Process for Florida.

2. Regional Mitigation Areas: The acquisition, restoration and management of District lands as mitigation shall be consistent with Chapter 2000-133, amending Sections 373.414 and 373.4135, Florida Statutes. This includes the establishment of Memorandums of Agreement (MOA) that include restoration plans, success criteria, and monitoring requirements. The MOAs will be used to implement mitigation using full-cost accounting, public noticing, and approval by the Governing Board for use as a mitigation area. The mitigation shall meet restoration objectives as provided in the General Management Plan.

c. Revenue Generation:

1. Private concessions and/or agreements with non-profit organizations will be considered to implement needed services through concession contracts.

2. Entrance and user fees, permits, licenses and/or advance reservations may be required where considered necessary by the managing agency.

3. Timber sales will be conducted to improve forest health or to support specific forest management goals.

4. Grazing leases will be encouraged on selected rangeland to generate revenue or to provide services that offset program management costs.

d. Volunteers and Interns:

1. Volunteers, interns and alternative work forces will be used when possible to supplement existing staff and services.

2. Any volunteer services must meet the standards and procedures prescribed by the District (Risk Management Manual, Volume 1).

(6) Program Components:

a. Management Assessment: A brief summary of the management issues completed when the site is identified for acquisition.

b. General Management Plan (GMP): Provides a description of recommended management and is required for each Land Stewardship Management Area. The GMP follows a designated format and is updated every five years.

c. Activity Plan (AP): Provides a detailed implementation strategy for specific activities such as prescribed burning, exotic removal and restoration. The plan shall be developed by the lead Manager in consultation with the cooperating agencies for each major tract of land (or group of tracts) to be operated as a single

management unit. The AP may be included in the GMP and is updated when necessary.

d. **Annual Work Plan (AWP):** Summarizes activities corresponding with annual budget development and is prepared by the Operations Section of the Land Stewardship Program.

e. **Reporting:** Summaries of management activities for each management area will be reported quarterly within the District and annually as part of the Florida Forever Work Plan.

(R.M. No. 139)

Secs. 140-26--140-40. Reserved.

Appendix B. Soil Descriptions

Flatwood Soils

Flatwood soils are poorly drained non-hydric, upland soils with sandy marine sediments throughout the profile. Most of the soil series have a subsurface spodic horizon, some of which may have loamy sand substrates. The seasonal high water table can range from 6 to 18 inches below the soil surface for three to six months annually. Some areas may become inundated for less than a couple of weeks during large storm events. Natural communities typical of flatwood soils are dry prairie, mesic flatwoods, and scrubby flatwoods. Typical flatwood soil vegetation includes pine trees with an understory of saw palmetto. Other Common plants are live oak, shiny blueberry, gallberry, tarflower, wax myrtle, chalky bluestem (*Andropogon virginicus glaucopsis*), and wiregrass.

Knolls

Knoll soils are non-hydric, upland soils with sandy marine sediments throughout the profile. These soils typically have no unique diagnostic horizons within the soil profile and are well to somewhat poorly drained. The seasonal high water table can range from one and a half to six feet below the soil surface for four to seven months annually. One ecological community that is typical to the knolls landscape is sand pine scrub. Natural vegetation may typically be even-aged sand pine trees with a dense under-story of oaks, saw palmetto, and other shrubs. Ground cover under the trees and shrubs is scattered. Large areas of light colored sand are often noticeable.

Sand Depression Soils

Sand depression soils are very poorly drained hydric soils that typically have sandy marine sediments throughout the profile. Often, these areas are depressions adjacent to flatwoods. The seasonal high water table can range from one foot below to two feet above the soil surface for seven to 10 months annually. Wetland communities dominate this landscape position. Within the Management Area, most of the depression marshes represent this soil class.

Muck Depression Soils

Muck depression soils are very poorly drained hydric soils that have an organic surface layer underlain by sandy marine sediments. These areas are often depressions adjacent to Flatwood soil-types. The seasonal high water table can range from six inches below to two feet above the soil surface for seven to eleven months annually. Wetland communities dominate this soil type. Examples within the Management Area include the littoral marshes.

Urban or Made Lands

Urban or made land areas have soils that have been altered, excavated, or disturbed and no longer possess their natural morphological features.

Appendix C. FNAI Natural Communities

Basin Marsh

Basin marshes are herbaceous or shrubby wetlands situated in relatively large and irregular shaped basins. Basin marshes are associated with and often grade into Wet Prairie or Lake Communities (FNAI 1990). This community is typified by marsh openings within basin swamps, or extensive marshes occupying large, shallow basin landscape positions (Bridges and Reese 1996). Common species identified are panicum (*Panicum sp.*), cutgrass (*Leersia sp.*), pennywort (*Hydrocotyle sp.*), Spanish needle (*Bidens bipinnata*), soft rush (*Juncus sp.*), arrowhead (*Sagittaria sp.*), elderberry (*Sambucus canadensis*), spikerush (*Eleocharis sp.*), buttonbush (*Cephalanthus occidentalis*), dog fennel (*Eupatorium compositifolium*).

Basin marshes that are dominated by herbaceous plants typically experience some fire every three to five years, while Willow/Buttonbush marshes burn every three to ten years (Duever et al. 1976). Exclusion of fire or reduced hydroperiods allow invasions of wax myrtles, saltbush, and exotic woody species while periodic fires increases habitat diversity and foraging opportunities for many species of waterbirds. This community often grades into flatwoods or prairie areas from which fire probably enters the marsh. Without periodic fire in this community, peat would accumulate, raising the ground level, reducing the water storage capacity, and shifting the community to a hardwood swamp (FNAI 1990).

Basin Swamp

Basin swamp is generally characterized as a relatively large and irregularly shaped basin that is not associated with rivers, but is vegetated with hydrophytic trees and shrubs that can withstand an extended hydroperiod (FNAI 1990). Dominant trees include cypress (*Taxodium sp.*), Swamp black gum (*Nyssa sylvatica var. biflora*), and Florida slash pine (*Pinus elliotii var. densa*). Other typical plants include red maple (*Acer rubrum*), swamp bay (*Persea palustris*), sweetbay (*Magnolia virginiana*), loblolly bay (*Gordonia lasianthus*), fetterbush (*Lyonia lucidi*), wax myrtle (*Myrica cerifera*), and buttonbush.

Fire generally burns into the edges of basin swamps from adjacent communities. Fire frequencies are quite variable in this community. The edges may experience fire every few years while the interior areas may not burn but once every 100+ years. Typical fire intervals may be anywhere from 5 to 150 years. Occasional fires are necessary in basin swamps to maintain their cypress and pine components, and reduce hardwood invasion. Without fire peat would accumulate, hardwoods would dominate and a basin swamp would shift to a bottomland forest.

Cypress and pines are very tolerant of light surface fires, but muck fires burning into the peat can kill the trees, lower the ground surface and transform a swamp into a pond or lake. Prescribed fire is applied to surrounding natural communities when soils within the basin swamps are saturated.

Depression Marsh

Depression marsh is characterized as a shallow, usually rounded depression in sand substrate with herbaceous vegetation often in concentric bands (FNAI 1990). Typical plants include St. John's wort (*Hypericum sp.*), yellow-eyed grass (*Xyris sp.*), chain fern (*Woodwardia sp.*), primrose willow (*Ludwigia peruviana*), maidencane (*Panicum hemitomum*), wax myrtle, buttonbush, pickerelweed (*Pontederia cordata*), and bladderwort (*Utricularia sp.*).

The fire frequency is typically three to ten years, similar to pine flatwoods communities, depending on weather conditions and fuel build-up. Fire preserves the open canopy by limiting invasion of woody vegetation, promoting herbaceous growth, and with the occasional peat fire, slowing succession by deepening the marsh. The Land Stewardship Program coordinates fire schedules to insure depression marshes burn at natural frequencies and during periods of adequate ground moisture.

Dome Swamp

Dome swamps are characterized as shallow, forested, usually circular depressions that generally present a domed profile because smaller trees grow in the shallower waters at the outer edge, while larger trees grow in the deeper water in the interior. Pond cypress (*Taxodium ascendens*) and slash pine (in transition areas) are common trees. Other typical plants include red maple, dahoon holly (*Ilex cassine*), swamp bay, sweetbay, loblolly bay, virginia willow, fetterbush, chain fern (*Woodwardia virginiana*), netted chain fern (*Woodwardia areolata*), poison ivy (*Toxicodendron radicans*), Spanish moss (*Tillandsia usneoides*), wild pine (*Tillandsia sp.*), royal fern (*Osmunda regalis*), cinnamon fern (*Osmunda cinnamomea*), maidencane, wax myrtle, St. John's wort, floating heart (*Nymphoides aquatica*), buttonbush, and alligator flag (*Thalia geniculata*).

Fire is essential for the maintenance of a cypress dome community. Without periodic fires, hardwood invasion and peat accumulation would convert the dome into a bog. Dome swamps dominated by bays are close to this transition. Fire frequency is greatest at the periphery of the dome and least in the interior where long hydroperiods and deep peat maintain high moisture levels for most of the year. The normal fire cycle might be as short as three to five years along the outer edge, and as long as 100 to 150 years towards the center. The dome's profile is largely attributable to this fire regime. Cypress is very tolerant of light surface fires, but muck fires burning into the peat can kill them, lower the ground surface, and transform a dome into a pond. In order to prevent peat fires in the Management Area, prescribed fire is applied to surrounding natural communities when soils within the domes are saturated.

Floodplain Marsh

Floodplain Marshes are wetlands of herbaceous vegetation and low shrubs that occur in river floodplains. They are associated with, and often grade into, Wet

Prairie or Riverine communities. These marshes are flooded with flowing water for about 250 days a year. Typical plants include maidencane, buttonbush, arrowheads, pickerelweed, panicum, and spikerush.

Floodplain Swamp

Floodplain Swamps occur on flooded soils along stream channels and in low spots and oxbows within river floodplains. Dominant trees are usually buttressed hydrophytic trees such as cypress, the understory and ground cover are generally very sparse. Other typical plants include wax myrtle, dahoon holly, and soft rush.

Strand Swamp

Strand Swamps are shallow, forested, usually elongated depressions or channels dominated by bald cypress. They are generally situated in troughs in flat limestone plain. Typical plants include red maple, laurel oak, cabbage palm, red bay, sweet bay, wax myrtle, buttonbush, poison ivy, and royal fern (*Osmunda regalis*).

