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CLERK OF THE BOARD
OF COUNTY COMMISSIONERS
MIAMI-DADE COUNTY, FLORIDA

Memorandum

MIAMI-DADE COUNTY

Date: June 2, 2009

To: Honorable Chairman Dennis C. Moss
and Members, Board of County Commissioners

Agenda Item No. 3(J)(1)(A)

From: George M. Burgess
County Manager

Resolution No. R-641-09

Subject: Ratification of Grant Application to the Florida Fish and Wildlife Conservation Commission for Exotic Vine Removal and Maintenance at Matheson Hammock Park and R. Hardy Matheson Preserve

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Recommendation

It is recommended that the Board adopt the attached resolution ratifying the submission of a grant application to the Florida Fish and Wildlife Conservation Commission, Invasive Plant Management Section (Attachment A) in the amount of $200,000 for the removal of exotic and invasive plants and restoration of natural plant communities at Matheson Hammock Park (Matheson Park) and R. Hardy Matheson Preserve (Matheson Preserve). It is further recommended that the Board authorize the Mayor or the Mayor's designee to receive and expend grant funds, and execute contracts, agreements and amendments as required by program guidelines. Ratification of this application is necessary because the application deadline of April 17, 2009 did not allow time to submit a resolution to the Board prior to submitting the application.

Scope

Matheson Park is located at 9610 Old Cutler Road, Coral Gables, Florida, 33156 and Matheson Preserve is located at 11191 Snapper Creek Road, Coral Gables, Florida, 33156, both are in Commission District 7. Both properties are open to all residents and visitors of Miami-Dade County. The project impact is County-wide.

Fiscal Impact/Funding Source

The grant will contribute $200,000 towards the estimated total project cost of $276,650. The local match of $76,650 will come from the FY2009 - 2010 budget of the Environmentally Endangered Lands Program.

Track Record/Monitor

The grant will be administered by Rahul Shrivastava, Grants Administrator at Miami-Dade Park and Recreation Department (MDPR). The Natural Areas Management Division (NAM) of MDPR will implement this project.

Background

Matheson Preserve contains 806-acres of coastal wetlands and submerged lands. The 23-acres of upland contain tropical hardwood hammock and globally-imperiled pine rockland forest. Matheson Park is a 630-acre County park which contains almost 400 acres of natural areas. Both properties are listed as conservation areas by Florida Natural Areas Inventory, the primary source for information on Florida's conservation lands. This grant will support the maintenance and control of exotic vine infestation and other invasive plants in 68 acres within Matheson Park and Matheson Preserve.

Attachment

Alex Muñoz, Assistant County Manager

MEMORANDUM

(Revised)

TO: Honorable Chairman Dennis C. Moss and Members, Board of County Commissioners

DATE: June 2, 2009

FROM: R. A. Cuevas, Jr. County Attorney

SUBJECT: Agenda Item No. 3(J)(1)(A)

Please note any items checked.

_____	**"4-Day Rule" ("3-Day Rule" for committees) applicable if raised**
_____	**6 weeks required between first reading and public hearing**
_____	**4 weeks notification to municipal officials required prior to public hearing**
_____	**Decreases revenues or increases expenditures without balancing budget**
_____	**Budget required**
_____	**Statement of fiscal impact required**
_____	**Bid waiver requiring County Mayor's written recommendation**
_____	**Ordinance creating a new board requires detailed County Manager's report for public hearing**
_____	**Housekeeping item (no policy decision required)**
✓	**No committee review**

Approved _____ Mayor
Veto _____
Override _____

Agenda Item No. 3(J)(1)(A)
6-2-09

RESOLUTION NO. **R-641-09**

RESOLUTION RATIFYING THE SUBMISSION OF A GRANT APPLICATION TO THE FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION FOR $200,000 IN GRANT FUNDING FOR THE REMOVAL OF EXOTIC AND INVASIVE PLANTS AND RESTORATION OF NATURAL PLANT COMMUNITIES AT MATHESON HAMMOCK PARK AND R. HARDY MATHESON PRESERVE; AND FURTHER AUTHORIZING THE COUNTY MAYOR OR THE COUNTY MAYOR'S DESIGNEE TO RECEIVE AND EXPEND NO MORE THAN $200,000, AND TO FILE AND EXECUTE CONTRACTS AND AMENDMENTS AS REQUIRED UPON APPROVAL BY COUNTY ATTORNEY

WHEREAS, this Board desires to accomplish the purposes outlined in the accompanying memorandum, a copy of which is incorporated herein by reference,

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF MIAMI-DADE COUNTY, FLORIDA, that this Board ratifies the submission of the grant application to the Florida Fish and Wildlife Conservation Commission in the amount of $200,000 for the removal of exotic and invasive plants and to restore natural plant communities at Matheson Hammock Park and R. Hardy Matheson Preserve; and further authorizes the County Mayor or County Mayor's designee to execute such contracts and amendments as are required by this governmental body following approval by the County Attorney's Office; to receive and expend no more than the total amount of the grant ($200,000) for the purposes described in the funding request; and to file and execute any necessary contracts and amendments to the agreement for and on behalf of Miami-Dade County, Florida.

The foregoing resolution was offered by Commissioner **Jose "Pepe" Diaz**, who moved its adoption. The motion was seconded by Commissioner **Rebeca Sosa** and upon being put to a vote, the vote was as follows:

Dennis C. Moss, Chairman **aye**
Jose "Pepe" Diaz, Vice-Chairman **aye**

Bruno A. Barreiro	**aye**	Audrey M. Edmonson	**aye**
Carlos A. Gimenez	**aye**	Sally A. Heyman	**aye**
Barbara J. Jordan	**aye**	Joe A. Martinez	**absent**
Dorrin D. Rolle	**aye**	Natacha Seijas	**absent**
Katy Sorenson	**aye**	Rebeca Sosa	**aye**
Sen. Javier D. Souto	**aye**		

The Chairperson thereupon declared the resolution duly passed and adopted this 2nd day of June, 2009. This resolution shall become effective ten (10) days after the date of its adoption unless vetoed by the Mayor, and if vetoed, shall become effective only upon an override by this Board.

MIAMI-DADE COUNTY, FLORIDA
BY ITS BOARD OF
COUNTY COMMISSIONERS

HARVEY RUVIN, CLERK

By: **DIANE COLLINS**
Deputy Clerk

Approved by County Attorney as
to form and legal sufficiency.

