SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Land Stewardship Section
3301 Gun Club Road MSC 5212
West Palm Beach, Florida 33406

Allapattah Flats Management Area Ten-Year General Management Plan 2014-2024

December, 2014

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1. Executive Summary

The South Florida Water Management District (District) is directed to acquire and manage lands which are vital to the restoration of the Everglades. In 2001, approximately 42,000 acres (known as the Allapattah Complex) were included in the Indian River Lagoon Feasibility Study's recommended plan, a component of the Comprehensive Everglades Restoration Plan. The Allapattah Complex is one of three natural water storage and treatment areas that were recommended in the feasibility study. These features are expected to provide for restoration of the wetland/upland mosaic of the site and provide benefit to the Indian River Lagoon through water storage in natural wetland systems. To date, 21,709 acres have been purchased with funding from the Save Our Everglades Trust Fund, Martin County, the Natural Resources Conservation Service Wetlands Reserve Program, and the District's Everglades ad valorem tax. This plan addresses management for the parcels acquired by the District and its partners within the project area.

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

NATURAL SETTING

The natural character of the management area is characterized by 5 distinct soil categories as defined by the Natural Soil Landscape Positions soil classification system: flats soils, flatwoods soils, knolls, muck depression soils, and sand depression soils. These soils support 11 natural plant communities that are defined by criteria established by the Florida Fish and Wildlife Conservation Commission.

RESOURCE MANAGEMENT

Resource management activities for the management areas consist of:

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

RESTORATION PROJECTS

Restoration of the site is being conducted in partnership with the U.S. Army Corps of Engineers as a component of the Comprehensive Everglades Restoration Plan's Indian River Lagoon South project and in partnership with the Natural Resources Conservation Service through the Wetland Reserve Program.

MONITORING

An overall monitoring plan is being implemented to address the efficacy of achieving the restoration and management objectives that have been established for the Allapattah Flats property as a component of the Indian River Lagoon project Feasibility Study. The monitoring plan is included as part of the project's integrated Project Implementation Report and Environmental Impact Statement that is available to view at www.evergladesplan.org.

PUBLIC USE

Several recreational activities are provided for and encouraged in the management areas including bicycling, geocaching, camping, equestrian use, fishing, wildlife viewing, hiking, stargazing, and hunting. The Management Area also includes a variety of public use facilities including recreational trailheads, covered picnic shelters, and a primitive campground.

2. Introduction and Management Plan Purpose

This General Management Plan consolidates relevant information about the Allapattah Flats Management Area (Management Area)(**Map 1**) including land management goals and objectives, past and present land uses, resource data, restoration and management needs, public use programs, and administrative duties to guide management actions for the period 2014 to 2024. Management activities described in this plan are based on requirements and directives of Florida Statutes and established District policies. Section 373.591(4), Florida Statutes, requires that management plans be developed for District conservation, preservation, and recreation lands.

State statutes direct the District to provide natural resource protection and management while allowing compatible multiple uses on public lands. These statutes set forth three primary goals for the Land Stewardship Section:

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

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

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

The plan consolidates current site information and general guidelines for management of the area. It also updates and replaces the 2004-2009 General Management Plan for the area. As such, it serves as a collective information source for management staff, partners, and the general public.

2.1 Management Area Goals and Objectives

The Land Stewardship Program's functions are incorporated in the specific management area goals and objectives of this plan for the planning period 2014-2024.

Goal 1: Restore upland and wetland habitats in accordance with the Indian River Lagoon South Project and in partnership with the Natural Resources Conservation Service's Wetlands Reserve Program.

Objectives:

- Use wetland restoration to improve basin storage resulting in hydroperiods that are more representative of pre-development hydrologic conditions.
- Reduce nutrient loading in the St. Lucie Estuary and Indian River Lagoon through natural retention of stormwater and reduced discharges.
- Provide ecological conditions suitable for habitat restoration and improved wildlife habitat conditions.

Goal 2: Manage natural communities and modified habitats to protect and enhance water, floral, and faunal resources.

Objectives:

- Continue to regularly apply prescribed fire to fire maintained plant communities through a well-planned and documented prescribed burning program. Prescribe burn 1,000 to 1,500 acres per year, weather permitting.
- Continue an aggressive, integrated exotic plant management program. Areas of treatment will be prioritized based on severity of infestation and will be integrated with prescribed burning, biological control, and other land management activities. Treatments will be documented.
- Continue understory restoration by using shredding and mowing as needed to reduce areas of dense understory and to reduce fuel loads in areas that have been excluded from fire.
- Continue and enhance the monitoring and evaluation of restoration activities on area vegetation and wildlife. Conduct game and non-game wildlife population surveys.
- Provide resource protection through partnership with the Florida Fish and Wildlife Conservation Commission.

Goal 3: Provide resource-based public use opportunities.

Objectives:

- Maintain public use program through continued coordination with the Florida Fish and Wildlife Conservation Commission, local partners and recreation user groups.
- Maintain public-use improvements (roads, trails, signs, entrances, campgrounds, structures) using a combination of in-house maintenance, contracts, and user group involvement.
- Expand public use infrastructure in areas not encumbered by Federal easements including an additional campground, a fishing pier, and improved trailheads.
- Update and maintain information kiosks at points of public access.

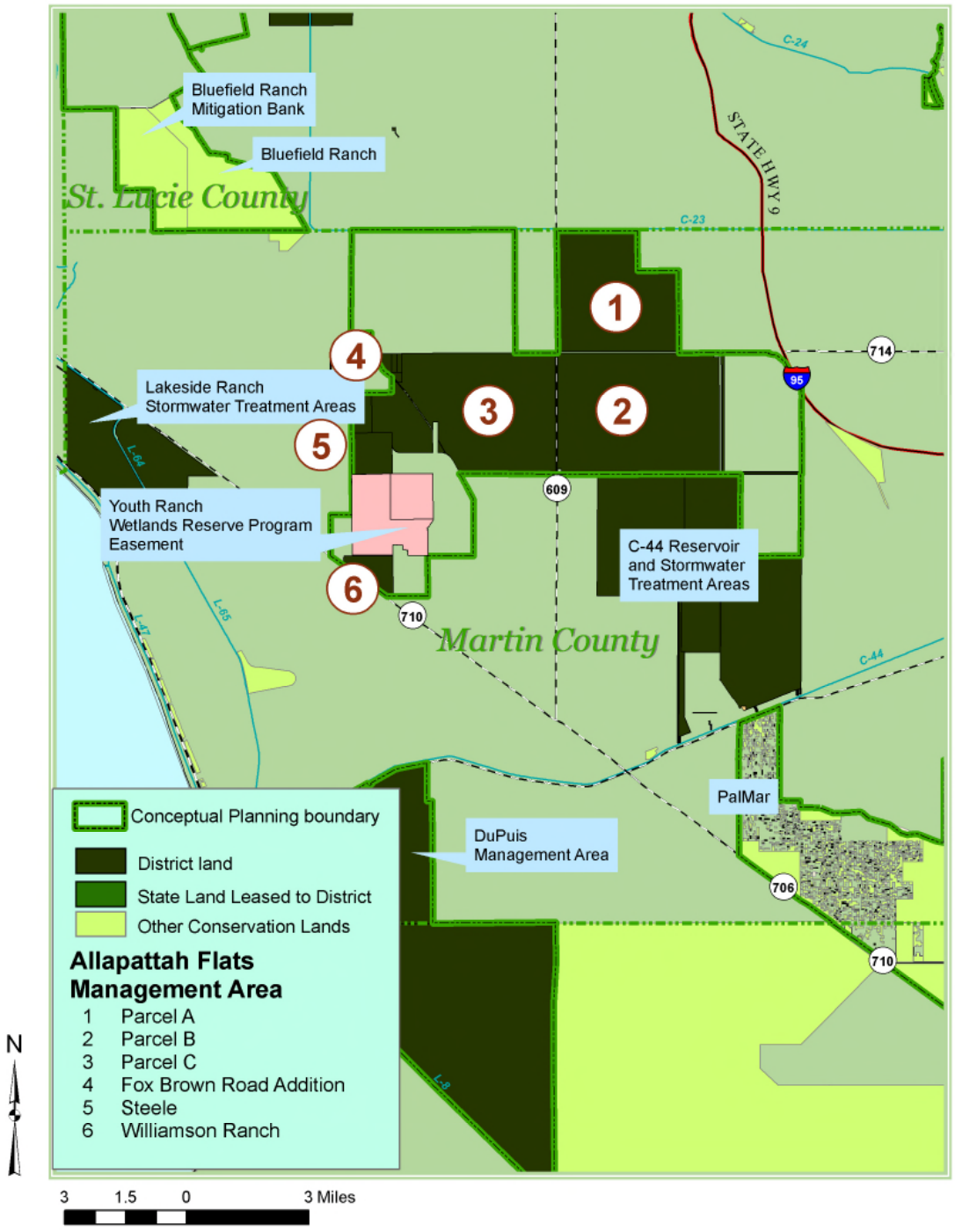
- Expand public use facilities, including camping areas, through the District's Special Use License process.

Goal 4: Maintain area infrastructure

Objectives:

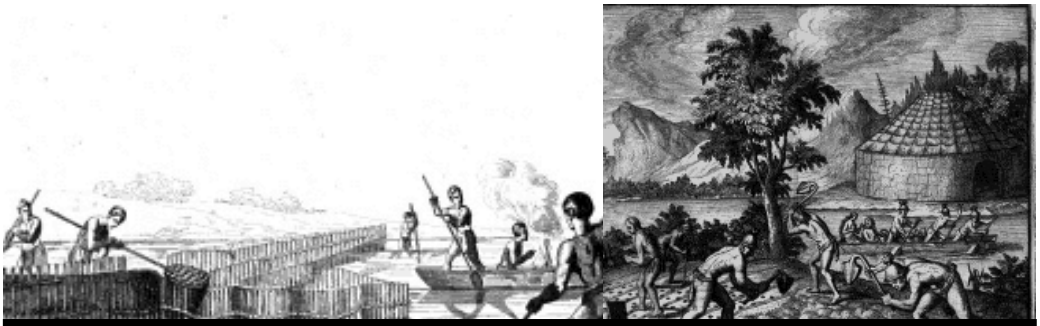
- Continue to maintain and manage the management area boundaries through posting, fencing, and fireline maintenance.
- Update and maintain information kiosks at points of public access.
- Complete annual inspection report of recreation facilities and repair or replace amenities as needed

Map 1. Allapattah Flats Management Area and Other Public Lands



3. Site History

The Management Area has been inhabited by humans for at least 2,000 and possibly as long as 10,000 years. Settlement in the region of Allapattah increased in the East Okeechobee I period that lasted between 2750 and 1200 B.P. There are scattered early habitation sites present. At the time of European discovery of Florida in 1513, the Management Area would have fallen within the borderlands of the Ais whose principal village was probably near present day Vero Beach and the Jeaga who resided in the coastal areas between Lake Worth and the St. Lucie River. They were a non-agricultural culture that lived primarily off of fish, mollusks, cocoplum, sea grapes, palmetto berries, prickly pear, briar roots (*Smilax*), and coontie (*Zamia*). During the first century of Spanish rule, the Ais and Jeagas were rival tribes that defended their territory vigorously. The Spanish governor negotiated a peace between the warring tribes in 1608 and by the 1690s the two tribes were closely aligned; the cacique (chief) of the Ais being the father-in-law of the cacique of the Jeaga. During the wet season, the Indians could traverse the Allapattah flats for travel and trade between the headwaters of the St. Johns River and the Everglades by poling canoes. In the dry season, the area was used for hunting purposes and contained hunting camps.

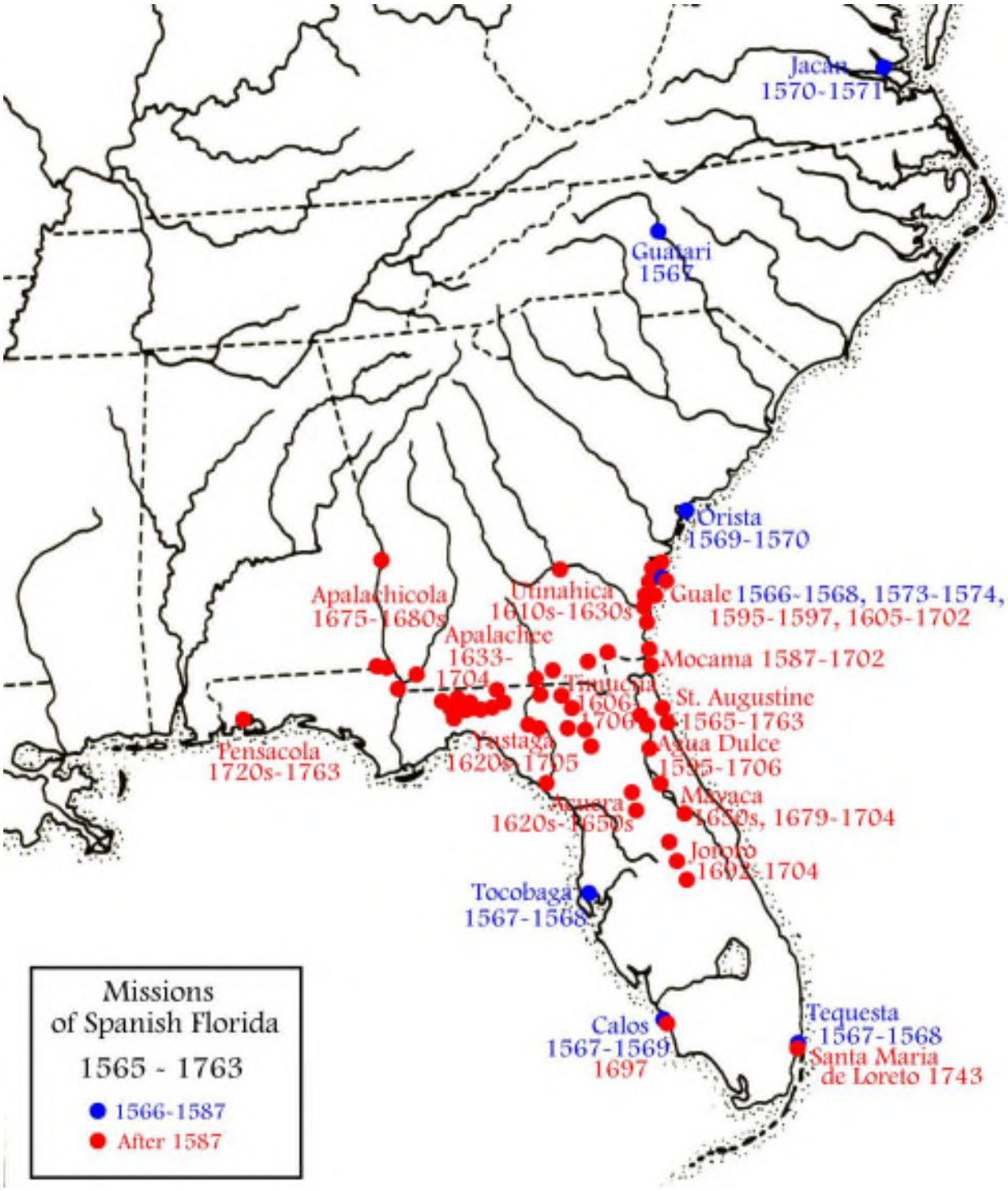


Florida Indians as observed by early French settlers in 1565 trapping fish - left, and tilling and sowing fields - right

First Spanish Period 1513-1763

During the Spanish colonial period, the area was regarded as wilderness and was seldom visited, and was not systematically mapped or surveyed during their entire 300 year rule of Florida. The Spanish considered the land to be impoverished and not worth the effort of settling. Most of the region was either permanently wet or would be seasonally inundated. The Spanish authorities in St. Augustine reported back that there were no good natural seaports in the southern part of the peninsula. Reliable uplands of any significant size were limited to the quartz sand ridges near the coast that had poor agricultural potential so attempting a permanent settlement would have been cost prohibitive. The Spanish were not able to establish a Franciscan Mission in the Florida Peninsula south of Cape Canaveral (**Map 2**) that lasted more than a year, and the mission closest to Allapattah was near present-day Miami. The king of Spain requested

Map 2. Spanish Missions in Florida [long-term Spanish missions were not established in southern Florida (UWF-Archaeology Dept.)]



a garrisoned mission be established at the primary Ais village near present-day Vero Beach in 1703, but the subsequent Creek and Carolinian raids that destroyed the network of missions in northern Florida prevented the Spanish from establishing it.

British Period 1763-1783

The only attempted settlement in the region by the British during their rule from 1763-1783 was Grenville (likely named after the Prime Minister at the time) at the site of the present-day Jupiter lighthouse. Many of the surviving members of the coastal tribes evacuated to Cuba with the Spanish when the British took over. In 1765 the Treaty of Pikalata (today Palatka) gave all of the interior of Florida to the Lower Creek Indians (the Seminoles) that would have followed a line from the west bank of the St. John's River following it to its source then south to the edge of the Everglades and along the edge south to Cape Sabal on the southern tip of the Florida Peninsula. The region around the Management Area was given the name Alpatiokee Swamp (**Maps 3&4**), then Allapattah Flats. Allapattah was the Seminole word for alligator.

Second Spanish Period (retrocession) 1783-1821

The second Spanish period (1783-1821) was more active in the region. The Spanish Monarchy felt their hold on the territory was tenuous following the departure of the British and with unregulated migration from the north, so they began granting generous land grants to encourage settlement and economic development by immigrants who would swear loyalty to Spain. Three grants were made in the area that were later confirmed and upheld by the United States, one to Eusibio Gomez in southern Martin County (12,000 acres), one to James Hutchinson north of Jupiter Inlet (2,000 acres), and one to John Hanson in present-day Stuart (16,000 acres).

Map 3 & 4. Two early maps showing the Allapattah Flats region labeled "Low Lands" in the 1710 map – left, and "Alpatiokee Swamp" in the 1842 map - right

Pre-Drainage Characteristics

In the first half of the 19th century the region around Allapattah Flats carried the name Alpatiokee Swamp and was shown to be a broad area of wetlands east of the Osceola Plain that drained into the St Lucie River. The Alpatiokee swamp was separated by the cypress swamp to the north (**Map 4, above**) by a slightly higher area with palmettos that was seasonally inundated connecting the Alpatiokee (Allapattah) waters to the Cypress Swamp that was considered to be the source of water to the St. John's River. At the time 'swamp' was a label given to inundated lands covered in vegetation regardless whether it was a marsh or forested. In The Territory of Florida written by John Lee William in 1837, the landscape west of the South Fork of the St. Lucie River is described as:

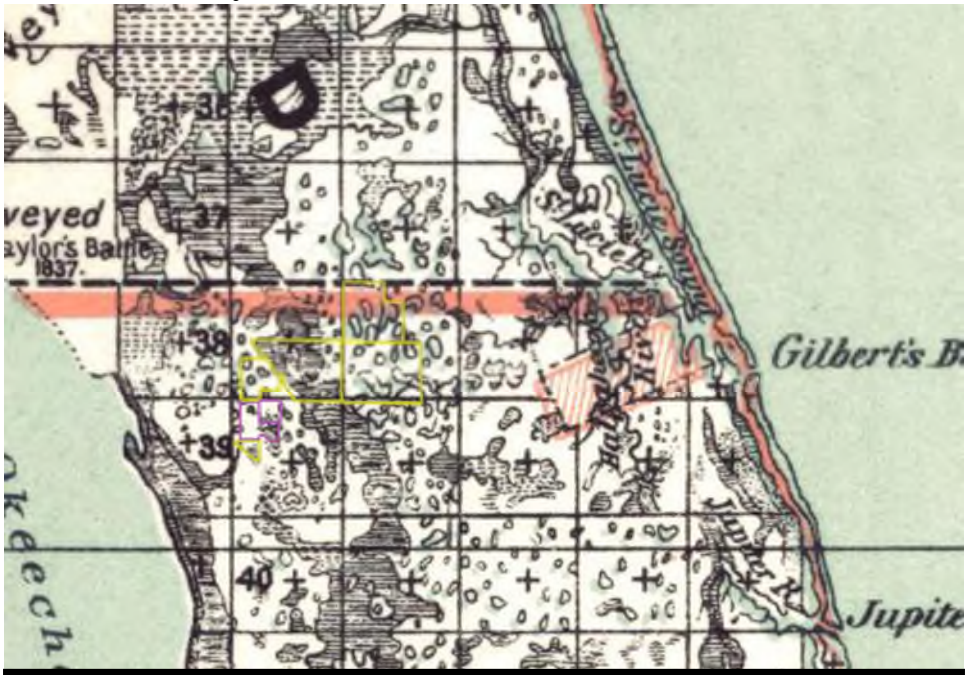
> "On the west, a rich low pine country succeeds, covered with high grass, forming an excellent grazing country, for several miles; when wet savannas succeed, which terminate in cedar swamps."

Grazing in the Allapattah Flats by area settlers was well established by 1850, although the Seminoles collected native range cattle and hogs from the region for many years before (as these species were introduced by the Spaniards). The 'cedar swamps' mentioned are likely the low bottomland bay/maple/cypress/laurel oak community that follows the Osceola Plain from the northwest to the southeast just east of Fox Brown Road (**Maps 5-8),** *infra*, for the location of the Osceola Plain). Later, but still prior to any major drainage efforts in the area, the Allapattah flats were described as:

"East of the Lake [Okeechobee] the Everglades fade away irregularly in the Allapattah flats, a region largely under water, at the end of each rainy season, where are interwinding strips of saw-grass swamp and grassy prairies, occasional patches of cypress and, more rarely, a hammock of hard wood growing on a slight rise in the almost dead level of the surface....The flat lands have a soil of white sand, resembling that of the rolling sand plains, bearing a thin growth of pine trees separated in places by expanses of prairie a mile or more wide, a difference of a foot in elevation determining the character of the vegetation. In the rainy season these prairies are shallow lakes. In the flat lands are also occasional sloughs, pond holes, sometimes one-fourth mile or so across, which, being three to five feet below the general level of the country are never entirely dry. In places these deeper hollows support good growths of cypress, and as the region of relatively permanent standing water, the Everglades, is approached, the pine and the cypress growths intermingle in most irregular fashion. In some places pines grow up to the edge of the prairie bordering the Everglades, in others a fringe of dwarf cypress separates pineland and swamp, and in still others are considerable areas supporting a good growth of cypress." *Florida Geologic Survey Second Annual Report, 1908- 1909*. [note: a staff analysis of the 1940 pre-drainage aerial photography yielded a tree density in the hydric pinelands of 5.7 trees per acre which corresponds well with the 'thin growth of pines' in the description above]

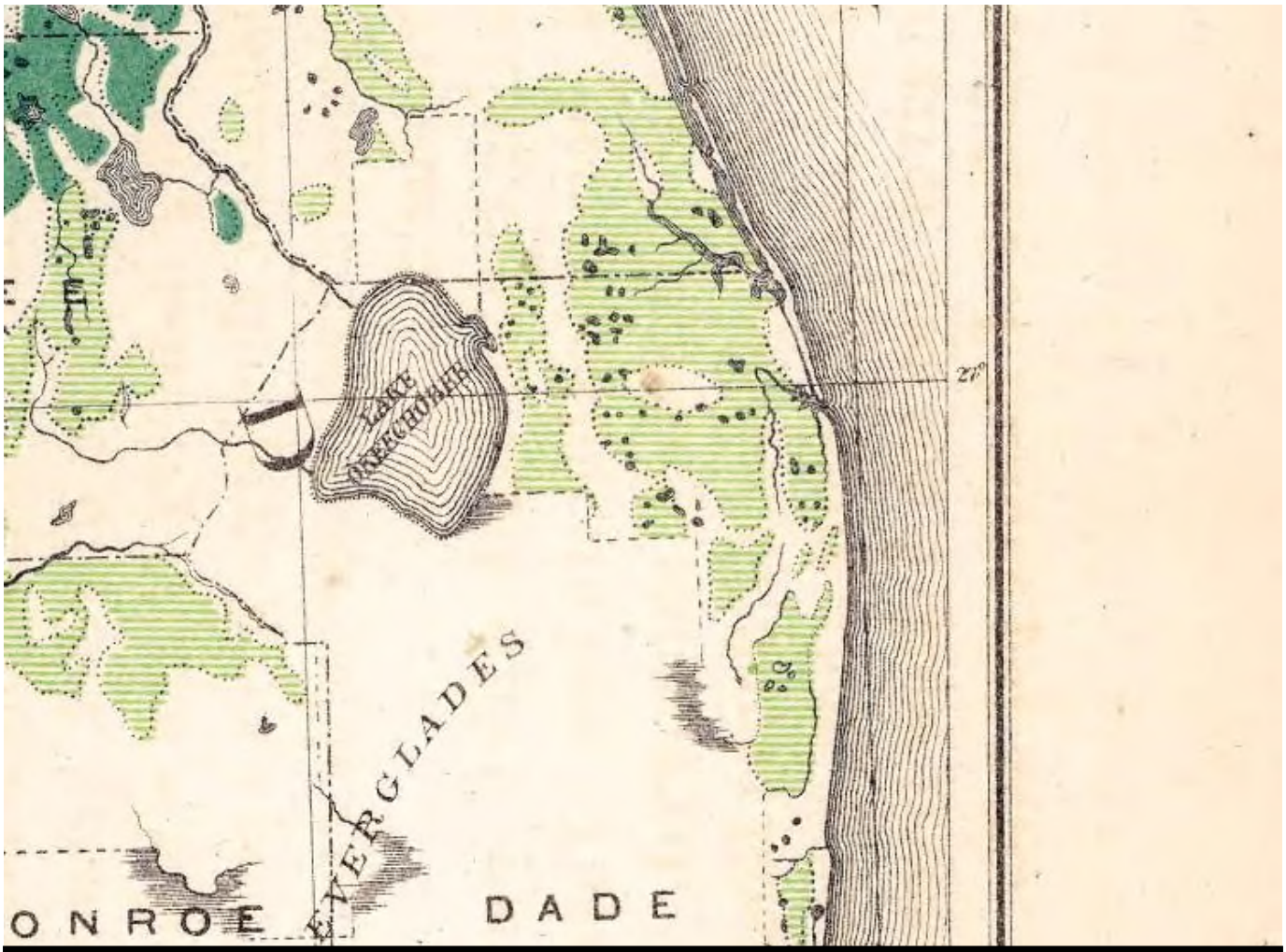
Map 5. An 1856 military map showing the Management Area boundary in yellow

Map 6. An 1879 natural communities map showing the Management Area boundary



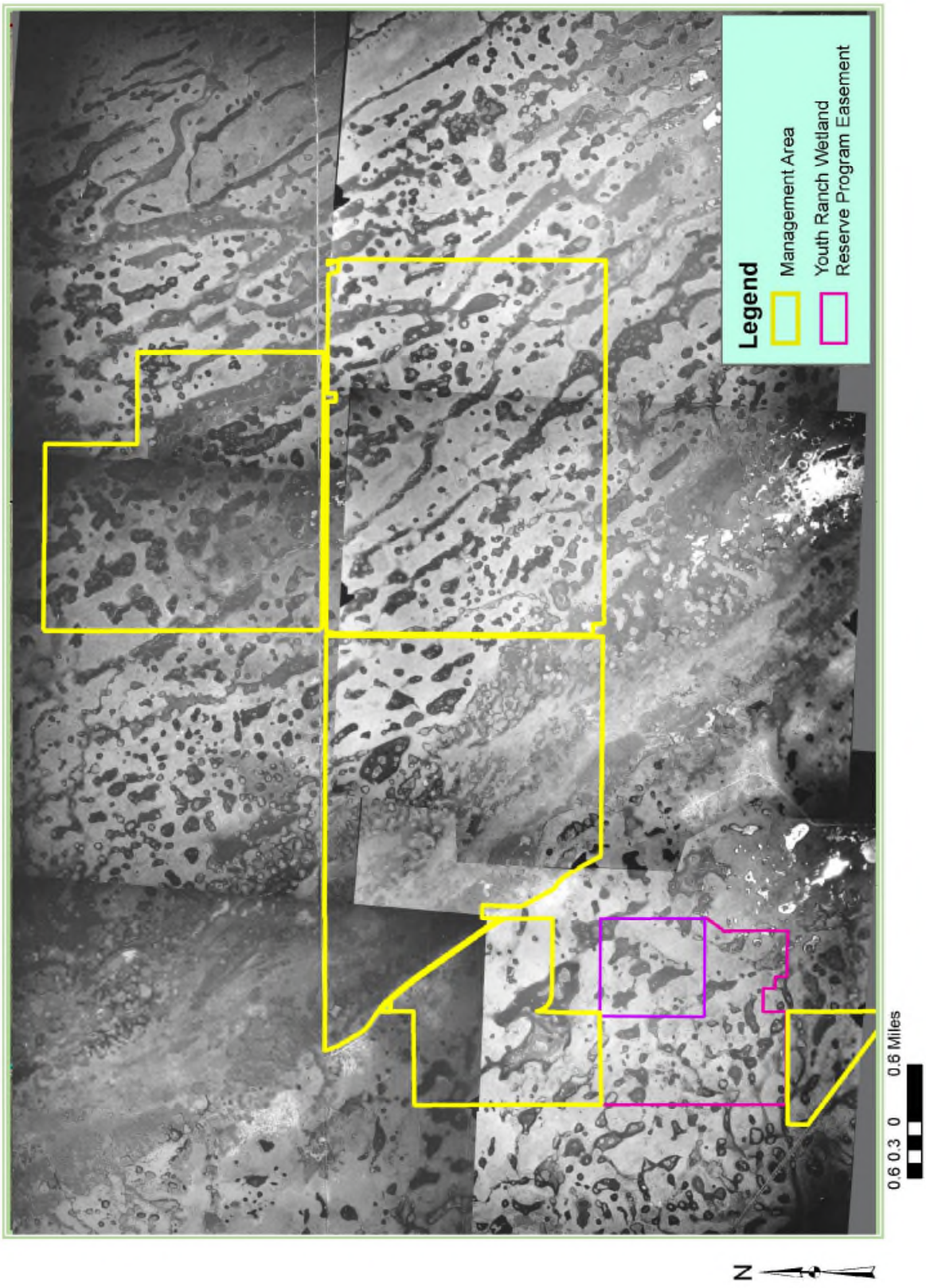
Map 5 & 6. These two maps show a narrow cypress swamp near the eastern edge of the Osceola Plain (identified on Maps 13-15), followed to the east by a nearly treeless wet prairie/marsh, followed by a low open pineland with many ponds and small lakes.

Map 7. An 1881 Timber Survey



This map shows the historic range of long leaf pine (dark green) and slash pine (light green). The north-south gap in the slash pines in the Allapattah Flats area is the cypress swamp and marsh that separates the Osceola Plain from the Allapattah Flats.