Swale

Swales are marshes situated in broad shallow channels with flowing water and characterized by emergent grasses, sedges, and herbs up to ten feet tall. The dominant species is sawgrass. Other typical plants include buttonbush, arrowheads, pickerelweed, and bladderwort.

Baygall

Baygalls are generally characterized as densely forested, peat-filled seepage depressions often at the base of sandy slopes. The canopy is composed of tall, densely packed, generally straight-boled evergreen hardwoods dominated by sweetbay (*Magnolia sp.*) and swamp red bay (*Persea borbonia*). Typical plants include cypress (*Taxodium sp.*), dahoon holly (*Ilex cassine*), wax myrtle (*Myrica cerifera*), and lizards tail (*Soururus cernuus*). (FNAI 1990)

Dry Prairie

Dry prairie is characterized as a nearly treeless plain with a dense ground cover of wiregrass (*Aristida sp.*), saw palmetto (*Serenoa repens*), and other grasses, herbs and low shrubs. Typical species include flat-topped goldenrod (*Euthamia minor*), fetterbush, shiny blueberry (*vaccinium myrsinites*), sand live oak (*Quercus geminata*), gallberry (*Ilex glabra*), Atlantic St. John's-wort (*Hypericum reductum*), elephant's foot (*Elaphantopus sp.*), blazing star (*Liatris sp.*) and sedges (*Carex sp.*). Dry prairie species are similar to mesic flatwoods, and there is speculation as to whether dry prairie is simply a treeless form of the latter.

Fire frequency, intensity, and fuel build-up determines whether a pine over-story develops. Fire occurs naturally in dry prairies every one to four years, which is slightly more frequent than in mesic flatwoods.

Mesic Flatwoods

Mesic Flatwoods are characterized as an open canopy forest of widely spaced pine trees with little or no understory but a dense ground cover of herbs and shrubs. Mesic flatwoods are found on poorly drained, but rarely if ever inundated soils. They occupy extensive flat inter-drainageway plains in central Florida. Several variations of mesic flatwoods are recognized, the most common in the Management Area being slash pine-gallberry-saw palmetto.

Plant species of this community are adapted to fire frequencies of one to eight years with occasional fire periods of at least four years, which facilitates pine recruitment (FNAI 1990). Historically, numerous small lightning caused fires occurred in the wet season but most acreages burned in the dry season (Abrahamson and Hartnett 1990). Without frequent fires, pinelands are quickly overcome by hardwood species that close the canopy and reduce ground cover herbs and grasses (Abrahamson and Hartnett 1990).

Prairie Hammock

Prairie hammock is characterized as a clump of tall cabbage palms and live oaks in the midst of prairie or marsh communities (FNAI 1990). Prairie hammocks establish on elevated soils surrounded by lower topography. These islands are generally sandy marl flooding only for a short duration during the highest water levels. Canopy species include live oak (*Quercus virginiana*) and cabbage palm, with occasional laurel oak (*Quercus laurifolia*) in lower elevations. An abundance of epiphytes, including listed species, are found in mature canopy trees. As in most prairie hammocks, there is a sparse under-story due to over-story shading, but cover is also reduced by cattle grazing and trampling of shrub and ground layer vegetation. Many species common to undisturbed hammocks are sparse or lacking, replaced by disturbance species such as broomweed (*Sida sp.*), tropical soda apple (*Solanum viarum*) and caesarweed (*Urena lobata*). Typical under-story plants of pristine prairie hammocks include wax myrtle, water oak, beautyberry (*Callicarpa americana*), and saw palmetto.

These hammocks tolerate occasional ground fires but shading by live oaks limits understory fuel accumulation. Typically the periphery of prairie hammocks are a dynamic edge where fires from surrounding communities enter the hammock and burn fuel along the edge, stopping when the fuel is insufficient to carry fire. The fire frequency is 25–100 years if enough fuel is present to carry fire through the hammock.

Scrubby Flatwoods

Scrubby flatwoods are characterized as an open canopy forest of widely scattered pine trees with a sparse shrubby understory and numerous areas of barren white sand (FNAI 1990). This community occurs on sites slightly higher in elevation than mesic flatwoods, but lower than scrub. Soils are well drained and dry, even during maximum rainfall events. Unlike scrub, the water table is relatively close

to the soil surface. As with typical scrubby flatwoods, Drasdo and Lightsey Units harbor species common to both scrub and mesic flatwoods. Typical species include slash pine, saw palmetto, myrtle oak, sand live oak, fetterbush, goldenrod (*solidago sp.*), and wiregrass. In addition, scrubby flatwoods provide habitat for the gopher tortoise (listed as threatened) and the Florida scrub jay (*Aphelocoma coerulescens*) – a threatened species (FWC 2007).

As a transitional community between scrub and mesic flatwoods, scrubby flatwoods have a natural fire frequency reflecting the transition. Natural fire frequency for this community is at five to 25 year intervals. Sparse ground layer vegetation and relatively incombustible oak litter contributes to slow fuel build-up and extended periods without fire.

Hydric Hammock

Hydric hammock is characterized as a well-developed hardwood and cabbage palm forest with a variable understory often dominated by palms and ferns. Typical plants include cabbage palm (*Sabal palmetto*), red maple, swamp bay, sweetbay, water oak (*Quercus nigra*), wax myrtle, saw palmetto, poison ivy, dahoon holly, royal fern, pepper vine (*Ampleopsis arborea*), and virginia creeper (*Parthenocissus quinque*).

Because of their generally saturated soils and the scarcity of herbaceous ground cover, hydric hammocks rarely burn. Fire maintains this community with frequencies of 30 - 100 or more years (Duever et al. 1976). Typically, fire enters this community from an adjacent area during the dry season and burns until it reaches the deepest water. Cypress trees are very fire tolerant as long as the peat around the roots is not ignited. Prescribed burn planning for adjacent natural communities will consider hydrologic conditions of hydric hammocks prior to application of fire.

Wet Flatwoods

Wet flatwoods are characterized as relatively open-canopy forests of scattered pine trees or cabbage palms with either a thick shrubby under-story and very sparse ground cover, or a sparse understory and a dense ground cover of hydrophytic herbs and shrubs, with variations between these extremes (FNAI 1990). A typical species scenario for Kissimmee Chain of Lakes flatwoods is a Florida slash pine and cabbage palm overstory with an under-story of scattered saw palmetto, wax myrtle, gallberry and bluestem (*Andropogon sp.*). Native ground cover species are frequently displaced by non-native bahia.

Nearly all plants within this community are fire adapted to a frequency of three to ten years (FNAI 1990). Prescribed burning considerations are similar to those for mesic flatwoods. Without frequent fire this community would experience a build up of shrubby undergrowth. Annual litter accumulation minus decomposition is 800 lb/ac (Duever et al. 1976). Thick undergrowth creates heavy fuel loads that if ignited by a wildfire would likely kill the pine overstory.

Fire postpones hardwood succession and thins canopy trees, while promoting under-story growth and fire-adapted species. If fire were totally excluded, this community would develop into a hardwood forest.

Wet Prairie

Wet prairie is characterized as a treeless plain with a sparse to dense ground cover of grasses and herbs, including wiregrass, maidencane, spikerush (*Eleocharis sp.*), and beakrush (*Rhynchospora sp.*). Other typical plants include tickseed (*Bidens sp.*), wax myrtle, St. John's-wort (*Hypericum sp.*), and Panicums (FNAI 1990).

Many locations within the Management Area dominated by wet prairie communities are currently used for cattle grazing. Drainage and seeding for pasture grasses has significantly altered species composition of these wetlands to bahia and crabgrass (*Digitaria sp.*). Bladderpod (*Sesbania sp.*) and tropical soda apple are prominent problem species in drained wet prairie sites. Remnant undisturbed areas in their natural hydrologic state display typical wet prairie diversity.

Typical of a grassland community, wet prairies are fire maintained (Ewel 1990). If deprived of fire, these grass-dominated flatlands succumb to shrub encroachment and are especially vulnerable to wax myrtle infestations. Without fire, annual litter accumulation ranges from 1,200 lb/ac to 2,500 lb/ac (Duever et al. 1976). Fire frequencies of two to four years are appropriate while burns during different seasons may stimulate different plant responses (Duever et al. 1976). Without fire, flooding, grazing or some other disturbance, this community will become dominated by wax myrtles (*Myrica cerifera*) or saltbush (*Baccharis halimifolia*) thus reducing species diversity.

Scrub

Scrub occurs in many forms, but is often characterized as a closed to open canopy forest of sand pines with dense clumps or vast thickets of scrub oaks and other shrubs dominating the understory (FNAI 1990). The Drasdo, Lightsey, and Johnson Island Units are the only units in which a scrub community is found. Drasdo contains 35 acres and Lightsey has 4 acres of scrub. Typical plants include sand live oak, myrtle oak (*Quercus myrtifolia*), scrub oak (*Quercus inopina*), saw palmetto, fetterbush, and wiregrass. Highest elevations in the Management Area support this community.

Scrub is being lost at an alarming rate throughout the state, as high elevations and fast drainage make this community highly desirable for development. This association occurs almost exclusively in Florida. State ranking of scrub is "S2," imperiled in the state because of its rarity and vulnerability, with estimates of 6-20 occurrences (FNAI 1990).

Scrub is a fire maintained community (Fernald 1989; FNAI 1990; Myers 1990), which burns infrequently but violently. A variety of sources state different natural fire frequencies for this community. A range of 10-70 years falls within most predictions (Cox et al. 1987; Fernald 1989; FNAI 1990; and Myers 1990). Fuel buildup is a lengthy process, as vegetation grows relatively slow due to severe environmental conditions. With little fine fuel on the ground, scrub communities do not ignite easily but under dry conditions woody scrub species burn hot and fast. Fire kills scrub oaks and shrubs down to their roots, from which they resprout. Without fire the scrub community would accumulate organic matter and convert to a xeric hammock.

Xeric Hammock

Xeric Hammock is characterized as either a scrubby, dense, low canopy forest with little understories other than palmetto, or a multi-storied forest of tall trees with an open or closed canopy. Several gradations between these extremes exist. Typical plants include live oak (*Quercus virginiana*), sand live oak (*Quercus geminate*), laurel oak (*Quercus laurifolia*), and saw palmetto. (FNAI 1990)

Seepage Stream

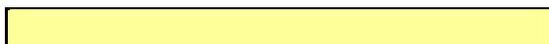
Seepage Streams are characterized as perennial or intermittent seasonal watercourses originating from shallow ground waters that have percolated through deep, sandy, upland soils. Seepage Streams typically have clear to lightly colored water maintained at fairly constant temperature of around 70 degrees Fahrenheit and are relatively short, shallow, and narrow.

