

# South Dade Wetlands Conceptual Land Management Plan 2005 - 2010



## Conceptual Land Management Plan

### South Dade Wetlands

#### (aka Model Lands / Model Lands Addition / and Southern Glades Addition)

The South Dade Wetlands is a collective project consisting of the Model Lands Basin, much of the Model Lands Addition, and Southern Glades Addition projects, as depicted in Figure A-1. This project is a collaborative endeavor by the Environmentally Endangered Lands (EEL) Program of Miami-Dade County (County) and the Save Our Rivers (SOR) Program of the South Florida Water Management District (District). The project consists of a broad zone of wetlands located in Miami-Dade County, south of Palm Drive (S.W. 344th Street) between the boundaries of Everglades National Park (ENP), the Southern Glades Wildlife Environmental Area (SGWEA), and the Florida Power and Light (FPL) Turkey Point Power Plant facility. The County and the District share an interest in these lands because of their strategic location linking Biscayne National Park and Everglades National Park, because they encompass the watersheds and therefore control freshwater flows to Florida Bay, Biscayne Bay, Card Sound and Barnes Sound. Preserving and restoring the natural environments in the Bay and its watershed is a management goal of the Biscayne Bay SWIM (Surface Water Improvement) plan. These wetlands also have intrinsic value as habitat for numerous wading birds, migratory birds, reptiles, amphibians, and mammals, including numerous threatened and endangered species.

This conceptual management plan describes the management goals and objectives for a five-year interim period during which the County's acquisition plans, the District's Biscayne Bay SWIM plan, and the Comprehensive Everglades Restoration Program (CERP), plans are being realized. These plans will ultimately affect the long term management needs of the region, but completion will require additional time. Meanwhile, lands that have been or are being acquired have management needs that require cooperation in order to meet the primary management goal. Needed management activities during this interim period would benefit from cooperative efforts and realize greater economies of scale than if the same type of work is completed piecemeal by the separate agencies. The County and District seek to establish a partnership for land management activities that will allow the sharing of resources to achieve the primary management goal for the interim period, which is to bring the area into a condition that is conducive to making a long-term management strategy feasible.

#### Background

The region outlined in red on Figure A-1 depicts the area subject to this agreement. The Model Lands Basin, parts of the Model Lands Addition, and the Southern Glades Addition are being combined into the South Dade Wetlands for management purposes because both agencies own land within the collective project area. Under the original 10-year acquisition Memorandum of Understanding, an informal system of management cooperation was established. Approximately 43% of the project area has been acquired either by the County or the District as of February 2005. The history of opportunities to acquire land from willing sellers has resulted in a mosaic of County/District/private ownership. County parcels blend seamlessly with District parcels, with nothing on the ground to distinguish one ownership from another. This mosaic of ownership has made efficient management across the landscape more difficult. A more formal agreement is needed to facilitate the sharing of management resources for the future. Sharing management resources will result in more efficient use of limited staff and funds through economy of scale, coordinated efforts, and more effective communication between and across agencies.

The acquisition area consists of approximately 34,000 acres of freshwater and coastal wetlands. The acquisition area excludes land reservations by RMC South Florida, Inc. and Florida Power and Light for permitted industrial and/or mitigation uses, which make up an additional 16,000 acres. This region is part of the historical southeast saline Everglades, but road and canal construction has fragmented the area into smaller, semi-isolated hydrologic basins. Regional efforts such as the C-111 Spreader Canal and Biscayne Bay Coastal Wetlands CERP projects are underway to restore the historic hydrologic and ecological connections among the basins.

## **Current Conditions**

The region is dominated by marl soils, with mucks present in the larger flowways and immediately adjacent to the shoreline (Figure A-2). Vegetation (Figure A-3) consists primarily of a broad zone of freshwater wetlands that are dominated by sawgrass interspersed with tree islands, although the sawgrass is occasionally replaced by patches of mixed graminoid wet prairie, cattail, or spike rush. This freshwater wetland complex grades into mangrove-dominated coastal wetlands near the coastline and into freshwater forested wetlands (native- or exotics-dominated) near the upland transition. The transition between freshwater and brackish wetlands is marked by a relatively narrow zone where sawgrass and/or spike rush mix freely with mangroves. This ecotone shifts rapidly into a zone with distinctively depauperate vegetation, primarily mangroves with scattered clumps of sawgrass and/or spike rush. This transition region has been distinct on aerials for at least a half-century, and has often been called the “white zone” because the light-colored marl substratum is readily visible as a background for the sparse vegetation.