Map 8. A 1940 Aerial Photo of Allapattah Flats



Two pictures of the hydric pine flatwood community prior to drainage, taken in 1933

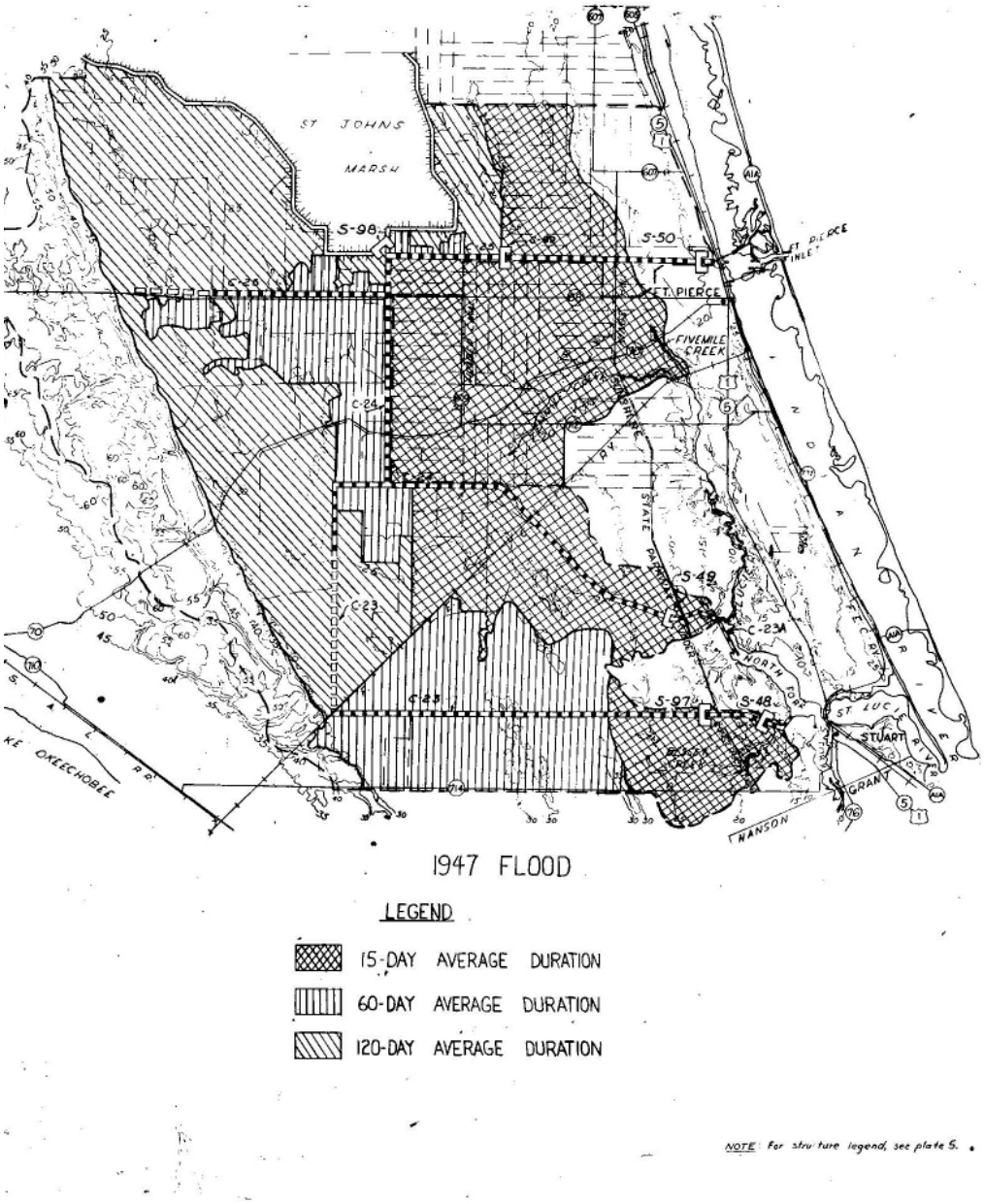
Drainage

The first feasibility studies that looked into draining the Everglades were completed in 1847-1848 and concluded that dredging canals from Lake Okeechobee to the Caloosahatchee River on the west and to the St. Lucie River on the east would lead to enough drainage to sustain greater agricultural production within the Allapattah Flats and the Kissimmee River basin. The eastern canal was first proposed to cut through the middle of the Allapattah Flats, but later surveys chose a more southerly route to avoid dredging through the higher elevations of the Osceola Plain. The St. Lucie Canal was constructed from 1915-1923; this southerly canal provided little drainage to Allapattah Flats but did effectively end the seasonal waterway connecting the waters of the Everglades with the waters of the St. John's River.

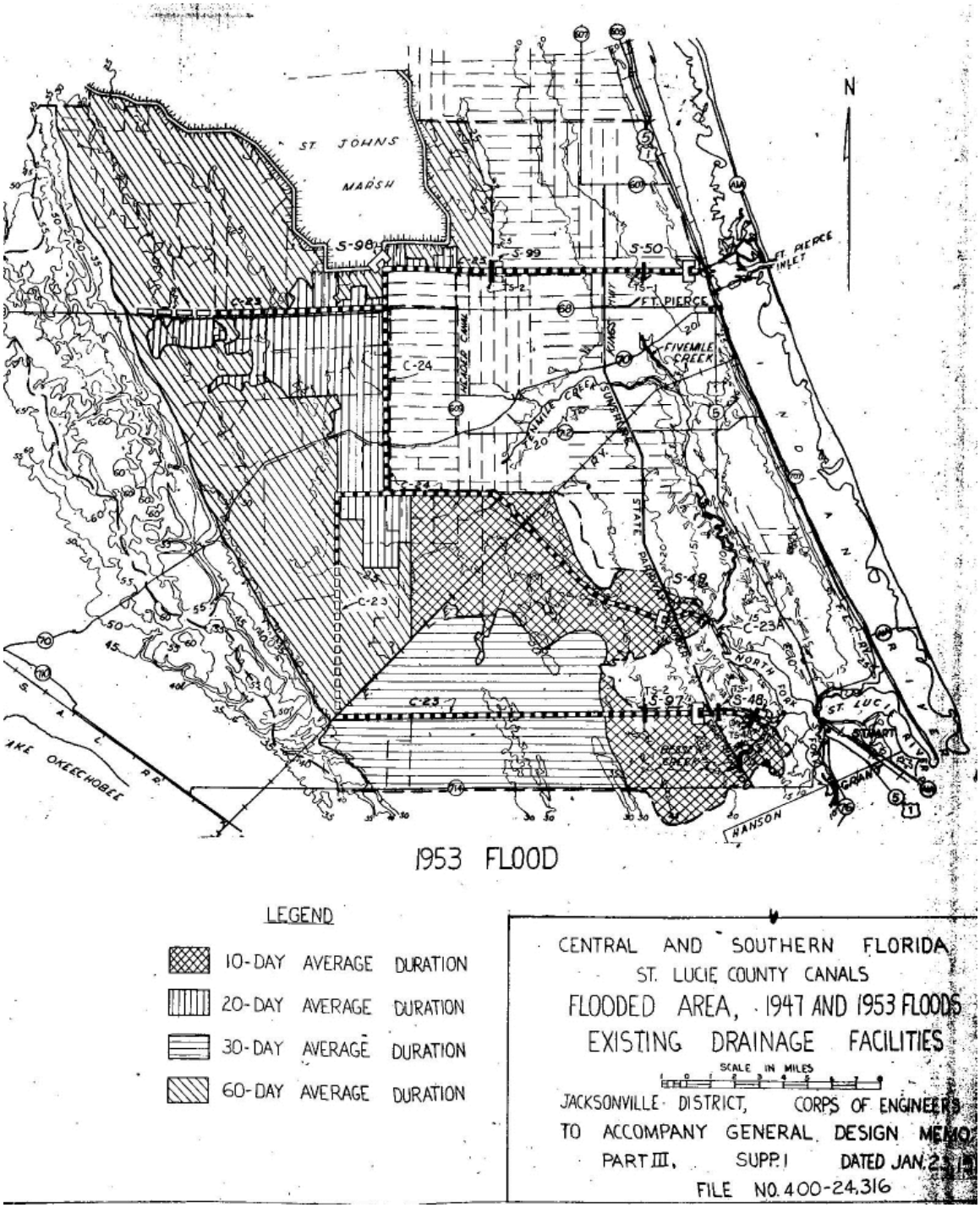
The primary drainage for Allapattah Flats was the C-23 canal that was constructed along the Martin County/St. Lucie County line in 1942. Flooding in

the late 1940s and early 1950s (**Maps 9-10**) led to additional congressional authorizations to increase drainage under the Central and South Florida Flood Control Project. In 1957 the U.S. Army Corps of Engineers increased the capacity of the C-23 canal and constructed the northerly C-23/24 connector canal. Lateral north/south secondary drainage ditches were then cut deep into the Allapattah Flats along the section lines. The additional drainage allowed more intensive agricultural production to be carried out within the flats including improved bahiagrass pasture, row crops, and sod.

Map 9. 1947 flood durations in the northern Allapattah Flats, prior to the enlargement and connection of the C-23 and C-24 canals



Map 10. 1953 flood durations in the northern Allapattah Flats, prior to the enlargement and connection of the C-23 and C-24 canals

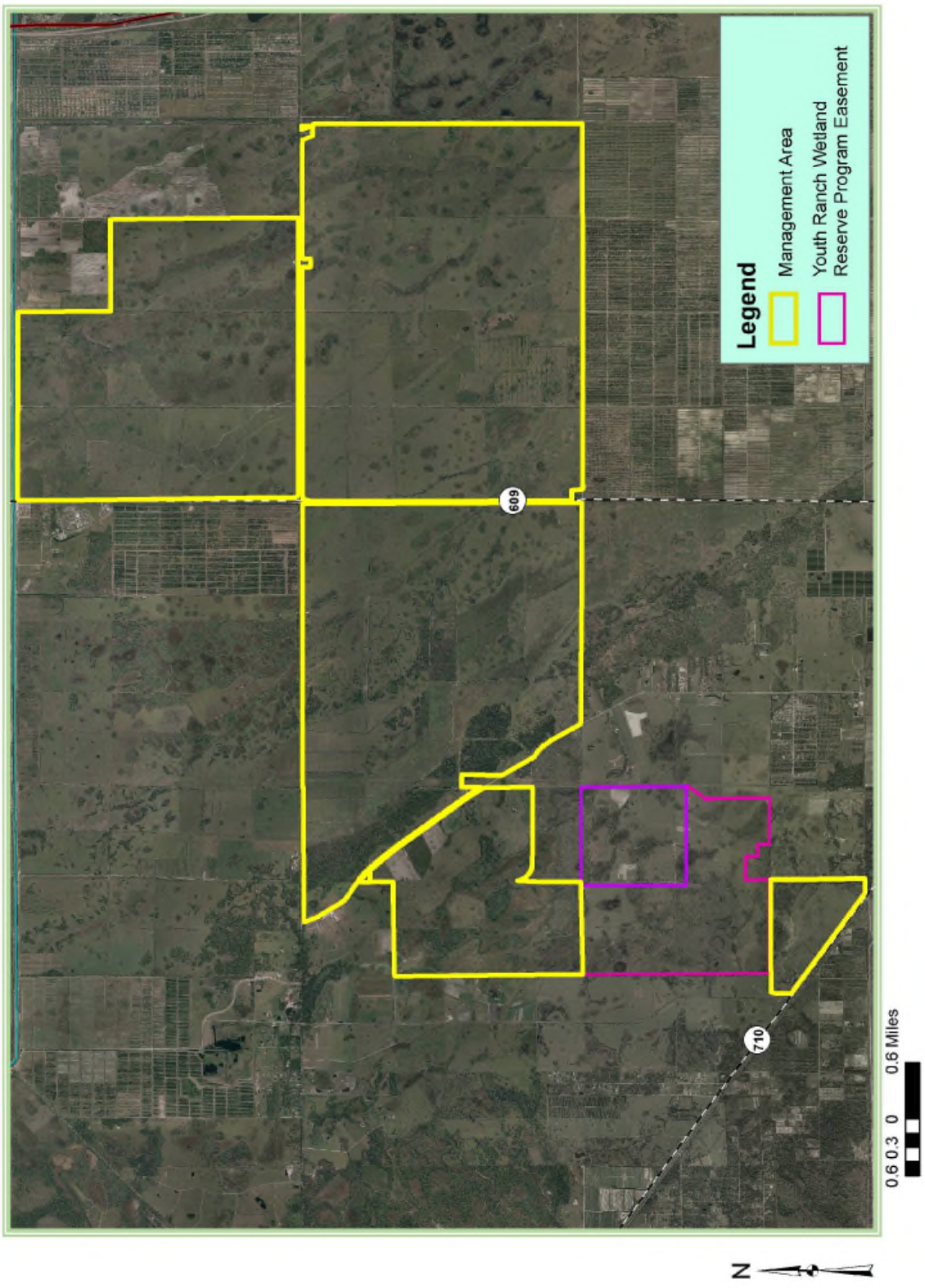


Acquisition

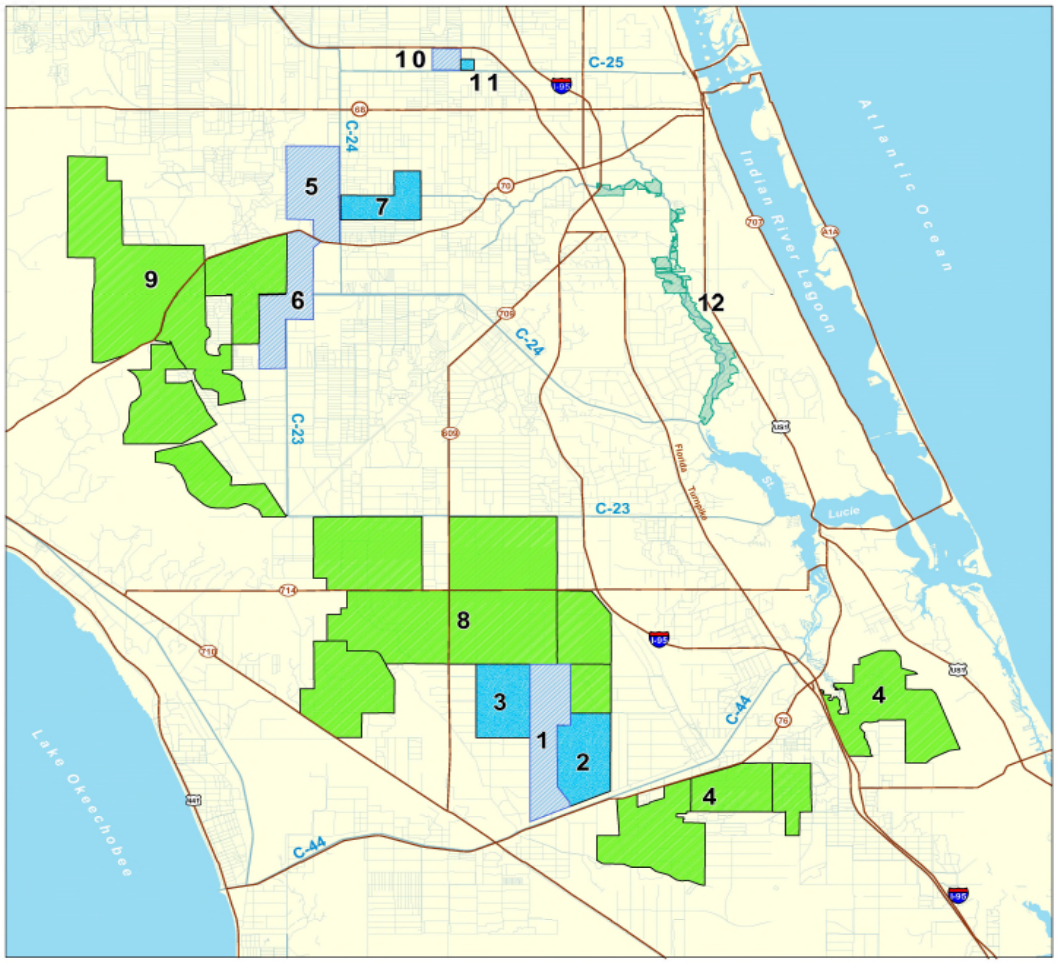
A significant portion of the Allapattah Flats property in Martin County, known as the Allapattah Ranch, and its surrounding properties were evaluated in 1996 as a potential acquisition under the Conservation and Recreational Lands and Save Our Rivers programs (**Map 11**). In 2001, approximately 42,000 acres (known as the Allapattah Complex) were included in the Indian River Lagoon Feasibility Study's recommended plan, a component of the Comprehensive Everglades Restoration Plan. (**Map 12**). The Allapattah Complex is one of three Natural Water Storage and Treatment areas that were recommended in the feasibility study. These features are expected to provide for restoration of the wetland/upland mosaic of the site and benefit the Indian River Lagoon by producing water storage in natural wetland systems.

In March 2002 the District acquired 13,186 acres of the original Allapattah Ranch. An additional acquisition of 7,261 acres occurred in January 2003, 961 acres in January 2004, and 764 acres in May-June 2008. Through monies collected from the Sales Tax Referendum (a bond issue approved in 1998 by Martin County voters that allowed a one cent sales tax to be used for land acquisition to protect the St. Lucie Estuary) Martin County allocated $10 million toward acquisition of the property in 2003-04, and $5.4 million in 2008. The County holds an ownership interest in all Allapattah parcels except the property acquired in 2004 west of Fox Brown Road (the Steele property). In 2002, the Natural Resource Conservation Service (NRCS) determined that the property qualified for enrollment in the Wetlands Reserve Program, and agreed to allocate $30 million toward acquisition and restoration, placing a conservation easement over 15,370 acres of the property. The agency subsequently allocated $4.3 million for a conservation easement on 645 acres that was acquired in 2008. In the late 1990s, NRCS also acquired an easement and restored the wetlands on 2,449 acres of privately owned land south of the District's Steele parcel west of Fox Brown Road.

Map 11: 2007 Aerial



Map 12: Indian River Lagoon South Recommended Plan, Project Components



Indian River Lagoon South Recommended Plan

C-44 Basin Components
1 C-44 - Reservoir
2 C-44 - Stormwater Treatment Area
3 C-23/C-44 - Stormwater Treatment Area
4 Palmar Complex - Natural Storage and Water Quality Area

C-23/24 Basin Components
3 C-23/C-44 - Stormwater Treatment Area
5 C-23/C-24 - North Reservoir
6 C-23/C-24 - South Reservoir
7 C-23/C-24 - Stormwater Treatment Area
8 Allapattah - Complex Natural Storage and Water Quality Area
9 Cypress Creek/Trail Ridge Complex - Natural Storage and Water Quality Area

C-25, Northfork and Southfork Basin Components
10 C-25 - Reservoir
11 C-25 - Stormwater Treatment Area
12 Northfork Natural Floodplain Restoration
13 Muck Remediation and Artificial Habitat

Natural Floodplain Restoration
Natural Storage and Water Quality Area
Reservoir
Stormwater Treatment Area

0 1 2 4 6 8 10
Miles

Figure 2

4. Resource Inventory

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

Floral and faunal species are inventoried, and natural communities are mapped by District personnel, volunteers, interagency partners, or private contractors. The data helps District land managers with resource management, planning, and monitoring efforts. Cultural resource surveys are conducted prior the initiation of restoration construction activities.

Inventory data is on file within Land Stewardship Section. Land Stewardship shares natural areas and species data with the Florida Natural Areas Inventory through a Memorandum of Understanding; cultural resource surveys are submitted to the Fl. Dept. of State's Division of Historic Resources.

4.1 Hydrology

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

The Allapattah Flats hydrographic region is located in the Eastern Valley physiographic region lying roughly parallel with the axis of the peninsula and immediately east of the Osceola Plain and west of the Green Ridge (**Maps 13-15)**. The Management Area lies within two surface water basins which drain 709 square miles (**Map 16**).

This hydrographic region, which historically extended from St. Lucie County to southern Martin County along a northwest to southeast drainageway, was known as Allapattah Flats. Topographic relief throughout the region is minimal, and across the project area varies north to south from 29.0' to 27.5' NAVD. Ground elevations in the deepest depressional wetlands are approximately 23' NAVD. Allapattah Flats was a large bowl that was contained by the Osceola Ridge on the west side (approximately where Fox Brown Road is located today) and the Green Ridge (I-95 corridor) to the east. The portion of the property west of Fox Brown Road drained to Lake Okeechobee, while the remainder of the site drained southeast toward the St. Lucie Canal. Allapattah Flats was dominated by a series of depression/basin marshes and wet prairies that paralleled the direction of flow.

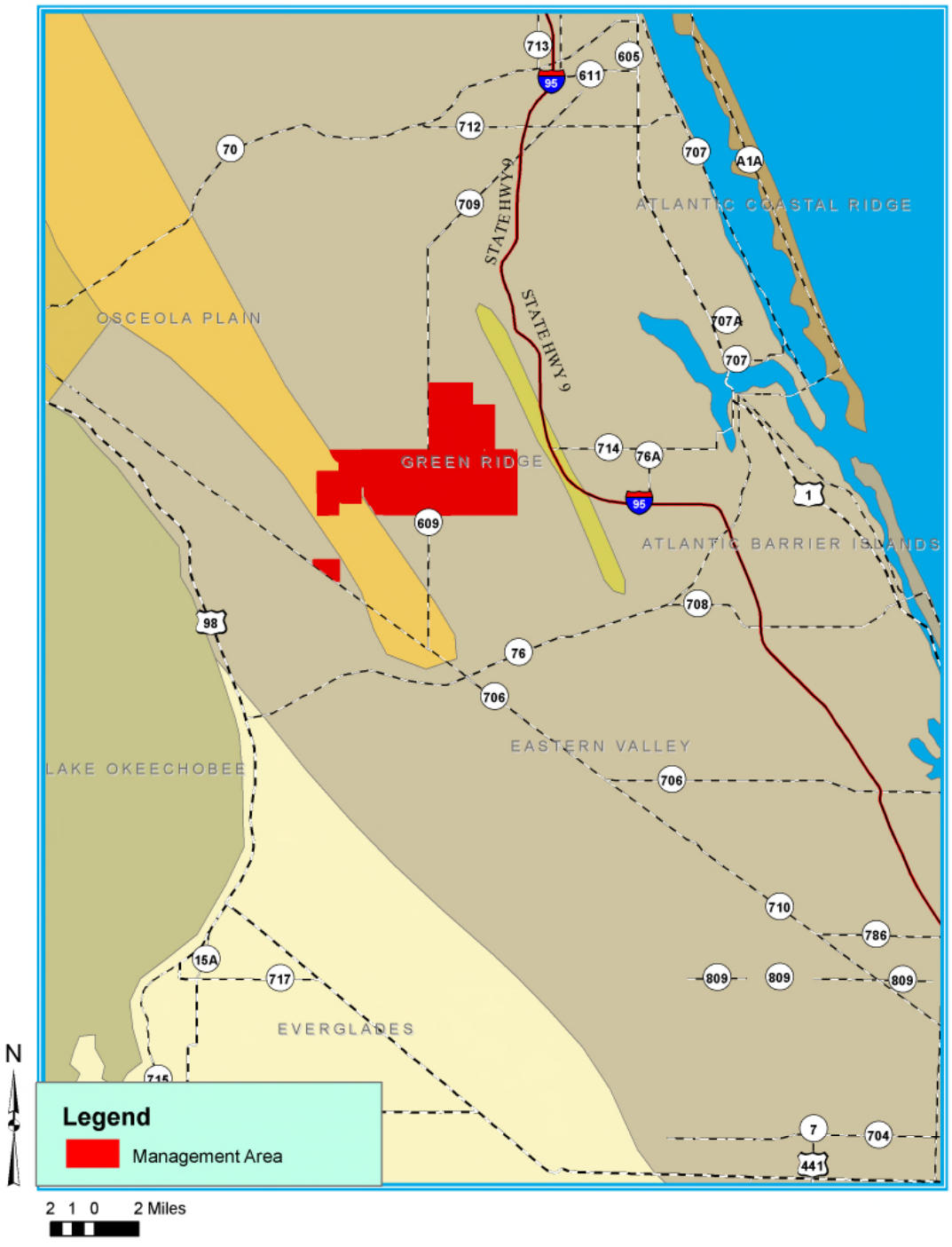
Approximately 11,000 acres east of County Road 609 (or 50% of the property) contains hydric soils and historically was wetland. Engineering and modeling analyses indicate that the appropriate wet season water elevation (post-restoration) in the wetlands should be approximately 27.3'. West of County Road

609 nearly 85% of the soils are described as hydric. Additional modeling efforts will be necessary to assess appropriate water depths in this area.

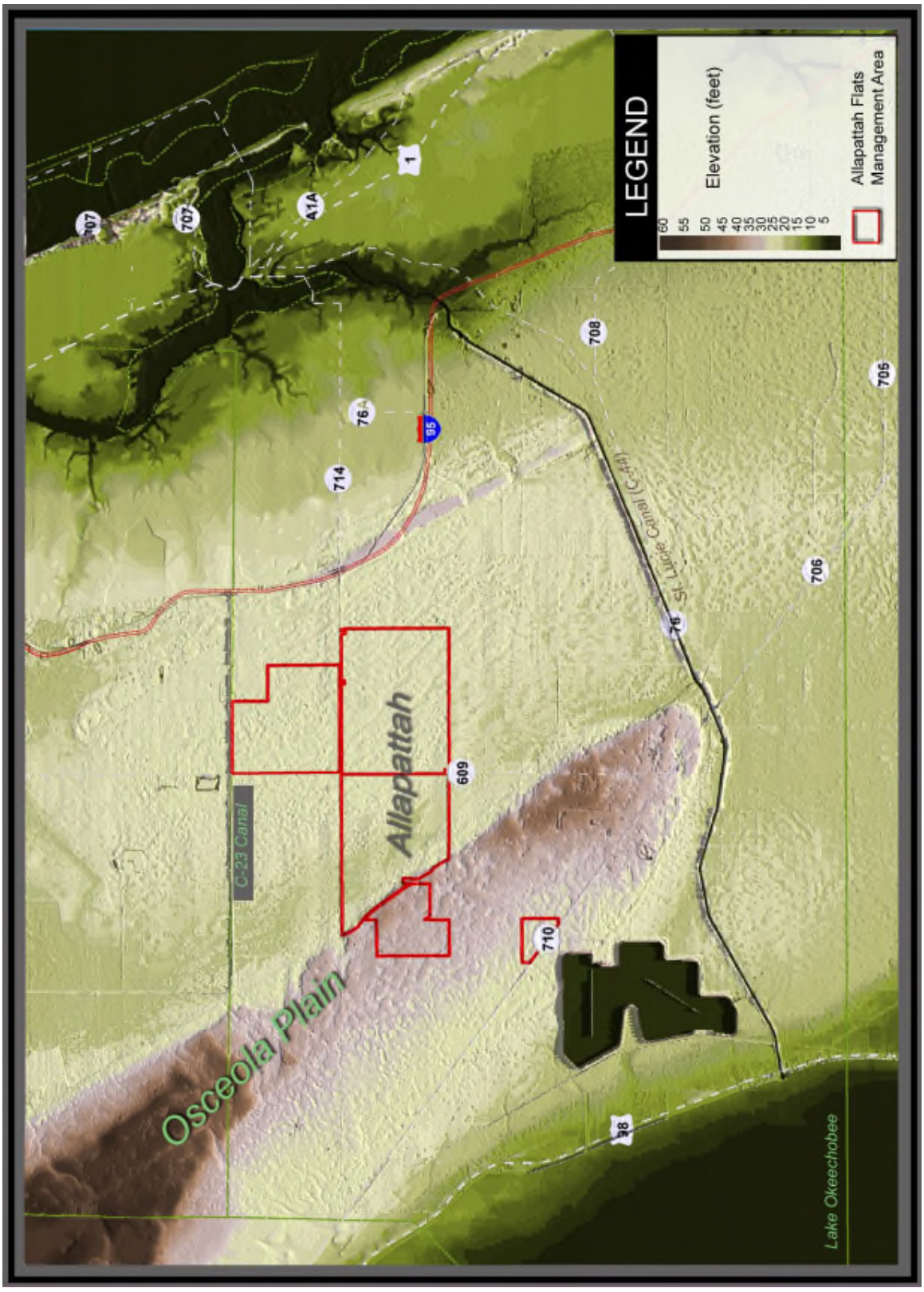
The management area has been severely over-drained by a series of ditches and swales that were excavated over the years to improve agricultural productivity. Three major north/south canals are located along section lines and drain to the C-23 canal (**Map 17**). An extensive network of shallow swales and ditches were dug in conjunction with agricultural activities that drained nearly all 11,000 acres of wetlands and lowered the water table over the rest of the property. The Management Area is also bisected by two county roads, County Road 609 and County Road 714, which have significantly affected sheetflow across the property. Two Florida Power and Light transmission lines traverse the property north to south. The easternmost line was constructed along a canal berm one mile east of SR 609 and has no hydrologic impact. The second line crosses the slough in the southwest part of the management area, between Sections 21 and 22.

A 120 acre depression marsh at the north end of Cottage Road in Sections 5 and 8 has been surrounded by a perimeter ditch/dike since the late 1950s. Prior to purchase of the property, this wetland was connected to the C-23 canal by a ditch/pump which brought water to the marsh for water storage/irrigation purposes.

