

**South Florida Water Management District
Land Stewardship Division
Save Our Rivers Program**



**Kissimmee Chain of Lakes
General Management Plan
2003-2008**

October 2003

South Florida Water Management District
Land Stewardship Program
Save Our Rivers



Kissimmee Chain of Lakes
Management Area
Five-Year
General Management Plan
(2003 – 2008)

October 2003

Land Stewardship Division
South Florida Water Management District
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West Palm Beach, Florida 33416-4680

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Maps & Tables

Maps

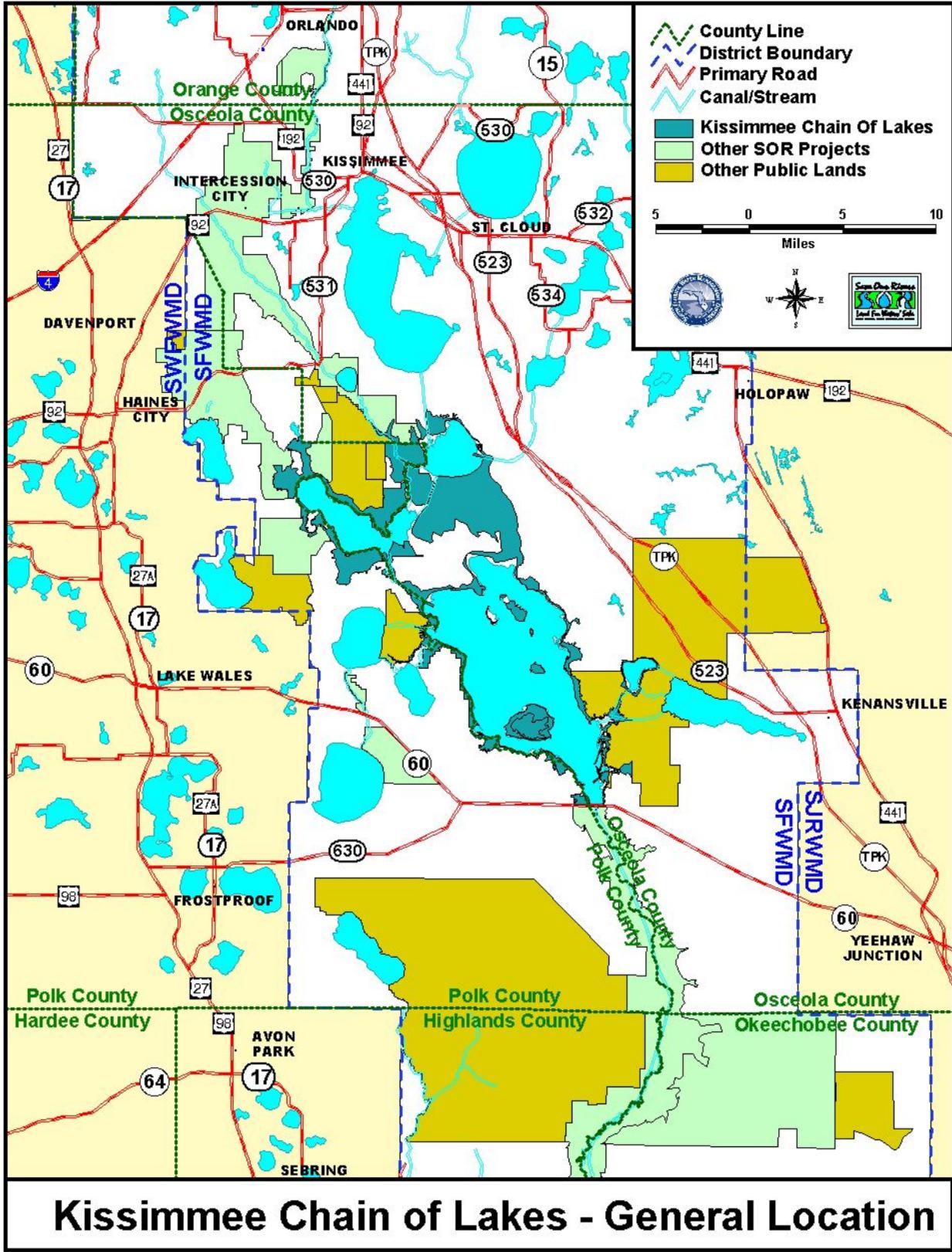
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Kissimmee Chain of Lakes - General Location

Map 1: Kissimmee Chain of Lakes General Location

1. Executive Summary

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 34,000 acres. To date, nearly 28,000 acres have been purchased in Polk and Osceola counties with funding from the Save Our Rivers and Preservation 2000 programs. This plan addresses the management of those lands for the period 2003-2008 as directed by SOR legislation.

The Kissimmee Chain of Lakes Management Area (KCOLMA) comprises 16,834 acres. The remaining 6,000 acres of District owned land in the project area are lands that are addressed in other management plans, flowage easements, and sovereign submerged lands managed by the District for the Department of Environmental Protection (DEP). The management area contains ecologically sensitive wetland and upland areas that harbor a diverse array of plant and animal species including many listed as threatened or endangered. It is characterized by a rich diversity of habitat types including hardwood swamps, pine flatwoods, cypress swamps, oak hammocks, marshes and ponds, and scrub. Wetlands comprise the majority of the management area, and most are within the 100-year flood plain.

Historically, outdoor recreational activities such as hiking, boating, hunting, horseback riding, and fishing were common in the area and will continue under the District's management program, commensurate with the environmental sensitivity of the area. As the lead management agency, the District will attempt to create formal and informal cooperative agreements for the management of these natural resource and recreational programs with those agencies and groups who possess an interest and expertise in the area. The District publishes and distributes a *Public Use Guide to Land Management Areas* for property users that defines rules and regulations, location of facilities, and recreational opportunities.

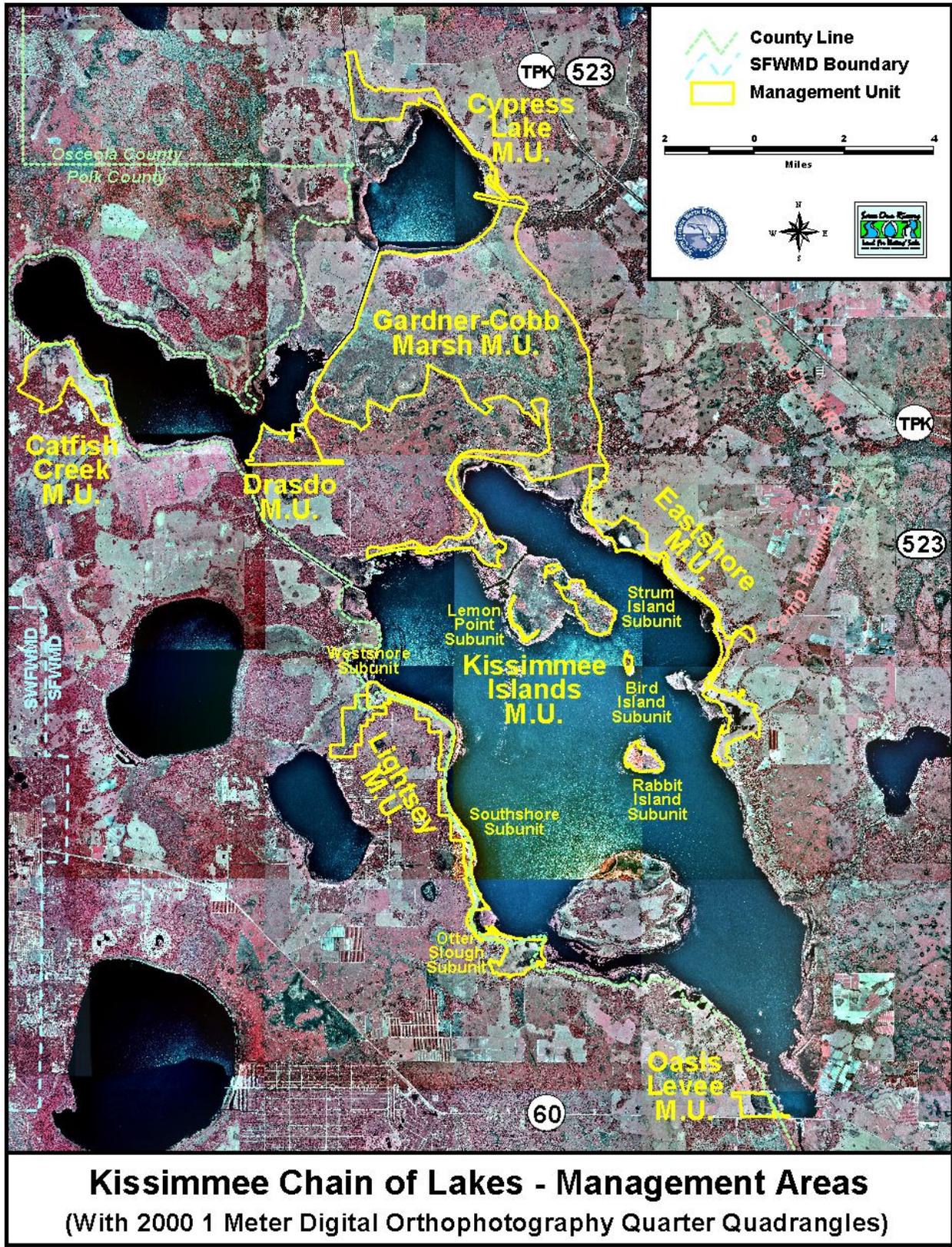
Cultural resource protection and management is an important goal of District stewardship on the KCOLMA. The Land Stewardship Program has assisted the Florida Division of Historical Resources to complete investigations of the KCOLMA historical sites. The KCOLMA contains several important Native American habitual sites that are documented in state records and protected through management activities.

Resource protection is accomplished through regular Florida Fish & Wildlife Conservation Commission (FWC) law enforcement patrols, controlled public access, and maintenance of perimeter fencing. Boundary posting and public information signage is used to encourage proper public use.

This General Management Plan describes the historical, ecological and managerial aspects of the area as a means to consolidate and coordinate efficient and effective management programs. It is a compilation of several earlier plans, assessments, and research reports combined with new information and proposals. The intent of the plan is to provide guidance to District land stewards for logical and consistent land management practices for the next five years. It is also intended to inform the public of operational procedures and organizational structures within the South

Florida Water Management District and of management activities and objectives for the Kissimmee Chain of Lakes Management Area.

The major goals for the KCOLMA for the next five years include habitat restoration, exotic plant control, prescribed burning, public use, cultural and natural resource protection, and designation of lands within the project area as a Type I Wildlife Management Area.



Kissimmee Chain of Lakes - Management Areas

(With 2000 1 Meter Digital Orthophotography Quarter Quadrangles)

Map 2: Digital Remote Imagery of the Kissimmee Chain of Lakes Management Area

2. Introduction and Site History

2.1 Kissimmee Chain of Lakes Project Background

The Kissimmee Chain of Lakes project first came into being in the early 1990s when District and U.S. Army Corps of Engineers scientists and 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 are needed for approximately 34,000 acres around lakes Kissimmee, Cypress, Tiger, and Hatchineha in eastern Polk and southwestern Osceola counties. To date, nearly 28,000 acres have been acquired.

In 1981, the Florida Legislature established the Save Our Rivers (SOR) Program for the five water management districts to acquire environmentally sensitive land. The legislation (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.

The District manages over 250,000 acres through the Land Stewardship Program. As steward of District natural areas, the LSP provides natural resource protection and management while allowing compatible recreational use. Management and use of land acquired by the District under SOR and Preservation 2000 must satisfy several requirements in Florida statutes. The most significant of these is set forth in Section 373.59(4) (a) stating that money from the Water Management Lands Trust Fund should be used to acquire lands for water management, water supply, and the conservation and protection of water resources. Once lands are acquired, they are to be managed and maintained in an environmentally acceptable manner and in such a way as to restore and protect their natural state and condition. Districts may make certain capital improvements such as fencing, signs, fire lanes, access roads and trails, and provide minimum public accommodations such as primitive campsites, garbage receptacles, and toilets. In addition, habitat management such as control of exotic species, controlled burning, habitat inventory and restoration, and law enforcement may be conducted. All lands acquired under these provisions are to be used for general recreational purposes, unless such activities are incompatible with the purposes for which the land was acquired. The District is also encouraged to use volunteers and enter agreements with other governmental agencies to provide cost-effective land management.

The District began purchasing lands for water storage, quality, and control that comprise the KCOLMA beginning in 1990 through the SOR program. The majority of land was acquired from September 1993 to July 1995. The KCOLMA comprises approximately 16,834 acres located in eastern Polk and southwestern Osceola counties. 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 LSP 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 restoration, and a public use program.

2.2 Historical Context

English speaking settlers first arrived in Polk and Osceola Counties during the 1840's and 1850's and were for the most part, cattlemen and homesteaders who lived mainly off the land. The Kissimmee River was the main conduit for steamboats supplying a flow of goods and services to and from the area. As this traffic increased, more settlers came to the area, and in due course the town of Kissimmee was incorporated. Railroads soon followed and gave rise to fledgling truck farms and citrus developments. Livestock grazing continued to increase, and in the early 1900's timber harvesting became an important part of the local economy. Several unimproved railroad grades and logging roads were created to accommodate the increasing settlement. Cattle ranching, and citrus and sod production were occurring in upland areas, but residential development was, for the most part, limited to scattered homesteads around the Chain of Lakes and in the communities of Kissimmee and St. Cloud. A major addition to the area's economy was the establishment of Disney World and other tourist attractions in the early 1970's. By the late 1970's, residential development had increased dramatically throughout the Kissimmee-Orlando area.

3. Management Plan Purpose

In 1981, the Florida Legislature established the Save Our Rivers (SOR) program which directed the five water management districts to acquire environmentally sensitive lands. The legislation (373.59 F.S.) established the Water Management Lands Trust Fund and enabled the water management districts to acquire lands needed to manage, protect, and conserve the state's water resources.

The South Florida Water Management District manages over 250,000 acres through the Land Stewardship Program (LSP). As steward of District natural areas, the LSP provides natural resource protection and management while allowing compatible recreational use. Management and use of land acquired by the District under SOR and Preservation 2000 must satisfy several requirements in Florida statutes. The most significant of these is set forth in Section 373.59(4) (a) stating that money from the Water Management Lands Trust Fund should be used to acquire lands for water management, water supply, and the conservation and protection of water resources. Once lands are acquired, they are to be managed and maintained in an environmentally acceptable manner and in such a way as to restore and protect their natural state and condition. Districts may make certain capital improvements such as fencing, signs, fire lanes, access roads and trails, and provide minimum public accommodations such as primitive campsites, garbage receptacles, and toilets. In addition, habitat management such as control of exotic species, controlled burning, habitat inventory and restoration, and law enforcement may be conducted. All lands acquired under these provisions are to be used for general recreational purposes unless such activities are incompatible with the purposes for which the land was acquired. The District is also encouraged to use volunteers and enter agreements with other governmental agencies to provide cost-effective land management.

The plan fulfills the requirements of the Save Our Rivers legislation, South Florida Water Management District policy, and a lease with the DEP regarding management of sovereign submerged lands.

The purpose of the GMP is to consolidate site information and establish guidelines for management of District-owned lands within the KCOL from 2004 through 2009 and describes the District-managed lands as shown on Map 2.

Administrative management of KCOL is primarily coordinated out of the District's Orlando Service Center with assistance from staff in West Palm Beach and other regional offices. Administrative functions consist of funding, planning, reporting, and coordinating with external agencies. As part of these duties, this GMP will be updated and revised every five years and will be implemented through activity plans, annual work plans, and budgets.

District policy 05.0011 states that the Land Stewardship Program's (LSP) mission is to provide natural resource protection and management while allowing appropriate recreational use on designated public lands. This mission statement together with requirements set forth in Florida Statutes 373.139 and 373.1391 provide three primary goals for LSP:

- Conserve and protect water resources

- Protect and restore the land in its natural state and condition
- Provide compatible public use opportunities

To accomplish these goals, the LSP performs six major functions:

- Protect and restore the land to its natural state and condition by controlling nuisance and exotic vegetation and the use of prescribed fire
- Protect listed plant and animals species
- Provide multiple-use opportunities, including grazing and forest management, as compatible with SOR program goals
- Provide opportunities for resource-compatible public use and environmental education
- Seek long-term solution to the public use debate in cooperation with all users involving protection of sensitive natural resources versus airboating and hunting rights
- Ensure compliance with established resource protection rules

3.1 Land Stewardship Program Goals

LSP functions are incorporated in specific KCOLMA goals and objectives for the period of this management plan:

Goal 1: Manage natural communities and modified habitats to protect and enhance flora, and fauna resources.

Objectives:

- Continue the regular application of fire through a well-planned and documented prescribed burning program. Prescribe burn 4,000-5,000 acres per year.
- Continue an aggressive, integrated exotic plant management program. Treatments will be documented and coordinated with other management activities. The entire project area will be surveyed every year and exotics treated as necessary.
- Continue habitat restoration by using heavy-duty shredding and mowing equipment to open up areas of overgrown wax myrtles. Continue appropriate management activities to enhance natural communities that have been hydrologically altered. Staff will contract mowing of approximately 3,000 acres per year.
- Work with the FWC to manage and enhance area wildlife.
- Continue and enhance the monitoring and evaluation of restoration activities on area vegetation and wildlife. Monitor all bald-eagle nests in KCOLMA annually.
- Provide resource protection through partnership with the FWC. Review enhanced patrol activities biweekly and review program annually.
- Utilize Natural Resource Conservation Service grant money to improve hydrology of Gardner-Cobb, Catfish Creek, and Lightsey Units.
- Restore 20 acre sand pine plantation on Drasdo unit through timber harvest in 2007 or 2008.
- Protect sensitive cultural resources through cooperative law enforcement activities.
- Ensure agricultural cattle leases are consistent with District policies, goals, and guidelines.
- Reduce non-native pest species populations and their associated impacts in the KCOLMA.
- Minimize ecological impacts associated with feral hogs located within the KCOLMA.

- Use mitigation programs to preserve, restore, enhance, and manage natural resources within the KCOLMA.
- Provide annual operational and capital improvement budgets sufficient for staff, equipment, and supply resources which are necessary to attain a level of responsible management as outlined in KCOLMA General Management Plan.
- Provide the staff necessary to successfully attain management goals and objectives as outlined in general management plans, activity plans, and annual work plans for the KCOLMA.
- Provide for and take advantage of volunteer and alternative work force opportunities within the KCOLMA.
- Provide the equipment, supplies, and tools necessary to successfully attain management objectives as outlined in the general management plan, activity plans, and annual work plans for the KCOLMA.
- Provide a long-term planning document that fulfills statutory, lease, and policy requirements and provides a framework for management implementation and public oversight.
- Plan management activities on an annual basis to meet program objectives detailed in the general management plan for the KCOLMA.
- Track and report progress in attaining management goals.
- Protect the natural and cultural resources within the KCOLMA through coordination with interested external entities.
- Improve management efficiency and effectiveness of the KCOLMA by entering into and/or maintaining long-term cooperative land management agreements with other land management entities.
- Improve management efficiency by cooperating with other management entities in as-needed, non-contractual arrangements.
- Coordinate land management activities in the KCOLMA with adjacent landowners.

Goal 2: Provide resource-based public use opportunities.

Objectives:

- Continue to provide environmentally compatible uses such as:
 - Fishing
 - Hunting
 - Camping
 - Hiking
 - Equestrian Activities
 - Airboating
 - Boating
 - Nature appreciation
- The public use program in the KCOL shall not requiring significant facility or infrastructure development.
- Control types and levels of public use activities in the KCOL by the issuance of Special Use Licenses.
- Identify potential new access points for increased pedestrian and motorized vehicle access, currently pedestrian access is only available at the Lightsey Management Unit.

- Provide environmental education through maintenance and installation of kiosks at public access points, area brochures, and signage.
- Provide public outreach through the Public Use Guide, attending recreational user club meetings, and direct public contact.
- Maintain present public-use improvements (roads, signs, entrances, and structures) using a combination of District maintenance, construction contracts, and user group involvement.
- Construct two airboat crossing trails at Gardner-Cobb Marsh Unit in 2004.
- The public use program in the KCOLMA shall not requiring significant facility or infrastructure development.
- Safeguard the public, natural resources, and cultural resources located within the KCOLMA.
- Delineate boundaries of the KCOLMA.
- Safeguard the public, natural resources, and cultural resources located within the KCOLMA.
- The public use program in the KCOLMA shall be low impact, nondestructive to environmental and/or ecological characteristics of the area.
- Provide environmentally compatible opportunities for private concessions within the KCOLMA.

3.2 Kissimmee Chain of Lakes Land Management Advisory Committee Goals

The Kissimmee Chain of Lakes Land Management Advisory Committee was formed in 1995 as a means to solicit input and direction from the public and interested organizations for the management of the Kissimmee Chain of Lakes properties. The primary goal was to support the District's efforts in restoring the Kissimmee River. Acquisition of the Upper Lakes properties was for water storage, quality, and control. A total of 12 goals and 58 policy statements were presented to and approved by the District's Governing Board in September 1996. The goals and policies are listed in detail in Appendix I.

4. Resource Inventory

Policy 05.00113.6 Inventories of natural and historic resources shall be performed to provide information for effective land management planning, natural community maintenance, and ecological restoration.

Vegetation and vertebrate species are inventoried and natural communities are mapped by either LSP personnel or contracted specialists. This data is made available to land managers for planning purposes. Archaeological and historic sites considered significant are subject to inventories by contracted archeologists. Inventory data is on file within the Planning Section of the LSP and non-sensitive data available for review on the District's computer network server. LSP shares natural areas and species data with the Florida Natural Areas Inventory (FNAI) through a Memorandum of Understanding (MOU). Plant inventories have documented one State endangered, five nuisances, and three Food & Drug Administration-commercially exploited species within the KCOL (Appendix D). 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, and Lake Cypress by a contractor in 2003.

4.1 District Ownership

To facilitate land acquisition within the Management Area, the District has formed an acquisition team comprised of a title examiner, acquisition negotiator, property appraiser, survey, geographer, and land manager. The team organizes available data, evaluates and prioritizes properties by order of management and biological significance, performs site assessments, and completes the acquisition process.

The Kissimmee Chain of Lakes project area is approximately 34,000 acres. The District has acquired as fee-title or flowage easement 28,000 acres within the project area and established thirteen management units. The Lightsey Management Unit is divided into four subunits, Tiger Creek, West Shore, South Shore and Otter Slough. There are five KCOL management units that are covered in two other management plans; London Creek Management Unit in the Lake Marion Creek Management Area plan and Johnson Island, Rough Island North, South and West Management Units in the Lower Reedy Creek Management Plan. The remaining management units are discussed in this management plan. In the eight remaining management units, as of July 2002, the District had acquired fee-title ownership to 16,834 acres within the KCOLMA (Map 3). During acquisition negotiations, grazing rights were reserved by several former property owners. Table 1 shows the distribution of District ownership by Management Unit as of July 2002.

Table 1: Fee-Title Ownership by Management Unit

| Management Unit | Total Project Area | Total Fee Acres |
|------------------------|---------------------------|------------------------|
| Catfish Creek | 5,546 | 657 |
| Lake Cypress | 737 | 729 |
| Gardner-Cobb Marsh | 16,889 | 10,945 |
| Drasdo | 1,575 | 693 |
| Kissimmee Islands | 2,014 | 879 |
| Lightsey Tract | 4,079 | 1,660 |
| East Shore | 1,066 | 1,066 |
| Oasis Levee | 205 | 205 |
| TOTALS | 32,111 | 16,834 |

Flowage Easement

Within the KCOL, the District had acquired 3,624 acres of flowage easements as of June 2002. The flowage easements represent tracts of land located in the East Shore, Lake Cypress Management Units, along Tiger Creek, and the C-37 canal (Map 4). No further acquisition of flowage easements is anticipated for the Management Area. Under the terms of the flowage easement, the District has the right to store and flow water up to the 54-foot NGVD contour line. The District has acquired no other rights in association with these easements.

The District also holds a lease with the FDEP (#4099) for management of lands (which fall below the Ordinary High Water Level) around Lakes Kissimmee, Hatchineha, and Cypress. The Ordinary High Water Level for this area is generally considered to be at the 52.5-foot NGVD contour line, which has not been surveyed or identified in the field. As such, obtaining an accurate acreage count for areas within the lease may be difficult. Selected terms of the lease follow.

- The term of this lease shall be for an initial period of fifty (50) years, commencing on September 1, 1995 and ending on August 31, 2045;
- [The District] shall manage the leased premises for the establishment and operation of the Restoration Project and for purposes authorized in section 373.59, F.S.;
- [The District] shall manage the leased premises in accordance with the purposes identified . . . which may include, but not limited to, activities such as prescribed burning; control of exotic species; biological investigations; establishment of specific public uses and enforcement of guidelines and regulations, installation and maintenance of signs, gates, and fences; and establishment and enforcement of regulations pertaining to motorized vehicles and watercraft.

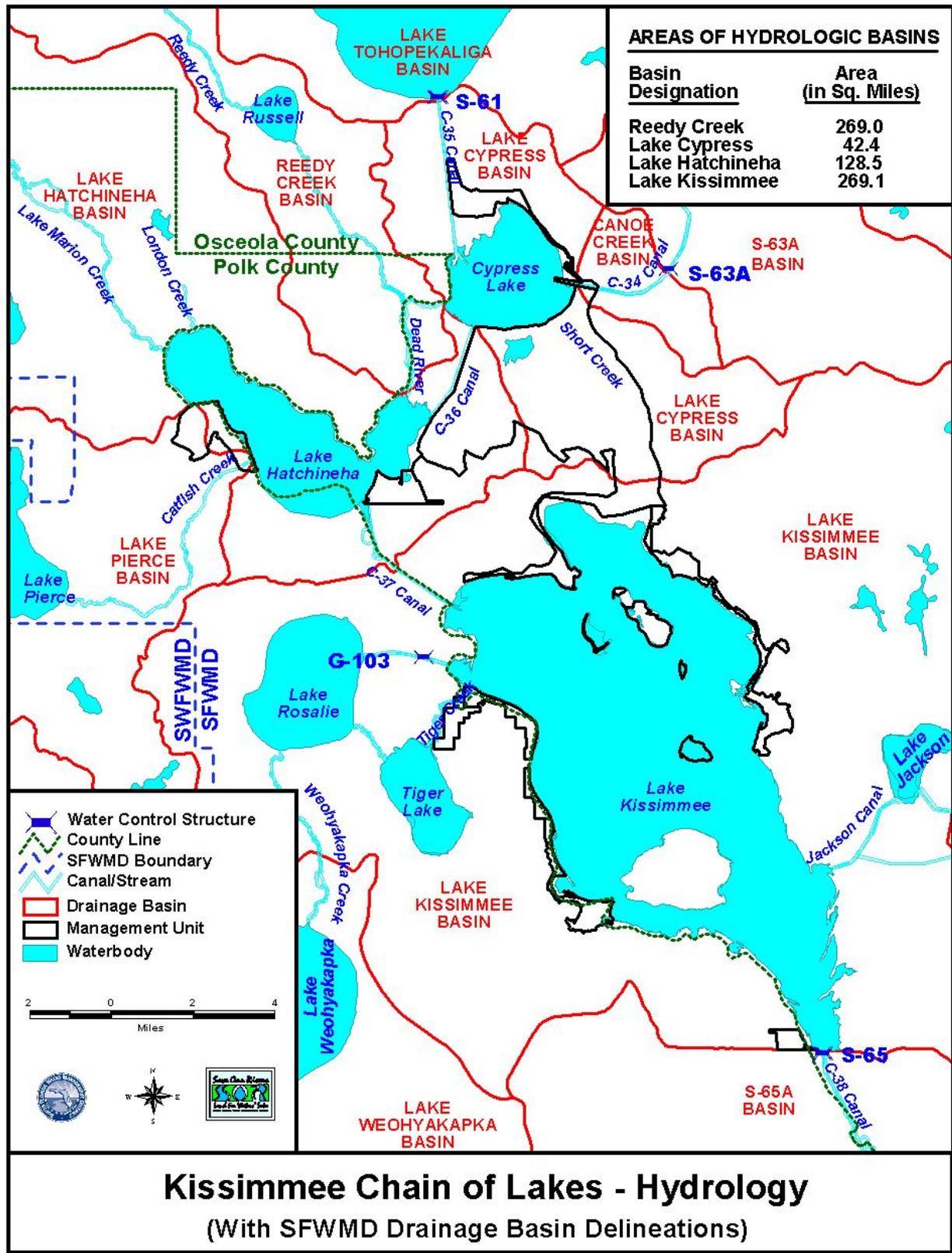
4.2 Hydrology

Policy 05.00111 The basis for the LSP is the protection and management of natural hydrologic resources.