Over the past century, regional drainage, construction of hydrological barriers such as roads and levees, farming practices, fire suppression, off-trail riding, and introduction of non-native invasive plant and animal species have altered the landscape, yet the regional wetland functions continue to support a wide variety of wildlife, including many listed species. For example, over 140 species of birds have been documented for the region, including 33 wading bird species and listed species such as the white crowned pigeon, bald eagle, least tern, peregrine falcon, woodstork, and snail kite. Panthers have inhabited the area, although none has been documented recently. Alligators and American crocodiles also utilize the region.

The project area consists primarily of undeveloped wetlands, although some industrial, agricultural, and residential uses exist. The largest land use, by area, is for mitigation projects. Florida Power and Light operates a wetland mitigation bank of over 14,300 acres and RMC South Florida, Inc. has reserved approximately 1700 acres of wetlands as mitigation for rockmining. Rockmining and seasonal agriculture are both prominent land uses. Substantial acreage in the Southern Glades Addition is owned and utilized by a commercial airboat tour operator. Some wetlands have been converted to year-round field nurseries, although a substantial proportion of this use is currently unpermitted and enforcement action is underway. Permits have been issued for conversion of approximately 2400 acres of wetlands and/or seasonal agriculture to rockmining lakes and filled acreage to support year-round agriculture, but operations to begin conversion had not begun as of January 2005. There are three active residences, one of which is owned by the District. The US Coast Guard operates a facility just east of and adjacent to Card Sound Road, and the US Navy recently released an abandoned facility for surplus that is located near the junction of Card Sound Road and Levee 31 East. There is a cluster of commercial operations at the south end of the project along Card Sound Road. Other uses include communication towers, closed landfills, and a sailboat marina. The Department of Juvenile Justice operates a facility on SW 424 Street west of US Highway 1’s Mile Marker 123, on the boundary between the Southern Glades WEA and the Southern Glades Addition.

The regional trend is for a continuing loss of habitat for wetland-dependent species within the collective project area due to land use conversion. Regulatory agencies continue to receive inquiries about conversion of wetlands within the project area to other uses, primarily farming and rockmining, although there is also an application pending to annex a substantial portion of the Model Lands and Model Lands Addition for municipal development. An indirect effect of this development pressure, both within and adjacent to the project area, is an increase in speculative real estate purchases. The combined effects of development pressure and real estate speculation may eventually cause additional degradation through the effects of fragmentation, because elevated costs may eventually reduce the probability of acquiring strategic parcels needed for effective management. These trends serve to underscore the importance of continuing management activities on existing public land, in order to offset ongoing habitat loss in the region.

The County and District must ultimately develop a comprehensive management plan that is based upon a final footprint for publicly owned land in the region and a hydrological regime that has yet to be determined because of ongoing CERP planning activities. While acquisition and planning efforts are ongoing, interim management must

take into account the fragmented pattern of public holdings when prioritizing activities. Management of fragmented parcels will be more challenging and generally more expensive than if the entire project area were to be acquired, because of edge effects, problems with access control, and the need to make management decisions based on parcel boundaries rather than ecological needs. Coordination of management effort between the two agencies will counter these effects through more efficient use of resources.

## ***Management Issues***

Management issues that must be addressed during the interim period include control of invasive exotic vegetation, public access control, and implementation of prescribed fire as a management tool. In addition, localized restoration of wetland function through removal of physical barriers should be accomplished wherever feasible. Control of invasive exotic vegetation is the most important of these land management tasks because of the deleterious effects of invasive plants on wildlife habitat and consideration of recently compiled information indicating that several invasive plant species are continuing to expand their range and distribution. The worst problems are capable of invading intact wetland habitat and eliminating native species that provide food or other habitat values by shading them out.

