Everglades CISMA

Cooperative Invasive Species Management Area

Tony Pernas
National Park Service
What is the Everglades CISMA?

A partnership of federal, state, and local government agencies; tribes; individuals; and various interested groups that manage invasive species in the Everglades area.

• Integrate coordination, control and management strategies.
  • Early detection and rapid response
  • Regional control strategies
  • Outreach and training
  • Information and technology transfer
Florida’s Non-native Flora and Fauna

- 1150 Insect spp.
- 900 Plant spp.
- 196 Bird spp.
- 47 Reptile spp.
- 32 Fish spp.
- 30 Mammal spp.
- 6 FW Invert. spp.
- 4 Amphibian spp.
- ? Marine spp.
Roughly 6000 Burmese pythons were imported through the Port of Miami in the last three years alone.
Melaleuca
Australian pine
Brazilian pepper
Old World climbing fern
Sacred ibis

Jewel cichlid

Swamp eel

Island apple snail
Sun., Feb. 21, 1971
THE MIAMI HERALD 5-A

Some Trees We Can Do Without

THE MORE we see of naturalized trees and shrubs in South Florida, the more we are convinced that utmost care should be used in introducing plants from other countries.

We're losing war against melaleucas

By GEORGIA TASKER
Herald-Garden Writer

There are 400 species of exotic plants growing in the ecosystems of South Florida. Of these, 217 have invaded Everglades National Park. Most aggressive of all is Melaleuca quadrangulata, the Melaleuca tree.

Fire is so hot in the melaleuca forests that now grow from Lake Okeechobee south that they can be uncontrollable, says a forester with 25 years' experience here. And, he says, should a drought hit us as it did in 1985 and the melaleuca forests go up in flame again, houses in west-central Dade and Broward are in danger.

The trees are so destructive of habitat that the use of herbicides inside Loxahatchee National Wildlife Refuge is now accepted fact, where a decade ago it would have been unthinkable.

Water conservation area 2B in Broward County is considered lost to them. Melaleuca trees, because they are spreading so fast and into sawgrass prairies as well as tree islands, were the main

Florida's Water Weeds

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Water spinach</td>
<td>grown around the state, including a pond full of Milffit island. It was being harvested for Oriental groceries, Schmidt said.</td>
</tr>
<tr>
<td>Hydrilla</td>
<td>a floating aquatic weed that can grow in the Everglades. It is listed as a controlled invasive species.</td>
</tr>
<tr>
<td>Water lettuce</td>
<td>small, green, and flat, it can quickly form dense mats on the water surface.</td>
</tr>
</tbody>
</table>

Water conservation area 2B in Broward County is considered lost to them. Melaleuca trees, because they are spreading so fast and into sawgrass prairies as well as tree islands, were the main

Intruding into its natural woods on Florida's lower West Coast and transforming the profile of swampland that used to be the Everglades, water hyacinth is spreading out to be a thicket, groves and islands, such as the national wildlife refuge, and the ranks of weeds are screen out for attraction.

These invasive weeds make exhausting wide-spread, control of these plant pests costs taxpayers $13 million annually.

Turn to TREES / 10H
Develop a comprehensive strategy for managing melaleuca throughout its range in Florida that would integrate and coordinate efforts regionally.
History

- 07/04 – Everglades Invasive Species Summit
- 07/05 – Second Invasive Species Summit
- 07/06 – 1st “CISMA” Summit (conceived)
- 09/06 – Steering Committee established
- 07/07 – 2nd “CISMA” Summit
- 09/07 – 1st Annual Plan
- 09/08 – 2nd Annual Plan
Partners

- South Florida Water Management District *
- Loxahatchee NWR *
- Everglades NP *
- Big Cypress NP *
- Florida Fish & Wildlife Conservation Commission *
- USACE *
- Everglades Foundation
- Seminole Tribe
- Miccosukee Tribe
- Florida Department of Transportation
- USGS
- USDA – Ag Research Service
- USDA – Wildlife Services
- Florida Power & Light
- The Nature Conservancy
Everglades CISMA
Organizational Chart

Steering Committee

- Operations Sub-Committee
- Research Sub-Committee
- Rapid Response Sub-Committee
- Outreach Sub-Committee

Invasive Animal Strike Team

www.evergladescisma.org
Steering Committee:
Develops and presents recommendations for larger membership, incorporates their feedback and oversees implementation.