The Kissimmee Chain of Lakes Management Area lies within four surface water basins and shown in Map 3. The area of each basin is shown in Table 2 that total 709 square miles. White (1970) divides the state of Florida into three major hydro-geologic divisions. The KCOL is located in the middle of the Osceola Plain, slightly west of the centerline roughly parallel with the axis of the peninsula.

Table 2: Areas of Hydrologic Basins

| BASIN | AREA (in sq. miles) |
|-----------------|----------------------------|
| Reedy Creek | 269.0 |
| Lake Cypress | 42.4 |
| Lake Hatchineha | 128.5 |
| Lake Kissimmee | 269.1 |



Map 3: Hydrologic Basins of the Kissimmee Chain of Lakes Management Area

4.3 Soils

Soil Types

Soils within the KCOL fall into six distinct categories defined by the Natural Soil Landscape Positions (NSLP) system: flats soils, flatwoods soils, knolls, made lands, muck depression soils, and sand depression soils.

The NSLP contains 909 map units from 16 counties within the SFWMD. This system was developed cooperatively between the District and the Natural Resources Conservation Service. The NSLP grouped South Florida soils into 12 categories based on hydrology, soil morphology, topography, and vegetation. Soil classification descriptions, vegetation associations, soils classification map and data files of NSLP can be accessed on the Internet at: <http://www.sfwmd.gov/org/pld/proj/wetcons/nslp/nslp/documents.htm>.

Detailed soil maps for Osceola and Polk Counties (which contain the KCOL) divide the NSLP soil classifications further into specific categories (USDA 1990). These soil survey books and maps are on file at the District's Orlando Service Center.

Flats Soils

Flats soils (previously referred to as slough) are poorly drained hydric soils with sandy marine sediments throughout the profile, or more rarely with loamy sand or sandy loam. Some areas within this unit are frequently flooded alluvial areas that have a sandy surface for the majority of the area. Flats are located between the flatwood and depression landscapes, and are generally regarded as transition areas. The seasonal high water table can range from the soil surface to one foot below the surface for four to ten months annually. In most years, the seasonal high water table begins in June and ends from September to March (typically by February). Some areas may be inundated for less than a few weeks by large storm events. Examples of these soils include Boca, Felda, and Riviera. Wet-dry prairies dominated by grasses are typical to this landscape position.

One of the ecological communities most typical of the flats landscape is the slough. Slough soils are nearly level and very poorly drained with organic surfaces underlain by sand. Representative soils include Hontoon, Sanibel and Okeelanta. Most sloughs serve as drainage ways for water during periods of heavy and prolonged rainfall. Surface water may move over this area for up to a few weeks during the rainy season. Most sloughs are relatively long and narrow and slightly lower in elevation than the surrounding flatwoods and hammocks. Vegetation within the slough may be open expanse of grasses, sedges and rushes with scattered pines and cypress in an area where the surface soil is saturated during the wet season. Grasses are the most common plant found in sloughs. Other plants that characterize this community are pickerelweed, sundew, milkwort, beak rushes, and blue maidencane.

Flatwoods 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. Examples of these soils include Immokalee, Malabar, and Wabasso. The soils affect plant-water relationships and cause differences in plant composition. 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, 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. Examples of these soils include Archbold, Canaveral, and Pomello.

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. Satellite soils, which have a high water table for part of the year, support scrubby growth. Myrtle oak, Chapman oak and sand pine become infrequent and gallberry becomes prominent. Plants that characterize this community are: Chapman's oak, myrtle oak, sand live oak, sand pine, and panicum.

Made Lands

Urban or made land areas have soils that have been altered, excavated, or disturbed and no longer possess their natural morphological features. These soils do not function as they did in their original state, and little information on this subject is available. The seasonal high water table varies by site and is usually controlled to inhibit flooding of developed areas. Common soil series of this landscape position include Arents, Matlacha, Pits, Udorthents, and Urban Land. No ecological communities are representative of this landscape position. Spoil piles bordering the C-35, C-36 and C-37 canals in the KCOL fall under this soil classification.

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 flats and flatwood landscapes. The seasonal high water table can range from six inches below to two feet above the soil surface for up to 11 months annually. In most years, the seasonal high water table begins in June and ends between December and April (typically in April). Examples of these soils include Gator, Hontoon, and Sanibel. Some areas within this unit are frequently flooded alluvial areas that have muck surface. These frequently flooded map units are known to have surface flooding at least one out of every two years. A few areas may have a thin organic surface layer less than a few inches thick.

Ecological communities often found in this landscape are basin swamp, dome swamp, strand swamp or floodplain swamp. Typically occurring along rivers, lake margins, slough and strands, these communities may be interspersed throughout other communities such as flats and

flatwoods. Water is at or above ground level a good portion of the year. Tree species diversity is low in cypress domes, but increases in cypress strands and along stream margins. Plants which characterize this community are: bald cypress, pond cypress, red maple, buttonbush, wax myrtle, cinnamon fern, royal fern, Spanish moss, giant wild pine, and maidencane.

Sand Depression Soils

Sand depression soils are very poorly drained hydric soils that typically have sandy marine sediments throughout the profile. A few areas may have mucky sand, loamy sand, or sandy loam surfaces with sandy or loamy sub-surfaces. Often, these areas are depressions adjacent to flats and flatwood landscapes. The seasonal high water table can range from one foot below to two feet above the soil surface for seven to ten months annually. In most years, the seasonal high water table begins in June and ends from October to March (typically in March). Some areas within this unit are frequently flooded alluvial areas that have a sandy surface for the majority of the area. Soils commonly associated with this community are nearly level and very poorly drained with organic surfaces underlain by sand. There is flooding at least one out of every two years. Examples of Sand Depression soils include Basinger, Boca, Chobee, Felda, and Riviera.

Natural communities often found in this landscape are the freshwater marsh and ponds. Vegetation varies widely within marshes, and may be composed of: flag, sawgrass, arrowhead, and other non-grass herbs marsh, cattail, spike-rush, bulrush, and maidencane marsh.

Soil Contamination Site History

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 Drasdo 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.

4.4 Natural Communities

Twenty natural community types, as classified by the Florida Natural Areas Inventory (FNAI), are present in the KCOL management units. Habitat condition varies widely depending on current management activities and exotic plant infestation. Wetlands are identified for the KCOL in the National Wetlands Inventory Map produced by the U.S. Fish and Wildlife Service. The natural communities for each management unit are shown in Maps 4 – 11, except the Otter Slough Subunit of the Lightsey Management Unit. A summary of natural community types found in the KCOL management units are shown in Table 3.

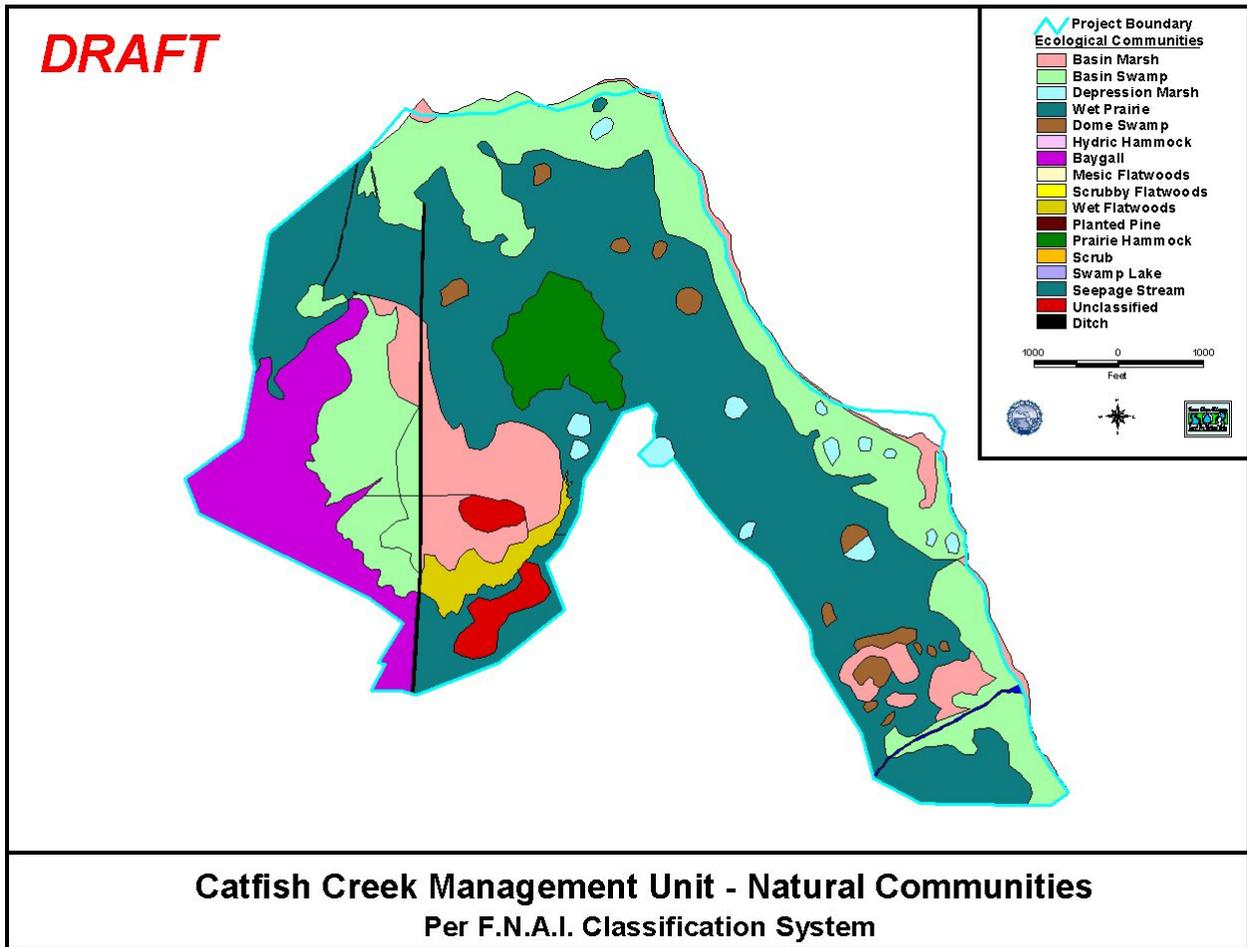
Table 3: Ecological Community Type Summary by Management Unit
 X = documented

| FNAI Community Type | Catfish Creek | Gardner-Cobb | Lake Cypress | Drasdo | Kissimmee Islands | East Shore | Lightsey | 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 | |

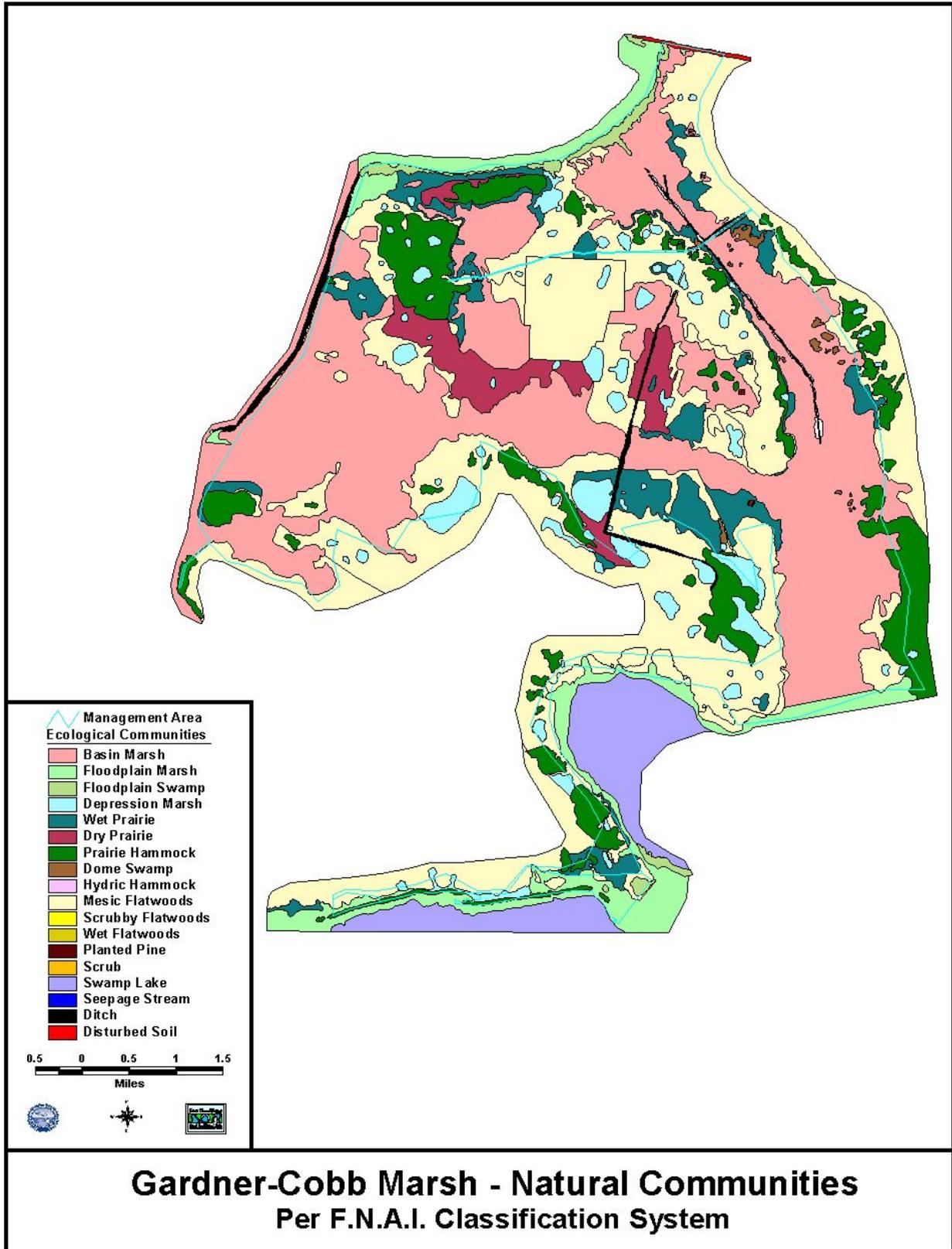
Plant inventories were completed by District interns within the Catfish Creek and Lightsey Management Unit. Contractors completed flora surveys for Gardner-Cobb, Lake Cypress, Kissimmee Islands, and Oasis Levee (Appendix D). Drasdo, East Shore, and the Otter Slough Subunit remain to be inventoried. The number of documented species is listed in Table 6:

