



ENVIRONMENTAL
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2016 Invasive Species Webinar Series

Tackling Invasive Species at the Landscape Level: Lessons Learned from South Florida and the Everglades

Thursday, March 31, 2016
2:00pm – 4:00pm Eastern Time
(speaking will begin at 2:03)

Co-hosted by the Environmental Law Institute &
The National Invasive Species Council

To join the ELI Invasive Species Seminar Series mailing list, please email waxman@eli.org



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Thursday, March 31, 2016 • 2:00pm – 4:00pm ET

NOW SPEAKING:

Stas Burgiel

Assistant Director for Prevention and Budgetary Coordination,
National Invasive Species Council (NISC) Secretariat

Stas Burgiel serves as the NISC policy lead on issues related to preventing the introduction and spread of invasive species with a focus on the pathways for their movement. He coordinates a prevention committee convened jointly with the Aquatic Nuisance Species Task Force and also oversees the collation of information on NISC member agency budgets related to invasive species issues. Key areas of interest and activity include the role of trade agreements, links to climate change and multi-level stakeholder coordination.

Stas received his Ph.D. in international service from the American University and a B.A. in political science from Swarthmore College. He has worked and consulted for a range of nongovernmental, governmental and intergovernmental organizations, including the Global Invasive Species Programme, the Nature Conservancy, the UNEP/World Conservation Monitoring Centre and the New Zealand government, on invasive species and other environmental policy issues.



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INTRODUCING:

Jon Lane

U.S. Army Corps of Engineers

Jon received a BS in Biology from Marymount University and a Masters Agriculture in International Development Economics from Colorado State University. He served 4 years as a Peace Corps volunteer, 3 years in the former Zaire as an aquaculture extension agent and one year in Cameroon as an agroforestry extension agent. He has also worked 3 years as a Fisheries Biologist for the US Fish and Wildlife Service in Jackson, WY and Kalispell, MT. Jon has been a biologist with the Army Corps of Engineers since 1998 and is currently the Chief of the Invasive Species Management Branch for the Jacksonville District.



**US Army Corps
of Engineers®**



Jon Lane

Chief, Invasive Species Management Branch

US ARMY CORPS OF ENGINEERS

Missions

- Navigation
- Flood Risk Management
- Ecosystem Restoration





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INTRODUCING:

Kristen Penney Sommers

Florida Fish and Wildlife Conservation Commission

Kristen Penney Sommers serves as the Section Leader over the Wildlife Impact Management Section in the Division of Habitat and Species Conservation of the Florida Fish and Wildlife Conservation. This section is charged with minimizing the adverse impacts of fish and wildlife on Florida's environment, economy, and human health and safety. Kristen oversees statewide staff addressing these complex ecological and social issues that face Floridians. One of the programs under Kristen's charge is the FWC Nonnative Fish and Wildlife Program.

Kristen received her B.S. in Biological Sciences at Florida State University, and her M.S. in Zoology at the University of South Florida. Since then, Kristen has worked in both the public and private sectors. Currently, Kristen represents the State of Florida on many national and regional committees and panels on invasive fish and wildlife. She serves as a representative to the Association for Fish and Wildlife Agencies Invasive Species Committee, a chair for the Gulf and South Atlantic Regional Panel to the Aquatic Nuisance Species Task Force, and chairs the Southeastern Association of Fish and Wildlife Agencies Committee on Invasive Species.

Kristen Penney Sommers

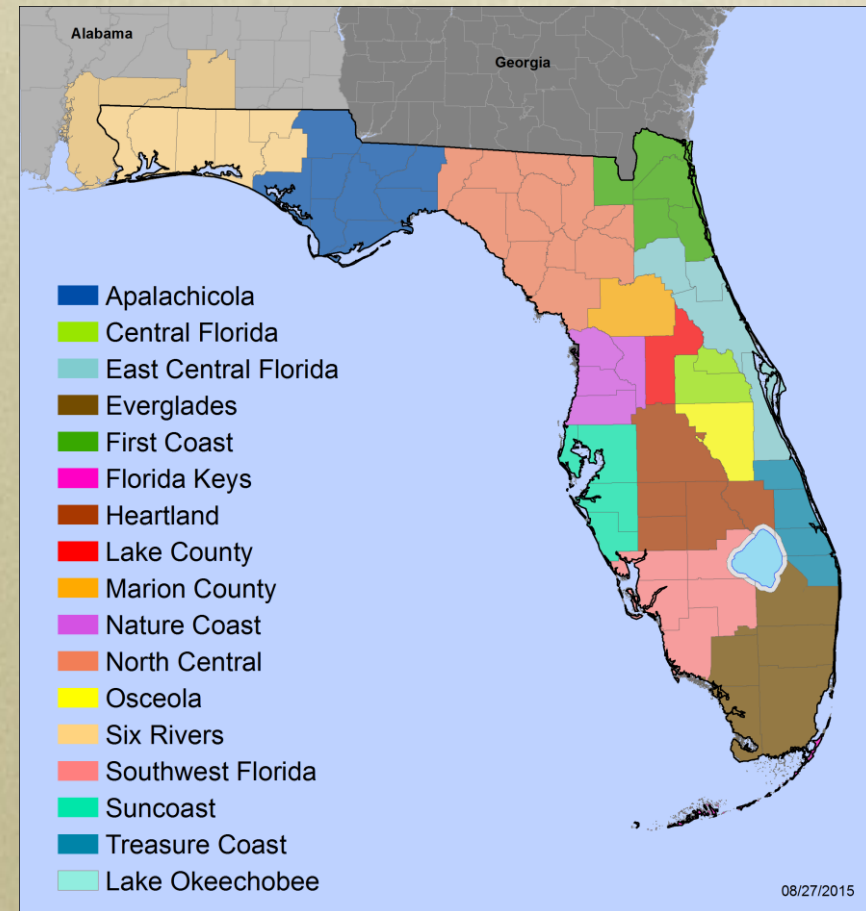
Florida Fish and Wildlife Conservation Commission

Wildlife Impact Management, Section Leader
Division of Habitat and Species Conservation



Invasive Species Responsibilities of FWC

- Invasive Plant Management Program
 - Established under Chapter 369 Part I, Florida Statutes
- Nonnative Fish and Wildlife Program
 - Florida Constitutional Authority (Article IV, Section 9)
 - Rule 68-5



Cooperative Invasive Species Management Areas



Invasive Plant Management

- Aquatic Plant Management
- Uplands Plant Management
- Field Operations
- Research/Education
- Yearly Budget
 - FY 15/16 \$38.5M