Percolation through deep soils slows the release of rainwater, filters the water, and buffers temperature extremes. Thus, Seepage Streams often exhibit perennial, slow flow rates of clear, cool, unpolluted water.

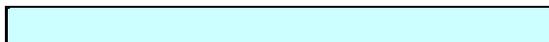
Swamp Lake

Swamp Lakes are generally characterized as shallow open water zones, with or without floating and submerged aquatic plants, which are surrounded by Basin Swamp or Floodplain Swamp. They are generally permanent water bodies, although water levels often fluctuate substantially and they may become completely dry during extreme droughts. They are typically lentic water bodies occurring in confined basins or depressions. Except for the fringe of hydrophytic trees, shrubs and scattered emergent, plants may be absent altogether, or they may almost completely cover the water surface. When present, typical plants include spatterdock (*Nuphar lutea*), duckweed (*Lemna sp.*), water pennywort (*Hydrocotyle bonariensis*), and bladderwort.

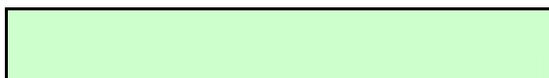
Appendix D. Species List



South of Lake Hatchineha



North of Lake Hatchineha



Found in both northern and southern units

Species	Common Name	Listing
<i>Acer rubrum</i>	Red maple	
<i>Acrostichum danaeifolium</i>	Giant Leather Fern	Exploited - FDA
<i>Achyranthes aspera</i> var <i>aspera</i>	Devil's horsewhip	
<i>Achyranthes indica</i>	Devil's horsewhip	
<i>Agalinis linifolia</i>	Flax-leaf false foxglove	
<i>Aletris lutea</i>	Yellow colic-root	
<i>Alternanthera flavescens</i>	Yellow joyweed	
<i>Alternanthera philoxeroides</i>	Alligator weed	Exotic
<i>Amaranthus australis</i>	Southern water-hemp	
<i>Amaranthus blitum</i>	Purple amaranth	
<i>Amaranthus floridanus</i>	Florida amaranth	
<i>Amaranthus hybridus</i>	Slim amaranth (pigweed)	
<i>Amaranthus spinosus</i>	Spiny pigweed	
<i>Ambrosia artemisiifolia</i>	Common ragweed	
<i>Ampelopsis arborea</i>	Pepper vine	
<i>Amphocarpum muhlenbergianum</i>	Blue maidencane	
<i>Andropogon brachystachys</i>	Shortspike bluestem	
<i>Andropogon floridanus</i>	Florida bluestem	
<i>Andropogon glomeratus</i>	Bushy broom grass	
<i>Andropogon gyrans</i> v. <i>gyrans</i>	Elliott's bluestem	
<i>Andropogon ternarius</i> v. <i>cabanisii</i>	Silver bluestem	
<i>Andropogon virginicus</i>	Broom grass	
<i>Andropogon virginicus</i> v. <i>glaucopsis</i>	Chalky blue stem	
<i>Apios americana</i>	Groundnut	
<i>Aristida beyrichiana</i>	Wiregrass	
<i>Aristida gyrans</i>	Corkscrew threeawn	
<i>Aristida purpurescens</i>	Arrowfeather	
<i>Aristida spiciformis</i>	Bottlebrush threeawn grass	
<i>Aristida stricta</i>	Wiregrass	
<i>Asclepias currassavica</i>	Scarlet milkweed	
<i>Asclepias connivens</i>	Fragrant milkweed	
<i>Asclepias incarnata</i>	Swamp milkweed	
<i>Asclepias longifolia</i>	Florida milkweed	
<i>Asclepias pedicellata</i>	Savanna milkweed	
<i>Asclepias perennis</i>	Swamp milkweed	
<i>Asimina obovata</i>	Big-flower pawpaw	
<i>Asimina reticulata</i>	Flatwoods pawpaw	
<i>Aster carolinianus</i>	Climbing aster	

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<i>Aster reticulatus</i>	Pine barren white-top aster	
<i>Aster subulatus</i>	Annual marsh aster	
<i>Aster tortifolius</i>	White topped aster	
<i>Axonopus affinis</i>	Common carpet grass	
<i>Axonopus fissifolius</i>	Common carpetgrass	
<i>Axonopus furcatus</i>	Big carpet grass	
<i>Azolla caroliniana</i>	Mosquito fern	
<i>Baccharis glomeruliflora</i>	Silverling	
<i>Baccharis halimifolia</i>	Groundsel bush	
<i>Bacopa caroliniana</i>	Lemon bacopa	
<i>Bacopa monnieri</i>	Smooth water-hyssops	
<i>Balduina angustifolia</i>	Coastal-plain honeycomb head	
<i>Befaria racemosa</i>	Tarflower	
<i>Bidens bipinnata</i>	Spanish needles	
<i>Bidens laevis</i>	Bur marigold	
<i>Bidens mitis</i>	Marsh begger-tick	
<i>Bidens sp</i>	Beggar-tick	
<i>Bigelovia nudata</i>	Rayless goldenrod	
<i>Blechnum serrulatum</i>	Swamp fern	
<i>Boehmeria cylindrica</i>	False nettle	
<i>Brachiaria mutica</i>	Paragrass	Exotic
<i>Buchnera americana</i>	Common blue hearts	
<i>Bulbostylis ciliatifolia</i>	Hair sedge	
<i>Bulbostylis sp.</i>	Bulbostylis sp.	
<i>Bulbostylis warei</i>	Hair sedge	
<i>Bumelia reclinata</i>	Scrubby buckthorn	
<i>Callicarpa americana</i>	Beauty berry	
<i>Calocasia esculenta</i>	Wild taro	
<i>Calystegia sepium</i>	Hedge bind weed	
<i>Campyloneurum phyllitidis</i>	Strap fern	Endangered
<i>Canna flacida</i>	Bandana-of-the-everglades	
<i>Carex albolutescens</i>	Caric sedge	
<i>Carex alata</i>	Broadwinged sedge	
<i>Carex gigantea</i>	Large sedge	
<i>Carex lupuliformis</i>	False hop sedge	
<i>Carex verrucosa</i>	Warty sedge	
<i>Carphephorus corymbosus</i>	Tall deer tongue	
<i>Carphephorus odoratissimus</i>	Vanilla plant	
<i>Carphephorus paniculatus</i>	Deer tongue	
<i>Cassia chamaecrista</i>	Partridge pea	
<i>Cassia obtusifolia</i>	Sicklepod	
<i>Cassia occidentalis</i>	Coffee senna	
<i>Catharanthus roseus (exotic)</i>	Madagascar periwinkle	
<i>Celtis laevigata</i>	Hackberry	
<i>Cenchrus echinatus</i>	Southern sandspur	
<i>Cenchrus incertus</i>	Sandspur	
<i>Centella asiatica</i>	Coinwort	
<i>Cephalanthus occidentalis</i>	Buttonbush	
<i>Ceratiola ericoides</i>	Florida rosemary	

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<i>Chamaesyce cordifolia</i>	Round-leaf spurge	
<i>Chamaecrista nictitans v. nictitans</i>	Sensitive partridge pea	
<i>Chapmannia floridana</i>	Alicia	
<i>Chenopodium ambrosioides</i>	Mexican tea	
<i>Chrysoopsis eoabrella</i>	Rough goldenrod	
<i>Chrysopsis scabrella</i>	Coastal-plain golden-aster	
<i>Cinnamomum camphora</i>	Camphor tree	Exotic
<i>Cirsium horridulum</i>	Horrible thistle	
<i>Cirsium nuttallii</i>	Nuttall's thistle	
<i>Citrus aurantium</i>	Sour orange	Exotic
<i>Cladium jamaicense</i>	Saw-grass	
<i>Clematis crispa</i>	Swamp leather flower	
<i>Commelina diffusa</i>	Dayflower	
<i>Commelina erecta</i>	Dayflower	
<i>Conoclinium coelestinum</i>	Blue mistflower	
<i>Conyza canadensis</i>	Horseweed	
<i>Conyza canadensis var. pusilla</i>	Dwarf danadian horseweed	
<i>Coreopsis floridana</i>	Common tickseed	
<i>Coreopsis gladiata</i>	Southeastern tickseed	
<i>Coreopsis leavenworthii</i>	Common tickseed	
<i>Cornus foemina</i>	Swamp dogwood	
<i>Crotalaria pallida v. obovata</i>	Smooth rattlebox	
<i>Crotalaria rotundifolia</i>	Prostate rattlebox	
<i>Croton argyranthemus</i>	Silver leaf croton	
<i>Croton glandulosus</i>	Tropic croton	
<i>Croton linearis</i>	Rushfoil	
<i>Crotonopsis linearis</i>	Rushfoil	
<i>Cuphea carthagenensis</i>	Columbia waxweed	
<i>Cuscuta gronovii</i>	Scaldweed	
<i>Cuscuta obtusiflora</i>	Peruvian dodder	
<i>Cynanchum scoparium</i>	Vine milkweed	
<i>Cynodon dactylon</i>	Bermuda grass	Exotic
<i>Cyperus articulatus</i>	Jointed flat sedge	
<i>Cyperus brevifolius</i>	Shortleaf spikesedge	
<i>Cyperus compeusus</i>	Galigale sedge	
<i>Cyperus croceus</i>	Globe sedge	
<i>Cyperus cuspidatus</i>	Coastal-plain flat sedge	
<i>Cyperus difformis</i>	Variable flat sedge	
<i>Cyperus distinctus</i>	Marshland flat sedge	
<i>Cyperus erythrorhizos</i>	Red-root flat sedge	
<i>Cyperus esculentus</i>	Yellow nut-sedge	
<i>Cyperus filiculmis</i>	Slender sedge	
<i>Cyperus flavescens</i>	Flat sedge	
<i>Cyperus globulosus</i>	Baldwin flat sedge	
<i>Cyperus haspan</i>	Jointed flat sedge	
<i>Cyperus lanceolatus</i>	Epiphytic flat sedge	
<i>Cyperus lecontei</i>	Flat sedge	
<i>Cyperus ligularis</i>	Snail rush	
<i>Cyperus odoratus</i>	Flat sedge	