### *Invasive Exotic Plants*

The largest annual expense for management has been for invasive exotic plant control. A 1996 exotic plant survey was conducted for approximately 6,240 acres of wetlands within the South Dade Wetlands (Figure 4). Almost all areas surveyed had at least some infestation by exotics, and more than 2,100 acres (34% of the surveyed area) were infested by 2 or more exotic species. A total of 24 taxa of invasive exotics were detected during the survey, but five species were the most common: Melaleuca (*Melaleuca quinquenervia*), Australian pine (*Casuarina* spp.), Brazilian pepper (*Schinus terebinthifolius*), shoebuttan ardisia (*Ardisia elliptica*), and Burma reed (*Neyraudia reynaudiana*). Although efforts have been underway since 1998 to begin treating invasive exotic plants on publicly owned land, some species (e.g. shoebuttan ardisia) appear to be continuing to expand their distribution in the area and outlier populations for new invasive species (e.g. Old World climbing fern, *Lygodium microphyllum*) have been detected. Although regional restoration efforts are expected to improve wetland hydrology and therefore reduce available habitat for invasive plants, aggressive control efforts on a sustained basis will be needed for the interim period to control and manage invasive exotic species and preserve and restore the integrity of wetland habitat throughout the region.

### *Public Access*

The project area currently contains many private inholdings and is not open to the public. Future public recreation opportunities can be considered on parcels that are in public holding as access control and land restoration projects are implemented. Public access control is an increasingly important management issue in this region because of the link between uncontrolled access and environmentally damaging activities such as off road vehicle (ORV) use, solid waste dumping, and poaching. Damage to wetlands from off-trail riding has been visibly increasing in the collective project area. A recent project to begin assessing the amount and intensity of damage since 1999 has indicated that both the total number of trails and intensity of damage have increased in the Model Lands Basin between 1999 and 2004. This problem is not likely to be appreciably mitigated without additional land acquisition of strategic parcels that will permit more effective road closure and property access control. Some success at stabilizing the level of damage has been achieved in some parts of the Southern Glades Addition, where posting of public lands coupled with installation of gates on frequented access roads has reduced, although not eliminated ORV use in this area.

### *Firearm Activity*

This remote part of the county has been and continues to be used for firearm activities such as hunting and target shooting. Circumstantial evidence has indicated that poaching may have historically been common, and evidence for shooting galleries is routinely discovered in the form of bullet-ridden solid waste and spent shells. The problem is challenging and intertwined with both access control issues and traditional use arguments. A decision on what, if any, firearm activity to permit in the collective project area will be made during the management plan development process. For the interim, posting of public land, accompanied by random patrols by wildlife enforcement officers

from the Florida Fish and Wildlife Conservation Commission (FWC) are being used with some success to limit or eliminate poaching throughout the area plus control hunting on public property until a decision has been made.

#### *Dumping*

Solid waste dumping is a common activity in uncontrolled rural areas, and this remote part of the county is no exception. Abandoned cars, construction debris, and household trash such as appliances are common sights along road edges, although solid waste piles also occasionally completely block road access. The problem is challenging and intertwined with acquisition issues, since the easiest way to prevent dumping is to block unauthorized vehicle access to the area. This cannot be accomplished where there are substantial tracts under private ownership, however, unless the affected private landowners concur and cooperate with access control efforts. Limited success has already been gained through the installation of gates at a few key locations, coupled with addition of an enforcement presence to act as a deterrent.

#### *Prescribed Fire*

Prescribed fire is an important management tool in seasonal wetlands. It can be effective as part of an integrated program to control invasive woody species after herbicide treatment, reduce native woody vegetation encroachment into prairies, and reduce fuel loading that has contributed to damaging dry season wildfires in the project area. Prescribed fire has not been considered a practical management technique until recently, however, because the mosaic of public and private land has made the planning and execution of a prescribed fire impractical. There are now sufficiently large blocks of publicly owned land that the use of fire has become a feasible option. Development and implementation of a prescribed fire plan for the region will require careful consideration of the significant public utility, industrial, and transportation uses within the MOU project area in order to effectively use this tool to achieve management objectives.