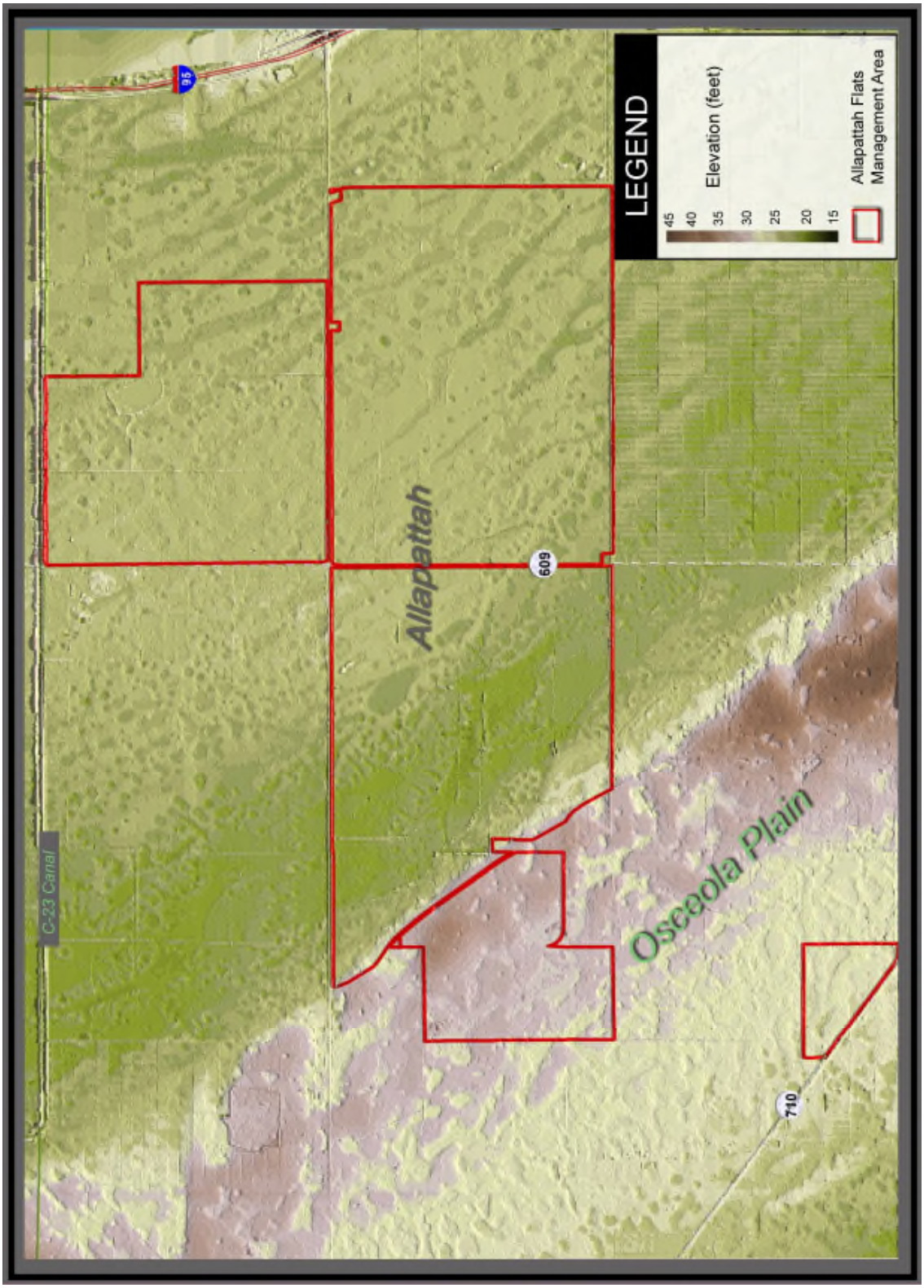
Map 13. Regional Major Geomorphic Features



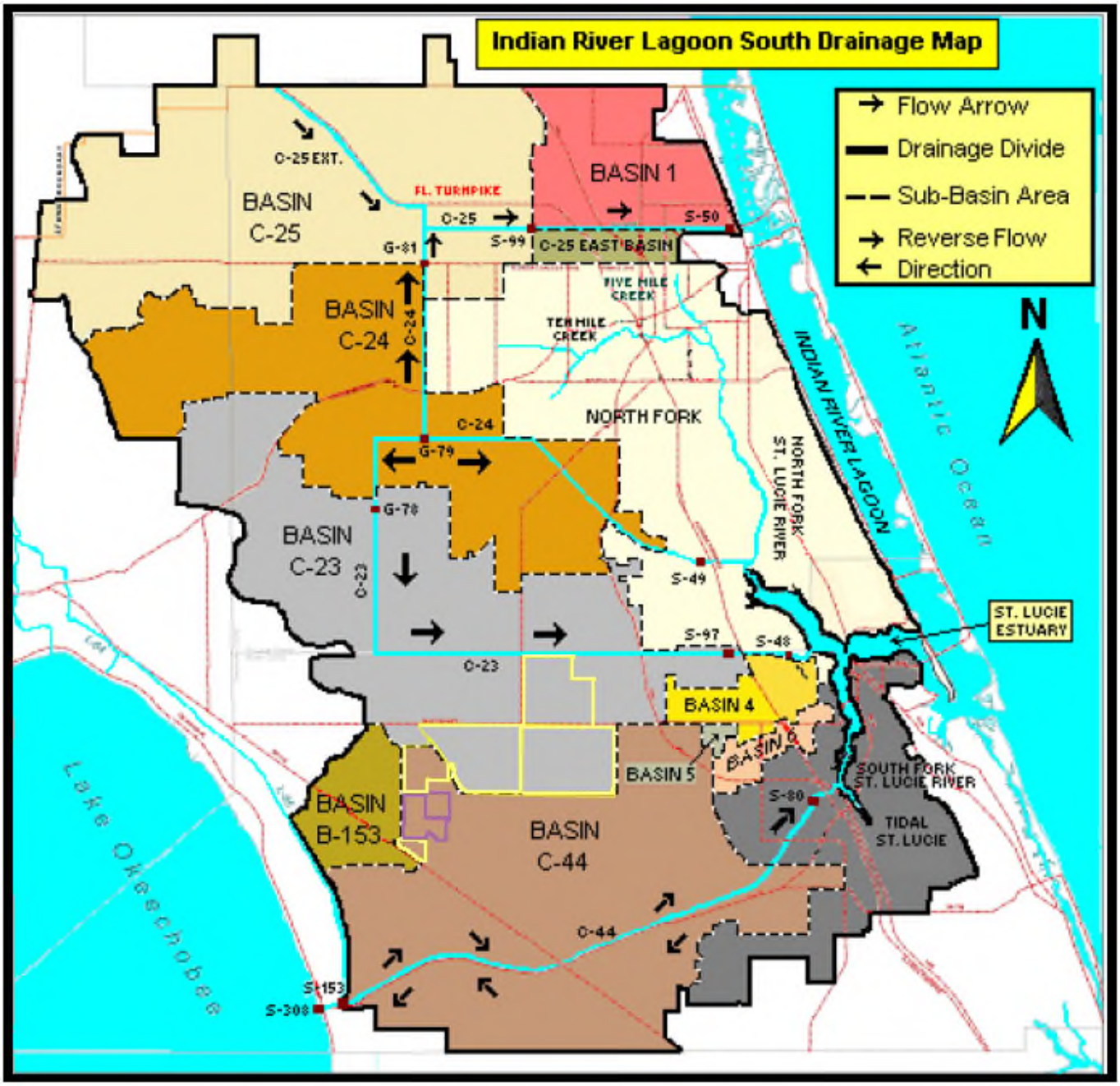
Map 14. Regional Topographic Setting



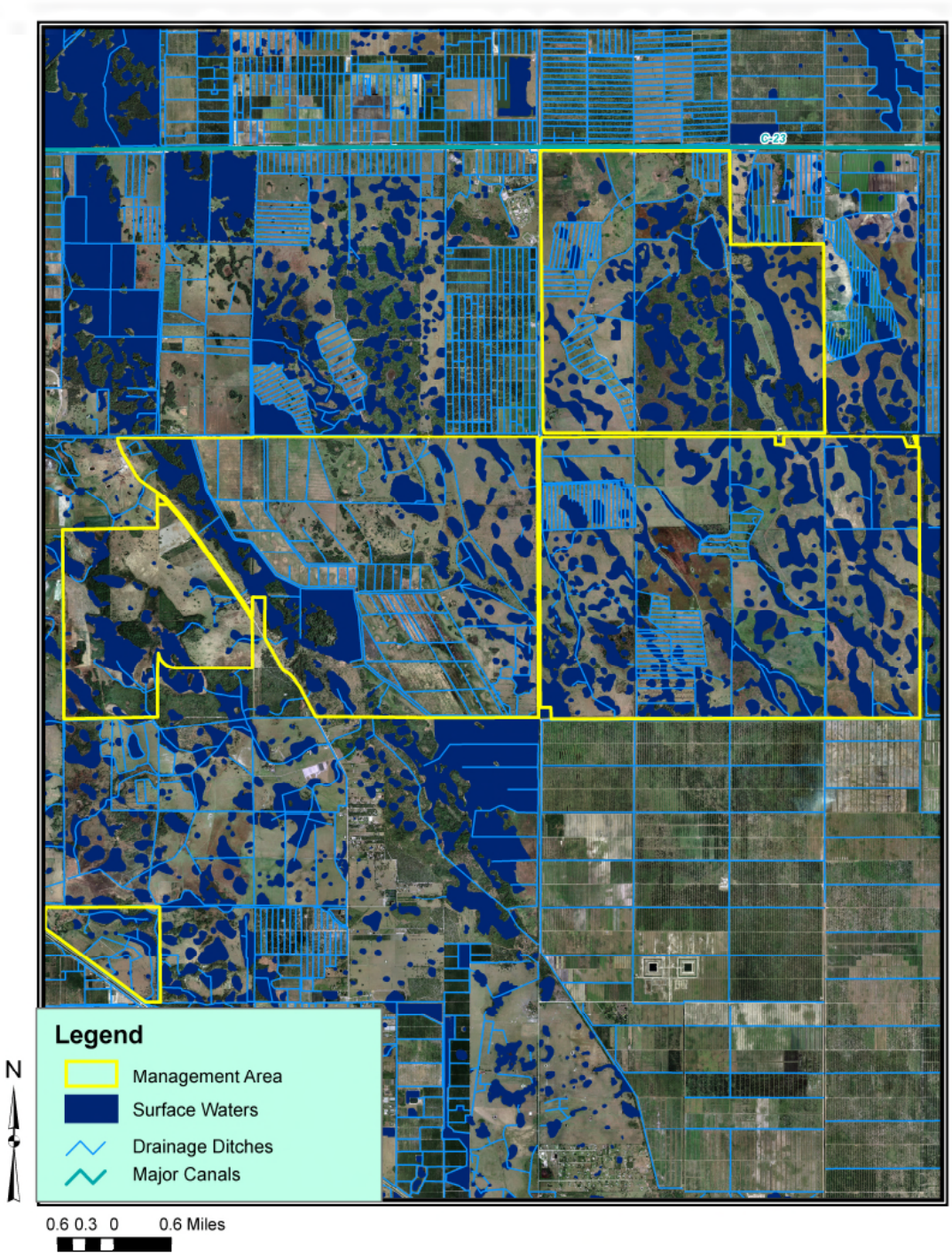
Map 15. Local Topography



Map 16. Regional Basins and Drainage Features



Map 17. Surface Waters



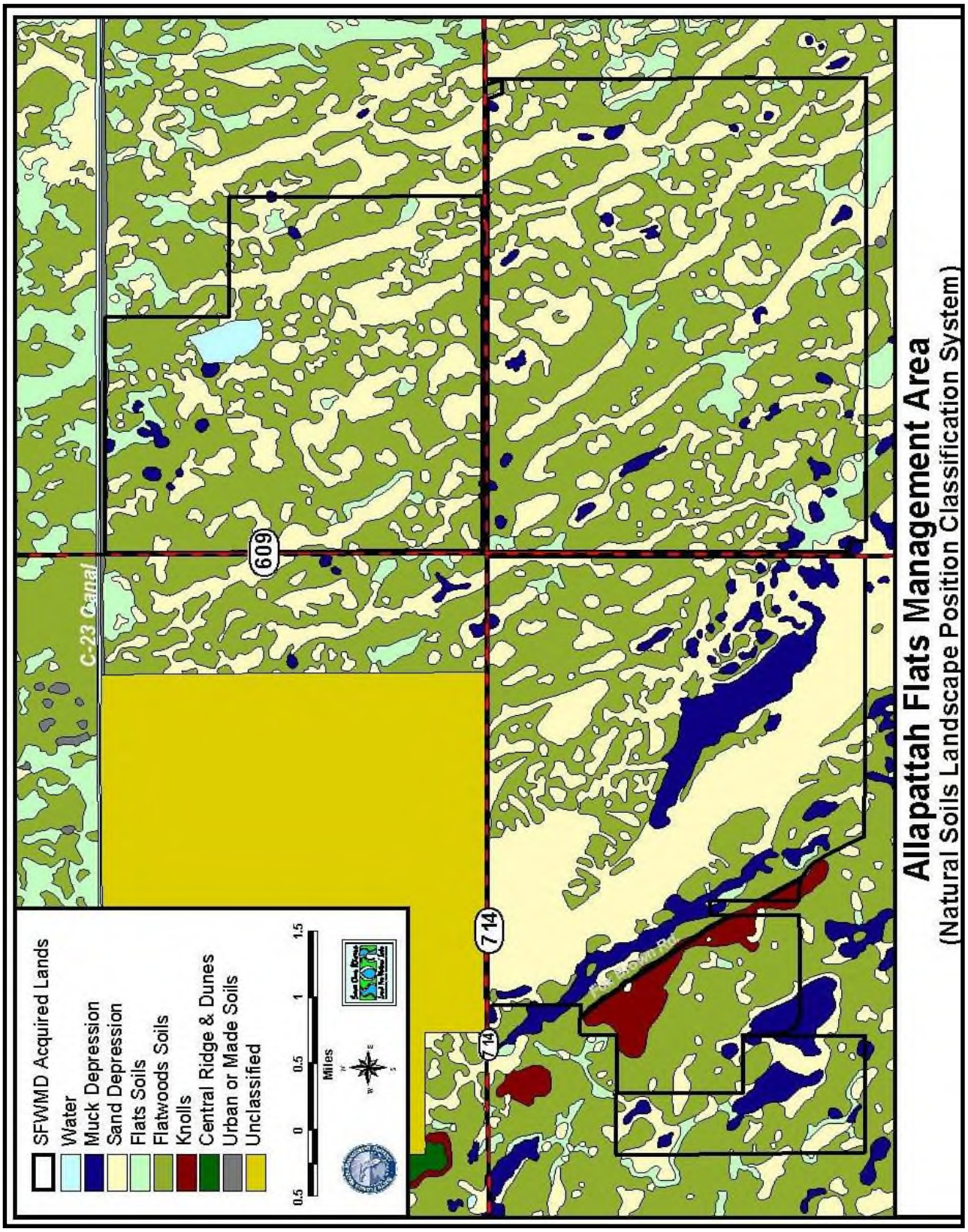
4.2 Soils

There are five distinct soil categories within the Allapattah Flats Management Area as defined by the Natural Soil Landscape Positions soil classification system: flats soils, flatwoods soils, knolls, muck depression soils, and sand depression soils (**Map 18**). This classification system groups South Florida soils into 12 categories based on hydrology and soil morphology that reflect the local relative topography, hydrology, and vegetation of the area. Soil classification descriptions are included as **Appendix B**.

Soil Contamination and Excavation Sites

Phase I and Phase II Environmental Site Assessments have been conducted to determine the presence or absence of contamination from petroleum storage and use, oil exploration activities, sportsman activities, pesticide and herbicide storage and use, and application of municipal waste on the Allapattah property. From March 3-11, 2003 soil excavations were conducted on Parcels A and B at six five-acre locations where elevated concentrations of pesticides presented a potential risk. In addition, three areas of petroleum impacted soil were excavated at two former pump stations and at the location of a former tracked vehicle. A total of 308 tons of pesticide and petroleum impacted soils were excavated for disposal at the Okeechobee landfill as non-hazardous waste. The environmental assessment on Parcel C also resulted in a number of recommendations for debris removal (four subsurface debris areas), excavation, transportation, and disposal of pesticide impacted and stained soil from the interior of the chemical mix/storage barn, and delineation, excavation, transportation and disposal of toxaphene and metal contaminated soils in a number of locations. Follow-up on these recommendations was completed in early 2004. Closure assessments consisting of soil and groundwater sampling were completed and multiple areas of miscellaneous solid waste were removed (*Phase I and II Environmental Site Assessment* – 4 volumes and *Corrective Actions Assessment Report*-1 volume).

Map 18. Soils

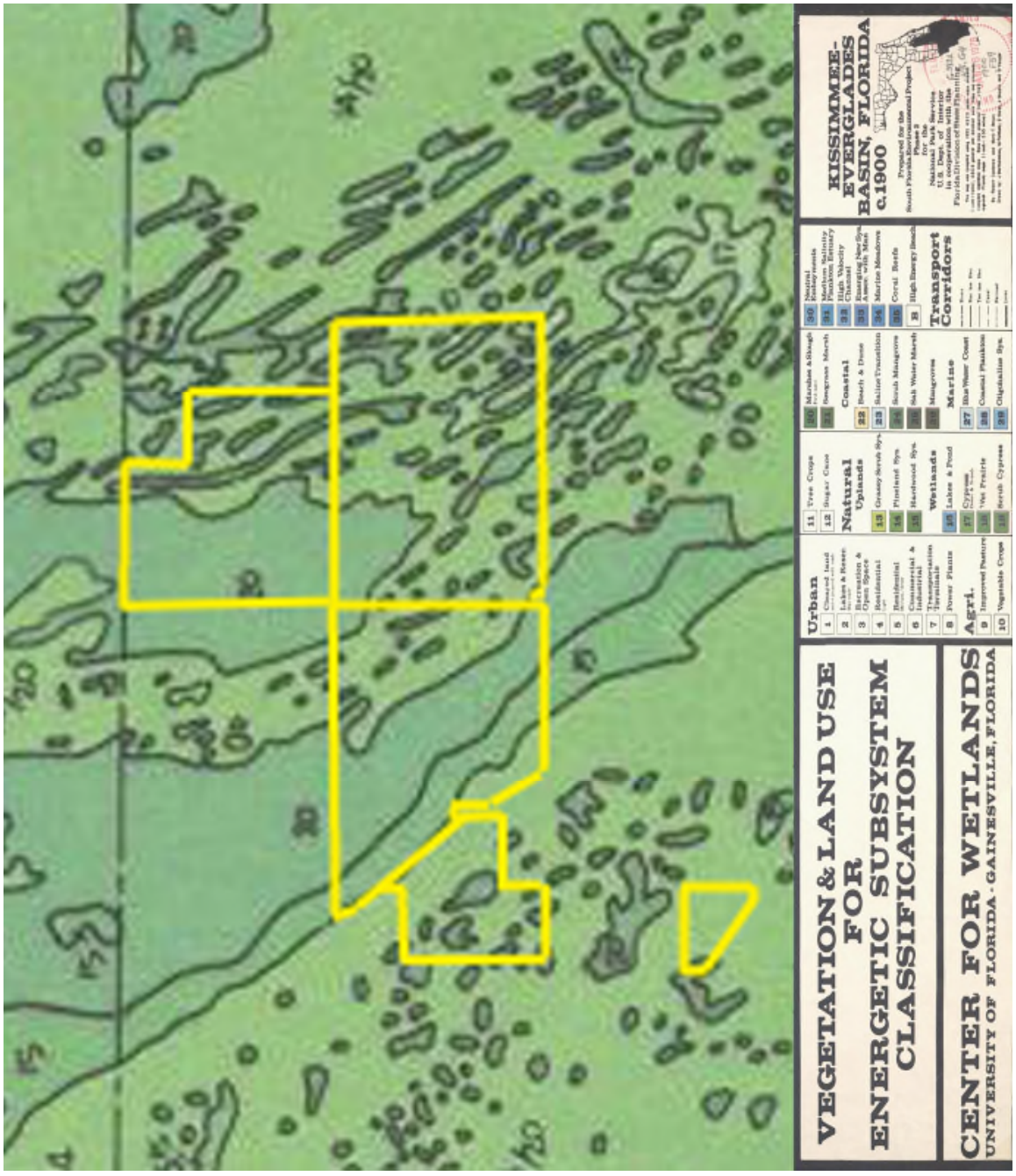

Allapattah Flats Management Area
(Natural Soils Landscape Position Classification System)
C-23 Canal
609
714
714
SFWMD Acquired Lands
Water
Muck Depression
Sand Depression
Flats Soils
Flatwoods Soils
Knolls
Central Ridge & Dunes
Urban or Made Soils
Unclassified
0.5
0
0.5
1
1.5
Miles

4.3 Natural Communities

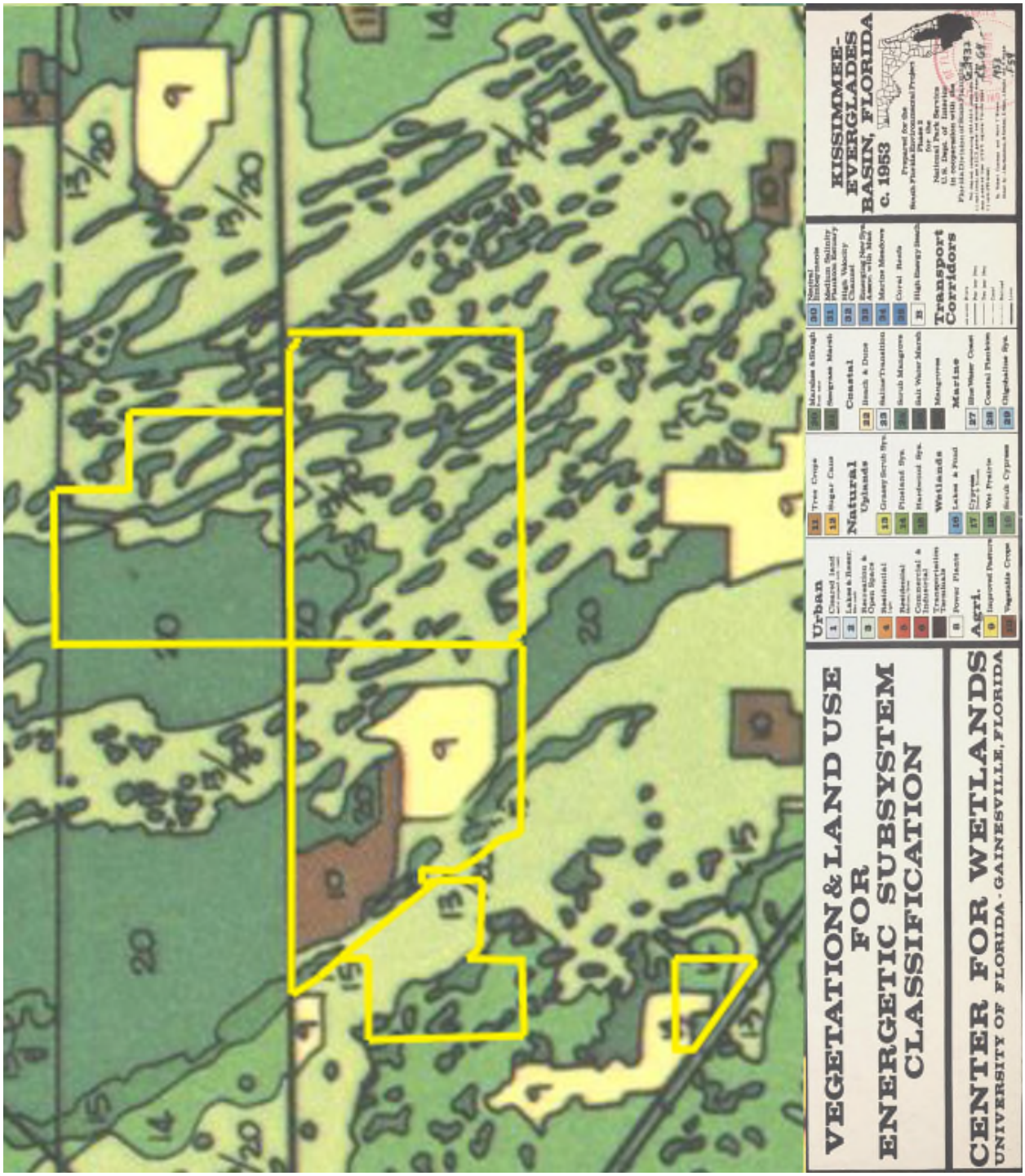
The Land Stewardship Program typically classifies natural community types by the Florida Natural Areas Inventory classification system. However, for Allapattah Flats a better picture of the natural resources may be obtained by comparing the communities that are present in its disturbed and overly drained condition with the communities that should be supported with restored hydrology based on the soils present. As such, **Maps 19-20** show the pre-drainage natural communities in 1900 and 1953, which were produced in the 1970s by the University of Florida's Center for Wetlands. **Map 21** illustrates the likely pre-drainage natural communities using the Natural Resources Conservation Service's classification based on soil type, and **Map 22** shows the community types present in 2003 using the Florida Fish and Wildlife Conservation Commission's classification based on LandSAT multi-spectral imagery. Based on the Commission's classification, ten natural community types comprise the Management Area. Actual community condition varies widely, depending on previous and current land use, hydrologic alteration, exotic infestation, and current management activities. Descriptions of the Commission's natural communities classification are included as **Appendix C.**

Allapattah Flats Management Area is a relatively disturbed expanse of improved pasture (bahia, limpo, and rhodes grass) that includes some remaining stands of south Florida slash pine, depression marsh, and wet prairie communities. A fairly significant strand system is located on the west side of the property near Fox Brown Road that is comprised primarily of hardwood wetland species (red maple, swamp tupelo, water oak). Habitat conditions vary widely, though most areas have been severely impacted by past drainage and agricultural activities. A vegetation assessment for Parcels A and B was initiated in 2002 in association with the continuation of grazing leases. An additional assessment was subsequently initiated for Parcel C. Additional work will be completed to monitor changes to wetland and upland communities as restoration activities progress. It is also anticipated that periodic assessments of pasture quality will be conducted to adjust the appropriate density and rotation of grazing animals as leases are re-let. Wetland community assessments, using Wetland Rapid Assessment Procedure, were completed in 2003 and 2004 and will be reassessed following restoration.

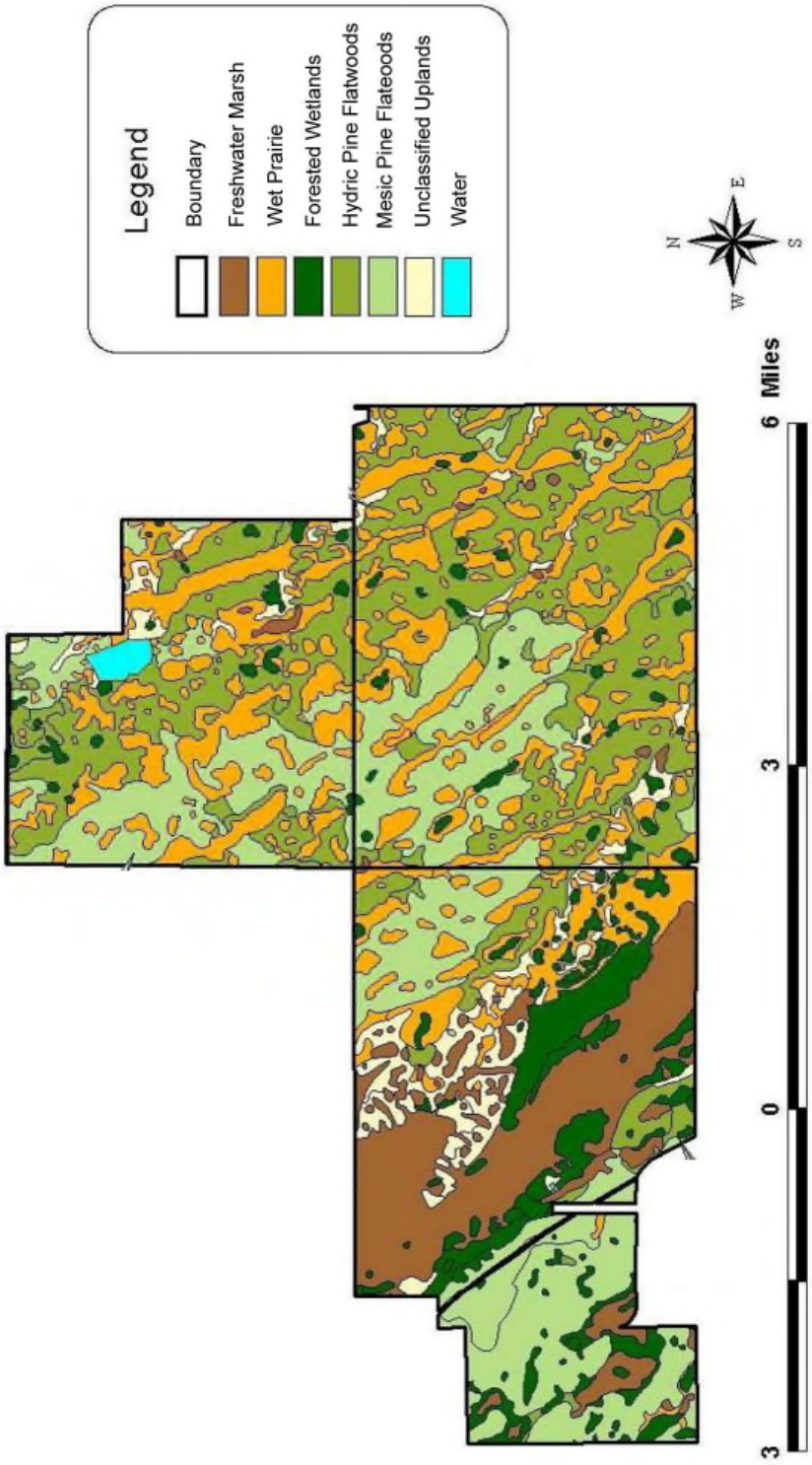
Map 19. 1900 University of Florida Land Cover Map



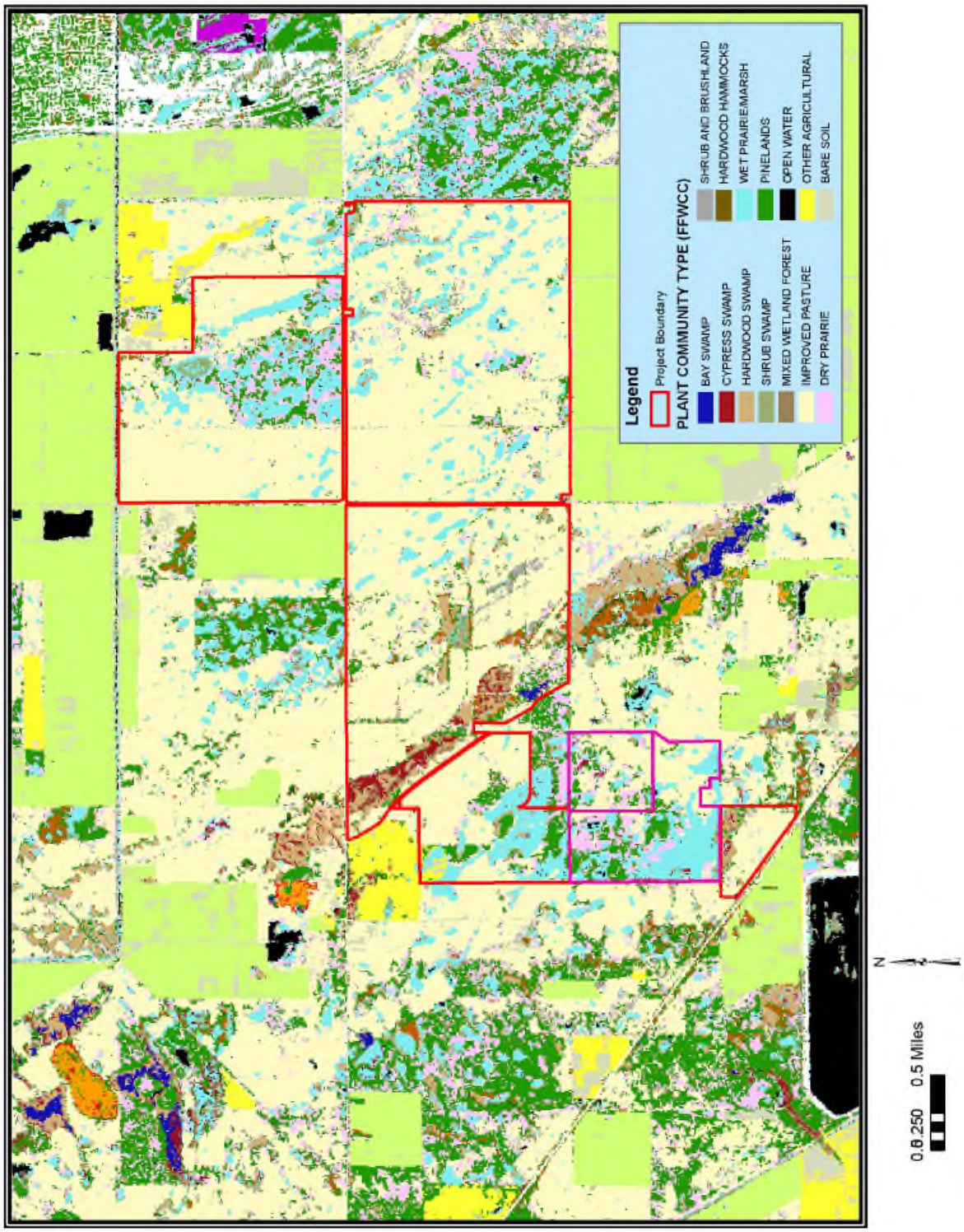
Maps 20. 1953 University of Florida Land Cover Map



Map 21. Natural Communities (Natural Resources Conservation Services classification, based on soils)



Map 22. Natural Communities (Florida Fish and Wildlife Conservation Commission classification, based on LandSAT multi-spectral analysis from 2003)



4.4 Wildlife

The plant communities within the project provide habitat for numerous bird, fish, amphibian, reptile, and mammal species, several of which are listed federally or by the state. Initial wildlife inventories on the Management Area were conducted from 2005 - 2007. As species observations and listing classification change, the species lists are updated accordingly. Wildlife species observed utilizing the property include 82 bird, 16 mammal, and 40 reptile and amphibian species (**Appendix D).** At least 16 species listed as endangered, threatened, or of special concern have been noted.

4.5 Cultural Resources

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

The District's management goal for cultural resources is historic preservation by identification, evaluation, documentation, protection, and stabilization of known historic or prehistoric sites. Additionally, as a federally sponsored Everglades Restoration and Wetland Reserve Program project, Section 106 of the National Historic Preservation Act is also applicable. The District maintains a database of all known archeological and historical sites on District properties that is periodically updated through the Department of State's Master Site File. Due to its sensitive nature, site-specific data is not made available to the general public.