Water Lettuce



Coral Ardisia



Florida Statute 369.252

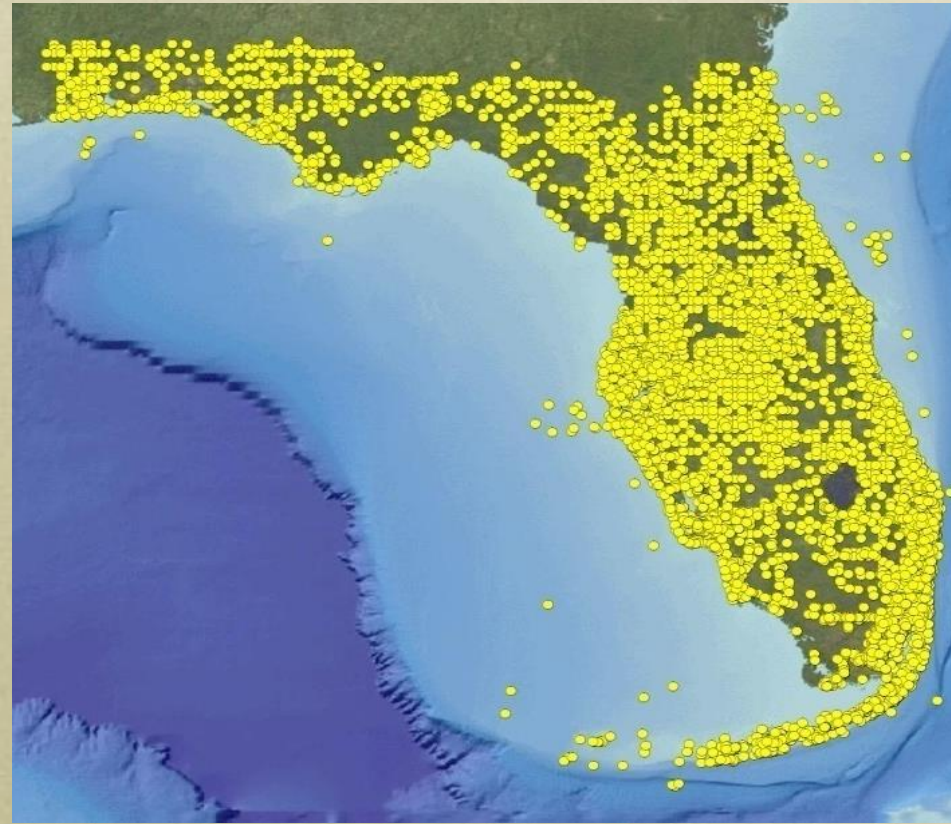
Invasive plant control on public lands

- The Fish and Wildlife Conservation Commission shall establish a program to:
 - (1) Achieve eradication or maintenance control of invasive exotic plants on public lands when the scientific data indicate that they are detrimental to the state's natural environment or when the Commissioner of Agriculture finds that such plants or specific
- *Other Provisions include: local government assistance, contracting for research on control methods, and fund appropriation*



Nonnative Fish and Wildlife Program

- Over 600 Nonnative wildlife species have been observed, 150 reproducing
- Primary Activities:
 - Prevention
 - Early Detection
 - Rapid Response
 - Control/Management
 - Education/Outreach
- Yearly Budget
 - FY 15/16 ~\$750,000



Mission: Minimize adverse environmental, economic, and human health and safety impacts of introduced animal wildlife



68-5.001 Introduction of Nonnative Species into the State

“No person shall transport into the state, introduce, or possess, for any purpose that might reasonably be expected to result in liberation into the state, any freshwater fish, aquatic invertebrate, marine plant, marine animal, or wild animal life not native to the state, without having secured a permit from the Commission....”



FWC Contact Information

Nonnative Fish and Wildlife

Kristen Penney Sommers

Kristen.Sommers@MyFWC.com

Invasive Plant Management

Bill Caton

Bill.Caton@MyFWC.com





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INTRODUCING:

LeRoy Rodgers

South Florida Water Management District

LeRoy Rodgers is Lead Invasive Species Biologist for the South Florida Water Management District. He earned his bachelor's degree in Botany at the University of Florida and his MS in Biology at Old Dominion University. In his current role, he implements the SFWMD's regional invasive plant monitoring program, oversees integrated invasive plant management projects including the CERP Biological Control Implementation Project, and serves on numerous interagency teams and committees focused on invasive species management initiatives in South Florida. Prior to his 15 years at the SFWMD, he worked as a botanist for The Nature Conservancy in Florida.

LeRoy formerly served as SFWMD representative of the Florida Invasive Species Working Group, Board Member of the Florida Exotic Pest Plant Council, and founding steering committee member of the Everglades Cooperative Invasive Species Management Area. He has authored or co-authored 35 technical reports and conference papers and 14 refereed journal papers.



LeRoy Rodgers

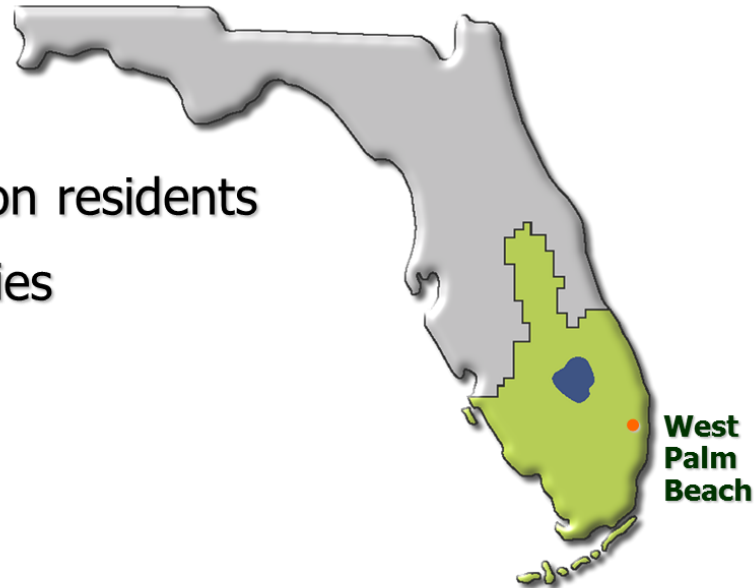
**Lead Invasive Species Biologist
South Florida Water Management District**



One of Five Water Management Districts in Florida

Covers an 18,000 square-mile region:

- 16 counties; 7.9 million residents
- Regional responsibilities
 - Water Quality
 - Flood Control
 - Natural Systems
 - Water Supply



sfwmd.gov

West
Palm
Beach

OUR MISSION: To manage and protect water resources of the region by balancing and improving flood control, water supply, water quality and natural systems.



Invasive and Nuisance Species Management: *A Core Mission of the SFWMD*

■ Flood Control and Water Delivery System

- Nearly 2,100 miles of canals; more than 2,000 miles of levees/berms
- 600+ water control structures; 625 culverts
- Ongoing management of exotic invasive and nuisance aquatic plants critical to system operation



Aquatic Harvester

■ Stormwater Treatment Areas, Reservoirs, Impoundments

- >80,000 acres of constructed wetlands for water quality improvement
- Continuous invasive and nuisance vegetation management required



Bulrush Planting



Invasive and Nuisance Species Management: *A Core Mission of the SFWMD*

- Natural Areas Land Management
 - Manage >388,000 ac. conservation and project lands
 - Prescribed burning, exotic invasive plant and animal control, ecosystem restoration, and infrastructure maintenance
 - > 47,000 acres treated for invasive plants annually



*Herbicide Control of
Invasive Plants*



*Manual Herbicide
Application*

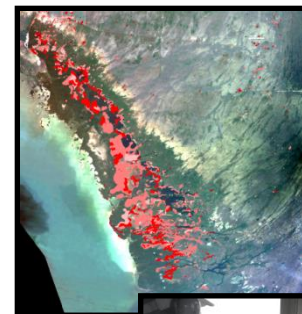


Specialized Equipment



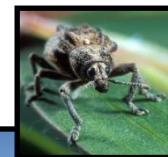
Everglades Restoration

- Invasive species management a component of Everglades restoration initiatives
 - Everglades Forever Act
 - Invasive Species Monitoring Program
 - Invasive Species Control Programs (e.g., melaleuca)
 - Comprehensive Everglades Restoration Plan
 - CERP Biological Control Implementation Program



Invasive Plant Mapping

Biological Control



Melaleuca Weevil



Old World Climbing Fern
(*Lygodium microphyllum*)



