FLORIDA GULF OF MEXICO RESTORATION

PROJECT SUBMITTAL FORM

Form Purpose and Instructions:

- To assist the project proposal and review process, please complete this Submittal Form. Completion of the Form will contribute to the appropriate information being completely and accurately submitted for each project.
- Take as much space as needed for each question, but please keep responses as focused as possible. It may assist you to review all the questions before addressing any one question.
- Please submit one Form per project, if you have multiple projects - please submit one Form for each project.
- Please submit completed Forms to Restoration.Projects@dep.state.fl.us. Once your Form is successfully submitted, you will receive a confirmation email from the Florida Department of Environmental Protection.

Project Name:

Exotic Species Removal on Public and Private Property

Contact Information *(Include at least one name, phone number, email address, and organization name if applicable)*:

Debbie London, Community Services, City of Marathon, FL 305-289-4103
londond@ci.marathon.fl.us

Project Location *(Include a map, if possible, and the city, county, longitude/latitude, and watershed)*:

City of Marathon - Public and Private Property

Project Description *(Describe all aspects of the project)*:

1. Exotic species consultant hired , 2. Exotic species identification program - pre removal tagging
3. Exotic species removal - city wide , 4. Exotic species identification program - post removal survey
5. Ongoing maintenance of Exotic species

Estimated Project Costs *(Describe the estimated costs of the project, including any assumptions for contingency and ongoing operations/maintenance. Identify other secured funding sources such as matching funds, in-kind contributions or state/federal dollars. In addition, if possible, complete and submit the Cost Appendix Sheet associated with this Form)*:

$1,000,000 over 6 years. No other funding has been identified.

Other Funding *(Indicate if the project is submitted for any potential funding or if it may be used to leverage additional funding, if so please describe the funding source [e.g. State/Federal Grants])*:

None available

Technical Feasibility *(Describe the technologies involved and any relevant past experience or proven success with similar projects)*:

We removed approximately 500 Australian Pine trees from Coco Plum Beach in 2012. We have landscaper on contract who can identify and tag exotics. We will utilize multiple firms in a phased approach, awarded through competitive solicitations based on time and material with photographic documentation.

Environmental Benefits *(Describe the nature, magnitude, and timing of any environmental benefits attributable to the project. If possible, describe potential environmental performance measures [e.g. pollutant reduction]. Please address any potential environmental impacts associated with implementing or maintaining the project [e.g. loss of a habitat or conversion of habitat from one type to another during implementation])*:

Invasion of the Florida keys natural habitats by exotic plant and animal species has significantly changed the ecosystem. Due to lack of funding past efforts have not been maintained and the exotics are prolific. Restoration of the natural habitat effects water quantity, water quality and abundance of flora and fauna.

Economic and Social Benefits *(Describe the economic and social benefits including those related to the project's improved ecosystem services and any estimates on jobs created or preserved)*:

The removal phase of the project can employ relatively unskilled labor and create work projects for local disadvantaged landscape crews.
Residents will be appreciative of the City efforts in their neighborhoods.

Community Resilience *(Describe if the project assists Florida's ability to anticipate, withstand, or recover from hazards or threats [e.g. hurricane preparedness, establishing living shorelines])*:

Australian pines and other invasives do not have the growth characteristics/root system to sustain strong tropical force winds and therefore create storm debris.
Removing them would further establish the living shorelines with the grow back of native vegetation.

Conflicts or Complements to Existing Efforts *(Describe any ongoing activities in the project implementation area, if the project is part of another plan, and why the project does or does not interfere with that work. Please consider how the project may complement existing local, regional, and state efforts/plans/objectives)*:

Compliments the: Comprehensive Everglades Restoration Plan, the City of Marathon Comprehensive Plan, South Florida Water Management Plan, Florida Department of Environmental Protection Plan, U.S. Fish and Wildlife Service Plan and U.S. Army Corp of Engineers Plan.

Complies with Federal, State, Local, and Tribal Laws/Regulations *(Describe any concerns or potential conflicts)*:

None

Readiness for Implementation *(Describe if the project has had any design or permitting work started or completed [attach permits or design work]. Please address any issues that may delay start or finish of the project)*:

The project can be implemented within 60 days of funding availability.

Public Acceptance *(Describe any known or potential public approval or opposition to the project)*:

Once the need is explained, the majority of the public welcomes any assistance in the removal of exotics from public and private lands.