A cultural resources survey completed for Martin County in the mid 1990s indicates that a portion of Allapattah is considered an archaeological zone. There are several named archaeological sites known to exist on the property and three buildings have been designated as being of local historic interest. The U.S. Army Corps of Engineers completed a preliminary review of 1940s photography to identify potential cultural resource sites and conducted an examination of the property in 2003 that identified two additional black dirt midden sites. The District, in cooperation with the Corps and the State Historical Preservation Office, maintains a database of all known archaeological and historical sites on the property and plans management activities, particularly those that are invasive or ground disturbing, to avoid impacting these areas.

5. Natural Resource Management

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

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

5.1 Restoration Projects

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

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

Under the Comprehensive Everglades Restoration Plan, the restoration of Allapattah Flats is a component of the Indian River Lagoon – South project. Allapattah was extensively drained between the 1950s and the 1980s. Following rain events, water quickly and efficiently drains off the site and into the regional canal system that empties into the Indian River Lagoon. This runoff can have a negative impact to lagoon ecology by altering the salinity and nutrient levels within the lagoon.

The overall Indian River Lagoon – South project calls for the construction of large reservoirs and stormwater treatment wetlands to capture excess water from the basin, store it, then (after filtering out the majority of the nutrients) release it slowly through the dry season. The largest of these projects, lying immediately south of Allapattah Flats, is the 13,000-acre C-44 reservoir and stormwater treatment area which is under construction and nearing completion.

The restoration of large areas of natural wetlands within the basin, such as those being restored within Allapattah, compliments the work of these reservoir and treatment projects. Once restored, water is retained on-site over thousands of acres of natural wetlands, rather than rushing into the drainage canals and heading out to the lagoon. Held on the landscape, the water gradually seeps off the area underground and evaporates or transpires directly to the atmosphere, sparing the lagoon from a sudden rush of nutrient laden fresh water.

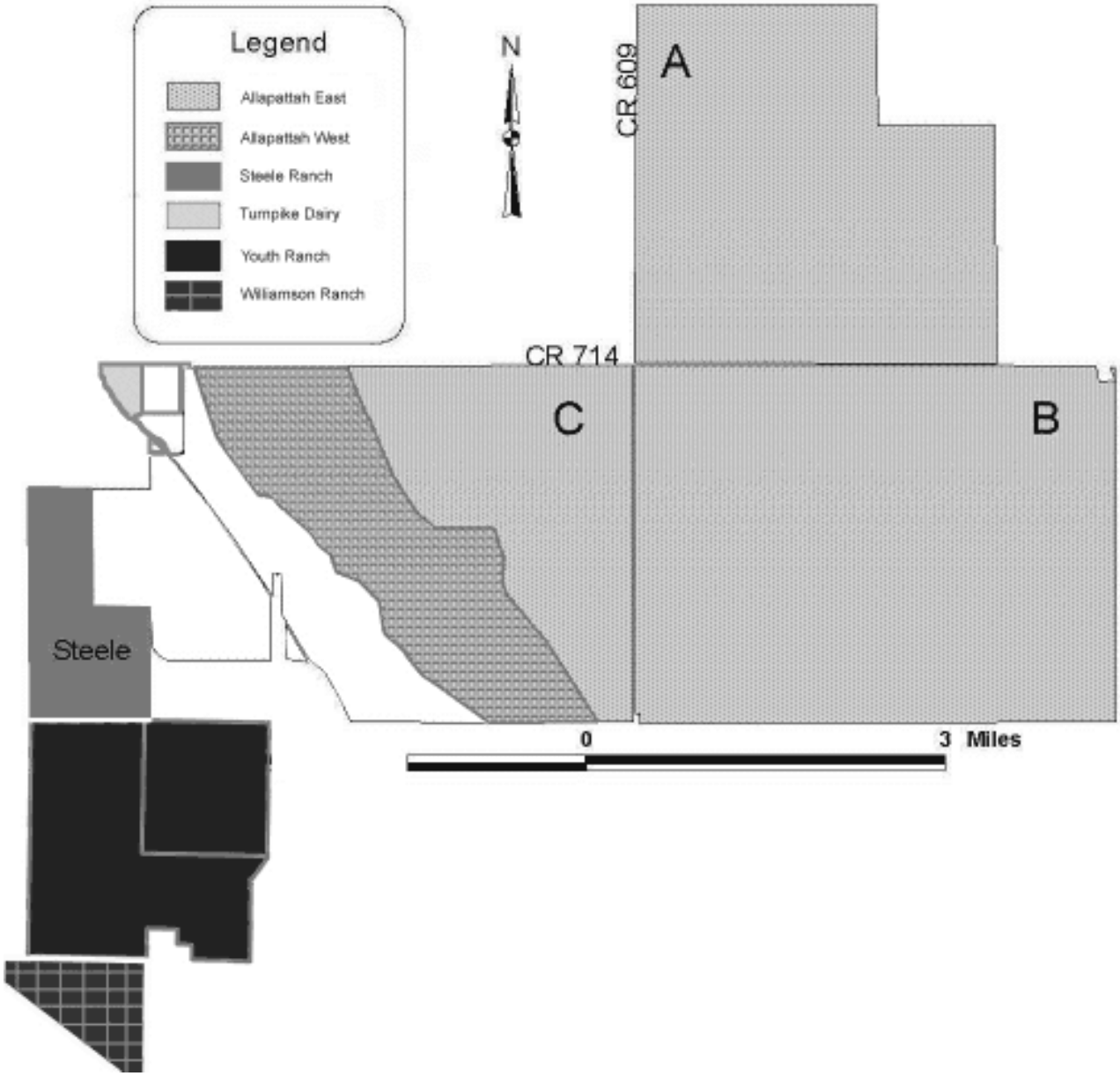
In addition to the regional benefits, the restoration of Allapattah Flats will have considerable on-site benefits for wildlife. Extensive wet prairie systems were once found throughout the south Florida region. Most of these areas were eliminated in the later half of the 20th century through agricultural conversion and drainage. The Natural Resources Conservation Service's Wetland Reserve Program was established to partner with landowners to restore areas of converted wetlands. Wetland Reserve Program easements were acquired over much of the Allapattah area, and the Natural Resources Conservation Service has been a full-partner in the restoration of the area.

Map 23 depicts the various planned and completed restoration areas. The first area restored by The Natural Resources Conservation Service was the site of the former Sheriff's Youth Ranch. This area is currently owned and operated by a private exotic game outfitter. The restoration of the Steele property, which is largely a flatwood/depression marsh community, is being achieved through exotic species control, vegetation management, and prescribed burning.

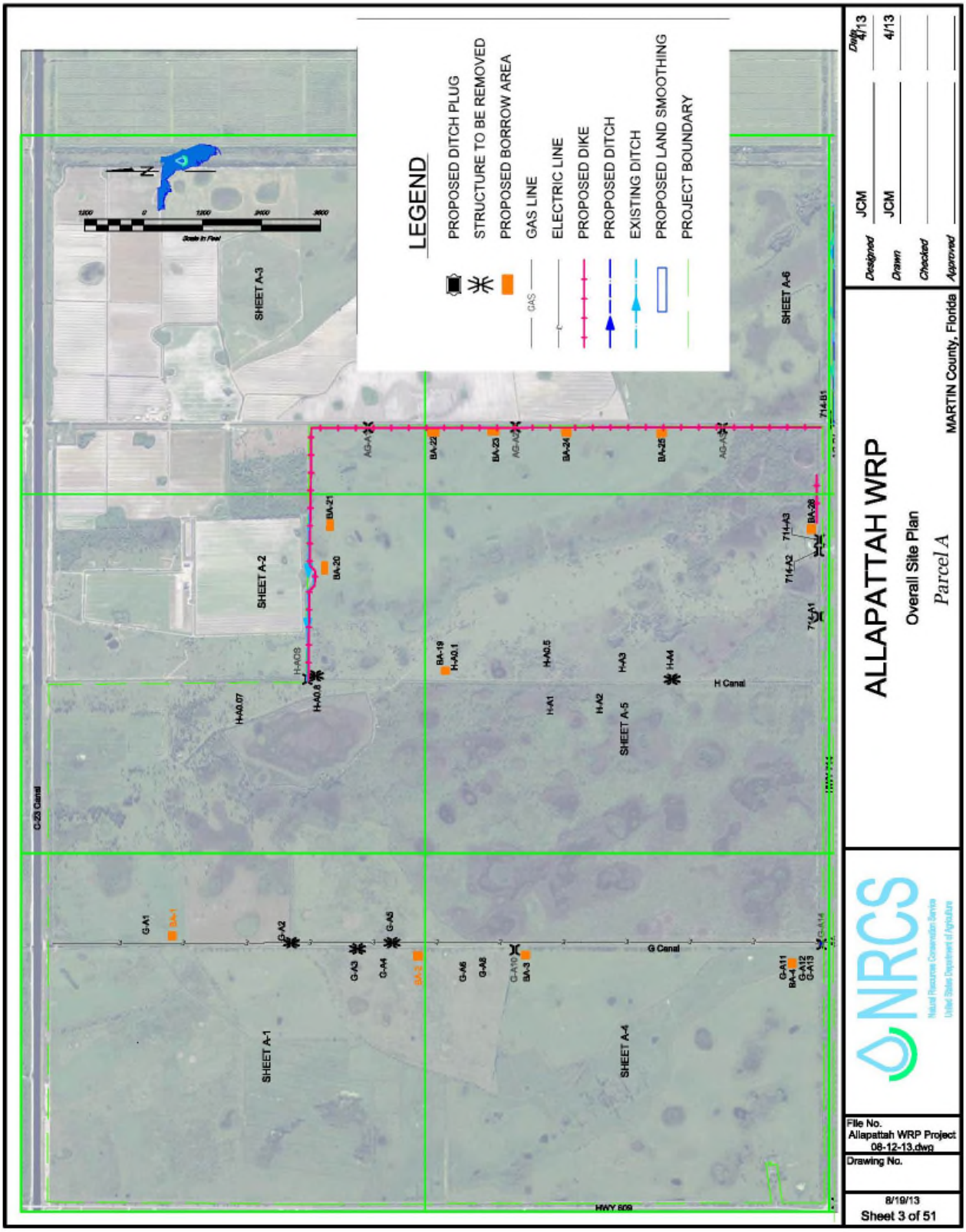
The hydrologic restoration of Williamson Ranch and Turnpike Dairy were completed in 2014 by the Natural Resources Conservation Service and involved filling and plugging drainage ditches within the property. Initial restoration work in Parcel A, primarily in the western half of the parcel, was completed between 2003 and 2007 by the District with a significant financial contribution from the Natural Resources Conservation Service. A large concrete control structure was installed on the main outfall of the primary drainage ditch on the C-23 canal. This structure is used increase groundwater and surface water levels throughout the parcel. A smaller flashboard control structure was installed on a secondary ditch on Cottage Road in 2014. Several large areas in Parcel A were planted with slash pines in 2003. These were purposely planted in much greater density than were historically on the site to break-up the bahiagrass sod with the thick pine straw duff that would eventually fall from the trees. To date, the pine trees have had considerable success in breaking up the sod. Ruderal and pioneering native groundcover plants have established under the trees. Over the period of this plan it is anticipated that the trees in these areas will be thinned to a more natural density and fire reintroduced to encourage greater species diversity.

Restoration Plans for the remainder of Parcel A and all of Parcel B (**Map 24**) have been completed and permitting is anticipated to be completed in Fiscal Year 2015. The plan calls for the installation of ditch plugs, filling in ditches, and constructing a levee near the eastern boundary.

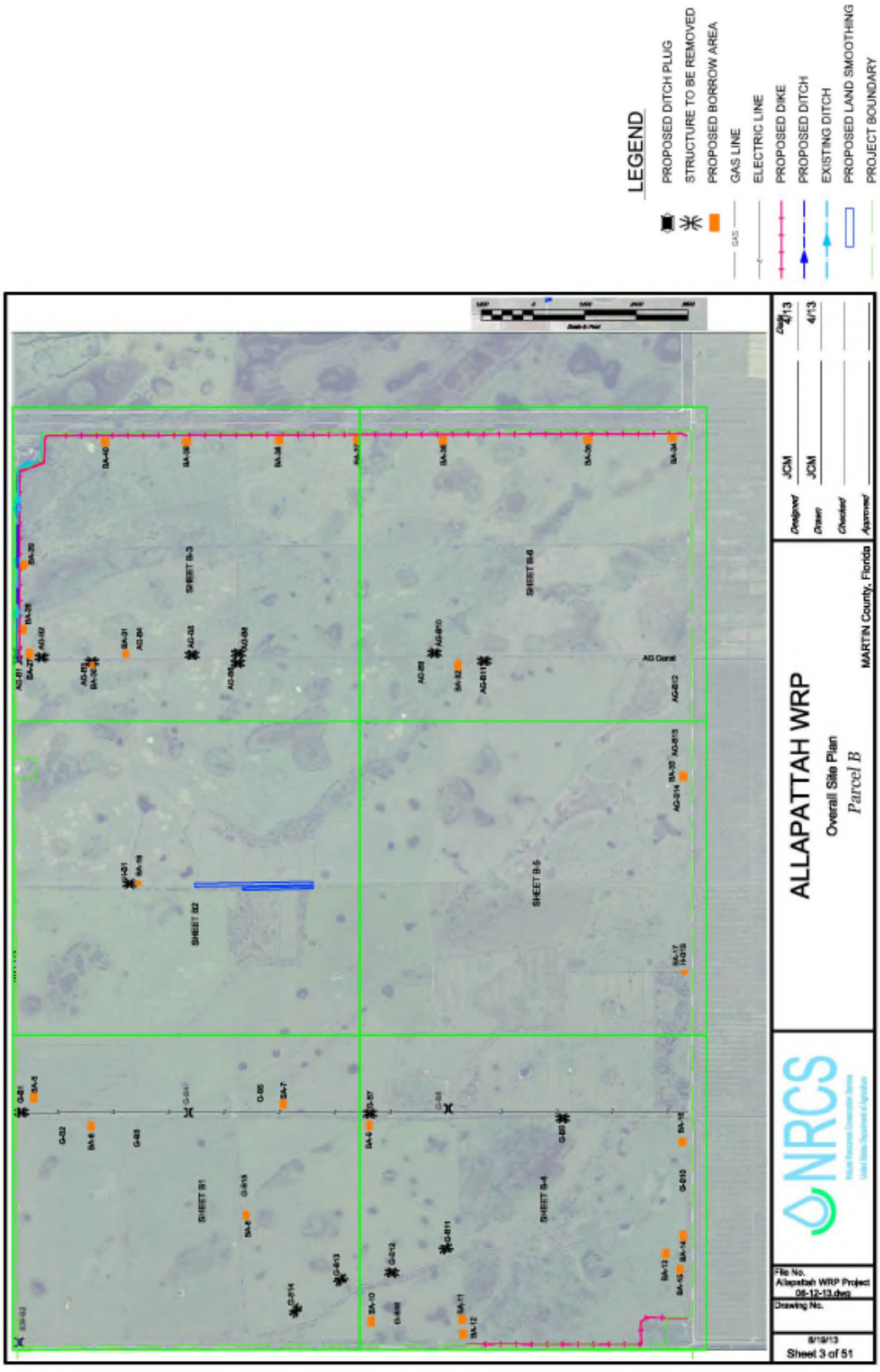
Map 23. Allapattah Restoration Areas



Map 24a. Allapattah Parcel A Restoration Plan



Map 24b. Allapattah Parcel B Restoration Plan



5.1.1 Monitoring

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

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

An overall monitoring plan is being implemented to address the efficacy of achieving the restoration and management objectives that have been established for the Allapattah Flats property as a component of the Indian River Lagoon Feasibility Study. The monitoring plan is included as part of the project's integrated Project Implementation Report and Environmental Impact Statement that is available to view at www.evergladesplan.org. It generates the types and frequencies of data necessary to adequately evaluate the following factors:

- Quantity of water retained
- Quality of water retained
- Quantity of water discharged
- Quality of water discharged
- Timing of water discharged
- Ecosystem response to changes in hydroperiod depth and duration
    - Increase in spatial extent of wetlands
    - Increase in habitat value for fish and wildlife

5.2 Vegetation Management

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

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

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

- A step towards restoring a degraded vegetative community
- Improving an area's suitability as wildlife habitat

- Exotic species control or weed management
- Fuel management for prescribed burning purposes
- Clearing of vegetation for maintenance or project management purposes.

Historically, Allapattah Flats was dominated by wet prairies and wet flatwoods that were generally open landscapes peppered with small stands of south Florida slash pine with low shrub vegetation and herbaceous ground cover, interspersed with numerous depression marshes. In addition, the western portion of the property included linear strand swamp communities. These landscapes were maintained by seasonal flooding and frequent natural fires. Over much of the site, many of the slash pines were cleared for pasture improvement. In the remaining forested areas, over-drainage and fire suppression have resulted in dense stands of nuisance shrubs, particularly wax myrtle.

Vegetation management needs are identified annually by the regional land manager. Vegetation control and maintenance is executed by District staff or through contracts. Understory restoration will continue in overgrown areas of the Management Area that would benefit from this work.

5.2.1 Exotic/Invasive Plant Species

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

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

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

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

Invasive and exotic plant control measures include a combination of herbicide application, biological control, prescribed fire, roller chopping, mowing, cattle

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

Exotic plant control is conducted primarily by a contracted crew of applicators. District field technicians also provide supplemental support especially on small or sporadically distributed infestations. Treatments are generally scheduled so that each unit is covered bi-annually, however schedules are adjusted based on current conditions. Areas of treatment are scheduled based on hydrologic conditions, time since last treatment, virulence of infestation, public use, and in accordance with other management operations. All treatments follow herbicide best management practices and use the best available science. Treatment dates, locations, and herbicide are noted and recorded in a GIS database.

Brazilian pepper is commonly treated on-site. It grows aggressively along the drainage ditches and in the open pastures, particularly if cows are removed from an area for more than a few months. Lygodium, or old world climbing fern, is treated whenever it is found in order to keep this very aggressive plant from establishing within the management area. Various grasses, such as cogon grass and para grass are problems in some areas and are regularly treated. The District has received financial support from the Natural Resources Conservation Service to treat exotics on the portions of the management area that have a Wetlands Reserve Program easement.,

5.2.2 Rare, Threatened and Endangered Plant Species

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

Listed species are those plants and animals considered rare within a specific geographic area by the U.S. Fish and Wildlife Service, the Florida Fish and Wildlife Conservation Commission, Florida Natural Areas Inventory, or the Florida Department of Agriculture and Consumer Services (**Table 1**). The plant list of the Management Area (**Appendix D**) contains several listed species.

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

lawful protection and environmental conditions suitable for their growth and reproduction.

Table 1. Listed Plant Species found on Allapattah

Common name	Scientific name	State Designation
Pine lily	*Lilium catesbaei*	Threatened
Leather fern	*Acrostichum danaefolium*	Commercially exploited
Royal fern	*Osmunda regalis*	Commercially exploited
Cinnamon fern	*Osmunda cinnomomea*	Commercially exploited
Giant wild pine	*Tillandsia utriculata*	Endangered
Cardinal wild pine	*Tillandsia fasciculata*	Endangered
Reflexed wild pine	*Tillandsi balbisiana*	Threatened
Twisted wild pine	*Tillandsi flexuosa*	Threatened
Soft-leaved wild pine	*Tillandsi variabilis*	Threatened

5.2.3 Forest Resources

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

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

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

- Sites considered for high-density pine plantings are currently in an "improved" or disturbed state (i.e. bahia pasture, existing pine plantation)
- Sites to be harvested are scheduled for hydrologic restoration and existing timber will likely be lost as a result of flooding
- The area does not contain any significant 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 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 has special needs for endangered species (e.g., red-cockaded woodpecker) management that requires timber harvesting
- Harvesting or planting would not negatively impact public use
- Timber harvests would return forests to a more natural structure and improved forest health

Much of the upland forest structure of Allapattah has been compromised by previous logging and agricultural use. Most of the property has been converted to improved pasture, though a few areas of wet and mesic flatwoods remain. Additionally, a fairly significant strand swamp is located on the western side of the property east of Fox Brown Road. As the restoration progresses attention will be given to restoring the form, function, and structure of forested communities, as well as the herbaceous wetland communities. Several methods for understory restoration with native plant material will be attempted on a limited basis, as there currently is no affordable method for effectively achieving this kind of restoration on such a large scale. One of the biggest obstacles to restoring understory and ground cover species in former pastures is competition from non-native grasses, particularly bahiagrass. However, as hydrologic conditions are improved, native wetland species may begin to push out the bahiagrass. This has been observed throughout the restoration areas of parcel A and other restoration sites in Martin County.

In 2004-2005 the District began its first reforestation efforts at Allapattah and planted 375,000 bare root pine seedlings. Allapattah historically had very sparse pine coverage of perhaps around five to six trees per acre. The anticipated coverage post-restoration would likely not be sufficient to necessitate timber thinning; a possible exception being those areas where pines have been planted intentionally too dense as part of the effort to shade out the bahiagrass.

5.2.4 Agricultural and Range Resources

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

Livestock grazing has occurred over the last century within south and central Florida and continues to be an important land use today. Prior to acquisition, the property was managed as the Allapattah Ranch, with cattle grazing as the primary land use. Cattle grazing is employed by the District and other land management agencies as a management tool, particularly for the reduction of fuel loads and maintenance of open habitat for the benefit of native wildlife. The revenue producing lease program provides many benefits, such as:

- On-site management and security for District-owned lands at no cost to the District
- Minimizing District expenses by generating revenue from non-governmental sources to off-set District management, maintenance and resource protection costs
- Minimizing impacts to the local agricultural economy by keeping viable agricultural lands in active production for as long as possible

- Minimizing fiscal impacts of public land ownership to the local government by keeping lands on the tax roll
- Vegetation control and wildlife habitat improvement

The District often exercises the option to lease grazing rights to the public when a property is acquired. Lease terms include a maximum stocking rate based on forage availability and the assignment of certain management responsibilities that may include, but are not limited to infrastructure maintenance and/or fence construction and repair. The District restricts activities that could be detrimental to the environmental integrity of the area and requires all lessees to implement best management practices as provided by the Florida Department of Agriculture and Consumer Services. Leased lands remain on the county property tax rolls with the tax payments paid by the lessee. There are 7 active leases on Allapattah (**Map 25**). The grazing within the Wetlands Reserve Program easements are authorized under a Compatible Use Authorization from the Natural Resources Conservation Service. The cattle leases recognize that the areas are open for public use.

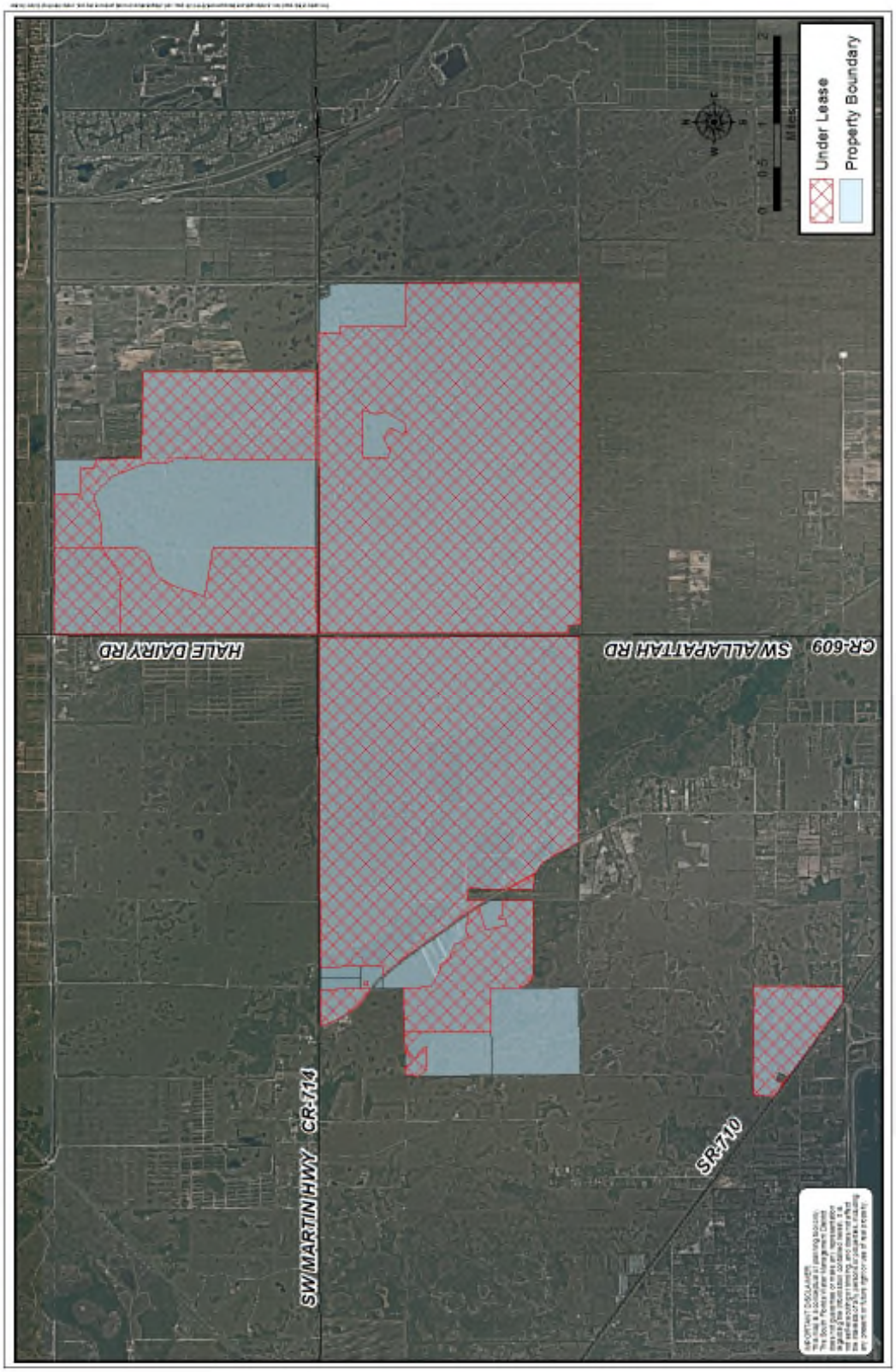
A grazing plan has been developed by the Natural Resources Conservation Service for Parcel A, which was the first area to undergo hydrologic restoration work (**Appendix F**). The grazing plan anticipates that as wetlands are restored there will be a gradual reduction in the number of animal units. Areas that have been disturbed and planted with native vegetation shall be deferred from grazing for a minimum of one complete growing season or until native grasses and other herbaceous species are well established and produce seed. Reforested areas will be removed from active grazing for a minimum of three years. The property will be frequently reassessed to ensure that grazing continues to be compatible with restoration goals and objectives.

5.3 Fire

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

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

Map 25. Grazing Leases



5.3.1 Fire History

Recent fires within the Management Area have occurred as prescribed burns and wildfires. Dates and locations of prescribed burns are shown in **Map 26**. To date, burns have primarily occurred in areas that contain native fire-dependent plant communities. Areas of pasture grasses have not been burned as frequently due to limited fuel loads and environmental benefits, but will be brought into the rotation as hydrologic restoration is completed to encourage the transition to native prairie and wet-flatwood grasses. The goal of the prescribed burn program is to apply fire, as necessary, to maintain the natural fire regime of the Management Area.

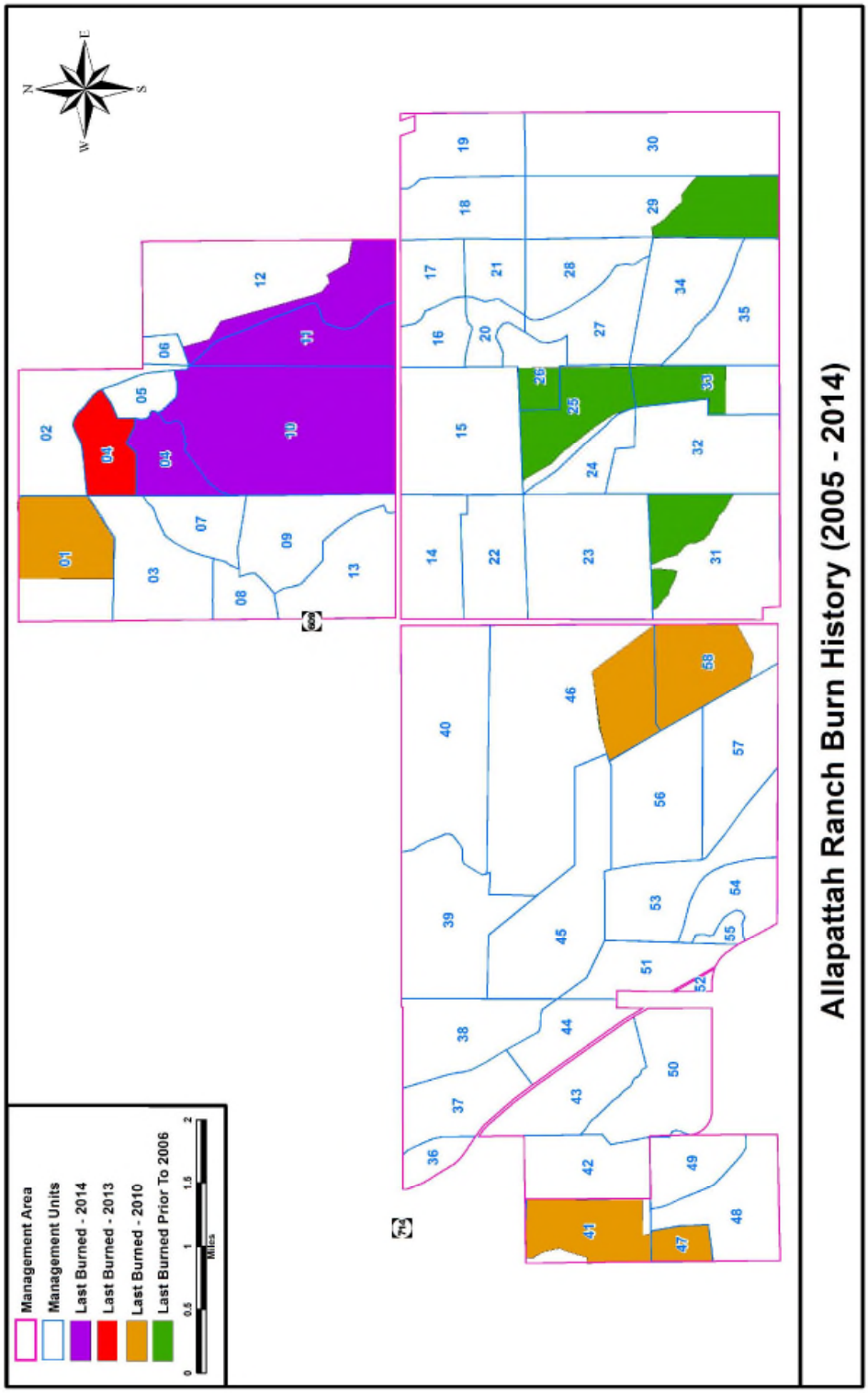
5.3.2 Prescribed Fire Planning

Burn units have been established within the Managent Area. Seasonal planning considers potential burn areas based on their location, natural community types, fire history, and fire management objectives and constraints. The Land Stewardship Section bases fire management plans on ecological research and professional experience. Fire frequency schedules for each natural community consider recommendations provided in *The Natural Communities of Florida* (Florida Natural Areas Inventory, 1990). To mimic historic fire conditions, Land Stewardship emphasizes growing season burns (April-September) where practical. Natural firebreaks are utilized where possible to promote historic fire patterns, avoid soil disturbance, and reduce hydrologic flow disruption created by fire lines. Application of fire, with appropriately timed herbicide treatments, is used as a tool for the control of exotic and invasive plants.

Burns are executed using proven methods as defined by the Prescribed Burning Act of 1990, Chapter 590.026 Florida Statutes. This legislation and associated administrative rules outline accepted forestry burn practices and are administered through the Florida Forest Service. Land Stewardship relies on District staff stationed at the DuPuis Management Area and the Okeechobee Service Center to assist in the burns. All Land Stewardship staff who participate on the burns have completed the state certified burn course to ensure safety and proper technique.