Invasive Reptile Monitoring and
Removal



LeRoy Rodgers

Lead Invasive Species Biologist
Land Resources Bureau

lrogers@sfwmd.gov 561-628-9373



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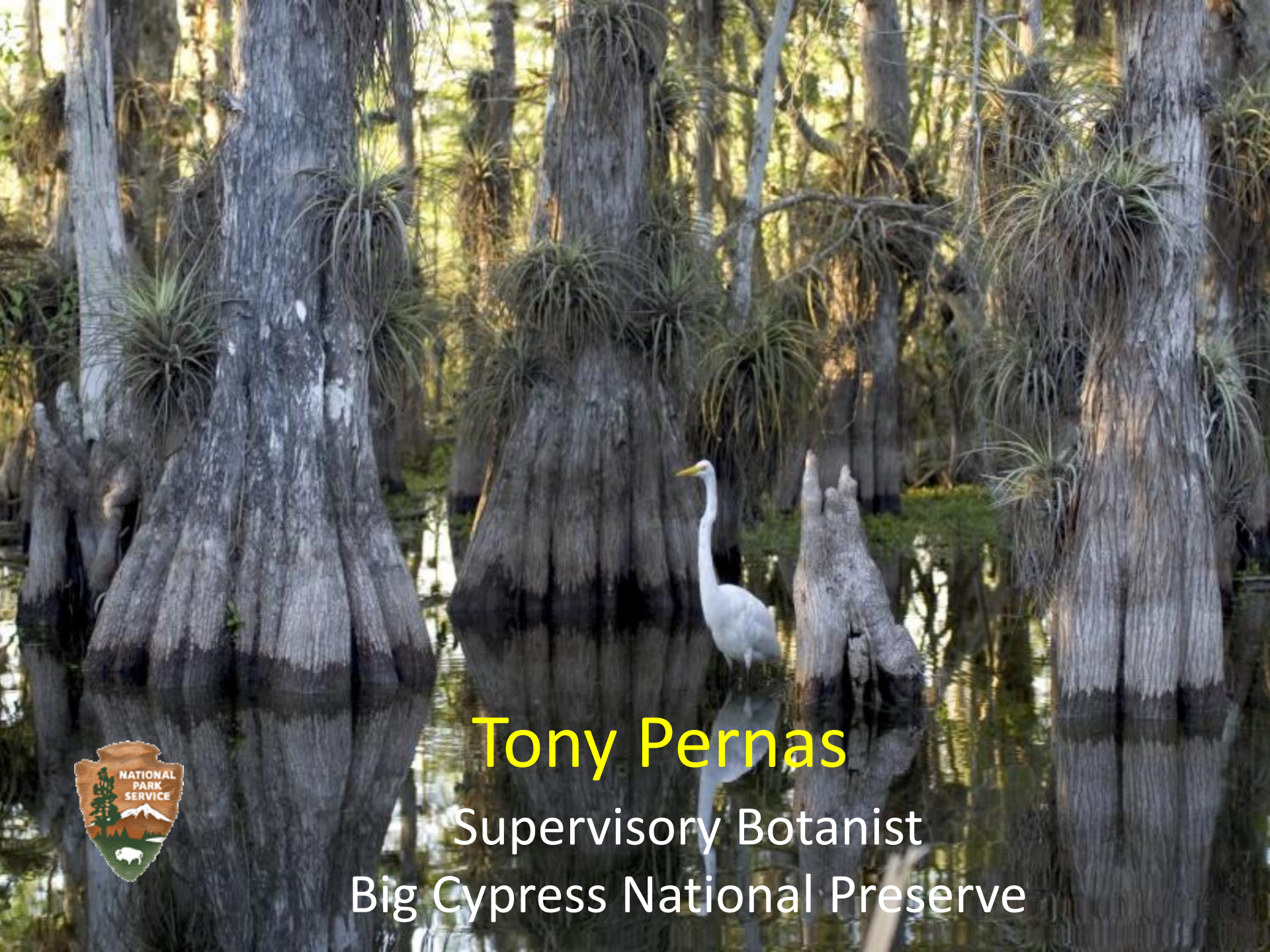
INTRODUCING:

Tony Pernas

National Park Service / Everglades Cooperative Invasive Species Management Area

Tony's career has focused on invasive plant and animal management. He started in 1988 as a Resource Management Specialist with the US National Park Service at Big Cypress National Preserve in south Florida. From 1999 to 2000, Tony worked as the Supervisory Botanist for Everglades National Park. In 2000, he was instrumental in establishing the Florida/Caribbean Exotic Plant Management Team and served as the team's coordinator since its inception until August, 2015. At that time, he began his current position as Supervisory Botanist at Big Cypress National Preserve.

Tony was President of Florida Exotic Pest Plant Council and of the National Association of Exotic Pest Plant Council from 1998 to 2000. Since 2006, he has been the Co-Chair of the Everglades Cooperative Invasive Species Management Area (ECISMA).



Tony Pernas

Supervisory Botanist

Big Cypress National Preserve



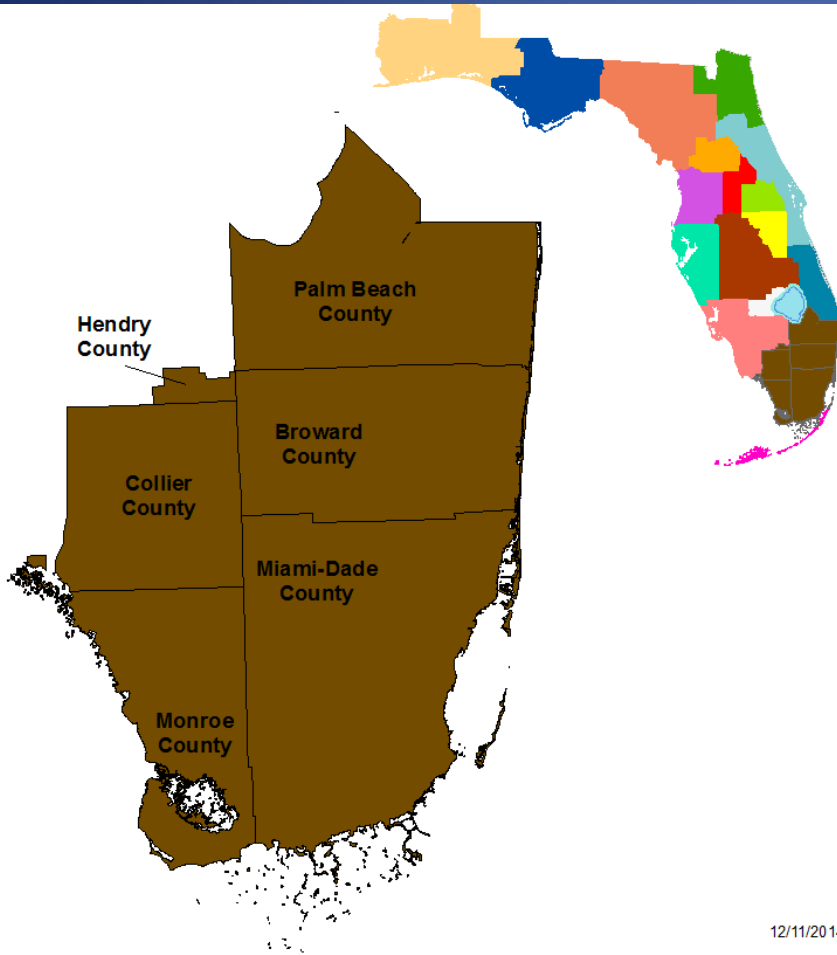
Everglades CISMA

A formal partnership of federal, state, and local government agencies, tribes, individuals and various interested groups that manage invasive species in the Everglades area, based on the CWMA model