Operations Committee:
Develops strategic plan and develops annual operating plans with input from CISMA membership.

Research Committee:
Identifies management related research needs/gaps; Provides technical support/guidance to involved research groups.

Outreach Committee:
Raises awareness about invasive species.

Rapid Response Committee:
Identifies, assesses and provides response recommendations on new invasive species.
DRAFT

MEMORANDUM OF UNDERSTANDING (MOU)

BETWEEN THE

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
AND
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
AND
FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
AND
MICCOSUEKEE TRIBE OF FLORIDA
AND
SEMINOLE TRIBE OF FLORIDA
AND
UNITED STATES ARMY CORP OF ENGINEERS
AND
UNITED STATES FISH AND WILDLIFE SERVICE
AND
UNITED STATES NATIONAL PARK SERVICE

THIS MEMORANDUM OF UNDERSTANDING (MOU) is entered into as of the (Month, Day, Year) by and between the South Florida Water Management District (DISTRICT); Florida Department of Environmental Protection (FDEP); Florida Fish and Wildlife Conservation Commission (FFWCC), Miccosukee Tribe of Florida (MICCOSUEKEE TRIBE), Seminole Tribe of Florida (SEMINOLE TRIBE), United States Army Corp of Engineers (USACE), United States Fish and Wildlife Service (USFWS), and United States National Park Service (USNPS).

WHEREAS, the DISTRICT, FDEP, FFWCC, MICCOSUEKEE TRIBE, SEMINOLE TRIBE, USACE, USFWS, and USNPS may hereinafter also be referred to individually as “party” and collectively as “parties”, and

WHEREAS, each party to this MOU has invasive species control responsibilities on lands within the Everglades region, which include but are not limited to: maintaining personnel and equipment for the purpose of controlling invasive plants and/or animals within their jurisdiction; administering programs involving invasive species control; and making recommendations for treatment.

WHEREAS, the parties agree that it is to their mutual benefit and interest to work cooperatively to identify, monitor, control, and prevent the spread of invasive species across jurisdictional boundaries within the Everglades region.

WHEREAS, the parties desire to enter into a cooperative arrangement to effectively coordinate and implement invasive species management within the Everglades region.

NOW, THEREFORE, in consideration of the covenants and representations set forth herein and other good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, the parties agree as follows:

1. Each party agrees to the establishment of the Everglades Cooperative Invasive Species Management Area (CISMA), as shown on the map hereby incorporated as Exhibit A.
Business Process

Annual Meeting
“Summit”
All participate

Steering Committee Meetings - Quarterly

Research
Education
Outreach
Etc...

Operations
Reports
All Members

Annual Report

Annual Plan

Oversight

Committees
Ad Hoc

Actions
Annual Plan

1) Operations
2) Research
3) Rapid Response
4) Outreach

Introduction

This one-year plan is intended to serve as the blueprint for cooperative efforts within the Everglades Cooperative Invasive Species Management Area (CISMA) during fiscal year 2008. The elements of the plan were developed during the 2007 Everglades Invasive Species Summit, held at Florida International University between 26-27 July, 2007. In a collaborative spirit, invasive species managers and researchers from governmental agencies, tribal groups, and other entities shared knowledge and progress in invasive species control efforts and worked to identify potential cooperative activities that could further region-wide goals of invasive species management efforts.

This is the first annual plan for the newly-formed Everglades CISMA, but many of the proposed activities arise from ongoing collaborations and well-established control programs. The plan is not intended to supersede, nor should it contradict, individual invasive species control programs. Rather, the plan should compliment efforts of participating groups by improving communication, increasing knowledge and technology transfer, and pooling talent and resources to combat invasive species in a regional context.