Prescribed fire is applied within the Management Area at appropriate fire intervals for each natural community. The District concentrates on applying fire to each area of the property in order to reduce accumulated fuel loads, improve wildlife habitat, and provide a safer basis for future burns of increased frequency and lower intensity. Planning will emphasize achieving annual burn acreage goals within the appropriate fire intervals. District staff may conduct prescribed burns at anytime during the year to take advantage of suitable water levels and weather conditions.

Map 26. Fire History



Prescribed Fire and Carbon Sequestration

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

Prescribed fire guidelines for maximizing carbon storage that the District considers when conducting prescribed burns include:

- Burning at 3 to 5 year intervals
- Conducting late winter burns
- Implementing a proper mop-up phase of the prescribed fire to extinguish smoldering stumps is important to reduce unnecessary carbon and nitrous oxide releases, flaming combustion releases much less carbon than smoldering combustion
- Avoiding muck fires and conditions that lead to muck fires as they release large quantities of carbon and nitrous oxide
- Keeping fuel density low to avoid the possibility of massive carbon releases in wildfire

5.4.3 Wildfire Suppression

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

Lightning-caused wildfires are a common occurrence throughout Florida, including the Management Area. It is District policy, and state law, that the Florida Forest Service is notified when a wildfire occurs on Land Stewardship-managed properties. Land Stewardship staff assigned to the area respond to and, if appropriate, begin suppression of area wildfires when detected.

If District manpower is available and site conditions are favorable, an authorization will be requested from the Florida Forest Service to incorporate the wildfire into a prescribed burn. Allowing these wildfires to burn will help achieve burn objectives and will prevent suppression efforts activities such as the installation of plow lines. It is recognized that the best wildfire mitigation for the Management Area is to maintain the area with frequent prescribed fires to reduce fuel loads and maintain productive plant communities.

5.4 Wildlife Management

A primary objective in the stewardship of the Management Area is to maintain healthy fish and wildlife populations. Land Stewardship accomplishes this in several ways:

- Performing land management activities that maintain and/or improve native wildlife habitat
- Conducting specific management practices to benefit protected species
- Following management guidelines for listed species protection as determined by the *Multi-species Recovery Plan for the Threatened and Endangered Species of South Florida, Volume 1,* (U.S. Fish and Wildlife Service. 1998)
- Reducing non-native pest species populations where appropriate
- Maintaining a master file of confirmed and potential wildlife species
- Cooperating with the Florida Fish and Wildlife Conservation Commission on wildlife management issues including wildlife inventories and evaluating management actions, developing resource-based hunting regulations, and developing regulations to prohibit activities that have the potential to negatively impact wildlife.

Wildlife management in the Management Area is directed toward production of natural species diversity consistent with the biological community types present. The Florida Fish and Wildlife Conservation Commission is an active partner in managing wildlife populations on the management area by administering public hunting opportunities.

A temporary gopher tortoise relocation site was established on the west side of Fox Brown Road. This is a higher area with sandy soils suitable for tortoises. This area has had fencing installed to keep any relocated tortoises safe from the traffic on Fox Brown Road. It is approximately 80 acres and may receive up to 152 tortoises. Only tortoises relocated due to District and Martin County public works projects may be relocated onto this site.

5.4.1 Game Management

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

Allapattah supports a number of game species. The three most common are white-tailed deer, feral hog, and wild turkey. Small game includes quail, dove, rabbit, snipe, and gray squirrel. The Management Area has been established as a Wildlife Management Area by the Florida Fish and Wildlife Conservation Commission. The Commission administers several hunting seasons in the fall, small game and hog hunts in the winter, and spring turkey hunts. A planted dove field has been established on the west side of Fox Brown Road and is typically planted seasonally with millet and Egyptian wheat. Management activities

directed towards game management include establishing bag limits for game species, and regulating hunting pressure. Regulations for the Management Area are contained in **Appendix E.**

5.4.2 Exotic/Invasive Animal Species

Wildlife pest species are those non-native species that are harmful to native wildlife and negatively impact native vegetation and wildlife or interfere with management objectives. The Land Stewardship's goal for wildlife pest management is to reduce populations to attain an acceptable level of impact to natural plant and animal communities. The District's land manager uses monitoring, visual observation, and consultation with the Florida Fish and Wildlife Conservation Commission to define an acceptable level of impact. When population control measures are warranted, land managers consult with the Commission to determine effective and appropriate control techniques. The effects of pest population control efforts are monitored by periodic site evaluations.

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

Public hunting is the primary method used for hog removal in the Management Area where the hunting of hogs is allowed without a size or bag limit. The hunts have been supplemented, as necessary, by contracted hog control agents who have removed hogs from the area under a permit issued to the District by FWC. In addition to hogs removed through public hunts, 220 hogs were removed by hog control agents in FY 13-14.

5.4.2 Rare, Threatened and Endangered Species

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

Several listed wildlife species are present or have been observed historically on the Management Area (**Table 2**). Impacts to these species from planned land

management and recreational activities are of special concern. Activities that might jeopardize the well being of these species may be altered or cancelled. District land management activities including prescribed burning, hydrologic restoration, exotic vegetation eradication, understory control, and selective forest thinning improve natural environmental characteristics that benefit listed species as well as a variety of other indigenous wildlife.

Table 2. Listed Animal Species: (T) Threatened, (E) Endangered, (SSC) Species of Special Concern

Scientific Name	Common Name	Status	
		Fed	State
Platalea ajaja	**Roseate spoonbill**		**SSC**
Aramus guarauna	**Limpkin**		**SSC**
Athena cunicularia floridana	**Burrowing owl**		**SSC**
Caracara cheriway	**Crested caracara**	**T**	
Drymarchon corais couperi	**Eastern indigo snake**	**T**	
Egretta caerulea	**Little blue heron**		**SSC**
Egretta thula	**Snowy egret**		**SSC**
Egretta tricolor	**Tri-colored heron**		**SSC**
Elaphe guttata	**Red rat snake**		**SSC**
Eudocimus albus	**White ibis**		**SSC**
Falco sparverius paulus	**Southeastern American kestrel**		**T**
Gopherus polyphemus	**Gopher tortoise**		**T**
Grus canadensis pratensis	**Florida sandhill crane**		**T**
Mycteria americana	**Wood stork**	**E**	
Pituophis melanoleucus mugitus	**Florida pine snake**		**SSC**
Sciurus niger shermani	**Sherman's fox squirrel**		**SSC**

6. Public Use

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

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

Public input into the management of the area is solicited at the quarterly Water Resource Advisory Commission Recreational Issues Workshops. In coordination with partnering agencies, adjustments to public use opportunities are made on an ongoing basis through the Recreational Issues Workshops and by rulemaking through the 40E-7, F.A.C. Public Use Rule. This plan addresses public use matters only to describe the scope of public use opportunities available or planned as of the date of the plan, and is not intended to set public use policies through the plan period.

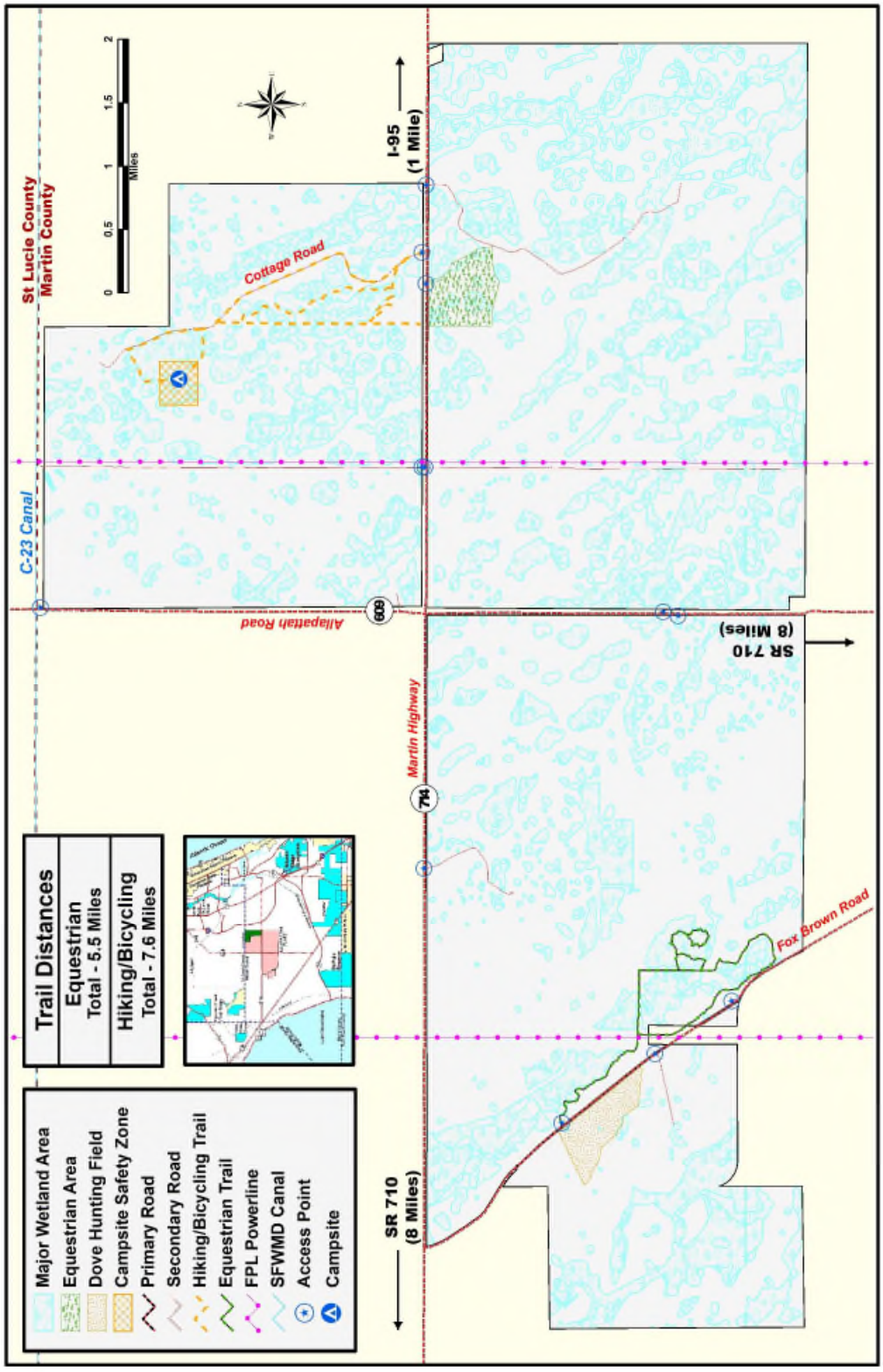
The determination of compatible public uses is based on the following criteria:

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

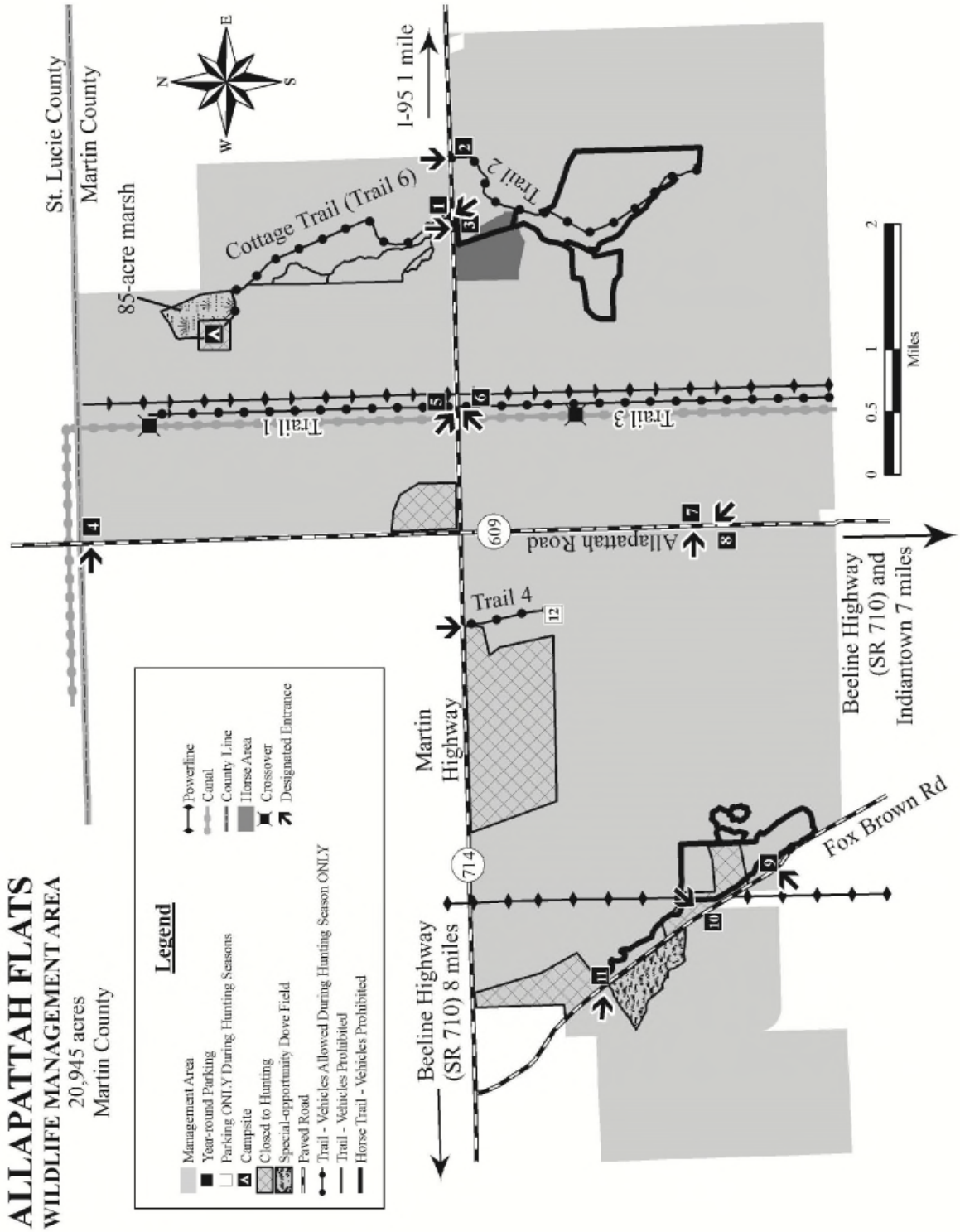
A wide variety of recreational activities are provided for in the Management Area (**Maps 27-28**) including bicycling, canoeing, camping, equestrian use, fishing, hiking, amateur astronomy, and hunting. User information concerning recreational activities is located at the District's regional service centers and West Palm Beach office, and at entrances to the Management Area. Information may also be obtained by selecting "Recreation" on the District's website at: www.sfwmd.gov.

Recreation facilities include 12 access points, 7.6 miles of hiking/bicycling trails, and 5.5 miles of equestrian trails (including two special equestrian use and access areas), three covered picnic shelters, and a primitive campground. In 2010 Cottage Road was improved to provide better access to the campground. Over the ten year term of this plan additional facilities, trailheads, and trails may be developed or improved, budget permitting. Specific improvements may include additional camping areas, equestrian facilities, shelters, restroom facilities, and a fishing pier. Special uses by public agencies or organizaions that are in the public interest will be permitted with the approval and oversight of the lead manager and issuance of a right of entry or other appropriate form of permission.

Map 27. Recreation and Access Facilities



Map 28. Allapattah Flats Wildlife Management Area



6.1 Resource Protection

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

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

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

Regulations that govern activities within the Management Area are in the District's 40E-7, F.A.C. Public Use Rules, and the Florida Fish and Wildlife Conservation Commission's Allapattah Flats Wildlife Managed Area regulations. The Florida Fish and Wildlife Conservation Commission is responsible for enforcing laws, rules, and regulations applicable to the Management Area, along with the local county sheriffs' offices.

Management of public activities on District lands requires a strong commitment to resource protection while simultaneously promoting public recreational uses. The District emphasizes the enforcement of pertinent rules and regulations to protect natural resources and enhance recreation opportunities. Law enforcement officers conduct regular patrols throughout the year, increasing their presence during hunting seasons and at other times when public use is high. Law enforcement surveillance protects natural and cultural resources, deters illegal activity, and safeguards the public. Patrols are conducted with 4-wheel drive vehicles, boats, all terrain vehicles, aircraft, and on foot. The Land Stewardship Section's law enforcement coordinator reviews biweekly reports and meets with officers to structure patrols based on resource needs.

Resource protection is also greatly enhanced by the establishment and maintenance of posted fence lines that delineate property boundaries. New fence construction and maintenance needs are addressed as necessary.

6.2 Environmental Education

Educational programs are developed and implemented on select management areas by organizations interested in promoting increased visitor knowledge and appreciation of natural areas and cultural resources. A central theme to these

programs is the vital role of water management in maintaining resource viability and productivity.

Public outreach and government affairs programs for the Management Area are coordinated and implemented by District representatives based out of the District headquarters in West Palm Beach. The staff serves as the primary contacts for media relations, government representative communications, and classroom presentations.

7. Administration

Administration of District land management is directed through the Land Stewardship Section. Policy decisions, planning and budgeting, procurement of personnel and equipment, contract administration, and issues of program development are administrative tasks coordinated through the Section. Input is provided from the public and regional land managers located at District Service Centers, Field Offices, or Field Stations over the 16-county area. Regional land managers handle regular administrative duties from their field locations to assure quick response to local concerns and management issues. Administrative activities for the Management Area are handled through the DuPuis field office, the on-site Allapattah field office located on SR 714, and through the District headquarters in West Palm Beach.

7.1 Planning and Budgeting

Planning is a major function of the Land Stewardship mission and is critical to maintain proper program focus, direction, and coordination with other agencies. Planning is accomplished by section planning staff in coordination with land management staff. Section-level planning produces the Land Stewardship Activity Report for the Florida Forever Workplan, and coordinates land acquisition planning with other District and outside agency personnel. Restoration planning is conducted by the District's Water Resources Division, the Natural Resources Conservation Service, the U.S. Army Corps of Engineers, and Martin County.

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

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

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

The principal sources of funding for land management operations on the Allapattah Flats Management Area include revenue from commercial and agricultural leases and ad valorem tax revenue. Historically, the Water Management Lands Trust Fund, administered by the Florida Department of Environmental Protection, had been the primary source of land management funding. Additional funding and support has been obtained from grants, the harvest of renewable resources, in-kind services from cooperating management partners, and no-cost services from user groups and volunteers.

Budget planning begins in November during the work planning process for the following fiscal year (October-September). Overall funding availability generally determines management activities. Site-specific priorities are generated and submitted by the regional land managers. Budget distribution among the District's five land management regions is based on a programmatic prioritization of management needs.

The continued operation and maintenance of the Allapattah Flats Management Area includes costs to cover staffing, ongoing operational and land management expenses, and capital refurbishment/replacement of aging infrastructure. Capital infrastructure needs are determined by its condition and the anticipated continued serviceability over the next fiscal year. Priorities for capital refurbishment/replacement are made on a District-wide basis. Most of the public use infrastructure within Allapattah Flats is relatively new, consequently there are no anticipated capital refurbishment/replacement costs anticipated for this plan period.

Capital restoration costs have been provided by the Natural Resources Conservation Service. Their contribution has included direct expenditures and reimbursements to the District. These contributions have supplemented the District's prescribed fire and exotic control efforts on the portions of the site that are included in the federal Wetlands Reserve Program easement. For example, in Fiscal Year 2014, NRCS contributed $235,000 towards exotic species control in the management area.

The operational and land management budget for FY 2014 are included in **Table 3,** below. Utilities and operational expenses include supplies, electric service, business travel, and safety equipment. Public use costs are generally the maintenance costs of public use facilities. Base level funding needs may increase

in the future in response to increasing operational expenses including fuel costs and contracted exotic plant control needs.

Table 3. Operational and Land Management Funds Budgeted for Fiscal Year 2014.

Allapattah Flats		2014 Budget
Contracted LM Svcs		$14,500
Utilities and Operational Expenses		$15,594
Equipment and Infrastructure Maintenance		$4,000
Exotic Species Control (non-capital)		$75,000
Vegetation Management		$4,300
Public Use		$2,000
Site Security		$0
	Total	**$115,394**

7.2 Infrastructure

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

The development of adequate infrastructure for public use and management activities has received support from the Florida Fish and Wildlife Conservation Commission and Martin County. Current infrastructure requiring regular maintenance includes recreation access points and trailheads, perimeter posting and fencing, firelines, trails and roads, kiosks, shelters, camp sites and picnic areas, law enforcement officer's housing, the field office and other structures.

7.3 Personnel and Equipment

The Land Stewardship Program is separated into five geographic regions, each staffed with professional land managers directed by the supervising land manager. Highly trained land managers and technicians are based at the DuPuis Management Area, the CREW Management Area Field Office, the St. Cloud Field Station, the Okeechobee Service Center and the Homestead Field Station. The Land Stewardship Section Administrator and additional planning staff are headquartered at the main West Palm Beach office.

Stewardship of the Management Area is the primary responsibility of the District's East Coast regional land manager. Currently, there is one full-time

professional position based at the Allapattah office to perform land management functions on the property. District staff located outside of the region are available to assist the regional land manager for project-specific activities. Field crew members from the District's DuPuis Management Area as well as Martin County Dept. of Corrections work crews also provide support on an as-needed 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 stationed at the DuPuis Management Area in southern Martin County. The District's Okeechobee Field Station crew and equipment, as well as leased equipment, are also available to assist in the Management Area on a limited basis.

7.4 Volunteers and Alternative Work Force

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

Section 373.1391(3) F.S. encourages the District to use volunteers for land stewardship and other services. The District recognizes the merits of volunteerism and welcomes participation in activities appropriate for public involvement. In Fiscal Year 2013, District lands benefited from 10,000 volunteer hours, or $217,900 worth of volunteer services (using a $21.79/hour national average for the value of volunteer service). On Allapattah, volunteers have conducted trail maintenance services.

7.5 Contractual Management

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

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

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

Contract #4600000961
A cooperative agreement with the Florida Fish and Wildlife Conservation Commission that establishes Allapattah Flats as a Wildlife Management Area and

authorizes the commission to establish rules and regulate public recreation opportunities such as hunting.

Contract #4600000450
A cooperative agreement with Martin County that establishes that it is the District's role to implement the habitat restoration plan as agreed to with the Natural Resources Conservation Service under the Wetland Reserve Program, and to coordinate with the Florida Fish and Wildlife Conservation Commission and administer the management agreement that establishes Allapattah as a Wildlife Management Area. It also stipulates that the County's role, in consultation with the District, is to design and develop public use facilities and coordinate recreation activities that are consistent with the Natural Resources Conservation Service conservation easement, management plan, and restoration schedule

Contract # IA040675
A restoration and cost share agreement with the Natural Resources Conservation Service for the restoration of the Allapattah West (outside of the Wetland Reserve Program easements east of Fox Brown Road) portion of the project. It is a 75%-25% Federal/District reimbursement based cost share agreement.

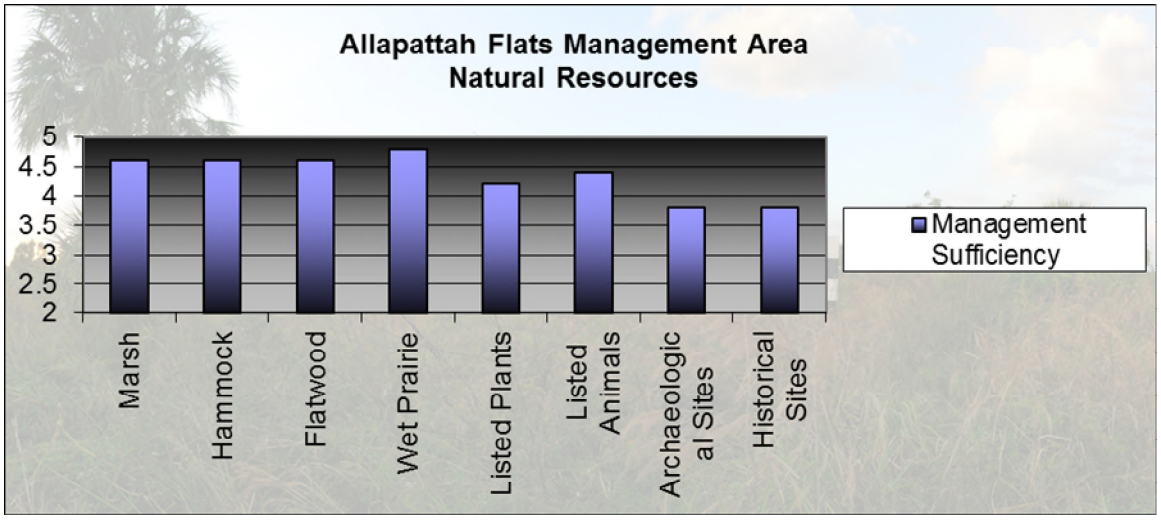
7.6 Management Review

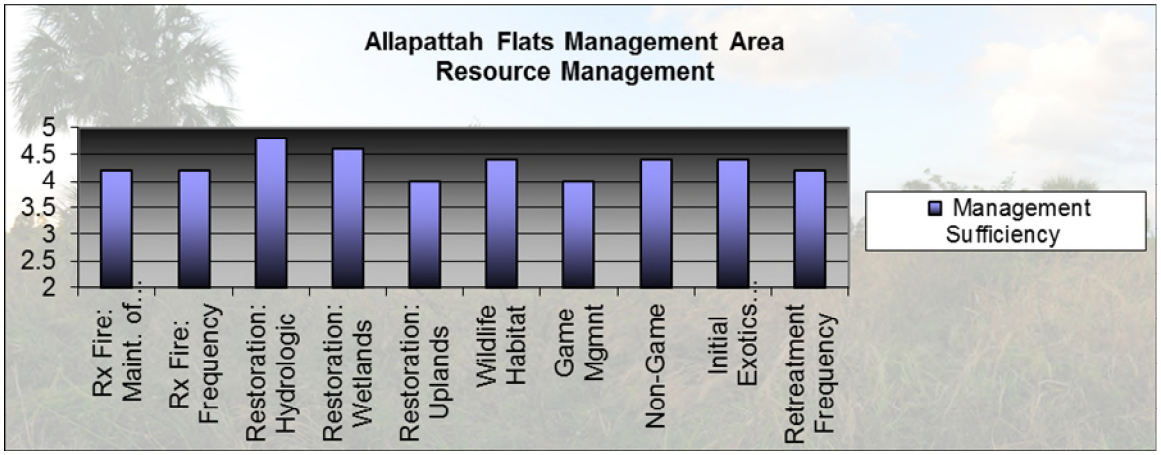
Policy 140-22(j) Section 373.591, Florida Statutes, mandates the District to solicit input on current management programs through professional peer reviews.

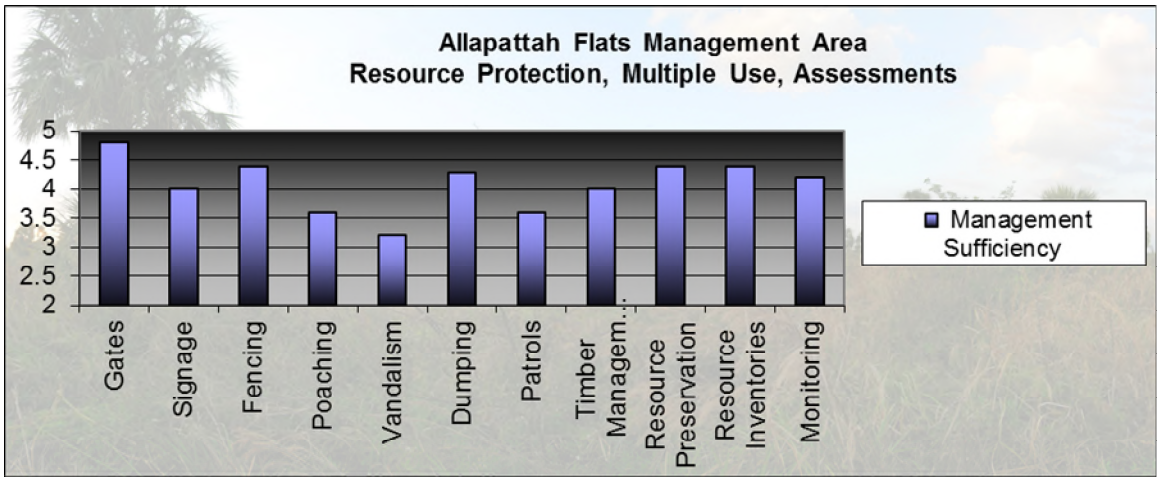
A land management review team is identified for each project area with a General Management Plan. The composition of the review teams are defined by statute (§ 373.591, Fla. Stat.) and include state and private entities that are charged with reviewing management activities to assure they are consistent with acquisition intent and program objectives. Management assessments are conducted based on of the goals and objectives defined in the area's general management plan and are scored on a scale of 1 to 5 with a 1 meaning the management is insufficient and a 5 meaning the management is extremely effective. If the review team determines that management is insufficient in any area, defined as attaining an average score of less than 3.0, then the District is to provide a written explanation to the review team along with proposed corrective actions.

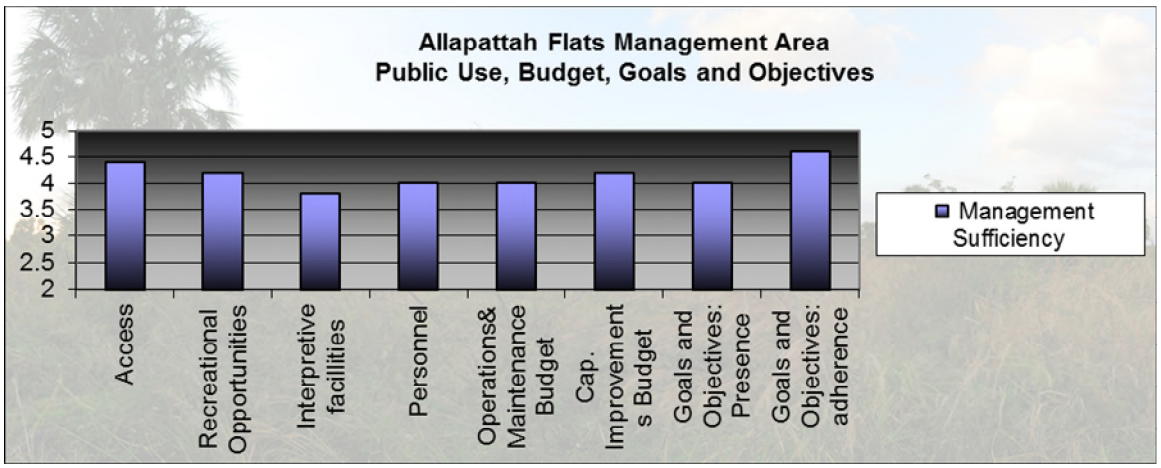
A management review of the Allapattah Flats was conducted on September 16, 2014. The review team provided comments on the condition of the land and the management of the site. Positive comments were received on the quality and quantity of land management and restoration work being accomplished, and the results achieved to date. The review team expressed a desire to see the restoration work expanded across the remainder of the site.

