

Memorandum



Date: March 6, 2012

To: Honorable Chairman Joe A. Martinez
and Members, Board of County Commissioners

From: Carlos A. Gimenez
Mayor 

Subject: Resolution Authorizing an Amendment to Memorandum of Agreement #58-6629-9-214 between Miami-Dade County and the United States Department of Agriculture to Use Approved Funding from the Wetlands Trust Fund for the Biological Control of Melaleuca Trees, Air Potato Vine and Old-World Climbing Fern

Agenda Item No. 8(I)(2)

Recommendation

It is recommended that the Board of County Commissioners (Board) approve the attached resolution authorizing an amendment to Memorandum of Agreement #58-6629-9-214 with the United States Department of Agriculture (USDA) to expand the list of exotic plants to be treated under an ongoing biological control project for melaleuca trees (*Melaleuca quinquenervia*).

Scope

This amendment is countywide due to the prevalence of exotic pest plant species.

Fiscal Impact/Funding Source

This amendment has no fiscal impact because the approved funding amount from the Miami-Dade County Wetlands Trust Fund does not change.

Track Record/Monitor

The Wetlands Resources Section Manager within the Department of Permitting, Environment and Regulatory Affairs (PERA) will monitor the terms and conditions of this MOA as amended.

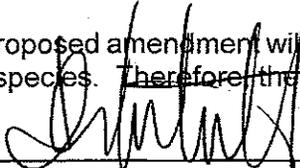
Background

On May 5, 2009, the Board approved Resolution No. R-487-09 (Exhibit A), authorizing the execution of a Memorandum of Agreement (MOA) between Miami-Dade County and the USDA to fund up to \$97,000 per year for five years for an ongoing biological control project for melaleuca trees. The annual report for FY2009-10 indicated that the program goals are being met for number of insects released at the prescribed sites within Miami-Dade County.

On May 31, 2011, the USDA requested an amendment (Exhibit B) to the MOA to add two (2) more biocontrol agents to the psyllids and weevils being released to control melaleuca trees within Miami-Dade County. The two (2) additions consist of a beetle to control the air potato vine (*Dioscorea bulbifera*) and a moth to control the old-world climbing fern (*Lygodium microphyllum*). Like melaleuca trees, both the air potato vine and the old-world climbing fern are highly invasive pest plants that spread rapidly and displace native plant species while providing little benefit to our ecosystems. The two (2) additional biocontrol agents have been determined by the USDA to target only the intended pest plant species and will not affect native or commercially desirable plant species.

The proposed amendment (Exhibit C) maintains the same level of funding from the Wetlands Trust Fund while adding the release of the two (2) additional biocontrol agents and decreasing the number of melaleuca biocontrol agents released. The 7,000 new insects to be released per year for control of air potato vine and old world climbing fern will be released within natural areas of Miami-Dade County selected by biologists from PERA and the Parks, Recreation and Open Spaces Department.

The proposed amendment will benefit Miami-Dade County by attempting to control undesirable invasive plant species. Therefore, the attached resolution is recommended for approval.


Deputy Mayor

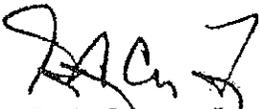


MEMORANDUM

(Revised)

TO: Honorable Chairman Joe A. Martinez
and Members, Board of County Commissioners

DATE: March 6, 2012

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

SUBJECT: Agenda Item No. 8(I)(2)

Please note any items checked.

- "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
- Ordinance creating a new board requires detailed County Manager's report for public hearing
- No committee review
- Applicable legislation requires more than a majority vote (i.e., 2/3's ____, 3/5's ____, unanimous ____) to approve
- Current information regarding funding source, index code and available balance, and available capacity (if debt is contemplated) required

Approved _____ Mayor
Veto _____
Override _____

Agenda Item No. 8(I)(2)
3-6-12

RESOLUTION NO. _____

RESOLUTION AUTHORIZING AN AMENDMENT TO MEMORANDUM OF AGREEMENT #58-6629-9-214 BETWEEN MIAMI-DADE COUNTY AND THE UNITED STATES DEPARTMENT OF AGRICULTURE TO USE APPROVED FUNDING FROM THE WETLANDS TRUST FUND FOR BIOLOGICAL CONTROLS; AND AUTHORIZING THE MAYOR OR MAYOR'S DESIGNEE TO EXERCISE THE CANCELLATION PROVISIONS CONTAINED THEREIN

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 authorizes the Mayor or Mayor's designee to execute an Amendment to Memorandum of Agreement #58-6629-9-214 between Miami-Dade County and the United States Department of Agriculture to use approved funding from the Wetlands Trust Fund for biological controls, in substantially the form attached hereto and made part hereof for and on behalf of Miami-Dade County; authorizes the Mayor or Mayor's designee to execute any further amendments to Memorandum of Agreement #58-6629-9-214 for extensions of time or for the addition of species or methods for biocontrol purposes; and authorizes the Mayor or Mayor's designee to exercise the provisions contained therein.