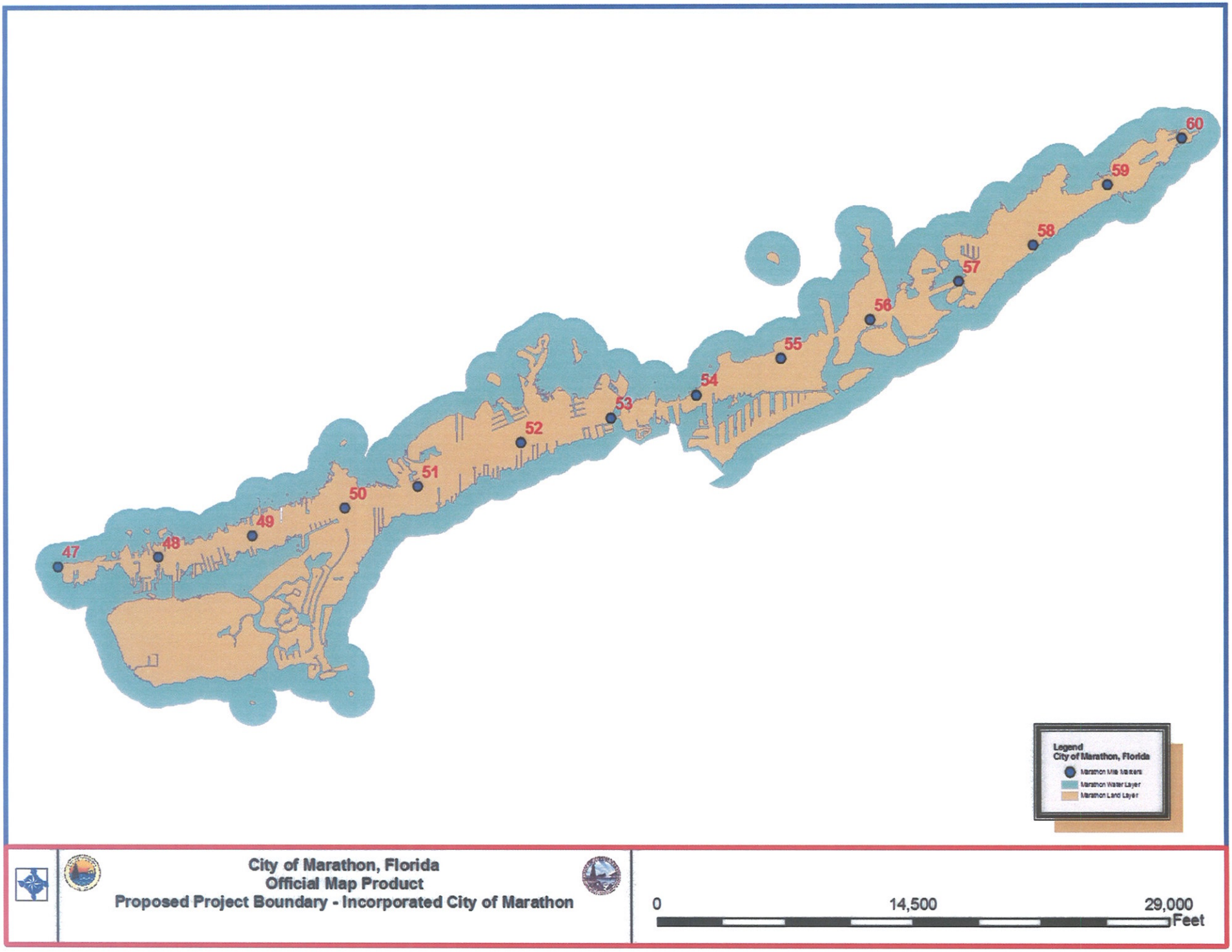
Additional Information you wish to provide *(Please include any maps, designs, drawings, photos, or background resources that may assist in completely and accurately understanding the project)*:

City Map
Photo of Australian Pines at Coco Plum Beach
University of Florida list of exotics
South Florida Water Management - Chapter 9

Cost Appendix Sheet

Cost Item	Cost Estimate
Planning	
Contracts	$5,000.00
Feasibility	$5,000.00
Engineering, Design, Land Rights, & Bid Prep	$25,000.00
Restoration Plan	$5,000.00
Site Visits & Cost of Site Selection	$5,000.00
Administration, Overhead, and Indirect	$10,000.00
Other	
Planning Subtotal:	$55,000.00
Construction	
Contracts	$750,000.00
Administration & Mobilization/Demobilization	$75,000.00
Other	
Construction Subtotal:	$825,000.00
Monitoring	
Contracts	$50,000.00
Data Collection	$10,000.00
Monitoring Administration	$10,000.00
Other	
Monitoring Subtotal:	$70,000.00
Project Cost	
Supervision	$50,000.00
Subtotal:	$950,000.00
Contingency	
TOTAL:	$1,000,000.00

Estimated Costs by Year	
Year 1	$500,000.00
Year 2	$300,000.00
Year 3	$100,000.00
Year 4	$50,000.00
Year 5	$25,000.00
Year 6	$25,000.00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Legend
City of Marathon, Florida
Marathon Mile Markers
Marathon Water Layer
Marathon Land Layer
City of Marathon, Florida
Official Map Product
Proposed Project Boundary - Incorporated City of Marathon
0
14,500
29,000
Feet

UF UNIVERSITY of FLORIDA IFAS Extension

SOLUTIONS for your LIFE

Bad Plants in the Keys

Learn about invasive and poisonous plants in the Florida Keys.