The team also rated the land management sufficiency grouped under the broader categories of Natural Resources; Resource Management; Resource Protection, Multiple Use, Assessments; and Public Use, Budget, Goals and Objectives. The average score for each evaluation criteria are identified on the graphs below and indicate the review team felt the Allapattah Flats Management Area was being properly managed:






Allapattah Flats Management Area
Resource Protection, Multiple Use, Assessments
5
4.5
4
3.5
3
2.5
2
Gates
Signage
Fencing
Poaching
Vandalism
Dumping
Patrols
Timber Managem...
Resource Preservation
Resource Inventories
Monitoring
Management Sufficiency


Allapattah Flats Management Area
Public Use, Budget, Goals and Objectives
5
4.5
4
3.5
3
2.5
2
Access
Recreational Opportunities
Interpretive facillities
Personnel
Operations& Maintenance Budget
Cap. Improvements Budget
Goals and Objectives: Presence
Goals and Objectives: adherence
Management Sufficiency

Appendix A

Land Stewardship Program Goals and Policies

ARTICLE II. LAND STEWARDSHIP

Sec. 140-21. Scope.
This policy shall apply to all lands managed by the Land Stewardship Program, including property acquired with Save Our Rivers, Preservation 2000 or mitigation funding. Nothing in this policy shall negate any statute, administrative rule, or other policy requirement. This policy may be reviewed and approved by the District Governing Board at five-year intervals or earlier and updated as required. Public comment may be solicited as part of the review process.
(R.M. No. 139)

Sec. 140-22. Purpose.
(a) This policy establishes a commitment to the responsible management of District lands in a manner consistent with legislative directives and the District's mission.
(b) In 1981, the Florida Legislature established the "Save Our Rivers" program (SOR) for the five water management Districts to acquire water resource lands. This legislation (Section 373.59, Florida Statutes) produced the Water Management Lands Trust Fund, empowering the water management Districts to acquire lands needed to protect, manage, and conserve the state's water resources. Preservation 2000 (P2000), enacted by the Legislature in 1990, also added land acquisition funds to the Save Our Rivers program. The 1999 Florida Forever Act consolidated the legislative directives of SOR/P2000 and expanded the funding to take over when P2000 terminates. The 1999 legislation authorized funds to be appropriated for acquisition, management, maintenance and capital improvements, including perimeter fencing, signs, control of invasive exotic species, controlled burning, habitat inventory and restoration, law enforcement, access roads and trails, and minimum public accommodations.
(c) Land acquired by the District's Save Our Rivers program and managed by the Land Stewardship program must satisfy several requirements set forth in Sections 373.139 and 373.1391, Florida Statutes. Section 373.139, Florida Statutes, declares it necessary for the public health and welfare that water and water-related resources be conserved and protected. The acquisition of real property for this objective shall constitute a public purpose for which public funds may be budgeted.
(d) Section 373.1391(1)(a), Florida Statutes, states that lands titled to the water management districts shall be managed and maintained to the extent practicable to ensure a balance between public access, general public recreational purposes, and restoration and protection of their natural state and condition.
(e) Section 373.1391(1)(b), Florida Statutes, states, in part, that "Whenever practicable, such lands shall be open to the general public for recreational uses. General public recreational uses shall include, but not be limited to, fishing,

hunting, horseback riding, swimming, camping, hiking, canoeing, boating, diving, birding, sailing, jogging, and other related outdoor activities to the maximum extent possible considering the environmental sensitivity and suitability of those lands."
(f) Section 373.1391(1)(d), Florida Statutes, states that the District shall first consider using soil and water conservation Districts to administer agricultural leases.
(g) Section 373.1391(3), Florida Statutes, encourages each District to use volunteers to provide land management and other services.
(h) Section 373.1391(4), Florida Statutes, encourages each District to enter into cooperative land management agreements with state agencies or local governments to provide the coordinated and cost-effective management of lands.
(i) Section 373.1391(5), Florida Statutes, authorizes water resource and supply projects, stormwater management projects, linear facilities, and sustainable agriculture and forestry where it is compatible with the natural resource values and the public interest and is consistent with the project management plan, the proposed use is appropriately located on the property and other lands have been considered, and the titleholder of the property has been properly compensated.
(j) Section 373.591, Florida Statutes, mandates the District to solicit input on current management programs through professional peer reviews.
(R.M. No. 139)

Sec. 140-23. Statements of Policy.
The Land Stewardship Program mission is to provide natural resource protection and management while allowing compatible multiple uses on designated public lands. The mission statement, together with requirements set forth in the Florida Statutes, provide three primary goals for the District Land Stewardship Program, each of which is linked to sections in this Land Stewardship Policy document:
(1) Conservation and protection of water resources (section 140-25(1)).
(2) Protection and/or restoration of land to its natural state and condition:
a. Restoration and Protection of Natural Communities (section 140-25(2)); and
b. Resource Operations and Maintenance (section 140-25(3)).
(3) Provide public use (section 140-25(4)).
(R.M. No. 139)

Sec. 140-24. Definitions.
For the purpose of this article, the following words and terms shall have the meanings respectively ascribed:
Archaeological/Historic Resources means any prehistoric or historic district site, building, object, or property of historic, architectural, or archaeological value relating to the history, government, and culture of a historic or pre-historic people.
Best Management Practice (BMP) means the best available technology or process that is practical and achieves the desired goal or objective.
Capital Improvement means activities relating to the restoration, public access, recreational uses and necessary services for land and water areas, including the

initial removal of invasive plants, and the construction, improvement, enlargement or extension of facilities' signs, fire lines, access roads, and trails. Such activities shall be identified prior to the acquisition of a parcel or the approval of a project.
Cooperating Agencies means two or more agencies working together to operate a specific management area.
Cooperative Management Agreement means an agreement between two or more agencies outlining the respective duties and responsibilities of each agency in the management of a specific tract of land.
Critical Habitat means areas designated for the survival and recovery of state/federally listed rare, threatened, endangered or other sensitive species.
Desirable Vegetation means native plant species that are appropriate for a specific community type and provide benefits to wildlife in the form of food, cover and nesting.
Habitat Diversity means richness and variety of native plant communities within a particular area of the landscape.
Hydroperiod means flooding duration, depth, and timing that influences species composition, ecosystem structure and function.
Interim Land Management means management of non-natural areas that provides revenue without impacting long-term water-development projects.
Invasive/Exotic Vegetation means certain plants that displace native species and adversely affect wildlife habitat, water quality, recreation, and biological diversity.
Lead Manager means the prime managing entity designated for a given tract of land; generally provides the on-site staff.
Management Area means a single tract or combination of tracts under one management program.
Mitigation means, for purposes of this policy, the actual acquisition, restoration, creation, or enhancement of wetlands to compensate for permitted wetland impacts.
Mitigation Banking means wetland acquisition, restoration, creation or enhancement undertaken expressly to provide compensation in advance of wetland losses from development activities.
Multiple-Use means the management of renewable resources for a variety of purposes such as recreation, range, timber, wildlife habitat, and water resource development.
Prescribed Fire means burning of vegetative fuels using controlled application of fire within specified environmental conditions.
Primary Resource Lands means lands having high water resource, fish, wildlife, and recreational values requiring acquisition or protection.
Regional Mitigation Area means, for purposes of this policy, permitted wetland impacts offset through payment for the acquisition, restoration and perpetual management of a Save Our Rivers identified and duly noticed project.
Responsible Management means level of management described in the General Management Plan.

Sustainable Use means to provide continued use of a natural resource without degradation or loss of that resource.
Water Resource Buffer means that portion of a Preservation 2000 or Save Our Rivers project necessary to protect the aquatic environment.
Wildlife Corridor means a connection between natural areas that allows the safe movement of wildlife.
(R.M. No. 139)
Cross references: Definitions and rules of construction, § 100-2.

Sec. 140-25. Responsibilities.
The Land Stewardship Program is responsible for:
(1) Water Resource Protection. The basis for the Land Stewardship Program is the protection and management of natural hydrologic resources. The following policies guide implementation of this objective:

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

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

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

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

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

(2) Restoration and Protection of Natural Communities:

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

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

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

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

(3) Resource Operations and Maintenance:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(4) Public Use and Environmental Education:

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

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

b. Public Use Regulation:

1. Public use regulations are set forth in 40E-7.511, Florida Administrative Code, to implement Section 373.1391(1)(b), Florida Statutes. Accordingly, the District shall publish and make available to the public a "Public Use Guide" for designated land management areas. The Public Use Guide will be adopted by the Governing Board at a public meeting advertised in accordance with Chapter 120, Florida Statutes.
2. Rules and regulations governing the public use of each management area shall be enforced by agencies with appropriate law enforcement jurisdiction.
3. Pursuant to Section 373.609, Florida Statutes, the District shall seek the cooperation of every state and county attorney, sheriff, police officer, and appropriate city and county official in the enforcement of the provisions set forth according to 40E-7.511, Florida Administrative Code.
4. Florida Fish and Wildlife Conservation Commission regulations shall govern hunting in areas opened for such use.

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

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

b. Mitigation:

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

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

c. Revenue Generation:

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

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

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

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

d. Volunteers and Interns:

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

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

(6) Program Components:

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

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

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

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

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

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

(R.M. No. 139)

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

Appendix B. Soil Descriptions

Flats soils – Flats soils are poorly drained hydric soils. Flats are located between flatwood and depressional landscapes and are generally regarded as transition areas. The seasonal high water table can typically range from the soil surface to one foot below the surface for 4-9 months during the wet season (June – September) Examples of these soils include that are present on Allapattah include Riviera and Pineda. These soils are generally long, narrow areas that serve as drainage ways between depressional soils during periods of heavy and prolonged rainfall. A typical ecological community associated with flats soils would be the wet prairie, generally characterized by open expanses of grasses, sedges and rushes, and may include sparse pine coverage. Fire and artificial water fluctuations are major factors affecting these areas, and variations in the natural sequences of either event can change the diversity and productivity of these communities.

Flatwoods soils – Flatwoods soils are poorly drained, non-hydric upland soils. Most of the soils in this series have a subsurface spodic horizon (hardpan). The seasonal high water table can range from ½ to 1 ½ feet below the soil surface for 3-6 months annually, with some areas becoming inundated for short periods during the wet season or during large storm events. Examples of these soils on Allapattah include Wabasso and Oldsmar. Typical vegetative communities on flatwoods soils include dry prairie, wet and mesic flatwoods, and prairie hammock. The landscape position of these soils affects plant-water relationships and causes slight differences in plant composition from wetter to drier areas. Natural vegetation typically consists of scattered slash pine with an understory of saw palmetto and grasses. Some areas are dominated by wire grass and broomsedge and have few, if any trees. Other areas are characterized by gallberry, shiny blueberry, tarflower, and wax myrtle.

Sand Depression Soils – The sand depression landscape position includes hydric soils that are very poorly drained. Often these areas are depressions adjacent to and within flatwoods communities and flats landscapes. The seasonal high water table can range from one foot below to two feet or more above the soil surface for 7-10 months annually. Examples of these soils that are present on Allapattah include Riviera, Wabasso, and Oldsmar depressional.

Wetlands dominate this landscape. Natural communities include swale and depression marsh. Vegetation can vary widely, but typically includes pickerelweed, maidencane, or sawgrass, and may also contain spike rush, beak rush, fire flag, or arrowhead.

Muck Depression Soils – Muck depression soils are very poorly drained hydric soils that have an organic surface layer underlain by sandy marine sediments. Muck depressions often lie adjacent to flats and flatwoods landscapes. The seasonal high water table can range from six inches below the surface to two feet

or more above the surface for 7-11 months annually. An example of this type of soil present on Allapattah is Gator.

Several biological communities may be found on this landscape, including basin and depression marsh, baygall, and dome swamp. Local conditions favor one community over the other, with fire frequency and site hydrology playing a large role in the distribution.

Appendix C. Natural Communities Descriptions

Florida Fish and Wildlife Conservation Commission Natural Communities Classification

Hardwood Swamp
These wooded wetland communities are composed of either pure stands of hardwoods, or occur as a mixture of hardwoods and cypress where hardwoods achieve dominance. This association of wetland-adapted trees occurs throughout the state on organic soils and forms the forested floodplains of non-alluvial rivers, creeks, and broad lake basins. Tree species include a mixed overstory containing black gum, water tupelo, bald cypress, dahoon holly, red maple, swamp ash, cabbage palm, and sweetbay.

Cypress Swamp
These regularly inundated wetlands form a forested border along large rivers, creeks, and lakes, or occur in depressions as circular domes or linear strands. These communities are strongly dominated by either bald cypress or pond cypress, with very low numbers of scattered black gum, red maple, and sweetbay. Understory and ground cover are usually sparse due to frequent flooding but sometimes include such species as buttonbush, lizard's-tail, and various ferns.

> Cypress Swamp- Dome Swamp
> These hardwood swamps contain broadleaf evergreen trees that occur in shallow, stagnant drainages or depressions often found within pine flatwoods, or at the base of sandy ridges where seepage maintains constantly wet soils. The soils, which are usually covered by an abundant layer of leaf litter, are mostly acidic peat or muck that remains saturated for long periods but over which little water level fluctuation occurs. Overstory trees within bayheads are dominated by sweetbay, swamp bay, and loblolly bay. Depending on the location within the state, other species including pond pine, slash pine, blackgum, cypress, and Atlantic white cedar can occur as scattered individuals, but bay trees dominate the canopy and characterize the community. Understory and gound cover species may include dahoon holly, wax myrtle, fetterbush, greenbriar, royal fern, cinnamon fern, and sphagnum moss.

Shrub Swamp
Shrub swamps are wetland communities dominated by dense, low-growing, woody shrubs or small trees. Shrub swamps are usually characteristic of wetland areas that are experiencing environmental change, and are early to mid-successional in species complement and structure. These changes are a result of natural or man-induced perturbations due to increased or decreased hydroperiod, fire, clear cutting or land clearing, and siltation. Shrub swamps statewide may be dominated by one species, such as willow, or an array of opportunistic plants may form a dense, low canopy. Common species include

willow, wax myrtle, primrose willow, buttonbush, and saplings of red maple, sweetbay, black gum, and other hydric tree species indicative of wooded wetlands. In northern Florida, some shrub swamps are a fire-maintained subclimax of bay swamps. These dense shrubby areas are dominated by black titi, swamp cyrilla, fetterbush, sweet pepperbush, doghobble, large gallberry, and myrtle-leaf holly.

Mixed Wetland Forest

This category includes mixed wetland forest communities in which neither hardwoods nor conifers achieve dominance. The mix can include hardwoods with pine or cypress and can represent a mixed hydric site or a transition between hardwoods and conifers on hydric/mesic sites.

Freshwater Marsh and wet Prairie

These wetland communities are dominated by a wide assortment of herbaceous plant species growing on sand, clay, marl, and organic soils in areas of variable water depths and inundation regimes. Generally, freshwater marshes occur in deeper, more strongly inundated situations and are characterized by tall emergents and floating-leaved species. Freshwater marshes occur within flatwoods depressions, along broad, shallow lake and river shorelines, and scattered in open areas within hardwood and cypress swamps. Also, other portions of freshwater lakes, rivers, and canals that are dominated by floating-leaved plants such as lotus, spatterdock, duck weed, and water hyancinths are included in this category. Wet prairies commonly occur in shallow, periodically inundated areas and are usually dominated by aquatic grasses, sedges, and their associates. Wet prairies occur as scattered, shallow depressions within dry prairie areas and on marl prairie areas in south Florida. Also included in this category are areas in Southwest Florida with scattered dwarf cypress having less than 20 percent canopy coverage, and a dense ground cover of freshwater marsh plants. Various combinations of pickerel weed, sawgrass, maidencane, arrowhead, fire flag, cattail, spike rush, bulrush, white water lily, water shield, and various sedges dominate freshwater marshes and wet prairies. Many marsh or wet prairie types, such as sawgrass marsh or maidencane prairie, have been described and so-named based on their dominant plant species.

Dry Prairie

Dry prairies are large native grass and shrublands occurring on very flat terrain interspersed with scattered cypress domes and strands, bayheads, isolated freshwater marshes, and hardwood hammocks. This community is characterized by many species of grasses, sedges, herbs, and shrubs, including saw palmetto, fetterbush, staggerbush, tar flower, gallberry, blueberry, wiregrass, carpet grasses, and various bluestems. Fire frequency, intensity, and fuel build-up determines whether a pine over-story develops. Fire occurs naturally in dry prairies every one to four years, which is slightly more frequent than in mesic flatwoods.

Hardwood Hammock

This class includes the major upland hardwood associations that occur statewide on fairly rich sandy soils. Variations in species composition, and the local or spatial distributions of these communities are due in part to differences in soil moisture regimes, soil type, and geographic location within the state. Mesic and xeric variations are included within this association. Hammocks of the peninsula are less diverse due to the absence of hardwood species that are adapted to more northerly climates, and are characterized by laurel oak, hop hornbeam, blue beech, sweetgum, cabbage palm, American holly, and southern magnolia.

Because of their soils and the scarcity of herbaceous ground cover, hydric hammocks rarely burn. Fire maintains this community with frequencies of 30 - 100 or more years. Typically, fire enters this community from an adjacent area during the dry season. Prescribed burn planning for adjacent natural communities will consider hydrologic conditions of hammocks prior to application of fire.

Pinelands

Pine flatwoods occur on flat sandy terrain where the overstory is characterized by longleaf pine, slash pine, or pond pine. The understory and ground cover within these three communities are somewhat similar and include several common species such as saw palmetto, gallberry, wax myrtle, and a wide variety of grasses and herbs. Generally wiregrass and runner oak dominate longleaf pine sites, fetterbush and bay trees are found in pond pine areas, while saw palmetto, gallberry, and rusty lyonia occupy slash pine flatwoods sites. Cypress domes, bayheads, titi swamps, and freshwater marshes are commonly interspersed in isolated depressions throughout this community type, and fire is a major disturbance factor.

Nearly all plants within this community are fire adapted to a frequency of two to five years. Prescribed burning considerations are similar to those for mesic flatwoods. Without frequent fire this community would experience a build up of shrubby undergrowth. Annual litter accumulation minus decomposition is 800 lb/ac (Duever et al. 1976). Thick undergrowth creates heavy fuel loads that if ignited by a wildfire would likely kill the pine overstory. Fire postpones hardwood succession and thins canopy trees, while promoting under-story growth and fire-adapted species. If fire were totally excluded, this community would develop into a hardwood forest.

Shrub and Brushland

This association includes a variety of situations where natural upland community types have been recently disturbed through clear-cutting commercial pinelands, land clearing, or fire, and are recovering through natural successional processes. This type could be characterized as an early condition of old-field succession, and various shrubs, tree saplings, and lesser amounts of grasses and herbs dominate the community. Common species include wax myrtle, saltbush, sumac,

elderberry, saw palmetto, blackberry, gallberry, fetterbush, staggerbush, broomsedge, dog fennel, together with oak, pine and other tree seedlings or saplings.

Appendix D. Species List

Plant composition of the Allapattah Flats Management Area

DOACS = Florida Department of Agriculture and Consumer Services
T = Threatened E = Endangered

Species	Common Name	DOACS Listing
Acer rubrum	Red maple	
Acrostichum danaeifolium	Leather fern	
Aletris lutea	Yellow colic root	
Alternanthera philoxeroides	Alligator weed	
Amphicarpum		
Andropogon glomeratus	Broom sedge	
Andropogon virginicus	Chalky bluestem	
Aristida speciformis	Wire grass	
Asimina sp.	Pawpaw	
Azolla sp.		
Baccharis halimifolia	Salt bush	
Bacopa caroliniana	Lemon bacopa	
Bacopa monnieri	Water hyssop	
Befaria racemosa	Tarflower	
Blechnum serralatum	Swamp fern	
Callicarpa americana	Beauty berry	
Carya aquatica	Water hickory	
Cephalanthus occidentalis	Buttonbush	
Celtis occidentalis	Hackberry	
Cirsium horridulum	Thistle	
Cladium jamaicense	Sawgrass	
Commelina sp.	Common day flower	
Coreopsis sp.	Tickseed	
Cyperus spp.	Sedge	
Distichylis sp.		
Drosera sp.	Sundew	
Echihornia crassipes	Water hyacinth	
Eleocharis baldwinii	Hairgrass	
Eleocharis cellulosa	Spikerush	
Eleocharis interstincta	Jointed spikerush	
Eriocaulon compressum	Hatpins	
Eugenia axillaris	White stopper	
Eupatorium sp.	Dog fennel	
Ficus aurea	Strangler fig	
Flaveria linearis	Yellowtop	
Furiena sp.		
Gordonia lasianthus	Loblolly bay	
Hydrocotyl sp.	Pennywort, dollarweed	
Hypericum sp.	St. John’s wort	
Hibiscus grandiflora	Wild hibiscus	
Ilex cassine	Dahoon holly	

Ilex glabra	gallberry	
Juncus effusus	Soft rush	
Lachnanthes caroliniana	Redroot	
Lachnocaulon anceps	Bog buttons	
Lantana sp.	Lantana	
Lemna minor	Duckweed	
Lilium catesbaei	Pine lily	T
Lithospermum caroliniense	Puccoon	
Lobelia sp.	Lobelia	
Ludwigia peruviana	Primrose willow	
Ludwigia repens	Red ludwigia	
Ludwigia sp.	Ludwigia	
Lygodium microphyllum	Old world climbing fern	
Magnolia virginiana	Sweet bay	
Melothria pendul	Creeping cucumber	
Mikania scandens	Climbing hempweed	
Mormordica charantia	Wild balsam apple	
Morus rubra	Red mulberry	
Myrica cerifera	Wax Myrtle	
Osmunda cinnomomea	Cinnamon fern	
Osmunda regalis	Royal fern	
Oxypolis sp.	Water dropwort	
Panicum erectum		
Panicum hemitomon	Maidencane	
Panicum repens	Torpedo grass	
Panicum sp.		
Persea palustris	Swamp bay	
Pinus elliotii	Slash pine	
Pistia stratiotes	Water lettuce	
Phyla nodiflora	Matchweed	
Phytolaca	Pokeweed	
Pluchea odorata	Camphor weed	
Pontederia cordata	Pickerelweed	
Polygala cymosa	Tall milkwort	
Polygala sp.	Bachelor button	
Polygonum sp.	Smartweed	
Proserpinaca sp.	Mermaid weed	
Pterocaulon pycnostachyum	Blackroot	
Quercus virginiana	Live oak	
Quercus sp.	Oak (laurel?)	
Rhexia virginica	Meadow beauty	
Rhynchospora tracyi	Beak rush	
Rhynchospora haspens	Beak rush	
Rhynchospora sp.		
Rubus sp.	Dewberry, blackberry	
Rudbeckia hirta	Black-eyed susan	
Sabal palmetto	Sabal palm, cabbage palm	
Sabatia grandiflora	Marsh Pink	
Sacoila lanceolata	leafless beaked orchid	

Sagitaria sp.	Duck potato	
Salix caroliniana	Coastal plains willow	
Sambucus simpsonii	Elderberry	
Sarcostema clausa	White vine	
Sapindus saponaria	Florida Soapberry	
Schinus terebinthefolius	Brazillian pepper	
Serenoa repens	Saw palmetto	
Sesbania sp.	Sesban	
Shrankia microphylla	Sensitive briar	
Sisyrhinchium atlanticum	Blue eyed grass	
Solidago fistulosa	Goldenrod	
Spiranthes sp.	Lawn orchid	
Spartina bakerii	Cordgrass	
Stillingia aquatica	Corkwood, Queen's Delight	
Taxodium distichum	Bald cypress	
Thalia geniculata	Alligator flag	
Thelypteris sp.	Marsh fern	
Tillandsia balbisiana	Reflexed wild pine	
Tillandsia fasiculata	Cardinal wild pine	E
Tillandsia flexuosa	Twisted wild pine	
Tillandsia variablis	Soft-leaved wild pine	
Tillandsia usneoides	Spanish moss	
Tillandsia utriculata	Giant wild pine	
Toxicodendrun radicans	Poison ivy	
Urena lobata	Caesarweed	
Ulmus Americana	American Elm	
Utricularia cornuta	Horned bladderwort	
Utricularia purpurea	Purple bladderwort	
Utricularia sp.	Bladderwort	
Vitis sp.	Wild grape	
Woodwardia virginica	Virginia chain fern	
Xyris sp.	Yellow-eyed grass	

Avian composition of the Allapattah Flats Management Area

FWC = Florida Fish & Wildlife Conservation Commission
SSC = Species of Special Concern
T = Threatened
E = Endangered
EX = Exotic

Species	**Common Name**	**FWC Status**
Pelecanus erythrorhynchos	White Pelican	
Phalacrocorax auritus	Double-crested Cormorant	
Anhinga anhinga	Anhinga	
Ardea Herodias	Great Blue Heron	
Ardea alba	Great Egret	
Egretta thula	Snowy Egret	SSC
Egretta caerulea	Little Blue Heron	SSC
Egretta tricolor	Tricolored Heron	SSC

Bubulcus ibis	Cattle Egret	
Nyctanassa violacea	Yellow-crowned Night Heron	
Butorides virescens	Green Heron	
Eudocimus albus	White Ibis	SSC
Aramus guarauna	Limpkin	SSC
Plegadis falcinellus	Glossy Ibis	
Mycteria Americana	Wood Stork	E
Coragyps atratus	Black Vulture	
Cathartes aura	Turkey Vulture	
Anas fulvigula	Mottled Duck	
Lophodytes cucullatus	Hooded Merganser	
Pandion haliaetus	Osprey	
Circus cyaneus	Northern Harrier	
Accipiter cooperii	Cooper's Hawk	
Buteo lineatus	Red-shouldered Hawk	
Buteo jamaicensis	Red-tailed Hawk	
Caracara cheriway	Crested Caracara	T
Falco sparverius	American Kestrel	T
Chordeiles minor	Common Nighthawk	
Caprimulgus carolinensis	Chuck-will's-widow	
Colinus virginianus	Northern Bobwhite	
Porphyrio martinica	Purple Gallinule	
Gallinula chloropus	Common Moorhen	
Grus Canadensis	Sandhill Crane	T
Charadrius vociferous	Killdeer	
Tringa flavipes	Lesser Yellowlegs	
Gallinago gallinago	Common Snipe	
Zenaida macroura	Mourning Dove	
Columbina passerine	Common Ground-Dove	
Ceryle alcyon	Belted Kingfisher	
Melanerpes carolinus	Red-bellied Woodpecker	
Picoides pubescens	Downy Woodpecker	
Colaptes auratus	Northern Flicker	
Dryocopus pileatus	Pileated Woodpecker	
Sayornis phoebe	Eastern Phoebe	
Myiarchus crinitus	Great Crested Flycatcher	
Tyrannus tyrannus	Eastern Kingbird	
Lanius ludovicianus	Loggerhead Shrike	
Vireo griseus	White-eyed Vireo	
Cyanocitta cristata	Blue Jay	
Corvus brachyrhynchos	American Crow	
Corvus ossifragus	Fish Crow	
Tachycineta bicolor	Tree Swallow	
Thryothorus ludovicianus	Carolina Wren	
Cistothorus platensis	Sedge Wren	
Polioptila caerulea	Blue-gray Gnatcatcher	
Turdus migratorius	American Robin	
Dumetella carolinensis	Gray Catbird	
Mimus polyglottos	Northern Mockingbird	

Toxostoma rufum	Brown Thrasher	
Sturnus vulgaris	European Starling	
Dendroica coronate	Yellow-rumped Warbler	
Dendroica palmarum	Palm Warbler	
Geothlypis trichas	Common Yellowthroat	
Pipilo erythrophthalmus	Eastern Towhee	
Passerculus sandwichensis	Savannah Sparrow	
Ammodramus savannarum	Grasshopper Sparrow (non-FL ssp)	
Aimophila aestivalis	Bachman's Sparrow	
Melospiza Georgiana	Swamp Sparrow	
Cardinalis cardinalis	Northern Cardinal	
Agelaius phoeniceus	Red-winged Blackbird	
Sturnella magna	Eastern Meadowlark	
Quiscalus quiscula	Common Grackle	
Quiscalus major	Boat-tailed Grackle	
Molothrus ater	Brown-headed Cowbird	
Parus atricapillus	Black capped chickadee	
Strix varia	Barred Owl	
Athena cunicularia floridana	Burrowing Owl	SSC
Ajaja ajaja	Roseate Spoonbill	SSC
Elanoides forficatus	Swallow-tailed kite	
Bubo virginianus	Great horned owl	
Meleagris gallopavo	Wild turkey	
Himatopus mexicanus	Black necked stilt	
Sphyrapicus varius	Yellow bellied sapsucker	
Podilymbus podiceps	Pied billed grebe	

Mammalian species of the Allapattah Flats Management Area

Species	**Common Name**	**FWC Status**
Blarina brevicauda	Short tailed schrew	
Cryptotis parva	Least schrew	
Dasypus novemcinctus	Nine-banded Armadillo	EX
Didelphis marsupialis	Opossom	
Felis rufus	Bobcat	
Lutra canadensis	River otter	
Neofiber alaleni	Round tailed muskrat	
Odocoileus virginianus	White-tailed deer	
Oryzomys palustris	Eastern rice rat	
Peromyscus gossypinus	Cotton mouse	
Procyon lotor	Raccoon	
Sciurus carolinensis	Eastern grey squirrel	
Sciurus niger shermani	Sherman's fox squirrel	E
Sus scrofa	Feral hog	EX
Sylvilagus floridanus	Eastern cottontail	
Sylvilagus palustris	Marsh rabbit	

Herpetofaunal Species of the Allapattah Flats Management Area

Species	Common Name	FWC Status
SNAKES		
Agkistrodon piscivorus conanti	Florida cottonmouth	
Coluber constrictor	Black racer	
Diadophis punctatus punctatus	Southern ringneck snake	
Drymarchon corais couperi	Eastern indigo snake	T
Elaphe guttata	Red rat snake	SSC
Elaphe obsoleta quadrivittata	Yellow rat snake	
Lampropeltis getulus	Common kingsnake	
Masticophis flagellum flagellum	Eastern coachwhip snake	
Nerodia cyclopion floridana	Green water snake	
Nerodia fasciata pictiventris	Florida water snake	
Ophedrys aestivus	Rough green snake	
Reginal alleni	Striped crayfish snake	
Sistrurus miliaris barbouri	Dusky pygmy rattlesnake	
Thamnophis sirtalis sirtalis	Eastern garter snake	
Pituophis melanoleucus mugitus	Florida pine snake	SSC
REPTILES		
Alligator mississippiensis	American Alligator	
Anolis carolinensis	Green anole	
Anolis sagrei sagrei (exotic)	Brown anole	
Apalone ferox	Florida softshell turtle	
Chelydra serpentina	Snapping turtle	
Deirochelys reticularia chrysea	Florida chicken turtle	
Eumeces inexpectatus	Southeastern five lined skink	
Gopherus polyphemus	Gopher tortoise	T
Kinosternon subrubrum	Florida mud turtle	
Ophisaurus ventrailis	Eastern glass lizard	
Pseudemys floridana peninsularis	Peninsual cooter	
Pseudemys neisoni	Florida redbelly turtle	
Sceloporus undulatus undulatus	Southern fence swift	
Scincella lateralis	Ground skink	
Sternotherus odoratus	Common musk turtle	
Terrapene carolina carolina	Florida Box turtle	
AMPHIBIANS		
Acris gryllus dorsalis	Florida cricket frog	
Bufo terrestris	Southern toad	
Eurycea quadridigitata	Dwarf salamander	
Hyla cinerea	Green treefrog	
Hyla femoralis	Pinewoods treefrog	
Hyla gratiola	Barking treefrog	
Hyla squirella	Squirrel treefrog	
Notophthalmus viridescens	Peninsula newt	
Rana grylio	Pig frog	
Rana sphenocephala	Southern Leopard frog	

Appendix E: Allapattah Flats Wildlife Management Area Hunting Regulations

2014-2015 Hunting Season

Allapattah Flats
Wildlife Management Area

Regulations Summary and Area Map
July 1, 2014 - June 30, 2015

A cooperative public wildlife and recreational area

South Florida Water Management District
Martin County

Florida Fish and Wildlife Conservation Commission

MyFWC.com

This brochure is designed to provide the public with information and a summary of regulations pertaining to hunting and other recreational use on the Allapattah Flats Wildlife Management Area. **Regulations that are new or differ substantially from last year are shown in bold print.** Area users should familiarize themselves with all regulations. For exact wording of the wildlife laws and regulations, see the Florida Fish and Wildlife Conservation Commission's wildlife code, on file with the Secretary of State and state libraries. This brochure, the Florida Hunting Regulations handbook and quota permit worksheets should provide the information necessary for you to plan your hunting activities. These publications are available from any Commission office, county tax collector and at MyFWC.com.