Table 6: 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 |

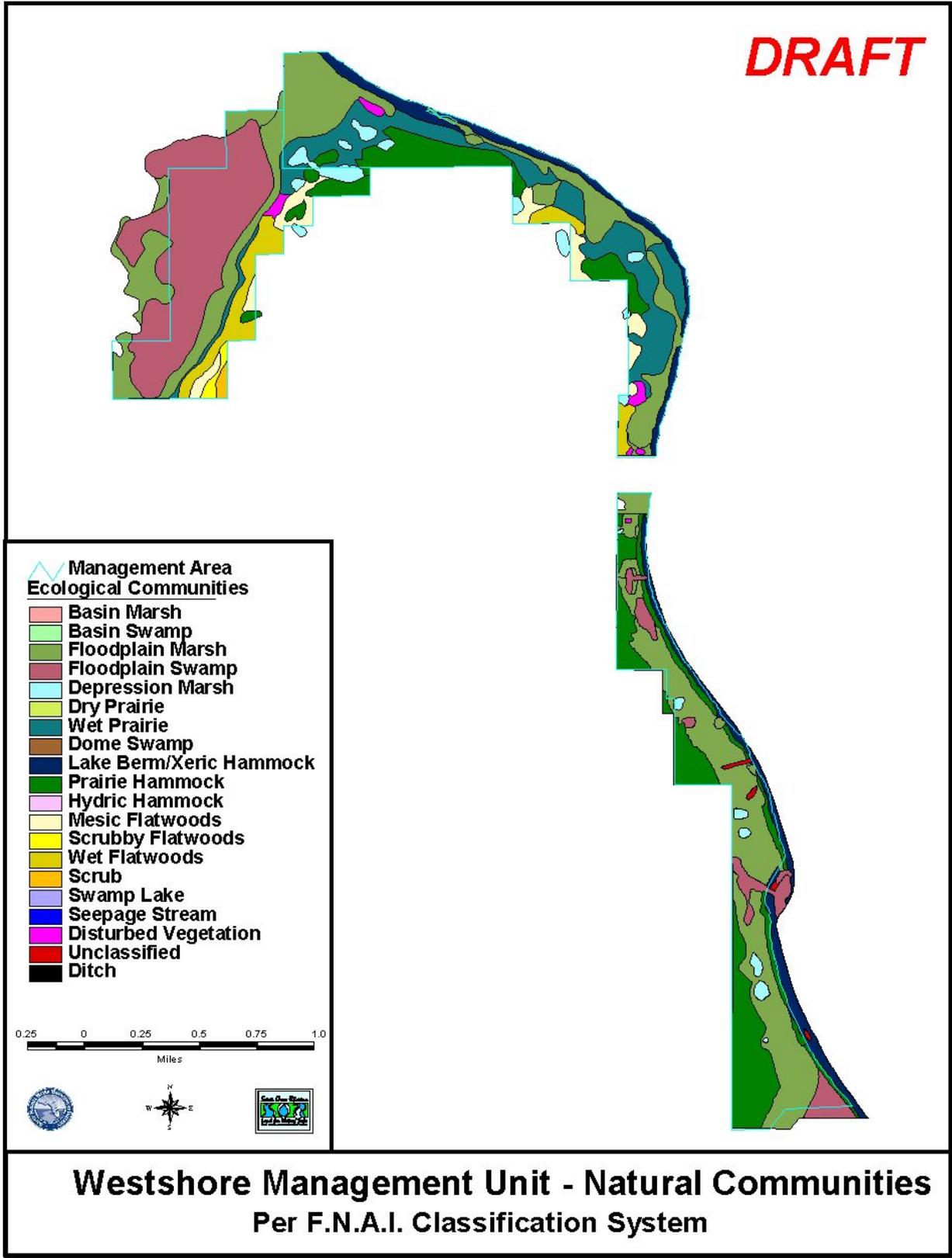


Map 4: Catfish Creek Management Unit Ecological Communities

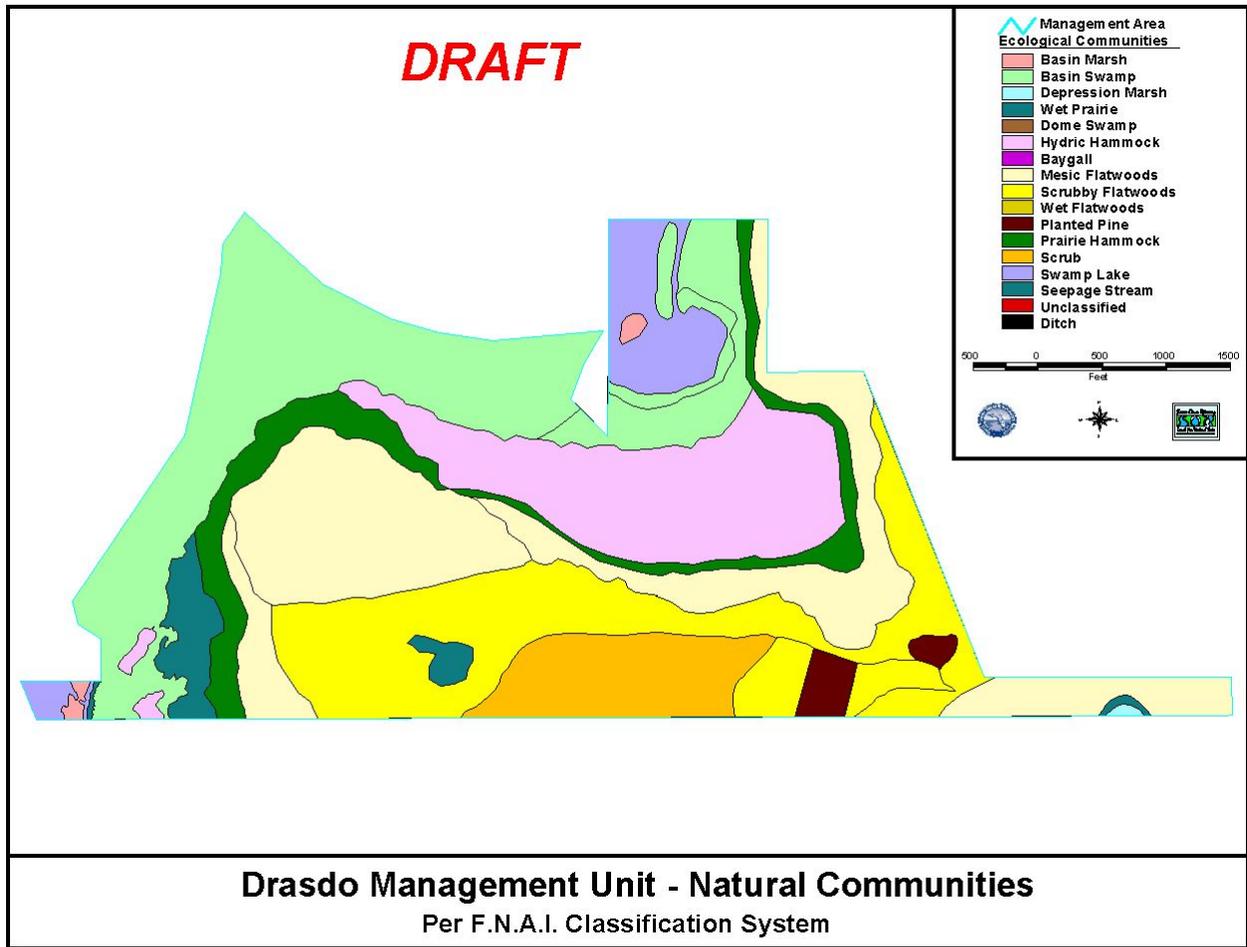


Map 5: Gardner-Cobb Management Unit Ecological Communities

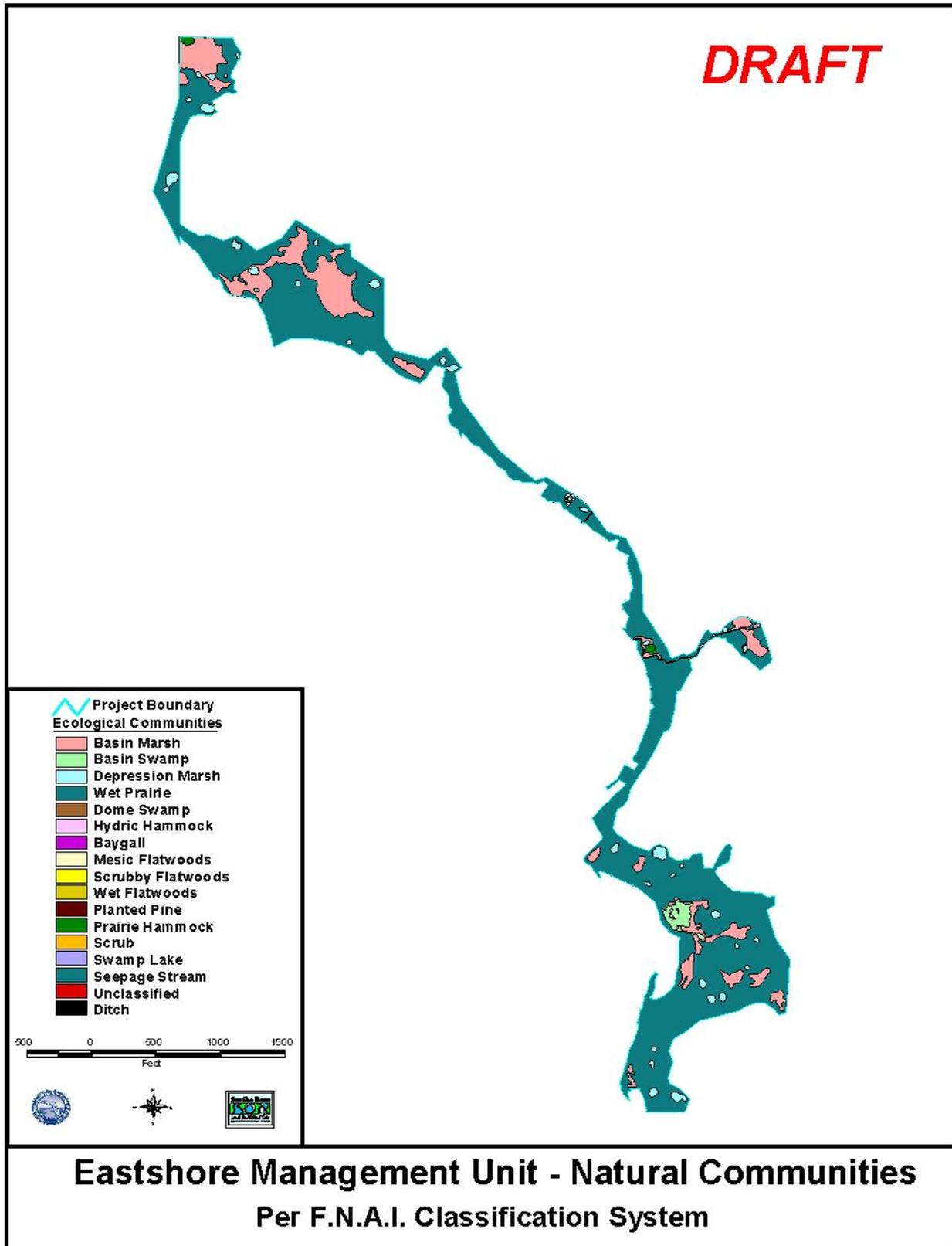
DRAFT



Map 6: Lightsey Management Unit Ecological Communities

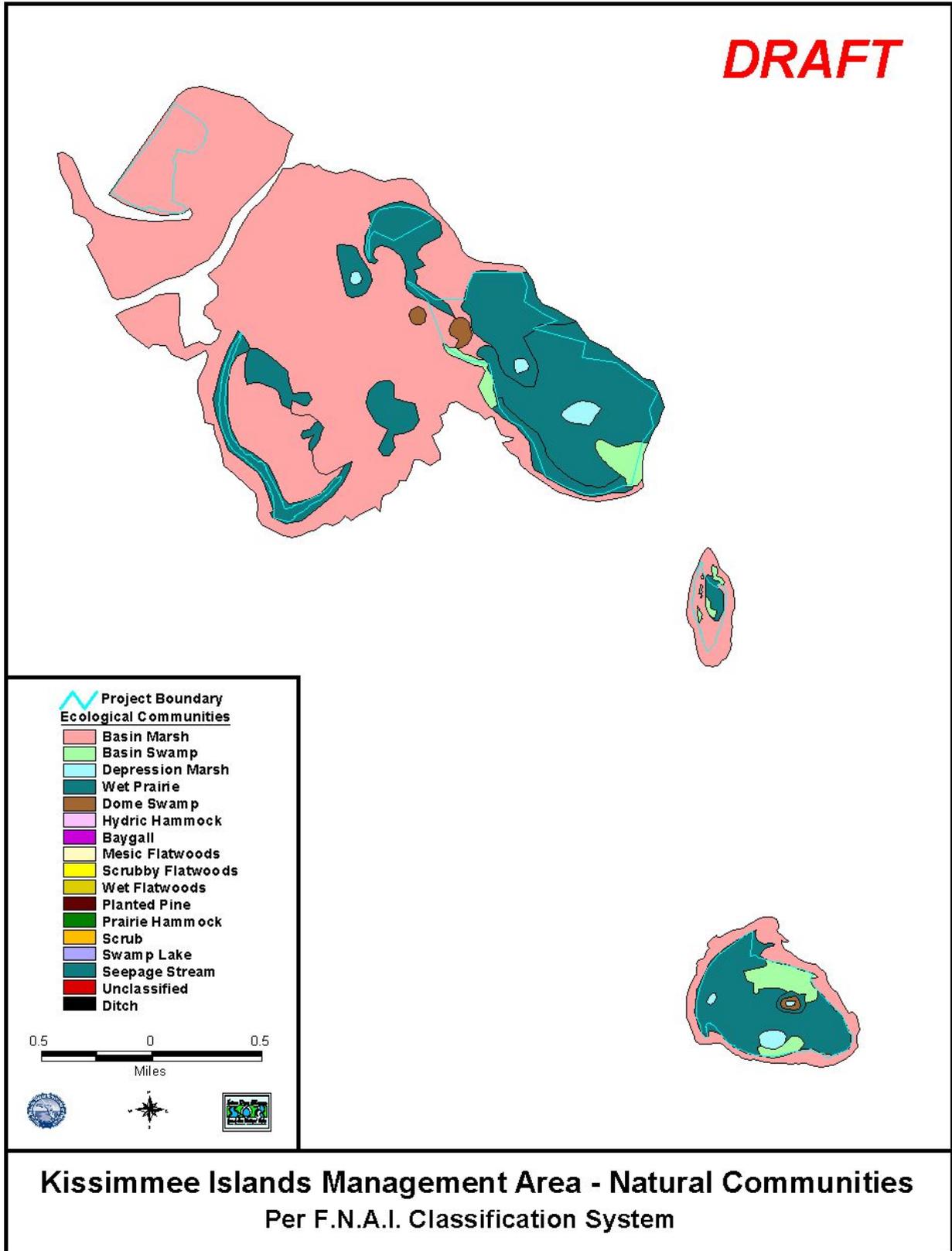


Map 7: Drasdo Management Unit Ecological Communities

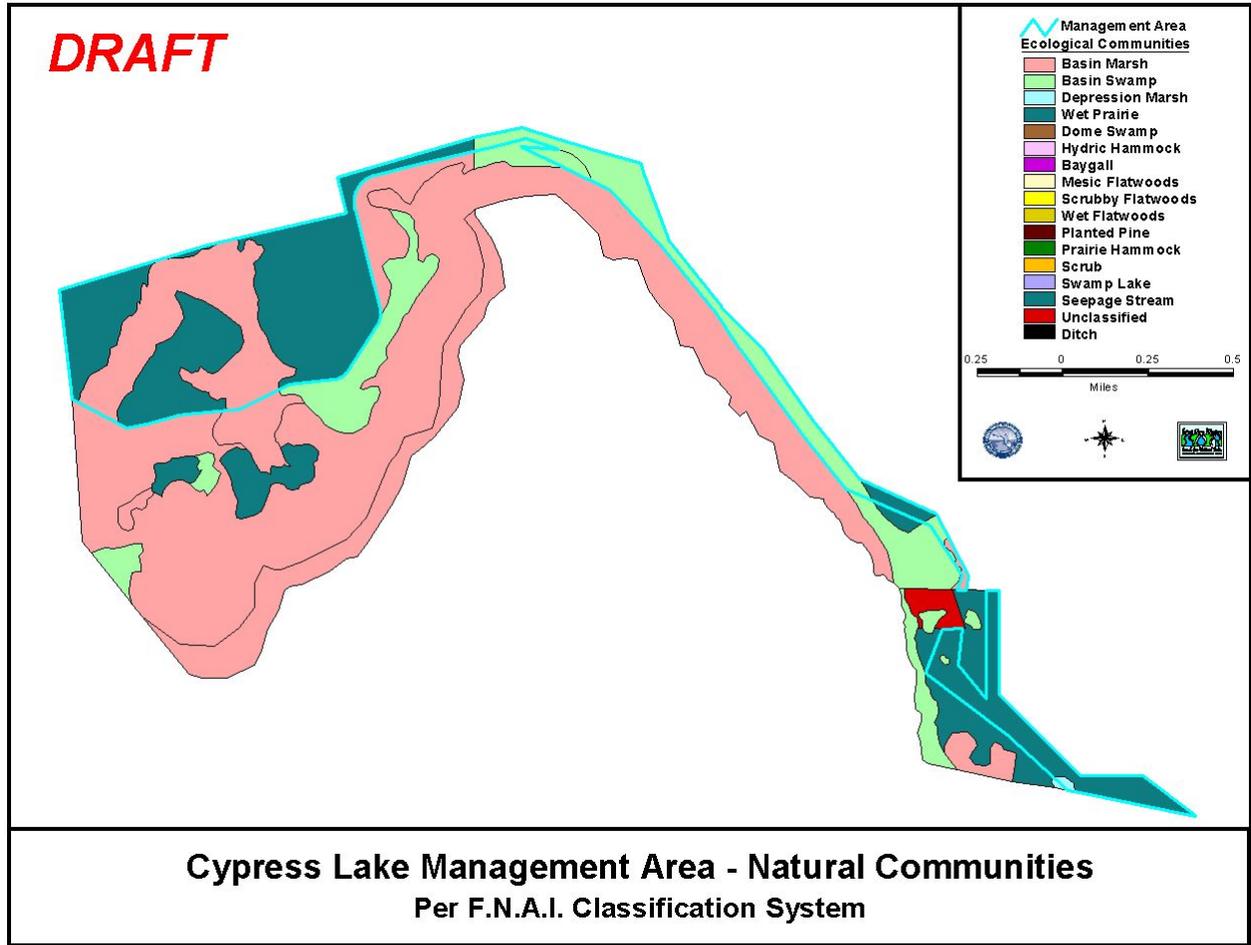


Map 8: East Shore Management Unit Ecological Communities

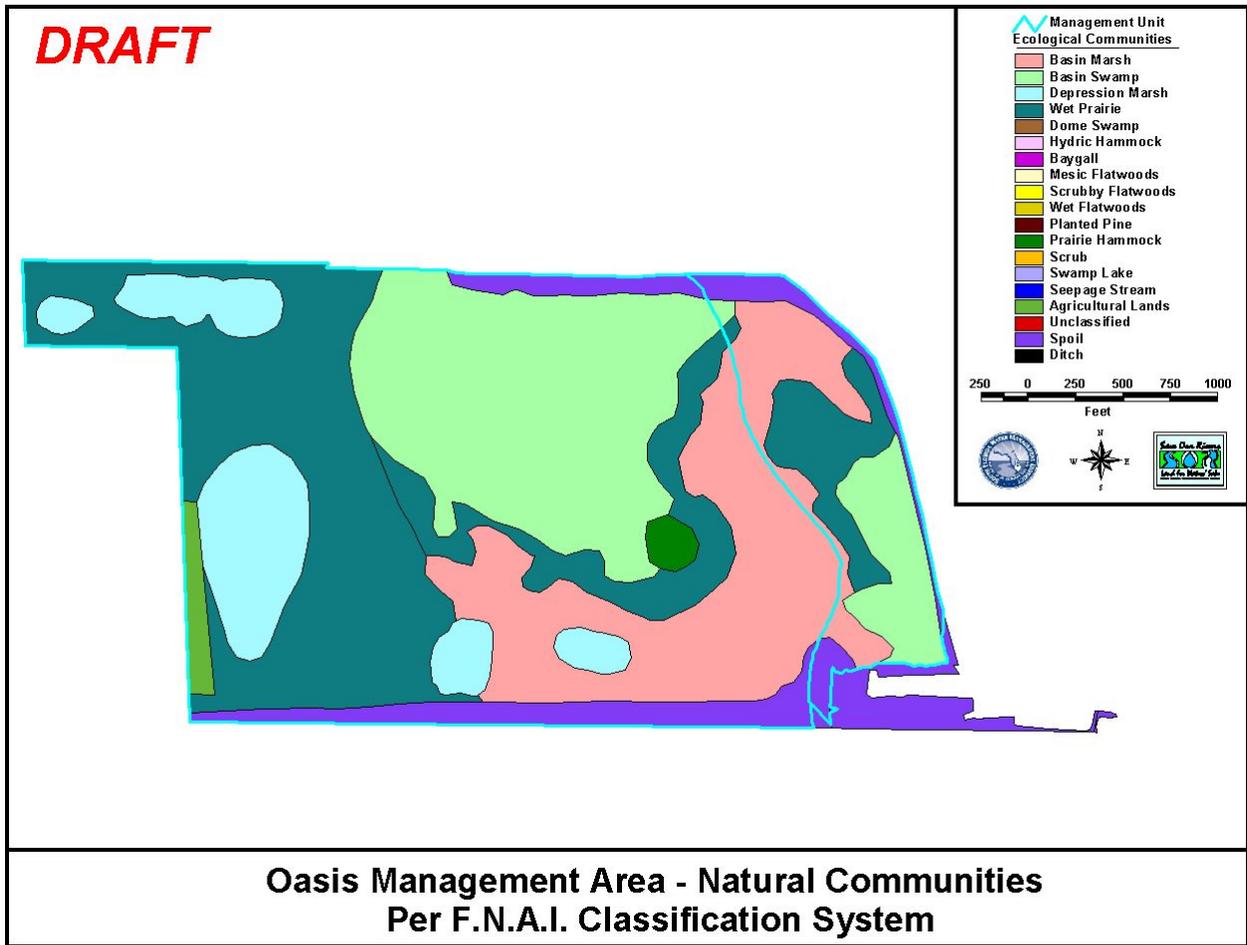
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Map 9: Kissimmee Islands Management Unit Ecological Communities



Map 10: Lake Cypress Management Unit Ecological Communities



Map 11: Oasis Levee Management Unit Ecological Communities

Basin Wetlands

Basin Marsh (7,808 acres)

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 Swamp (620 acres)

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 elliottii 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.

Depression Marsh (817 acres)

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.*).

Dome Swamp (73 acres)

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*).

Floodplain Wetlands

Floodplain Marsh (1,603 acres)

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 (489 acres)

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 (19.5 acres)

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 (2.8 acres)

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.

Seepage Wetlands

Baygall (96 acres)

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)

Mesic Flatlands

Dry Prairie (497 acres)

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 (*Elphantopus 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.

Mesic Flatwoods (5,462 acres)

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 and slash pine-gallberry-saw palmetto.

Prairie Hammock (1,590 acres)

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.

Scrubby Flatwoods (107 acres)

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. Due to floristic and geographic similarities, some ecologists speculate that this community is merely a form of mesic flatwoods where fire has been excluded. This theory is based on the natural occurrence of hardwood (oak) invasion without sufficient fire frequency patterns. In addition, scrubby flatwoods provide habitat for the gopher tortoise—a species of special concern) and the Florida scrub jay (*Aphelocoma coerulescens*) —a threatened species (FWC 1997).

Wet Flatlands

Hydric Hammock (78 acres)

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*).

Wet Flatwoods (55 acres)

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 unit 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..

Wet Prairie (3,651 acres)

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 KCOL 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.

Xeric Uplands

Scrub (38 acres)

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 and Lightsey 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).

Xeric Hammock (104 acres)

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)

Riverine

Seepage Stream (1.5 acres)

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.

Lacustrine

Swamp Lake (843 acres)

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.

4.5 Wildlife

KCOL is identified as a “Strategic Habitat Conservation Area.” This designation represents an area important to flora, fauna, and natural communities based on known occurrence information and recent land use/land cover maps (FWC 2000a).

Data collected by District or contract staff for the KCOLMA includes baseline information on natural vegetative community types and wildlife. The LSP shares natural areas and species data with the FNAI through a Memorandum of Understanding (Contract # C-9341). The District finalized an MOU with the FNAI to facilitate exchange of listed species data on SOR lands. FNAI expertise as a clearinghouse for statewide species inventories provides valuable information on protection of rare species on District managed properties. The District, in turn, makes available SOR natural area inventory information for the FNAI database.

Inventories have documented 164 animal species within the KCOL (Appendices E, F, and G). These are predominantly bird species occurring in the Lightsey Unit. Further documentation of mammals, amphibians, reptiles, and fishes is needed throughout the Management Area. In addition, documentation of wildlife species inhabiting the Drasdo, East Shore, Kissimmee Islands, and Oasis Levee units is also needed.

In 1997 and 1998 inventories and analysis of species and habitat within the Lightsey, Gardner-Cobb, and Catfish units was conducted along with conservation recommendations. Of the 164 vertebrate species identified in the area, 25 have state or federal protection, or were classified as a candidate for listing before the category was eliminated. Population surveys, breeding success and habitat management were primary focal points for research.

Bird species known to use the Lightsey, Gardner-Cobb, and Catfish Creek Management Units included limpkins, little blue herons, white ibises, American swallow-tailed kites, crested caracaras, and tri-colored herons, as well as ospreys, bald eagles, and sandhill cranes (Hilsenbeck 1997, Bixler & Reed 1998, Golder 1998).

While the Kissimmee Chain of Lakes is important to wood storks and bald eagles, the region also provides habitat to many other sensitive species, including the endangered everglades kite and the threatened American alligator (Hilsenbeck 1997, Bixler & Reed 1998, Golder 1998).

Other species listed under State or Federal law includes the crested caracara, Florida sandhill crane, gopher tortoise, and American alligator (FWC 1997). The FWC list the limpkin, white ibis, little blue heron, and tricolored heron as species of special concern.

Large game animals that inhabit the Management Area include feral pigs, eastern wild turkeys, and whitetail deer. The feral pig is considered an exotic mammal. Coyotes, a native species and frequent inhabitant of northern states, have expanded their range to south Florida. Their presence in the area is probable.

4.6 Archeological and Historical Resources

Policy 05.00113.10 Archeological and historic resources are protected by site identification and inter-agency coordination with the Florida Department of Historical Resources (FDHR). Land management planning shall include an analysis of archaeological data accompanied by appropriate public education opportunities.

As a state agency responsible for management of publicly owned lands, the District is required by law to preserve historical and cultural resources located on District properties. The District's management goal is historic preservation by identification, evaluation, documentation, protection, and stabilization of known historic or prehistoric sites. Under Chapter 267 F.S., each state agency of the executive branch is under obligation to consider the effect of management actions on historical resources. This statute, along with Rule 1A-32 (research permitting process), Rule 1A-46 (archaeological report standards), and Chapter 872, F.S. (protection of gravesites) are the primary laws pertaining to historic sites and archaeological resources. The District complies with these regulations by inter-agency coordination with the FDHR through their project review process (Rule 1A-46, archaeological report standards). LSP maintains a database of all known archeological and historical sites on District properties that is periodically updated through the FDHR Site File. Due to its sensitive nature, site-specific data will not be made available to the general public.

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 (Erbe 2002).

The five sites located on District property were defined as Culture – Prehistoric, unspecified, and consisted of five site types: Mound(s)-Prehistoric; Artifact Scatter; Lithic Scatter/Quarry (Prehistoric); Prehistoric Earthworks; and Single Artifact.

5. Natural Resource Management

Policy 05.0011 The LSP mission is to provide natural resource management and protection while allowing appropriate recreational use on designated public lands.

Natural resource management responsibilities of the District are defined by statute and District land stewardship policy. Many properties owned and managed by the District contain natural communities whose structure and function have been altered by previous land uses. The District manages and maintains these lands in an environmentally acceptable manner and, to the extent practicable, restores them to a more natural state and condition. Land managers attempt to accomplish this by using a variety of management techniques.

To manage natural communities at the KCOL, LSP activities have included the application of vegetation control to restore natural forest structure and composition, the continuation of an aggressive exotic plant control program, the application of a prescribed burn program to appropriate landscapes, and coordination with FWC to provide law enforcement services.

5.1 Restoration Projects

Policy 05.00111 The basis for the Land Stewardship Program is the protection and management of natural hydrologic resources.

Policy 05.00111.3 Where feasible, an attempt shall be made to restore a more natural hydro-period on tracts where the drainage patterns have been altered.

Lightsey, Gardner-Cobb, East Shore, and Catfish Units contain numerous ditches that connect small depression marshes that ultimately drain into surrounding creeks and lakes. Plugging interior ditches and installing water control structures are targeted for Gardner-Cobb Marsh, Catfish, and Lightsey Units in FY04/05.

5.1.1 Mitigation

Policy 05.00115.a Mitigation banking provides an opportunity to accomplish large-scale restoration that may otherwise go unfunded. Pursuant to Chapter 373.4135, F.S.S., the District was 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.

LSP, in cooperation with the District Regulation Department, may designate priority enhancement or restoration areas in large, degraded wetland complexes. Potential enhancement/restoration areas include either public or private lands within the Save Our Rivers Land Acquisition and Management Plan (SFWMD 1999), or lands that have resource value and may be added to the plan in the future. Possible enhancement/restoration sites must have the potential to provide sustainable wetland functions after ecological restoration. As part of the GMP for each management area, Land Stewardship managers shall identify any significant potential enhancement/restoration areas in their region and develop a conceptual cost estimate to

implement the work. This information shall be provided to the mitigation banking and regional mitigation area program coordinator who evaluates opportunities for enhancement/restoration. These opportunities include designation as a mitigation bank, a District-sponsored regional offsite mitigation area, or a priority project.

Within the KCOL, there are two areas within the East Shore Unit totaling approximately 1,060 acres that are under consideration as mitigation banks.

5.1.2 Enhancement

Enhancement is the improvement of existing natural community conditions by application of best management practices. The majority of SOR property contains natural communities whose function has been altered by previous land use. Land managers attempt to improve natural community conditions by eliminating exotics, applying prescribed fire, and restoring natural hydrologic regimes. Wetland areas within all Kissimmee Chain of Lakes Management Units present opportunities for enhancement activities.

5.1.3 Monitoring

Policy 05.00113.6b Monitoring shall be conducted to identify landscape changes resulting from management activities.

There are no restoration projects being monitored within the KCOLMA.

5.2 Vegetation Management

Policy 05.00112.4 Where practicable, an attempt shall be made to restore and maintain desirable vegetation to promote habitat diversity in areas where exotic/invasive vegetation or improved land uses have substantially altered the historic landscape.

Policy 05.00113.1 Mechanical equipment may be used in conjunction with prescribed burning and other management tools to control vegetation and restore habitat structure.

Vegetation management within the KCOL consists of exotic and invasive plant removal, prescribed burning, and forest and range management.

5.2.1 Vegetation Control and Maintenance

Vegetation control and maintenance is executed by LSP field technicians and through contractors. Roller choppers, heavy duty mowers, grinders, and tree cutters are mechanical equipment used for control and maintenance of nuisance vegetation and for fire line maintenance.

5.2.2 Exotic/Invasive Plants

Policy 05.001122.3 Management practices will strive to identify existing infestations of exotic/invasive plants and implement appropriate control or eradication measures.

Policy 05.00113.2 Exotic plant control in all management areas shall attain a level of success where periodic maintenance eliminates the infestation or reduces the spread 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 an area's natural ecosystems. Environmental changes caused by extensive hydro-period 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.

The LSP targets category I and II non-native plant species as identified on the Exotic Pest Plant Council's annually updated list of *Florida's Most Invasive Species*. 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 succession processes. Both Category I and II exotics are considered invasive and a threat to the function and ecological stability of Florida's natural communities.

The LSP's invasive and exotic plant control measures are to reduce the presence, spread, and associated negative effects of these plants and include a combination of herbicide application, prescribed fire, roller chopping, mowing, and physical removal. Selection of control measures is dependent upon species type, environmental factors and natural communities impacted. Private contractors, the lead management agency, or LSP staff conduct exotic plant control activities in cooperation with the District's Vegetation Management Division.

Exotic and invasive plant management within the KCOLMA also 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, on an as-needed basis by grazing lessees, or directly by District staff. The following are specific management actions and the targeted areas:

Gardner-Cobb Marsh, Lake Cypress, and Drasdo 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, old world fern, and guava. Tropical soda apple shall be controlled by foliar herbicide application while bladder pod shall be controlled through mowing. 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. A foliar helicopter application in February 2003 on Bird and Strum islands was very successful. Follow-up is scheduled for FY 2004 and will include Rabbit Island. There is some Chinese tallow on all three islands. Wax myrtle is dense along the shoreline and will be thinned using prescribed fire.

Plant inventories have documented 28 exotic species within the KCOLMA (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 guajava*)
- 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, on an as-needed basis by grazing lessees, or directly by District staff.

5.2.3 Rare, Threatened and Endangered Species

Policy 05.00112.2 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 USFWS, FWC, or FNAI. A list of these species is annually updated and published by the FWC. The LSP promotes the perpetuation of listed plant species by utilizing best management practices in natural communities to which they are endemic. The establishment of appropriate fire and hydrologic regimes, and the control of invasive plants provide opportunity for rare species to perpetuate or re-establish in former natural ranges. Public Use Rules aid in the protection of native habitat and specifically prohibit the destroying, defacing or removing any natural feature or native plant on SOR lands (40E-7.537, F.A.C.). In this manner, listed plants are given lawful protection and environmental conditions suitable for their continued existence. One State endangered plant has been inventoried on KCOL lands.

The LSP 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 (40E-7.537 General Prohibitions.) In this manner, listed plants are given lawful protection and environmental conditions suitable for their growth and reproduction.

5.2.4 Forest Resources

Policy 05.00113.6c Timber sales will be conducted to improve forest health or support specific forest management goals.

Policy 05.00113.8 Sustainable use of forest resources shall be conducted where these activities adhere to a series of environmental criteria that meet Land Stewardship Program goals. Timber contractors will be required to meet silvicultural best management practices developed for Florida forests.

Since SOR properties are designated multiple-use, forest management is considered an appropriate land management option. In 1997 the LSP contracted the expertise of Natural Resource Planning Services, Inc. to provide site evaluations and management/harvest recommendations for existing timber stands. The subsequent SOR Forest Management Plan (David 1998) identified lands currently managed by the LSP that contain sustainable forest resources capable of generating short term revenues to supplement land management costs. The Lightsey Management Area had a total of 90 acres of timber harvested in June 2002 and April 2003. There are no other management units targeted for timber harvest. Lands that qualified for this program met the following environmental criteria:

- The area 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 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 that 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 (i.e. red-cockaded woodpecker) management that requires timber stand improvement.
- The area is located such that harvest or planting will not create an aesthetically unpleasant scene or an impediment to public use.

5.2.5 Agricultural and Range Resources

Policy 05.00113.9 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.

Policy 05.00113.6d Grazing leases will be encouraged on selected range land to generate revenue or to provide services that offset program management costs.

The LSP occasionally acquires property on which agricultural production had been a primary use. When this occurs, each property is assessed on an individual basis to determine whether agricultural production should continue. In cases where temporary farming is continued, criteria for land use, defined in The Guidelines and Criteria for Interim Use of District Owned Land (Dames and Moore 1998) are followed. The goal of these guidelines is to reduce contamination to ground and surface waters from agricultural activities by complying with best management

practices. The basic concept is to practice prudent agriculture without causing degradation to the environment.

Livestock grazing has occurred over the last half century within the KCOL. Many upland areas have been converted to cattle range by seeding with preferred pasture grasses of bahia and pangola. Cattle grazing is used by the District and other land management agencies as a management tool, particularly for the reduction of fire fuel loads and maintenance of open range. The decision to open an area to grazing is evaluated in light of the negative environmental impacts often accompanying cattle introduction. Cattle are vectors for non-native invasive plants, particularly bladder-pod (*Sesbania sp.*) and tropical soda apple (*Solanum sp.*). Trampling and grazing of sensitive native ground covers select for rhizome-prolific grasses and often result in dominance of non-native, early succession species. By reducing under-story plant densities, grazing eliminates natural fire patterns that would otherwise define historic plant community types. In addition, costs are incurred for exclusion fencing of sensitive environmental areas.

The District may lease grazing rights to members of the public, or as a lease-back to the original owner when the property is acquired. Lease terms are based on the number of acres grazed and agreement to certain management responsibilities that may include exotic plant control, feral pig removal, and/or fence construction. Livestock operations should conform to the guidelines defined in the publication Guidelines and Criteria for Interim Use of District-owned Land (Dames & Moore 1998). The District limits certain activities deemed detrimental to the environmental integrity, with each lease customized to ensure best management practices. Leased SOR lands are returned to the County property tax rolls, and their taxes are the responsibility of the lessee. Leases are re-evaluated at the time of termination with consideration to the LSP management goals and objectives.

Eight parcels within the KCOL are under lease or reservation agreements for cattle grazing, totaling 2,449 acres. Three areas are currently being developed for livestock production. Table 5 summarizes the current cattle lease/reservation scenarios.

Table 5: Cattle Leases & Reservations in the Kissimmee Chain of Lakes Management Area

| UNIT | HOLDER | ACRES | STATUS | END DATE |
|-------------------------|------------|--------|-------------|------------|
| NE Shore Lake Kissimmee | Overstreet | 195 | Active | 12/31/2018 |
| NE Shore Lake Kissimmee | Overstreet | 400 | Active | 12/31/2018 |
| NE Shore Lake Kissimmee | Gannarelli | 290 | Active | 12/31/2018 |
| NE Shore Lake Kissimmee | Johnson | 106 | Active | 12/31/2018 |
| Lightsey - Tiger Creek | | 378 | Development | |
| Brahma Island | Lightsey | 582 | Active | 12/31/2018 |
| Lightsey - West Shore | Lightsey | 455 | Active | 12/31/2018 |
| Lightsey - West Shore | Miles | 421 | Active | 12/31/2018 |
| Lightsey - South | Lightsey | 490 | Active | |
| Oasis | | 205 | Development | |
| Gardner-Cobb Marsh | Bronson | 10,875 | Development | |

5.2.6 Monitoring

Vegetation monitoring is performed for management of exotic plants and for the effects of the prescribed fire program.

5.3 Fire

Policy 05.00113.3 Prescribed fire will be a primary management tool on District lands and will be applied within fire maintained communities at appropriate intervals.

Prescribed fire is one of the primary tools used in land management throughout Florida. The majority of natural communities in this region rely on fire to maintain their vegetative characteristics and biodiversity. Prescribed fire regimes attempt to mimic natural fire patterns that historically reduced fuel loads, inhibited hardwood encroachment, stimulated growth in fire-adapted plants, and recycled nutrients back to the soil. However, unlike a natural wildfire, prescribed fire must be limited to a designated area and performed under defined environmental conditions. In this way, managers reduce the potential for wildfires while restoring natural community structure and function. The LSP recognizes the benefits of fire and has integrated prescribed fire 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 15,433 acres from 1997 to spring 2003. Dates and locations of prescribed fires are recorded and shown in Table 5. 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.