Elements of the annual plan are arranged into five broad categories: 1) coordination & integration, 2) detection, 3) collaboration & reporting, 4) research, 5) education & training. Given that the Everglades CISMA is still organizing and formalizing agreements, many of the 2008 plan elements are focused on developing partnerships and cooperative programs. It is envisioned that the Everglades Invasive Species Summit will serve as a forum to report on the progress of CISMA activities proposed in this plan, as well as individual invasive species programs. Further, it is hoped that Summit participants will help to develop the next year’s cooperative plan.
Digital Aerial Sketchmapping

• Region-wide aerial mapping of invasive plants
• Assists with regional strategic planning
• Information is shared among CISMA partners
Information Management

- **Ecostems - Project tracking**
- **WEEDAR- Plant Treatment Database**

Standardization of data management will greatly increase the efficiency of information transfer and improve program interoperability.
Contractor Standardization

- **Contractors’ Standard Operating Procedures**.
- To increase consistency between agencies, the CISMA is developing SOP.
- Annual Contractor Training
Initiate dialogue with agencies and their representatives to pursue project element designs that minimize new introductions.
Biocontrol

– **Prioritize locations for biological control agent releases.**

Provide planned treatment and prescribed burn information to biological control researchers to help locate optimal areas for agent releases.
Generate a list of scientists currently engaged in research within the CISMA.

- Create and maintain a list of invasive species researchers within the CISMA.
- Develop communication tools for getting this info out to CISMA and other interested parties.
About the Everglades CISMA

What is a CISMA?
A Cooperative Invasive Species Management Area is a formal partnership of federal, state, and local government agencies, tribes, individuals and various interested groups that manage invasive species and is defined by a geographic boundary.

Why a CISMA in the Everglades?
Florida has a long history of invasive species organization cooperation such as the Florida Exotic Pest Plant Council, Noxious Exotic Weed Task Team, Florida Invasive Animal Task Team and Invasive Species Working Group.

Everglades restoration poses new challenges for invasive species management and has created a need for a more defined commitment to cooperation among agencies and organizations at higher levels of policy and management.

What will the Everglades CISMA provide?

Everglades restoration will be enhanced by the establishment of a formal framework for staff and management cooperation among agencies and other coordinating bodies such as the South Florida Ecosystem Restoration Task Force, Working Group and Science Coordination Group.

An Everglades CISMA is needed to:
- Formalize areas of coordination and cooperation among agencies.
- Define specific geographical areas and prioritize species for Everglades restoration.
- Integrate coordination, control and management of invasive species at regional, multi-jurisdictional levels.
- Directly involve high-level policy makers and managers in Everglades invasive species coordination and areas of outreach.
• Draft ED & RR Management Plan
• Initiated Vertebrate Rapid Response & coordinated w/ USDA Wildlife Services
• Everglades Foundation - $25,000 for Rapid Response Team Web site (Occurrence Database)
Develop web-based invasive species reporting system.

A web-based reporting system for non-native species observations in the Everglades CISMA and surrounding areas will be developed through partnerships between the National Park Service, the Florida Exotic Pest Plant council, and the University of Georgia (Bugwood Network).

Early Detection

Report a Sighting of an Invasive Species

New to Everglades CISMA.org?

In order to report an invasive species, you will need to register. All information will be for internal use only. If you are already registered to use EDDMapS, you may login using your existing username and password.

Already Registered?

Please Log In:

User Name:
Password:
Login

Rapid Response
Burmese python - *Python molurus ssp. bivittatus* Kuhl, 1820

Center Latitude: 25.081173  
Center Longitude: -80.452066  
Mouse Latitude: 25.224820  
Mouse Longitude: -78.964233
Burmese python