Persons using wildlife management areas are required to have appropriate licenses, permits and stamps. The following persons are exempt from all license and permit requirements (except for quota permits when listed as "no exemptions," recreational use permits, antlerless deer permits and the Migratory Bird Hunting and Conservation Stamp [federal duck stamp]): Florida residents who are 65 years of age or older, residents who possess a Florida Resident Disabled Person Hunting and Fishing Certificate; residents in the U.S. Armed Forces, not stationed in Florida, while home on leave for 30 days or less, upon submission of orders; and children under 16 years of age. Children under 16 years of age are exempt from the federal duck stamp. Anyone born on or after June 1, 1975 and 16 years of age or older must have passed a Commission-approved hunter-safety course prior to being issued a hunting license, except the Hunter Safety Mentoring exemption allows anyone to purchase a hunting license and hunt under the supervision of a licensed hunter, 21 years of age or older.

Licenses and permits may be purchased from county tax collectors, license agents, at MyFWC.com/license or by telephone at 888-486-8356. A no-cost Migratory Bird Permit is available when purchasing a hunting license. Any waterfowl hunter 16 years of age or older must possess a federal duck stamp, available where hunting licenses are sold, at most post offices or at www.duckstamp.com.

Quota Permit Information:
Archery - 50, no-cost, quota permits (no exemptions) for each of 4 hunts.
Muzzleloading Gun - 50, no-cost, quota permits (no exemptions).
Family Hunt - 25, no-cost, quota permits (no exemptions).
General Gun - 50, no-cost, quota permits (no exemptions).
Spring Turkey - 20, no-cost, quota permits (no exemptions) for each of 2 hunts.

Permit applications: Hunters must submit electronic applications for quota and special-opportunity permits through the Commission's Recreational License Issuance Services (RLIS). Worksheets listing hunts, application periods, deadlines and instructions are available at county tax collector's offices, FWC offices or MyFWC.com. Quota application periods occur throughout the year beginning April 1; please refer to the hunting handbook or MyFWC.com for specific dates. Worksheets will be available about 2 weeks prior to each application period.

Guest hunters: For each non-transferable archery, muzzleloading gun, general gun, wild hog, spring turkey and mobility-impaired quota permit issued through the Commission's RLIS, a quota permit holder (host) may take a guest hunter by obtaining a guest permit. Guest hunters are not allowed during family hunts. A guest hunter must possess a completed guest permit while hunting except the following persons may be a guest hunter without a guest permit: a youth under 16 years of age, a youth supervisor, a mentor license holder or a mentor license supervisor. A host may only bring 1 guest hunter at a time and may only use 1 guest permit per day. The following persons are not considered to be guest hunters: other quota permit holders, non-hunters and exempt hunters (on areas and during seasons that allow exemptions). The host must share the bag limit with the guest hunter and the host is responsible for violations that exceed the bag limit. The guest hunter and host must enter and exit the area together and must share a street-legal vehicle while hunting on the area. The guest hunter may hunt only while the host is on the area. Refer to the quota hunt worksheets for additional information.

Youth and mentor license holders: A youth hunter (less than 16 years of age) must be supervised by a person at least 18 years of age. A mentor license holder must be supervised by a licensed hunter at least 21 years of age. Unless exempt, only those supervisors with proper licenses and permits may hunt. If the supervisor is hunting during any hunt for which quota permits are issued, at least 1 person in the party must be in possession of a quota permit. A non-hunting supervisor is allowed to accompany a youth or mentor license holder during any hunt.

Transfer of permits: Quota and guest permits are not transferable. A positive form of identification is required when using a non-transferable permit, except for a youth under 16 years of age. The sale or purchase of any quota permit or guest permit is prohibited.

General Area Regulations:
All general laws and regulations relating to wildlife and fish shall apply unless specifically exempted for this area. Hunting or the taking of

wildlife or fish on this area shall be allowed only during the open seasons and in accordance with the following regulations:

1. Any person hunting deer or accompanying another person hunting deer shall wear at least 500 square inches of daylight fluorescent-orange material as an outer garment, above the waistline. These provisions are not required when hunting with a bow and arrow during archery season.
2. Taking of spotted fawn, swimming deer or roosted turkey is prohibited. Species legal to hunt are listed under each season.
3. It is illegal to hunt over bait or place any bait or other food for wildlife on this area.
4. Driving a metal object into any tree, or hunting from a tree into which a metal object has been driven, is prohibited.
5. No person shall cut, damage or remove any natural, man-made or cultural resource without written authorization of the landowner or primary land manager.
6. Taking or attempting to take any game with the aid of live decoys, recorded game calls or sounds, set guns, artificial light, net, trap, snare, drug or poison is prohibited. Recorded calls and sounds can be used to hunt furbearers, wild hog and crows.
7. The wanton and willful waste of wildlife is prohibited.
8. Hunting, fishing or trapping is prohibited on any portion of the area posted as closed to those activities.
9. People, dogs, vehicles and other recreational equipment are prohibited in areas posted as "Closed to Public Access" by FWC administrative action.
10. Taking or herding wildlife from any motorized vehicle, aircraft or boat which is under power is prohibited, until power and movement from that power, has ceased.
11. Most game may be hunted from ½ hour before sunrise until ½ hour after sunset (see exceptions under each season).
12. The release of any animal is prohibited, without written authorization of the landowner or primary land manager.
13. The head and evidence of sex may not be removed from the carcass of any deer or turkey on the area.
14. The planting or introduction of any non-native plant is prohibited, without written authorization of the landowner or primary land manager.
15. Wild hog may not be transported alive.
16. A hunting license is not required for the take of wild hog.
17. Littering is prohibited.
18. Fires are prohibited except at designated campsites.
19. A Fish and Wildlife Conservation Commission Law Enforcement Officer may search any camp, vehicle or boat, in accordance with law.
20. Hunting on the posted dove field is allowed by Allapattah Flats special-opportunity dove hunt permit holders only. Refer to the Allapattah Flats Dove Field brochure for additional information.
21. Falconers may hunt during the statewide falconry season anytime a management area is open for public access. Falconers are not exempt from quota permits during hunts requiring them.

Public Access and Vehicles:

1. Open to public recreational access year round.
2. Persons shall enter and exit the area only at a designated entrance.
3. Vehicles are prohibited except during the following periods: Beginning 1 week prior to the opening of archery and spring turkey seasons through 6 p.m. 1 day after the close of archery and spring turkey seasons and during muzzleloading gun, family hunt, and general gun seasons, vehicles may only be operated by individuals participating in the hunt. Anyone may operate a vehicle during the small game and migratory bird seasons. Vehicles may only be operated on numbered trails.
4. Airboats, all-terrain vehicles, swamp buggies, tracked vehicles and unlicensed and unregistered motorcycles are prohibited.
5. Horses are only allowed on named equestrian trails and in the designated equestrian area, which contains a kiosk with a trail map, hitching posts and parking.
6. Parked vehicles may not obstruct a road, gate or firelane.
7. No motor vehicle shall be operated on any part of any wildlife management area that has been designated as closed to vehicular traffic.

Hunters:

Hunting equipment may not be taken onto the WMA until after 8 a.m. the day before the opening of a season and shall be removed by 6 p.m. 1 day after the end of the season.

Guns:

1. Hunting at night with a gun is prohibited.
2. Muzzleloading guns used for taking deer must be .40 caliber or larger, if firing a single bullet, or be 20 gauge or larger if firing 2 or more balls.
3. Hunting deer with rimfire or non-expanding, full metal jacket (military ball) ammunition is prohibited.
4. Air guns may be used to hunt gray squirrel and rabbits during any season when these species are legal to hunt, except archery and muzzleloading gun.
5. Children under the age of 16 hunting with a firearm or air gun must be in the presence of a supervising adult.
6. No person shall discharge a firearm or have a loaded firearm in hand while under the influence of alcohol or drugs.
7. For hunting non-migratory game, only shotguns, rifles, pistols, bows, crossbows or falconry may be used. Hunting during the spring turkey season with firearms other than shotguns or using a shot size larger than #2 is prohibited.
8. For hunting migratory game, only shotguns, bows, crossbows and falconry may be used.
9. Hunting with full automatic or silencer-equipped firearms, centerfire semi-automatic rifles having a magazine capable of holding more than 5 rounds, explosive or drug-injecting devices and set guns is prohibited.
10. The discharge of a firearm outside of periods open to hunting or in areas closed to hunting is prohibited per s. 790.15 FS.

Dogs:

1. Hunting with dogs is prohibited, except bird dogs or retrievers may be used during the small game and migratory bird seasons for hunting small game. Hunting deer and wild hog with dogs is prohibited.
2. No person shall allow any dog to pursue or molest any wildlife during any period in which the taking of wildlife by the use of dogs is prohibited.
3. Dogs on leashes may be used for trailing wounded game.
4. For purposes other than hunting, dogs are allowed, but must be kept under physical restraint at all times.

Camping:

1. Camping is allowed only at the designated campsite.
2. Only tents may be used for camping.

Bag and Possession Limits: A guest hunter must share the host's bag limit. No person shall exceed the statewide bag limit.

1. Deer - 1 per quota permit. During the family hunt, the bag limit for antlered deer is 1 per person. See individual seasons for legal to hunt.
2. Wild hog - No size or bag limit.
3. Turkey - 1 per spring turkey quota permit.
4. Gray squirrel, quail and rabbit - Daily limit 12, possession limit 24 for each.
5. Raccoon, opossum, armadillo, beaver, coyote, skunk and nutria - No bag limits.
6. Bobcat and otter - Prohibited.
7. Migratory birds - See Migratory Bird Hunting Regulations pamphlet.

Archery Season:
September **13-16, 20-23, 27-30** and October **4-7.**
Permit, Stamp and License Requirements - Quota permit, hunting license, management area permit, archery permit, deer permit (if hunting deer), migratory bird permit (if hunting migratory birds), and state waterfowl permit and federal duck stamp (if hunting waterfowl).
Legal to Hunt - Any deer (except spotted fawn), wild hog, gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.
Regulations Unique to Archery Season - Hunting with guns or crossbows (except by disabled crossbow permit) is prohibited, except that centerfire shotguns are allowed for hunting migratory birds when 1 or more species are legal to hunt (see Migratory Bird section and the current Migratory Bird Hunting Regulations pamphlet).

Muzzleloading Gun Season:
October **18-20**
Permit, Stamp and License Requirements - Quota permit, hunting license, management area permit, muzzleloading gun permit, deer permit (if hunting deer) and migratory bird permit (if hunting migratory birds).
Legal to Hunt - Deer with at least 1 antler 5 inches or more in length, wild hog, gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.
Regulations Unique to Muzzleloading Gun Season - Hunting with archery equipment or guns, other than muzzleloading guns, is prohibited, except that centerfire shotguns are allowed for hunting migratory birds when 1 or more species are legal to hunt (see Migratory Bird section and the current Migratory Bird Hunting Regulations pamphlet).

Family Hunt:
November **1-4.**
Permit, Stamp and License Requirements - Quota permit, hunting license, management area permit, deer permit (if hunting deer) and migratory bird permit (if hunting migratory birds).
Legal to Hunt - Deer with at least 1 antler 5 inches or more in length, wild hog, gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.
Regulations Unique to Family Hunt -
1. Up to 2 youths (under 16 years of age but not younger than 8 years of age) per quota permit, may hunt under the direct supervision of an adult (at least 18 years of age) but the quota permit holder must be present for the youth to hunt.
2. The quota permit holder may hunt, but only in the presence of at least 1 youth.

General Gun Season:
November **8-12.**
Permit, Stamp and License Requirements - Quota permit, hunting license, management area permit, deer permit (if hunting deer) and migratory bird permit (if hunting migratory birds).
Legal to Hunt - Deer with at least 1 antler 5 inches or more in length, wild hog, gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.

Small Game Season:
November **15** through January **11.**
Permit, Stamp and License Requirements - Hunting license, management area permit, migratory bird permit (if hunting migratory birds), and state waterfowl permit and federal duck stamp (if hunting waterfowl).
Legal to Hunt - Wild hog, gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.
Regulations Unique to Small Game Season -
1. Hunting with bird dogs or retrievers is allowed for hunting small game.
2. Only bows, crossbows and shotguns may be used for hunting.

Trapping: Prohibited.

Spring Turkey Season:
March **7-10** and **11-15**
Permit, Stamp and License Requirements - Quota permit, hunting license, management area permit and wild turkey permit
Legal to Hunt - Bearded turkey or gobbler.
Regulations Unique to Spring Turkey Season -
1. Legal shooting hours are ½ hour before sunrise until 1 p.m.
2. Hunting other animals is prohibited.
3. Only bows, crossbows and shotguns using #2 or smaller shot size may be used for hunting.

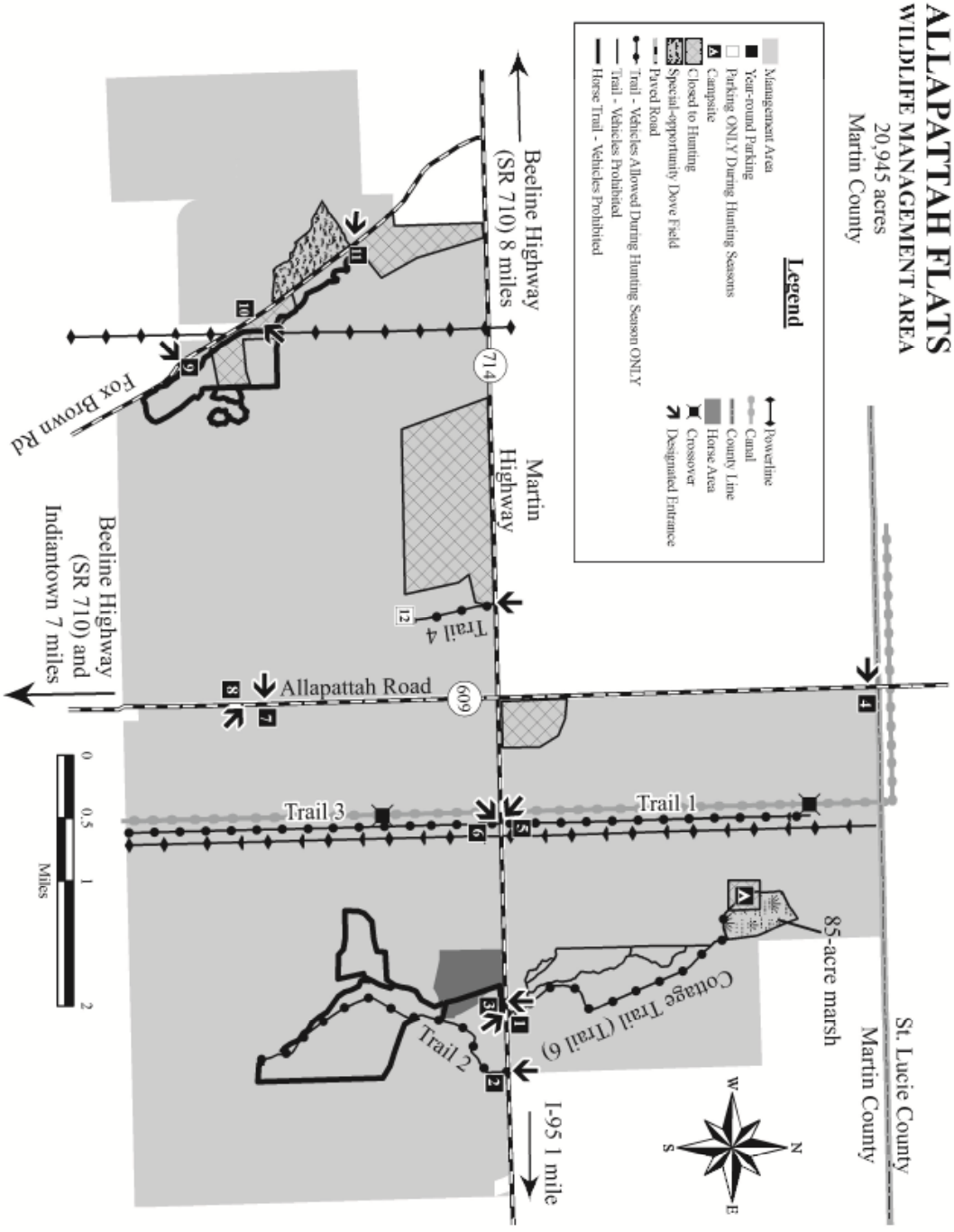
Migratory Bird Seasons:
Rail, common moorhen, mourning dove, white-winged dove, snipe, ducks, geese, coot, woodcock and crow may be hunted during seasons established by the Commission for these species.
Permit, Stamp and License Requirements - Quota permit (if hunting during any quota period), hunting license, management area permit, migratory bird permit, and state waterfowl permit and federal duck stamp (if hunting waterfowl).
Legal to Hunt - See Migratory Bird Hunting Regulations pamphlet.
Regulations Unique to Migratory Bird Seasons - All Migratory Bird Regulations shall apply.
1. Hunting ducks, geese and coot with lead shot is prohibited.
2. Centerfire shotguns are allowed for hunting during established area seasons when 1 or more migratory birds are legal to hunt.
3. Migratory birds may be hunted with bird dogs or retrievers.

Fishing:
Allowed year round.
Permit, Stamp and License Requirements - Fishing license.
Legal to Take - See Florida Freshwater Fishing Regulations Summary
Regulations Unique to Fishing - All General Freshwater Fishing Regulations shall apply. Frogging is prohibited.

General Information:
1. Information for persons with disabilities can be found at MyFWC.com/ADA.
2. If you have any questions about this material, please call the Fish and Wildlife Conservation Commission at 561-625-5122 (TDD 800-955-8771).
3. The FWC is not responsible for protection of personal property and will not be liable for theft of or damage to personal property.
4. Please report the location of any sick or extremely skinny deer to the Chronic Wasting Disease hotline, toll free at 866-293-9282

Cooperation Requested:
If you see law violators or suspicious activities, contact your nearest Commission regional office or call 888-404-FWCC. You may qualify for a cash reward from the Wildlife Alert Reward Association.

The U.S. Department of the Interior prohibits discrimination on the basis of race, color, national origin, age, sex or disability. If you believe that you have been discriminated against in any program, activity or facility as described above, or if you desire further information, please write to: The Office for Human Resources, U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240. The project described in this publication is part of a program funded by federal dollars under the Wildlife Restoration Act. Federal funds pay 20 percent of the cost of the program.


ALLAPATTAH FLATS
WILDLIFE MANAGEMENT AREA
20,945 acres
Martin County
Legend
Management Area
Year-round Parking
Parking ONLY During Hunting Seasons
Campsite
Closed to Hunting
Special-opportunity Dove Field
Paved Road
Trail - Vehicles Allowed During Hunting Season ONLY
Trail - Vehicles Prohibited
Horse Trail - Vehicles Prohibited
Powerline
Canal
County Line
Horse Area
Crossover
Designated Entrance
Beeline Highway
(SR 710) 8 miles
Fox Brown Rd
714
Martin
Highway
Trail 4
Beeline Highway
(SR 710) and
Indiantown 7 miles
Allapattah Road
609
Trail 3
Trail 1
85-acre marsh
Cottage Trail (Trail 6)
Trail 2
I-95 1 mile
St. Lucie County
Martin County
N
S
E
W
0
0.5
1
2
Miles

Appendix F: Prescribed Grazing Plan

Prescribed Grazing Plan

Prepared for

Allapattah A

In
Martin County, Florida

In cooperation with
Martin Soil & Water Conservation District
And
United States Department of Agriculture
Natural Resources Conservation Service

Table of Contents: **Page**

1. **Definition:**
   Prescribed grazing is a controlled harvest of vegetation with grazing and browsing animals. Prescribed grazing will be used on lands where grazing animals are managed. Prescribed grazing will be used in conjunction with Nutrient Management, Pest Management, and/or other practices needed to meet the resource concerns and the landowner's objectives.

2. **Purpose:**
   This practice will be applied as part of a conservation management system to accomplish the following objectives:
   - Maintain a stable and desired plant community, improve or maintain the health and vigor of selected plants.
   - Maintain or improve animal health and productivity.
   - Maintain or improve water quality.

   Note: This plan will be reviewed yearly by the owner/operator. If the number of livestock (10% or more) or the forage condition changes the plan may need to be revised.

3. **General Description:**
   The Ranch is located in Northern Martin County. The property is currently leased and managed as a cow/calf operation. The principal forage species in the pastures is Bahia grass. Other plant communities located on the property include South Florida Flatwoods, Wetland Hardwood Hammock, Freshwater Marsh and Wet Prairie.

   The ranch can support approximately 660 cows and 32 bulls on the 2781.7 acres that are open to grazing. There are a total of 5070.4 acres within the unit. The ranch is currently managed as a cow/calf operation. The pastures in their current condition are capable of producing enough forage to support **1605 animal units (AUs)** (if the proposed modifications are followed). The system in its present condition can support an average of **660 cows,** with an average weight of 1000 lbs., and **32 bulls**, with an average weight of 1350 lbs with a suggested 20:1 Cow/Bull ratio. A number of White tailed Deer and Feral hogs also utilize the area.

   One animal unit (AU) is one mature cow of approximately 1,000 pounds and a calf up to weaning, usually six (6) months of age, or their equivalent. To estimate animal units for Heifers and Bulls use the following AU values.

Animal Unit Equivalent Guide

Species	Average Weight (pounds)	Animal Unit Equivalent (AUE)	- - - - Forage Consumed (pounds) - - - -		
			day	month	year
Cow, dry	950	0.92	24	727	8,730
Cow with calf	1,000	1.00	26	790	9,490
Bull, mature	1,500	1.35	35	1,067	12,811
Cattle, 1 year old	600	0.60	15.6	474	5,694
Cattle, 2 year old	800	0.80	20.8	632	7,592
Deer, white-tailed, mature	150	0.15	3.9	118	1,423

Note: At the time when this plan was developed and forage inventory was conducted, the pastures were in a state of dormancy due to shortened day lengths and limited rainfall. It's possible that the stocking rate numbers may need to be adjusted if summer experiences below or above average rainfall and or pasture health and condition decrease.

4. Objectives:

The landowner's objectives are to operate a productive cow/calf operation and minimize impacts to the resources. The objectives of a prescribed grazing plan are to improve or maintain an optimum level of quality of forages to ensure livestock health, profitability, and protect the resources.

5. Livestock Forage Inventory:

Livestock Forage Inventories are estimates of available forage in each pasture. These estimates are then used to project stocking rates and feed requirements annually. The following Livestock Forage Inventory was evaluated at the time of the development of this plan. Forage availability will vary due to climatic conditions and management of grazing system. The forage inventory should be evaluated on a regular basis to ensure proper forage requirements of the livestock are met.
The main forage is improved grass varieties. Smut grass, Dog fennel, TSA and Pigweed are present in all pastures, however in areas grazed their cover is 5-20%. Some of the Rangelands plants are listed in section 10. These plants are good indicators to help you manage the grazing periods. The overall vegetative conditions suggested the ranch is stocked at or slightly below the carrying capacity. However, some areas are being over utilized while others are under utilized because of poor distribution and the length of time the livestock are in a pasture.

Plant Communities Descriptions:

Improved Pasture – Main forage is Bahia grass in all pastures. Most pastures range in condition from fair to good. All pastures contain some Smut Grass, Dog Fennel and Tropical Soda Apple.
Suggested stocking rate for: Bahia 3.8 AUM/Acre.

Freshwater Marsh - Wet areas with mainly wetland plants, flooded for most of the wet season and are considered very important habitat for many wildlife species. Fresh water marshes have been split into two categories based on plant composition and wetland functionality. FWM-1 contains many native plants such as Maidencane, Bluestems, pickerel weed, Juncus and invasive torpedo grass. These wetlands are believed to be close to functioning wetland's holding water through most of the year due to limited impacts to hydrology.
Suggested stocking rate is 12 Ac/AU.

Freshwater Marsh-2 - Wet areas with mainly wetland plants, flooded for most of the wet season and are considered very important habitat for many wildlife species. FWM-2 is considered heavily degraded based on plant composition. Plant composition is mainly comprised of woody species such as Wax myrtles, Willows and other invasive plants. These areas now function similar to wet prairie, and stocking rate varies based on amount of woody invasion.
Suggested stocking rate is 21 Ac/AU.

Wetland Hardwood Hammock - This community is present but not widespread. This community mainly consists of Bay, Cypress and Red Maple trees. This community has a low Potential for producing forage due to the dense canopy cover of hardwoods and associated palms. These will provide protection from cold weather and shade during hot summer months. There will be little forage available when the canopy cover exceeds 60 percent. Suggested stocking rate is 24 Ac/AU.

South Florida Flatwoods/Bahia- This area is mainly composed of slash pine over story and an understory mainly consisting of Bahia, Bluestems and saw palmetto. Stocking rate will decrease as canopy density increases, due to loss of sun reaching competing understory. The Suggested Stocking rate is 5 Ac/AU.

Forage Inventory (Existing open to grazing):

Field	ACRES	LABEL	Condition	Production AUM	Suggested AU	
Field 3	172.6	Bahia	Fair	655.9	54.7	
	43.1	Fresh Water Marsh		43.1	3.6	
						58.3
Field 5	11.4	Bahia	Fair	43.3	3.6	
Field 5a	1.7	Bahia	Fair	6.5	0.5	
Field 5b	0.5	Bahia	Fair	1.9	0.2	
Field 5c	0.9	Bahia	Fair	3.4	0.3	
Field 5d	0.9	Bahia	Fair	3.4	0.3	
						4.9
Lane	22.6	Bahia	Fair	85.9	7.2	
						7.2
Field 6	301.3	Bahia	Fair	1144.9	95.4	
	1.2	Fresh Water Marsh	Fair	1.2	0.1	
						95.5
Field 7	86.4	Bahia	Fair	328.3	27.4	
	2.6	Fresh Water Marsh	Fair	2.6	0.2	
						27.6
Field 9	726.9	Bahia	Fair	2762.2	230.2	
	92.3	Fresh Water Marsh	Fair	92.3	7.7	
	1.8	Fresh Water Marsh-2	Poor	1.0	0.1	
						238.0
Field11	55.4	SFF/Bahia	Fair	133.0	11.1	
		Upland Hardwood				
	3.3	Hammock	Fair	1.7	0.1	
	2.8	Fresh Water Marsh	Fair	2.8	0.2	
						11.4
Field 12	42.2	SFF/Bahia	Fair	101.3	8.4	
	4.3	Fresh Water Marsh	Fair	4.3	0.4	
						8.8
Field 13	254.9	Bahia	Fair	968.6	80.7	
	188.2	Fresh Water Marsh	Fair	188.2	15.7	
	149.6	SFF	Fair	149.6	12.5	
		Wet Hardwood				
	21.7	Hammock	Fair	10.9	0.9	
						109.8
Field 14	383.8	Bahia	Fair	1458.4	121.5	
	209.3	Fresh Water Marsh	Fair	209.3	17.4	
						138.9

2781.7 Total Acres Suggested Yearly Stocking Rate 700.4

Definitions

AUM = Animal Unit Month, the amount of forage needed to support one (1) animal unit for one (1) month. By definition an AUM is equivalent to 780 lbs. of forage.

Ac/AU = Acres per Animal Unit, an abbreviation used to describe the number of acres needed to support one (1) Animal Unit (AU) for 12 months.

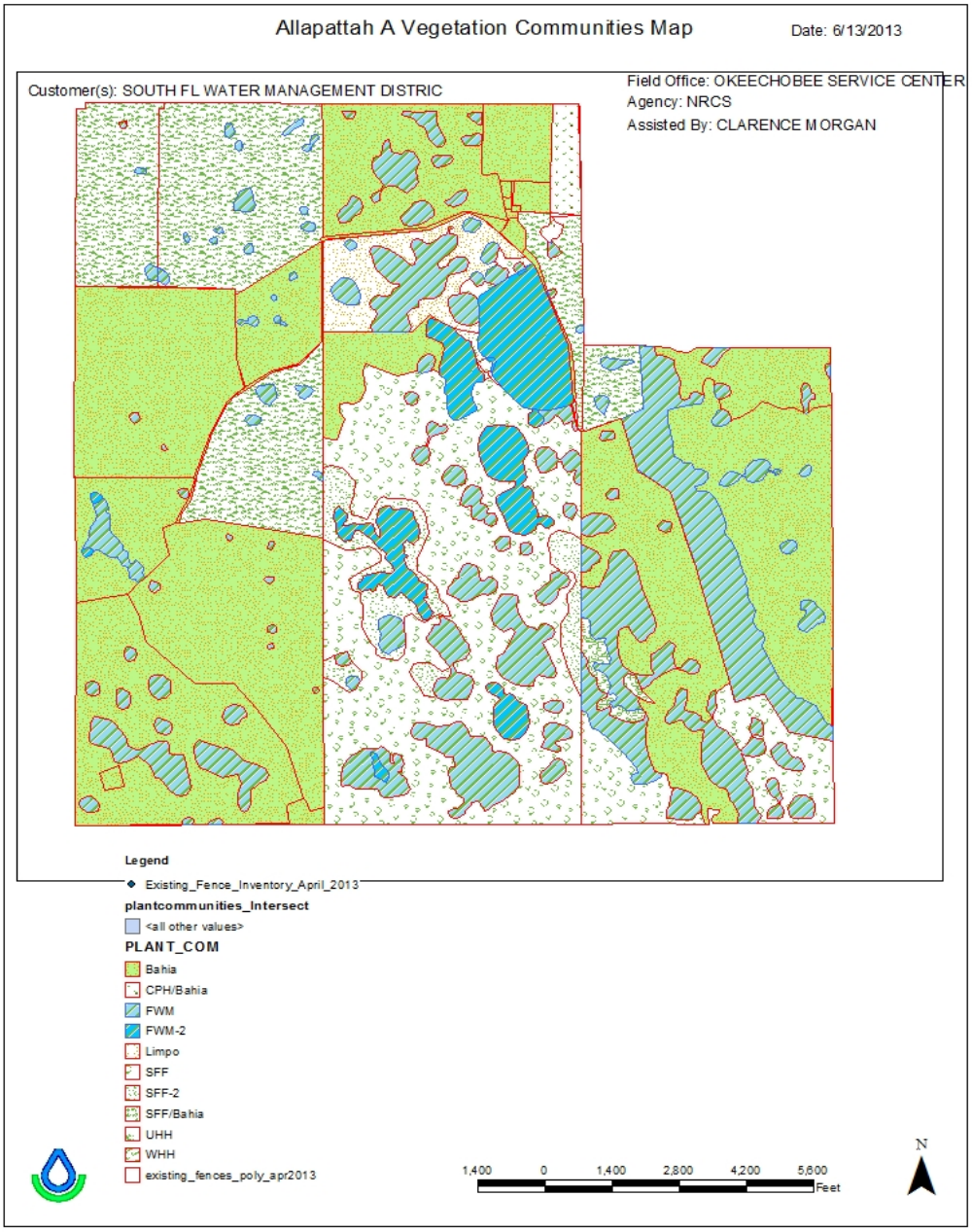
AU = Animal Unit = One (1) animal unit (AU) is equivalent to one (1) mature cow of approximately 1,000 pounds and a calf up to weaning, usually six (6) months of age, or their equivalent. To estimate animal units for various kinds and classes of animals refer Table

Forage Inventory (Proposed Pastures):

Field	ACRES	LABEL	Condition	Production AUM	Suggested AU	
Field 1	157.3	SFF/Bahia	Fair	377.5	31.5	
	2.4	Fresh Water Marsh		2.4	0.2	
						31.7
Field 2	286.2	SFF/Bahia	Fair	686.9	57.2	
	13.4	Fresh Water Marsh		13.4	1.1	
						58.3
Field 3	172.6	Bahia	Fair	655.9	54.7	
	43.1	Fresh Water Marsh		43.1	3.6	
						58.3
Field 4	55.1	Bahia	Poor	154.3	12.9	
	33.3	CPH/Bahia	Poor	33.3	2.8	
						15.7
Field 5	11.4	Bahia	Fair	43.3	3.6	
Field 5a	1.7	Bahia	Fair	6.5	0.5	
Field 5b	0.5	Bahia	Fair	1.9	0.2	
Field 5c	0.9	Bahia	Fair	3.4	0.3	
Field 5d	0.9	Bahia	Fair	3.4	0.3	
						4.9
Lane	22.6	Bahia	Fair	85.9	7.2	
						7.2
Field 6	301.3	Bahia	Fair	1144.9	95.4	
	1.2	Fresh Water Marsh	Fair	1.2	0.1	
						95.5
Field 7	86.4	Bahia	Fair	328.3	27.4	
	2.6	Fresh Water Marsh	Fair	2.6	0.2	
						27.6
Field 8	180.7	SFF/Bahia	Poor	180.7	15.1	
	7.3	FWM	Poor	4.2	0.3	
						15.4
Field 9a	297.4	Bahia	Fair	1130.1	94.2	
	71.6	Fresh Water Marsh	Fair	71.6	6.0	
						369.0
Field 9b	332.7	Bahia	Fair	1264.3	105.4	
	3.7	FWM	Fair	3.7	0.3	
						105.7
Field 9c	96.4	Bahia	Fair	366.3	30.5	
	16.9	FWM	Fair	16.9	1.4	
	1.8	FWM-2	Poor	1.8	0.1	
						384.2
Field 10a	99.3	Limpo	Very Poor	377.3	31.4	
	67.1	Bahia	Fair	255.0	21.2	

	84.3	Fresh Water Marsh	Fair	84.3	7.0	
	77.6	SFF	Fair	186.2	15.5	
	5.7	SFF-2	Poor	5.7	0.5	
						75.6
Lake	101.6	Fresh Water Marsh-2	Poor	58.1	4.8	
						87.4
Field11	55.4	SFF/Bahia	Fair	133.0	11.1	
	3.3	Upland Hardwood Hammock	Fair	1.7	0.1	
	2.8	Fresh Water Marsh	Fair	2.8	0.2	
						11.4
Field 12	42.2	SFF/Bahia	Fair	101.3	8.4	
	4.3	Fresh Water Marsh	Fair	4.3	0.4	
						8.8
Field 13	254.9	Bahia	Fair	968.6	80.7	
	188.2	Fresh Water Marsh	Fair	188.2	15.7	
	149.6	SFF	Fair	149.6	12.5	
	21.7	Wet Hardwood Hammock	Fair	10.9	0.9	
						109.8
Field 14N	137.0	Bahia	Fair	840.6	70.0	
	84.9	Fresh Water Marsh	Fair	84.9	7.1	
						77.1
Field 14S	162.7	Bahia	Fair	618.3	51.5	
	120.6	Fresh Water Marsh	Fair	120.6	10.1	
						61.1
	3864.6 Total Acres			Suggested Yearly Stocking Rate		1604.7

6. Livestock Forage Inventory Map:



7. **Annual Grazing Schedule** (Utilizing only the present pastures as configured)**:**
Annual Grazing Schedules are designed to account for variations in the amount and growth of forage due to changes in climatic conditions. The following schedule should be used as a **guide** only. Actual rotation schedules should be based on amount and conditions of forage in each pasture.