The foregoing resolution was offered by Commissioner who moved its adoption. The motion was seconded by Commissioner and upon being put to a vote, the vote was as follows:

Joe A. Martinez, Chairman	
Audrey M. Edmonson, Vice Chairwoman	
Bruno A. Barreiro	Lynda Bell
Esteban L. Bovo, Jr.	Jose "Pepe" Diaz
Sally A. Heyman	Barbara J. Jordan
Jean Monestime	Dennis C. Moss
Rebeca Sosa	Sen. Javier D. Souto
Xavier L. Suarez	

The Chairperson thereupon declared the resolution duly passed and adopted this 6th day of March, 2012. 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: _____
Deputy Clerk

Approved by County Attorney as
to form and legal sufficiency.



Abbie Schwaderer-Raurell

Memorandum

MIAMI-DADE
COUNTY

Date: May 5, 2009

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

From: George M. Burgess
County Manager

Amended
Agenda Item No. 8(D)(1)(C)

Resolution No. R-487-09

Subject: Resolution Authorizing the Execution of a Memorandum of Agreement between Miami-Dade County and the United States Department of Agriculture to Fund up to \$97,000 per year for Five Years for an Ongoing Biological Control Project for *Melaleuca quinquenervia* Trees

This item was amended on the floor by Assistant County Attorney Peter Tell at the May 5, 2009 BCC meeting. The last sentence of Article XII of the attached Memorandum of Agreement was amended to change the venue for dispute resolution from "... in the applicable US District Court for the Southern District of Florida" to "... in the applicable jurisdiction of the Federal Courts".

Recommendation

It is recommended that the Board of County Commissioners (BCC) approve the attached resolution authorizing execution of a Memorandum of Agreement (MOA) with the United States Department of Agriculture (USDA).

Scope

The biocontrol of the invasive *Melaleuca* trees will have countywide benefits.

Fiscal Impact/Funding Source

Miami-Dade County will provide the USDA with up to \$97,000 per year for five years for a total of up to \$485,000 from the Miami-Dade County Wetlands Trust Fund.

Track Record/Monitor

Not applicable.

Background

In July 1985, the BCC expanded the Urban Development Boundary to include 1,600 acres of wetlands within the Bird Drive Everglades and the North Trail Wetlands Basins. In 1992, the Board established the Wetlands Trust Fund and executed interagency agreements with federal and state environmental agencies for the collection of monetary contributions by developers as mitigation for impacts within the Bird Drive Everglades and the North Trail Wetland Basins.

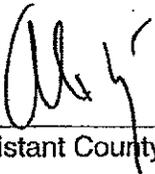
Pursuant to the terms and conditions contained in interagency agreements and Section 24-37 of the Code of Miami-Dade County, monies in the Wetlands Trust Fund can only be disbursed for the purposes of acquisition, restoration, enhancement, management or monitoring of wetlands within Miami-Dade County and outside of Miami-Dade County when such actions benefit wetland ecosystems in Miami-Dade County. Disbursements from the fund are collectively agreed upon by the Special Area Management Plan (SAMP) Implementation Committee, which is comprised of the US Army Corps of Engineers, the US Fish and Wildlife Service, the Florida Department of Environmental Protection, the Florida Game and Fresh Water Fish Commission, the South Florida Water Management District and the Miami-Dade County Department of Environmental Resources Management.

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Honorable Chairman Dennis C. Moss
and Members, Board of County Commissioners
Page 2

On August 28, 2008, the SAMP Implementation Committee met and reviewed the proposal to enhance wetlands in Miami-Dade County with funds from the Wetlands Trust Fund (Attachment A). The Committee unanimously approved this expenditure of mitigation funds that will contribute to the goal of Everglades ecosystem restoration. This grant to the USDA will fund a portion of a critically needed biological control project for *Melaleuca quinquenervia*. First introduced in the 1900s, *Melaleuca quinquenervia* has become a serious threat to the entire Everglades ecosystem.

This grant will fund the release of multiple biocontrol agents to feed on seedlings and saplings, thereby slowing the rate of *Melaleuca* expansion and promoting the re-establishment of native vegetation. The biocontrol agents were imported from Australia and extensively tested at the USDA's quarantine facility in Gainesville, Florida to make certain that they would not attack other plants that are found in the South Florida landscape.



Assistant County Manager

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MEMORANDUM

(Revised)

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

DATE: May 5, 2009

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

SUBJECT: Amended
Agenda Item No. 8(D)(1)(C)

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

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Approved _____ Mayor
Veto _____
Override _____

Amended
Agenda Item No. 8(D)(1)(C)
5-5-09

RESOLUTION NO. R-487-09

RESOLUTION AUTHORIZING THE EXECUTION OF A MEMORANDUM OF AGREEMENT BETWEEN MIAMI-DADE COUNTY AND THE UNITED STATES DEPARTMENT OF AGRICULTURE TO FUND UP TO \$97,000 PER YEAR FOR FIVE YEARS FOR AN ONGOING BIOLOGICAL CONTROL PROJECT FOR MELALEUCA QUINQUENERVIA TREES; AND AUTHORIZING THE COUNTY MAYOR OR COUNTY MAYOR'S DESIGNEE TO EXERCISE THE PROVISIONS CONTAINED THEREIN

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 hereby approves a Memorandum of Agreement (MOA) between Miami-Dade County and the United States Department of Agriculture, whereby Miami-Dade County will contribute up to \$97,000 per year for five years from the Wetlands Trust Fund, to be used in accordance with Section 24-37 of the Code of Miami-Dade County, to fund a portion of an ongoing biological control project for Melaleuca quinquenervia trees being conducted by the United States Department of Agriculture, in substantially the form attached hereto and made part hereof; and authorizes the County Mayor or County Mayor's designee to execute the MOA for and on behalf of Miami-Dade County, and to exercise the provisions contained herein.