#### *Local Hydrology*

Construction of physical features such as farm roads and ditches has been a substantial factor in altering local hydrology because of the dramatic effect of such features on the movement and/or ponding of surface water. There are hundreds of such features scattered throughout the project area, therefore there are ample opportunities for restoration or enhancement of wetland function on a local scale that do not require any changes to the regional hydrology. Should CERP or other regional scale projects result in substantial changes to regional hydrology, removal of local hydrologic barriers would enhance whatever beneficial effects are realized as a result of regional restoration.

### **Management Goals and Objectives**

OVERARCHING INTERIM GOAL: Bring the South Dade Wetlands area into a condition that is conducive to making a long-term management strategy feasible.

#### **GOAL 1: Remove invasive exotic vegetation**

OBJECTIVE 1A: Remove 95% of invasive exotic plant species in publicly owned managed areas.

OBJECTIVE 1B: Maintain populations of invasive species at less than 5% cover within areas that have been treated for invasive species.

#### **GOAL 2: Improve access control**

OBJECTIVE 2A: Reduce inappropriate uses and damage to the wetlands by installing and maintaining access control measures wherever possible.

OBJECTIVE 2B: Increase enforcement patrols within the project area.

OBJECTIVE 2C: Remove solid waste from public land, with highest priority given to locations where access

control measures have been successfully implemented.

**GOAL 3: Implement a prescribed fire program**

OBJECTIVE 3A: Develop a prescribed fire plan for the project area.

OBJECTIVE 3B: Develop partnerships with other agencies involved in local and regional prescribed fire activities.

OBJECTIVE 3C: Prepare burn plans for a minimum of one site during each year of the interim period and implement if weather conditions permit.

**GOAL 4: Restore wetland function wherever feasible through removal of physical barriers (e.g. roads, berms) to overland flow.**

OBJECTIVE 4A: Identify roads and other physical features in the project area that should be retained to provide access for land management activities.

OBJECTIVE 4B: Identify opportunities for physical feature removal that would enhance wetland hydrologic functions without impairing land management access.

OBJECTIVE 4C: Prepare plans for at least one project that will emphasize removal of one or more physical features to achieve restoration or enhancement of wetland function.

**Planning and Project Management**

An annual work plan and budget, based on the Conceptual Management Plan, will be prepared and approved by the project contacts and key officials for the County and the District for inclusion in each agency's official budget. These products will be completed in the second quarter (typically February) prior to the beginning of the budget process for both agencies. Both agencies will fund for land management in the project area exclusive of projects such as CERP, flood control, right-of-way, or other unrelated activities.