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<i>Cyperus polystachyos</i>	Texas sedge	
<i>Cyperus retrorsus</i>	Flat sedge	
<i>Cyperus rotundus</i>	Common sedge	
<i>Cyperus sesquiflorus</i>	Annual Kyllinga	
<i>Cyperus stringosus</i>	Sharp rush	
<i>Cyperus surinamensis</i>	Flat sedge	
<i>Cyperus virens</i>	Greenish sedge	
<i>Dactyloctenium aegyptium</i>	Crowfoot grass	
<i>Decodon verticillatus</i>	Swamp loosestrife	
<i>Desmodium incanum</i>	Creeping beggarweed	
<i>Desmodium triflorum</i>	Sagotia Beggar-weed	
<i>Dichantherium communtatum</i>	Broad leaf panicum	
<i>Dichantherium dichotomum</i>	Cypress witchgrass	
<i>Dichantherium ensifolium v. unciphyllum</i>	Panic grass	
<i>Dichantherium laxiflorum</i>	Drooping panicum	
<i>Dichantherium sp.</i>	Dichantherium sp.	
<i>Dichantherium stringosum</i>	Flatwoods panicum	
<i>Dichondra caroliniensis</i>	Carolina ponysfoot	
<i>Dichromena colorata</i>	White-top sedge	
<i>Dichromena latifolia</i>	White-top sedge	
<i>Digitaria bicornis</i>	Indian crabgrass	
<i>Digitaria ciliaris</i>	Southern crab grass	
<i>Digitaria decumbens</i>	Pangolagrass	
<i>Digitaria longiflora</i>	Indian crabgrass	
<i>Digitaria sanguinalis</i>	Common crabgrass	
<i>Digitaria serotina</i>	Blanket crab grass	
<i>Diodia teres</i>	Poor joe	
<i>Diodia virginiana</i>	Buttonweed	
<i>Diospyros virginiana</i>	Common persimmon	
<i>Drosera brevifolia</i>	Dwarf sundew	
<i>Drosera capillaris</i>	Common pink sundew	
<i>Drymaria cordata</i>	Heartleaf drymary	
<i>Dulichium arundinaceum</i>	Three-way sedge	
<i>Echinochloa crusgalli</i>	Barnyard grass	
<i>Echinochloa muricata</i>	Rough barnyardgrass	
<i>Echinochloa parvulus</i>	Dwarf burhead	
<i>Echinochoa walteri</i>	Coast cockspur-grass	
<i>Echinodorus parvulus</i>	Dwarf burhead	
<i>Eclipta alba</i>	Yerba de tajo	
<i>Eclipta prostrata</i>	False daisy	
<i>Eichhornia crassipes</i>	Water hyacinth	Exotic
<i>Eleocharis baldwinii</i>	Hairgrass	
<i>Eleocharis cellulosa</i>	Club-rush	
<i>Eleocharis geniculata</i>	Pantropic spikerush	
<i>Eleocharis interstincta</i>	Jointed spikerush	
<i>Eleocharis mocrocarpa</i>	Small-fruit spikerush	
<i>Eleocharis olivacea</i>	Spikerush	
<i>Eleocharis sp.</i>	Eleocharis sp.	
<i>Eleocharis vivipara</i>	Sprouting spikerush	

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<i>Elephantopus elatus</i>	Elephant foot	
<i>Eleusine indica</i>	Yard grass	
<i>Emilia fosbergii</i>	Florida tasselflower	
<i>Emilia sonchifolia</i>	Purple tasselflower	
<i>Encyclia tampensis</i>	Butterfly orchid	Commercially Exploited
<i>Eragrostis atrovirens</i>	Thailia love grass	
<i>Eragrostis elliotii</i>	Elliott's love grass	
<i>Eragrostis refracta</i>	Coastal love grass	
<i>Eragrostis spectabilis</i>	Purple love grass	
<i>Eragrostis virginica</i>	Meadow love grass	
<i>Erechtites hieracifolia</i>	Fireweed	
<i>Erianthus giganteus</i>	Sugarcane plume grass	
<i>Erigeron quercifolius</i>	Southern fleabane	
<i>Erigeron strigosus</i>	Daisy fleabane	
<i>Erigeron vernus</i>	Fleabane	
<i>Eriocaulon compressum</i>	Soft-head pipewort	
<i>Eriocaulon decangulare</i>	Hard-head pipewort	
<i>Eriocaulon ravenelii</i>	Ravenel's pipewort	
<i>Eryngium sp.</i>	Thistle	
<i>Eryngium baldwinii</i>	Baldwin's eryngo	
<i>Eupatorium coelestinum</i>	Mistflower	
<i>Eupatorium compositifolium</i>	Dog fennel	Nuisance
<i>Eupatorium leptophyllum</i>	Falsefennel	
<i>Eupatorium recurvans</i>	Coastal plain thoroughwart	
<i>Eupatorium rotundifolium</i>	Round-lead thoroughwart	
<i>Eupatorium serotinum</i>	Thoroughwort	
<i>Euphorbia polyphylla</i>	Many-leaved spurge	
<i>Euthamia caroliniana</i>	Slender goldenrod	
<i>Euthamia minor</i>	Flat-topped goldenrod	
<i>Euthamia tenuifolia</i>	Flat-topped goldenrod	
<i>Fabaceae sp.</i>	Fabaceae sp.	
<i>Ficus aurea</i>	Strangler fig	
<i>Fimbristylis autumnails</i>	Fringe-rush	
<i>Fimbristylis dichotoma</i>	Forked fringerush	
<i>Fimbristylis miliacea</i>	Annual brown-top sedge	
<i>Fimbristylis puberula</i>	Vahl's hairy fringe rush	
<i>Fimbristylis schoenoides</i>	Ditch fringerush	
<i>Fimbristylis sp.</i>	Fimbristylis sp.	
<i>Fimbristylis spathacea</i>	Hurricane-grass	
<i>Fraxinus pennsylvanica</i>	Red/Green Ash	
<i>Fuirena breviseta</i>	Short-bristled umbrella grass	
<i>Fuirena pumila</i>	Dwarf umbrella-gras	
<i>Fuirena scirpoidea</i>	Rush fuirena	
<i>Fuirena squarrosa</i>	Lake-rush	
<i>Galactia elliotii</i>	White milk-pea	
<i>Galactia pinetorum</i>	Milkpea	
<i>Galium tinctorium</i>	Stiff marsh bedstraw	
<i>Gaylussacia dumosa</i>	Dwarf Huckleberry	

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<i>Gaylussacia frondosa v. tomentosa</i>	Dangleberry	
<i>Gaylussacia nana</i>	Creeping huckleberry	
<i>Gelsemium sempervirens</i>	Yellow jessmine	
<i>Geranium carolinianum</i>	Carolina cranesbill	
<i>Gnaphalium falcatum</i>	Narrow leaved cudweed	
<i>Gnaphalium obtusifolium</i>	Sweet everlasting	
<i>Gnaphalium pennsylvanicum</i>	Pennsylvania everlasting	
<i>Gordonia lasianthus</i>	Loblolly bay	
<i>Gratiola hispida</i>	Scrub-hyssop	
<i>Gratiola pilosa</i>	Hairy hedge-hyssop	
<i>Gymnopogon chapmanianus</i>	Chapman's skeleton grass	
<i>Habenaria repens</i>	Water-spider orchid	
<i>Hedyotis uniflora</i>	Clustered mille graine	
<i>Helianthemum corymbosum</i>	Clustered rock-rose	
<i>Helianthemum nashii</i>	Scrub rock-rose	
<i>Heliotropium polyphyllum</i>	Pineland heliotrope	
<i>Heterotheca subaxillaris</i>	Camphorweed	
<i>Hibiscus coccineus</i>	Scarlet rosemallow	
<i>Hibiscus grandiflorus</i>	Big rose-mallow	
<i>Hieracium gronovii</i>	Hawkweed	
<i>Hieracium megacephalon</i>	Hawk's beard	
<i>Hydrilla verticillata</i>	Hydrila	Exotic
<i>Hydrochloa caroliniensis</i>	Watergrass	
<i>Hydrocotyle bonariensis</i>	Water pennywort	
<i>Hydrocotyle ranunculoides</i>	Floating marshpennywort	
<i>Hydrocotyle umbellata</i>	Marsh pennywort	
<i>Hydrocotyle verticillata</i>	Whorled pennywort	
<i>Hypericum brachphyllum</i>	Short-leaved sandweed	
<i>Hypericum cistifolium</i>	Cluster-leaf St. John's wort	
<i>Hypericum fasciculatum</i>	Marsh St. John's wort	
<i>Hypericum hypericoides</i>	St. Andrew's cross	
<i>Hypericum mutilum</i>	St. Johns Wort	
<i>Hypericum myrtifolium</i>	Myrtle-leaved St. John's wort	
<i>Hypericum reductum</i>	Matted sandweed	
<i>Hypericum sp.</i>	Hypericum sp.	
<i>Hypericum tetrapetalum</i>	Heart-leaved St. Peter's wort	
<i>Hypoxis juncea</i>	Common stargrass	
<i>Hyptis alata</i>	Musky mint	
<i>Hyptis radiata</i>	Bitter mint	
<i>Ilex cassine</i>	Dahoon holly	
<i>Ilex glabra</i>	Gallberry	
<i>Indigofera hirsuta</i>	Rough hairy indigo	
<i>Indigofera pilosa</i>	Indigo	Exotic
<i>Ipomoea aquatica</i>	Water spinach	Exotic
<i>Ipomoea tenuissima</i>	Rockland mornigglory	
<i>Iris hexagona v. savannarum</i>	Prairie iris	
<i>Itea virginica</i>	Virginia willow	
<i>Iva microcephala</i>	Pineland elder	
<i>Juncus dichotomous</i>	Forked rush	