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The foregoing resolution was offered by Commissioner **Sally A. Heyman** who moved its adoption. The motion was seconded by Commissioner **Audrey M. Edmonson** and upon being put to a vote, the vote was as follows:

Dennis C. Moss, Chairman	aye		
Jose "Pepe" Diaz, Vice-Chairman	absent		
Bruno A. Barreiro	aye	Audrey M. Edmonson	aye
Carlos A. Gimenez	aye	Sally A. Heyman	aye
Barbara J. Jordan	aye	Joe A. Martinez	aye
Dorrin D. Rolle	aye	Natacha Seijas	absent
Katy Sorenson	aye	Rebeca Sosa	absent
Sen. Javier D. Souto	absent		

The Chairperson thereupon declared the resolution duly passed and adopted this 5th day of May, 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.

A handwritten signature in black ink, appearing to be "PST".

Peter S. Tell

Two handwritten numbers, "5" and "9", written in black ink at the bottom of the page.

ATTACHMENT A

Melaleuca quinquenervia biocontrol proposal.

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**MELALEUCA QUINQUENERVIA BIOCONTROL
IN SOUTHERN FLORIDA**

**A proposal submitted to:
Special Area Management Planning Group (SAMP)
C/O Mr. Michael Spinelli
Authorized Technical Representative
Dade County Department of Environmental Resource Management
Wetland Resources Section**

Submitted by:

**Ted Center and Min Rayamajhi
U. S. Department of Agriculture
Agricultural Research Service
Invasive Plant Research Laboratory
3225 College Ave. Fort Lauderdale, Florida 33314
February 2008**

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Biological control of *Melaleuca quinquenervia* in South Florida

Melaleuca quinquenervia (melaleuca) has, during the past few decades, become a serious threat to the Everglades ecosystem in Florida. First introduced into Florida by horticulturists in the early 1900's it had proliferated so rapidly that about 488,197 acres of wetlands was already infested by 1993. Heavily infested sites contain up to 52,650 trees and saplings/acre. The problem will only intensify, as studies have shown melaleuca populations at some sites have exhibited a fifty-fold increase over the past 25 years. Despite multi-faceted attack by various agencies, melaleuca still remains one of the most worrisome perennial invasive plants and still invades 355,245 acres of the south Florida landscape (South Florida Environmental Report, South Florida Water Management District 2007).

In Australia, the broad-leaved paperbark tree grows mainly in coastal swamps. It is, therefore, especially well adapted to the flooded, saturated soils of Florida's environmentally-sensitive wetlands. Melaleuca also successfully invades drier habitats when sufficient water is available. Further, melaleuca is well adapted to ecosystems periodically swept by fires. Such fires, fuelled by highly volatile oils in melaleuca's foliage, kill native plants whereas melaleuca is protected by its thick insulating bark. The ground surface exposed by these fires provides an ideal seed bed for the copious numbers of seeds released by the trees following a fire. In favourable environments, up to 4-million seedlings/acre can be recorded, which overtime may develop into dense monocultures of melaleuca trees.

Dense melaleuca stands are of little value to wildlife. Encroachment into cypress and pine communities of southern Florida has threaten the survival of the endangered Big Cypress fox squirrel. Melaleuca is unacceptable as forage to the deer upon which the federally endangered Florida panther depends. A spring 1980 survey showed that the only birds nesting on melaleuca trees were anhingas, so loss of habitat threatens endangered wood storks and snail kites. Many rare and endemic subtropical orchids, ferns, and palms are also threatened by loss of habitat resulting from melaleuca invasion.

A task force convened during 1990 by the Florida Exotic Pest Plant Council and the South Florida Water Management District developed a comprehensive plan for controlling melaleuca in South Florida. The task force (composed of federal, state, and local natural resource managers and scientists) recognized that the most effective approach for controlling melaleuca was to integrate chemical, mechanical, and biological control technologies. They unanimously recommended that management agencies support biological control research focussed initially on

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developing agents to limit seed production and increase seedling/sapling mortality. Their second recommendation was that chemical and mechanical control operations be directed at eliminating isolated trees and small heads of melaleuca in otherwise uninfested areas, thereby preventing further population expansion. These recommendations were reaffirmed when the task force reconvened in April 1994 and again in May 1999 to assess progress and adjust priorities.