Table 6: Fire History for the Kissimmee Chain of Lakes Management Area

| Property | Prescribed Fire Date | Fire Management Unit Number | Unit Acres | Acres Burned |
|---------------------------|--------------------------------|-----------------------------|------------|--------------------------|
| Gardner-Cobb | 1/2002 | 1 | 1500 | 1500 |
| | 2/2000, 2/2002, 8/2002 | 2 | 2000 | 2000 |
| | 2/1999, 2/2000, 8/2002 | 3 | 1500 | 1500 |
| | 2/1999, 3/2001, 1/2002, 8/2002 | 4 | 3900 | 3900 |
| | 2/2000 | 5 | 2000 | 2000 |
| Drasdo | 6/1997, 3/2001, 3/2003 | 1 | 20 | 20 |
| | 6/1997, 3/2001, 1/2002 | 2 | 200 | 30 ac in 97, 20 ac in 01 |
| | 1/2002 | 3 | 40 | 40 |
| | 7/1999, 1/2002 | 4 | 300 | 30 ac in 99 |
| Lake Cypress | | 1 (north) | 200 | 0 |
| | | 2 (south) | 100 | 0 |
| Catfish Creek | 1/2002 | 1 (east half) | 600 | 600 |
| | | 2 (west half) | 400 | 400 |
| Kissimmee Is | 4/2001 | Strum | 1000 | 1000 |
| | 2/2001 | Bird | 200 | 200 |
| | | Rabbit | 100 | 100 |
| Lightsey | 1/1999, 2/2003 | Tiger Creek | 378 | 378 |
| | 2/2000, 1/2003 | West Shore | 421 | 421 |
| | 1/2003 | West Shore | 400 | 400 |
| | 2/2003 | Otter Slough | 594 | 594 |
| | 3/2001, 2/2003 | Lightsey South | 300 | 300 |
| Oasis Levee | | 1 | 205 | 0 |
| East Shore Lake Kissimmee | | Johnson | 106 | 0 |
| | | Gannarelli | 290 | 0 |
| | | Overstreet | 595 | 0 |
| TOTAL ACRES | | | | 15,433 |

5.3.2 Prescribed Fire Planning

A fire management plan is developed for each management area. The plans include a description of location and natural community types, fire history, fire management objectives for each natural community type, constraints, and field operation burn prescriptions (sample prescription located in Appendix C). The LSP bases all fire activity plans on ecological research and best management practices. Fire frequency schedules for each natural community consider recommendations provided in The Natural Communities of Florida (FNAI 1990). The frequency of fire for different natural communities is located in Table 7. Growing season burns (summer) are encouraged and natural firebreaks are used to promote historic fire patterns, avoid soil disturbance, and reduce hydrologic flow disruption. Application of fire, with appropriately timed herbicide treatments, is utilized as a tool for control of invasive plants and is judiciously applied where fire-adaptive exotics are present. Prescribed fire planning is critical when dealing with species such as Melaleuca and Old World Climbing Fern, which can be spread by fire.

Table 7: Natural Community Fire Frequency Chart

| COMMUNITY TYPE | FIRE FREQUENCY | DETAILS |
|-------------------|-----------------|--------------------------------------|
| Basin Marsh | 3 – 5 years | Herbaceous-dominated areas |
| | 3 – 10 years | Willow / button bush-dominated areas |
| Basin Swamp | ~ 2 – 4 years | Around edges of community |
| | 5 – 150 years | In the interior of community |
| Depression Marsh | 3 – 10 years | |
| Dome Swamp | 3 – 5 years | Around edges of community |
| | 100 – 150 years | In the interior of community |
| Dry Prairie | 1 – 4 years | |
| Hydric Hammock | 30 – 100 years | |
| Mesic Flatwoods | 1 – 8 years | |
| Prairie Hammock | 25 – 100 years | |
| Scrub | 10 – 70 years | |
| Scrubby Flatwoods | 5 – 25 years | |
| Wet Flatwoods | 3 – 10 years | |
| Wet Prairie | 2 – 4 years | |

A description of the prescribed fire program for the KCOL is organized in this plan by community type and management unit. A brief description of each community type's fire regime is given followed by an overview of the prescribed fire programs for the KCOL. Fire Prescription Plans for all units are located at the District's Orlando Service Center.

5.3.2.1 Management Unit Fire Regimes

Gardner-Cobb Marsh Management Unit

Fuel reduction and ecological burning (mimicking natural fire cycles) are the primary objectives on Gardner-Cobb Marsh. The two largest natural community types within Gardner-Cobb are Basin Marsh and Mesic Flatwoods. Gardner-Cobb contains mostly fire adapted plant communities that burn readily and build up heavy fuels, causing dangerous wildfires. A wildfire burned all units west of the main road in March 2001. Regular fuel reduction through prescribed

burning reduces liability risks, fire suppression costs, and damage to fire sensitive areas. Prescribed burning will also benefit the plants and animals living in these fire dependent communities. Prescribed burning has been conducted by the District since 1997.

Lake Cypress Unit

This unit encompasses the land north of Canoe Creek canal and east of the C-35 canal. The primary natural community type is Basin Marsh. The unit will be burned on a two to four year rotation. Fuel reduction and ecological burning are primary objectives in this area. Prescribed fires can be conducted throughout the year. Fuel reduction will primarily occur in the winter months and ecological burning in the spring and early summer. Frequency and timing of burns will be determined in relation to other management activities and water levels on the chain of lakes. Existing access roads will serve as control lines during prescribed fires and wildfires. Wildfire suppression actions will attempt to avoid hydrologic changes and minimize disturbance of natural areas.

Drasdo Management Unit

Fuel reduction and ecological restoration are primary objectives on Drasdo. Fire exclusion appeared to be the cause of heavy fuel buildup in many of the plant communities. Most of the upland communities are fire adapted. Prescribed fire reduces liability risks, fire suppression costs, and damage to fire sensitive areas. Prescribed burning will also benefit the plants and animals living in these fire dependent communities.

Prescribed fire can also be used to restore and maintain the natural condition of the plant communities on Drasdo. Each plant community has its unique natural fire regime, restoration goal, and management needs. Much of the interior of the property is scrub and pine flatwoods, and requires fire. The gopher tortoise is one species that would benefit from prescribed fire. Many rare animals are communal with gopher tortoises and their burrows (i.e., sand skink (*Neoseps reynoldsi*) and gopher frog (*Rana capito*)).

Units 1 and 2 were burned in 1997 due to favorable conditions. The scrub island and three unburned units along Lake Hatchineha were burned in January 2002. The mesic flatwoods units 1 and 2 were burned in March 2003.

Catfish Creek Management Unit

This unit encompasses the land on the west shoreline of Lake Hatchineha. The largest natural community type is Wet Prairie. The east unit was prescribed burned in January 2002, and both units will be burned on a two to four year rotation. Fuel reduction and ecological burning are primary objectives in this area. Prescribed fires can be conducted throughout the year. Fuel reduction will primarily occur during winter burns while ecological burning will take place in the spring and early summer. Frequency and timing of burns will be determined in relation to other management activities and water levels on the chain of lakes. The Lake will serve as the east control line and fence line will be the west control line during prescribed fires and wildfires. Wildfire suppression actions will be directed to avoid hydrologic changes and minimize disturbance of natural areas.

Lightsey Management Unit

This unit encompasses the Tiger Creek, West Shore, South Shore, and Otter Slough Subunits. The two largest natural community types are Wet Prairie and flood Plain Marsh. The unit was prescribed burned in 1999, 2000, 2001 and 2003 and will be burned on a two to four year rotation. Fuel reduction and ecological burning are primary objectives in this area. Prescribed fires can be conducted throughout the year. Fuel reduction will primarily occur during winter burns while ecological burning will take place in the spring and early summer. Frequency and timing of burns will be determined in relation to other management activities and water levels on the chain of lakes. Existing access roads will serve as control lines during prescribed fires and wildfires. Wildfire suppression actions will be directed to avoid hydrologic changes and minimize disturbance of natural areas.

Kissimmee Islands Management Unit

This unit encompasses the Bird, Rabbit, and Sturm islands on Lake Kissimmee. The primary natural community type on the islands is Basin Marsh. Bird and Sturm islands were prescribed burned in 2001, and will be burned on a two to four year rotation. Fuel reduction and ecological burning are primary objectives in this area. Prescribed fires can be conducted throughout the year. Fuel reduction will primarily occur during winter burns while ecological burning will take place in the spring and early summer. Frequency and timing of burns will be determined in relation to other management activities and water levels on the chain of lakes. The Lake will serve as a control line during prescribed fires and wildfires. Wildfire suppression actions will be directed to avoid hydrologic changes and minimize disturbance of natural areas.

East Shore Lake Kissimmee and Oasis Levee Units

The East shore unit encompasses the land between Gardner-Cobb Marsh and Three Lakes Wildlife Management Area on the east shore of Lake Kissimmee. Oasis Levee is on the southwestern shore of Lake Kissimmee. Both units are currently utilized for cattle grazing and no prescribed burning to date has occurred. Fuel reduction will primarily occur during winter burns while ecological burning will take place in the spring and early summer. Frequency and timing of burns will be determined in relation to other management activities such as grazing and water levels on the chain of lakes. Wildfire suppression actions will be directed to avoid hydrologic changes and minimize disturbance of natural areas.

5.3.3 Wildfire Suppression and Control

Policy 05.00113.4 The Division of Forestry will be notified of all wildfires on District lands. The Land Stewardship Program will provide initial suppression when commensurate personnel and equipment are available.

Wildfires ignited by lightning are a common occurrence throughout Florida. It is standard District procedure, and State law, to notify the DOF, local county fire department, and District emergency management personnel when a wildfire occurs on LSP-managed properties.

The DOF 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 FDOF regional office that is responsible for Catfish Creek, Lightsey, and Oasis Levee management units is located in Lakeland. The Polk County Fire Station responsible for the same area is based out of Bartow. Contact information for the Division of Forestry and the county fire departments is located in Appendix A.

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

5.4 Wildlife Management

The District is committed to the protection and conservation of wildlife resources. A prime requisite in managing these public lands is to ensure that the water, fish and wildlife populations, native plant communities and related resources are maintained in an environmentally acceptable manner.

5.4.1 Game Management

Policy 05.00114.2d Hunting, in areas opened for such use, is governed by the Florida Fish and Wildlife Conservation Commission regulations.

Game density is believed to be relatively high due to the wide array of natural communities within the Kissimmee Chain of Lakes basins. In 1999 and 2000, District staff discussed scenarios with FWC under which they would manage portions of the KCOL as a Type 1 Wildlife Management Area (WMA). This program would potentially include all District-managed properties adjoining the Kissimmee Chain of Lakes. FWC staff has expressed interest in the proposal, but did not foresee immediate implementation due to staffing shortages. District staff must outline a formal proposal and forward it to the Commission to proceed with the negotiations.

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

Lightsey and Oasis Levee Management Units have areas outside of the posted blue District boundary signs opened for statewide hunting activities. The blue District signs inform the public that the sign delineates District property boundary and entry onto the property is authorized at designated entry points.

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 KCOL should first consult with regional District land managers, FWC wildlife officers, current District Public Use Guide, and current FWC hunting pamphlets to ensure compliance with regulations, or call the FWC at (863) 648-3203 (see Appendix A for contact information).

5.4.2 Exotic/Invasive Species

The feral pig is the predominant pest species in the Management Area. It meets the species selection criteria as an introduced species that interferes with land management operations and is in direct competition with native species for resources. Feeding habits, high fecundity, and habitat adaptability provide an intolerable combination of pressures on most natural communities subject to feral hog populations. Hog disturbance has occurred in most wetland community types and hammocks within the area. Rooting and feeding on underground vegetation poses numerous problems, especially to biologically sensitive areas slow to recover from disturbance. Areas with high populations of hogs frequently have the ground layer vegetation denuded in certain areas, inhibiting prescribed burn efforts. Rooted areas in wetlands are susceptible to exotic plant establishment and are set back to earlier succession stages.

Feral pigs are found throughout the management area, but populations are largest and most destructive in the Catfish Creek, Drasdo, Gardner-Cobb Marsh, Lightsey, and Kissimmee Islands Units. Public hunting under statewide regulations in those areas open to hunting is the only removal program available. A trapping contract is currently under consideration as another tool for feral pig removal.

5.4.3 Rare, Threatened and Endangered Species

Policy 05.00112.2 Particular emphasis shall be placed on the identification, protection, and management of rare, threatened, and endangered species.

Wildlife inventories have documented federally, state, and FNAI-listed species (endangered, threatened, species of special concern, and rare) occurring within the KCOL (Appendix E – G). The distribution of listed species is summarized in Table 8.

Table 8: Number of Documented Listed Animal Species for the KCOL

| Species | Endangered | | Threatened | | Species Of Special Concern | FNAI Listed |
|---------|------------|-------|------------|-------|----------------------------|-------------|
| | Fed | State | Fed | State | | |
| Birds | 2 | 1 | 4 | 4 | 2 | 19 |
| Mammals | 2 | | | | | 2 |

Confirmed listed wildlife include the American bald eagle, crested caracara, American alligator, gopher tortoise, scrub jay, Sherman’s fox squirrel, swallow-tailed kite, snail kite, sandhill crane, peregrine falcon, snowy egret, and osprey.

Management emphasis concerning rare and/or listed wildlife species within the KCOL has centered on the bald eagle. The presence of bald eagles within the Lightsey and Kissimmee Islands Units is documented in detail.

Annual aerial nest monitoring by the FWC is scheduled to continue and the District will continue to assist their efforts. District personnel will attempt to monitor the area's nests in the 2004 – 2005 seasons to determine more accurately the timing of the onset of nesting activities. Bald Eagle Management Guidelines and Summary of Management Zone Recommendations for Bald Eagles are listed in the appendix, K and L respectively.

The District contracted an eagle nest management plan for the Upper Lakes Management Area by the Florida Natural Areas Inventory. An in-depth eagle nest survey of the SOR Upper Lakes Management Area was completed and a final report submitted by FNAI (contract #3491) in December 2002. There are a total of 215 nests in the Orange, Osceola, and Polk counties of which 18 are on or near District property. Plan content includes historical nesting data, nesting success information; current (2001) GPS nest locations, and management recommendations. Field surveys are conducted during the breeding season during the October to May nesting season. In the KCOL there were six nests identified. During the 2002 - 2003 breeding season one chick was observed in a nest on the Lightsey Unit. In January 2003 District staff an active nest located on Rabbit Island.

5.4.4 Monitoring

Since the mid-1970's FWC has monitored bald eagle nests within the KCOL (White 1999b). The District has assisted with the FWC annual eagle nest monitoring in the Upper Lakes since 1997.

Other than bald eagles, there is limited wildlife monitoring being conducted by FWC within the KCOL. FWC biologists actively searched for Florida panther sign at the Catfish Creek Unit (Belden 2003). Alligator counts are conducted at Lake Hatchineha and Lake Kissimmee with infrequent counts at Lake Cypress (Brunell 2003). There are 12 – 14 whooping cranes monitored along Lake Kissimmee (Folk 2003). A snail kite monitoring program was completed that included Lake Cypress in 1996 (Rogers 2003).

6. Public Use

Policy 05.00110 The Land Stewardship Program's mission is to provide natural resource protection and management while allowing appropriate recreational use on designated public lands.

Section 373.1391 (1) (a) Florida statute states that wherever practical, lands acquired by the LSP shall be open to the general public for recreational uses. Public use of management areas for appropriate resource-based activities is encouraged where such use does not interfere with protection and management of environmental resources. Potential compatible uses are outlined in Section 373.1391(1) (b) F.S.

The determination of compatible public use 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 resulting from endangered species, other sensitive natural resources, archaeological resources, or land management practices
- public health, safety and welfare
- environmental education program opportunities

A preliminary determination of allowable recreational activities will be set forth in the GMP for each management area. Table 9 summarizes current recreational opportunities in the KCOL. Carrying capacity, intensity of use, and required support facilities and services will be detailed in the activity plan, when available. Future changes that may be necessary based on operational experience will be included in annual work plans and five-year updates to GMPs (and activity plans, if available).

Table 9: 2003 - 2008 Recreational Opportunities* Kissimmee Chain of Lakes Management Area

| Management Unit | Fishing | Hunting | Hiking | Equestrian | Boating | Airboating | Camping | Nature Study | Frogging |
|--------------------|---------|---------|--------|------------|---------|------------|---------|--------------|----------|
| Catfish Creek | X | X | X | | X | X | S | X | X |
| Gardner-Cobb Marsh | X | X | X | S | X | X | S | X | X |
| Drasdo | X | | X | | | | S | X | X |
| Lightsey | X | X | X | S | X | X | S | X | X |
| Lake Cypress | X | X | X | | X | | S | X | X |
| Kissimmee Islands | X | X | X | | | X | S | X | X |
| Oasis Levee | X | | | | | | | X | X |

* Before participating in any type of public use activity on District owned and/or managed lands, consult with the regional land manager or the current *Public Use Guide for Land Management Areas* concerning area regulations.

“X” indicates an activity that is regulated by statewide laws and regulations and District rule.

“S” indicates an activity that requires a District Special Use License.

Public use activities that are appropriate for the KCOL include, but are not limited to, fishing, hunting, horseback riding, swimming, camping, hiking, canoeing, boating, birding, environmental education, and nature appreciation. Other related outdoor purposes shall be encouraged when such use does not interfere with protection and management of the natural resources. A Land Use Matrix for the Kissimmee Chain of Lakes is in Appendix H. Special consideration will be given to the

provision of outdoor recreational opportunities for persons who are physically challenged. The appropriateness of public use activities may change with time and/or for any given area based on the criteria outlined above. Information about recreation on District lands may be found at www.sfwmd.gov and selecting Recreation.

6.1 Regulation

Policy 05.00114.2a Public use regulations are set forth in 40E-7.511 F.A.C. to implement Florida Statutes sections 259.101, 373.016(2) (h), and 373.1391(1) (b). Accordingly, the District publishes and makes available a “Public Use Guide” for designated land management areas. The Public Use Guide will be considered by the Governing Board at a public meeting advertised in accordance with Chapter 120, F.S.S.

The District’s public use rule is revised on a biannual basis, a timeframe that began in 1998. The rule is generally opened for revision by Governing Board action in the spring. Public meetings are held throughout the District to solicit comments and to present proposed changes. The proposed rule is presented to the Governing Board for adoption during the summer, to be implemented in the fall. The target month for implementation is September. However, if there are objections or negotiations concerning the rule proposal, the entire rule revision timeframe can be delayed. (Each rule revision year, specific deadline dates are generated for each step before initiation of the revision process.)

Regulations governing the public use of management areas shall be enforced by law enforcement agencies with the appropriate jurisdiction. Pursuant to Section 373.609, F.S.S.: . . . it shall be the duty of every state and county attorney, sheriff, police officer, and the appropriate city and county official to assist the District, and their agents, in the enforcement of the provisions set forth according to 40E-7.511 (Public Use Guide/Regulations).

Regulations in the District’s *Public Use Guide* that govern activities on the KCOL are supplemental to those public use regulations established by the FWC. Complete FWC regulations are listed in the *Florida Wildlife Code, Title 39*. FWC regulations are updated annually through a review cycle that provides scheduled opportunities for public input and comment. In addition, Florida statutes (Chap. 375) states that the FWC shall manage vehicle use on lands owned or leased by the state and used by the general public for recreational purposes.

6.2 Resource Protection

Policy 05.00113.7 - Security and resource protection shall be provided by professional law enforcement services through contractual and non-contractual agreements, to safeguard the public and protect natural and cultural resources on District-managed natural areas.

Policy 05.00114.2b – Rules and regulations governing the public use of each management area shall be enforced by agencies with appropriate law enforcement jurisdiction.

Policy 05.00114.2c – Pursuant to Section 373.609, F.S.S., it shall be the duty of every state and county attorney, sheriff, police officer, and the appropriate city and county official to assist the

District, and their agents, in the enforcement of the provisions set forth according to 40E-7.511 F.A.C.

Law enforcement patrols in the KCOL are required to deter criminal activity, safeguard the public, and protect natural and cultural resources. The long irregular boundary of the project provides numerous opportunities for poaching and the lack of vehicular access makes law enforcement patrol difficult.

The District has a twenty-five year contract with FWC (C-10162) to perform enhanced patrols on District property which are additional hours of patrolling beyond the regular hours FWC officers work. The contract with FWC was amended (C-10162-A02) for the District to fund an additional FWC Officer to increase patrols on the Kissimmee Chain of Lakes Management Area. In addition to the enhanced patrols, protection of District natural resources is provided through:

- Working with county and municipal law enforcement agencies to explain the LSP and gain in-kind law enforcement services;
- Establishing on-site law enforcement officers who live in District-owned residences and provide a visible presence on the property;
- Establishing contracts for cattle grazing in which ranchers oversee activities on Land Stewardship properties.

Major problems in the area include illegal entry (foot and airboat), poaching, dumping, trespassing on adjacent properties, and gate/fence/sign destruction. The LSP Resource Protection Coordinator oversees the contract (C-10162) with FWC for scheduled patrolling of District properties. There are approximately 50 law enforcement (wildlife) officers available for patrolling throughout the District. Patrols in the Management Area may be conducted in 4x4 vehicles, boats, airboats, all-terrain vehicles, or on foot. Patrol times, locations, and type may be changed to address enforcement needs as they arise.

The Osceola and Polk County Sheriff's Offices also provide law enforcement covering the Management Area. Meetings with Sheriff's Office representatives have been made, but follow-ups will be necessary to them keep them updated on District rules and programs.

Resource protection is also greatly enhanced by the presence and maintenance of boundary fencing. Perimeter delineation of SOR property boundaries is accomplished by posting, mowing, and fencing. In some cases, fencing does not occur until all parcels of an acquisition project are under ownership. In the interim period, posting, minimal fencing, and gating occurs as needed. Fencing projects of one half mile or less may be performed by the Land Stewardship Field Crew and land managers, while longer fencing projects are contracted to the private sector. Standard fencing specifications are on file at the District's Orlando Service Center.

The KCOL has approximately 133 miles of perimeter boundaries. This includes areas that abut private land, public waterways, and public road rights of way. Some units also have interior fence lines that facilitate cattle grazing. All exterior boundaries are posted except East Shore. However, reposting of boundaries must be done at least semi-annually (once immediately prior to the hunting season in August or September). Many of the perimeter boundaries are fenced; however, some areas need major repairs, new fence, or minor repairs, and all need perpetual

annual maintenance. In perimeter boundary areas that abut public waterways and private lands, where vegetation may obscure posting or fences, the District also mows the boundary one to two times per year. Table 10 summarizes the boundary posting and fencing needs for the Management Area.

Table 10: Boundary Delineations for the Kissimmee Chain of Lakes Management Area

| LAND BOUNDARY * (in miles) | | | | | | WATER BOUNDARY * (in miles) | | | | |
|----------------------------|--------|-------|--------|------------------|-------|-----------------------------|-------|--------|-------|----------------|
| MANAGEMENT UNIT | Posted | Mowed | Fenced | Requires Fencing | Total | Posted | Mowed | Fenced | Total | REMARKS |
| Catfish Creek | 4.7 | 4 | 4.7 | 0 | 4.7 | 2.7 | | 0 | 2.7 | Fenced in FY01 |
| Drasdo | 2.9 | 2.9 | 2.9 | 0 | 2.9 | 2.9 | | 0 | 2.9 | |
| East Shore | | 11.9 | 0 | | 11.9 | | | 0 | | |
| Gardner-Cobb | 14.8 | 14.8 | 14.8 | 0 | 14.8 | 15.9 | 5 | 0 | 15.9 | |
| Lake Cypress | 5.9 | 5.9 | 0 | 5.9 | 5.9 | 4.5 | 4.5 | 0 | 4.5 | |
| Oasis Levee | 1.5 | 0.5 | 1.5 | 0 | | 0.5 | | 0 | | |
| Kissimmee Islands | 6 | 0 | 0 | | 6 | 10 | 0 | 0 | 10 | |
| Lightsey | 8.6 | 8.3 | 8.3 | 0 | 8.3 | 5.3 | 5.3 | 0 | 5.3 | |
| TOTAL | 47.1 | 52.8 | 32.2 | 5.9 | 54.5 | 46.3 | 14.8 | 0 | 41.3 | |

6.3 Revenue Generation

Policy 05.00115.33b Entrance and user fees, permits, licenses and/or advance reservations may be required for use of District lands where considered necessary by the managing agency.

District regulations require a cost-free Special Use License to horseback ride at the Lightsey Unit.

Policy 05.00115.3a Private concessions and/or agreements with non-profit organizations will be considered to implement needed services through concession contracts.

Currently there are no KCOL concessions and none are planned.

6.4 Environmental Education, Community Extension, and Governmental Affairs

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 LSP encourages educational partnerships through memorandums of understanding, leases, and contract agreements.

Public outreach and government affairs programs for LSP in KCOL are coordinated and implemented by two Government and Public Affairs 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

LSP personnel administer the management of SOR natural areas from the SFWMD headquarters office in West Palm Beach. Policy decisions, acquisition procedures, contract administration and select issues of program development are coordinated from headquarters. LSP land managers located in District Regional and Service Centers (Orlando Service Center for the KCOL), administer in-field land management and participate in administrative functions such as funding, planning, reporting and external entity coordination.

7.1 Planning and Budgeting

Planning is a major function of the LSP mission and is critical to maintain proper program focus, direction, and coordination with other agencies. LSP planning is accomplished by division planning staff and in coordination with individual land managers. Division level planning develops land acquisition strategy and project evaluation, produces the SOR Land Acquisition and Management Plan, and coordinates acquisition planning with other District and outside agency personnel.

Policy 05.00117.2 General management plans provide 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 (GMP) are developed that detail strategies to guide management activities on individual project areas. The GMP defines goals and objectives, identifies major management issues, and describes 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 05.00117.4 Annual work plans summarize activities corresponding with annual budget development and are prepared by the Operations Section of the LSP.

Annual work plans are developed each fiscal year for budget preparation and to address activities and projects targeted for completion within the up-coming fiscal year on individual properties. The annual work plan includes performance objectives for exotic plant control, vegetation management, prescribed burning, fencing, infrastructure maintenance, forest management, resource protection, public use development, environmental monitoring, and contract administration.

Annual KCOL work plans and budgets are developed in concert with program-wide operational priorities and budgetary cycle. Current year KCOL annual plans are available at West Palm Beach headquarters and the Orlando Service Center.

Policy 05.001157.5 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 quarter, land managers submit regional management reports to document progress toward achieving annual work plan objectives. The KCOL quarterly reports are kept on file at District headquarters and the Orlando Service Center. LSP quarterly meetings address management problems and plan for future management operations.

Policy 05.00115 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 principle 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 may be obtained from the harvest of renewable resources, land use leases, in-kind management services from cooperating management partners, no-cost services from user groups and volunteers, and funding through mitigation banking.

Budget planning begins in March during the work planning process for the following fiscal year (October-September). Overall budget 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 05.00113.11 Infrastructure support shall be developed and maintained to provide safe access for responsible management and public use on District lands. Such infrastructure includes access points, roads, trails, utilities, and minimal public facilities.

Pedestrian access to District lands for public recreational purposes will be allowed, upon completion, establishment, or implementation of: an ecological survey or inventory; a recreation assessment; risk assessment; boundary survey and required posting; designation of authorized point(s) of entry; security measures; and Governing Board approval.

Pedestrian access for public recreation is only available at the Lightsey Unit (under regulations specified in the District's current Public Use Guide to Land Management Areas). Pedestrians may walk or hike throughout areas opened for such use.