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<i>Juncus effusus</i>	Soft rush	
<i>Juncus elliotii</i>	Bog rush	
<i>Juncus marginatus</i>	Shore rush	
<i>Juncus maegacephalus</i>	Large-headed rush	
<i>Juncus polycephalus</i>	Many-headed rush	
<i>Juncus scirpoides</i>	Needle-pod rush	
<i>Juniperus virginiana</i>	Red cedar	
<i>Justica angusta</i>	Narrow-leaf waterwillow	
<i>Justicia ovata</i>	Water-willow	
<i>Kosteletzkya virginica</i>	Virginia saltmarsh mallow	
<i>Kummerowia striata (Lespedeza striata)</i>	Japanese-clover	
<i>Kyllinga brevifolia</i>	Shortleaf spikesege	
<i>Kyllinga odorata</i>	Fragrant spikesege	
<i>Lachnanthes caroliniana</i>	Bloodroot	
<i>Lachnocaulon anceps</i>	Little white bog-button	
<i>Lachnocaulon beyrichianum</i>	Little bog-button	
<i>Lachnocaulon minus</i>	Small's bog button	
<i>Lachnocaulon sp.</i>	Lachnocaulon sp.	
<i>Lantana camara</i>	Shrub lantana	Exotic
<i>Lechea torreyi</i>	Compact pinweed	
<i>Leersia sp.</i>	Cutgrass	
<i>Leersia hexandra</i>	Southern cutgrass	
<i>Lemna sp.</i>	Duckweed	
<i>Lemna valdiviana</i>	Valdivia duckweed	
<i>Lepidium virginicum</i>	Virginia pepperweed	
<i>Leptochloa fascicularis</i>	Bearded sprangle-top grass	
<i>Liatris gracilis</i>	Blazing star	
<i>Liatris tenuifolia</i>	Narrow-leaf blazing star	
<i>Licania michauxii</i>	Gopher apple	
<i>Limnobium spongia</i>	Frog's-bit	
<i>Linaria canadensis</i>	Old field toadflax	
<i>Linaria floridana</i>	Florida toadflax	
<i>Lindernia anagallidea</i>	Variable false-pimpernel	
<i>Lindernia grandiflora</i>	Large-flowered false-pimperne	
<i>Lipocarpa maculata</i>	Common ditchgrass	
<i>Lippia nodiflora</i>	Frog's-bit	
<i>Liquidambar styraciflua</i>	Sweetgum	
<i>Lobelia feayana</i>	Bay lobelia	
<i>Ludwigia arcuata</i>	False loosestrife	
<i>Ludwigia brevipes</i>	Ludwigia brevipes	
<i>Ludwigia maritima</i>	Coastal plain seedbox	
<i>Ludwigia microcarpa</i>	Little seedbox	
<i>Ludwigia octovalvis</i>	Primrose willow	
<i>Ludwigia palustris</i>	Water-purslane	
<i>Ludwigia peruviana</i>	Primrose willow	Nuisance
<i>Ludwigia repens</i>	Creeping primrosewillow	
<i>Ludwigia sp.</i>	Ludwigia sp.	
<i>Ludwigia suffruticosa</i>	Headed seedbox	
<i>Luziola fluitans (Hydrochloa caroliniensis)</i>	Water grass	

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<i>Lycopus sp.</i>	Bugleweed	
<i>Lycopus rubellus</i>	Taper-leaf water hoarhound	
<i>Lygodesmia aphylla</i>	Rosebush	
<i>Lyonia Ferruginea</i>	Rusty staggerbush	
<i>Lyonia fruticosa</i>	Staggerbush	
<i>Lyonia ligustrina v. foliosiflora</i>	Maleberry	
<i>Lyonia lucida</i>	Fetterbush	
<i>Macroptilium lathyroides</i>	Macroptilium lathyroides	
<i>Magnolia virginiana</i>	Sweet bay	
<i>Mecardonia acuminata</i>	Mecardonia acuminata	
<i>Melia azedarach</i>	Chinaberry	Exotic
<i>Melothria pendula</i>	Creeping cucumber	
<i>Micranthemum glomeratum</i>	Mudflower	
<i>Micranthemum umbrosum</i>	Shade mudflower	
<i>Mikania cordifolia</i>	Hempweed	
<i>Mikania acandens</i>	Climbing hempweed	
<i>Mitchella repens</i>	Twinberry	
<i>Mitreola sessilifolia</i>	Miterwort	
<i>Momordica charantia</i>	Wild balsam-apple	
<i>Morrenia odorata</i>	Latexplant	
<i>Morus rubra</i>	Red mulberry	
<i>Murdannia nudiflora</i>	Dove weed	
<i>Myrica cerifera</i>	Wax myrtle	Nuisance
<i>Myriophyllum aquaticum</i>	Parrot's-feather	
<i>Nephrolepis exaltata</i>	Boston fern	
<i>Nerium oleander</i>	Oleander	
<i>Nuphar advena</i>	Spatterdock	
<i>Nuphar lutea</i>	Spatterdock	
<i>Nymphaea odorata</i>	Fragrant water-lily	
<i>Nymphaea mexicana</i>	Yellow waterlily	
<i>Nymphoides aquatica</i>	Floating hearts	
<i>Nyssa biflora</i>	Black gum	
<i>Nyssa sylvatica var. biflora</i>	Swamp black gum	
<i>Oplismenus setarius</i>	Woodsgrass	
<i>Opuntia humifusa</i>	Prickly-pear cactus	
<i>Opuntia pusilla</i>	Cock's-spur prickly pear	
<i>Osmunda cinnamomea</i>	Cinnamon fern	Commercially Exploited
<i>Osmunda regalis</i>	Royal fern	Commercially Exploited
<i>Oxalis corniculata</i>	Common yellow woodsorrel	
<i>Oxalis florida</i>	Yellow wood sorrel	
<i>Palafoxia feayi</i>	Palafoxia	
<i>Panicum anceps</i>	Beaked panicum	
<i>Panicum aciculare</i>	Narrow-leaf panic grass	
<i>Panicum chamaelonche</i>	Small-fruit panic grass	
<i>Panicum ciliaris</i>	Fringed panic grass	
<i>Panicum ciliatum</i>	Fringed panic grass	
<i>Panicum commutatum</i>	Variable panicum	
<i>Panicum dichotomiflorum</i>	Fall panicum	

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<i>Panicum ensifolium</i>	Cypress panic grass	
<i>Panicum erectifolium</i>	Erect-leaf panic grass	
<i>Panicum gymnocarpum</i>	Savannah panicum	
<i>Panicum hemitomom</i>	Maidencane	
<i>Panicum laxiflorum</i>	Open-flower panic grass	
<i>Panicum longifolium</i>	Panic grass	
<i>Panicum repens</i>	Torpedo grass	Exotic
<i>Panicum rigidulum</i>	Redtop panic grass	
<i>Panicum sp.</i>	Panic grass	
<i>Panicum spretum</i>	Eaton's panic grass	
<i>Panicum tenerum</i>	Bluejoint panicum	
<i>Panicum verrucosum</i>	Warty panicum	
<i>Parietaria floridana</i>	Florida pellitory	
<i>Parthenocissus quinquefolia</i>	Virginia creeper	
<i>Paspalum acuminatum</i>	Brook crowngass	
<i>Paspalum caespitosum</i>	Blue paspalum	
<i>Paspalum conjugatum</i>	Sour paspalum	Exotic
<i>Paspalum dilatatum</i>	Dallisgrass	
<i>Paspalum dissectum</i>	Mudbank crownglass	
<i>Paspalum distichum</i>	Knotgrass	
<i>Paspalum fibriatum</i>	Fringed paspalum	
<i>Paspalum floridanum</i>	Florida paspalum	
<i>Paspalum laeve</i>	Field paspalum	
<i>Paspalum notatum</i>	Bahia grass	Exotic
<i>Paspalum plicatulum</i>	Brown-seed paspalum	
<i>Paspalum repens</i>	Water paspalum	
<i>Paspalum setaceum</i>	Thin paspalum	
<i>Paspalum sp.</i>	Paspalum sp.	
<i>Paspalum urvillei</i>	Vasey grass	
<i>Persea borbonia</i>	Red bay	
<i>Persea palustris</i>	Swamp bay	
<i>Petiveria alliacea</i>	Guinea-hen weed	
<i>Phanopyrum gymnocarpon</i>	Savannah panicum	
<i>Phlebodium aureum</i>	Golden polypody	
<i>Phyla nodiflora</i>	Frog-fruit	
<i>Phlebodium aureum</i>	Golden serpent fern	
<i>Phoebanthus grandiflorus</i>	Florida false sunflower	
<i>Phoradendron leucarpum</i>	Oak mistletoe	
<i>Phoradendron serotinum</i>	Mistletoe	
<i>Phyllanthus tenellus</i>	Long-stalked phyllanthus	
<i>Phyllanthus urinaria</i>	Leaf-flower	
<i>Phytolacca americana</i>	Pokeberry	
<i>Piloblephis rigida</i>	Wild penny royal	
<i>Pinguicula lutea</i>	Yellow butterwort	Threaten (S)
<i>Pinguicula pumila</i>	Small butterwort	
<i>Pinus clausa</i>	Sand pine	
<i>Pinus elliottii var. densa</i>	Slash pine	
<i>Pinus palustris</i>	Longleaf pine	
<i>Pinus serotina</i>	Pond pine	

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<i>Pluchea camphorata</i>	Camphorweed	
<i>Pluchea odorata</i>	Sweetscent	
<i>Pluchea rosea</i>	Rosy camphorweed	
<i>Piriqueta caroliniensis</i>	Piriqueta	
<i>Piriqueta cistoides</i>	Pitted stripeeed	
<i>Pistia stratiotes</i>	Water lettuce	Exotic
<i>Pityopsis graminifolia</i>	Golden aster	
<i>Plantago major</i>	Common plantain	
<i>Plantago virginica</i>	Southern plantain	
<i>Pluchea foetida</i>	Marsh fleabane	
<i>Pluchea longifolia</i>	Tall white fleabane	
<i>Pluchea odorata</i>	Salt marsh fleabane	
<i>Pluchea rosea</i>	Perennial marsh fleabane	
<i>Polygala cymosa</i>	Tall milkwort	
<i>Polygala grandiflora</i>	Large-flowered polygala	
<i>Polygala incarnata</i>	Procession flower	
<i>Polygala lutea</i>	Candy weed	
<i>Polygala nana</i>	Dwarf bachelor's button	
<i>Polygala rugelii</i>	Yellow milkwort	
<i>Polygala setacea</i>	Coastal-plain milkwort	
<i>Polygonella polygama</i> v. <i>polygama</i>	Jointweed	
<i>Polygonum densiflorum</i>	Smartweed	
<i>Polygonum hirsutum</i>	Hairy smartweed	
<i>Polygonum hydropiperoides</i>	Smartweed	
<i>Polygonum pensylvanicum</i>	Pennsylvania smartweed	
<i>Polygonum punctatum</i>	Dotted smartweed	
<i>Polygonum setaceum</i>	Stubble smartweed	
<i>Polypodium polypodioides</i>	Resurrection fern	
<i>Polypremum procumbens</i>	Rustweed	
<i>Pontederia cordata</i> var. <i>lancifolia</i>	Pickerelweed	
<i>Portulaca pilosa</i>	Pink purslane	
<i>Proserpinaca palustris</i>	Marsh mermaid-weed	
<i>Proserpinaca pectinata</i>	Cut-leaf Mermaid-weed	
<i>Psidium guajava</i>	Guava	Exotic
<i>Psilocarya nitens</i>	Bald-rush	
<i>Psilotum nudum</i>	Whisk fern	
<i>Pteridium aquilinum</i> v. <i>latiusculum</i>	Bracken fern	
<i>Pterocaulon pycnostachyum</i>	Blackroot	
<i>Pterocaulon virgatum</i>	Blackroot	
<i>Pteroglossaspis ecristate</i>	Giant orchid	Threaten(S) FNAI
<i>Ptilimnium capillaceum</i>	Mock Bishop's weed	
<i>Pyrrhopappus carolinianus</i>	Carolina false dandelion	
<i>Quercus chapmanii</i>	Chapman's oak	
<i>Quercus geminata</i>	Sand live oak	
<i>Quercus hemispherica</i>	Upland laurel oak	
<i>Quercus incana</i>	Bluejack/Gray oak	
<i>Quercus inopina</i>	Scrub oak	
<i>Quercus laevis</i>	Turkey oak	
<i>Quercus laurifolia</i>	Laurel oak	