Martin W. Sybblis

Proposal to:
Florida Fish and Wildlife Conservation Commission
Invasive Plant Management Section

Matheson Hammock Park
And
R. Hardy Matheson Preserve
Invasive Vine Removal and Maintenance

Submitted by:
Miami-Dade County Park & Recreation Department
Natural Areas Management Division

April 2009

PROJECT TITLE:
Matheson Hammock Park and R. Hardy Matheson Preserve
Invasive Vine Removal and Maintenance

WORKING GROUP: Southeast

CONTACT INFORMATION:
Joyce Denny, Grants Administrator
Miami-Dade Park and Recreation Department
275 NW 2nd Street
Miami, FL 33128
Phone: 305-755-7878
Fax: 305-755-5466
e-mail: jdenny@miamidade.gov

Dallas Hazelton, Environmental Resource Project Supervisor
Natural Areas Management Division
Miami-Dade Park and Recreation Department
22200 SW 137 Avenue
Miami, FL 33170
Phone: 305-257-0933, ext. 237
Fax: 305-257-1086
e-mail: hazeld@miamidade.gov

SUMMARY: Miami-Dade County Parks and Recreation Department is requesting funding in the amount of $200,000 for the maintenance and control of exotic vines in 68-acres within Matheson Hammock Park and R. Hardy Matheson Preserve. Both park properties are listed as conservation areas by FNAI.

METHOD OF CONTROL: Private Contractor and In-house

PROJECT GOALS: The goal of this project is to remove heavy infestations of sewer vine (*Paederia cruddasiana*) and other invasive species, and to restore native plant communities by continuing the control of invasive exotic plant species in project areas within Miami-Dade County's Matheson Hammock Park and R. Hardy Matheson Preserve. This project will focus on infestations of sewer vine located at: 1) the "main hammock" within Matheson Hammock (figure 3, area A); 2) the two oak dominated tree islands known as the "Matheson Tree Islands (figure 3, area B); 3) the infestation of sewer vine growing in the dense stand of Brazilian Pepper (figure 4, area C) and the east hammock (figure 4, area D) at R. Hardy Matheson Preserve; 4) the south hammock (figure 4, area E) within R. Hardy Matheson Preserve.

The natural areas at Matheson Hammock are in excellent condition. This is largely due to the ongoing restoration work, which began in 1991, and five BIPM grants awarded in 1998 and 2003-2006 for restoration and maintenance in Matheson West and the Matheson Tree Islands. Restoration efforts also began at R. Hardy Matheson Preserve in 1991, and the areas that have received treatment are in excellent condition.

The main target species of this project is sewer vine (*Paederia cruddasiana*), but other invasive species in the project areas to be treated include air potato (*Dioscorea bulbifera*), Brazilian pepper (*Schinus terebinthifolius*), shoebutton ardisia (*Ardisia elliptica*), Queensland umbrella tree (*Schefflera actinophylla*), bishopwood (*Bischofia* javanica), woman's tongue (*Albizia lebbeck*), Surinam cherry (*Eugenia uniflora*), Brazilian jasmine (*Jasminum fluminense*), jambolin plum (*Syzygium cumini*), white-flowered wandering jew (*Tradescantia fluminensis*), and arrowhead vine (Syngonium podophyllum). These are all Category I invasive exotics, according to the Florida Exotic Pest Plant Council (EPPC). Attachment IV is a complete list of exotic plant species present at this site, and their category ranking.

ADDITIONAL PROPOSAL INFORMATION

Conservation Land Qualification
The natural areas within Matheson Hammock Park and R. Hardy Matheson are listed in FNAI's Florida Conservation Lands. Rockland hammock natural communities are given a global rank of G2 and a state rank of S2 (globally imperiled and imperiled in Florida, respectively, because of rarity or because of vulnerability to extinction due to a naturally or man-made factor).

Ability to Maintain Site After Initial Treatment
This proposal is for clearing populations of sewer vine Matheson Hammock Park and R. Hardy Matheson. Subsequent to these treatments, the project areas will continue to be managed by NAM, and treatment of exotic vegetation will occur in perpetuity. Management funds not obtained through grants will come from the Miami-Dade County Environmentally Endangered Lands (EEL) Program.

Threatened or Endangered Species or Habitats
NAM will continue to ensure the maintenance of threatened and endangered species in Matheson Hammock Park and R. Hardy Matheson Preserve. See Attachment III for listed plant and animal species found in Matheson Hammock Park and R. Hardy Matheson.

Public Education Program
At Matheson Hammock Park, NAM provides education and interpretation through maintenance of Matheson Hammock's nature trail and interpretive signs, as well as through Volunteer Workdays where citizen volunteers aid in the preservation of the federally listed species, crenulate leadplant. In addition, NAM provides educational opportunities through volunteer workdays at various sites, neighborhood meetings, and special events where information is displayed and staff interacts with the public.

R. Hardy Matheson Preserve is currently open to the public, but not fully developed. The Department's master plan for the site calls for a bicycle/pedestrian trail, which will run parallel Snapper Creek Canal on the north bank and will convey the public adjacent to the restoration area.

SCOPE OF WORK

PROJECT LOCATION

Matheson Hammock Park is a 630-acre County park located at the edge of Biscayne Bay, containing almost 400 acres of natural areas (figure 1 and 2). It is located at 9610 Old Cutler Road, in Sections 5, 6, and 8 of Township 55, Range 41, in Miami-Dade County. R. Hardy Matheson Preserve is located at 11775 SW Old Cutler Road in Sections 7, 8, 18, and 19 of Township 55 Range 41 in Miami-Dade County (figure 1 and 2). R. Hardy Matheson Park and its additions contain approximately 830 acres of natural areas.

The Natural Areas Management (NAM) Division of the Miami-Dade County Park & Recreation Department is responsible for restoration and management of native plant communities within Matheson Hammock Park and R. Hardy Matheson Preserve. NAM also provides educational opportunities and interpretation through interpretive signs, various volunteer workdays, neighbors' meetings, and other special events.

PROJECT DESCRIPTION

Matheson Hammock Park - Habitat Description

Matheson Hammock Park contains 65-acres of tropical hardwood hammock and transitional oak hammock, as well as 329-acres of marsh, mangrove, and shallow water marine communities. Matheson Hammock supports 35 animal species listed by the Florida Natural Areas Inventory (FNAI) and 31 plant species listed by FNAI and/or Florida Division of Plant Industry (DPI) as endangered, threatened, or commercially exploited (see Attachment III). All of the park's natural areas are listed in FNAI Florida Conservation Lands.

The tropical hardwood hammock in Matheson Hammock Park lies mostly to the west of Old Cutler Road (figure 3). Matheson Hammock historically covered a larger area, and rockland hammock remnants still exist to the north in residential areas and to the south in the Girl Scouts' Camp Mahachee.

The native canopy of the main hammock at Matheson Hammock Park consists primarily of tropical tree species such as gumbo limbo (*Bursera simaruba*), red bay (*Persea borbonia*), strangler fig (*Ficus aurea*), West Indian cherry (*Prunus myrtifolia*), mastic (*Mastichodendron foetidissimum*), and black ironwood (*Krugiodendron ferreum*). Large specimens of live oak (*Quercus virginiana*) also occur in Matheson Hammock. Eight species of native bromeliad (*Tillandsia* spp.), and at least one orchid (*Encyclia tampensis*), grow epiphytically within the upper canopy. Four of these bromeliad species are listed by the State of Florida as either threatened or endangered, and the orchid is listed as commercially exploited.