In accordance with the task force recommendations, USDA ARS Invasive Plant Research Laboratory has developed a biological control program for melaleuca. As part of that program, the Australian weevil (*Oxyops vitiosa*) and psyllid (*Boreioglycaspis melaleucae*) have been imported, reared, and released throughout south Florida. Preliminary assessments within a certain size class of melaleuca (1-6 cm diameter at breast height) suggest that defoliation by weevils once per year can reduce flower and seed production by 90% (Pratt et al. Recent evaluations in melaleuca monocultures where both weevil and psyllid populations have become well established show that melaleuca seed production has declined by 80% (Rayamajhi et al. 2008). In addition, tree density decline has accelerated primarily due to mortality of the smaller trees (Rayamajhi et al. 2007). As result, a significant increase (2-4-fold during 2001 to 2005) in plant species diversity has been noted at these sites (Rayamajhi et al., unpublished data). So far, altogether 1,424,793 weevils and psyllids have been released in Miami-Dade County alone. These releases in Miami-Dade County were made possible by funding from the Special Area Management Planning Group (SAMP) of the Dade County Department of Environmental Resource Management (DERM).

The weevil did not establish well at permanently wet sites because it pupates in the soil and therefore needs drier conditions. However, the psyllid established at nonflooded, seasonally-flooded and permanently-flooded sites. It completes its life cycle on melaleuca foliage so it is not as affected by hydroperiod. Weevil and psyllid populations have not yet established in some areas of Miami-Dade County, in particular in the eastern part of the Everglades National Park (including the recently acquired properties) and in some isolated locations. In order to better pursue the task force's primary recommendation on the use of environment-friendly biocontrol agents in melaleuca control programs, weevil and psyllid releases need to be concentrated in these isolated melaleuca stands. Also, additional herbivorous insects that induce galls on the developing vegetative and reproductive buds (the tip-gall midge, *Lophodiplosis trifida*; the bud-gall fly, *Fergusonina* sp.) are currently in the pipeline and they will also be available for release within the later part of this proposed 5-year project period (2009-2013). These additional insects will complement the damage caused by the weevil and psyllid thus providing additional stress to

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the trees. As in other biocontrol programs elsewhere, a suite of biocontrol agents is needed for effective control of melaleuca in southern Florida.

SCOPE OF WORK:

Biological control theory suggests, and previous projects have confirmed, that chances for success are enhanced by releasing a suite of insects that attack the plant in various ways. Weevils, psyllids, gall flies, and gall midges have been obtained from Australia where Florida's melaleuca originated. We have developed optimal methods to produce the weevils and psyllids year round under controlled environments so as to facilitate large scale field-releases. Parasites and diseases can reduce weevil and psyllid efficacy, so we will take necessary measures to maintain healthy colonies for field release.

Weevils can be produced on melaleuca hedges maintained at the nursery while the production of psyllids requires large screen cages. Optimally, we would be able to collect plants from the field for use in colony maintenance of these insects. Experience from previous biological control projects has shown, however, that host plant quality at field sites varies seasonally and among habitats. Thus, maintaining melaleuca plants of consistent quality in order to maximize psyllid colony production will be difficult if we rely on field collections. We will therefore culture melaleuca at our facilities to use in colony maintenance.

Weevil adult and larval feeding on young foliage kills seedlings and saplings, thereby reducing rates of population expansion. Similar damage on mature trees terminates growth of affected stems which, in turn, reduces flowering frequency and seed production. Similarly, adult and nymphal feeding by psyllids on foliage of all ages kills seedlings and saplings. Both agents cause chronic defoliation, branch-tip dieback, and tree mortality, which accelerates the decline of tree densities (Rayamajhi et al. 2007). Weevil and psyllid activity induces gradual thinning of the canopy, which allows light penetration and promotes growth of native vegetation (Rayamajhi et al., unpublished observation). We have established permanent study plots in Broward and Miami-Dade County where we have been evaluating the impact of weevil and psyllids on melaleuca monocultures. Monitoring of these plots has permitted us to quantify weevil and psyllid impacts on melaleuca, and thereby evaluate the effectiveness of these biological control agents and intend to continue to maintain these sites to generate a long-term data base documenting the impact of the biocontrol program on the south Florida environment, especially the Florida Everglades. We have been continuing additional studies in which we have incorporated weevil, psyllid, and an adventive rust fungus, *Puccinia psidii* that attacks actively growing succulent tips of melaleuca. The results of this study showed that incorporation of multiple agents

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effectively controlled melaleuca regrowth (Rayamajhi et al., unpublished data). This provides an important adjunct to mechanical control since stumps of felled trees produce copious regrowth and would otherwise require treatment with herbicides.

A coalition of governmental agencies has provided funds for this project since its inception in 1986. Coalition members include the U.S. Department of Agriculture, the U.S. Army Engineers, the National Park Service, the Florida Department of Environmental Protection, the South Florida Water Management District, Lee County, and Dade County. Support from the coalition is dedicated to overseas screening of candidate species and to testing proposed bioagents in U.S. quarantine, and thus are directly responsible for the acquisition of psyllids, weevils that are already field-released plus other insects currently being tested for environmental and non-target plant safety. Unfortunately, funding to produce and release psyllids, weevils and other biological control agents to be released in Florida, and to monitor its efficacy has not yet been secured through sustained funding. Therefore, for the last 10-years, we have been substantially relying on the fund provided by SAMP for biocontrol agent (herbivorous insect) production, release (in Miami-Dade County) and field-evaluation of their impact in southern Florida populations of melaleuca.