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<i>Quercus lyrata</i>	Overcup oak
<i>Quercus minima</i>	Dwarf live oak
<i>Quercus myrtifolia</i>	Myrtle oak
<i>Quercus pumila</i>	Running oak
<i>Quercus nigra</i>	Water oak
<i>Quercus virginiana</i>	Live oak
<i>Rhexia cubensis</i>	Meadowbeauty
<i>Rhexia mariana</i> var. <i>mariana</i> (God)	Meadowbeauty
<i>Rhexia nashii</i>	Nash's meadow beauty
<i>Rhexia nuttallii</i>	Nuttall's meadow beauty
<i>Rhexia petiolata</i>	Ciliate meadow beauty
<i>Rhus copallina</i>	Winged sumac
<i>Rhynchelytrum repens</i>	Red natalgrass
<i>Rhynchospora caduca</i>	Falling beakrush
<i>Rhynchospora cephalantha</i>	Clustered beakrush
<i>Rhynchospora chalarocephala</i>	Large headed beakrush
<i>Rhynchospora ciliaris</i>	Ciliated Beakrush
<i>Rhynchospora colorata</i> (<i>Dichromena colorata</i>)	White-top sedge
<i>Rhynchospora corniculata</i>	Horned rush
<i>Rhynchospora fascicularis</i>	Fascicled beakrush
<i>Rhynchospora fernaldii</i>	Fernald's beakrush
<i>Rhynchospora globularis</i>	Round headed beak rush
<i>Rhynchospora intermedia</i>	Flatwoods beak rush
<i>Rhynchospora inundata</i>	Inundated beakrush
<i>Rhynchospora latifolia</i>	Giant white-top sedge
<i>Rhynchospora megalocarpa</i>	Sandy-field beak sedge
<i>Rhynchospora microcarpa</i>	Little-seed beakrush
<i>Rhynchospora microcephala</i>	Southern beakrush
<i>Rhynchospora microcephala</i>	Small headed beakrush
<i>Rhynchospora miliacea</i>	Swamp beak rush
<i>Rhynchospora mixta</i>	Mingles beakrush
<i>Rhynchospora odorata</i>	Fragrant beaksedge
<i>Rhynchospora pleiantha</i>	Coastal beaksedge
<i>Rhynchospora plumosa</i>	Flatwoods beak rush
<i>Rhynchospora pusilla</i>	Fairy beakrush
<i>Rhynchospora nitens</i>	Bald-rush
<i>Rhynchospora</i> sp.	Beakrush
<i>Rhynchospora tracyi</i>	Narrow beak rush
<i>Rhynchospora wrightiana</i>	Wright's beakrush
<i>Richardia brasiliensis</i>	Mexican clover
<i>Richardia scabra</i>	Rough diamond flower
<i>Rorripa teres</i>	Southern marsh yellowcress
<i>Rubus argutus</i>	Highbush blackberry
<i>Rubus betulifolius</i>	Blackberry
<i>Rubus cuneifolius</i>	Sand blackberry
<i>Rubus trivialis</i>	Southern dewberry
<i>Rumex hastatulus</i>	Hastate-leaved dock
<i>Rhynchospora decurrens</i>	Swamp-forest beakrush

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<i>Rynchospora inundata</i>	Horned beakrush	
<i>Sabal minor</i>	Dwarf palmetto	
<i>Sabal palmetto</i>	Sabal palm	
<i>Sabatia brevifolia</i>	White sabatia	
<i>Sabatia grandiflora</i>	Rose-gentian	
<i>Saccharum giganteum</i>	Sugarcane plumegrass	
<i>Saccharum officinarum</i>	Sugarcane	
<i>Sacciolepis indica</i>	India cupscale grass	Exotic
<i>Sacciolepis striata</i>	American cupscale	
<i>Sagittaria graminea</i>	Grassy arrowhead	
<i>Sagittaria isoetiformis</i>	Quillwort arrowhead	
<i>Sagittaria kurziana</i>	Springtape	
<i>Sagittaria lancifolia</i>	Arrowhead	
<i>Sagittaria latifolia</i>	Common Arrowhead	
<i>Sagittaria subulata</i>	Water arrowhead	
<i>Sagittaria subulata v. stagnorum</i>	Dwarf arrowhead	
<i>Salix caroliniana</i>	Carolina willow	
<i>Salvia lyrata</i>	Lyre-leaved sage	
<i>Salvinia minima</i>	Water spangles	
<i>Sambucus canadensis</i>	Elderberry	
<i>Sapium sebiferum</i>	Chinese tallow	Exotic
<i>Sarcostemma clausum</i>	White twinvine	
<i>Saururus cernuus</i>	Lizard's tail	
<i>Schinus terebinthifolius</i>	Brazilian pepper	Exotic
<i>Schizachyrium stoloniferum</i>	Creeping bluestem	
<i>Scirpus californicus</i>	Giant Bulrush	
<i>Scirpus cubensis</i>	Bulrush	
<i>Scirpus tabernaemontani</i>	Softstem bulrush	
<i>Scirpus validus</i>	Soft bulrush	
<i>Scleria ciliata</i>	Nut rush	
<i>Scleria pauciflora</i>	Few-flower nutrush	
<i>Scleria reticularis</i>	Reticulated nut-grass	
<i>Scleria triglomerata</i>	Tall nutgrass	
<i>Scleria verticillata</i>	Pineland nut rush	
<i>Scoparia dulcis</i>	Goat-weed	
<i>Senecio glabellus</i>	Butterweed	
<i>Senna ligustrina</i>	Privet wild sensitive plant	
<i>Senna obtusifolia</i>	Sicklepod	
<i>Senna occidentalis</i>	coffee senna	
<i>Serona repens</i>	Saw palmetto	
<i>Sesbania emerus</i>	Hemp sesbania	
<i>Sesbania punicea</i>	Red-flowered sesbania	Exotic
<i>Sesbania vesicaria</i>	Bagpod	
<i>Setaria geniculata</i>	Knotroot bristlegrass	
<i>Setaria parviflora</i>	Yellow bristlegrass	
<i>Seymeria pectinata</i>	Piedmont seymeria	
<i>Sida acuta</i>	Broomweed	
<i>Sida cordifolia</i>	Broomweed	
<i>Sida rhombifolia</i>	Arrow-leaf sida	

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<i>Sida santaremensis</i>	Moth fanpetals	
<i>Sisyrinchium angustifolium</i>	Narrow-winged blue-eyed grass	
<i>Sisyrinchium atlanticum</i>	Easter blue-eyed grass	
<i>Sisyrinchium exile</i>	Yellow blue-eyed grass	
<i>Smilax auriculata</i>	Greenbrier	
<i>Smilax bona-nox</i>	Catbrier	
<i>Smilax havanensis</i>	Sarsaparilla	
<i>Smilax laurifolia</i>	Bamboo-vine	
<i>Smilax pumila</i>	Dwarf smilax	
<i>Smilax smallii</i>	Lance-leaf greenbrier	
<i>Smilax tamnoides</i>	Bristly greenbrier	
<i>Smilax walteri</i>	Coral breenbrier	
<i>Solanum americanum</i>	Common Nightshade	
<i>Solanum capsicoides</i>	Soda apple	Exotic
<i>Solanum carolinense</i>	Horse-nettle	
<i>Solanum jamaicensa</i>	Jamaican Nightshade	Exotic
<i>Solanum viarum</i>	Tropical soda apple	Exotic
<i>Solanum torvum</i>	Turkeyberry	Exotic
<i>Solidago gigantea</i>	Giant Goldenrod	
<i>Solidago fistulosa</i>	Marsh goldenrod	
<i>Solidago latissimifolia</i>	Elliott's goldenrod	
<i>Solidago odora v. chapmanii</i>	Sweet goldenrod	
<i>Solidage sempervirens</i>	Goldenrod	
<i>Solidago tortifolia</i>	Twisted-leaf goldenrod	
<i>Sonchus asper</i>	Spiny-leaved sow thistle	
<i>Sonchus oleraceus</i>	Common sow thistle	
<i>Sorghastrum secundum</i>	Lopsided indiagrass	
<i>Sparganium americanum</i>	American burreed	
<i>Spartina bakeri</i>	Sand cord grass	
<i>Spermacoce assurgens</i>	large-leaf button weed	
<i>Spermacoce verticillata</i>	White head broom	
<i>Spiranthes longilabris</i>	Giantspiral ladiestresses	
<i>Sphagnum sp.</i>	Sphagnum moss	
<i>Spiranthes vernalis</i>	Spring ladies'-tresses	
<i>Sporobolus indicus</i>	Smutgrass	
<i>Stachys floridana</i>	Hedgenettle	
<i>Stillingia sylvatica</i>	Upland queen's delight	
<i>Stipulicida setacea</i>	Wireweed	
<i>Syngonanthus Flavidulus</i>	Bantam-button	
<i>Taxodium ascendens</i>	Pond cypress	
<i>Taxodium distichum</i>	Bald cypress	
<i>Tephrosia hispidula</i>	Spreading hoary-pea	
<i>Teucrium canadense</i>	Wood sage	
<i>Thalia geniculata</i>	Alligator flag	
<i>Thelypteris augescens</i>	Cypress shield fern	Threatened (S)
<i>Thelypteris hispidula</i>	Hairy maiden fern	
<i>Thelypteris interrupta</i>	Spreading tri-vein fern	
<i>Thelypteris kinthii</i>	Southern shield fern	
<i>Tillandsia bartramii</i>	Wild pine	