The native understory of the main hammock includes spicewood (*Calyptranthes pallens*), marlberry (*Ardisia escallonioides*), Simpson's stopper (*Myrcianthes fragrans* var. *simpsonii*), white stopper (*Eugenia axillaris*), Spanish stopper (*Eugenia foetida*), and redberry stopper (Eugenia confusa). The substrate consists of limestone pinnacle rock, with extensive caverns throughout, formed by flowing freshwater. The steep edges of this eroded rock support several ferns or fern-relatives that are rare in North America. Fern species in Matheson's Main Hammock that are listed as endangered by the State of Florida include slender spleenwort (*Asplenium dentatum*), bird's-nest fern (*Asplenium serratum*), Florida tree fern (*Ctenitis sloanei*),

holly fern (*Lomariopsis kunzeana*), and filmy fern (*Trichomanes punctatum* subsp. *floridanum*). Two terrestrial orchids are also found in the rockland hammock: speckled lady's tresses (*Spiranthes cranichoides*) and Gentian noddingcaps (*Triphora gentianoides*).

The area west of the main hammock contains two areas known as Matheson West and the Matheson Tree Islands, and was historically called "Matheson Nursery" (located between School House Road and Banyan Drive). This portion of the park was once part of a transverse glade containing islands of tropical hardwood hammock, transitional oak hammock, and pineland (see Figure 3). The Master Plan for the park calls for the eventual restoration of 25-30 acres of wetland in the "Nursery." The areas have been severely impacted by disturbances, including human development, hurricane damage, and hydrologic alteration. Subsequent invasion by aggressive exotic plants, particularly sewer vine, Brazilian pepper, shoebutton ardisia, and Queensland umbrella tree, had left these important components of the ecosystem in serious jeopardy, and created a formidable management challenge. Beginning in 1998, with funding from BIPM, NAM initiated the restoration of the hammock areas in the "Nursery."

The Matheson Tree Islands are characterized by outcroppings of limestone with typical hammock soils (Matacumbe muck), surrounded by lowland areas characterized by freshwater wetland or prairie soils (Perrine marl), and mixed Udorthents with limestone or marl substratum. Native species in the tree islands include live oak (*Quercus virginiana*), sabal palm (*Sabal palmetto*), strangler fig (*Ficus aurea*), pigeonplum (*Coccoloba diversifolia*), myrsine (*Rapanea punctata*), gumbo limbo (*Bursera simaruba*), paradise tree (*Simarouba glauca*), slash pine, (*Pinus elliottii* var. *densa*), and Southern shield fern (*Thelypteris kunthii*). The beautifully fragile and deeply eroded limestone within these islands is evidence of the water that once flowed through the glade. Lying between the two islands is a small ecotone area, approximately 1.7 acres in size. Several species of wetland plants still persist in this area. These tree islands and the ecotone are a refuge to many plant and animal species of note, including least halberd fern (*Tectaria fimbriata*), the Southern hairy woodpecker, the sharp-shinned hawk, and the worm-eating warbler.

Matheson Hammock Park - Site History

Matheson Hammock Park was Miami-Dade County's first park. The first 83-acres of Matheson Hammock Park were donated to the County in 1930. The additional acreage was purchased by Miami-Dade County between 1936 and 1939. The park is bordered on the east by the Biscayne Bay Aquatic Preserve, on the north by residential development, on the south by residential development, Camp Mahachee Girl Scout Camp, and Fairchild Tropical Gardens, and on the west by residential development and the Snapper Creek canal.

When Hurricane Andrew hit in August 1992, the advantageous characteristics of exotic invasive species (mostly vines) that were already present at Matheson Hammock, such as sewer vine and air potato, exploded with growth due to the increased light conditions resulting from a loss of canopy. Although hurricanes are a natural occurrence in South Florida's ecosystem, the problematic presence of exotic species, and the ability of hurricanes to spread these species and give them opportunity to exponentially expand, made the storm even more detrimental to the County's natural areas. Fortunately, following Hurricane Andrew in 1992, NAM received a $500,000 grant from the Knight Foundation. This funding made it possible to hire personnel to begin restoring Matheson Hammock, as well as other County-owned/managed hammock areas. The State of Florida provided a substantial post-hurricane grant of $5.4 million in 1993 which

supported the continuation of restoration efforts in these hammocks, as well as an expansion into pine rockland forests.

Since 1991, Miami-Dade County has expended more than $2,270,000 on restoration and maintenance of the natural areas at Matheson Hammock Park. Of these restoration expenditures, BIPM has funded more than $375,000 on Matheson West and the Matheson Tree Islands. What once seemed like a daunting and overwhelming task, the restoration of the natural areas at Matheson Hammock Park has thus far achieved great success. Approximately 55 acres of Matheson's main hammock have been restored, and are considered to be in maintenance condition. As for Matheson West and Matheson Tree Islands, the BIPM grants have made possible an amazing transformation of these once exotics-infested areas. Continuing restoration and maintenance of the project areas in this proposal will greatly contribute toward the overall management of Matheson Hammock Park's natural areas by eliminating exotic seed sources, protecting rare plants, and furthering the Park's efforts to preserve and protect its natural and historic resources.

R. Hardy Matheson Preserve - Habitat Description

R. Hardy Matheson Preserve contains 806-acres of coastal wetlands and submerged lands. The 23-acres of upland contain tropical hardwood hammock and globally-imperiled pine rockland forest. The hammock on the southern side of the canal is approximately nine acres in size. R. Hardy Matheson contains habitat for 38 animal species listed by the Florida Natural Areas Inventory (FNAI) and 34 plant species listed by FNAI and/or Florida Division of Plant Industry (DPI) as endangered, threatened, or commercially exploited (see Attachment III). All of the park's natural areas are listed in FNAI Florida Conservation Lands.

The native canopy of the hammock at R. Hardy Matheson consists primarily of tropical tree species such as gumbo limbo (*Bursera simaruba*), red bay (*Persea borbonia*), strangler fig (*Ficus aurea*), West Indian cherry (*Prunus myrtifolia*), mastic (*Mastichodendron foetidissimum*), and black ironwood (*Krugiodendron ferreum*). Large specimens of live oak (*Quercus virginiana*) also occur in the R. Hardy Matheson hammocks. Eight species of native bromeliad (*Tillandsia* spp.), and at least one orchid (*Encyclia tampensis*), grow epiphytically within the upper canopy. Four of these bromeliad species are listed by the State of Florida as either threatened or endangered, and the orchid is listed as commercially exploited.