*Python molurus ssp. bivittatus* Kuhl, 1820

**Location:** Monroe County, Florida

**Source:** Skip Snow, Everglades National Park

**Habitat:** Forests: Hardwood

**Locality:** Sue Nulman, 98610 Overseas Highway (Bayside) Key Largo, Fla

**Comments:** At about 1:10 pm on Tuesday, 24 June 2008, the Python Hotline received a call from Sue Nulman, 98610 Overseas Highway (Bayside) Key Largo. Ms. Nulman had found a python on her property in a shaded area attempting to eat one of her “pet” birds, one of many wild doves (and other wildlife) she feeds. The Nulman property appears to be rather large and wooded. At around 12:30 pm she saw the python, mostly concealed by leaves, with a dove, dead but not swallowed. Nulman stunned the snake with a blow to the head and then severed the spinal cord. I was in the area so stopped to pick up the carcass, and chat. She expressed concern about the remaining wildlife and the dog, and how to secure the house against pythons. Nulman got the Python Hotline number from a flyer she picked up in Big Cypress. I took the carcass back to the lab and performed a necropsy late in the afternoon. Results are as follows: *PyMo_901*, a male, some rigor in the carcass, 207.5 cm (TL), 181.0 cm (SVL), with a mass of 3.972 kg and a girth of 18.5 cm. Looks to be near mature, perhaps breeding for the first time this coming winter. No external parasites observed. A couple of large round worms were found in the lower gut, which seem to be associated with a large quantity of fecal material (hair observed). Gut contents were collected and frozen. Mike Rochford and I identified two black rats (*Rattus rattus*) in the remains collected from the lower gut. The stomach was empty, and a very small amount of unidentified material was collected from the esophagus (also frozen). The carcass was retained (frozen) as a specimen for the FLMNH. Photos were taken by me and by Ms. Nulman (she will email her photos). In general, another rather
Burma python

*Python molurus ssp. bivittatus* Kuhl, 1820

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**Coordinates:** 25.084810, 80.452655

**NADatum:** NAD83

**Ownership:** Private Landowner

**Observation Date:** June 24, 2008

**Date Entered:** June 30, 2008
### Recent Reports

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<th>ID</th>
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<td>437337</td>
<td>giant whiplail</td>
<td>LeRoy Rodgers</td>
<td>Dade County, Florida</td>
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<td>437336</td>
<td>Burmese python</td>
<td>Skip Snow</td>
<td>Monroe County, Florida</td>
<td>30-Jun-08</td>
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<td>435084</td>
<td>South American coati</td>
<td>Vanessa McDonough</td>
<td>Dade County, Florida</td>
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<td>Gold tegu</td>
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<td>Andrea Atkinson</td>
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Everglades Invasive Species Information and Images

Plants
Reptiles/Amphibians
Fish
Birds
Mammals
Insects
Other Invertebrates
# Everglades Invasive Reptiles

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Scientific Name</th>
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<tbody>
<tr>
<td>African redhead agama</td>
<td><em>Agama agama</em> (Linnaeus, 1758)</td>
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<tr>
<td>South American ground lizard</td>
<td><em>Ameiva ameiva</em> (Linnaeus, 1758)</td>
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<td>Hispaniolan green anole</td>
<td><em>Anolis chiorocyanus</em> Duméril and Bibron, 1837</td>
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<td>Largehead anole</td>
<td><em>Anolis cybotes</em> Cope, 1862</td>
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<td>Cuban knight anole</td>
<td><em>Anolis equestris persparsus</em> Schwartz &amp; Garrido, 1972</td>
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<td>Knight anole</td>
<td><em>Anolis equestris equestris</em> Merrem, 1820</td>
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<td>Barbados anole</td>
<td><em>Anolis externus</em> Garman, 1887</td>
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<td>Cuban green Anole</td>
<td><em>Anolis porcatus</em> Gray, 1840</td>
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<tr>
<td>brown basilisk</td>
<td><em>Basiliscus vittatus</em> Wiegmann, 1828</td>
</tr>
<tr>
<td>common boa</td>
<td><em>Boa constrictor</em> Linnaeus, 1758</td>
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<td>brown tree snake</td>
<td><em>Boiga irregularis</em> (Merrem, 1802)</td>
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<td>common caiman</td>
<td><em>Caiman crocodilus</em> (Linnaeus, 1758)</td>
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<td><em>Caiman spp.</em> Spix, 1825</td>
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<td>White-lipped Calotes</td>
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<td>Oriental Garden Lizard</td>
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<td>Veiled Chameleon</td>
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<td>rainbow Whiptail</td>
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<td>giant whiptail</td>
<td><em>Cnemidophorus mctaguae</em> Sackett, 1941</td>
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<td>flat-tailed house gecko</td>
<td><em>Cosymbotus platyrus</em> (Schneider, 1792)</td>
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<td>Puerto Rican crested anole</td>
<td><em>Ctenotus cristatellus cristatellus</em> Duméril &amp; Bibron, 1837</td>
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<tr>
<td>bark anole</td>
<td><em>Ctenotus distichus</em> (Cope, 1861)</td>
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<tr>
<td>Mexican Spiny-tailed Iguana</td>
<td><em>Ctenosaura sextata</em> Wiegmann, 1834</td>
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</table>
Burmese python