Invasive Exotic Plants

by Diane Marshall

Non-natives or "exotics" are plants that grow outside of their native areas. Such plants are grown around the world in gardens, natural settings, houses and offices. These newcomers become unwelcome when they adapt so well to their new environments, that they begin to out grow and displace native plant and wildlife communities. When they reach that stage, they are considered invasive.

In Monroe County, four exotics have become so invasive in the hammocks, pinelands, and wetlands, that they threaten or endanger 42 native plant species and 27 animal species to the point of extinction. Millions of dollars are being spent to eradicate invasive exotics, and federal and state laws have been passed to restrict their possession, transport and sale.

Australian Pine (Casuarina equisetifoliai), not a true pine, is a large (up to 150 ft.) evergreen tree with rough, peeling, reddish-brown to gray bark. It has long (4 to 8 inches) needles and woody cones with winged seeds.

Brazilian pepper or Florida holly (Schinus terebinthifolius) spreads bush-like up to 40 ft. high and 40 ft. wide, with dense compound leaves that have 3 to 9 inch veined leaflets, a reddish-brown trunk and stems, small cream to reddish flowers in upright clusters, and clusters of bright red oval-shaped fruits.

Asiatic colubrina or Latherleaf (Colubrina asiatic) is a sprawling shrub with dark green 1.5- to 3.5- in alternate, elliptical leaves that have serrated margins and are shiny on top and dull underneath. Its clustered, small (1/16 inch), greenish white flowers produce grooved, fleshy green to brown fruits 1/4 to 1/2 inch that have grayish seeds.

Melalueca (Melalueca quinquenervia) grows a tall (up to 100 ft.) evergreen tree with a thick, smooth, whitish bark that peels in thin layers, exposing reddish bark underneath. Its alternate, simple, grayish-green, lanced shaped leaves (4 inches) smell like camphor when rubbed. White flowers grow in clusters between the leaves. Its woody fruits have hundreds of tiny seeds.

There are several ways to eliminate invasive exotics. Small plants in small areas are best removed by hand. For large areas, backhoes or bulldozers may be more effective. Root removal prevents re-sprouting. Several removals may be necessary if seeds have germinated or if root fragments remain behind.

Herbicides are also effective. Remove the plants and within 1 minute, paint the stumps with Garlon 3a, Roundup Pro or Rodeo. Garlon 4 and Pathfinder II can be applied up to 24 hours after cutting the tree. Basal Bark Treatment is also effective, but it takes a month to kill the tree. Paint a band of Garlon 4 and Pathfinder II completely around the tree about 6-12 in above the ground.

Use care when removing Brazilian pepper and Melalueca. Both can cause skin and respiratory irritation. Also, a free permit is required by the Monroe County Building Department to remove invasive exotics.

Chapter 9: The Status of Nonindigenous Species in the South Florida Environment

Amy Ferriter[1], Bob Doren[2], Rachel Winston[1], Dan Thayer, Bill Miller[3], Bill Thomas[4], Mark Barrett[3], Tony Pernas[5], Scott Hardin[6], Jon Lane[7], Mac Kobza, Don Schmitz[8], Mike Bodle, Lou Toth, Leroy Rodgers, Paul Pratt[9], Skip Snow[5] and Carole Goodyear[10]

SUMMARY

Successful restoration of the South Florida ecosystem, which includes only vestiges of a once vast Everglades, hinges on the ability to reverse the environmental degradation chiefly caused by human activities over the last 100+ years and to prevent further degradation. While efforts of the Comprehensive Everglades Restoration Plan (CERP) and Restoration Coordination and Verification (RECOVER) programs have made it clear that restoration involves numerous factors (e.g., water quantity, water quality, and abundance of flora and fauna), the potential impact of invasive species has emerged as a high priority for CERP planning. Invasion of South Florida's natural habitats by nonindigenous (non-native or exotic) plant and animal species has significantly changed the ecosystem, particularly by displacing native species.