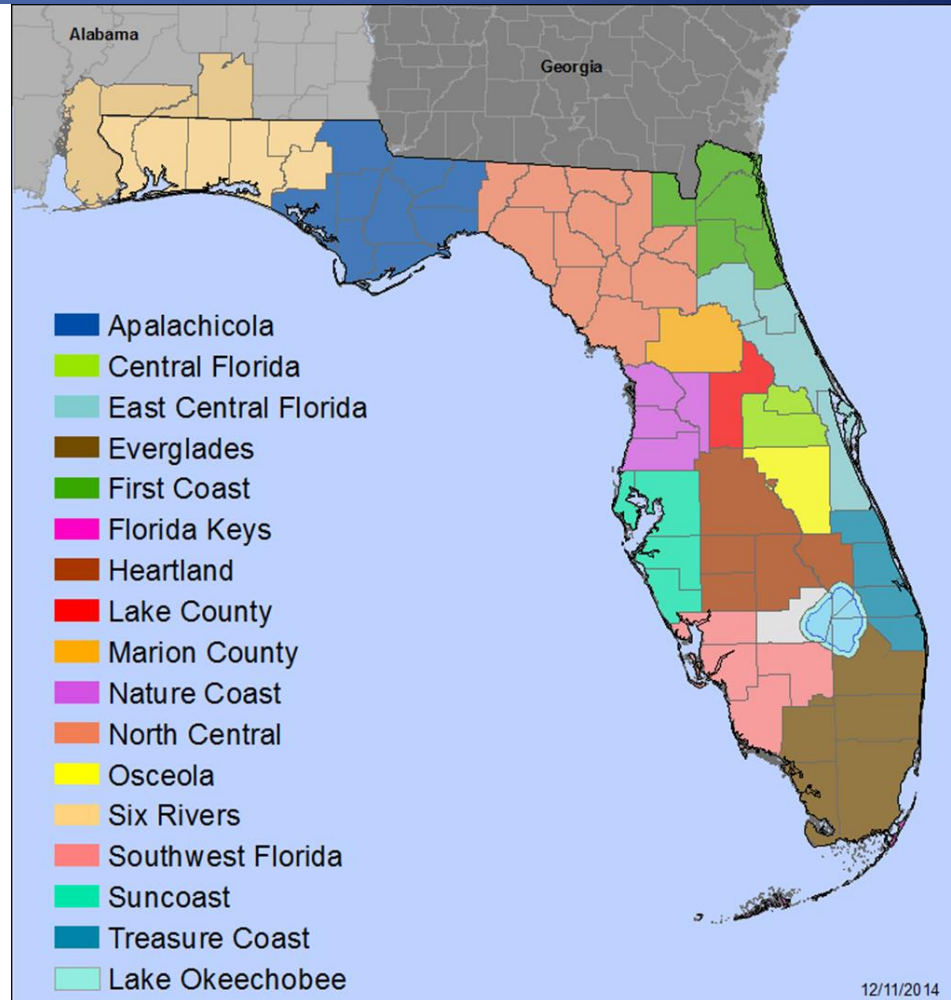


Mission:

To improve the effectiveness of invasive species control by sharing information, innovation and technology across borders



12/11/2014



12/11/2014

4 million acres

Partners

Federal: U.S. Department of Agriculture, U.S. Geological Survey, U.S. Department of the Interior, U.S. Fish and Wildlife Service, U.S. National Park Service, , U.S. Army Corps of Engineers

State: Florida Fish and Wildlife Conservation Commission, Florida Department of Agriculture and Consumer Services, Florida Department of Transportation, Florida Department of Environmental Protection, South Florida Water Management District

Local Governments: Broward county, Miami-Dade County, Palm Beach County

Tribes: Miccosukee Tribe of Indians of Florida, Seminole Tribe of Florida,

NGO's: The Nature Conservancy, Everglades Foundation

Universities: University of Florida, Florida International University, Auburn University, Florida Atlantic University, University of Miami

Private: Florida Power and Light, Fairchild Tropical Botanic Garden

2008 MOU:

Federal: U.S. Fish and Wildlife Service, U.S. National Park Service, , U.S. Army Corps of Engineers

State: Florida Fish and Wildlife Conservation Commission, South Florida Water Management District


Local Governments: Miami-Dade County

2013/2014 MOU Additions:

Federal: U.S. Department of Agriculture

Local Governments: Broward County

2016:



MEMORANDUM OF UNDERSTANDING NO. 460001287

BETWEEN THE **ORIGINAL**

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
AND
FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
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 on DEC 24 2008,
by and between the South Florida Water Management District (**DISTRICT**), Florida Fish and Wildlife
Conservation Commission (**FFWCC**), United States Army Corp of Engineers (**USACE**), United States Fish
And Wildlife Service (**USFWS**), and United States National Park Service (**USNPS**).

WHEREAS, the **DISTRICT**, **FFWCC**, **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; and

WHEREAS, the parties agree that it is to their mutual benefit and interest to work cooperatively to
exchange views, information and advice concerning efforts to inventory, monitor, control, and prevent the
spread of invasive species across jurisdictional boundaries within the Everglades region; and

WHEREAS, the parties desire to enter into a cooperative arrangement to share views information and
advice 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.
2. Each party agrees to the formation of steering committee (**COMMITTEE**) to provide expertise
and recommendations on invasive species management activities within the **CISMA**.
3. Each party agrees to designate a **COMMITTEE** representative who shall be the person designated
responsibility for the interface between the Parties as well as all day-to-day coordination during the
term of this **MOU**. The designated **COMMITTEE** representatives for each party are as follows:

Page 1, Agreement No. 460001287

Goals:

- Integrate coordination, control and management strategies
- Integrate outreach efforts
- Provide for Information and technology transfer
- Early detection and rapid response of new invasive species



Integrate coordination, control and management strategies



Annual Invasive Species Summits

- Website (www.evergladescisma.org)
- **Public Events**
 - Pet Amnesty Days
 - Other Outreach Events
- “Don’t Let It Loose” Bill Board Campaign
- Social Media (Facebook, Twitter)
- Kiosk
- Non-Native Fish Round-Up



Website

Evergladescisma.org

Everglades Cooperative Invasive Species Management Area

PROTECTING THE EVERGLADES FROM INVASIVE SPECIES

HOW YOU CAN HELP
WHAT WE DO
THE DANGEROUS DOZEN
PUBLICATIONS & LINKS
INFORMATION FOR PARTNERS

MEET THE EVERGLADES DIRTY DOZEN

BURMESE PYTHON
Python molurus bivittatus

OLD WORLD CLIMBING FERN
Lepidium microsporum

BLACK & WHITE TEGU
Salvator merriami

Have you spotted an Invasive animal or plant in Florida? Please report all sightings to InvasiveGot1!

1-888-IVE-GOT1

www.InvasiveGot1.org

iPhone app

Android app

South Florida is a hotspot for biological invasions.

Plants and animals from all over the world arrive in south Florida's ports every day. Some of these nonnative species escape from their cages, aquariums, or garden beds into the wild. Some are intentionally released. Some take well to the subtropical climate and rapidly increase and expand their populations. We call these species *invasive* when they hurt the environment, the economy, and/or human health. Hundreds of invasive species now call south Florida home, harming our agricultural and tourism industries, our native plants and animals, and our quality of life. Invasive species complicate and slow down restoration of America's Everglades ecosystem. Governmental agencies, nonprofit organizations, and universities are working together to address this growing problem within the Everglades Cooperative Invasive Species Management Area.

Find out how you can help

Did you know?

- Florida has more nonnative reptile and amphibian species than anywhere else in the world.
- Invasive plants and animals cost Floridians more than \$500 million each year.
- There are more species of nonnative lizards breeding in Florida than native lizards.
- More than 80% of the nonnative reptile and amphibians in Florida arrived here through the pet trade.
- Worldwide, invasive species are one of the top causes of species endangerment and extinction.

Definitions

Native species are animals and plants that live in an area naturally, without any human intervention.

Nonnative (exotic, alien) species are animals and plants living outside their native ranges as a result of human activity.

Invasive species are nonnative plants or animals that cause harm to the environment, economy, or human health.

UPCOMING EVENTS

- July 23-24
11th Annual Everglades Invasive Species Summit
- August 8
Exotic Pet Amnesty Day
- September 20
Nonnative Fish Roundup
- October 11
ECISMA Steering Committee Meeting

LIKE US ON FACEBOOK

RECENT EDMAPS REPORTS

- Knight anole spotted on June 6 by Orlando Hidalgo
- Giant brook spotted on June 6 by Christen Mason
- Brown boatlouse spotted on June 3 by Christopher Gillette
- African redhead agama spotted on June 3 by Kristen Vaughan
- Burmese python spotted on June 2 by Edward F. Metzger III

IN PARTNERSHIP WITH

Everglades Cooperative Invasive Species Management Area

PROTECTING THE EVERGLADES FROM INVASIVE SPECIES

HOW YOU CAN HELP
WHAT WE DO
THE DANGEROUS DOZEN
PUBLICATIONS & LINKS
INFORMATION FOR PARTNERS

What We Do

The Everglades Cooperative Invasive Species Management Area (ECISMA) is an inter-agency partnership that manages, researches, and educates about invasive species across south Florida. The Everglades CISMA contains six major partners plus numerous cooperators including federal, state, and local government agencies, various clubs, firms, and nonprofit organizations. More details and organizational documents can be found on the Information for Partners page.

Our three major program areas are:

- Invasive Species Management
- Research
- Outreach and Education

You can help support our work by making a tax exempt donation to Friends of Everglades CISMA, Inc. Thank you for your support!