The native understory of the main hammock includes spicewood (*Calyptranthes pallens*), marlberry (*Ardisia escallonioides*), Simpson's stopper (*Mvrcianthes fragrans* var. *simpsonii*), white stopper (*Eugenia axillaris*), Spanish stopper (*Eugenia foetida*), and redberry stopper (Eugenia confusa). The substrate consists of limestone pinnacle rock, with extensive caverns throughout, formed by flowing freshwater. The steep edges of this eroded rock support several ferns or fern-relatives that are rare in North America. Species in the R. Hardy Matheson hammocks that are listed as endangered by the State of Florida include slender spleenwort (*Asplenium dentatum*), bird's-nest fern (*Asplenium serratum*), Florida tree fern (*Ctenitis sloanei*), holly fern (*Lomariopsis kunzeana*), and filmy fern (*Trichomanes punctatum* subsp. *floridanum*). Two terrestrial orchids are also found in the rockland hammock: speckled lady's tresses (*Spiranthes cranichoides*) and Gentian noddingcaps (*Triphora gentianoides*).

R. Hardy Matheson Preserve – Site History

In 1982, the State acquired the 632-acre Snapper Creek Preserve (later renamed R. Hardy Matheson Preserve), which was the first CARL acquisition in Miami-Dade County. In 1986, the State Acquired an additional 176-acre tract separated from the original purchase, but adjoining Chapman Field Park, a 650-acre undeveloped coastal site just to the south. In 2001, the Miami-Dade County Department of Environmental Recourses Management Environmentally Endangered Lands (EEL) program acquired the 21-acres on the north side of R. Hardy Matheson. The site is bordered by the Biscayne Bay Aquatic Preserve to the east, Matheson Hammock to the northeast, the Montgomery Botanical Center to the south, and residential development to the west and northwest. The property is divided by Snapper Creek Canal, once a natural drainage feature, that was dredged in 1917.

R. Hardy Matheson Preserve contains 806-acres of coastal wetlands and submerged lands. The 23-acres of upland contain tropical hardwood hammock and globally-imperiled pine rockland forest. The hammock on the southern side of the canal is approximately eight acres in size. After hurricane Andrew in 1992, this area was heavily infested with sewer vine. With funding from the State, and the EEL program, NAM has controlled the sewer vine and other invasive exotics and has kept it in "maintenance condition" for the last 16 years. The 15-acres of upland on the north side of Snapper Creek Canal have been subject to more disturbances. NAM has restored and maintained the four acre pine rockland in the northwest corner of the site. Approximately 7-acres of hammock north of the canal was cleared in the 1950's and subsequently filled in with dense stands of exotic species, dominated by Brazilian Pepper. After hurricane Andrew in 1992, this area was heavily infested with sewer vine. Starting in 2007, NAM cleared 5.5-acres of exotics in this area and has started reforesting the area with native hammock species. The remaining 1.5-acres of Brazilian pepper is also heavily infested with sewer vine.

The Project Sites

This proposal encompasses four primary project areas: 1) "Matheson main hammock" (48 acres)(figure 3, area A); 2) the Matheson Tree Islands (8.8-acres) (figure 3, area B); 3) R. Hardy Matheson sewer vine infested Brazilian pepper (1.5-acres) and maintenance east hammock (1-acre) (figure 4, area C & D); and 4) R. Hardy Matheson sewer vine maintenance treatment in the south hammock (9-acres) (figure 4, area E) .

1. Matheson Main Hammock

Natural Areas Management has worked to remove non-native plants in this area since 1991. Currently, sewer vine and small pockets of air potato are the most problematic species. The main hammock (figure 3, area A) requires two treatments per year: one a complete sweep of the hammock, and the other a treatment of "hot spot" infestations only. Hot spots include the edges of the hammock, adjacent to the Girl Scout Camp and the northern residential neighbors.

The main hammock includes the area previously known as "the Paederia pit" (see Figure 3). This was once the most severely infested area on the property. The area west and adjacent to the "pit" is now the main source of recurring sewer vine growing into the main hammock. Prior to any restoration efforts, the sewer vine infestation was so severe that it had eliminated both the hammock understory and canopy. Once NAM had restored the remainder of the main hammock, efforts to restore the Pit began. In 1994, NAM began using repeated broadcast treatments of Round Up, followed by meticulous spot treatments of Garlon 4, to reduce the sewer vine coverage to less than 1%. By the year 2000, after broadcast seeding of pioneer hammock trees

and shrubs, and continued sewer vine follow ups, the "pit" was a recovering hammock and the rest of the hammock was in maintenance condition. Efforts to keep the hammock free of sewer vine continued, but hurricanes Wilma and Katrina in 2005 resulted in significant damage to the hammock canopy. The increased sunlight allowed sewer vine, air potato, and other vines to regain a strong foothold. Gaining control of this re-infestation of vines in the hammock is the focus of this section of the project.

2. Matheson Tree Islands

The 8.8-acre Matheson Tree Islands (figure 3, area B) were severely invaded by exotic species, in particular, sewer vine, Queensland umbrella tree, and shoebutton ardisia. Prior to treatment, the vegetation consisted of a mix of native tropical, temperate, and transitional/pineland plant species, with areas of moderate to heavy exotic plant infestation. Several species of wetland plants still persist in an ecotone that roughly divides the area in half.

In 2003, Miami-Dade County Parks received a grant for $115,000 from BIPM for restoration of the tree island. During 2003-2004, NAM crews concentrated on the removal of those exotic species posing the greatest threat to the natural area, namely, sewer vine, umbrella tree, and shoebutton ardisia. BIPM grants were received in 2004, 2005, and 2006, and split between the Tree Islands and Matheson West, as previously noted. NAM crews have conducted multiple follow-up treatments in the tree islands, and have gradually been cutting and treating large exotics in the canopy. These canopy species primarily consisted of umbrella tree, shoebutton ardisia, bishopwood, Brazilian pepper, and jambolin plum. Removal of these species has occurred in a deliberately gradual manner so as not to introduce too much light into the understory, and inadvertently encourage the growth of the very species being combated, or bring detriment to native ferns. Crews also continued initial and follow-up treatment in the ecotone area on shoebutton ardisia and sewer vine.

The tree islands still have a significant population of sewer vine that requires frequent follow-up to maintain it at a manageable level. The goal in this section of this project is maintenance control of the sewer vine in the tree islands.