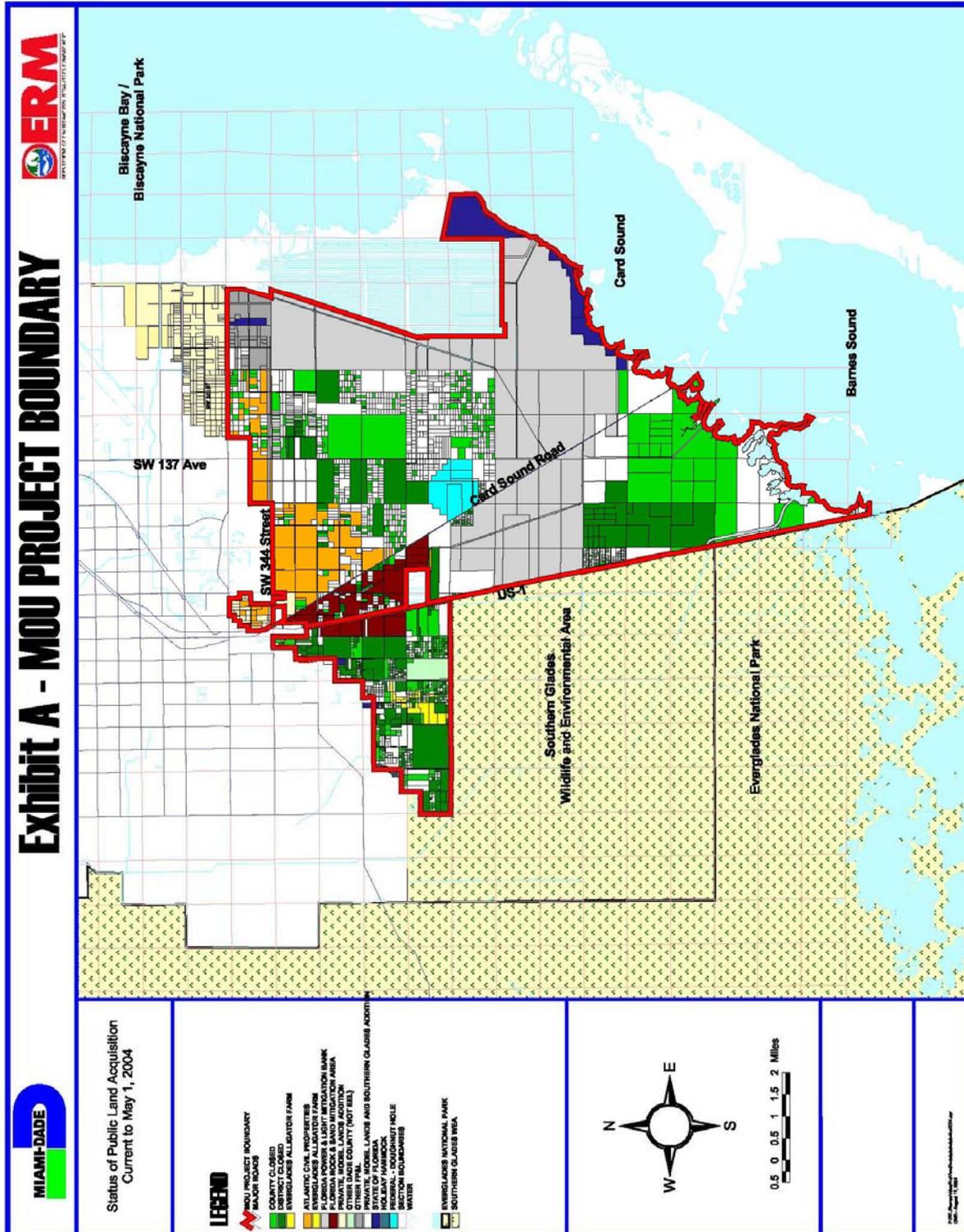
The annual work plans will list individual projects that are to be completed during a fiscal year. The work plans will have a summary that illustrates how the projects bring the management objectives in the Conceptual Management Plan closer to completion.

Each project will be described in detail and have a contribution commitment and management function defined from each agency, as well as a target completion schedule. The projects will be completed by one or both agencies through management functions that include one or more of the following:

- (1) perform management across ownership boundaries based on management activity,
- (2) perform multiple management functions across a broader area within the project,
- (3) enter into joint contracts with contractors where there is a clear economy-of-scale advantage to doing it,
- (4) both agencies collaborate with staff and equipment to complete a project.

An annual report will be prepared and approved by the project contacts and key officials for the County and the District. This product will be completed during the first quarter of the subsequent fiscal year. The annual report will present the status for each of the individual projects in the annual work plan, indicate how the finished projects have brought the management objectives in the Conceptual Management Plan closer to completion, and present a revised schedule for projects that were not concluded as planned. Any projects that were not concluded as planned