Suggested Annual Grazing Schedule

Cooperator: SFWMD
Allapattah A
Technician: Clarence Morgan

Date: June-08

Field	Acres	AU	Jan.	Feb.	Mar.	Apr.	May	Jun	Jul	Aug.	Sept.	Oct.	Nov.	Dec.
3	215.7	58.3	Rest Period Every 28+ Days				Rest Period Every 14-28 days					Rest Period Every 28+ Days		
5	15.4	9.4												
6	302.5	95.5												
7	89.0	27.6												
9	821.0	238.0												
11	61.5	11.4												
12	46.5	8.8												
13	614.4	109.8												
14	593.1	138.9												
Lane	22.6	7.2												
Totals:	**2781.7**	**700**												
Supp:			XO	XO	XO	O	O	O	O	O	O	XO	XO	XO

X Protein
O Mineral

Suggested Breeding Season
Use as a guide only

Important: Base grazing periods on the forage plants required on the required stubble heights as shown in Section 9. Environmental conditions such as soil moisture, temperature, forage quality, ect, will be considered by the manager when determining actual rotation schedule.

8. **Recommended modifications to pasture configuration and grazing schedule:**
With the present pasture configuration Pastures 9 and 14 are much larger in both area and capacity than the other pastures resulting in poor livestock distribution and excessive grazing periods. Because of this poor distribution and long grazing periods, portions of each pasture are over grazed while other areas are under grazed. If this continues the forage condition will decline. Therefore, they should be sub divided. Pasture 9 has a distinct change in the vegetation, as a result of past activity, along where the new fence is proposed. There is also a change in the vegetation condition in Pasture 14 north of the proposed fence location. By dividing each pasture as proposed will improve livestock distribution and will lead to improving vegetation condition. Pasture 10 (the large mostly native middle) pasture should have a fence built dividing the northern Limpo and Bahia grass areas from the rest of the pasture and this section opened to grazing.

Also the pastures presently not grazed are growing up in woody vegetation and accumulating thatch. This accumulation of thatch is leading to forage wasted, reduced forage quality, and tiller development, and promotes some types of weeds and woody plants invasion.

With the new pasture configuration and opening all 17 pastures to grazing a rapid rotation schedule, during the growing season, can be followed while still providing adequate recovery period following each grazing event. During the growing season the grazing period should 7 days or less followed with at least 28 day recovery period. The stubble height will determine the length of each grazing and recovery period (see section 10).

9. Plan Map:


Allapattah A Proposed Improvement Map
Date: 7/15/2013
Customer(s): SOUTH FL WATER MANAGEMENT DISTRIC
Field Office: OKEECHOBEE SERVICE CENTER
Agency: NRCS
Assisted By: CLARENCE MORGAN
Legend
Proposed Pipeline (Line)
Proposed Fence (Line)
existing_fences_inventory_april_2013
1,500 0 1,500 3,000 4,500 6,000
Feet
N

10. Recommended Grazing Heights and Length of Grazing Periods:

Grazing animals can rapidly and substantially alter the productivity and amount of forage in each pasture because of grazing preferences and animal distribution. Overgrazing adversely affects wildlife habitat, plant growth, water, soil conservation, and plant persistence. Animals prefer improved pasture forages like the one listed below and avoid plants that are coarse and hard to digest. During the late spring, summer and early fall cattle tend graze upland areas and avoid grazing in wetlands such as sloughs and marshes if adequate forage is available. However, limited availability of forage plants on upland areas may induce more grazing of the wetland plants in some seasons, and could result in overgrazing. Under-grazing results in forage waste, reduced quality, and reduced tiller development. Therefore, the number of animals on a specific area must be balanced with available forage to achieve the goals and objectives for this site. This will require monitoring of the forage availability on a regular basis and adjusting the stock density as needed to maintain a unique balance of desirable forage and important wetland vegetation.

The following table lists common forages found in South Florida along with recommended heights to maintain healthy stands of forage:

FORAGE TYPE	Min. Ht. To Begin Grazing	Min. Grazing Ht.
Bahia grass	6”	2”
Limpo	12”	4”
Maidencane (FWM)	12”	6-8”
Chalky bluestem (Rangeland)	12”	6-8”

Grazing heights for native forage plants is dependent upon the species and the time of year the plant is grazed. For Native Grasses, ***remove no more that 50% (by weight) of the plant in any grazing event*** This will provide proper use of the forage while maintaining sufficient plant material to, provide wildlife habitat, protect the soil resource, and maintain the health of the plant community.

Grazing periods should be kept relatively short to prevent the plants from being grazed before they have the opportunity to recover from the last grazing event. This will depend on the size of the herd and the area to be grazed. Use the forage heights shown in the previous table to determine the length of the grazing periods.

Rest Periods should be provided between grazing events for all plants to recover from the effects of grazing. The recovery periods should be long enough to allow the forages to reach the *Minimum Height to Begin Grazing.* Because the rest periods are based on the growth rate of the plants the length of the rest period will vary. The recommended recovery periods are shown in the following table:

	Resting Periods Based on Forage Growth Rate		
Forage Type	**Forage Growth Rate**		
	Fast (June1-Sept 1)	Moderate (Mar 1-June 1 Sept 1 – Nov 1)	*Dormant* (Nov 1- Mar 1)
Bahiagrass	14-28 days	28-35 days	35-60 days or more
Limpograss	14-21 days	28-35 days	35-60 days or more
Maidencane	28-35 days	35-45 days	45-60 days or more
Chalky bluestem	28-35 days	35-45 days	45-60 days or more

11. Adjustments to the Grazing System:

Adjustments in the grazing management system will be necessary during and after management activities, such as planting, prescribed burning or pest management. The adjustments will provide a suitable period for the vegetation to recover from the management activity or as dictated by pesticide label restrictions. A deferment from grazing means the complete removal of **all** domestic animals for the duration of the deferment.

If buffer areas are developed around specific wetlands or other areas within the Ranch during the restoration process, livestock grazing may be permitted during dry periods of the year. This will help to utilize available forages within the buffer and control woody vegetation. Stocking rates should be adjusted to assure that grazing is complete within one week. The minimum grazing heights listed in Section 9 for corresponding grasses shall not be exceeded.

When prescribed burning is applied, grazing shall be deferred as follows:

Improved pasture areas	30-60 days during the growing season (Mar1-Oct1)
Flatwoods	30-90 days during the growing season (Mar1-Oct1)
Fresh Water Marsh and Slough	30-90 days during the growing season (Mar1-Oct1)

Areas that have been disturbed and planted to native vegetation shall be deferred from grazing for a minimum of 1 complete growing season following planting or until the grass is well established and produces seed. Native grass plantings generally require 2 complete growing seasons to become well established. The deferment shall continue until a NRCS Rangeland or Grazing Land Specialist has provided approval. Temporary fences may be used to protect small areas during the deferment period.

Areas that have been mechanically treated and/or planted, will be provided a deferment period to allow herbaceous plants to recover. The deferment should be a minimum of 90 consecutive days during the period of March 1 to December 1, unless only spot control was applied**.**

If herbicides used to control common weeds and invasive species the grazing management will be adjusted to meet the requirements (if any) listed on the herbicide label. Cattle should not be allowed to re-enter the area for the duration shown on the herbicide label.

12. Operation and Maintenance:

The location of mineral and supplement feeders will be moved routinely to evenly distribute grazing animals throughout the pasture; however freshwater marshes, wetlands, drainage ditches sloughs and other sensitive areas should be avoided. The herd will be rotated to a fresh pasture when the average stubble height falls below the recommended minimum grazing height (See Section 9). When possible, the grazing period should be 14 days or less and the pastures allowed a recovery period of 21 days or until the forage reaches the recommended height to begin grazing (See Section 9).

13. Contingency Management Plan:

Forage supplies will be evaluated weekly to determine if forage supplies and quality are adequate to meet livestock demand. When the forage is not adequate, the grazing system will be adjusted or supplemental feed will be supplied.

When prolonged periods of adverse climatic condition effect the supply of forage, the grazing system and/or stocking rates will be adjusted or additional supplemental feed will be provided.

14. Record Keeping:

Records of grazing rotations need to be maintained and provided to ensure pastures are adequately grazed through the year. Forage enclosures may help producers establish a baseline of forage amount removed during a grazing season. A grazing sick and recorded grazing height for a pasture on date in and out can also help to insure grazing pastures are not over and/or underutilized.

15. Prescribed Burning:

To mimic nature prescribed burning should be conducted in late winter through early summer, when possible, working toward more spring/summer burns. All burn blocks should be limited in size (200 acres more or less) or the entire pasture, to create a mosaic of varying vegetation condition. Where there is an over story of trees, the burn will be conducted to limit tree mortality. The burn return interval for any area will be 3 to 5 years.

16. Prescribed Burn Map

17. Herbaceous Weed Management:

Purpose:

This practice is applied to control herbaceous weed species and to increase:

- Forage accessibility, quantity, and quality and overall pasture health

Conservation Practice: Herbaceous Weed Control 315

Targeted Species:

During the inventory very few "weedy" species were observed and no introduced invasive plants were documented. Below is a list of identified plant species located on the property or adjacent properties that poses the ability to rapidly invade pastures and greatly reduce forage quality and habitat. The control of these species is based on recommended control measures by University of Florida IFAS extension.

1. Tropical Soda Apple – Tropical Soda Apple (TSA) was located in some extent in all three management units. This invasive plant species is often found under hammocks and other livestock concentration areas such as watering troughs and supplemental feeders. The UF/IFAS has released a biological control agent, this small beetle feeds largely on the leaves of the TSA plant during all stages of its life, while the beetle may not totally kill the plant it does provide enough stress on the plant that it will reduce the amount of "fruits" or seeds produced during its life span.

2. Smutgrass – Smutgrass is a native "weedy" plant species that will actively encroach on established bahiagrass pastures. This plant is easily distributed by seed and reaches maturity rapidly, therefore limiting grazing by livestock. Plants will form large robust bunches that will provide some wildlife benefits for ground nesting birds. Control of this species is often costly and expensive when controlled with herbicides and generally requires active re-planting once eradicated. Livestock will utilize plants for grazing when the plant is kept in a young actively growing vegetative state; this is often done through mowing and the use of prescribed burning.

3. Cogongrass – Cogongrass is an aggressive invasive plant species that will form dense monoculture clumps and reduce or eliminate other forage species growing around it. Control of this plant species usually takes a combination of inputs. First the above ground vegetation should be removed through mowing or fire, and second the young re-sprouts should be chemically treated, with a follow up of treatments as needed.

4. Old World Climbing Fern – Old World Climbing Fern is an invasive plant that is generally found growing in wetlands and Wetland Hardwood Hammocks throughout south Florida. The plant was first brought to the United States as an ornamental landscape plant, however due to its ability to rapidly grow and invade and smother both canopy and understory of native ecological communities it is important to treat all know locations. Control is generally a multi-year and multi-application process that includes both mechanical and chemical methods to control.

The table below shows the known herbaceous weedy/invasive plants documented onsite and offsite during the inventory, the management units planned to be treated and ecological community they may affect.

Targeted Species and Infestation Extent

Species	Ecological Community
Tropical Soda Apple	Semi-Improved / Improved Pasture, and Upland Hardwood Hammocks
Smutgrass	Improved Pasture
Cogongrass	Semi-Improved / Improved Pasture, and Upland Hardwood Hammocks
Old World Climbing Fern	Freshwater Marsh, Upland Hardwood Hammock and Wetland Hardwood Hammock

Control/Management Recommendations:

The control or management of these plant species is import to maintain the health and vigor of grazing lands, however total eradication of these species is often hard to achieve or costly, therefore management of species is also important to slow or reduce the presence on the land. Listed below are documented weedy/invasive plant species and UF/IFAS recommended control measures.

1. Tropical Soda Apple:
    i. Spot Spray and Foliar Spray – Plants can be sprayed using Amniopryalid and Aminopyralid with 24-D, both chemicals will kill the adult plant and help control seed sprouts for up to 6 months.
    http://edis.ifas.ufl.edu/pdffiles/UW/UW09700.pdf
        a. When spot spraying plants containing Gratiana bolivianna a biological control bug released by UF/IFAS should be skipped to help ensure adult bugs have sufficient plants for reproduction.

2. Smutgrass
    i. Weed Wiper – Plants can be sprayed at a rate of 1.0lb hexazinone/acre
    http://edis.ifas.ufl.edu/pdffiles/AA/AA26100.pdf
        a. Economic analysis shows that treatment of Smutgrass is most beneficial when 50% or more of the pasture composition is Smutgrass, less than 50% will not result in enough bahiagrass production to offset the cost of treatment.
        b. Fields that a foliar sprayed should also be considered for replanting or have a rest period long enough to allow bahiagrass to fill in bare ground.
    ii. Mowing – Mowing can reduce clump size diameter and provide 2 – 3 week grazing, however may spread seeds if mowed while plants are flowering.
        a. All equipment should be thoroughly cleaned after mowing is conducted in each management unit to prevent the spread of seed from one unit to the next or one property to the next

3. Cogongrass:
    i. Mowing and Spraying – Cogongrass is an aggressive, colony forming perennial grass that is best controlled with a combination of mechanical and chemical treatments. Stands should be mowed to help reduce the dense overstory prior to the application of chemicals to help ensure adequate coverage of all leaf material. Approved chemicals for treating

Cogongrass include Glyphosate (2% solution) or Imazapyr (1% solution) and a surfactant.
http://edis.ifas.ufl.edu/pdffiles/FR/FR25200.pdf

4. Old World Climbing Fern:
    i. Hack and Squirt – Old World Climbing Fern is an aggressive, vine forming dense mat both in the understory and canopy of native plant areas often "chocking" out and killing all native plants under the mat. The recommended method of treatment is to apply a chemical containing the active ingredient Glyphosate. Plants can be cut or hacked around chest level then all material below chest level be sprayed with the chemical mixture. See attached UF/IFAS document for mixing rates and treatment methods.
    http://edis.ifas.ufl.edu/pdffiles/AG/AG12200.pdf

Mitigation and Management:

Mitigation measures should be taken anytime chemicals are applied to reduce impacts to wildlife, water quality and other plant species. Special care should also be taken whenever handling or working with all invasive plant species to ensure plant parts are not transported from one location to another. Listed below is the mitigation and management for both chemical and mechanical treatments of herbaceous weeds.

1. Chemical Mitigation:
    a. Imazapyr – Use **extreme** caution around all hardwood trees, recommended 100' buffer
    b. Hexazinone – Will cause yellowing of Bahiagrass for 15 -30 days, wait 40 days or until bahiagrass has regained dark green color before grazing, there is a 38 day restriction on haying after treatment. Use **extreme** caution around all hardwood trees, recommended 100' buffer from all hardwoods

2. Mechanical Mitigation:
    a. Mowing – Machinery used to mow cogongrass, smutgrass or tropical soda apple should be cleaned prior to and following all mowing to help prevent the spread of seeds and other vegetative materials from one management unit to the next. Machinery should be cleaned in the same location of each management unit following every application to help limit the spread of invasive and allowing for easy control.

18. Brush Management:

Purpose:

This practice is applied to control undesirable woody species and to increase:

- Increase forage accessibility, quality and quantity and overall pasture health

Conservation Practice: Brush Management 314

Targeted Species:

During the inventory several non-native introduced woody species were observed. Below is a list of identified plant species located on the property. The control of these species is based on recommended control measures by University of Florida IFAS extension and NRCS standard.

1. Brazilian Pepper – Brazilian Pepper was not documented on the ranch, however due to its ability to aggressively spread this guidance is for future management and control. This invasive plant species is often found growing inside and along the edge of hammocks. This aggressive plant species is exceptionally hard to control often requiring both chemical and mechanical methods.

The plant also has a high tolerance for fire and is capable of re-sprouting from the root bud following top kill.

2. Saw Palmetto – Palmetto is a native plant species that can form dense colonies that will aggressively shade out vegetative species. There are two recommended methods for treating saw palmetto; these depend largely on the size and maturity of the palmetto.

    1. The table below shows the known herbaceous weedy/invasive plants documented onsite and offsite during the inventory, the management units planned to be treated and ecological community they may affect.

2. Targeted Species and Infestation Extent

Species	Management Unit	Ecological Community
Brazilian Pepper	5, 6	Upland Hardwood Hammock and South Florida Flatwoods
Saw Palmetto	6	South Florida Flatwoods

Control/Management Recommendations:

The control or management of these plant species is import to maintain the health and vigor of grazing lands, however total eradication of these species is often hard to achieve or costly, therefore management of species is also important to slow or reduce the presence on the land. Listed below are documented weedy/invasive plant species and UF/IFAS recommended control measures.

1. Brazilian Pepper:
    i. Hack and Squirt Method – Mature plants should be cut or sheered as close to the ground as possible. Within 5 minutes a herbicide containing the active ingredient Glyphosate or Triclopyr should be as carefully as possible to the cut portion. http://edis.ifas.ufl.edu/pdffiles/AA/AA21900.pdf
        a. The best time for treating Brazilian Pepper is when the tree is not flowering; extra care should be taken with any seeds remaining on the plant as they are able to sprout form a seed source.
        b. Extra caution should be taken when handling Brazilian Pepper as the sap may cause severe rash in some people
2. Saw Palmetto:
    i. Roller/Spiral Chopping – Roller/Spiral Chopping Heavy – Use a drum type roller chopper or aerator arranged in a tandem set, with a minimum weight of 1,500 lbs/linear foot. Pull choppers fast enough to produce a "flipping" action such that brush roots and rhizomes are thrown out of the ground for effective kill. Two passes are generally needed to achieve maximum control of woody vegetation. The second application should be applied diagonally to the first application.
        a. Treatment Timing: November – June
        b. Treatment Lifespan: 5 – 7 years
    ii. Mowing/ Shredding – Mowing is a maintenance practice used to maintain saw palmetto at an expectable height to encourage growth of vegetative plant species.
        a. Treatment Timing: November – June

b. Treatment Lifespan: 3-5 years

Mitigation and Management:

Mitigation measures should be taken anytime chemicals are applied to reduce impacts to wildlife, water quality and other plant species. Special care should also be taken whenever handling or working with all invasive plant species to ensure plant parts are not transported from one location to another. Listed below is the mitigation and management for both chemical and mechanical treatments of herbaceous weeds.

1. Chemical Mitigation:
    a. Glyphosate – Check Label listings for all restrictions, some may be applied to water
    b. Triclopyr – Check Label listings for all restrictions, some may be applied to water

2. Mechanical Mitigation:
    a. Cutting or Sheering – All vegetative material should be handled with care so that seeds are not distributed. After cutting Brazilian Pepper removed vegetation should be piled and burned, see the prescribed burning section for further details.

3. Grubbing:
    a. Physical removal of Brazilian Pepper stumps or plants should be avoided if possible to prevent any disturbance to culturally sensitive areas.

4. Wildlife Mitigation:
    a. Gopher Turtles:
        i. Prior to any implementation of brush management on management units 1 and 3 the landowner should conduct a preliminary walk through and flag all known Gopher Tortoise burrows both active and inactive
        ii. A minimum 25 foot buffer will be maintained around all known Gopher Tortoise burrows. Hand treatments within the buffers are encouraged and will benefit the habitat for the Gopher Tortoise.
        iii. Brush management will be applied in a mosaic treatment style leaving small clumps of saw palmetto clumps to provide for good burrowing sites for gopher turtles

19. Integrated Pest Management:

Purpose:

This practice is applied to:

- Prevent or mitigate off-site pesticide risks to water quality from leaching, solution runoff, and absorbed runoff loss
- Minimize risk to soil, water, air, plants, animals and humans from drift and volatilization losses
- Minimize risks to pollinators and insects
- Prevent or mitigate cultural, mechanical, and biological pest suppression risks to soil, water, air, plants, animals, and humans

Hazard Rating:

The goal of pest management is to reduce populations of target organisms to acceptable levels while minimizing contamination of soil, water, air, and the effects on non-target organisms, through safe

and economic use of pesticides. Integrated pest management (IPM) will be used whenever possible, utilizing the most appropriate means of pest controls including cultural, mechanical, biological, and chemical methods. The table below shows the recommended chemicals by UF/IFAS and there impacts on natural resources, producers should utilize this information in selecting chemicals and their application method that has the least impact on natural resources.

Active Ingredient [1]	**Rate** [1]	**Application Method** [1]	**Leaching Potential** [2]	**Runoff** [2]	**Toxicity** [2]	
					Human	**Fish**
Hexazinone	1lb active ingredient/acre	Broadcast	Intermediate	Intermediate	Very Low	Very Low
Triclopyr	Concentrate	Cut stump	Low	Low	Very Low	Very Low
Imazapyr	1% Solution	Spot	Low	Low	Very Low	Very Low
Amniopryalid	0.5-0.8% /2.5 gal solution	Spot	Very Low	Low	Very Low	Very low
Glyphosate	2% Solution	Spot	Very Low	Low	Very Low	Low

[1] All recommendations are based on UF/IFAS publications, see sections Herbaceous Weed Control and Brush Management for specific publication links
[2] Risk potential based on WIN-PST for dominate soils for the associated plant communities

Mitigation and Management:
While Old World Climbing Fern and smutgrass was the only invasive/weedy species observed onsite other invasive species were observed in close proximity to the property, therefore species such as Tropical Soda Apple, Brazilian Pepper tree and cogongrass have been planned due too there aggressive nature and ability to rapidly invade natural areas. These pests are considered, to be "weedy" species that can cause economic loss in Florida pasture operations. Although some of the pests found throughout the ranch are at an acceptable level, care is needed to ensure these plants are not allowed to exceed an economic threshold. Tropical soda apple, cogongrass and Smutgrass are serious problems in many perennial grass pastures and native areas, especially in south Florida. These invasive plants can infest a pasture within 1-2 years, resulting in lower stocking rates. Below is a list of precautions needed to be taken to prevent such occurrence.

1. Scout all pastures on a regular basis
    a. Pastures should be scouted on a weekly basis once bulls return from breeding off site to control the amount and spread of weedy plant seeds from other fields
    b. Bulls should be moved to a weed free pasture 30 prior to moving for breeding, to help minimize transportation of weedy plants.

2. Calibration of application equipment should be done according to manufacturer and/or extension specifications prior to application of any chemicals
    a. Calibrate application equipment. Nozzles will become worn after extended use, especially when abrasive (e.g., wettable powder) pesticide formulations are used. Replace worn nozzle tips, cracked hoses, leaking connections and faulty gauges so that application accuracy is maintained.

3. Equipment should be cleaned of all vegetative and seed material following any mechanical treatments in a designated location prior to moving to different locations

4. Weed Prevention - All planting material, hay, and supplemental feed brought into the project area will be free of weed seed.
    a. Hay should be obtained from fields that were free of common, noxious, and invasive plants, which include Smutgrass, Tropical Soda Apple, Torpedograss, Cogongrass and others.
    b. All grains used to supplement livestock and/or wildlife should be certified free of noxious and/or invasive plant seeds.

5. Be fully trained and licensed to apply restricted use pesticides when applied. Training is available through the Cooperative Extension Service and IFAS. Review and update the plan periodically in order to incorporate new IPM technology, respond to cropping system and pest complex changes, and avoid the development of pest resistance.
6. Read and follow all label directions and MSDS.

7. Reduce the potential for ground and surface water contamination by the reducing amounts of application equipment rinsate as much as possible. Do not dump rinsate on the ground or dispose of to surface waters or septic systems.

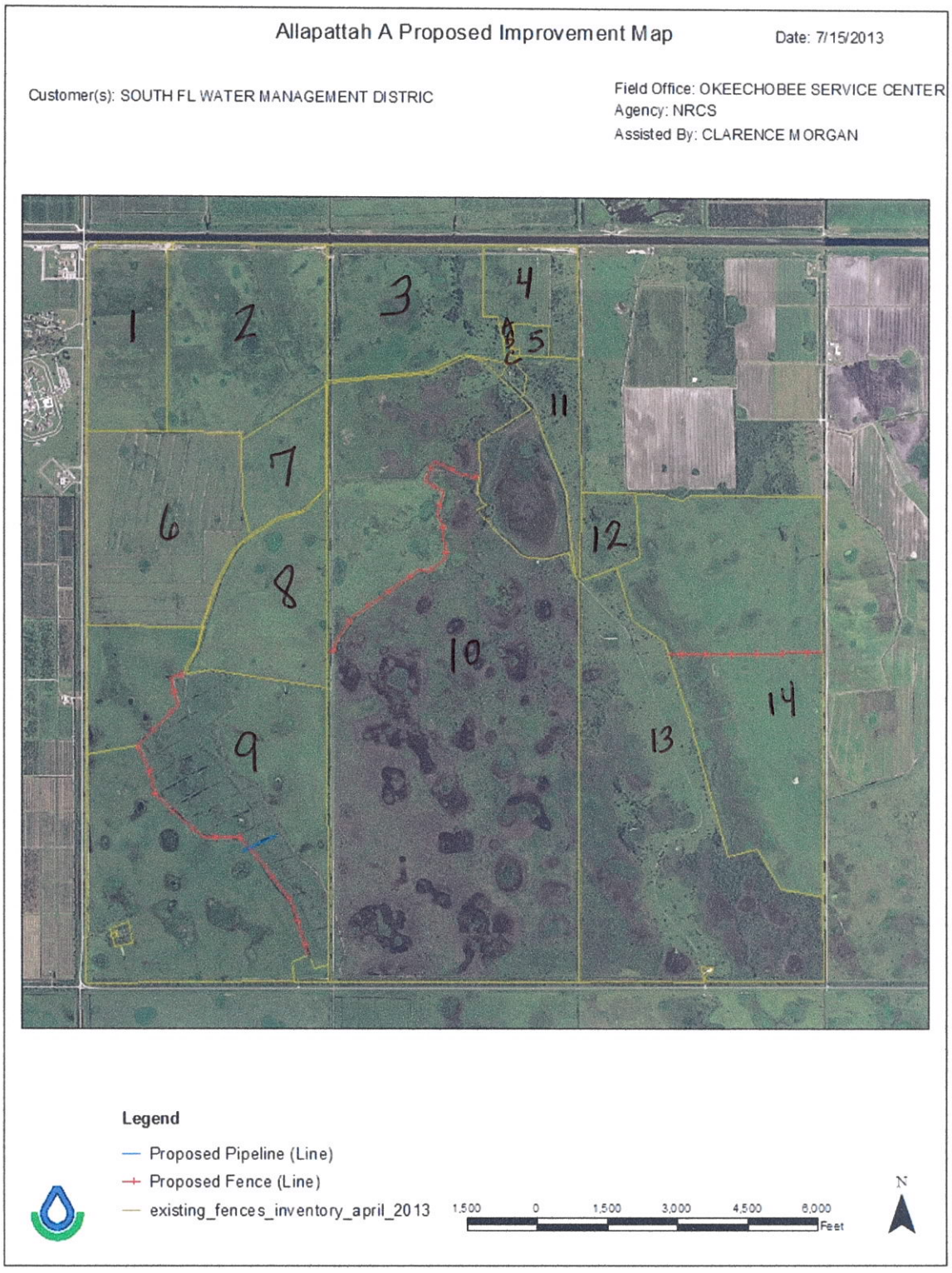
8. Avoid mixing pesticides and loading or rinsing sprayers immediately adjacent to wells, since spills in these areas can easily contaminate water supplies. Run a long hose (100-200 feet) away and preferably downhill from the supply well. Install anti-siphon devices on all hoses used to fill sprayer tanks.

9. Always store pesticides in the original labeled containers, preferably in a locked building and appropriate warning signs.

10. Dispose of leftover material and containers according to label requirements.

11. Avoid exposure to pesticides. Wear appropriate protective clothing, respirator, gloves, and footwear as specified on the product label. Bathe or wash affected area as soon as possible after possible dermal exposure and prior to dining or smoking.

9. Plan Map:


Allapattah A Proposed Improvement Map
Date: 7/15/2013
Customer(s): SOUTH FL WATER MANAGEMENT DISTRIC
Field Office: OKEECHOBEE SERVICE CENTER
Agency: NRCS
Assisted By: CLARENCE MORGAN
1
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13
14
Legend
Proposed Pipeline (Line)
Proposed Fence (Line)
existing_fences_inventory_april_2013
1,500 0 1,500 3,000 4,500 6,000
Feet
N