Invasive Species Management

The Everglades CISMA coordinates management actions among the participating agencies and organizations. The first step to managing an invasive species is to identify where it is on the invasion curve. Preventing a species from being introduced is the most cost-effective solution. Once introduced, early action (complete removal) may be possible through early site and rapid response (ERSR). However, as area of infestation grows, eradication becomes less likely and control costs increase. If an invader is not detected and removed early, suppression and long-term management may be unavoidable. Read more in our [Invasion Curve](#) infographic.

The Invasion Curve. Adapted from Invasive Plants and Animals Policy Framework, 2003. Department of Environment and Primary Industries, Victoria, Australia.

Research

The Everglades CISMA brings together universities and agency scientists to collaborate and share research on invasive plants and animals. Research is valuable at every phase of the invasion curve. For example, scientific risk assessments can help prevent invasions by identifying "high" species for which early site visits are warranted. Designing regional monitoring is a critical part of EDRM to detect, eradicate, or contain an invasive species. Ecological research links a species' habitat use, physiological tolerances, impacts, and potential biocontrol can lead to more effective detection and management tools.

Outreach and Education

Public involvement is important to invasive species management, both to prevent further introductions and to help detect and report invasions. However, people often do not become aware of an invasion species until it is well into the "establishment" phase of the invasion curve. To address this lack of awareness, the Everglades CISMA produces outreach materials and communicates to the public through press releases, webinars, direct mailings, and social media. Activities include newsletters in a printed area, field workers who are likely to detect invasive species, students, and environmental education centers. Staff publications can be downloaded, educational materials and How You Can Help to learn how you can get involved.

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IN PARTNERSHIP WITH

2015 Newsletter



Everglades Cooperative Invasive Species Management Area

Newsletter

VOLUME 6 JULY 2015



ECISMA partners survey for Northern African pythons. (Photo by Liz Barraco, FWC)

Chasing the wild invasives by Jenny Ketterlin Eckles, Florida Fish and Wildlife Conservation Commission biologist

Over the past year, the Florida Fish and Wildlife Conservation Commission (FWC) and partners increased resources directed at three nonnative species that have been under on-going management efforts for several years: Northern African pythons, Argentine black and white tegus and Nile monitors. Increased staff and contractor funding allowed the number of surveys to increase markedly for Northern African pythons in Miami-Dade County and Nile monitors in Palm Beach County. Increased contractor funding also resulted in an increase in the number of live traps set, camera traps deployed and tegus telemetered in Miami-Dade County. Generally, these increased efforts resulted in increased removals.

Starting in fall 2014, FWC led an effort to ramp up surveys for Northern African pythons in Miami-Dade County. Surveys were increased from monthly to more than twice per week by hiring a technician (an experienced python permittee), contracting with the University of Florida (UF) and partnering with Miami-Dade County Parks, Recreation, and Open Spaces (MDCPROS), Everglades National Park (ENP), U.S. Geological Survey (USGS), South Florida Water Management District (SFWMD) and Miccosukee Tribe of Indians.

Some new approaches were tested, such as setting out artificial refuges and testing for environmental DNA. More than 50 individuals participated in the 48 survey days that totaled over 370 man-hours. Despite all these efforts, including increased outreach to the local community, no Northern African pythons were found during this past dry season. Two Burmese pythons were removed. While somewhat disappointing to the searchers, the absence of Northern African pythons may be a sign that past efforts affected this population and eradication is indeed possible. It will take many more surveys to make this declaration decisive, but there may be a silver lining to an observation of zero.

In 2014 and 2015, FWC and ENP were able to contract with UF and USGS to trap and monitor natural areas for Argentine black and white tegus. UF also conducted a telemetry study on females while USGS tracked tegus during their period of dormancy, or brumation. FWC and Miami-Dade County Fire Rescue Venom One unit also continued to respond to tegu sightings in the Florida City and Homestead residential areas. The increased number of traps and coverage area resulted in 404 tegus removed in



Species	Removed In 2014	Removed Jan, 1 2015 to June 15, 2015
Northern African pythons (Miami-Dade County)	1 (Dead on Road)	0
Argentine black and white tegu (Miami-Dade County)	404	338
Nile monitors (Palm Beach County)	19	8
Spectacled caiman (Miami-Dade County)	36	6
Oustalet's chameleons (Miami-Dade County)	8	5



FWC surveys for Nile monitors on the C-51 canal in Palm Beach County. Pictured (left to right) are Kelly Gestring and Murray Stanford with FWC. (Photo by Liz Barraco, FWC)

2014, double the number removed in 2013 (183). Valuable information is being collected on tegus that should help researchers understand how to control and manage this species. This year, both groups are again conducting telemetry studies along with trials on different trap models in order to increase the efficacy and reduce cost of trapping. However, tegu numbers overall do not seem to be decreasing, and more outliers are being detected, which is a cause for concern. This demonstrates the need for even more efforts directed at tegus.

Halfway through 2014, FWC also increased surveys for Nile monitors on the C-51 canal in Palm Beach County from two per month to four to six per month. Since this population has remained relatively isolated and removal by shotgun is a viable option, it is hoped increased efforts will lead to eradication in this county. Removal of Nile monitors more than doubled after increasing the number of surveys, and FWC plans to continue this regime throughout 2015. Biologists also are analyzing trap data with the goal of

determining an occupancy, habitat associations and optimal survey times.

Efforts also continued to eradicate Gambian pouched rats on Grassy Key, Oustalet's chameleons in Miami-Dade County, and to assess and remove spectacled caimans in Miami-Dade. In January 2015, FWC hired a technician to conduct monthly trapping events in Grassy Key and monitor the area with remote cameras. No rats were detected in the traps or on the cameras during six monthly trips. There have not been any confirmed sightings from the area since December 2013. Oustalet's chameleon surveys also are showing promising results, with few animals found and each month during UF surveys. Unfortunately, the same cannot be said for spectacled caiman. They continue to persist in an area of southeastern Miami-Dade County. This species is a concern because planned Everglades restoration activities would restore a hydrologic connection between that area and more natural areas to the east. The population warrants continued monitoring and removal. ♦



Nile monitors removed during FWC surveys. (Photo by Murray Stanford, FWC)

Non-Native Fish Round-up



Source: [Miami Herald](http://www.miamiherald.com) | www.miamiherald.com Page 1 of 2

The Miami Herald
 Printed on Sat., Jan. 25, 2014

Exotic fish are catch of the day at tournament

By Denise Codrig
dcodrig@miamiherald.com

Plantation landscaper Steve Papp cleaned up invasives and ecologically in Saturday's one-day nonnative fish round-up tournament in the Everglades.

Papp won \$325 for bringing more than 77 pounds of snookheads, blue and spotted tilapia, mojar and yellow-striped cichlids, sulfate cichlid and jaguar guapote to the scales at Tamiami Trail east of Kravis Ave. Runner-up Jack Okoniec of Boca Raton weighed 18 snookheads totaling 29 pounds, 14 ounces — including the tournament's largest fish at 8 pounds, 6 ounces.

William Hayes of Miami Springs finished in third place overall with 21 pounds, 13 ounces of exotic fish.

"I think it was a really good success," said tournament organizer Tony Ferraro of the Everglades Cooperative Invasive Species Management Area. "It really helped raise awareness of nonnative fish and the threat they pose to the Everglades ecosystem."

All 28 anglers weighed at least one fish in the second annual contest, which was put on by a consortium of federal, state and local government agencies, and tribal and conservation groups. Sponsors Eagle Creek Boats and 42's Custom Boats provided identification kits and fishing tackle for the anglers.

The top contestant fished from shore instead of a boat. Papp said he covered about 75 miles in his truck, planting Doward catches from SR 64 north to George Road and from U.S. 441 east to University Drive. He used cooling plastic frogs as an effective technique for catching snookheads. He said he did not suggest some of his other fish.

Papp, who said he is allergic to fish, planned to clean his catch and give it to his in-laws. As for his prizes, "I got to keep the players. The money goes to the wife," he chuckled.

<http://www.miamiherald.com/2014/01/25/gard/2387044/exotic-fish-are-catch-of-the-day> 1/25/2014



Information and technology transfer

•Pest Alerts/ID Decks etc.