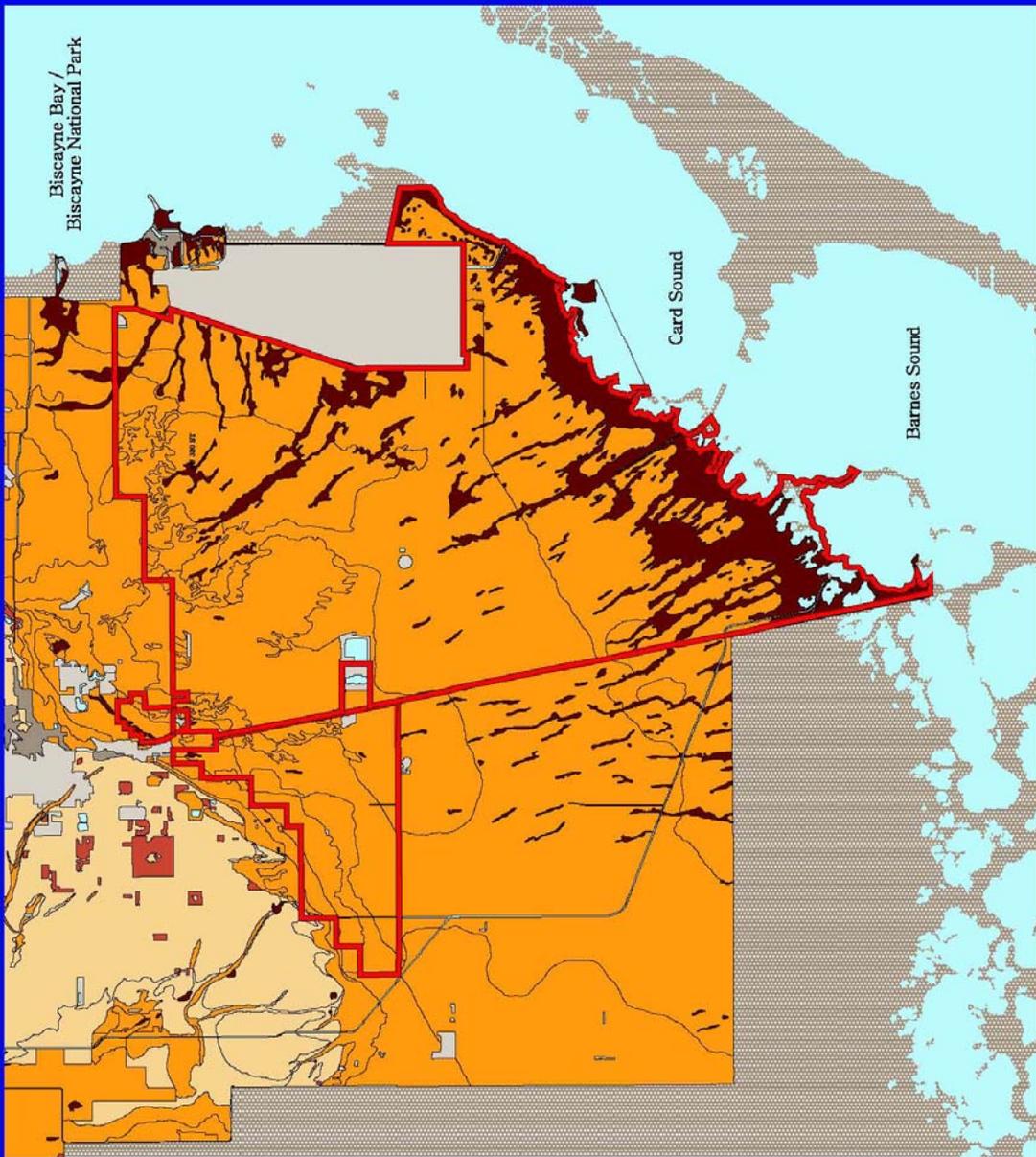
will be budgeted for completion in the subsequent fiscal year in addition to the original contribution level for that year.





Biscayne Bay /  
Biscayne National Park

# FIGURE A-2 - REGIONAL SOILS



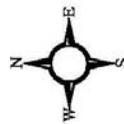
Source: 1996 Dade County  
Soil Survey

## LEGEND

MOU Project Boundary

**Regional Soil Groups**

- Marl
- Muck
- Rock Ridge
- Rock-Plowed
- Udorthents
- Urban
- Water
- No Information