3. R. Hardy Matheson Sewer Vine/Brazilian Pepper Stand Removal

Starting in 2007, NAM cleared 5.5 acres of previously (1950's) cleared area that was heavily infested with exotics, maintained the sewer vine at minimal population, and started reforesting the area with native hammock species (figure 4, "Restoration Area"). The remaining 1.5 acres of Brazilian pepper to the north is heavily infested with sewer vine (figure 4, area C). Removal of this infestation of sewer vine is the goal of this project. Removal of the sewer vine is the goal in this area. Because the sewer vine is growing on the Brazilian pepper that is also in this area, the pepper must be removed along with the sewer vine. NAM will hire a private contractor to perform the initial exotic removal procedure. The NAM crew will complete subsequent follow-up procedures. After one year of repeated follow-up treatment of the sewer vine and all other exotics, the area will be replanted with native coastal hammock species.

The 1-acre hammock east of the restoration area and adjacent to the coastal wetland (figure 4, area D) contains large amounts of sewer vine and other exotics. This area has received one season of initial treatment. Continued follow-up and removal of these exotics is the goal in this area.

4. R. Hardy Matheson South Hammock Sewer Vine Maintenance

Removal of exotics began in 1991 in the hammock south of the canal (figure 4, area E). It is in maintenance condition, however, there are still significant recurring pockets of sewer vine along the south and east edges. The south hammock requires 2 to 3 follow-up treatments to maintain the sewer vine at acceptable levels. Continuing the maintenance efforts on sewer vine and other exotics is the goal of the project in the south hammock.

WORK SPECIFICATIONS

Control techniques and methods of disposal

Initial clearing of the R. Hardy Matheson sewer vine/Brazilian pepper (figure 4, area C) will be put out to bid for completion by private resource management contractors. All follow-up treatments will be completed in-house by NAM crews. Timely follow-up treatments are essential to ensure the restoration success of these areas. Multiple follow-up treatments of sewer vine are especially necessary for several years to control this species and prevent re-infestation. Under this maintenance proposal, a minimum of one complete follow-up treatment is planned for each project area. If time and money allow, multiple follow-up treatments of "hot spots" will be conducted.

Vines and exotic hardwoods will be treated with 10% Garlon 4. Queensland umbrella tree will be treated with Garlon 4 at 20%. Grasses will be treated using 5% Roundup Pro. Hardwoods and most vines can be treated during any season. Any air potato encountered will be treated by removal of the bulbils from the ground in late winter and early spring. Certain plant species must be removed from the site and disposed of to prevent continued growth, including sewer vine, white-flowered wandering jew, pothos, and syngonium. Other plant species will be left in the hammock to decompose after being treated. Some exotic hardwoods will be left alive for a short period of time to provide shade for native seed germination.

NAM will continue to conduct direct seeding and/or planting with native plants. NAM will likely continue to do so until native recruitment and coverage is deemed successful.

Other requirements and provisions

NAM crews are experienced in species identification and herbicide application. NAM's main crew supervisors are certified pesticide applicators and hold current certification by the Florida Department of Agriculture and Consumer Services. As a number of State-listed plant species are found at Matheson Hammock Park, every effort will be made to protect these populations. NAM staff will identify locations of these species, and will take precautionary measures prior to the crews initiating work at the project site.

Project time frame

It is anticipated that the maintenance treatment will take a 7-person NAM crew 60 working days in the main hammock (figure 3, area A), and 20 working days in the Matheson Tree Islands (figure 3, area B). Follow-up treatment will be spread throughout the year. NAM will continue with follow-up treatments and long-term maintenance of these areas.

It is anticipated that the initial removal process of the R. Hardy Matheson sewer vine and Brazilian pepper (figure 4, area C) will take a 7-person contracted crew 15 working days. The follow-up treatment in the same area will take 5 days and will be completed by the NAM crew. The maintenance treatments in the east and south hammocks (figure 4, area D and E) will take a 7-person NAM crew a total of 20 days. Follow-up treatment will be spread throughout the year. NAM will continue with follow-up treatments and long-term maintenance of these areas.

Location	Entity Performing Work	Number of Days	Cost per Day	Budget
Area A	NAM	60	$2,000	$120,000
Area B	NAM	20	$2,000	$40,000
Area C Initial	Contractor	15	$1,000	$15,000
Area C Follow-up	NAM	5	$2,000	$10,000
Area D	NAM	15	$2,000	$30,000
Area E	NAM	5	$2,000	$10,000
			Total	**$225,000**

JGD 04/2007
DTH 04/2009

Upland Invasive Exotic Plant Control Program
Budget Justification Worksheet

Project Title: Matheson Hammock Park And R. Hardy Matheson Preserve Invasive Vine Removal and Maintenance

Federal Employer Identification (FEID): _____

Will project be in-house or contracted? Both In-House and Contracted

Matching Funds

In the first column list the source of funds (county, grant, non-profit, etc.) and available dollars in second:

Source	Dollars

Total matching funds from project sponsor: _____

In-kind Contributions

In-kind refers only to staff time, equipment, and materials used directly in control operations.

Category	Total	Rate ($/hr/day)	Total in-kind value ($)
supervisor hours	50	$640	$32,000
crew hours	12.5	$2,000	$25,000
vehicle hours	105	$50	$5,250
manual equipment			
heavy machinery			
herbicide	900	$16	$14,400
misc. expendables			
other (explain)			

Total in-kind value from project sponsor: $76,650

Total matching and in-kind dollars: $76,650

Total funds requested from FWC: $200,000

TOTAL COST OF PROJECT: $276,650

Notes/Explanations

Explain any special equipment needs (such as a Brontosaurus) or costs, or other (from above).
Also note, if entire cost is to be funded by DEP, why no matching or in-kind contributions are availbale.