PSYLLID AND WEEVIL PRODUCTION AND RELEASE:

Containerized melaleuca plants will be produced from seeds as well as stem cuttings and maintained in the glasshouse and nursery as healthy potted saplings through fertilization and proper use of fungicides and insecticides. Walk-in psyllid inclusion cages (6 x 6 x 6 ft) have been built on metal frames and nylon screens with zip-lock openings on one side. Several cages of this dimension have been placed and secured inside a rainproof opaque tar shade to keep adults from flying away and to avoid adverse rain effects on psyllid adult populations. Drip irrigation systems were built to irrigate the potted plants in the cage. Adult psyllids will be released in cages stocked with potted bushy melaleuca plants up to 6 ft tall. Psyllid populations will be allowed to build in the cages for 2-6 weeks. Adults lay eggs, eggs hatch, and the nymphs (young psyllids) emerge then begin feeding on melaleuca sap. The nymphs cover themselves with waxy strands (flocculence) which appears as a white, fluffy mass. As the nymphal feeding continues the old leaves slightly turn pinkish while the young leaves start drying. The nymphal stage is the most damaging stage of these psyllids. Both young and old melaleuca leaves separate from stems within a few days after complete coverage by the flocculence. Ultimately, these nymphs develop into adults, disperse and repeat their life cycle on another plant.

Psyllid infested melaleuca saplings grown in cages die within 2-6 weeks depending on the

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size of the plants; smaller plants die sooner than the larger plants. Therefore, release is timed so that the saplings are still greenish and most nymphs have either emerged or majority of them are fully grown. At that stage the potted saplings are individually covered with thin psyllid-proof nylon screens. Individual saplings inside the screen are sampled to estimate the number of last stage nymphs and adults and then transported to the release sites in a closed vehicle. The nets are removed at the release site (usually under the melaleuca canopy), the saplings are removed from the pots, and the root-mass is enveloped in a degradable transparent plastic bag containing 4-5 liters of water. This allows the plants to survive until all of the nymphs have developed into adults and have infested the surrounding melaleuca trees. The release sites are randomly visited to evaluate psyllid establishment, and supplemented with additional releases if the populations have not established.

Hedges of melaleuca trees will be maintained at the nursery where healthy populations of weevils will be maintained and field-released where populations are not established. Collection will also made from the field where they are abundant and released in areas of Miami-Dade County where populations remain low or are not yet established.

PROPOSED BUDGET:

We propose that the Special Area Management Planning (SAMP) group support the culturing and releasing of psyllids and weevils in Miami-Dade County, and monitoring of released research sites to quantify their impacts on melaleuca occupied landscapes in southern Florida. The level of funding requested is \$97,000/year for the next five years (2009-2013). This is based on a cost of \$0.30 per individual psyllids and \$1.00 per individual weevils released and would primarily support the hiring of necessary personnel. A full time technician will be hired to culture melaleuca, develop screenhouse colonies of weevils and psyllids, conduct releases, and gather psyllid and weevil impact data from release sites. Support staff will include a half-time student assistant to aid in maintaining the psyllid colonies, field releases and field evaluations. Costs for horticultural supplies (e.g. potting soils, fertilizer, culture pots, etc.), insect colony supplies (e.g. screening and metal piping for cages), and field evaluation supplies (e.g. screening, bags, tape measures, pruning saws, etc.) are also included in this budget. USDA will leverage these SAMP funds by providing staff scientists to direct and oversee the project, technicians to collect weevils and psyllids in Australia as needed to maintain the genetic diversity. These funds will also be used to screen insects for diseases and pathogens, screenhouse maintenance, field vehicles, additional supplies, and travel expenses. This project will be supervised by the

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Category I, scientist Dr. Min Rayamajhi, who has been conducting research on the impact of biocontrol agents on melaleuca in Miami-Dade and Broward County of southern Florida. Dr. Rayamajhi's 0.5 FTE salary (\$50,000) will constitute the 50% of the matching fund for \$97,000/year required by the SAMP for federal agency). Requested budget details have been provided in the following table:

Budget Details:

<u>Direct costs:</u>	FY2009	FY2010	FY2011	FY2012	FY2013
245,000 Psyllids x \$0.3	73,500	73,500	73,500	73,500	73,500
2,000 weevils x \$1.0	2,000	2,000	2,000	2,000	2,000
Supplies	7,435	7,435	7,435	7,435	7,435
USDA Location Support (5% of net)	4,365	4,365	4,365	4,365	4,365
<u>Indirect Cost :</u>					
USDA Program Support (10% of gross)	9,700	9,700	9,700	9,700	9,700
Totals	97,000	97,000	97,000	97,000	97,000

¹ The number of psyllids and weevils released may be adjusted for release according to funds available. The psyllids and weevils will be replaced by other melaleuca insects when they become available for field-release.