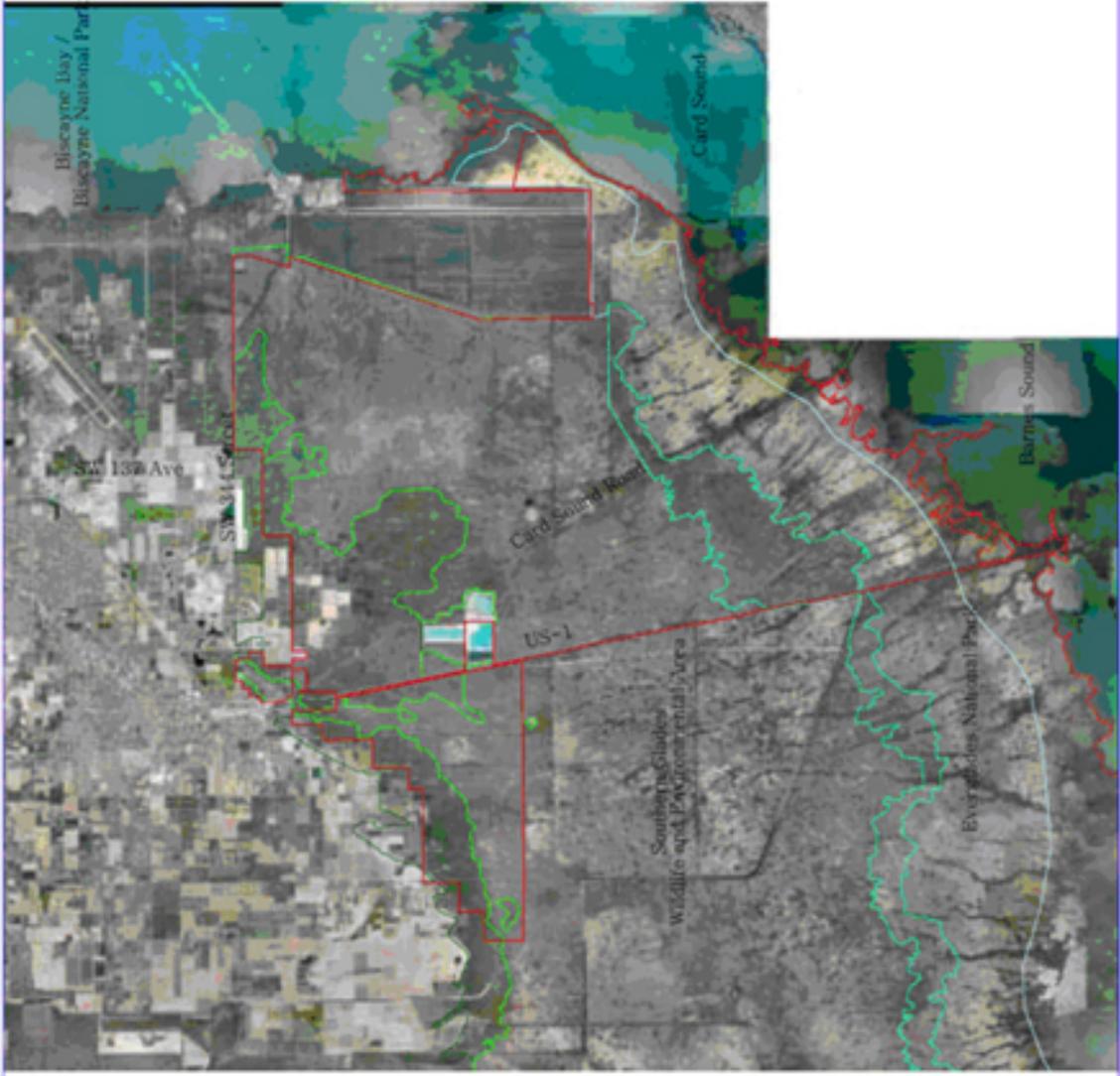


0.5 0 0.5 1 1.5 2 2.5 Miles

DERM is a registered service mark of Environmental Remediation Management, Inc. © 2007 Environmental Remediation Management, Inc. All rights reserved.



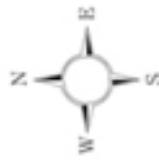
FIGURE A-3 - GENERAL VEGETATION



Background Aerials:  
2004 Airphoto Mr.Sid

**LEGEND**

- MDC Project Boundary
- Regional Vegetation Trends
- Forested Wetlands
- Sawgrass
- Sawgrass or Salt Marsh w/ Mangrove "White Zone" Hyper saline Ecotone
- Fringe Mangroves