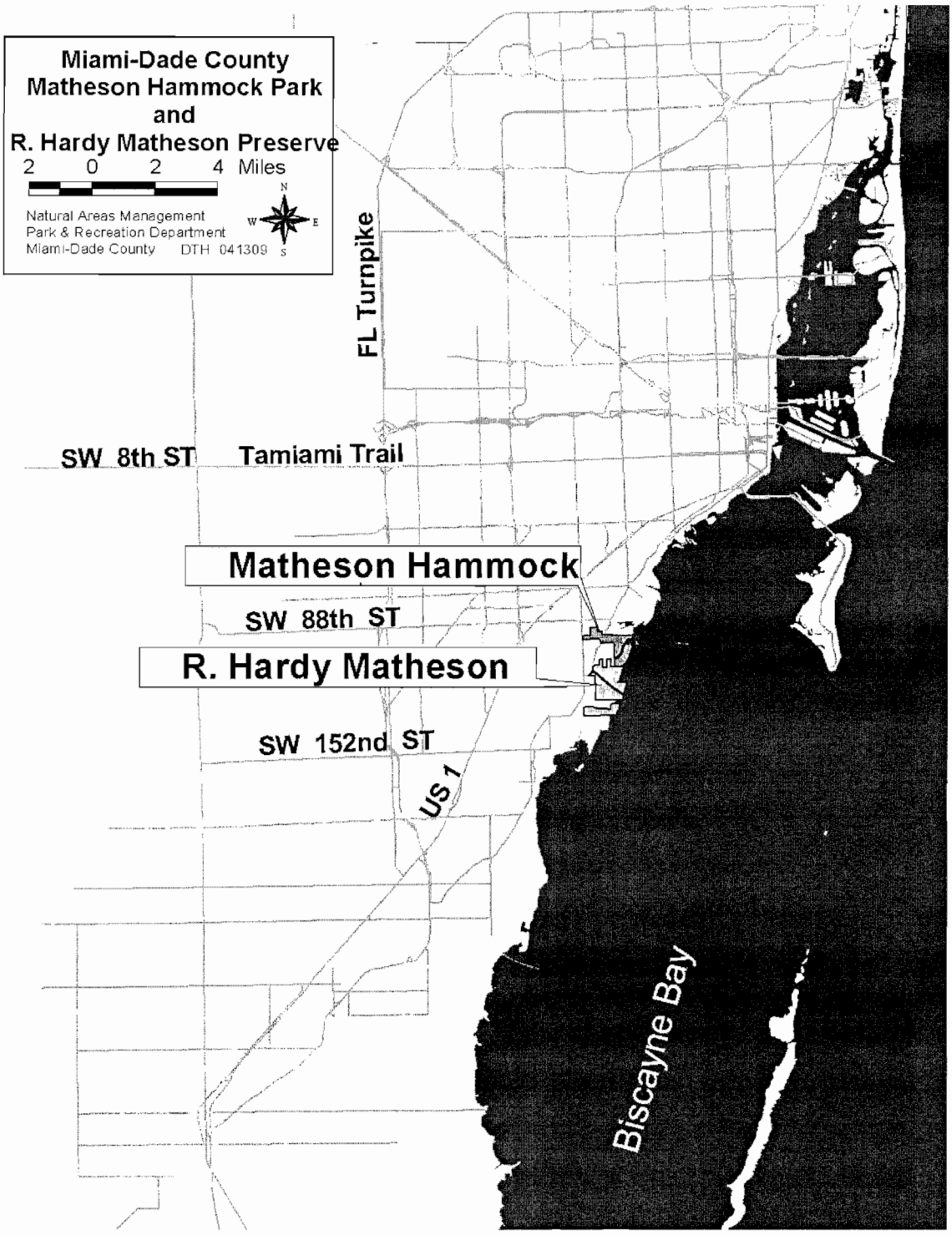
Miami-Dade County
Matheson Hammock Park
and
R. Hardy Matheson Preserve
2 0 2 4 Miles
Natural Areas Management
Park & Recreation Department
Miami-Dade County DTH 041309
FL Turnpike
SW 8th ST
Tamiami Trail
Matheson Hammock
SW 88th ST
R. Hardy Matheson
SW 152nd ST
US 1
Biscayne Bay

FIGURE 1

Matheson Hammock
Managed Natural Areas (1061 acres)
R. Hardy Matheson Addition
Matheson Hammock Park
R. Hardy Matheson Preserve
1000 0 1000 2000 Feet
N
W
E
S
Natural Areas Management
Park & Recreation Department
Miami-Dade County DTH 041409

Figure 2

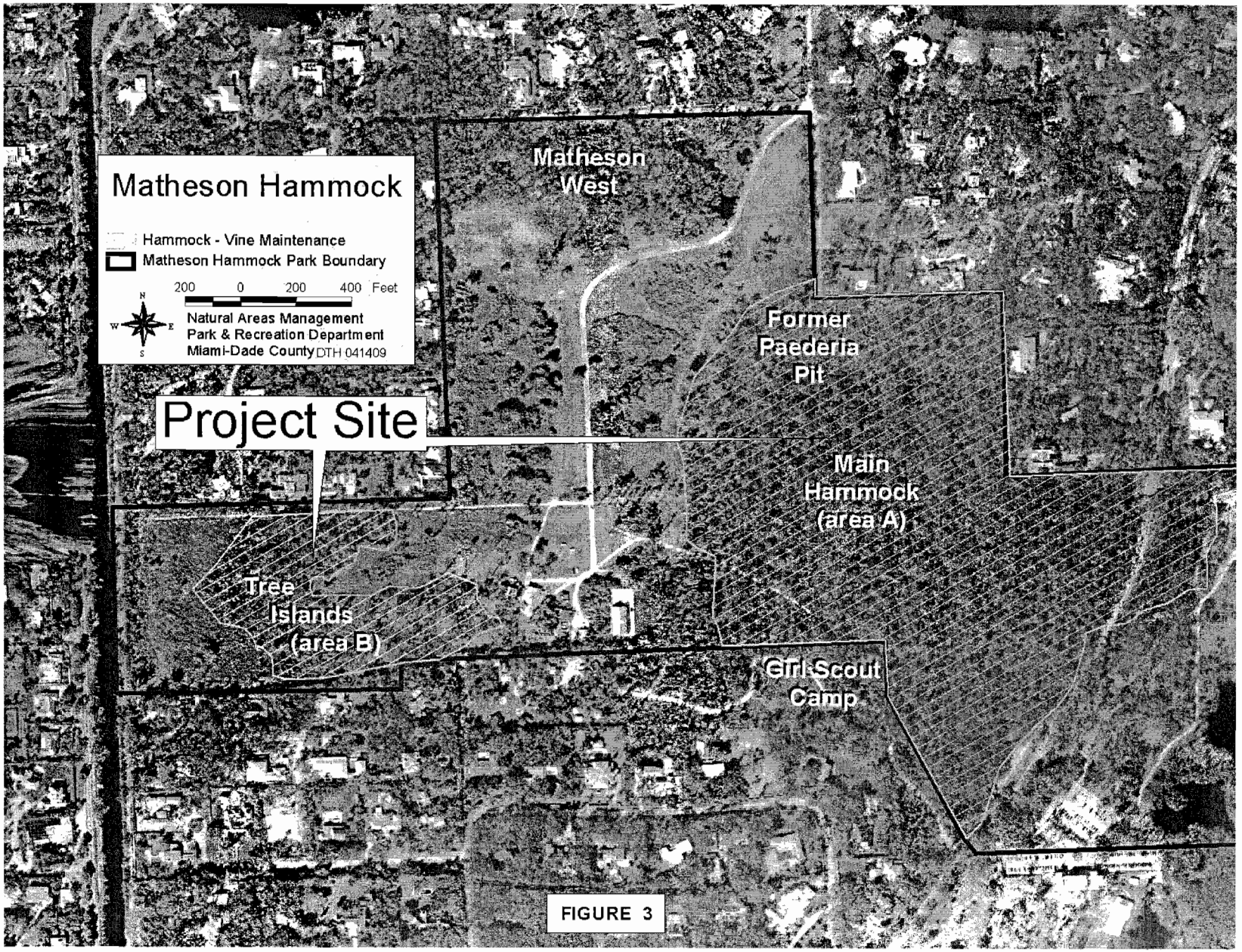
Matheson Hammock
Hammock - Vine Maintenance
Matheson Hammock Park Boundary
200 0 200 400 Feet
N
W
E
S
Natural Areas Management
Park & Recreation Department
Miami-Dade County DTH 041409
Project Site
Matheson West
Former Paederia Pit
Main Hammock (area A)
Tree Islands (area B)
Girl Scout Camp