Scientific Name: *Python molurus ssp. bivittatus* Kuhl, 1820
Taxonomic Rank: Animalia: Chordata: Reptilia: Squamata: Pythonidae:

Identification, Biology, Control and Management Resources

Nonindigenous Aquatic Species Database - U.S. Geological Survey

Burmese python - Wikipedia

Everglades Burmese Python Project - Davidson College Herpetology Laboratory
http://www.bio.davidson.edu/people/midorcas/research/StResearch/Python%20Project%20Website/Python.htm - Apr 30, 2008

Python Snakes, An Invasive Species In Florida, Could Spread To One Third Of US - Science Daily

Stopping a Burmese python invasion - Nature Conservancy

Global Invasive Species Database - Invasive Species Specialist Group

Nonnative Species Information - Florida Fish and Wildlife Conservation Commission

Selected Images from Invasive.org

View All Images
Everglades CISMA Partner Tools

Image Upload
The Center for Invasive Species and Ecosystem Health has an online image upload form that allows you to submit images. You have to sign into www.forestryimages.org and use Internet Explorer for this form to work.

http://www.forestryimages.org/contribute/member/

The first time you use this, the page will take longer than usual to load. It will want to install an ActiveX control called "Aurigma Image Uploader". Once this is installed, you can send the images over the internet rather than through e-mail. The images will be uploaded into a folder with the batch name you provide. The images will be added and you will get credit as the photographer.

Blog
http://www.evergladescisma.org/blog/

List Serv
To subscribe, unsubscribe and manage your subscription, http://listserv.uga.edu/cgi-bin/wa?SUBED1=evergladescisma&A=1

File Sharing
Login, upload and share your files, http://www.evergladescisma.org/file/cffm.cfm
View Distribution on Google Maps, Select Species:

- Melaleuca
  - *Melaleuca quinquenervia*

- Brazilian peppertree
  - *Schinus terebinthifolius*

- Old world climbing fern
  - *Lygodium microphyllum*

- Australian pine
  - *Casuarina equisetifolia*

- Burmareed
  - *Neyraudia reynaudiana*

- Portia tree
  - *Thespesia populnea*

- Elephant grass
  - *Pennisetum purpureum*
Digital Aerial Sketchmapping 2008

old world climbing fern - *Lygodium microphyllum* (Cav.) R. Br.

Density: ● Low ● Medium ● High

View 2005 Data
Digital Aerial Sketchmapping 2008

old world climbing fern - *Lygodium microphyllum* (Cav.) R. Br.

Density: ● Low  ● Medium  ● High

View 2005 Data

Location ID: 450776
Reported by Everglades DASM
Density: High
0.08 Acres
### DASM 2008 Totals