7.2.1 Public Access

Access to the Kissimmee Chain of Lakes units is only by airboat or other watercraft. No public vehicular traffic (automobiles, trucks, swamp buggies, ATVs, 4x4s) are allowed at any location within the management area. Public motorized vessel traffic is allowed in the Gardner-Cobb Marsh, Catfish Creek, and Lightsey Units outside of the posted blue District boundary signs (which must also be outside of posted No Trespassing areas). Airboating is not permitted in upland hammocks. As of July 2000, areas waterside of the posted blue District boundary signs opened for motorized vessel activities included:

- lakeward marshes along the shoreline of Drasdo;
- lakeward marshes along the East Shore shoreline of Lake Kissimmee;
- lakeward marshes along the west shoreline of the Lightsey, Oasis Levee; and
- lakeward marshes along the shoreline of Lake Cypress

Areas open to motorized vessel activities include: Gardner-Cobb Marsh (excluding Ike Hammock) and upland hammocks; Catfish Creek (excluding upland hammocks);

7.3 Personnel and Equipment

A select group of District employees plan and manage the functions of the LSP. This group includes professional land managers assigned to regional service centers. Regional land managers have specific geographical responsibilities for comprehensive management in their respective areas, as well as special management expertise (law enforcement, prescribed fire, exotic control) that they share with other managers throughout the agency. A highly-trained field crew is based at Dupuis Reserve (Land Stewardship Field Crew), and supports the professional staff by performing diversified land management tasks throughout the District. LSP planning staff executes planning functions and evaluates and monitors LSP management. Student interns are hired on a project-specific, time-limited basis. Interns are recruited through the District's human Resources Division and the Student Conservation Association.

Successful management of the KCOL is dependent upon the efficient and effective distribution of Land Stewardship personnel. 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, and student interns 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 05.00115.4a Volunteers, interns, and alternative work forces will be used when possible to supplement existing staff and services.

From 1996-1999, KCOL 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. Additional groups are anticipated and are planned on an as-needed basis.

7.5 Contractual Management

Policy 05.00115.1 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 objectives.

The Kissimmee Chain of Lakes Land Management Advisory Committee, initiated in 1995, provided management oversight and recommendations for the Gardner-Cobb, Lightsey, and Catfish Creek Management Units. The Committee was composed of members of the recreational, environmental, agricultural, neighborhood and governmental communities, and provides non-contractual management cooperation.

In 1999, the District's Governing Board directed Land Stewardship staff to seek cooperation and/or direction from the FDEP for management of the KCOL. Land Stewardship staff researched available options to protect waterways, many of which were directly associated with FDEP programs. Others were associated with FWC programs and legislative designations. The District is dedicated to finding a long-term protective strategy and believes cooperation with FDEP and FWC is essential.

A summary of all contractual cooperative agreements can be found in Table 11.

Table 11: Contract Summary for the Kissimmee Chain of Lakes Management Area

| MANAGEMENT AREA - UNIT | CONTRACT TYPE | CONTRACT ENTITY | CONTRACT NUMBER | EXPIRATION DATES |
|--|---------------------------------|----------------------------------|-----------------|------------------|
| KCOL | Enhanced Law Enforcement Patrol | FWC | C-10162 | |
| KCOL | Exotic Plants Eradication | Applied Aquatics Management Inc. | C-13621 | |
| Lake Cypress, Oasis Levee, Kissimmee Islands | Plant Inventory | Keith & Schnars PA | C-13662 | 9/2003 |
| NE Shore Lake Kissimmee | Cattle Lease | R. Overstreet | C-4837 | 12/2018 |
| E Shore Lake Kissimmee | Cattle Lease | W. Overstreet | C-4836 | 12/2018 |
| NE Shore Lake Kissimmee | Cattle Lease | E. Gannarelli | C-7330 | 12/2018 |
| NE Shore Lake Kissimmee | Cattle Lease | Johnson | C-7331 | 12/2018 |
| Brahma Island | Cattle Lease | Lightsey | C-7333 | 12/2018 |
| West Shore Lake Kissimmee | Cattle Lease | Lightsey | C-7334 | 12/2018 |
| West Shore Lake Kissimmee | Cattle Lease | Miles | C-7332 | 12/2018 |
| NE Shore Lake Kissimmee | Cattle Lease | W. Overstreet | C-15106 | 12/2024 |
| NE Shore Lake Kissimmee | Cattle Lease | R. Overstreet | C-15107 | 12/2024 |
| Lightsey | Security | Law Enforcement | C-13095 | |
| Gardner-Cobb, Lightsey, Catfish, Oasis Levee | Sovereign Land Management | DEP | Lease #4099 | 8/2045 |
| Gardner-Cobb, Drasdo | Archaeological Survey | Southarc Inc. | C-13641 | 9/2002 |
| Gardner-Cobb, Lake Cypress | Plant Inventory | Golder Associates | C-6974 | 11/1998 |
| Lightsy (excluding Otter Slough) | Flora/Fauna Inventory | Hilsenbeck | C-6316 | 9/1997 |
| Kissimmee Chain of Lakes | Eagle Survey | Florida Natural Areas Inventory | C-9341 | 12/2002 |

7.6 Management Review

Policy 05.00113c Legislative-mandated (H.B. 1119) management review will provide input from professional peers.

GMPs are created following a designated format and provide description of recommended management for each management area. The GMP is updated every five years. Management

review teams evaluate management plans and participate in on-site reviews of management practices. Team members consist of the LSP regional land manager, and representatives from FWC, FDEP, Florida Division of Forestry (FDOF), local soil and water conservation districts, local government and private land management interests, and conservation organizations.

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Appendix A: Contact List for the Kissimmee Chain of Lakes Management Area

Florida Department of State, Division of Historical Resources
Heather Percy, Florida master Site File
R.A. Gray Building, 500 South Borough, Tallahassee, FL 32399-0250
Tel: (850) 488-1480; Fax: (850) 488-3353

Florida Division of Forestry, Department of Agriculture

Polk County – District 14 Office
Mark Hebb, District Manager
Gary Zipprer, Area Supervisor
5745 S. Florida Avenue, Lakeland, Florida 33813
Tel: (941) 648-3163, Fax: (941) 648-3169

Florida Division of Forestry, Department of Agriculture
Osceola County - District 12 Office
John Koehler, District Manager
Tom Donahoe, Area Supervisor
8431 South Orange Blossom Trail, Orlando, FL 32809
Tel: (407) 856-6512, Fax: (407) 856-6514

Florida Fish and Wildlife Conservation Commission, South Region

Wildlife Management Area proposal contacts and Law Enforcement
1239 S.W. 10th Street, Ocala, Florida 34474-2797
Telephone 1-800-282-8002

Florida Fish and Wildlife Conservation Commission, South Region

Law Enforcement
3900 Drane Field Road, Lakeland, FL 33811
Tel: (941) 648-3200, Fax: (941) 680-5594

Florida Fish and Wildlife Conservation Commission
Office of Environmental Services
Sharon Arnold, Records Technician
620 South Meridian Street, Tallahassee, FL 32399-1600
Tel: (904) 488-6661, Fax: (904) 922-5679

Osceola County Fire Department
17 South Vernon Avenue, Kissimmee, Florida 34741
Non-Emergency: (407) 932-5338
Dispatch Tel: (407) 348-8688
Emergency Telephone: 911

Osceola County Sheriff's Office
400 Simpson Road, Kissimmee, FL 34744-4494
Non-Emergency Telephone: (407) 348-2222
Emergency Telephone: 911

Polk County Fire Services
P.O. Box 1458, Bartow, Florida 33831
Non-Emergency Telephone: (941) 534-0380
Communications Center: (941) 534-0360
Emergency Telephone: 911

Polk County Sheriff's Office
455 N. Broadway Avenue, Bartow, FL 33830-3998
Non-Emergency Telephone: (941) 533-0444
Emergency Telephone: 911

South Florida Water Management District, Dupuis Reserve
Pete David, Land Management Supervisor
Dennis Driggers, Supervising Land Management Technician, Field Crew
David Black, Monitoring Coordinator
23500 S.W. Kanner Highway
Canal Point, Florida 33438
Telephone: (561) 924-5310

South Florida Water Management District, Headquarters
Fred Davis, Department Director
Bijaya Kattell, Recreation Planner
Bill Helfferich, Senior Supervising Planner
Marjorie Moore, Mitigation Area Program Coordinator
3301 Gun Club Road, West Palm Beach, Florida 33406
Telephone: 1-800-686-2511 Fax: (561) 681-6233

South Florida Water Management District, Orlando Service Center
David Birdsall, Upper Lakes Land Manager, LSP
Rick Conover, Resource Protection Coordinator, LSP
Vincent Matera, Upper Lakes Land Management Technician, LSP
1707 Orlando Central Parkway Suite200
Orlando, Florida 32809
Telephone: 1-800-250-4250

South Florida Water Management District, Okeechobee Service Center
Jeff Mclemore, Forestry Coordinator
Harold Price, Range Coordinator
205 North Parrot Avenue, Suite 201, Okeechobee, Florida 34972

Telephone: 1-800-250-4200
Fax: (863) 462-5269

Student Conservation Association, Inc.
689 River Road
P.O. Box 550
Charlestown, NH 03603
Telephone: (603) 543-1700
www.sca-inc.org

United States Army Corps of Engineers
Bill Cavitt
6406 U. S. Highway 27
Sebring, Florida 33870
Telephone: (813) 840-0824

United States Fish and Wildlife Service
P.O. Box 2676
Vero Beach, Florida 32961
Telephone (561) 562-3909

Appendix B: Ownership – Tract Information

| MANAGEMENT UNIT | PARCEL # | PREVIOUS OWNER | ACRES | Total Acres/Unit |
|--|----------|--------------------|-----------|------------------|
| Oasis Levee | 001-003 | Hardee | 205.43 | 205.43 |
| East Shore | 057-001 | Overstreet | 191.78 | |
| | 054-001 | Overstreet | 400.62 | |
| | 054-002 | Overstreet | 2.96 | |
| | 050-002 | South Port | 11.14 | |
| | 050-001 | South Port | 146.22 | |
| | 047-001 | Gannerelli | 289.90 | |
| | 047-004 | Johnston | 23.60 | 1,066.22 |
| Lightsey Unit | 016-001 | Lightsey | 161.27 | |
| | 020-025 | Lightsey | 79.48 | |
| | 020-001 | Fulford | 2.51 | |
| Unknown if acquired | 020-026 | Bolin | 1.26 | |
| | 020-004 | Lightsey | 12.00 | |
| | 020-002 | Gleason | 5.40 | |
| | 020-005 | Lightsey | 5.10 | |
| | 020-018 | Ducks Inc. | 9.00 | |
| | 020-006 | McDonald | 16.70 | |
| | 020-007 | Lightsey | 12.10 | |
| | 020-003 | Fulford | 5.40 | |
| Unknown if acquired | 020-017 | Doyle | 3.10 | |
| | 020-008 | Gilbert | 5.50 | |
| | 020-009 | Coleman | 5.40 | |
| | 021-004 | Rose | 4.74 | |
| | 021-001 | Lightsey | 421.00 | |
| | 024-001 | Miles | 378.00 | |
| | 011-001 | Kirchoff | 490.6 | |
| | 021-006 | Miles | 42.07 | 1,660.63 |
| Lake Kissimmee Islands - Brahma | 077-011 | Lightsey | 81.00 | |
| | 077-010 | Lightsey | 77.00 | 158.00 |
| Lake Kissimmee Islands - Bird | 088-001 | Lightsey | 185.77 | 185.77 |
| Lake Kissimmee Islands - Rabbit | 087-001 | Maggard | 26.72 | 26.72 |
| Lake Kissimmee Islands - Sturm | 084-001 | Whaley | 508.90 | 508.90 |
| Gardner-Cobb Marsh | 205-001 | Bronson | 10,853.43 | |
| | 205-031 | Bronson | 89.73 | |
| | 209-002 | Rawn | 2.35 | 10,945.51 |
| Drasdo | 115-001 | Drasdo | 561.66 | |
| | 116-002 | Martin | 79.22 | |
| | 030-001 | Zipper | 31.89 | |
| | 029-001 | Zipper | 20.77 | 693.54 |
| Cypress Lake | 205-001 | Bronson | 40.00 | |
| | 205-005 | Bronson | 689.00 | |
| Unknown | 021-005 | Dickinson | 5.19 | 734.19 |
| Catfish Creek | 122-001 | Pownall | 657.70 | 657.70 |
| | | Total Acres | | 16,839. |

Appendix C: Burn Prescription

Authorization No.

Burn Date

FIRE PRESCRIPTION
FIELD OPERATIONS - Land Stewardship Program
Orlando Service Center
South Florida Water Management District
7335 Lake Ellenor Drive, Orlando, Florida 32809
Telephone:(800) 250-4250

SFWMD Parcel: S T R

County:

Burn Unit Number:

Acres to Burn: ac.

Distance to Disk: mile(s)

Burn Unit vegetation:

Overstory Type and Height:

Understory Type and Height:

Fuel Loading: High Medium Low

Date of last fire:

Topography and Soil:

Purpose of Burn:

- Reduce the fuel load.
- Reintroduce fire into the system.
- Burn to manage fire adapted communities.
- Maintain or enhance natural community.

Ignition Plan:

- Backfire downwind side
- Strip head
- Flank

Special Precautions: Clear area of nonessential personnel. Close/lock gate to prevent hikers from accessing the area.

No Burn Situation: Dry, muck soil.

Range of Desired Weather **Preferred** **Actual**

Surface Winds (speed and direction): mph N - E - S - W

Transport Winds (speed and direction): mph N - E - S - W Mixing Height:
feet

Min. Relative Humidity: %

Max. Temperature: degrees

Dispersion Index:

Days since Rain:

Fine Fuel Moisture estimate

Fire Behavior

Type of Fire: Strip, Back, Flank, Head

Flame Length: ft.

Desired Fire Intensity: HOT 5 4 3 2 1 COOL

Preferred Month(s) of Burn: season. J F M A M J J A S O N D

Starting Time: am

Appendix C: Burn Prescription (continued)

Smoke Management (See fire plan for more details)

Smoke Screening Passed -

Smoke Sensitive Areas:

Smoke Precautions: Monitor smoke column.

Adjacent landowner Contacts:

Routine Contacts:

SFWMD (Fred Davis, Director, Land Stewardship): 561-687-6636

LSD Field Office: 561-924-5310 (DuPuis Reserve)

SFWMD (Olivia McLean, Emergency Manager): 561-687-6218

DOF District Office (Dundee): (941)421-3702/Lakeland 941)648-3163.

Kissimmee Field Station: (407)846-5226

Florida Power (let dispatch know) 1-800-700-8744

Required Resources: 6 burners (3 operators), 2 pumper units, dozer or tractor with disk or loader, 2 ATVs, smoke signs.

Holding and Contingency:

Mop up: Extinguish all visible and smoldering flames. Check perimeter.

Fire out: When mop up is complete.

Safety Check: PPE for entire crew. All equipment operational and in position.

Immediate Evaluation

Burn objectives met:

Spotover/Escapes:

Smoke Problems:

Public Contacts:

Other observations (Wildlife etc.): _____

Prescription done by

Certified Burn Manager Signature _____

Certification No.

Date of Prescription:

Appendix D: Floral Composition of the Kissimmee Chain of Lakes

Data Source: Hilsenbeck, Reed & Bixler

| Scientific Binomial | Common Name | Listing | Management Unit | | | | | | |
|--|----------------------------|---------|-----------------|--------|----------------|------------|----------|--------------|-------------|
| | | | Gardner-Cobb | Drasdo | Cattfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee |
| <i>Acer rubrum</i> | Red maple | | | | + | | + | | |
| <i>Achyranthes indica</i> | Devil's horsewhip | | + | | | | | | |
| <i>Agalinis linifolia</i> | Flax-leaf false foxglove | | | | | | + | | |
| <i>Aletris lutea</i> | Yellow colic-root | | | | | | + | | |
| <i>Alternanthera philoxeroides</i> | Alligator weed | Exotic | | | | | + | | |
| <i>Amaranthus australis</i> | Southern water-hemp | | | | | | + | | |
| <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 glomeratus</i> | Bushy broom grass | | + | | | | + | | |
| <i>Andropogon virginicus</i> | Broom grass | | + | | | | + | | |
| <i>Andropogon virginicus v. glaucopsis</i> | Chalky blue stem | | | | + | | + | | |
| <i>Aristida purpurescens</i> | Arrowfeather | | | | | | + | | |
| <i>Aristida spiciformis</i> | Bottlebrush threeawn grass | | | | | | + | | |
| <i>Aristida stricta</i> | Wiregrass | | | | | | + | | |
| <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>Asimina reticulata</i> | Flatwoods pawpaw | | | | | | + | | |
| <i>Aster subulatus</i> | Annual marsh aster | | + | | | | | | |
| <i>Aster tortifolius</i> | White topped aster | | | | | | + | | |
| <i>Axonopus affinis</i> | Common carpet grass | | + | | + | | + | | |
| <i>Axonopus furcatus</i> | Big carpet grass | | + | | | | + | | |
| <i>Azolla caroliniana</i> | Mosquito fern | | + | | | | + | | |
| <i>Baccharis halimifolia</i> | Groundsel bush | | + | | | | + | | |
| <i>Bacopa caroliniana</i> | Lemon bacopa | | + | | + | | + | | |
| <i>Bacopa monnieri</i> | Smooth water-hyssops | | + | | + | | + | | |
| <i>Befaria racemosa</i> | Tarflower | | | | | | + | | |
| <i>Bidens bipinnata</i> | Spanish needles | | + | | | | | | |
| <i>Bidenslaevis</i> | Bur marigold | | | | | | + | | |
| <i>Bidens mitis</i> | Marsh begger-tick | | | | | | + | | |
| <i>Bidens sp</i> | Beggar-tick | | | | | | + | | |

Kissimmee Chain of Lakes Management Area General Management Plan 2003 - 2008
South Florida Water Management District, Land Stewardship Division

| Scientific Binomial | Common Name | Listing | Management Unit | | | | | | |
|-------------------------------------|------------------------|---------|-----------------|--------|---------------|------------|----------|--------------|-------------|
| | | | Gardner-Cobb | Drasdo | Catfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee |
| <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</i> sp. | <i>Bulbostylis</i> sp. | | | | | | | + | |
| <i>Bulbostylis warei</i> | Hair sedge | | | | | | | + | |
| <i>Bumelia reclinata</i> | Scrubby buckthorn | | + | | | | | | |
| <i>Callicarpa americana</i> | Beauty berry | | + | | + | | | + | |
| <i>Calystegia sepium</i> | Hedge bind weed | | | | + | | | + | |
| <i>Carex albolutescens</i> | Caric sedge | | | | + | | | + | |
| <i>Carex</i> sp. | <i>Carex</i> | | | | | | | + | |
| <i>Carphephorus corymbosus</i> | Tall deer tongue | | | | | | | + | |
| <i>Carphephorus paniculatus</i> | Deer tongue | | | | | | | + | |
| <i>Cassia chamaecrista</i> | Patridge pea | | | | | | | + | |
| <i>Catharanthus roseus</i> (exotic) | Madagascar periwinkle | | | | | | | + | |
| <i>Celtis laevigata</i> | Hackberry | | + | | + | | | + | |
| <i>Cenchrus incertus</i> | Sandspur | | | | | | | + | |
| <i>Centella asiatica</i> | Coinwort | | + | | + | | | + | |
| <i>Cephalanthus occidentalis</i> | Buttonbush | | + | | + | | | + | |
| <i>Chamaesyce cordifolia</i> | Round-leaf spurge | | + | | | | | | |
| <i>Chapmannia floridana</i> | Alicia | | | | | | | + | |
| <i>Chryseopsis eobrella</i> | Rough goldenrod | | | | | | | + | |
| <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>Commelina diffusa</i> | Dayflower | | + | | | | | + | |
| <i>Commelina erecta</i> | Dayflower | | + | | + | | | + | |
| <i>Conyza canadensis</i> | Horseweed | | + | | | | | + | |
| <i>Coreopsis floridana</i> | Common tickseed | | | | | | | + | |
| <i>Coreopsis gladiata</i> | Southeastern tickseed | | | | | | | + | |
| <i>Coreopsis leavenworthii</i> | Common tickseed | | + | | | | | + | |
| <i>Croton argyranthemus</i> | Silver leaf croton | | + | | | | | | |
| <i>Croton glandulosus</i> | Tropic croton | | + | | | | | + | |

Kissimmee Chain of Lakes Management Area General Management Plan 2003 - 2008
South Florida Water Management District, Land Stewardship Division

| Scientific Binomial | Common Name | Listing | Management Unit | | | | | | |
|----------------------------------|--------------------------|---------|-----------------|--------|---------------|------------|----------|--------------|-------------|
| | | | Gardner-Cobb | Drasdo | Catfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee |
| <i>Croton linearis</i> | Rushfoil | | + | | | | | | |
| <i>Cuphea carthagenensis</i> | Columbia waxweed | | + | | + | | + | | |
| <i>Cynodon dactylon</i> | Bermuda grass | Exotic | + | | | | + | | |
| <i>Cyperus articulatus</i> | Jointed flat sedge | | + | | + | | + | | |
| <i>Cyperus compressus</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 | | | | + | | + | | |
| <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 laxiflorum</i> | Drooping panicum | | | | | | + | | |
| <i>Dichantherium sp.</i> | <i>Dichantherium sp.</i> | | | | + | | | | |
| <i>Dichantherium stringosum</i> | Flatwoods panicum | | | | | | + | | |
| <i>Dichromena colorata</i> | White-top sedge | | | | + | | + | | |
| <i>Dichromena latifolia</i> | White-top sedge | | | | | | + | | |
| <i>Digitaria ciliaris</i> | Southern crab grass | | + | | | | + | | |

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South Florida Water Management District, Land Stewardship Division

| Scientific Binomial | Common Name | Listing | Management Unit | | | | | | |
|--------------------------------|-----------------------|------------------------|-----------------|--------|---------------|------------|----------|--------------|-------------|
| | | | Gardner-Cobb | Drasdo | Catfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee |
| <i>Digitaria decumbens</i> | Pangolagrass | | | | | | + | | |
| <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 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 parvulus</i> | Dwarf burhead | | | | | | + | | |
| <i>Echinochoa walteri</i> | Coast cockspur-grass | | | | | | + | | |
| <i>Eclipta alba</i> | Yerba de tajo | | | | + | | + | | |
| <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> | <i>Eleocharis sp.</i> | | | | | | + | | |
| <i>Eleocharis vivipara</i> | Sprouting spikerush | | + | | | | | | |
| <i>Elephantopus elatus</i> | Elephant foot | | | | + | | | | |
| <i>Eleusine indica</i> | Yard grass | | | | | | + | | |
| <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>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 | | + | | | | + | | |

| Scientific Binomial | Common Name | Listing | Management Unit | | | | | | |
|-----------------------------------|-------------------------------|----------|-----------------|--------|----------------|------------|----------|--------------|-------------|
| | | | Gardner-Cobb | Drasdo | Cattfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee |
| Eryngium sp. | Thistle | | | | + | | | | |
| Eupatorium compositifolium | Dog fennel | Nuisance | + | | + | | + | | |
| Eupatorium serotinum | Thoroughwort | | | | | | + | | |
| Euphorbia polyphylla | Many-leaved spurge | | | | | | + | | |
| Euthamia minor | Flat-topped goldenrod | | | | | | + | | |
| Euthamia tenuifolia | Flat-topped goldenrod | | + | | + | | + | | |
| Fabaceae sp. | Fabaceae sp. | | | | | | + | | |
| Fimbristylis autumnails | Fringe-rush | | + | | | | + | | |
| Fimbristylis dichotoma | Forked fringerush | | + | | | | | | |
| Fimbristylis miliacea | Annual brown-top sedge | | | | | | + | | |
| Fimbristylis puberula | Vahl's hairy fringe rush | | | | + | | + | | |
| Fimbristylis schoenoides | Ditch fringerush | | + | | | | | | |
| Fimbristylis sp. | Fimbristylis sp. | | | | | | + | | |
| Fimbristylis spathacea | Hurricane-grass | | | | | | + | | |
| Fuirena breviseta | Short-bristled umbrella grass | | + | | | | + | | |
| Fuirena pumila | Dwarf umbrella-gras | | | | | | + | | |
| Fuirena scirpoidea | Rush fuirena | | + | | | | + | | |
| Fuirena squarrosa | Lake-rush | | | | | | + | | |
| Galactia elliottii | White milk-pea | | + | | | | | | |
| Galactia pinetorum | Milkpea | | | | | | + | | |
| Galium tinctorium | Stiff marsh bedstraw | | + | | | | | | |
| Gaylussacia dumosa | Dwarf Huckleberry | | | | | | + | | |
| Gaylussacia frondosa v. tomentosa | Dangleberry | | | | | | + | | |
| Gnaphalium falcatum | Narrow leaved cudweed | | + | | | | | | |
| Gnaphalium obtusifolium | Sweet everlasting | | | | | | + | | |
| Gordonia lasianthus | Loblolly bay | | | | | | + | | |
| Gratiola hispida | Scrub-hyssop | | + | | | | + | | |
| Gratiola pilosa | Hairy hedge-hyssop | | + | | | | + | | |
| Habenaria repens | Water-spider orchid | | + | | + | | + | | |
| Helianthemum corymbosum | Clustered rock-rose | | | | | | + | | |
| Helianthemum nashii | Scrub rock-rose | | | | | | + | | |
| Heterotheca subaxillaris | Camphorweed | | | | | | + | | |
| Hibiscus grandiflorus | Big rose-mallow | | | | + | | + | | |
| Hieracium gronovii | Hawkweed | | | | | | + | | |
| Hydrilla verticillata | Hydrilla | Exotic | | | | | + | | |
| Hydrocotyle bonariensis | Water pennywort | | + | | + | | + | | |
| Hydrocotyle umbellata | Marsh pennywort | | + | | + | | + | | |

| Scientific Binomial | Common Name | Listing | Management Unit | | | | | | |
|---|-------------------------------|---------|-----------------|--------|----------------|------------|----------|--------------|-------------|
| | | | Gardner-Cobb | Drasdo | Cattfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee |
| <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> | <i>Hypericum sp.</i> | | | | + | | | + | |
| <i>Hypericum tetrapetalum</i> | Heart-leaved St. Peter's wort | | + | | | | | + | |
| <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 pilosa</i> | Indigo | Exotic | | | + | | | | |
| <i>Ipomoea aquatica</i> | Water spinach | Exotic | | | + | | | | |
| <i>Iva microcephala</i> | Pineland elder | | | | | | | + | |
| <i>Juncus effusus</i> | Soft 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>Justica angusta</i> | Narrow-leaf waterwillow | | + | | | | | | |
| <i>Justicia ovata</i> | Water-willow | | | | + | | | + | |
| <i>Kummerowia striata (Lespedeza striata)</i> | Japanese-clover | | + | | | | | | |
| <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> | <i>Lachnocaulon sp.</i> | | | | | | | + | |
| <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>Leptochloa fascicularis</i> | Bearded sprangle-top grass | | | | + | | | + | |
| <i>Liatris tenuifolia</i> | Narrow-leaf blazing star | | | | | | | + | |
| <i>Licania michauxii</i> | Gopher apple | | | | | | | + | |