Pest Alert June 2012
Nonnative Lizards in Nurseries and Groves
Everglades Cooperative Invasive Species Management Area

Oustalet's Chameleon
Image Courtesy of Florida Dept of Fish and Wildlife
12 to 24 in. Females are various shades of green with white dots along side. Males are tan with brown/black stripes. Spines extend down the center of back. Please REPORT ALL sightings.

Veiled Chameleon
Image Courtesy of Florida Dept of Fish and Wildlife
12 to 24 in. Bright green with shades of orange, white, and yellow; males have bright yellow bands. Prominent casque on top of head is taller than Oustalet's. Please REPORT ALL sightings.

Argentine Black & White Tegu
Image Courtesy of Dave Barkey
2 to 4 ft. Dark bands with plentiful white dots between them. Please REPORT ALL sightings.

Nile Monitor
Image Courtesy of U.S. Geological Survey
4 to 6 ft. Dark brown with yellow spots forming bands around the body. Please REPORT ALL sightings.

Green Iguana
Image Courtesy of U.S. Geological Survey
4 to 6 ft. Vibrant shades of green become dull with age. Males have larger spines along back. Please DO NOT report.

Cuban Knight Anole
Image Courtesy of U.S. Geological Survey
6 to 18 in. Changes from bright green to brown; yellow facial band. Please DO NOT report.

Quickly report all sightings of chameleons, tegus, and monitors to: 888-Ive-Got1 or online at www.IveGot1.org

The ECISMA is a formal partnership among federal, state, and local government agencies, tribes, individuals, and various interested groups that manage invasive species in the Greater Everglades area.

For more information about invasive species in south Florida, upcoming FWS Invasive Pet Activity Days, and tips on how you can help, visit: EvergladesCISMA.org

Pest Alert June 2010
On the Loose: Lionfish
Everglades Cooperative Invasive Species Management Area

Federal, state, and local land management agencies are currently responding to a rash of recent sightings of the lionfish (*Pterois volitans*), a species with potential to invade south Florida's coastal waters. Since 1992, numerous individuals have been observed on local submerged reefs where they prey upon smaller native fishes and crustaceans. The local boating and diving community is being asked to help focus control efforts by reporting sightings.

Lionfish introduced through aquarium releases and escapes. Lionfish are now found throughout the Caribbean. Image Courtesy: Shutterstock.com

How to Identify

Though lionfish may be found in groups as juveniles, adults are often solitary. They are easily distinguished from other species thanks to their striking coloration and design.

A series of (4) white bands alternate with red, maroon, or brown along the length of the body—extending even to the (2) tips of its fins. Lionfish have (3) fleshy tentacles near the eyes and mouth, and distinctive (4) fan-shaped pectoral fins.

Though not aggressive, lionfish are armed with a row of sharp spines along the back which are capable of injecting potent venom. Stings can be quite painful, but are not typically fatal.

How You Can Help

If you see a lionfish, document as much information as possible. Take photographs if you have a camera. Then, file a report quickly that includes:

- Date and time
- Location (if you have a GPS, record the coordinates)
- Depth of sighting
- Type of habitat (coral reef, seagrass, hardbottom, etc.)
- Size, number, and behavior of lionfish

Report your sighting to Biscayne National Park by phone at 786-335-3649 or by email at XXXXXXX@nps.gov

File a Report!
786-335-3649

The ECISMA is a formal partnership between federal, state, and local government agencies, tribes, individuals, and various interested groups that manage invasive species and is defined by a geographic boundary.

For more information about invasive species in south Florida, upcoming FWS Invasive Pet Activity Days, and tips on how you can help, visit: EvergladesCISMA.org

Field Identification of Select Native and Nonnative Reptiles in Florida

CISMA

Everglades Cooperative Invasive Species Management Area

Logos for: U.S. Army Corps of Engineers, Florida Department of Transportation, Florida Department of Wildlife Conservation, Florida Department of Natural Resources, and Florida Department of Fish and Wildlife.

In English, Spanish, Creole

REPORT INVASIVE SPECIES
www.IveGot1.org

DON'T LET IT LOOSE

Early Detection/Rapid Response

• EDRR Management Plan

Objectives:

- 1) Ensure early reporting of new invasions.
- 2) Ensure new species are identified and their risks assessed.
- 3) Define decision making responsibility and response protocol
- 4) Establish and maintain capacity to act.
- 5) Incorporate adaptive management principles in plan implementation.

"The Everglades Cooperative Invasive Species Management Area is a formal partnership of federal, state, local government agencies, tribes, individuals and various interested groups that manage invasive species within the greater Everglades area"

Early Detection and Rapid Response Plan



2009-2011

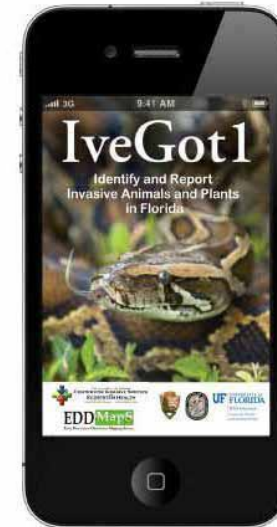
Florida Department of Environmental Protection | Florida Department of Transportation | Florida Fish and Wildlife Conservation Commission | South Florida Water Management District | United States Army Corp of Engineers | Seminole Tribe of Florida | The Nature Conservancy | Miccosukee Tribe of Indians | United States Fish and Wildlife Service | United States National Park Service | United States Dept. of Agriculture | Miami-Dade County

Reporting

Hotline: 1-888-Ive got1

Website: www.ivegot1.org

Invasive Species in Florida?



Yep, we've built an App for that!

IveGot1 brings the power of EDDMapS to your iPhone®. Now you can submit invasive species observations directly with your iPhone from the field.

IveGot1 was developed by the University of Georgia Center for Invasive Species and Ecosystem Health through a cooperative agreement with the National Park Service, in cooperation with the Florida Fish and Wildlife Conservation Commission and the University of Florida Center for Aquatic and Invasive Plants.

iPhone is a trademark of Apple Inc., registered in the U.S. and other countries. App Store is a service mark of Apple Inc.



Smartphone Applications

EDRR

Plants

Large-Leafed Orange Mangrove (*Bruguiera gymnorhiza*)

Pacific Black Mangrove (*Lumnitzera racemosa*)

Golden False Beard Grass (*Chrysopogon aciculatus*)

Animals

Sacred Ibis (*Threskiornis aethiopicus*)

African Rock Python (*Python sebae*)



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INTRODUCING:

Carrie Beeler

South Florida Ecosystem Restoration Task Force

Carrie is the Program Manager for Science Coordination (SCG) of the South Florida Ecosystem Restoration Task Force (Task Force). She earned her BS in Biology and Environmental Science and her MS in Environmental Science at Florida International University. Ms. Beeler has worked on restoration issues since 1997. She was lead staff on developing the Task Force report on Aquifer Storage and Recovery. She has participated in the development of system-wide indicators, coordinating science across Department of the Interior agencies in support of South Florida restoration, reported to Congress on the status of science coordination, developed a plan for coordinating science for the SCG and was part of a committee that developed new science workshops for the purpose of adaptive management. In her current role as lead staff appointed to the Science Coordination Group, she develops tools that enhance coordination at leadership level for managing, coordinating and elevating the invasive exotic species effort related to the restoration of South Florida.