In support of the collective activities of the many agencies involved in Everglades restoration and CERP, this chapter reviews the broad issues involving nonindigenous species in South Florida and their relationship to restoration, management, planning, organization, and funding. This chapter also provides an overview of nonindigenous species using an "all-taxa" format for understanding and presenting an inclusive picture of the magnitude of the far-reaching invasive species threats that exist in South Florida. While detailed information on many nonindigenous species is still unknown, this document provides a complete listing with annotations for those species considered serious threats to Everglades restoration. The species are presented using the

[1] Boise State University, Boise, ID
[2] Florida International University, Miami, FL
[3] U.S. Fish and Wildlife Service, A.R.M. Loxahatchee National Wildlife Refuge, Boynton Beach, FL
[4] U.S. Fish and Wildlife Service, J.N. 'Ding' Darling NWR, Sanibel, FL
[5] National Park Service, Miami, FL
[6] Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute, Eustis, FL
[7] U.S. Army Corps of Engineers, Jacksonville, FL
[8] Florida Department of Environmental Protection, Tallahassee, FL
[9] U.S. Department of Agriculture, Agricultural Research Service Invasive Plant Research Laboratory, Fort Lauderdale, FL
[10] Retired from the National Oceanic and Atmospheric Administration, Miami, FL

Table 9-4. Stoplight table for priority plant species in the Florida Keys Module.

	2006 STATUS	2007 STATUS		1-2 YEAR PROGNOSIS	
FLORIDA KEYS MODULE (Results in this row reflect module-level questions, not species-level questions)	Y	Restoration efforts under way for several years; much progress made on most species; still some use of invasive species in private landscapes	Y	Significant control program for several years; progress on many species evident, continued monitoring and control needed to prevent serious reinvasions of species still threatening this region and new species	Y G
Australian Pine (*Casuarina* spp.)	Y G	Effective program in place and Australian pine not currently a problem in natural areas of Keys, decreasing on private	Y G	Chemical control effective with most natural areas clear or clearable with modest effort; biocontrol research under way	G
Latherleaf (*Colubrina asiatica*)	Y	Little known about spread throughout region; actively removed in coordinated manner	Y	Removal needed constantly, but coordinated control programs expected to keep populations at easily maintained levels	Y G
Sickle Bush (*Dichrostachys cinerea*)	Y	Actively searched for but effectively removed from module	G	Actively searched for but effectively removed from module	G
Laurel Fig (*Ficus microcarpa*)	Y	Actively searched for but effectively removed from module	G	Actively searched for but effectively removed from module	G
Leadtree (*Leucana leucocephala*)		Not new to module but considered new priority; controlled on public lands; increasing on private; prolific seedbank; resistant to chemicals	Y R	Control efforts increasing; control techniques being perfected	Y
Sapodilla (*Manilkara zapota*)	Y	Know little about spread throughout region; actively removed in coordinated manner	Y R	Localized problem; difficult to detect, may become serious pest in areas where other exotics controlled; invades natural forests; difficult to control	Y R
Half Flower (*Scaevola taccada*)	Y	Fairly easy to detect; actively removed from public land in coordinated manner; still popular for landscape on private land	Y R	Seeds float, long-term management difficult; biocontrol probably not option given closely related native *Scaevola* species	Y R
Brazilian Pepper (*Schinus terebinthifolius*)	Y	Invades most habitats, very destructive; chemical control ineffective in systemwide spread; local control programs proving effective in Keys	Y	Control programs effective in the Keys, with most populations limited; new biocontrol agents under study for future release in 2007-2008	Y
Seaside Mahoe (*Thespesia populnea*)		Not new to module, new to table; removed from public land in coordinated manner; still popular on private land; spreads easily;	Y	Active control program maintains populations; requires constant effort	Y

Red = Severe Negative Condition, or one is expected in near future, with out-of-control situation that merits serious attention.

Yellow/Red = Problem was previously localized or not too severe but is or appears to be progressing toward a Severe Negative Condition generally due to inaction. Without attention and resources, the situation may develop or become red.

Red/Yellow = Currently a Negative Condition but there are reasonable control efforts underway. However, without continued or improved efforts this species may revert to a severe situation or become a future serious invader and revert to yellow/red or red.

Yellow = Situation is improving due to reasonable control program and either is stable or moving toward stabilizing, or the species is still very localized but is expected to spread if sufficient resources or actions are not continued or provided. The situation could still reverse.

Green/Yellow = Situation is generally good and under control but still needs regular, even if low-level, attention to continue progress to yellow/green or green.

Yellow/Green = Significant progress is being made and situation is moving toward good maintenance control and is expected to continue improving as long as resources are maintained.

Green = Situation is under control and has remained under control for several years, particularly where biocontrol is found to be effective. Where chemical maintenance control is in place, continuation of control efforts is essential to maintain green status.