² This element covers costs incurred by the location as a direct result of the project.

³ This element represents indirect program support costs.

LITERATURE CITED:

Pratt, P.D., M.B. Rayamajhi, T.K. Van, and T.D. Center. 2005. Herbivory alters resource allocation and compensation in the invasive tree *Melaleuca quinquenervia*. *Ecological Entomology* 15:443-462.

Rayamajhi, M.B., T.K. Van, P.D. Pratt, T.D. Center, and P. Tipping. 2007. *Melaleuca quinquenervia* dominated forests in Florida: analyses of natural-enemy impacts on stand dynamics. *Plant Ecology* 192:119-132.

Rayamajhi, M.B., P.D. Pratt, T.K. Van, and T.D. Center. 2008. Aboveground biomass components of invasive tree *Melaleuca quinquenervia*, before and after the natural enemy release in monoculture stands. *Weed Science*. In Press.

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ATTACHMENT B

Memorandum of Agreement

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MEMORANDUM OF AGREEMENT
BETWEEN
UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
FT. LAUDERDALE, FLORIDA

AND

MIAMI-DADE COUNTY

THIS AGREEMENT is made and entered into this _____ day of _____, 2009, by and between the United States Department of Agriculture, Agriculture Research Service (hereinafter referred to as the "ARS") and Miami-Dade County, a political Subdivision of the State of Florida (hereinafter referred to as the "County").

ARTICLE I. BACKGROUND AND OBJECTIVES

WHEREAS, the County has established the Wetlands Trust Fund (WTF), to acquire, enhance, restore, manage and monitor wetlands in Miami-Dade County; and

WHEREAS, the ARS has an on-going project to develop and implement biological controls for use against *Melaleuca quinquenervia*;

WHEREAS, a scientifically promising means of long term success for said enhancement project is development and application of a biological control program; and

WHEREAS, other South Florida Counties as well as regional, state and federal agencies have provided monetary contributions to said on-going project so that the wetlands under the respective jurisdictions may benefit; and

NOW THEREFORE, in consideration of these premises and mutual covenants contained herein, the parties agree as follows:

ARTICLE II. STATEMENT OF WORK

A. DEPARTMENT OF AGRICULTURE'S RESPONSIBILITIES

1. Implementation of Program. The ARS shall expeditiously implement, and shall be solely responsible for implementing, the on-going biological control program described in ATTACHMENT A.

The ARS shall be solely responsible for obtaining all of the required federal, state and local permits for performance of the work, for writing and awarding of contracts or cooperative agreements regarding implementation of the work, for scheduling, hiring and payment of personnel, for provision of transportation, and for purchase or rental of supplies, materials and equipment needed for project implementation and administration.

2. Preparation and Submission of Annual Reports. Beginning one year following the execution of this agreement, the ARS shall provide to the County, sufficient documentation to verify progress toward completion of the work in accordance with Attachment A. The ARS' reports shall be provided to the County for distribution to any parties of the County's choosing.

3. Receipt of Funds from the County. The ARS agrees to accept, solely for the purposes as outlined in this Agreement, the principal amounts received from the County's above described revenue index code of the WTF. Funds shall be received by the Authorized Departmental Officer and shall be placed in an account established solely for implementation of the project outlined in this Agreement and any Attachments hereto.
4. Maintenance of Records. The ARS shall keep accounting records which conform with generally accepted accounting principles which shall include, but not be limited to, a cash receipt journal, cash disbursement journal, general ledger, and all such subsidiary ledgers as reasonably necessary. All such records will be retained by the ARS for not less than five (5) years beyond the term of this Agreement.
5. Access to Records. The ARS shall provide access to all of its records and agrees to provide such assistance as may be necessary to facilitate their review by the County when deemed necessary by the County to insure compliance with accounting and financial standards. The ARS shall provide to the County an accounting of all expenditures of these funds on an annual basis. Additionally, all contracts between the ARS and third parties for work or materials related to the activities contemplated by this agreement shall provide that the County shall have the right to audit pertinent records. The County shall have the right to access all records for not less than five (5) years beyond the term of this Agreement. The ARS shall make all records or documents which relate to this Agreement available to the County at the ARS's offices during regular business hours.

B. COUNTY'S RESPONSIBILITIES

1. Review of Project. The County shall participate in the review of the implementation of this project. The County's Department of Environmental Resources Management (hereinafter referred to as "DERM") shall be responsible for administrative oversight of the project to ensure compliance with the project objectives, procedures and methods contained in Attachment A.
2. Crediting to Index Code of Wetland Trust Fund amounts. The County shall credit to a revenue index code within the WTF the amounts received in accordance with the Class IV Wetland Permits issued in the Bird Drive and North Trail Basins. Interest accrued on this principal amount prior to disbursement to the USDA shall be retained by the County for use for administrative costs.
3. Transfer of WTF amounts to the ARS. Contingent upon receipt and approval by DERM of the annual report from ARS required by Article III, Paragraph A (2), the County shall transfer those funds from the above described revenue index code of the WTF to ARS at a minimum frequency of once a year. The maximum annual payment shall be ninety seven thousand (\$97,000.00) dollars per year for five (5) years.