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<i>Tillandsia balbisiana</i>	Bulbous wild pine	Endangered
<i>Tillandsia fasciculata</i>	Stiff-leaved wild pine	
<i>Tillandsia recurvata</i>	Ball moss	
<i>Tillandsia setacea</i>	Wild pine	
<i>Tillandsia simulata</i>	Wild pine	
<i>Tillandsia usneoides</i>	Spanish moss	
<i>Tillandsia utriculata</i>	Giant wild pine airplant	
<i>Toxicodendron radicans</i>	Poison ivy	
<i>Triadenum virginicum</i>	St. John's Wort	
<i>Trifolium repens</i>	White clover	
<i>Typha domingensis</i>	Southern cattail	Nuisance
<i>Typha latifolia</i>	Common cattail	
<i>Typha sp.</i>	Cattail	
<i>Ulmus americana</i>	American elm	Exotic
<i>Urena lobata</i>	Cesarweed	
<i>Urochloa mutica</i>	Paragrass	Exotic
<i>Urtica chamaedryoides</i>	Heartleaf nettle	
<i>Utricularia cornuta</i>	Horned bladderwort	
<i>Utricularia floridana</i>	Florida bladderwort	
<i>Utricularia foliosa</i>	Flat-stem bladderwort	
<i>Utricularia gibba</i>	Humped bladderwort	
<i>Utricularia subulata</i>	Zigzag bladderwort	
<i>Vaccinium corymbosum</i>	Highbush	
<i>Vaccinium darrowii</i>	Glaucous blueberry	
<i>Vaccinium myrsinites</i>	Shiny blueberry	
<i>Vaccinium staminoides</i>	Deerberry	
<i>Verbena scabra</i>	Harsh verbena	
<i>Verbesina virginica</i>	Frostweed	
<i>Vicia acutifolia</i>	Fourleaf vetch	
<i>Viola lanceolata</i>	Long leaf violet	
<i>Viola primulifolia</i>	Primrose-leaved violet	
<i>Vitis cinerea var. floridana</i>	Florida grape	
<i>Vitis munsoniana</i>	Southern fox grape	Nuisance
<i>Vitis rotundifolia</i>	Fox grape	
<i>Vitis shuttleworthii</i>	Calusa grape	
<i>Vitis sp.</i>	Wild grape	
<i>Vitis vulpina</i>	Frost grape	
<i>Vittaria lineata</i>	Shoestring fern	
<i>Woodwardia areolata</i>	Netted chain fern	
<i>Woodwardia virginiana</i>	Virginia chain fern	
<i>Ximania americana</i>	Hog plum	
<i>Xyris ambigua</i>	Morning yellow-eyed grass	
<i>Xyris brevifolia</i>	Short-leaved Yellow-eyed grass	
<i>Xyris caroliniana</i>	Yellow-eyed grass	
<i>Xyris difformis v. floridana</i>	Yellow-eyed grass	
<i>Xyris elliotii</i>	Elliott's yellow-eyed grass	
<i>Xyris fimbriata</i>	Yellow-eyed grass	
<i>Xyris flabelliformis</i>	Savannah yellow-eyed grass	
<i>Xyris jupicai</i>	Tropical yellow-eyed grass	

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<i>Xyris platylepis</i>	Twisted yellow-eyed grass
<i>Xyris smalliana</i>	Yellow-eyed grass
<i>Xyris sp.</i>	Yellow-eyed grass
<i>Zanthoxylum clava-herculis</i>	Hercules-club

Avian composition of the Kissimmee Chain of Lakes Management Area

FWC = Florida Fish & Wildlife Conservation Commission
SSC = Species of Special Concern
X = FNAI Listed

T = Threatened
E = Endangered

Scientific Binomial	Common Name	FWC Status
<i>Acciper striatus</i>	Sharp shinned hawk	
<i>Accipiter cooperii</i>	Cooper's hawk	X
<i>Actitis macularia</i>	Spotted sandpiper	
<i>Agelaius phoeniceus</i>	Red-winged blackbird	
<i>Aix sponsa</i>	Wood duck	
<i>Anas discors</i>	Blue winged teal	
<i>Anas fulvigula</i>	Mottled duck	
<i>Anas rubripes</i>	Black duck	
<i>Anhinga anhinga</i>	Anhinga	
<i>Aphelocoma coerulescens</i>	Florida scrub jay	X
<i>Aramus guarauna</i>	Limpkin	X
<i>Ardea herodias</i>	Great blue heron	
<i>Aythya affinis</i>	Lesser scaup	
<i>Aythya collaris</i>	Ring necked duck	
<i>Botaurus lentiginosus</i>	American bittern	
<i>Bubo virginianus</i>	Great horned owl	
<i>Bubulcus ibis</i>	Cattle egret	
<i>Buteo jamaicensis</i>	Red tailed hawk	
<i>Buteo lineatus</i>	Red-shouldered hawk	
<i>Buteo platypterus</i>	Broad winged hawk	
<i>Butorides striatus</i>	Green heron	
<i>Butorides virescens</i>	Green heron	
<i>Caprimulgus carolinensis</i>	Chuck will's widow	
<i>Caracara cheriway</i>	Crested Caracara	T, X
<i>Cardinalis cardinalis</i>	Northern Cardinal	
<i>Casmerodius albus</i>	Great egret	X
<i>Cathartes aura</i>	Turkey Vulture	
<i>Ceryle alcyon</i>	Belted kingfisher	
<i>Charadrius vociferus</i>	Killdeer	
<i>Chordeiles minor</i>	Common nighthawk	
<i>Circus cyaneus</i>	Marsh hawk	

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<i>Coccyzus americanus</i>	Yellow billed cuckoo	
<i>Colaptes auratus</i>	Northern flicker	
<i>Colinus virginianus</i>	Northern bobwhite	
<i>Columbina passerina</i>	Common ground dove	
<i>Contopus virens</i>	Eastern wood pewee	
<i>Coragyps atratus</i>	Black vulture	
<i>Corvus brachyrhynchos</i>	American crow	
<i>Corvus ossifragus</i>	Fish crow	
<i>Cyanocitta cristata</i>	Blue jay	
<i>Dendroica caerulescens</i>	Black throated blue warbler	
<i>Dendroica discolor</i>	Prairie warbler	
<i>Dendroica dominica</i>	Yellow throated warbler	
<i>Dendroica palmarum</i>	Palm warbler	
<i>Dendroica pinus</i>	Pine warbler	
<i>Dryocopus pileatus</i>	Pileated woodpecker	
<i>Dumetella carolinensis</i>	Gray catbird	
<i>Egretta caerulea</i>	Little blue heron	X
<i>Egretta thula</i>	Snowy Egret	X
<i>Egretta tricolor</i>	Tricolored (=Louisiana) heron	X
<i>Elanoides forficatus</i>	Swallow-tailed kite	X
<i>Eudocimus albus</i>	White ibis	SSC, X
<i>Falco sparverius paulus</i>	American kestrel	T
<i>Fulica americana</i>	American coot	
<i>Gallinago gallinago</i>	Common snipe	
<i>Gallinula chloropus</i>	Common moorhen	
<i>Geothlypis trichas</i>	Common yellowthroat	
<i>Grus americana</i>	Whooping crane	E
<i>Grus canadensis pratensis</i>	Florida sandhill crane	T, X
<i>Haliaeetus leucocephalus</i>	Bald eagle	T, X
<i>Himantopus mexicanus</i>	Black-necked stilt	
<i>Lanius ludovicianus</i>	Loggerhead shrike	
<i>Larus delawarensis</i>	Ring billed gull	
<i>Melanerpes carolinus</i>	Red bellied woodpecker	
<i>Melanerpes erythrocephalus</i>	Red headed woodpecker	
<i>Meleagris gallopavo</i>	Wild turkey	
<i>Mimus polyglottis</i>	Mockingbird	
<i>Mniotilta varia</i>	Blank and white warbler	
<i>Mycteria americana</i>	Wood stork	E, X
<i>Myiarchus crinitus</i>	Great crested flycatcher	
<i>Otus asio</i>	Eastern screech owl	
<i>Pandion haliaetus</i>	Osprey	SSC, X
<i>Parula americana</i>	Northern parula	
<i>Parus bicolor</i>	Tufted titmouse	
<i>Phalacrocorax auritus</i>	Double crested cormorant	
<i>Picoides pubescens</i>	Downy woodpecker	
<i>Picoides villosus</i>	Hairy woodpecker	X
<i>Pipilo erythrophthalmus</i>	Rufous sided towhee	
<i>Piranga rubra</i>	Summer tanager	
<i>Plegadis falcinellus</i>	Glossy ibis	X

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<i>Podilymbus podiceps</i>	Pied billed grebe	
<i>Polioptila caerulea</i>	Blue gray gnatcatcher	
<i>Porphyryula martinica</i>	Purple gallinule	
<i>Progne subis</i>	Purple martin	
<i>Quiscalus major</i>	Boat tailed grackle	
<i>Quiscalus quiscula</i>	Common grackle	
<i>Rostrhamus sociabilis plumbeus</i>	Everglades kite	X
<i>Sayornis phoebe</i>	Eastern phoebe	
<i>Seiurus motacilla</i>	Louisiana waterthrush	X
<i>Seiurus noveboracensis</i>	Northern waterthrush	
<i>Setophaga ruticilla</i>	American redstart	X
<i>Sialia sialis</i>	Eastern bluebird	
<i>Sterna forsteri</i>	Forster's tern	
<i>Strix varia</i>	Barred owl	
<i>Sturnella magna</i>	Eastern Meadowlark	
<i>Tachycineta bicolor</i>	Tree Swallow	
<i>Thryothorus ludovicianus</i>	Carolina wren	
<i>Toxostoma rufum</i>	Brown thrasher	
<i>Tringa flavipes</i>	Lesser yellowlegs	
<i>Tringa melanoleuca</i>	Greater yellowlegs	
<i>Turdus migratorius</i>	American robin	
<i>Tyrannus tyrannus</i>	Eastern kingbird	
<i>Tyto alba</i>	Common barn owl	
<i>Vireo flavifrons</i>	Yellow throated vireo	
<i>Vireo griseus</i>	White eyed vireo	
<i>Vireo olivaceus</i>	Red eyed vireo	
<i>Vireo solitarius</i>	Solitary vireo	
<i>Zenaida macroura</i>	Mourning dove	