FIGURE 3

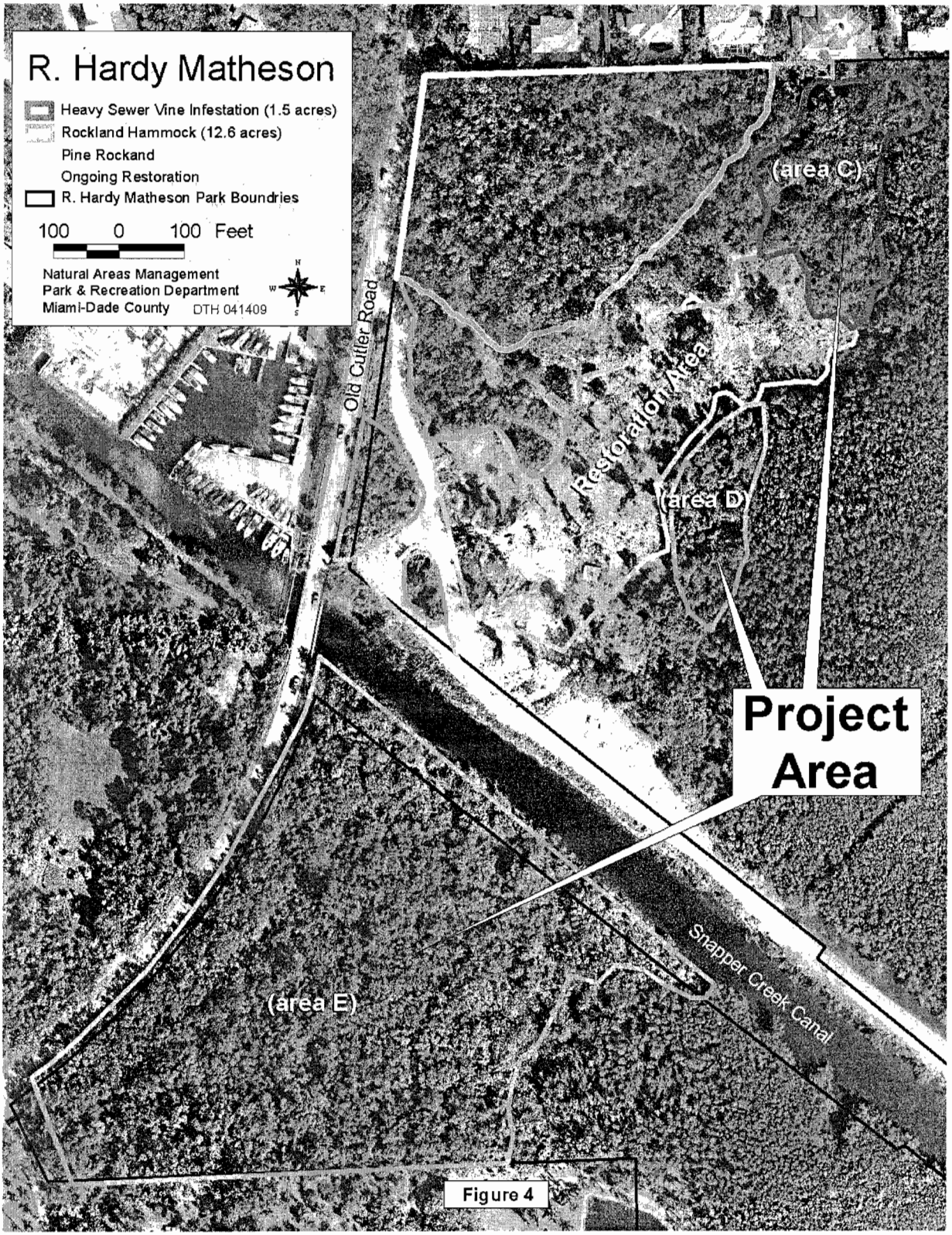
R. Hardy Matheson
Heavy Sewer Vine Infestation (1.5 acres)
Rockland Hammock (12.6 acres)
Pine Rockand
Ongoing Restoration
R. Hardy Matheson Park Boundries
100 0 100 Feet
Natural Areas Management
Park & Recreation Department
Miami-Dade County DTH 041409
(area C)
Old Cutler Road
Restoration Area
(area D)
Project Area
Shapper Creek Canal
(area E)

Figure 4

Attachment III: Listed Plant and Animal Species for Matheson Hammock and R. Hardy Matheson (FNAI explanations and definitions attached)

Scientific Name	Common Name	FNAI Global Rank	FNAI State Rank	Federal Status	State Status
I. I. COMMUNITIES					
Pine Rockland		G1	S1	N	N
Rockland Hammock		G2	S2	N	N
II. II. ANIMALS					
Accipiter cooperii	Cooper's hawk	G4	S3	N	N
Alligator mississippiensis	American alligator	G5	S4	T/SA	Species of special concern
Ardea alba	great egret	G5	S4	N	N
Ardea herodias occidentalis	great white heron	G5T2	S2	N	N
Buteo brachyurus	short-tailed hawk	G4G5	S1	N	N
Charadrius melodus	piping plover	G3	S2	LT	Threatened
Coccyzus minor	mangrove cuckoo	G5	S3	N	N
Columba leucocephala	white-crowned pigeon	G3	S3	N	Threatened
Crocodylus acutus	American crocodile	G2	S2	T	Endangered
Dendroica discolor paludicola	Florida prairie warbler	G5T3	S3	N	N
Egretta caerulea	little blue heron	G5	S4	N	Species of special concern
Egretta rufescens	reddish egret	G4	S2	N	Species of special concern
Egretta thula	snowy egret	G5	S3	N	Species of special concern
Egretta tricolor	tricolored heron	G5	S4	N	Species of special concern
Eudocimus albus	white ibis	G5	S4	N	Species of special concern
Eumaeus atala florida	Florida atala	G4	S3	N	N
Eunica tatila tatilista	Florida purplewing	G4T4T5	S1	N	N
Falco peregrinus anatum	peregrine falcon	G4	S2	LE	Endangered
Falco sparverius paulus	Southeastern American kestrel	G5T4	S3	N	Threatened
Fregata manificens	magnificent frigatebird	G5	S1	N	N
Gopherus polyphemus	Gopher Tortoise	G3	S3	N	Threatened
Haliaeetus leucocephalus leucocephalus	Southern bald eagle	G4	S3	LT	Threatened
Helmitheros vermivorus	worm-eating warbler	G5	S1	N	N
Liguus fasciatus	Florida tree snail	G3T2	S1/S2	N	Species of special concern
Macroclemys temminckii	alligator snapping turtle	G3G4	S3	N	Species of special concern
Malaclemys terrapin rhizoporarum	mangrove terrapin	G4T2	S2	N	N
Nyctanassa violacea	yellow-crowned night-heron	G5	S3	N	N
Nycticorax nycticorax	black-crowned night-heron	G5	S3	N	N
Pandion haliaetus	osprey	G5	S3S4	N	N
Passerina ciris	painted bunting	G5	S3	N	N
Pelecanus occidentalis	brown pelican	G4	S3	N	Species of special concern
Picoides villosus auduboni	Southern hairy woodpecker	G5	S3	N	N
Rhynchops niger	black skimmer	G5	S3	N	Species of special concern
Sterna antillarum	least tern	G4	S3	N	Threatened
Sterna caspia	Caspian tern	G5	S2	N	N
Sterna maxima	royal tern	G5	S3	N	N
Vireo altiloquus	black-whiskered vireo	G5	S3	N	N