Carrie Beeler

Program Manager for Science Coordination

U.S. Department of the Interior

Office of Everglades Restoration Initiatives

South Florida Ecosystem Restoration Task Force



EVERGLADESRESTORATION.GOV

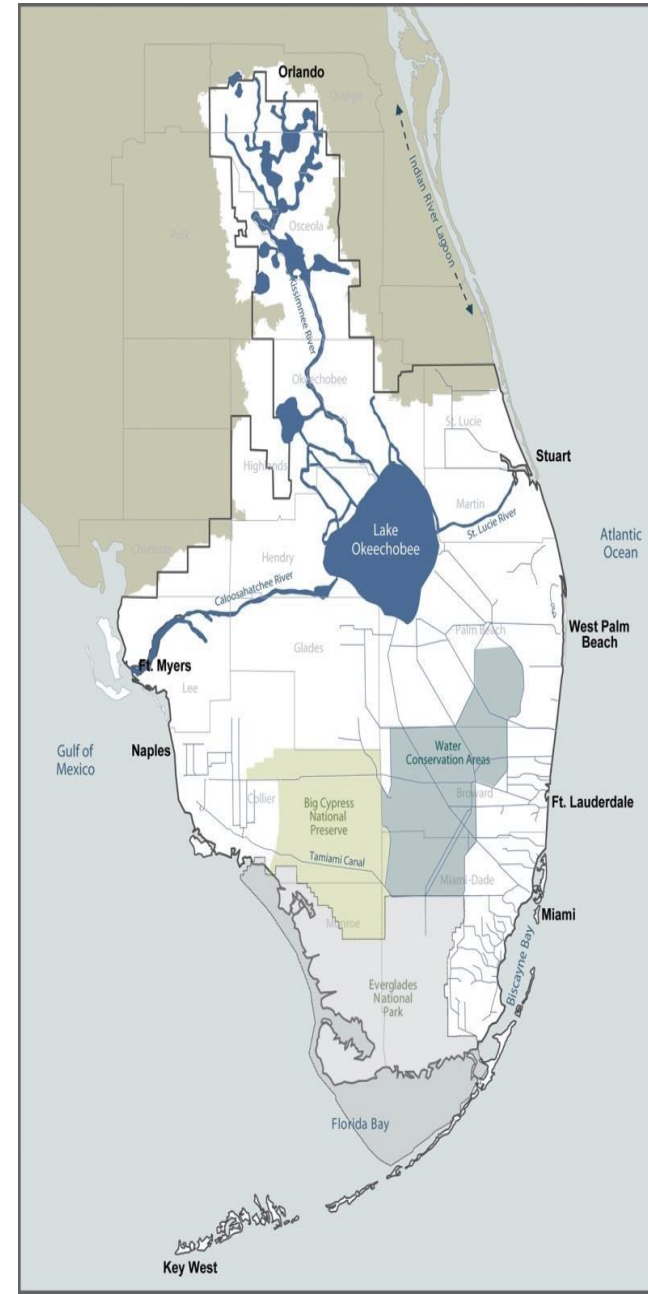
Restoring America's Everglades

The Official Website

South Florida Ecosystem

Restoration Task Force

- The South Florida Ecosystem Restoration Task Force (Task Force) was established by section 528(f) of the [Water Resources Development Act of 1996](#). The Task Force consists of:
- 14 members from four sovereign entities.
- There are seven federal,
- Two tribal, and
- Five state and local government representatives.
- Chaired by Michael Bean (Chair)
Principal Deputy Assistant Secretary for Fish and Wildlife and Parks



South Florida Ecosystem Restoration Task Force

The duties of the Task Force are to:

- Coordinate the development of consistent policies, strategies, plans, programs, projects, activities, and priorities addressing the restoration, preservation, and protection of the South Florida ecosystem;
- Exchange information regarding programs, projects and activities of the agencies and entities represented on the Task Force to promote ecosystem restoration and maintenance;
- Facilitate the resolution of interagency and intergovernmental conflicts
- Coordinate scientific and other research associated with the restoration of the South Florida ecosystem;

“An Everglades Teaming with Invasive Exotic Species is not Restored”

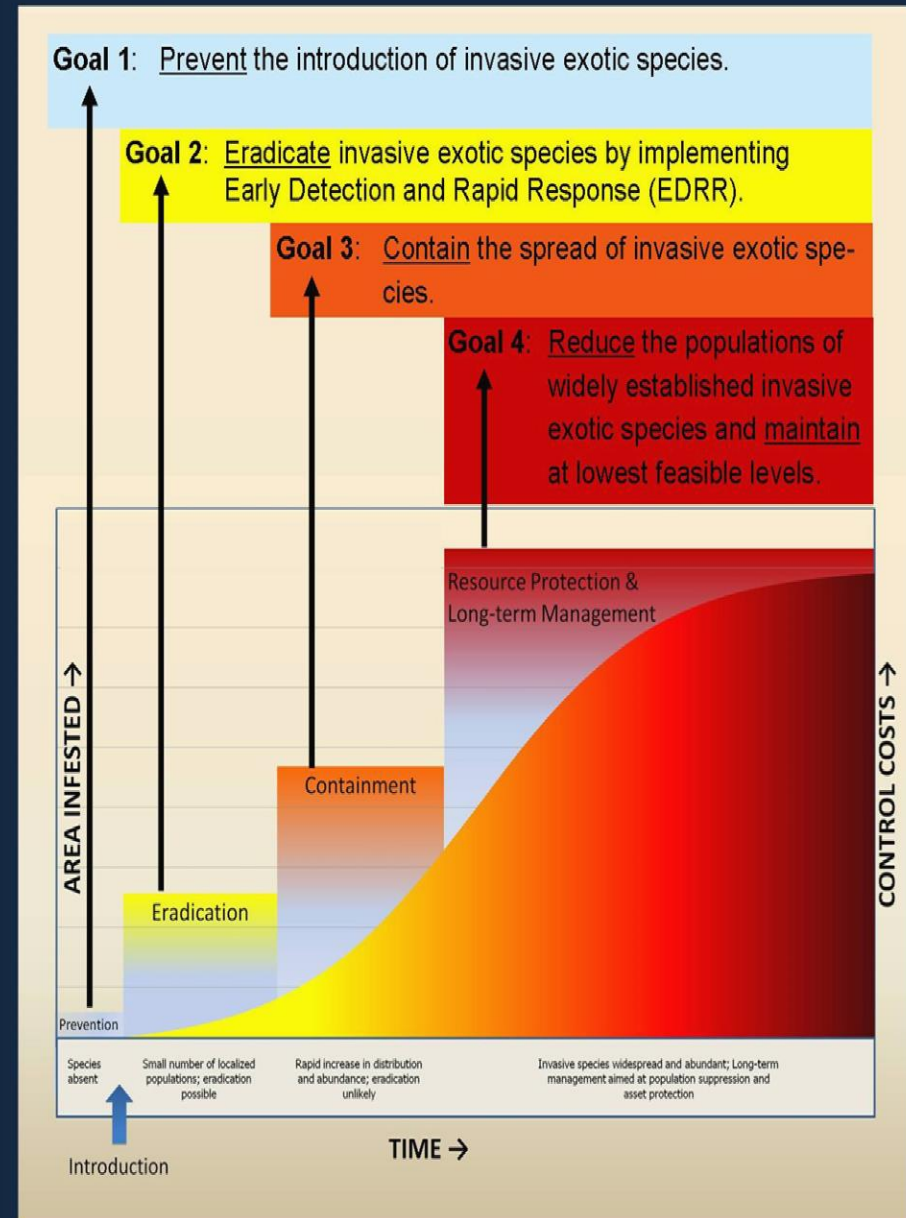
South Florida Invasive Exotic Species Strategic Action Framework

4 Goals were identified

Other Coordination Tools from the TF

- ✓ Preliminary Action Assessment
- ✓ Invasive Exotic Species Cross Cut Budget
- ✓ Integrated into the Overall South Florida Task Force Strategy and Biennial Report

THE INVASION CURVE AND STRATEGIC GOALS



EDRR is the Priority

- Preliminary Action Assessment -the majority of the priority actions are EDRR related.
-



- Need a dedicated resources and for a structured EDRR Monitoring
- Science and Technology tools for detection (traps, surveys etc)
- Rapid assessment and response programs/processes/ cooperatives/tools that allow for nimble attempts at eradication
- Go/No go response tool (under development) to rapidly assess a new species.
- Fully funded response plan and pre-established strike teams including a Incident Command-like Structure.