Mammalian species of the Kissimmee Chain of Lakes

FWC = Florida Fish & Wildlife Conservation Commission

SSC = Species of Special Concern

EX = Exotic

T = Threatened

E = Endangered

Scientific Binomial	Common Name	FWC Status
<i>Blarina brevicauda</i>	Short tailed schrew	
<i>Cryptotis parva</i>	Least schrew	
<i>Dasyopus novemcinctus</i>	Nine-banded Armadillo	EX
<i>Didelphis marsupialis</i>	Opossum	
<i>Equus caballus</i>	Horse	
<i>Felis rufus</i>	Bobcat	
<i>Lutra canadensis</i>	River otter	
<i>Neofiber alaleni</i>	Round tailed muskrat	
<i>Odocoileus virginianus</i>	White-tailed deer	
<i>Oryzomys palustris</i>	Eastern rice rat	
<i>Peromyscus gossypinus</i>	Cotton mouse	

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<i>Procyon lotor</i>	Raccoon	
<i>Sciurus carolinensis</i>	Eastern grey squirrel	
<i>Sciurus niger shermani</i>	Sherman's fox squirrel	E
<i>Sus scrofa</i>	Feral hog	
<i>Sylvilagus floridanus</i>	Eastern cottontail	
<i>Sylvilagus palustris</i>	Marsh rabbit	

Herpetofaunal Species of the Kissimmee Chain of Lakes

FWC = Florida Fish & Wildlife Conservation Commission
SSC = Species of Special Concern
T = Threatened

E = Endangered
EX = Exotic

Scientific Binomial	Common Name	FWC Status
SNAKES		
<i>Agkistrodon piscivorus conanti</i>	Florida cottonmouth	
<i>Coluber constrictor</i>	Black racer	
<i>Diadophis punctatus punctatus</i>	Southern ringneck snake	
<i>Elaphe guttata guttata</i>	Corn snake	
<i>Elaphe obsoleta quadrivittata</i>	Yellow rat snake	
<i>Lampropeltis getulus</i>	Common kingsnake	
<i>Nerodia cyclopion floridana</i>	Green water snake	
<i>Nerodia fasciata pictiventris</i>	Florida water snake	
<i>Ophedrys aestivus</i>	Rough green snake	
<i>Reginal alleni</i>	Striped crayfish snake	
<i>Sistrurus miliaris barbouri</i>	Dusky pygmy rattlesnake	
<i>Thamnophis sirtalis sirtalis</i>	Eastern garter snake	
REPTILES		
<i>Alligator mississippiensis</i>	American Alligator	SSC
<i>Anolis carolinensis</i>	Green anole	
<i>Anolis sagrei sagrei (exotic)</i>	Brown anole	
<i>Apalone ferox</i>	Florida softshell turtle	
<i>Chelydra serpentina</i>	Snapping turtle	
<i>Cnemidophorus sexilineatus</i>	Six lined racerunner	
<i>Deirochelys reticularia chrysea</i>	Florida chicken turtle	
<i>Eumeces inexpectatus</i>	Southeastern five lined skink	
<i>Gopherus polyphemus</i>	Gopher tortoise	T
<i>Kinosternon subrubrum</i>	Florida mud turtle	
<i>Ophisaurus ventralis</i>	Eastern glass lizard	
<i>Pseudemys floridana peninsularis</i>	Peninsular cooter	
<i>Pseudemys neisoni</i>	Florida redbelly turtle	
<i>Sceloporus undulatus undulatus</i>	Southern fence swift	
<i>Scincella lateralis</i>	Ground skink	
<i>Sternotherus odoratus</i>	Common stinkpot turtle	

Terrapene carolina carolina

Florida Box turtle

AMPHIBIANS

Acris gryllus dorsalis

Florida cricket frog

Bufo quercicus

Oak toad

Bufo terrestris

Southern toad

Eurycea quadridigitata

Dwarf salamander

Hyla cinerea

Green treefrog

Hyla femoralis

Pinewoods treefrog

Hyla squirella

Squirrel treefrog

Notophthalmus viridescens

Peninsula newt

Rana grylio

Pig frog

Rana sphenoccephala

Southern Leopard frog

Rana utricularia

Southern Leopard frog

Appendix E: Land Stewardship Program Success Indicators

Success Indicator:	Amount of natural communities meeting their appropriate fire return intervals
Appearing in:	Strategic Plan
Program:	Land Stewardship
Definition:	Return Interval targets: Scrub: 10 – 20 years, Sandhill: 3 years, Dry Prairie: 2 years, Pinelands: 3 years, Freshwater Marsh (Basin, Floodplain, and Depression) and wet prairie: 3 years, Marl Prairies: 10-20 years Sawgrass Marsh (Swale): 5 years salt marsh: 15 years
Data Source(s):	Native Vegetative Communities within the Florida Fish and Wildlife Conservation Commission's FLVEG03 raster based map; Shapefiles of areas burned within District Management Areas
Reporting Period:	Fiscal year
Reporting Frequency:	Once a year, at end of fiscal year
Aligned Strategy:	Implement recommended fire return intervals
Why is Success Indicator important:	District natural lands managed by the Land Stewardship Division contain over 96,000 acres of fire dependant natural communities including scrub, pinelands, wet and dry prairies, and marshes. Fire dependant communities are typically much more biologically diverse than their non-fire dependant communities. Not burning these communities at the appropriate interval triggers ecological succession to a less diverse community type and creates a wildfire hazard through the multi-decadal succession process through the accumulation of heavy flammable fuels.
Target(s):	Districtwide: 95% of natural communities within their target return interval
Target definition source:	Return intervals are from the Florida Natural Areas Inventory Guide to the Natural Communities of Florida, 1990.

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Success Indicator:	Percentage of land at an acceptable level of exotics infestation
Appearing in:	Strategic Plan
Program:	Land Stewardship
Definition:	<p>Unacceptable: land with more than 10% exotic coverage to include medium and high level infestations</p> <p>Heavy: Percentage of area with more than 50% exotics coverage.</p> <p>Medium: Percentage of area with less than 50% exotics coverage but more than low or maintenance level.</p> <p>Acceptable: land with less than or equal to 10% exotic coverage to include low and maintenance level infestations</p> <p>Low: Percentage of area with 10% or less exotics coverage but more than 1% exotics coverage. Regular maintenance treatments are required to keep the area clear.</p> <p>Maintenance: Percentage of area with 1% or less exotics coverage.</p> <p>Total Acres Treated: Total acres covered while implementing exotic control measures (manual, chemical, and mechanical)</p> <p>Note: exotic coverage doesn't include widespread improved pasture grasses such as Bahia grass, but would include exotics such as tropical soda apple scattered throughout the pasture.</p>
Data Source(s):	Weedar, Land Stewardship monthly land management activity reports, Land Stewardship Exotic Coverage spreadsheet prepared by land managers
Reporting Period:	Fiscal year
Reporting Frequency:	Once a year, at end of fiscal year
Aligned Strategy:	Effective Natural Resource Management
Why is Success Indicator important:	District natural lands managed by the Land Stewardship Division are under threat by approximately 124 highly invasive non-native plants (EPPC 2007 category 1 and 2 for central and south Florida). In the absence of control efforts these species adeptly establish themselves in natural communities, displacing native species and over time can create monocultures completely bereft of Florida's native bio-diversity. Some species also disrupt the ability of the District to effectively manage water resources including plants like melaleuca that have such a high evapo-transpiration rate that they can drain broad areas of wetlands and aquatic weeds that can choke waterways and foul control structures.
Target(s):	Maintain at least 73% of conservation lands at an acceptable level
Target definition source:	Land Stewardship Exotic Coverage spreadsheet

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Success Indicator:	Unrestricted District lands open to the public
Appearing in:	Strategic Plan
Program:	Land Stewardship
Definition:	All District lands are open with a public recreational use area provided such use is practicable and is conducted in a manner consistent with legislative directives, intended uses, legal considerations, and resource protection. District lands are restricted to public use during project construction or when an active agricultural lease exists that prohibits public use. The District's Public Recreational Access and Use Policy adopted by the Governing Board in 2004 is a commitment to plan, manage, and promote public recreational use on District lands which is compatible and consistent with the primary purpose for which the lands were acquired.
Data Source(s):	Land Stewardship Recreation Program spreadsheet
Reporting Period:	Annually
Reporting Frequency:	Annually
Aligned Strategy:	Maximize appropriate nature-based recreation.
Why is Success Indicator important:	The success indicator ensures District lands are open to the public which is consistent with the District's Public Use Policy.
Target(s):	District lands open to the public is 100% unless during project construction or when an active agricultural lease exists which prohibits public use.
Target definition source:	Land Stewardship Recreation Program spreadsheet

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Success Indicator:	Recreation capital projects completed on schedule and within budget.
Appearing in:	Strategic Plan
Program:	Land Stewardship
Definition:	The District's Public Recreational Access and Use Policy adopted by the Governing Board in 2004 is a commitment to plan, manage, and promote public recreational use on District lands which is compatible and consistent with the primary purpose for which the lands were acquired. Capital improvement projects provide the necessary amenities and facilities which enhance the public's ability to access and recreate on District lands. These projects include such facilities as parking areas/trailheads, boardwalks, shelters, and boat ramps.
Data Source(s):	Five-year Recreation Management and Partnership Plan and Five-year capital improvement plan (budget spreadsheet).
Reporting Period:	Fiscal year
Reporting Frequency:	Semi-annual updates
Aligned Strategy:	Maximize appropriate nature-based recreation.
Why is Success Indicator important:	Capital improvement projects are constructed on District lands to provide adequate public access consistent with the District's Public Use Policy. The success indicator ensures these projects are planned, designed and constructed and within the budgeted fiscal year.
Target(s):	80%of recreation capital projects completed on schedule and within budget
Target definition source:	District's Public Recreational Access and Use Policy, Five-year Recreation Management and Partnership Plan and Five-year capital improvement plan (budget spreadsheet).

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Success Indicator:	Infrastructure projects completed on schedule and within budget
Appearing in:	Annual work plan (budget spreadsheet)
Program:	Land Stewardship
Definition:	Repair/replace as needed: <ul style="list-style-type: none"> • Fences • Gates • Roads • Culverts • Building repairs <ul style="list-style-type: none"> ○ Roofs ○ Septic tanks ○ AC units
Data Source(s):	Land Stewardship Infrastructure Inventory (in prep)
Reporting Period:	Fiscal year
Reporting Frequency:	Annual updates
Aligned Strategy:	Manage and maintain all facilities
Why is Success Indicator important:	Fences, gates, roads, culverts necessary for maintaining site security, and providing management and public access to District lands. District owns & is responsible for major structure maintenance of several law enforcement officer residences
Target(s):	80% of infrastructure repair projects completed on schedule and within budget
Target definition source:	Infrastructure inventory & annual budget