Attachment III, continued...

Scientific Name	Common Name	FNAI Global Rank	FNAI State Rank	Federal Status	State Status
III. PLANTS					
Adiantum tenerum	maidenhair fern	G5	S3	N	Endangered
Amorpha herbacea var. *crenulata*	crenulate leadplant	G4T1	S1	LE	Endangered
*Amyris balsamifera**	balsam torchwood	G4	SX	N	N
Asplenium dentatum	slender spleenwort	G5	S1S2	N	Endangered
Asplenium serratum	birdnest fern	G4	S1	N	Endangered
*Cissampelos pareira**	moonseed				Endangered
Coccothrinax argentata	silver palm	G4	S3	N	Threatened
Crossopetalum ilicifolium	quail-berry	G2	S2	N	Threatened
Crossopetalum rhacoma	rhacoma	G5	S3	N	Threatened
Cyperus floridanus	Florida flatsedge	G3	S1	N	Endangered
Drypetes lateriflora	guiana plum	N	N	N	Threatened
Encyclia tampensis	butterfly orchid	N	N	N	Commercially exploited
Eugenia confusa	redberry stopper	G4G5	S2S3	N	Endangered
Lantana depressa var. *depressa*	rockland lantana	G2T1	S1	MC	Endangered
Nephrolepis biserrata	sword fern	N	N	N	Threatened
Peperomia obtusifolia	Florida peperomia	G5	S2	MC	Endangered
Pithecellobium keyense	blackbead				Threatened
Prunus myrtifolia	West Indian cherry	G4	S2	N	Threatened
Psychotria ligustrifolia	Bahama wild coffee	G4	S1	N	Endangered
Pteris bahamensis	ladder brake	G4	S3	N	Threatened
Scleria lithosperma	Keys' nutrush	N	N	N	Endangered
Smilax havanensis	greenbrier	N	N	N	Threatened
Tectaria fimbriata	least Halberd fern	G4	S2	N	Endangered
Tetrazygia bicolor	West Indian lilac				Threatened
Thrinax radiata	thatch palm	G4G5	S2	N	Endangered
Tillandsia utriculata	giant air plant				Endangered
Tillandsia balbisiana	reflexed wild-pine				Threatened
Tillandsia fasciculata var. *densispica*	stiff-leaved wild-pine				Endangered
Tillandsia variabilis	soft-leaved wild-pine				Threatened
Tournefortia hirsutissima	chiggery grape				Endangered
Trichomanes punctatum subsp. *Floridanum*	filmy fern	G4T1	S2	N	Endangered
Zamia integrifolia	coontie				Commercially exploited

*Possibly extirpated or extinct

Attachment IV: Invasive species of the Matheson Tree Islands Complex and Matheson West as ranked on Florida Exotic Pest Plant Council's (EPPC) 2001 List of Invasive Species

Scientific name	Common name	EPPC Category	Percent cover in Matheson Tree Islands and Matheson West	Comments/clarification
Adenanthera pavonina	red sandalwood	II	1-5%	
*Ardisia elliptica**	shoebutton ardisia	I	10-25%	Seedling population in certain areas
Alstonia macrophylla	devil-tree	II	1-5%	
Albizia lebbeck	woman's tongue	I	1-5%	
Bauhinia variegata	orchid tree	I	1-5%	
*Bischofia javanica**	bishopwood	I	localized	
Casuarina sp.	Australian pine	I	localized	
Dioscorea bulbifera	air potato	I	1-5%	
Epipremnum pinnatum cv. Aureum	pothos	II	1-5%	
Eugenia uniflora	Surinam cherry	I	1-5%	
Ficus microcarpa	laurel fig	I	<1%	
Imperata cylindrical	cogon grass	I	<1%	
Jasminum dichotomum	Gold Coast jasmine	I	<1%	
Jasminum fulminense	Brazilian jasmine	I	5-10%	Seedling population in certain areas
Lantana camara	lantana, shrub verbena	I	<1%	
Leucaena leucocephala	lead tree	II	<1%	
Melaleuca quinquenervia	melaleuca	I	localized	
Nephrolepis cordifolia	tuberous sword fern	I	localized	
Neyraudia reynaudiana	Burma reed, cane grass	I	1-5%	Edges
*Paderia cruddasiana**	sewer vine	I	5-10%	See * below
Panicum repens	torpedo grass	I	1-5%	In lake and lake edges
Pennisetum purpureum	Napier grass	I	1-5%	Edges
Phoenix reclinata	Senegal date palm	II	<1%	
Pittosporum pentandrum	cheesewood		1-5%	
Polyscias guilfoylei	aralia		<1%	
Ptychosperma elegans	solitary palm	II	<1%	

Attachment IV, continued...

Rhoe spathacea	oyster plant	I	<1%	
Sanseveria hyacinthoides	bowstring hemp	II	<1%	
Schefflera actinophylla	umbrella tree	I	Range from <1 to 15-25%	<1% in Math. West & S. tree island; 15-20% in N. tree island
Schinus terebinthefolius	Brazilian pepper	I	10-15%	edges around N. tree island & in ecotone
Syngonium podophyllum	arrowhead vine	II	<1%	
Syzygium cumini	jambolan plum	I	<1%	
Terminalia catappa	tropical almond	II	<1%	
Tradescantia fluminensis	wandering jew	I	<1%	
Wedelia trilobata	wedelia	II	1-5%	Edges

*These species are especially persistent, and require equal or greater persistence in their eradication. While some percentages may seem high for a maintenance project, they represent an enormously significant reduction in coverage and manageability.