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<th>Acres</th>
<th>Perimeter_mile</th>
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<td></td>
<td>Medium</td>
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<td></td>
<td>Low</td>
<td>767.55</td>
<td>26.98</td>
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<td>1551.20</td>
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<td><strong>Lygodium</strong></td>
<td>High</td>
<td>857.70</td>
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<td></td>
<td>Medium</td>
<td>4591.41</td>
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<td></td>
<td>Low</td>
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<td></td>
<td>Medium</td>
<td>632.06</td>
<td>36.88</td>
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<td></td>
<td>Low</td>
<td>14.75</td>
<td>1.36</td>
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<td>Total</td>
<td>747.71</td>
<td>43.97</td>
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<td><strong>Pennisetum</strong></td>
<td>High</td>
<td>233.59</td>
<td>11.84</td>
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<tr>
<td></td>
<td>Medium</td>
<td>296.79</td>
<td>10.45</td>
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<td>Total</td>
<td>530.48</td>
<td>22.30</td>
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<tr>
<td><strong>Schinus</strong></td>
<td>High</td>
<td>12862.65</td>
<td>412.87</td>
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<td></td>
<td>Medium</td>
<td>42021.90</td>
<td>1355.18</td>
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<td>2790.50</td>
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<td>57665.11</td>
<td>1905.22</td>
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<td><strong>Thespesia</strong></td>
<td>High</td>
<td>3.81</td>
<td>0.52</td>
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<tr>
<td></td>
<td>Total</td>
<td>3.81</td>
<td>0.52</td>
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<tr>
<td><strong>Other</strong></td>
<td></td>
<td>120.55</td>
<td>8.18</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>201247.52</td>
<td>3211.33</td>
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### DASM 2005 Totals

<table>
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<tr>
<th>Species</th>
<th>Density</th>
<th>Acres</th>
<th>Perimeter_mile</th>
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<tr>
<td><strong>Casuarina</strong></td>
<td>High</td>
<td>529.13</td>
<td>21.272</td>
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<td>Medium</td>
<td>4939.459</td>
<td>73.517</td>
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<td></td>
<td>Low</td>
<td>11345.708</td>
<td>51.276</td>
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<td></td>
<td>Total</td>
<td>16814.30</td>
<td>146.07</td>
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</table>
Sacred Ibis (*Threskiornis aethiopicus*)

- **Geographic Range:** Africa, Iraq
Rapid Response

Lagarto Monitor del Nilo

El lagarto monitor del Nilo (Varanus niloticus) crece hasta 2 metros. Es marrón oscuro con manchas amanitas pálidas transversales en el cuerpo.

Pernáceo cerca del agua y de sus madrugadas. Puede bucear hasta una hora. Es muy ágil en tierra y en el agua. Este reptil carnívoro no pertenece en la Florida y constituye un peligro para la fauna.

Los biólogos del servicio de Parques Nacionales están buscando información sobre el lagarto monitor del Nilo. Si has visto un lagarto o una madrugada por favor llame a la línea de alerta de reptiles monitor del Nilo.

(305) 753-3557

Gracias por llamar a la línea de alerta de reptiles monitor del Nilo.

Legend

- Nile Monitor (Captured or Killed)
- Nile Monitor Sightings

Lagarto Monitor del Nilo

Madugrada

Igana – 2 m, herbívoro, vive en arboles – favor de no reportar

Basilisk – 5 cm, insectívoros; vive cerca del agua; favor de no reportar
Florida Cooperative Weed Management Areas

- Florida Counties
- Lake Okeechobee

Florida CWMAs
- Alachua County Cogongrass Initiative
- Apalachicola Invasive Working Group
- Bradford County Cooperative Weed Management Area
- Everglades Cooperative Invasive Species Mgmt. Area
- First Coast Invasive Working Group
- Florida Keys Invasive Task Force
- Marion County Invasive Species Mgmt. Council
- Osceola County Cooperative Weed Mgmt. Area
- Central Florida Invasive Species Working Group
- Treasure Coast Cooperative Invasive Species Mgmt. Area
- Walton County Cooperative Weed Mgmt. Area

Florida Invasive Species Partnership (FISP):
“Looking back to the days when South Florida was a beautiful wilderness with magnificent wildlife, and then contemplating the wreck of today, it is enough to sickens the heart of a lover of Nature. If things go on here as in the past few years, this can only end in the destruction of all that is lovely and of value that Nature has bestowed on us”

Charles Torrey Simpson, 1932