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|---|---------------------------------|----------|-----------------|--------|----------------|------------|----------|--------------|-------------|
| | | | Gardner-Cobb | Drasdo | Cattfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee |
| <i>Limnobium spongia</i> | Frog's-bit | | | | + | | + | | |
| <i>Linaria canadensis</i> | Old field 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>Ludwigia arcuata</i> | False loosestrife | | + | | + | | + | | |
| <i>Ludwigia brevipes</i> | <i>Ludwigia brevipes</i> | | | | | | + | | |
| <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</i> sp. | <i>Ludwigia</i> sp. | | | | + | | | | |
| <i>Ludwigia suffruticosa</i> | Headed seedbox | | | | | | + | | |
| <i>Luziola fluitans</i> (<i>Hydrochloa caroliniensis</i>) | Water grass | | + | | | | | | |
| <i>Lycopus</i> sp. | Bugleweed | | | | + | | | | |
| <i>Lyonia Ferruginea</i> | Rusty staggerbush | | | | | | + | | |
| <i>Lyonia fruticosa</i> | Staggerbush | | | | | | + | | |
| <i>Lyonia lucida</i> | Fetterbush | | | | | | + | | |
| <i>Macroptilium lathyroides</i> | <i>Macroptilium lathyroides</i> | | | | | | + | | |
| <i>Magnolia</i> sp. | Bay sp. | | | | + | | | | |
| <i>Magnolia virginiana</i> | Sweet bay | | | | + | | + | | |
| <i>Mecardonia acuminata</i> | <i>Mecardonia acuminata</i> | | | | | | + | | |
| <i>Melia azedarach</i> | Chinaberry | Exotic | + | | | | | | |
| <i>Melothria pendula</i> | Creeping cucumber | | + | | + | | + | | |
| <i>Mikania cordifolia</i> | Hempweed | | | | | | + | | |
| <i>Mikania acandens</i> | Climbing hempweed | | + | | | | | | |
| <i>Momordica charantia</i> | Wild balsam-apple | | + | | | | | | |
| <i>Murdannia nudiflora</i> | Dove weed | | + | | | | | | |
| <i>Myrica cerifera</i> | Wax myrtle | Nuisance | + | | + | | + | | |
| <i>Myriophyllum aquaticum</i> | Parrot's-feather | | | | | | + | | |
| <i>Nuphar lutea</i> | Spatterdock | | + | | + | | + | | |
| <i>Nymphaea odorata</i> | Fragrant water-lily | | + | | | | + | | |
| <i>Nymphoides aquatica</i> | Floating hearts | | + | | | | + | | |
| <i>Nyssa sylvatica</i> var. <i>biflora</i> | Swamp black gum | | + | | | | + | | |
| <i>Oplismenus setarius</i> | Woodgrass | | + | | + | | | | |

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| | | | Gardner-Cobb | Drasdo | Catfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee | |
| <i>Opuntia humifusa</i> | Prickly-pear cactus | | | | | | | + | | |
| <i>Osmunda cinnamomea</i> | Cinnamon fern | Commercially Exploited | | | + | | | + | | |
| <i>Osmunda regalis</i> | Royal fern | Commercially Exploited | | | + | | | + | | |
| <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 | | | | | | | + | | |
| <i>Panicum ensifolium</i> | Cypress panic grass | | + | | | | | | | |
| <i>Panicum erectifolium</i> | Erect-leaf panic grass | | + | | | | | | | |
| <i>Panicum hemitomom</i> | Maidencane | | + | | | | | + | | |
| <i>Panicum laxiflorum</i> | Open-flower 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>Parthenocissus quinquefolia</i> | Virginia creeper | | | | + | | | + | | |
| <i>Paspalum caespitosum</i> | Blue paspalum | | | | | | | + | | |
| <i>Paspalum conjugatum</i> | Sour paspalum | Exotic | + | | + | | | + | | |
| <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 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>Phlebodium aureum</i> | Golden polypody | | + | | | | | + | | |

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| | | | Gardner-Cobb | Drasdo | Catfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee |
| <i>Phyla nodiflora</i> | Frog-fruit | | + | | + | | + | | |
| <i>Phyllanthus tenellus</i> | Long-stalked phyllanthus | | + | | | | | | |
| <i>Phyllanthus urinaria</i> | Leaf-flower | | | | | | + | | |
| <i>Phytolacca americana</i> | Pokeberry | | + | | | | + | | |
| <i>Pinus elliottii</i> var. <i>densa</i> | Slash pine | | | | + | | + | | |
| <i>Pinus palustris</i> | Longleaf pine | | | | | | + | | |
| <i>Piriqueta caroliniensis</i> | Piriqueta | | | | | | + | | |
| <i>Piriqueta cistoides</i> | Pitted stripeseed | | + | | | | | | |
| <i>Pistia stratiotes</i> | Water lettuce | | | | + | | + | | |
| <i>Pityopsis graminifolia</i> | Golden aster | | | | | | + | | |
| <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>Polygonum densiflorum</i> | Smartweed | | | | + | | + | | |
| <i>Polygonum hirsutum</i> | Hairy smartweed | | + | | | | + | | |
| <i>Polygonum hydropiperoides</i> | 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 condata</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>Pterocaulon pycnostachyum</i> | Blackroot | | + | | | | | | |
| <i>Pterocaulon virgatum</i> | Blackroot | | | | | | + | | |
| <i>Ptilimnium capillaceum</i> | Mock Bishop's weed | | | | + | | | | |
| <i>Quercus chapmanii</i> | Chapman's oak | | | | | | + | | |

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| | | | Gardner-Cobb | Drasdo | Catfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee |
| <i>Quercus geminata</i> | Sand live oak | | + | | | | + | | |
| <i>Quercus laurifolia</i> | Laurel oak | | + | | + | | + | | |
| <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>Rhus copallina</i> | Winged sumac | | | | | | + | | |
| <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 fascicularis</i> | Fascicled 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 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 plumosa</i> | Flatwoods beak rush | | | | | | + | | |
| <i>Rhynchospora pusilla</i> | Fairy beakrush | | + | | | | | | |
| <i>Rhynchospora nitens</i> | Bald-rush | | + | | | | | | |
| <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>Rubus argutus</i> | Highbush blackberry | | + | | | | | | |
| <i>Rubus cuneifolius</i> | Sand blackberry | | + | | + | | + | | |
| <i>Rubus trivialis</i> | Southern dewberry | | | | | | + | | |
| <i>Rhynchospora decurrens</i> | Swamp-forest beakrush | | | | + | | + | | |

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| <i>Rynchospora inundata</i> | Horned beakrush | | | | + | | + | | |
| <i>Sabal palmetto</i> | Sabal palm | | + | | + | | + | | |
| <i>Sabatia brevifolia</i> | White sabatia | | | | | | + | | |
| <i>Sabatia grandiflora</i> | Rose-gentian | | + | | | | + | | |
| <i>Sacciolepis indica</i> | India cupscale grass | Exotic | + | | | | + | | |
| <i>Sagittaria graminea</i> | Grassy arrowhead | | | | | | + | | |
| <i>Sagittaria lancifolia</i> | Arrowhead | | + | | + | | + | | |
| <i>Sagittaria latifolia</i> | Common Arrowhead | | + | | + | | + | | |
| <i>Sagittaria subulata</i> | Water arrowhead | | + | | | | | | |
| <i>Sagittaria subulata</i> v. <i>stagnorum</i> | Dwarf arrowhead | | | | | | + | | |
| <i>Salix caroliniana</i> | Carolina willow | | + | | | | + | | |
| <i>Salvia lyrata</i> | Lyre-leaved sage | | + | | | | | | |
| <i>Sambucus canadensis</i> | Elderberry | | + | | | | + | | |
| <i>Sapium sebiferum</i> | Chinese tallow | Exotic | + | | + | | | | |
| <i>Saururus cernuus</i> | Lizard's tail | | | | + | | + | | |
| <i>Schinus terebinthifolius</i> | Brazilian pepper | Exotic | + | | | | + | | |
| <i>Scirpus californicus</i> | Giant Bulrush | | + | | + | | + | | |
| <i>Scirpus cubensis</i> | Bulrush | | + | | + | | | | |
| <i>Scirpus validus</i> | Soft bulrush | | | | | | + | | |
| <i>Scleria ciliata</i> | Nut rush | | | | | | + | | |
| <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>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>Sida acuta</i> | Broomweed | | | | + | | | | |
| <i>Sida cordifolia</i> | Broomweed | | | | + | | + | | |
| <i>Sida rhombifolia</i> | Arrow-leaf sida | | + | | | | | | |
| Silver croton | Croton argyranthemus | | | | | | + | | |
| <i>Sisyrinchium angustifolium</i> | Narrow-winged blue-eyed grass | | + | | | | | | |
| <i>Sisyrinchium atlanticum</i> | Easter blue-eyed grass | | + | | | | + | | |

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| <i>Sisyrinchium exile</i> | Yellow blue-eyed grass | | + | | | | | | |
| <i>Smilax auriculata</i> | Greenbriar | | | | + | | + | | |
| <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 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>Solidago fistulosa</i> | Marsh goldenrod | | + | | | | + | | |
| <i>Solidago latissimifolia</i> | Elliott's goldenrod | | + | | | | | | |
| <i>Solidago 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>Spartina bakeri</i> | Sand cord grass | | + | | | | + | | |
| <i>Spermacoce assurgens</i> | large-leaf button weed | | + | | | | | | |
| <i>Spermacoce verticillata</i> | White head broom | | | | | | + | | |
| <i>Sphagnum sp.</i> | Sphagnum moss | | | | + | | + | | |
| <i>Spiranthes vernalis</i> | Spring ladies'-tresses | | + | | | | | | |
| <i>Stachys floridana</i> | Hedgenettle | | | | + | | | | |
| <i>Stipulicida setacea</i> | Wireweed | | | | | | + | | |
| <i>Syngonanthus Flavidulus</i> | Bantam-button | | | | | | + | | |
| <i>Taxodium ascendens</i> | Pond cypress | | + | | + | | | | |
| <i>Taxodium distichum</i> | Bald cypress | | + | | + | | + | | |
| <i>Teucrium canadense</i> | Wood sage | | + | | | | | | |
| <i>Thalia geniculata</i> | Alligator flag | | + | | | | + | | |
| <i>Thelypteris hispidula</i> | Hairy maiden fern | | + | | | | | | |
| <i>Thelypteris interrupta</i> | Spreading tri-vein fern | | + | | | | + | | |
| <i>Thelypteris kinthii</i> | Southern shield fern | | | | | | + | | |
| <i>Tillandsia balbisiana</i> | Bulbous wild pine | | | | | | + | | |
| <i>Tillandsia fasciculata</i> | Stiff-leaved wild pine | Endangered | | | + | | + | | |
| <i>Tillandsia recurvata</i> | Ball moss | | + | | | | + | | |

Kissimmee Chain of Lakes Management Area General Management Plan 2003 - 2008
South Florida Water Management District, Land Stewardship Division

| Scientific Binomial | Common Name | Listing | Management Unit | | | | | | |
|-------------------------------------|--------------------------------|----------|-----------------|--------|---------------|------------|----------|--------------|-------------|
| | | | Gardner-Cobb | Drasdo | Catfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee |
| <i>Tillandsia setacea</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>Typha domingensis</i> | Southern cattail | | + | | | | | | |
| <i>Typha latifolia</i> | Common cattail | Nuisance | | | + | | + | | |
| <i>Typha sp.</i> | Cattail | | | | | | + | | |
| <i>Ulmus americana</i> | American elm | | | | + | | | | |
| <i>Urena lobata</i> | Cesarweed | Exotic | + | | + | | + | | |
| <i>Urticularia floridana</i> | Florida bladderwort | | + | | | | | | |
| <i>Utricularia foliosa</i> | Flat-stem bladderwort | | + | | | | | | |
| <i>Vaccinium darrowii</i> | Glaucous blueberry | | | | | | + | | |
| <i>Vaccinium myrsinites</i> | Shiny blueberry | | | | | | + | | |
| <i>Vaccinium staminoides</i> | Deerberry | | | | | | + | | |
| <i>Verbena scabra</i> | Harsh verbena | | + | | | | | | |
| <i>Viola lanceolata</i> | Long leaf violet | | | | | | + | | |
| <i>Viola primulifolia</i> | Primrose-leaved violet | | + | | | | | | |
| <i>Vitis munsoniana</i> | Southern fox grape | | | | + | | | | |
| <i>Vitis rotundifolia</i> | Fox grape | Nuisance | | | + | | + | | |
| <i>Vitis shuttleworthii</i> | Calusa grape | | | | | | + | | |
| <i>Vitis sp.</i> | Wild grape | | + | | + | | | | |
| <i>Vittaria lineata</i> | Shoestring fern | | | | | | + | | |
| <i>Woodwardia areolata</i> | Netted chain fern | | | | + | | + | | |
| <i>Woodwardia virginiana</i> | Virginia chain fern | | + | | + | | + | | |
| <i>Ximenia 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 fimbriata</i> | Yellow-eyed grass | | | | | | + | | |
| <i>Xyris flabelliformis</i> | Savannah yellow-eyed grass | | + | | | | | | |
| <i>Xyris jupicai</i> | Tropical yellow-eyed grass | | + | | | | + | | |
| <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 | | | | | | + | | |

Appendix D: Faunal Composition Kissimmee Chain of Lakes

Data Source: Keith & Schnars PA

| Oasis Levee | Cypress Lake | Strum Island | Rabbit Island | Bird Island | Listing | Species | Common Name |
|-------------|--------------|--------------|---------------|-------------|---------|--------------------------------------|---------------------------|
| | X | X | | X | | <i>Acer rubrum</i> | Red Maple |
| | X | | | | | <i>Achyranthes aspera var aspera</i> | Devil's horsewhip |
| X | | | | | | <i>Aechynomene indica</i> | Indian jointvetch |
| | X | X | | X | | <i>Alternanthera flavescens</i> | Yellow joyweed |
| X | X | | | | Exotic | <i>Alternanthera philoxeroides</i> | Alligatorweed |
| | | X | | | | <i>Amaranthus australis</i> | Southern amaranth |
| | | X | | | | <i>Amaranthus blitum</i> | Purple amaranth |
| | | X | | | | <i>Amaranthus floridanus</i> | Florida amaranth |
| | | X | | | | <i>Amaranthus hybridus</i> | Slim amaranth (pigweed) |
| X | X | | | | | <i>Amaranthus spinosus</i> | Spiny amaranth |
| X | X | X | X | X | | <i>Ambrosia artemisiifolia</i> | Common ragweed |
| X | X | X | X | X | | <i>Ampelopsis arborea</i> | Peppervine |
| | | X | | | | <i>Amphicarpum muhlenbergianum</i> | Blue maidencane |
| | X | X | | X | | <i>Andropogon virginicus</i> | Broomsedge bluestem |
| | | X | | | | <i>Asclepias longifolia</i> | Longleaf milkweed |
| | | X | | | | <i>Asclepias perennis</i> | Swamp milkweed |
| | X | | | | | <i>Axonopus fissifolius</i> | Common carpetgrass |
| | X | X | | | | <i>Axonopus furcatus</i> | Big carpetgrass |
| X | | | | X | | <i>Azolla caroliniana</i> | Carolina mosquito ferm |
| | X | | | | | <i>Baccharis glomeruliflora</i> | Silverling |
| X | | X | | | | <i>Baccharis halimifolia</i> | Groundsel tree |
| X | | X | X | X | | <i>Bacopa caroliniana</i> | Lemon bacopa |
| X | | | | | | <i>Bacopa monnieri</i> | Herb-of-Grace |
| | X | | | | | <i>Bidens alba var. radiata</i> | Beggarticks |
| | | X | | | | <i>Bidens laevis</i> | Burrmarigold |
| X | | X | | | | <i>Bidens mitis</i> | Smallfruit beggarsticks |
| X | X | X | | | | <i>Blechnum serrulatum</i> | Tooth midsorus fern |
| X | | X | | | | <i>Boehmeria cylindrica</i> | False nettle |
| | X | | | | | <i>Callicarpa americana</i> | American beautyberry |
| | | | X | | | <i>Calocasia esculenta</i> | Wild taro |
| | | X | | | | <i>Canna flacida</i> | Bandana-of-the-everglades |
| X | X | X | | | | <i>Carex longii</i> | Long's sedge |
| | | | | X | | <i>Cassytha filiformis</i> | Love vine |
| | X | | | X | | <i>Celtis laevigata</i> | Sugarberry |
| X | X | X | | X | | <i>Centella asiatica</i> | Spadeleaf |
| X | X | X | | X | | <i>Cephalanthus occidentalis</i> | Common buttonbush |
| | | X | | | | <i>Chenopodium ambrosioides</i> | Mexican tea |
| | X | X | | | Exotic | <i>Cinnamomum camphora</i> | Camphortree |
| X | X | X | | | | <i>Cirsium horridulum</i> | Purple thistle |
| X | X | | | | | <i>Cirsium nuttallii</i> | Nuttall's thistle |
| X | | | | | | <i>Cladium jamaicense</i> | Jamaica swamp sawgrass |

Appendix D: Faunal Composition Kissimmee Chain of Lakes

| Oasis Levee | Cypress Lake | Strum Island | Rabbit Island | Bird Island | Listing | Species | Common Name |
|-------------|--------------|--------------|---------------|-------------|---------|---------------------------------------|--------------------------|
| X | X | X | X | X | | <i>Commelina diffusa</i> | Common dayflower |
| X | X | X | | | | <i>Conyza canadensis var. pusilla</i> | Dwarf danadian horseweed |
| X | X | | | | | <i>Coreopsis leavenworthii</i> | Leavenworth's tickseed |
| | | X | X | | | <i>Croton argyranthemus</i> | Silver croton |
| X | X | X | X | X | | <i>Cuphea carthagenensis</i> | Colombian waxweed |
| | X | | | | | <i>Cuscuta gronovii</i> | Scaldweed |
| | | | | X | | <i>Cuscuta obtusiflora</i> | Peruvian dodder |
| X | X | X | | | Exotic | <i>Cynodon dactylon</i> | Bermudagrass |
| X | X | X | | | | <i>Cyperus articulatus</i> | Jointed flatsedge |
| X | | | | | | <i>Cyperus brevifolius</i> | Shortleaf spikesedge |
| | | X | | | | <i>Cyperus compressus</i> | Poorland flatsedge |
| X | X | X | | | | <i>Cyperus croceus</i> | Baldwin's flatsedge |
| X | | X | X | X | | <i>Cyperus haspan</i> | Haspan flatsedge |
| | | | | X | | <i>Cyperus odoratus</i> | Fragrant flatsedge |
| X | X | X | | | | <i>Cyperus polystachyos</i> | Manyspike flatsedge |
| | | X | | | | <i>Cyperus retrorsus</i> | Pinebarren flatsedge |
| X | X | X | | | | <i>Cyperus surinamensis</i> | Tropical flatsedge |
| | X | X | | | | <i>Cyperus virens</i> | Green flatsedge |
| X | | | | | | <i>Desmodium incanum</i> | Beggar ticks |
| | | | | X | | <i>Dichantherium dichotomum</i> | Cypress witchgrass |
| | X | | | | | <i>Dichondra caroliniensis</i> | Carolina ponysfoot |
| X | X | | | | | <i>Digitaria bicornis</i> | Indian crabgrass |
| X | | X | X | | | <i>Digitaria longiflora</i> | Indian crabgrass |
| | X | | | | | <i>Digitaria serotina</i> | Blanket crabgrass |
| X | X | X | | X | | <i>Diodia virginiana</i> | Virgina buttonweed |
| | X | X | | | | <i>Diospyros virginiana</i> | Common persimmon |
| | | | X | | | <i>Drosera capillaris</i> | Pink sundew |
| X | | | | | | <i>Drymaria cordata</i> | Drymary |
| | | X | | | | <i>Echinochloa muricata</i> | Rough barnyardgrass |
| | X | X | | | | <i>Echinochloa walteri</i> | Coast cockspur |
| X | X | | | | | <i>Eclipta prostrata</i> | False daisy |
| X | X | | X | | Exotic | <i>Eichhornia crassipes</i> | Common water hyacinth |
| | X | | | | | <i>Eleocharis interstincta</i> | Knotted spikerush |
| X | X | X | | X | | <i>Eleocharis vivipara</i> | Viviparous spikerush |
| | X | | | | | <i>Emilia fosbergii</i> | Florida tasselflower |
| X | | | | | | <i>Eragrostis atrovirens</i> | Thalia lovegrass |
| X | X | X | | | | <i>Erechtites hieraciifolius</i> | American burnweed |
| | X | X | | | | <i>Erigeron quercifolius</i> | Oakleaf fleabane |
| X | | | | | | <i>Erigeron strigosus</i> | Prairie fleabane |
| | | | X | | | <i>Eriocaulon ravenelii</i> | Ravenel's pipewort |
| X | X | X | | | | <i>Eryngium baldwinii</i> | Baldwin's eryngo |

Appendix D: Faunal Composition Kissimmee Chain of Lakes

| Oasis Levee | Cypress Lake | Strum Island | Rabbit Island | Bird Island | Listing | Species | Common Name |
|-------------|--------------|--------------|---------------|-------------|---------|--------------------------------------|-------------------------------|
| X | X | X | X | X | | <i>Eupatorium capillifolium</i> | Dogfennel |
| | | X | X | X | | <i>Eupatorium leptophyllum</i> | Falsefennel |
| X | X | X | X | | | <i>Euthamia caroliniana</i> | Slender goldenrod |
| | X | | | | | <i>Fimbristylis dichotoma</i> | Forked fimbry |
| | | X | | | | <i>Fimbristylis puberula</i> | Hairy fimbry |
| X | | X | | | | <i>Fuirena pumila</i> | Dwarf umbrellasedge |
| | | | | X | | <i>Fuirena scirpoidea</i> | Southern umbrellasedge |
| X | X | | | | | <i>Galium tinctorium</i> | Stiff marsh bedstraw |
| | X | | | | | <i>Geranium carolinianum</i> | Carolina cranesbill |
| X | X | X | | | | <i>Gnaphalium falcatum</i> | Narrowleaf purple everlasting |
| | X | X | | | | <i>Gnaphalium pennsylvanicum</i> | Pennsylvania everlasting |
| | | X | | | | <i>Gratiola hispida</i> | Rough hedgehyssop |
| | | X | X | | | <i>Hedyotis uniflora</i> | Clustered mille graine |
| | | X | | | | <i>Heliotropium polyphyllum</i> | Pineland heliotrope |
| | | | | | | <i>Hibiscus coccineus</i> | Scarlet rosemallow |
| X | X | X | X | X | | <i>Hibiscus grandiflorus</i> | Swamp rosemallow |
| | X | | | | | <i>Hydrocotyle bonariensis</i> | Largeleaf marshpennywort |
| | X | | | | | <i>Hydrocotyle ranunculoides</i> | Floating marshpennywort |
| X | X | X | X | X | | <i>Hydrocotyle umbellata</i> | Manyflower marshpennywort |
| | | X | | | | <i>Hypericum cistifolium</i> | Roundpod St. John's Wort |
| | X | X | | | | <i>Hypericum hypericoides</i> | St. Andrew's cross |
| X | X | X | X | | | <i>Hypericum mutilum</i> | Dwart St.John's Wort |
| | | X | | | | <i>Hypericum myrtifolium</i> | Myrtleleaf St. John's Wort |
| | | X | | | | <i>Hypericum tetrapetalum</i> | Fourpetal St. John's wort |
| X | | X | X | X | | <i>Hyptis alata</i> | Clustered bushmint |
| | | X | | | | <i>Ilex cassine</i> | Dahoon |
| | X | X | | | | <i>Ipomoea tenuissima</i> | Rockland mornigg glory |
| X | | X | | | | <i>Juncus dichotomous</i> | Forked rush |
| X | X | X | | | | <i>Juncus effusus subsp. Solutus</i> | Soft rush |
| | | X | | | | <i>Juncus elliotii</i> | Bog rush |
| X | | X | | | | <i>Juncus marginatus</i> | Shore rush |
| | | X | | | | <i>Juniperus virginiana</i> | Red cedar |
| | | | | X | | <i>Kosteletzkya virginica</i> | Virginia saltmarsh mallow |
| | X | X | | | | <i>Kyllinga brevifolia</i> | Shortleaf spikesedge |
| X | | X | | | | <i>Kyllinga odorata</i> | Fragrant spikesedge |
| X | | X | | X | | <i>Lachnanthes caroliniana</i> | Carolina redroot |
| | X | X | X | | Exotic | <i>Lantana camara</i> | Lantana |
| X | X | | | X | | <i>Lemna valdiviana</i> | Valdivia duckweed |
| X | X | X | | | | <i>Lepidium virginicum</i> | Virginia pepperweed |
| X | X | X | | X | | <i>Limnobiium spongia</i> | American spongeplant |
| X | X | X | | | | <i>Linaria canadensis</i> | Canadian toadflax |
| X | | | | | | <i>Lindernia grandiflora</i> | Savannah falase pimperl |
| X | | | | | | <i>Lobelia feayana</i> | Bay lobelia |

Appendix D: Faunal Composition Kissimmee Chain of Lakes

| Oasis Levee | Cypress Lake | Strum Island | Rabbit Island | Bird Island | Listing | Species | Common Name |
|-------------|--------------|--------------|---------------|-------------|---------|---|-----------------------------|
| X | | | | | | <i>Ludwigia arcuata</i> | Piedmont primrosewillow |
| X | | X | | | | <i>Ludwigia maritima</i> | Seaside primrosewillow |
| | X | | | | | <i>Ludwigia octovalvis</i> | Mexican primrosewillow |
| X | X | X | X | X | | <i>Ludwigia peruviana</i> | Peruvian primrosewillow |
| X | | X | X | X | | <i>Ludwigia repens</i> | Creeping primrosewillow |
| | | X | X | | | <i>Ludwigia suffruticosa</i> | Shrubby primrosewillow |
| X | X | | | | | <i>Luziola fluitans</i> | Southern watergrass |
| | X | | | | | <i>Macropitium lathyroides</i> | Wild bushbean |
| X | | X | | | | <i>Magnolia virginiana</i> | Sweetbay |
| X | X | X | X | | | <i>Melothria pendula</i> | Creeping cucumber |
| | | | X | | | <i>Micranthemum umbrosum</i> | Shade mudflower |
| | | X | X | X | | <i>Mikania scandens</i> | Climbing hempvine |
| | X | X | | X | | <i>Momordica charantia</i> | Balsampear |
| | X | | | | | <i>Morrenia odorata</i> | Latexplant |
| | | | X | | | <i>Morus rubra</i> | Red mulberry |
| X | X | X | | X | | <i>Myrica cerifera</i> | Southern bayberry |
| | X | | | | | <i>Myriophyllum aquaticum</i> | Parrot feather watermilfoil |
| | | | X | | | <i>Nerium oleander</i> | Oleander |
| X | | | | | | <i>Nuphar advena</i> | Spatterdock |
| | X | X | | X | | <i>Nuphar lutea</i> | Spatterdock |
| | X | X | | | | <i>Nymphaea mexicana</i> | Yellow waterlily |
| | X | X | | | | <i>Nymphaea odorata</i> | American white lily |
| X | | X | | | | <i>Osmunda regalis var. spectabilis</i> | Royal fern |
| X | X | X | | | | <i>Oxalis corniculata</i> | Common yellow woodsorrel |
| | | | | | | <i>Panicum gymnocarpum</i> | Savannah panicum |
| X | X | X | X | X | | <i>Panicum hemitomon</i> | Maidencane |
| X | X | | | | Exotic | <i>Panicum repens</i> | Torpedograss |
| | X | | | | | <i>Panicum verrucosum</i> | Warty panicgrass |
| | | X | | | | <i>Parietaria floridana</i> | Florida pellitory |
| | X | | | | | <i>Parthenocissus quinquefolia</i> | Virginia creeper |
| | X | X | | | | <i>Paspalum acuminatum</i> | Brook crowngrass |
| | X | X | | | Exotic | <i>Paspalum conjugatum</i> | Sour paspalum |
| | X | X | | | | <i>Paspalum dilatatum</i> | Dallisgrass |
| | X | | | | | <i>Paspalum dissectum</i> | Mudbank crowngrass |
| | X | | | | | <i>Paspalum distichum</i> | Knotgrass |
| X | X | X | | | Exotic | <i>Paspalum notatum var. sauriae</i> | Bahiagrass |
| | | | | | | <i>Paspalum repens</i> | Water paspalum |
| | | X | | | | <i>Paspalum setaceum</i> | Thin paspalum |
| | X | | | | | <i>Paspalum urvillei</i> | Vaseygrass |
| X | | | | | | <i>Peltandra virginica</i> | Green arrow arum |
| | | X | | | | <i>Persea borbonia var. humilis</i> | Silk bay |
| X | X | X | | | | <i>Phyla nodiflora</i> | Turkey tangle fogfruit |
| X | X | X | X | | | <i>Phytolacca americana</i> | American pokeweed |