All payments for work completed shall be made within thirty days following the receipt of each invoice, less ten (10) percent of the amount, which shall be held by the County as retainage. The cumulative amount retained shall be disbursed to the ARS upon completion of all work described under this Agreement and acceptance of the final report by DERM, but under no circumstances shall this amount be retained longer than four (4) months after the date of final acceptance of the work by DERM.

4. Maintenance of Records. The County shall keep accounting records which conform with generally accepted accounting principles which shall include, but not be limited to, a cash receipt journal, general ledger, and all such subsidiary ledgers as reasonably necessary. All such records will be retained by the County for not less than five (5) years beyond the term of this Agreement.
5. Access to Records. The County shall provide access to all of its records and agrees to provide such assistance as may be necessary to facilitate their review by the ARS when deemed necessary by the ARS to insure compliance with accounting and financial standards. The County shall provide to the ARS an

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accounting of all expenditures of these funds on an annual basis. The ARS shall have the right to access all records for not less than five (5) years beyond the term of this Agreement. The County shall make all records or documents which relate to this Agreement available to the ARS at the County's offices during regular business hours.

6. Preparation and Submission of Annual Accounting Reports. Annual Accounting Reports shall be generated by the County and provided to the ARS for distribution to any parties of their choosing. The County's reports shall include a summary of all activities (e.g. deposits, transfers, or expenditures) of the above described revenue index code of the WTF.

ARTICLE III. TERM OF AGREEMENT

1. This Agreement shall be for a term of five (5) years, beginning on the date of execution.
2. Continuation of this Agreement (in whole or in part) beyond the second year is contingent upon the availability of funds.

ARTICLE IV. KEY OFFICIALS

ARS: The Authorized Departmental Officer, will provide review and approval of terms of all agreements and will exercise the authority to approve conduct of cooperative projects. Dr. Ted Center, United States Department of Agriculture, Invasive Plant Research Laboratory, will act as the contracting officers' authorized technical representative with regard to the technical scope of this agreement. The ARS shall provide written notice to DERM of any changes in key officials within two (2) weeks of such change.

DERM: Michael Spinelli will act as the authorized technical representative for DERM with regard to the technical scope of this Agreement. The County shall provide written notice to the ARS of any change in authorized technical representative within two (2) weeks of such change.

ARTICLE V. PROPERTY UTILIZATION N/A

ARTICLE VI. PRIOR APPROVAL N/A

ARTICLE VII. REPORTS

Data summaries and/or reports will be generated by the ARS and provided to the County on an annual basis to communicate progress of the program. Said reports shall include a description of the work performed to date, discussion of results or observations (as these become available), compliance with the yearly tasks or objectives as outlined in Attachment A, as well as a statement of costs showing a summary of expenditures to date, including an expression of the total costs.

ARTICLE VIII. TERMINATION

This Agreement shall terminate automatically five years after date of execution. Either the ARS or the County may terminate this agreement at any time by providing sixty (60) days written notice to the other party. The ARS will receive compensation for work approved by the County before point of termination.

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ARTICLE IX. AMENDMENT

This Agreement may be modified by amendment upon mutual written agreement of both parties.

ARTICLE X. REQUIRED CLAUSES

"During the performance of this agreement, the participants agree to abide by the terms of executive order 11246 on nondiscrimination and will not discriminate against any person because of race, color, religion, sex or national origin. The participants will take affirmative action to ensure that applicants are employed without regard to their race, color, religion, sex or national origin."

"No member or delegate to Congress, or resident Commissioner, shall be admitted to any share or part of this Agreement, or to any benefit that may arise there from, but this provision shall not be constructed to extend to this Agreement if made with a corporation for its general benefit."

ARTICLE XI. NOTICES

All notices required or permitted to be given under the terms and provisions of this Agreement by either party to the other shall be in writing and shall be sent by registered or certified mail, return receipt required, to the parties as follows:

As to the County:
Carlos Espinosa, Director
Department of Environmental
Resources Management
Attn.: Michael Spinelli
701 N.W. 1 Court, Suite 600
Miami, Florida 33136

As to the ARS:
Debera Campbell, Authorized Departmental Officer
USDA-ARS
P.O. Box 5677
Athens, GA 30604-5677

or to such other address as may hereafter be provided by the parties in writing. Notices by registered or certified mail shall be deemed received on the delivery date indicated by the U.S. Postal Service on the return receipt.

ARTICLE XII. VENUE

This Agreement shall be governed by and construed in accordance with the laws of the United States of America. Any litigation hereunder shall be brought in the applicable jurisdiction of the Federal Courts.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized representative(s) on the latest day and year noted below.