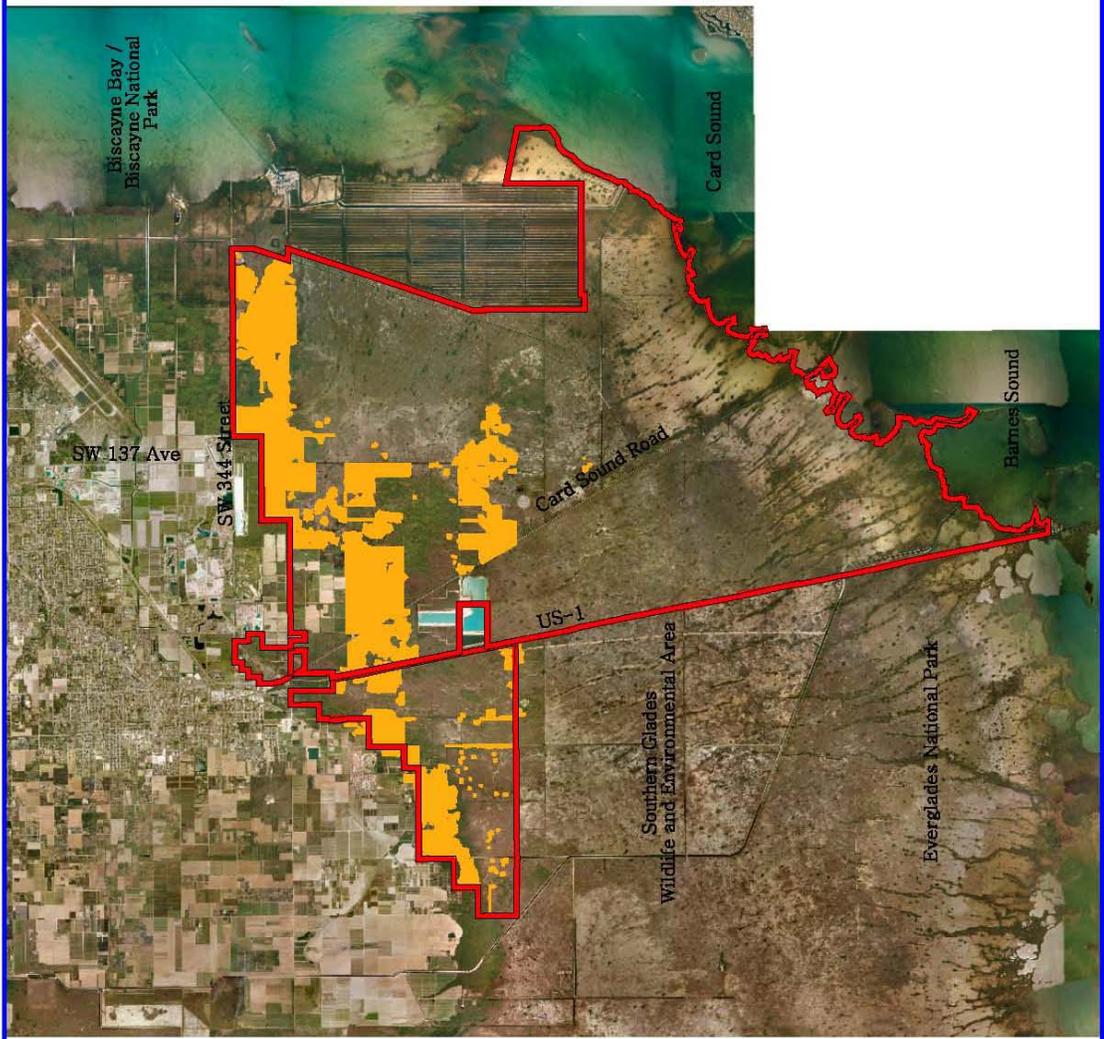


0.5 0 0.5 1 1.5 2 2.5 3 Miles

ES&P Prepared by: S&B Technology Corporation



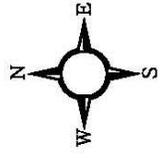
# FIGURE A-4 - EXOTIC PLANT SURVEY



Background Aerials:  
2004 Airphoto Mr. Sid

## LEGEND

 MOU PROJECT BOUNDARY  
 1996 EXOTIC PLANT SURVEY AREA



Map of Aerials: Mr. Sid, 2004. Airphoto Mr. Sid, 2004.