Appendix D: Faunal Composition Kissimmee Chain of Lakes

| Oasis Levee | Cypress Lake | Strum Island | Rabbit Island | Bird Island | Listing | Species | Common Name |
|-------------|--------------|--------------|---------------|-------------|---------|---|------------------------------|
| X | X | X | X | | | <i>Phytolacca americana</i> | American pokeweed |
| | | X | | | | <i>Pinus elliottii</i> | Slash pine |
| | | X | | X | | <i>Pistia stratiotes</i> | Water-Lettuce |
| | X | | | | | <i>Plantago virginica</i> | Virginia plantain |
| | X | X | | X | | <i>Pluchea camphorata</i> | Camphorweed |
| | | X | | | | <i>Pluchea odorata</i> | Sweetscent |
| | | X | | | | <i>Pluchea rosea</i> | Rosy camphorweed |
| | | | X | | | <i>Polygala grandiflora</i> | Showy milkwort |
| X | | X | X | X | | <i>Polygonum densiflorum</i> | Denseflower knotweed |
| X | | | | | | <i>Polygonum hirsutum</i> | Hairy smartweed |
| X | X | X | X | X | | <i>Polygonum hydropiperoides</i> | Miled waterpepper |
| X | | | X | | | <i>Polygonum pensylvanicum</i> | Pennsylvania smartweed |
| | | X | | | | <i>Polypremum procumbens</i> | Rustweed |
| X | X | X | X | X | | <i>Pontederia cordata</i> | Pickernelweed |
| | | X | | | | <i>Portulaca pilosa</i> | Pink purslane |
| X | X | X | | | | <i>Proserpinaca pectinata</i> | Combleaf mermaidweed |
| | | X | X | X | Exotic | <i>Psidium guajava</i> | Guava |
| | | X | | | | <i>Pterocaulon pycnostachyum</i> | Blackroot |
| X | X | X | | | | <i>Ptilimnium capillaceum</i> | Mock bishopsweed |
| X | X | | | | | <i>Quercus laurifolia</i> | Laurel oak |
| X | X | X | X | X | | <i>Quercus virginiana</i> | Live oak |
| | | X | | | | <i>Rhexia cubensis</i> | West indian meadowbeauty |
| X | | | | | | <i>Rhexia mariana</i> | Marlyand meadowbeauty |
| | | X | | | | <i>Rhus copallinum</i> | Winged sumac |
| X | X | X | | | | <i>Rhynchospora colorata</i> | Starrush whitetop |
| | | X | | | | <i>Rhynchospora fascicularis</i> | Fascicled beaksedge |
| | | X | | | | <i>Rhynchospora inundata</i> | Narrowfruit horned beaksedge |
| | | X | | | | <i>Rhynchospora latifolia</i> | Giant whitetop |
| X | X | X | | X | | <i>Rhynchospora odorata</i> | Fragrant beaksedge |
| | X | | | | | <i>Rhynchospora pleiantha</i> | Coastal beaksedge |
| | | X | | | | <i>Richardia brasiliensis</i> | Tropical mexican clover |
| | | X | | | | <i>Richardia scabra</i> | Rough mexican clover |
| X | | | | | | <i>Rorripa teres</i> | Southern marsh yellowcress |
| X | X | X | | | | <i>Rubus argutus</i> | Sawtooth blackberry |
| | X | X | | | | <i>Rubus cuneifolius</i> | Sand blackberry |
| X | X | X | | | | <i>Sabal palmetto</i> | Cabbage palm |
| X | | | | | | <i>Saccharum giganteum</i> | Sugarcane plumegrass |
| | | X | | | | <i>Saccharum officinarum</i> | Sugarcane |
| X | X | X | | | | <i>Sacciolepis striata</i> | American cupscale |
| X | | X | | X | | <i>Sagittaria graminea var. chapmanii</i> | Chapman's arrowhead |
| | | | | X | | <i>Sagittaria isoetiformis</i> | Quillwort arrowhead |
| | | X | | | | <i>Sagittaria kurziana</i> | Springtape |
| X | X | X | X | X | | <i>Sagittaria lancifolia</i> | Bulltongue arrowhead |

Appendix D: Faunal Composition Kissimmee Chain of Lakes

| Oasis Levee | Cypress Lake | Strum Island | Rabbit Island | Bird Island | Listing | Species | Common Name |
|-------------|--------------|--------------|---------------|-------------|---------|---|-----------------------------|
| X | | X | | X | | <i>Sagittaria latifolia</i> | Common arrowhead |
| X | X | X | X | | | <i>Salix caroliniana</i> | Carolina willow |
| X | X | X | | X | | <i>Salvinia minima</i> | Water spangles |
| X | X | X | X | X | | <i>Sambucus nigra subsp. Canadensis</i> | American elder |
| | X | X | X | | | <i>Sapium sebiferum</i> | Popcorntree |
| | | X | | X | | <i>Sarcostemma clausum</i> | White twinvine |
| X | | | X | | | <i>Saururus cernuus</i> | Lizard's tail |
| X | X | X | X | X | Exotic | <i>Schinus terebinthifolius</i> | Brazilian pepper |
| X | | X | | | | <i>Scirpus californicus</i> | California bulrush |
| | X | | | | | <i>Scirpus cubensis</i> | Cuban bulrush |
| | X | | | | | <i>Scirpus tabernaemontani</i> | Softstem bulrush |
| X | X | X | X | | | <i>Scoparia dulcis</i> | Sweetbroom |
| X | | | | | | <i>Senecio glabellus</i> | Butterweed |
| | | | X | | | <i>Senna ligustrina</i> | Privet wild sensitive plant |
| | X | X | X | | | <i>Senna obtusifolia</i> | Coffeeweed |
| | | X | | | | <i>Senna occidentalis</i> | Septicweed |
| | X | X | | | | <i>Sesbania vesicaria</i> | Bladderpod |
| | X | X | | | | <i>Setaria parviflora</i> | Yellow bristlegrass |
| | X | X | | | | <i>Sida rhombifolia</i> | Cuban jute |
| | X | X | | | | <i>Sida santaremensis</i> | Moth fanpetals |
| X | X | | | | | <i>Sisyrinchium angustifolium</i> | Narrowleaf blueeyed grass |
| X | | X | | | | <i>Smilax auriculata</i> | Earleaf greenbrier |
| X | | | | | | <i>Smilax laurifolia</i> | Laurel greenbrier |
| X | X | X | | X | | <i>Solanum americanum</i> | American black nightshade |
| X | X | | | | Exotic | <i>Solanum viarum</i> | Tropical soda apple |
| X | | X | | | | <i>Solidago fistulosa</i> | Pinebarren goldenrod |
| | | | | X | | <i>Solidago gigantea</i> | Giant Goldenrod |
| | X | | | | | <i>Sparganium americanum</i> | American burreed |
| X | | X | | | | <i>Spartina bakeri</i> | Sand cordgrass |
| X | | | | | | <i>Spiranthes longilabris</i> | Giantspiral ladyestresses |
| X | X | | | | | <i>Sporobolus indicus</i> | Smutgrass |
| | X | | | | | <i>Taxodium distichum</i> | Bald-cypress |
| X | X | X | | X | | <i>Teucrium canadense</i> | Woodsage |
| | | | | | | <i>Thalia geniculata</i> | Alligatorflag |
| X | X | | X | | | <i>Thelypteris interupta</i> | Hottentot fern |
| | X | X | | | | <i>Tillandsia recurvata</i> | Ballmoss |
| | X | | | | | <i>Tillandsia usneoides</i> | Spanish moss |
| X | | | | | | <i>Triadenum virginicum</i> | Virginia marsh |
| X | X | | | | | <i>Trifolium repens</i> | White clover |
| X | X | X | X | X | | <i>Typha latifolia</i> | Broadleaf cattail |
| X | X | X | | | Exotic | <i>Urena lobata</i> | Caesarweed |
| X | | | | | | <i>Urochloa mutica</i> | Paragrass |

Appendix D: Faunal Composition Kissimmee Chain of Lakes

| Oasis Levee | Cypress Lake | Strum Island | Rabbit Island | Bird Island | Listing | Species | Common Name |
|-------------|--------------|--------------|---------------|-------------|---------|---------------------------------------|-------------------------------|
| X | | | | | | <i>Urtica chamaedryoides</i> | Heartleaf nettle |
| | | X | | | | <i>Utricularia cornuta</i> | Horned bladderwort |
| X | X | X | | | | <i>Utricularia foliosa</i> | Leafy bladderwort |
| | X | X | | | | <i>Utricularia gibba</i> | Humped bladderwort |
| X | | X | | | | <i>Vicia acutifolia</i> | Fourleaf vetch |
| | | X | | | | <i>Viola lanceolata</i> | Bog white violet |
| | | X | | | | <i>Vitis cinerea var. floridana</i> | Florida grape |
| X | X | X | X | | | <i>Vitis munsoniana</i> | Fox grape |
| | | X | | | | <i>Vitis rotundifolia</i> | Muscadine grape |
| X | X | X | | | | <i>Vitis shuttleworthii</i> | Calloose grape |
| | | X | | | | <i>Vitis vulpina</i> | Frost grape |
| X | X | X | | X | | <i>Woodwardia virginica</i> | Virginia chain fern |
| | | X | | | | <i>Xyris ambigua</i> | Coastalplain yelloweyed grass |
| | | X | | | | <i>Xyris brevifolia</i> | Shortleaf yelloweyed grass |
| | | X | | | | <i>Xyris difformis var. floridana</i> | Florida yelloweyed grass |
| | | X | | | | <i>Xyris jupicai</i> | Richard's yelloweyed grass |

APPENDIX E : 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

Data Source: Hilsenbeck, Golder Associates, Reed & Bixler

| Scientific Binomial | Common Name | FWC Status | Management Unit | | | | | | |
|---------------------------------|----------------------|------------|-----------------|--------|---------------|------------|----------|--------------|-------------|
| | | | Gardner-Cobb | Drasdo | Catfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee |
| <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 | | | | | | + | | |
| <i>Coccyzus americanus</i> | Yellow billed cuckoo | | | | | | + | | |
| <i>Colaptes auratus</i> | Northern flicker | | | | | | + | | |

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| Scientific Binomial | Common Name | FWC Status | Management Unit | | | | | | |
|-----------------------------------|-------------------------------|------------|-----------------|--------|---------------|------------|----------|--------------|-------------|
| | | | Gardner-Cobb | Drasdo | Catfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee |
| <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 | | | | | | + | | |

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| Scientific Binomial | Common Name | FWC Status | Management Unit | | | | | | |
|--------------------------------|--------------------------|------------|-----------------|--------|---------------|------------|----------|--------------|-------------|
| | | | Gardner-Cobb | Drasdo | Catfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee |
| Parus bicolor | Tufted titmouse | | | | | | + | | |
| Phalacrocorax auritus | Double crested cormorant | | | | | | + | | |
| Picoides pubescens | Downy woodpecker | | | | | | + | | |
| PicoidesVillosus | Hairy woodpecker | X | | | | | + | | |
| Pipilo erythrophthalmus | Rufous sided towhee | | | | | | + | | |
| Piranga rubra | Summer tanager | | | | | | + | | |
| Plegadis falcinellus | Glossy ibis | X | + | | | | + | | |
| Podilymbus podiceps | Pied billed grebe | | | | | | + | | |
| Polioptila caerulea | Blue gray gnatcatcher | | | | | | + | | |
| Porphyryla martinica | Purple gallinule | | | | | | + | | |
| Progne subis | Purple martin | | | | | | + | | |
| Quiscalus major | Boat tailed grackle | | | | | | + | | |
| Quiscalus quiscula | Common grackle | | | | | | + | | |
| Rostrhamus sociabilis plumbeus | Everglades kite | X | | | | | + | | |
| Sayornis phoebe | Eastern phoebe | | | | | | + | | |
| Seiurus motacilla | Louisiana waterthrush | X | | | | | + | | |
| Seiurus noveboracensis | Northern waterthrush | | | | | | + | | |
| Setophaga ruticilla | American redstart | X | | | | | + | | |
| Sialia sialis | Eastern bluebird | | | | | | + | | |
| Sterna forsteri | Forster's tern | | | | | | + | | |
| Strix varia | Barred owl | | | | | | + | | |
| Sturnella magna | Eastern Meadowlark | | + | | + | | + | | |
| Tachycineta bicolor | Tree Swallow | | + | | | | | | |
| Thryothorus ludovicianus | Carolina wren | | | | + | | + | | |
| Toxostoma rufum | Brown thrasher | | | | | | + | | |
| Tringa flavipes | Lesser yellowlegs | | | | | | + | | |
| Tringa melanoleuca | Greater yellowlegs | | | | | | + | | |
| Turdus migratorius | American robin | | | | | | + | | |
| Tyrannus tyrannus | Eastern kingbird | | | | | | + | | |
| Tyto alba | Common barn owl | | | | | | + | | |
| Vireo flavifrons | Yellow throated vireo | | | | | | + | | |
| Vireo griseus | White eyed vireo | | | | | | + | | |
| Vireo olivaceus | Red eyed vireo | | | | | | + | | |
| Vireo solitarius | Solitary vireo | | | | | | + | | |
| Zenaida macroura | Mourning dove | | | | | | + | | |

APPENDIX F: 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

Data source: Hilsenbeck, Reed & Bixler

| Scientific Binomial | Common Name | FWC Status | Management Unit | | | | | | |
|-------------------------------|------------------------|------------|-----------------|--------|---------------|------------|----------|--------------|-------------|
| | | | Gardner-Cobb | Drasdo | Catfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee |
| <i>Blarina brevicauda</i> | Short tailed schrew | | | | | | + | | |
| <i>Cryptotis parva</i> | Least schrew | | | | | | + | | |
| <i>Dasypus 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 alalei</i> | Round tailed muskrat | E | + | | | | | | |
| <i>Odocoileus virginianus</i> | White-tailed deer | | + | | + | | | | |
| <i>Oryzomys palustris</i> | Eastern rice rat | | | | | | + | | |
| <i>Peromyscus gossypinus</i> | Cotton mouse | | | | | | + | | |
| <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 | | + | | | | + | | |

APPENDIX G : 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

Data source: Hilsenbeck, Reed & Bixler

| Scientific Binomial | Common Name | FWC Status | Management Unit | | | | | | |
|---------------------------------------|-------------------------|------------|-----------------|--------|---------------|------------|----------|--------------|-------------|
| | | | Gardner-Cobb | Drasdo | Catfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee |
| 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 | SSC | | | + | | + | |
| <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 | | | | | | + | |
| <i>Terrapene carolina carolina</i> | Florida Box turtle | | + | | | | + | |

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| Scientific Binomial | Common Name | FWC Status | Management Unit | | | | | | |
|----------------------------------|-----------------------|------------|-----------------|--------|---------------|------------|----------|--------------|-------------|
| | | | Gardner-Cobb | Drasdo | Catfish Creek | East Shore | Lightsey | Kissimmee Is | Oasis Levee |
| AMPHIBIANS | | | | | | | | | |
| <i>Acris gryllus dorsalis</i> | Florida cricket frog | | | | | | + | | |
| <i>Bufo quercicus</i> | Oak toad | | | | | | + | | |
| <i>Bufo terrestris</i> | Southern toad | | | | | | + | | |
| <i>Eurycea quadridigitata</i> | Dwarf salamander | | | | | | + | | |
| <i>Hyla cinerea</i> | Green treefrog | | | + | | | + | | |
| <i>Hyla femoralis</i> | Pinewoods treefrog | | | + | | | | | |
| <i>Hyla squirella</i> | Squirrel treefrog | | | | | | + | | |
| <i>Notophthalmus viridescens</i> | Peninsula newt | | | | | | + | | |
| <i>Rana grylio</i> | Pig frog | | + | | | | + | | |
| <i>Rana sphenoccephala</i> | Southern Leopard frog | | | | | | + | | |
| <i>Rana utricularia</i> | Southern Leopard frog | | | | + | | | | |

Appendix H: Suitability of Land Use Matrix for the Kissimmee Chain of Lakes Management Area

| Potential Use | High Resource Vulnerability | Moderate Resource Vulnerability | Limited Resource Vulnerability | Minimal Resource Vulnerability |
|------------------------------------|--|--|--------------------------------|--------------------------------|
| Hiking / Wilderness | with restrictions, monitor and restrict number and length of season | restrict number, monitor and restrict number and length of season | yes | yes |
| Hiking / Seasonal | with restrictions, monitor and restrict number and length of season | restrict number, monitor and restrict number and length of season | yes | yes |
| Primitive Camping | with restrictions, monitor and restrict number and length of season | with restrictions, monitor and restrict number and length of season | yes | yes |
| Bank Fishing | with restrictions, monitor and restrict number and length of season | with restrictions, monitor and restrict number and length of season | yes | yes |
| Bird Watching / Passive | with restrictions, monitor and restrict number | with restrictions, monitor and restrict number | yes | yes |
| Bird Blinds | no | with restrictions, depends on specific on site | yes | yes |
| Canoeing | limit access and number | limit access and number | yes | yes |
| Picnicking with Facilities | no | no | yes | yes |
| Picnicking without Facilities | with restrictions, monitor and restrict number and length of season | with restrictions, monitor and restrict number and length of season | yes | yes |
| Boardwalks | with restrictions, locations to be dependent on drainage and potential water levels and channel conveyance and impedance | with restrictions, locations to be dependent on drainage and potential water levels and channel conveyance and impedance | yes | yes |
| Seasonal, Unpaved Vehicular Access | no | no | no | no |

Appendix H: Suitability of Land Use Matrix (continued)

| Potential Use | High Resource Vulnerability | Moderate Resource Vulnerability | Limited Resource Vulnerability | Minimal Resource Vulnerability |
|-----------------------------|---|---|---|---|
| Restrooms | no | no | no | yes |
| Camp Fire | no | no | yes | yes |
| Fire Pits | no | no | no | yes |
| Air Boating | no | no | yes | yes |
| Motor Boating | with restrictions, monitor and restrict number and length of season | with restrictions, monitor and restrict number and length of season | yes | yes |
| Boat ramps – Structured | no | no | no | no |
| Boat Ramps – Grade Launches | no | no | no | no |
| Parking | no | no | no | with restrictions, restrictions are site specific |
| Buildings (e.g. Visitors) | no | no | no | yes |
| Equestrian Trails | no | no | with restrictions, restrictions are determined by site specific locations | yes |
| Bicycle Trails | no | no | yes | yes |
| ATV Vehicles | no | no | no | no |
| Airstrip | no | no | no | no |
| Paved Access | no | no | no | with restrictions, restrictions are determined by site specific locations |

Appendix I: Kissimmee Chain of Lakes Land Management Advisory Committee – Management Goals & Policy Recommendations

Final Report by the
Kissimmee Chain of Lakes Land Management Advisory Committee
(September 1996)

Recommended Policies for Land Management Units (within the Upper Kissimmee River - Kissimmee Chain of Lakes Project Acquisition Area) included within the Lower Reedy Creek Management Area:

- Rough Island Management Unit
- Johnson Island Management Unit

Vision Statement

We envision the Kissimmee Chain of Lakes as a viable ecosystem held in trust for future generations, to be managed in an ecologically sustainable, long-term manner for the benefit of multiple users. The management of these lands shall be done through a variety of public-private partnerships to best contribute to the downstream restoration of the Kissimmee River and the Everglades. These lands shall be used to advance scientific knowledge and public understanding of Florida's ecosystems while allowing the public to enjoy these lands to the maximum extent feasible.

Purpose of this Document

The purpose of this document is to provide for the management of the lands and waters of the Upper Kissimmee Chain of Lakes so as to be compatible with the reestablishment of natural water flows to the Kissimmee River and optimize lake level fluctuations for the enhancement of fish and wildlife habitats while allowing for public uses when and where feasible. All policies and goals suggested herein should support and be compatible with this purpose.

Goals

1. Support and enhance the natural systems.
2. Provide special management considerations for rare or listed species and critical wildlife functions.
3. Provide opportunities for public use where appropriate.
4. Derive appropriate economic benefits from the land.
5. Provide for cost effective management of the lands.
6. Provide reasonable and affordable security for the lands.
7. Identify appropriate management uses for distinct management areas.
8. Encourage coordinated interagency management of these lands.
9. Provide for protection and maintenance of significant historical and cultural resources.
10. Implement adaptive management practices on these lands.
11. Provide flood protection.
12. Provide a forum for ongoing stakeholder involvement.

Policies to achieve the Mission & Goals

Goal #1 To support the restoration and/or protection of natural systems

Policy #1 A master plan for natural resource management should be developed.

- Policy #2 No policies may be established which result in significant destruction or harm to the natural ecological and hydrological systems of these lands.
- Policy #3 Levees and other structures, which block natural water flows, should be removed or brought to natural grade to the extent feasible.
- Policy #4 Control burning shall be used as a management tool to restore and maintain lands.
- Policy #5 Control of exotic plants and animals on these lands and marshes must be practiced.
- Policy #6 Management programs should replicate natural systems and patterns to the extent possible.
- Policy #7 Establish specific vegetation goals and monitor the progress toward those goals as required in the upper and lower basins. Regulatory actions should be consistent with the support and restoration and protection of natural systems.

Goal #2 To provide special management considerations for rare or listed species and critical wildlife functions

- Policy # 8 Sites that are identified as critical wildlife habitats shall be protected. Sites that are identified as intensive breeding, roosting or feeding sites shall be protected.
- Policy # 9 Public use may be limited from time to time or place to place as needed to protect areas that have been identified as critical wildlife habitat.

Goal #3 To provide opportunities for appropriate public use

- Policy # 10 Access to these lands may be restricted as needed and appropriate to meet the goals for these lands.
- Policy # 11 Buffer areas should be established between incompatible uses.
- Policy # 12 A master plan for public use shall be developed.
- Policy # 13 The master plan shall allow for use of these lands as part of a recreational trail system, when such use is consistent with the goals of this plan.
- Policy # 14 Public information/education programs of the appropriate nature should be offered at points of public access. Appropriate signage should be provided to facilitate public use and identify restricted areas.

Policy # 15 Appropriate public uses shall be encouraged and facilitated to the extent they do not conflict with other policies and to the extent such use is economically feasible to provide. Where public uses are incompatible, appropriate sites will be provided to minimize conflict. Public uses may be restricted to certain areas or trails based on environmental criteria, wildlife protection criteria, or incompatible use criteria.

Policy # 16 To minimize environmental impact, the following practices should be considered:

- Limit human use in pristine areas.
- Rotate human use where feasible.
- Concentrate high impact uses in already disturbed areas
- Horseback riding should be restricted to designated staging areas, trails, and other appropriate areas.
- Based on natural resource criteria and public use criteria, airboat use may be restricted to designated trails or denied access to certain areas.
- Public hunting should be allowed based on an evaluation of the huntable resources by the state wildlife management agencies and the impact of hunting on the natural resources

Policy # 17 Private sector provision of appropriate public uses will be encouraged.

Policy # 18 Improved, controlled access for public entry should be provided at appropriate and feasible points.

Goal # 4 To derive appropriate economic benefits from the land

Policy # 19 Grazing leases should be encouraged where compatible with environmental values and of economic benefit to both parties.

Policy # 20 Private-public partnerships should be encouraged to facilitate public use of renewable resources.

Policy # 21 The District may authorize concessionaires to sell appropriate materials at a concession stand.

Policy # 22 User fees that distinguish among various recreational uses and between recreational and commercial activities may be charged in whatever appropriate form.

Policy # 23 The District is encouraged to seek sponsors for informational material to provide offsetting expenses or develop recurring revenue.

Policy # 24 The District may use where feasible an honor system donation process to cover the cost of basic information materials.

Policy # 25 Federal and other grant revenues should be sought.

Policy # 26 Eco-tourism opportunities should be encouraged to boost local economies and public education as long as such uses will not over extend land use.

Goal #5 To provide for cost effective management of the lands

- Policy # 27 Having user fees may be appropriate and, if adopted, should be set at reasonable levels to pay for the costs of management and security. These fees will be reinvested back into the land management.
- Policy # 28 These lands should be available for off-site mitigation where restoration or enhancement needs dictate.
- Policy # 29 Encourage cooperative management relationships that would operate under the rules and policies adopted by the District.
- Policy # 30 Additional operation and maintenance costs that accrue from special public uses of existing internal agency service facilities should be paid for by the user groups utilizing those facilities.
- Policy # 31 Properly designed volunteer programs or use of Department of Corrections labor sources should be encouraged.
- Policy # 32 Public use areas should be designed for low maintenance and operations cost.
- Policy # 33 The Land Manager should experiment with differing trash management approaches to determine which are most cost effective.
- Policy # 34 Developed day-use areas may be managed by concessionaires.

Goal #6 To provide reasonable and affordable security for the lands

- Policy # 34 Sites should be available as residences for law enforcement or security personnel, where feasible.
- Policy # 35 Security requirements should be higher at certain sites where security services are not currently provided.
- Policy # 36 Access to designated lands may require stamps or permits.

Goal #7 To delineate distinct management units and land uses

- Policy # 38 The following areas will serve as the management areas and units for the project:
- East Shore Management Unit
 - Gardner Marsh Management Unit
 - Rough Island Management Unit
 - Johnson Island Management Unit
 - Lake Marion Creek Management Area [includes London Creek]
 - Catfish Creek Management Area [includes areas adjacent to Kissimmee State Park]
 - Lightsey Management Unit [includes Tiger Creek, West shore, Southwest shore]
 - Kissimmee Islands Management Unit
 - Lake Cypress Management Unit

- Policy # 39 The following use classifications will be adopted:
- Natural Resource Management
 - Preservation [no human uses]
 - Recreation
 - Hiking/Nature
 - Picnic -Day use [intensive]
 - Camping
 - Bicycling
 - Horse Riding
 - Canoeing
 - Non-Motor Boating
 - Motor Boating
 - Airboating
 - Off-Road Vehicle Use
 - Hunting
 - Fishing
 - Vehicular Access
 - Boat Access/Docks
 - Nature Center
 - Interpretive trail
 - Eco-tourism
 - Other Activities
 - Grazing Lease
 - Mitigation Bank
 - Outfitters/Concession
 - Airboat Concession
- Policy # 40 Incompatible uses will be identified on a management area/unit basis, based on the needs and sensitivities of that area.
- Policy # 41 All public uses will be permitted unless restricted by current or future District policies, by the rules and regulations of the Management Area Manager, or by the recommended policies of this document as finally adopted. Such permission acknowledges that some allowed uses might not be currently feasible or ever feasible.
- Policy # 42 Public use of Gardner Marsh shall be proposed [1] by a natural resource technical group which will determine when and if restrictions are needed for natural resource reasons and [2] by a multi-stakeholder body which will resolve conflicting public uses. Public access, by land or water, shall be at designated access points.
- Policy # 43 Airboats will have access to Gardner Marsh in accordance with District rules, with the exception of bird rookeries, and other critical wildlife habitat areas identified and posted during the upcoming study until the study is complete and findings accepted.
- Policy # 44 Restriction of any public uses, may be recommended on a permanent or temporary basis to the District or appropriate Management Area Manager, by a Technical Advisory Committee or the Stakeholder Committee based on environmental considerations, public use

conflicts, financial considerations or other consideration the Committee deems appropriate. Recommendations from either Committee will be submitted to the other Committee for review and comment prior to formal action by whatever the appropriate body.