DEPARTMENT OF AGRICULTURE

By: _____
Authorized Departmental Officer Date

By: _____
Contracting Officer Date

MIAMI-DADE COUNTY

By: _____
Mayor or Mayor's Designee Date

Attest:

By: Deputy Clerk

Approved by County Attorney
as to form and legal sufficiency _____

Request for Amendment of Agreement # 58-6629-9-214: Agreement#58-6629-9-214 (titled, "Melaleuca quinquenervia biocontrol in southern Florida") calls for the release of 245000 psyllid and 2000 weevil individuals in melaleuca infested areas of Miami-Dade county and evaluate their impact at the annual cost of \$97,000 for 5-yr period beginning the date of project execution on May 26, 2009. Annual report for the second year of project progress will be submitted during the 2nd week of June 2011. Herein, a slight amendment of the aforementioned agreement to accommodate the release of insects (beetle and moth) on to two additional invasive weed species (air potato and old-world climbing fern) in Miami-Dade is being requested in addition to the continued release of melaleuca biocontrol insects at a reduced level (please refer to the table below). This amendment will not change the total annual cost of \$97,000 for the remainder of the 3-yr period outlined in the aforesaid agreement. This change will benefit Miami-Dade County by providing alternative long-term means of controlling air potato and climbing fern in sensitive natural areas (DERM), parks and recreational (MDPR) establishments and the Everglades National Park (ENP). The process of identifying the priority target areas for release of air potato beetles and climbing fern moth is underway in collaboration with the biologists from DERM, MDPR and SFWMD. The changed activities will be implemented with the positive consent from the SAMP-DERM. This amendment will result in the reduced number of biocontrol insect releases on melaleuca and slight changes in the subheadings within the total annual budget to accommodate the proposed addition of the tasks. The remainder of the terms and conditions outlined in the original agreement #58-6629-9-214 are to be remained unchanged except those outlined in the following table.

Budget details

<u>Direct costs (\$):</u>	<u>Target weeds/Year</u>	<u>2011-2012</u>	<u>2012-2013</u>	<u>2013-2014</u>
120,000 Psyllids ¹ x \$0.3	Melaleuca	35,500	35,500	35,500
2,000 weevils ¹ x \$1.0	Melaleuca	2,000	2,000	2,000
2000 Beetles ¹ x \$5	Air potato	10,000	10,000	10,000
5000 Moth ¹ x \$2	Lygodium	10,000	10,000	10,000
Agent acquiring cost ²	Air potato	20,000	20,000	20,000
Supplies		5,435	5,435	5,435
USDA Location Support ³				
(5% of net)		4,365	4,365	4,365
<u>Indirect Cost⁴:</u>				
USDA Program				
Support (10% of gross)		9,700	9,700	9,700
Total (\$)		97,000	97,000	97,000

¹ The number of psyllids, weevils, beetles, and moth released may be adjusted for release according to funds available. ² This will support travels to make contacts with foreign collaborators survey, collect and hand carry air potato beetles in addition to supporting the additional periodic and maintenance of laboratory colonies of the beetles and periodic shipments to the USDA/IPRL Florida by the participating foreign collaborators. ³ This element covers costs incurred by the location as a direct result of the project.

⁴ This element represents indirect program support costs.

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EXHIBIT C

AMENDMENT TO
MEMORANDUM OF AGREEMENT #58-6629-9-214
BETWEEN
UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
FT. LAUDERDALE, FLORIDA

AND

MIAMI-DADE COUNTY

THIS AMENDMENT is made and entered into this ____ day of _____ 2012, by and between the United States Department of Agriculture, Agricultural Research Service (hereinafter referred to as the "ARS") and Miami-Dade County, a political Subdivision of the State of Florida (hereinafter referred to as the "County").

WHEREAS, the ARS and the County entered into Memorandum of Agreement #58-6629-9-214 dated May 26, 2009, which provided the ARS with ninety seven thousand dollars (\$97,000) per year for five (5) years to fund a portion of an ongoing biological control project for *Melaleuca quinquenervia* from the Miami-Dade County Wetlands Trust Fund; and

WHEREAS, the Memorandum of Agreement expires May 26, 2014; and

WHEREAS, the ARS and the County desire to modify the Memorandum of Agreement to allow the ARS to use the approved funds from the Wetlands Trust Fund to additionally release approximately 7,000 new insects per year to control *Dioscorea bulbifera* (air potato) and *Lygodium microphyllum* (old-world climbing fern) within Miami-Dade County; and

WHEREAS, this modification will not increase the approved Wetlands Trust Fund commitment.

NOW, THEREFORE, in consideration of the mutual covenants and promises contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the County and ARS hereby agree as follows:

I. Article II, Section A.1. is hereby amended to the following:

Implementation of Program. The ARS shall expeditiously implement, and shall be solely responsible for implementing, the on-going biological control program described in ATTACHMENT A and the Request for Amendment of Agreement #58-6629-9-214 dated May 31, 2011.

ALL ELSE REMAINS THE SAME.

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IN WITNESS WHEREOF, the parties hereto have caused this Amendment to be executed by their duly authorized representative(s) on the latest day and year noted below.

DEPARTMENT OF AGRICULTURE

By: _____
Jan Sasser-Moreno Date
Authorized Departmental Officer

MIAMI-DADE COUNTY

By: _____
Mayor or Mayor's Designee Date

Attest:

By: Deputy Clerk

Approved by County Attorney
as to form and legal sufficiency _____