Goal #8 To encourage coordinated interagency management of these lands

- Policy # 45 District lands adjacent to preserves should be managed in a manner which is compatible with those preserves.
- Policy # 46 Management of these lands will coordinate as needed with aquatic weed control activities in the lakes.
- Policy # 47 A resource management partnership will be established of stakeholders for planning and policy development for overall systems management. It may establish such sub-committees as needed.
- Policy # 48 Management of these properties will be coordinated with in-lake management policies, programs and activities, (i.e. operation of watercraft, hunting, fishing and other water-oriented recreation and lake management activities).

Goal #9 To provide for protection and maintenance of significant historical and cultural resources

- Policy # 49 Areas of historic or cultural significance will be protected and may result in limited public use.
- Policy # 50 Areas of particular historic or cultural significance will be so designated. The following areas are designated at this time:
 - East shore Indian mound
 - Rough Island Indian mound
- Policy # 51 Historic or cultural aspects of the property should be included in public education programs

Goal #10 To improve our knowledge of how to effectively manage natural systems

- Policy # 52 A base inventory of natural systems shall be conducted and periodically updated to determine appropriate use areas.
- Policy # 53 These lands shall be used to further scientific knowledge about ecosystem management.
- Policy # 54 The management program shall contribute to the statewide database on natural areas and conform to adopted data conventions for that data.
- Policy # 55 A plan shall be established to monitor impacts from recommendations for closing or rotating areas of use that exhibit areas of degradation. This plan should ensure there is ongoing feedback to monitor the results of management decisions and modify decisions as appropriate.

Goal #11 Provide Flood Protection

- Policy # 56 The integrity of the Central and South Florida flood control system must be maintained.

Goal #12 Provide a forum for on-going stakeholder involvement

Policy # 57 Given the dynamic nature of these lands and evolving public needs and uses, an ongoing stakeholder group shall be established to:

- [1] Make updated recommendations as to land management policies;
- [2] Resolve or recommend resolutions for user group conflicts;
- [3] Advocate for proper public and private investments.

This group shall meet at least annually in synchronization with the District's rule making process.

Policy # 58 Should the Management Area Managers establish a Technical Committee to assist them in land management decisions, such Committee will operate in concert and communication with the proposed Stakeholder Committee so that the Stakeholder Committee shall have the opportunity to review and comment as well as substantively discuss with the Technical Committee any findings, conclusions, or recommendations. The Stakeholder Committee shall offer such reciprocal communication to the Technical Committee.

Appendix J: Land Stewardship Division Policies

05.0011 - The Land Stewardship Program mission is to provide natural resource protection and management while allowing appropriate recreational use on designated public lands.

05.00111 - The basis for the Land Stewardship Program is the protection and management of natural hydrologic resources.

05.00111.1 - Acquired lands shall be managed to provide water resource related benefits.

05.00111.3 - Where feasible, an attempt shall be made to restore a more natural hydroperiod on tracts where the drainage patterns have been altered.

05.00111.4 - 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.

05.00111.5 - 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 Stewardship Program and follow the guidelines set forth under Section 373.1391(5) F.S.S. and H.B. 1119.

05.00112.1 - The Land Stewardship Program will encourage the acquisition of large or regionally significant areas that protect important natural resources and provide wildlife corridors.

05.00112.2 - Particular emphasis shall be placed on the identification, protection and management of rare, threatened, and endangered species.

05.00112.3 - Planting of exotic/invasive plant species shall be prohibited in all management areas. Management practices will strive to identify existing infestations and implement appropriate control or eradication measures.

05.00112.4 - Where practicable, an attempt shall be made to restore and maintain desirable vegetation to promote habitat diversity in areas where exotic/invasive vegetation or improved land uses have substantially altered the historic landscape.

05.00113c - Legislative-mandated (H.B. 1119) management review will provide input from professional peers.

05.00113.1 - Lands acquired for natural and /or hydrologic resource benefits shall be managed to conserve and protect those resources.

05.00113.10 Archaeological and historical resources are protected by site identification and inter-agency coordination with the Department of Historical Resources. Land management planning shall include an analysis of archaeological data accompanied by appropriate public education opportunities.

05.00113.12 - Mechanical equipment may be used in conjunction with prescribed burning and other management tools to control vegetation and restore habitat structure.

05.00113.2 - Exotic plant control in all management areas shall attain a level of success where periodic maintenance eliminates the infestation or reduces the spread of exotic plants.

05.00113.3 - Prescribed fire will be a primary management tool on District lands and will be applied within fire maintained communities at appropriate intervals.

05.00113.4 - The Division of Forestry will be notified of all wildfires on District lands. The Land Stewardship Program will provide initial suppression when commensurate personnel and equipment are available.

05.00113.6 - Evaluation and monitoring of management activities shall be conducted to improve program effectiveness and efficiency.

05.00113.6 - Inventories of natural and historic resources shall be performed to provide information for effective land management planning, natural community maintenance, and ecological restoration.

05.00113.6a - Research shall evaluate the environmental response of certain management activities to assist staff in making appropriate management decisions.

05.00113.6b - Monitoring shall be conducted to identify landscape changes resulting from management activities.

05.00113.6c - Timber sales will be conducted to improve forest health or support specific forest management goals.

05.00113.6d - Grazing leases will be encouraged on selected range land to generate revenue or to provide services that offset program management costs.

05.00113.7 - Security and resource protection shall be provided by professional law enforcement services through contractual and non-contractual agreements, to safeguard the public and protect natural and cultural resources on District-managed natural areas.

05.00113.8 - Sustainable use of forest resources shall be conducted where these activities adhere to a series of environmental criteria that meet Land Stewardship Program

goals. Timber contractors will be required to meet silvicultural best management practices developed for Florida forests.

05.00113.9 - 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.

05.00113.11 - Infrastructure support shall be developed and maintained to provide safe access for responsible management and public use on District lands. Such infrastructure includes access points, roads, trails, utilities, and minimal public facilities.

05.00114.1 - Public use of management areas shall be encouraged that is consistent with other management goals. 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:

- a) Consistency with the reason the lands were acquired;**
- b) Restrictions and/or prohibitions imposed by easements, leases, reservations, adjacent land ownership, and other conditions of the purchase agreement;**
- c) 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;**
- d) Opportunities for persons with disabilities;**
- e) Limitations resulting from endangered/threatened/rare species, other sensitive natural resources, archaeological resources, or land management practices;**
- f) Public health, safety and welfare; and**
- g) Environmental education program opportunities.**

05.00114.2a - Public use regulations are set forth in 40E-7.511 F.A.C. to implement Sections 259.101, 373.016(2)(h), and 373.1391(1)(b), F.S. Accordingly, the District publishes and makes available to the public a "Public Use Guide" for designated land management areas. The Public Use Guide will be considered by the Governing Board at a public meeting advertised in accordance with Chapter 120, F.S.S.

05.00114.2b - Rules and regulations governing the public use of each management area shall be enforced by agencies with appropriate law enforcement jurisdiction.

05.00114.2b - Regional Mitigation Areas: The acquisition, restoration and management of District lands as mitigation shall be consistent with Chapter 373.414, F.S.S., and the District's Operational Protocol for Cash Payment as Mitigation. This includes the development of restoration plans to implement the mitigation using full-cost accounting, public noticing, and approval by the Governing Board of the mitigation area. The mitigation shall implement an identified restoration objective, approved by the land manager as developed in a management plan.

05.00114.2c - Pursuant to Section 373.609, F.S.S., it shall be the duty of every state and county attorney, sheriff, police officer, and the appropriate city and county official to assist the District, and their agents, in the enforcement of the provisions set forth according to 40E-7.511 F.A.C.

05.00114.2d - Hunting, in areas opened for such use, is governed by Florida Fish and Wildlife Conservation Commission regulations.

05.00114.4b - Any volunteer services must meet the standards and procedures prescribed by the District (Risk Management Manual Vol. 1).

05.00115 - 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.

05.00115.a - Mitigation banking provides an opportunity to accomplish large-scale restoration that may otherwise go unfunded. Pursuant to Chapter 373.4135, F.S.S., the District was 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.

05.00115.1 - 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 objectives.

05.00115.3a - Private concessions and/or agreements with non-profit organizations will be considered to implement needed services through concession contracts.

05.00115.33b - Entrance and user fees, permits, licenses and/or advance reservations may be required for use of District lands where considered necessary by the managing agency.

05.00115.4a - Volunteers, interns, and alternative work forces will be used when possible to supplement existing staff and services.

05.001157.5 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.

05.00117.2 - General management plans provide a description of recommended management and is required for each Land Stewardship/Save Our Rivers Management Area. The general management plan follows a designated format and is updated every five years.

05.00117.3 - Activity plans provide 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 groups of tracts) to be operated as a single management unit. Activity plans may be included in the general management plans and are updated when necessary.

05.00117.4 - Annual work plans summarize activities corresponding with annual budget development and are prepared by the Operations Section of the Land Stewardship Program.

Appendix K: Bald Eagle Management Guidelines

INTERNATIONAL STATUSES, TREATIES, AND AGREEMENTS:

(Taken from Virginia Tech-Dept. of Fisheries & Wildlife Sciences 1996b.)
The bald eagle (*Haliaeetus leucocephalus*) is listed in Appendix I of CITES. The white-tailed eagle (*Haliaeetus albicilla*), a synonym for the bald eagle, is listed as Vulnerable in the IUCN Red Data Book, 1979. The southern bald eagle (*Haliaeetus leucocephalus leucocephalus*) is listed as Endangered in the IUCN Red Data Book, 1979, and as rare by the U.S. in the Western Hemisphere Conv. Annex, 1967.

The bald eagle in Canada, examined by the Comm. on the Status of Endangered Wildl. in Canada (April 1985) was judged not in any "risk" category. Raptors are not included under Canada's Migratory Bird Convention Act. Most Provinces and Territories have Fish and Wildlife Acts and most protect raptors. Provincial Endangered Species lists are maintained by Ontario (Endangered Species Act, Chapter 138, Rev. Stat. of Ontario, 1980) and New Brunswick (Chapter E-9.1, Reg. 82-248, Endangered Species Act). The eagle is listed as Endangered on these lists.

The bald eagle is on that listed by Mexico in "Especies de Fauna en Peligro de Extincion en Mexico."

U.S. STATUSES AND LAWS:

(Taken from Virginia Tech-Dept. of Fisheries & Wildlife Sciences 1996b.)
The bald eagle (*Haliaeetus leucocephalus*) has been designated an Endangered species in the conterminous United States except in the States of Washington, Oregon, Minnesota, Wisconsin, and Michigan where the bald eagle has been designated a Threatened species pursuant to the Endangered Species Act of 1973 (50 CFR 17.11; P.L. 93-205, 87 Stat. 884; 16 U.S.C. 1531-1540), as amended. Critical Habitat has not been designated for this species.

Special rules concerning "take" of individuals from the States where eagles are designated as Threatened can be found in 50 CFR 17.41(a). Rules concerning eagle permits can be found in 50 CFR 22.

This species is also protected by the Lacey Act of 1900 (P.L. 97-79; 16 U.S.C. 3371 et seq.), the Migratory Bird Treaty Act of 1918 (50 CFR 10.13; 16 U.S.C. 703-711 et seq.), and the Bald Eagle Act of 1940 (16 U.S.C. 668-668d; 54 Stat. 250), as amended.

All Federal agencies have responsibility to ensure that any action authorized, funded, or carried out by that agency is not likely to jeopardize the continued existence of the species or result in the destruction or adverse modification of Critical Habitat (50 CFR 402).

STATE STATUS AND LAWS:

(Taken from Virginia Tech-Dept. of Fisheries & Wildlife Sciences 1996b.)
DESIGNATED STATUS: Threatened.
STATE/ADMINISTRATIVE AGENCY/STATE STATUTES:
(FL) Fish and Wildlife Conservation Comm./ Rule 39-27.03 FL Admin.
Code, July 1983

Recovery Actions:

(Taken from Virginia Tech-Dept. of Fisheries & Wildlife Sciences 1996b.)

None listed.

Management Practices:

(Taken from Virginia Tech-Dept. of Fisheries & Wildlife Sciences 1996b.)

| | |
|------------|---|
| Beneficial | Controlling/Restricting Air Space Usage |
| Beneficial | Controlling/Restricting Boating Activities |
| Beneficial | Controlling/Restricting Off-Road Vehicles |
| Beneficial | Restricting/regulating human disturbance of populations |
| Beneficial | Developing/maintaining/protecting wetlands |
| Beneficial | Controlling water levels |
| Beneficial | Controlling/Restricting Mining |
| Beneficial | Controlling/Restricting Road Maintenance Actions |
| Beneficial | Maintaining undisturbed/undeveloped areas |
| Beneficial | Restricting/regulating human use of habitats |
| Beneficial | Land Acquisition |
| Beneficial | Water Right Acquisition |
| Beneficial | Controlling pollution [thermal, chemical, physical] |
| Beneficial | Controlling/Restricting Pesticide Use |
| Beneficial | Controlling/Restricting Herbicide Use |
| Beneficial | Controlling/Restricting Agricultural Practice |
| Beneficial | Creating Artificial Habitat/Nesting Structure |
| Beneficial | Reforestation |
| Beneficial | Restricting Timber Harvest |
| Beneficial | Maintaining Later Stages of Succession |
| Beneficial | Stocking captive-reared wild-strain animals |
| Beneficial | Transplanting wild animals |
| Beneficial | Transplanting Wild Eggs/Wild Seeds |
| Beneficial | Supplemental Feeding |
| Beneficial | Disease Control Measures |
| Beneficial | Rehabilitating Individuals |
| Beneficial | Restricting Poaching |
| Adverse | Harassment/Vandalism/Indiscriminate Killing |
| Adverse | Commercial Exploitation |
| Adverse | Sport Hunting/Fishing |
| Adverse | Off Road Vehicles |
| Adverse | Boating |
| Adverse | Hiking/Camping |
| Adverse | Food Supply Reduction |
| Adverse | Surface Mines |
| Adverse | Rural Residential/Industrial Areas |
| Adverse | Recreational development |
| Adverse | Transmission Lines/Towers |
| Adverse | Soil compaction by heavy equipment in mine areas |
| Adverse | Siltation |
| Adverse | Dissolved Oxygen Reduction |
| Adverse | Draining wetlands, marshes, ponds, lakes |
| Adverse | Reservoirs |
| Adverse | Dredging |
| Adverse | Developing/maintaining stream bank vegetation |
| Adverse | Shoreline modification/development |
| Adverse | Applying pesticides |
| Adverse | Environmental Contamination/Pollution |
| Adverse | Predator control |
| Adverse | Grazing |

Adverse Forest Alteration
Adverse Harvesting

Multi-Species Recovery Plan Recommendations:

(Taken from U.S. Fish and Wildlife Service 1999e.)

To help achieve recovery goals for the bald eagle, the FWS, with the assistance of State wildlife resource agencies, produced bald eagle habitat management guidelines that provide recommendations to avoid or minimize detrimental human-related impacts on nesting bald eagles (FWS 1987). These habitat management guidelines provide much of the direction for the management of bald eagles in the U.S. and include measures designed to maintain or improve environmental conditions (FWS 1987). Though the guidelines vary slightly from region to region, they generally provide for the spatial and temporal protection of nesting and foraging sites and flight paths. These guidelines have been widely adopted by Federal and State agencies and are applied to both public and private lands. A principal component of the guidelines for the southeastern U.S. includes a recommendation that two protective zones be established around bald eagle nests. A primary zone is recommended to encompass an area extending outward from the nest tree between 230 m and 460 m. The exact distance encompassed by this zone is dependent on the location of feeding areas, roosts, and perch sites within a particular nesting territory (FWS 1987). Within the primary zone it is recommended that certain activities be avoided at all times. Activities to be avoided include: residential, commercial, or industrial development, tree cutting, logging, construction, mining, or use of chemicals toxic to wildlife.

Activities such as human entry and low-level aircraft flights over the primary zone are not recommended during the nesting season, but may be allowed in some situations during the non-nesting season. The guidelines recommend a secondary zone extending from the outer boundary of the primary zone outward up to 1.6 km. Restrictions within the secondary zone are recommended to minimize disturbance that might compromise the integrity of the primary zone and to protect areas used by the nesting eagles outside of the primary zone (USFWS 1987). Restrictions are recommended on new commercial and industrial development, construction of multi-story buildings or high-density housing developments, construction of roads that increase access to nest sites, and use of chemicals toxic to wildlife. Most other sources of disturbance are allowed within the secondary zone during the non-nesting season.

The guidelines have been used many times in Florida to avoid or minimize adverse effects to nesting bald eagles. Studies to evaluate the effectiveness of the guidelines in protecting bald eagle habitat and found that eagle use and productivity was not significantly affected by human encroachment when the guidelines were implemented and adhered to. These results indicate that limited human encroachment was not yet affecting nesting eagles and that no modifications to the guidelines were needed in Florida. Evaluation of long-term trends in nest success and productivity should provide the information necessary to evaluate continued effectiveness of the guidelines. Data analyses are anticipated to reveal regional differences, principally due to variations in duration, type, and magnitude of threats to bald eagles. If the results indicate decreasing trends either regionally or statewide, guideline modifications will identify more stringent protection of breeding and foraging habitat. Conversely, where trends are increasing, it is expected that the modified guidelines will relax some or all of the protective

restrictions. The effects of disturbance on bald eagles have become apparent over time in portions of the eagles' range. It is clear that bald eagle habitat is slowly being altered or destroyed throughout much of the species' range. The impacts are "cumulative and may have few effects on a local and short-term basis, but because it [habitat alteration] is so widespread and long-term in nature, the effects to eagles are tremendous." This referred to the effects of forest management on bald eagle nesting when he stated that "once altered, forest habitat is rarely allowed to return to the old-growth state that the eagle prefers ...the last vestiges of old growth are now being removed and replaced with fast-growing, economically efficient forest stands." Throughout much of the bald eagles' range, we believe that nesting and wintering habitats are threatened by many other types of anthropogenic factors that will slowly make these areas unsuitable for eagles. However, by all accounts, the bald eagle population in South Florida has increased dramatically over the last 20 years. The success of eagles in Florida may ultimately be the primary reason for the recovery and delisting of eagles in the southeastern U.S. Even in this time of optimism, there remain concerns about the future of bald eagles in South Florida. Researchers indicated that even though the number of nesting eagles in Florida has recovered to one-half to two-thirds of historic numbers, the amount of feeding and nesting habitat remaining in Florida may not be sufficient to support the eagle population that existed in the early 1900s. Researchers indicated that Florida eagles are faced with significant disturbances from human land-use patterns, especially land alterations associated with urban development. In combination, these and other factors may be working synergistically to reduce the value of bald eagle habitat in Florida. Currently, however, the threshold of human disturbance which triggers large-scale observable adverse effects has not yet been reached or is not detectable under current monitoring programs.

In Florida, only the total number of nesting eagles and statewide reproductive success have been used as the benchmarks for assessing the health of the bald eagle population. Undoubtedly, many of the same cumulative effects noted elsewhere are affecting eagles in South Florida. Whether bald eagles in South Florida respond adversely to these cumulative effects is a question that must be answered before we proclaim South Florida's eagle population to be recovered.

Appendix L: Summary of Management Zone Recommendations for Bald Eagles
 (Taken from U.S. Fish and Wildlife Service 1987.)

| SITE TYPE | ZONE TYPE | DISTANCE | PARAMETERS OF SITE | ACTIVITIES RESTRICTED YEAR ROUND | ACTIVITIES RESTRICTED WHILE ACTIVE |
|---|----------------|---|---|--|---|
| Nesting Territories | Primary Zone | Within 500 ft - vertical | | | - Aircraft operation |
| | | Within 1000 ft - horizontal | | | |
| | | 750 – 1500 ft In all directions from site | Proximal and spatial configuration of nest trees, feeding area, and roost trees determine distance. | - Residential, commercial, or industrial development - Tree cutting & logging - Construction - Mining - Use of toxic chemicals | - Human entrance |
| | Secondary Zone | 750 ft – 1 mi from Primary In all directions from site beyond the Primary Zone | Site-specific circumstances to provide protected access to and from feeding and nesting sites. | - New commercial or industrial site development - Construction of multi-story and high-density buildings between feeding and nesting sites - Construction of new roads, trails, and canals - Use of toxic chemicals (including herbicides and pesticides) | - Logging - Land clearing - Construction - Seismographic activities employing explosives - Mining - Oil well drilling - Low-level aircraft operations |
| Roosting Sites - adjacent to nesting territories | Primary Zone | 750 – 1500 ft In all directions from site | Proximal and spatial configuration of nest trees, feeding area, and roost trees determine distance. | - Removal of living or dead trees | |
| | Secondary Zone | 750 ft – 1 mi from Primary In all directions from site beyond the Primary Zone | Site-specific circumstances to provide protected access to and from feeding and nesting sites. | - Removal of large, living or dead, roosting and perch trees | |
| Communal Roosting Sites | | 1500 ft | | - Logging - Land clearing - Disruptive human activity | |
| Feeding Sites | | In watershed or rivers | | - Toxic chemical use - Shoreline alteration | |

Appendix M: Legal Summary of Additional Protective Measures

258.36 (F.S.S.) Legislative intent. It is the intent of the Legislature that the state-owned submerged lands in areas which have exceptional biological, aesthetic, and scientific value, as hereinafter described, be set aside forever as aquatic preserves or sanctuaries for the benefit of future generations.

258.40 (F.S.S.) Scope of preserves. (1) The aquatic preserves established under this act shall include only lands or water bottoms owned by the state as set forth in s. 253.03 and such lands or water bottoms owned by other governmental agencies as may be specifically authorized for inclusion by appropriate instrument in writing from such agency. Any privately owned lands or water bottoms shall be deemed to be excluded there from; however, the board may negotiate an arrangement with any such private owner by which such land may be included in the preserves.

380.05 (F.S.S.) Areas of critical state concern. (1)(a) The state land planning agency may from time to time recommend to the Administration Commission specific areas of critical state concern. (c) A rule adopted by the commission pursuant to paragraph (b) designating an area of critical state concern and principles for guiding development shall be submitted to the President of the Senate and the Speaker of the House of Representatives for review no later than 30 days prior to the next regular session of the Legislature. (2) An area of critical state concern may be designated only for: (a) An area containing, or having a significant impact upon, environmental or natural resources of regional or statewide importance, including, but not limited to, state or federal parks, forests, wildlife refuges, wilderness areas, aquatic preserves, major rivers and estuaries, state environmentally endangered lands, Outstanding Florida Waters, and aquifer recharge areas, the uncontrolled private or public development of which would cause substantial deterioration of such resources.

39-14.0011 (F.A.C.) Opening or Closing Areas. The Commission may establish refuges, wildlife management area, fish management areas, wildlife and environmental areas, wild hog areas and miscellaneous areas and regulate and manage the land or water therein in the best interest of the state; and in furtherance thereof: (1) Open or close any lake, stream or river or parts thereof, an county or part of a county to the taking of wildlife or freshwater fish for the purpose of establishing, protecting, or managing wildlife or freshwater fish, and prohibit hunting, trapping or fishing within such areas.

39-19.002 (F.A.C.) Establishment of Restricted Hunting Areas, and Bird Sanctuaries, Procedure. (1) The Commission may establish bird sanctuaries for the protection of all birds and other wildlife and restricted hunting areas within any developed area upon the written request of the local governmental body having jurisdiction over such areas. In requesting establishment of such restricted hunting areas or bird sanctuaries, the governing body shall, by proper resolution or ordinance, officially agree to assume the responsibility for enforcement of regulations of the Commission which apply to such areas, including posting the area boundary with signs bearing words "RESTRICTED HUNTING AREA, Hunting by Special Permit Only" or "BIRD SANCTUARY, No Hunting" "established by Rule 39-19.002, F.A.C." which shall be place at intervals of no more than 500 feet, be easily visible from any point of ingress or egress and provide other necessary notice of such are to the public. Said governing

body shall agree to instruct its duly authorized law enforcement personnel to enforce said regulations with the area.

39-19.004 (F.A.C.) Regulations in Bird Sanctuaries. No person shall take any wildlife in any bird sanctuary using a gun unless such taking is authorized by specific rule relative to such sanctuary.

39-19.005 (F.A.C.) Establishment and Protection of Critical Wildlife Areas.

(1) Critical wildlife areas may be established by the Commission with prior concurrence in such designation by the owner of the property wherein the area is situated. All areas shall be described in the order with sufficient specificity as to permit identification and shall be posted by the Commission so as to provide due notice as to the identity and status of the area. The order establishing the critical wildlife area shall contain the dates during which the tract shall be accorded maximum protection from human or vehicular disturbance. (2) No person shall take or disturb any wildlife within any critical wildlife area during the period designated by the order establishing such area. No person shall enter or operate a vehicle within any critical wildlife area during any period in which public access is prohibited by the order establishing such area.

APPENDIX N: ACRONYMS

| | |
|---------------|---|
| AWP | Annual Work Plan |
| CWA | Clean Water Act |
| FCREPA | Florida Committee on rare and Endangered Plants and Animals |
| FDHR | Florida Division of Historical Resources |
| FDOF | Florida Division of Forestry |
| FDEP | Florida Department of Environmental Protection |
| FWC | Florida Fish and Wildlife Conservation Commission |
| FNAI | Florida Natural Areas Inventory |
| GMP | General Management Plan |
| KCOL | Kissimmee Chain of Lakes Management Area |
| KRRP | Kissimmee River Restoration Project |
| KRREP | Kissimmee River Restoration Evaluation Program |
| LSP | Land Stewardship Program (SFWMD) |
| NGVD | National Geodetic Vertical Datum |
| NSLP | Natural Soil Landscape Positions |
| OFW | Outstanding Florida Waters |
| ONRW | Outstanding Natural Resource Waters |
| SFWMD | South Florida Water Management District |
| SOR | Save Our Rivers |
| TNC | The Nature Conservancy |
| USFWS | United States Fish & Wildlife Service |
| WMA | Wildlife Management Area (FWC) |

Appendix O: Definitions

Adaptive Management – a cyclical process in which inventories document resource presence, management actions are applied, and monitoring and research activities evaluate the effectiveness of those actions; management actions are then revised and applied again.

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

Best Management Practices - the best available technology or process that is practical and achieves the desired goal or objective.

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

Cooperative Management Agreement - 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.

Easement - an interest in the land of another that provides the easement holder specified rights without fee-title ownership.

Endemic - native to, and restricted to, a particular geographic region

Enhancement - modification of select physical attributes of a natural community to improve ecosystem function.

Exotic - an organism whose origin is of another continent.

Lease - a legal agreement that defines rights and responsibilities for use of land owned by another party.

Listed Species - species considered at risk (species of special concern, threatened, or endangered) within a specific geographic area by the USFWS and the FWC.

Maintenance - work performed to preserve property conditions on a regular basis.

Management - planned control and manipulation of factors affecting property conditions.

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

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

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

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

Native Species - species considered indigenous to the North American continent prior to European settlement.

Natural Community - a distinct and reoccurring assemblage of plant and animal populations naturally associated with each other and their physical environment.

Prescribed Fire - application of fire to natural communities according to a written prescription; the prescription executed with a defined goal and under specific environmental and physical parameters.

Regional Mitigation Area - Permitted wetland impacts offset through payment for the acquisition, restoration, enhancement, and perpetual management of a Save Our Rivers-identified and duly noticed project.

Reservation - a legal agreement between a property seller and buyer that defines the seller's rights and responsibilities of post-sale property use

Responsible Management - that level of management described in the General Management Plan (GMP).

Restoration - re-creation of physical attributes of a natural system with the intent to return original ecological function.

Sustainable Use - to provide continued use of a natural resource without long-term degradation or loss of that resource