Pictured above: *Argentine black and white tegu*

Carrie Beeler

Program Manager for Science Coordination

U.S. Department of the Interior

Office of Everglades Restoration Initiatives

South Florida Ecosystem Restoration Task Force

Carrie_Beeler@EvergladesRestoration.gov



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Restoring America's Everglades

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Topic 1

Origins and Scope of Partnerships and Cooperative Efforts

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UGA5276033



Nonnative deer:

Axis



Barasingha



Stealth Cam 07-03-2010 20:18:03

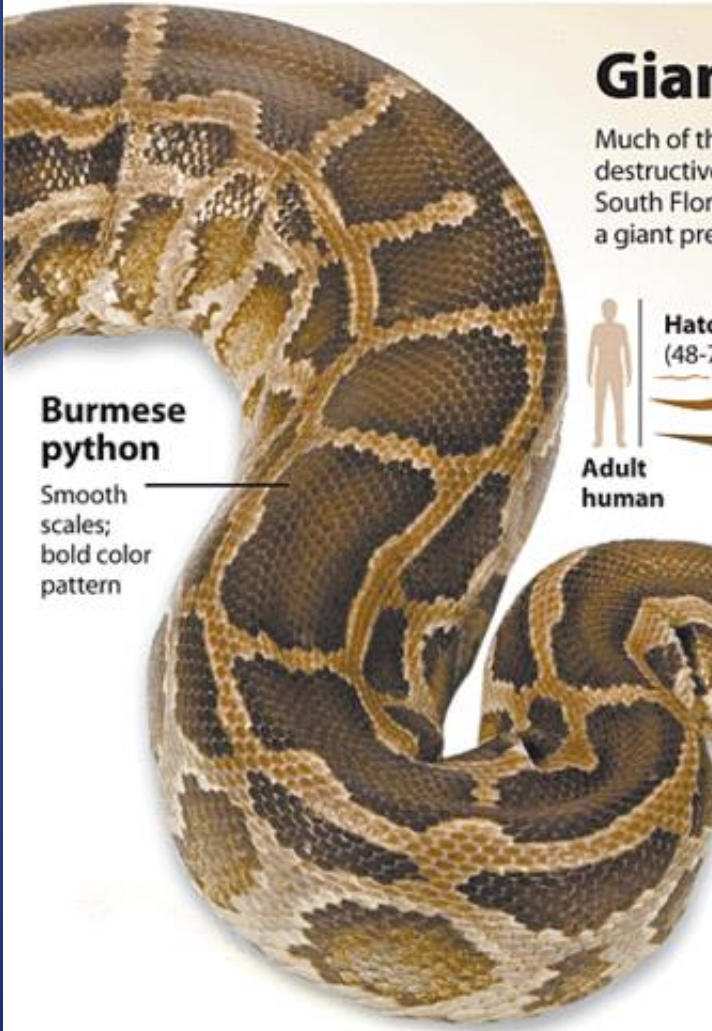
Red stag



Burmese Python

(*Python molurus bivittatus*)

Native Range: Southeast Asia



Giant snakes invade

Much of the world struggles with "introduced species" – destructive plants and animals from elsewhere – but South Florida's Everglades swamp has a notable invader, a giant predatory snake.



Burmese python
Smooth scales; bold color pattern

Hatchling: 19-31 in. (48-79 cm)
Adult: 15-20 ft. (4.5-6 m)

Adult human

Largest adults: 23 ft. (7 m); live 15 to 20 years

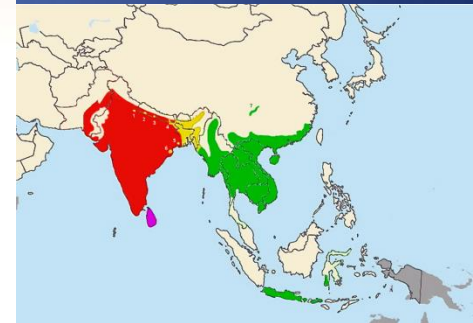
Nonvenomous; kills by constricting coils when longer than 8 ft. (2.4 m)



SOURCE: Florida Institute of Food and Agricultural Sciences, US Geological Survey, American Museum of Natural History, US Fish & Wildlife Services

© 2008 MCT

Reproduces quickly: Female python lays 30 to 100 eggs at a time.



Argentine Black and White Tegu



Black and white tegu raiding an alligator nest in Miami-Dade County, Courtesy University of Florida

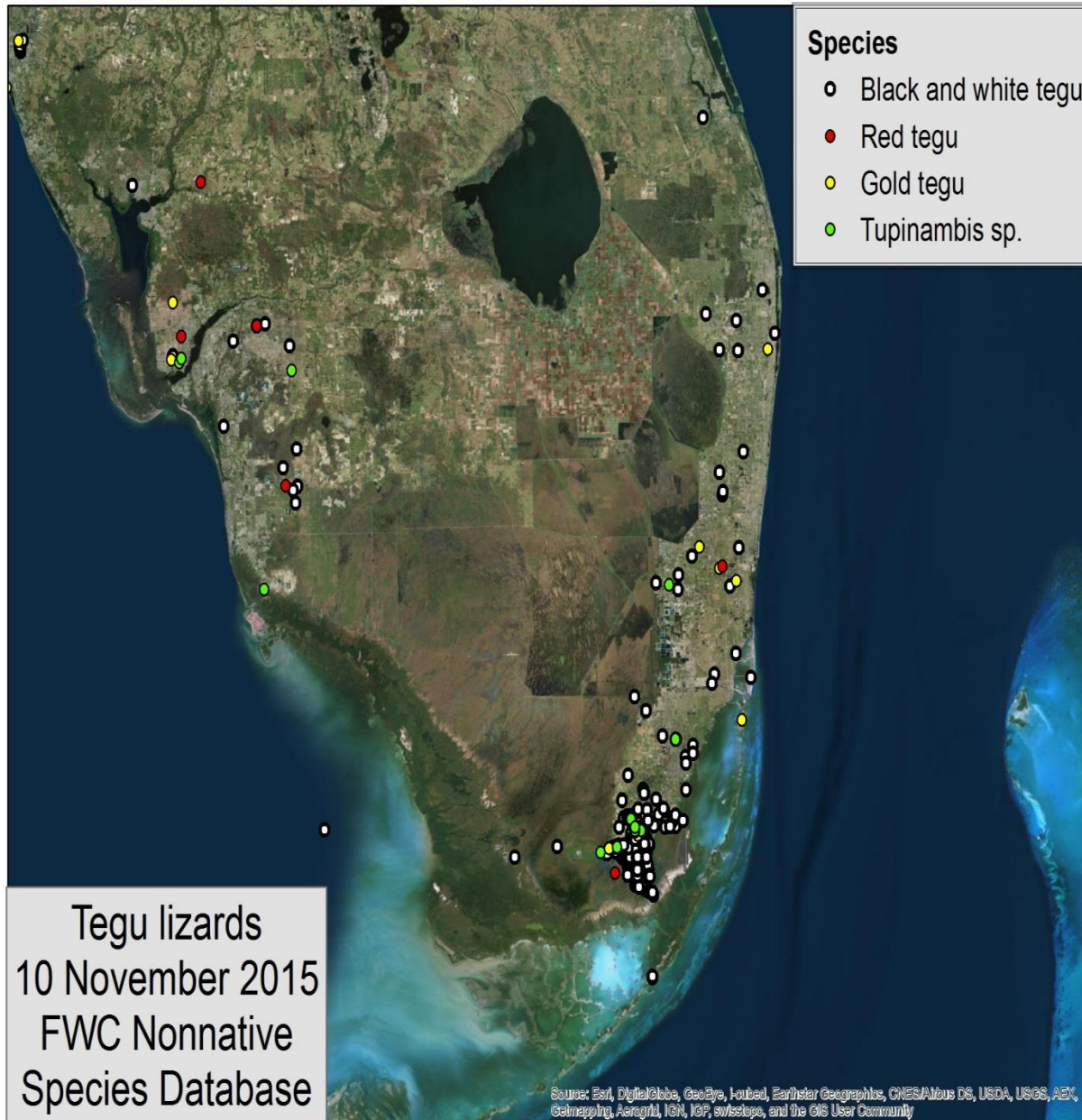
Major pathways of invasion



**↑ LIVE ↑
ANIMALS**

DRYFUR.com KC Pet Products LLC (888) 250-4824

Tegus in south Florida





UGA5281058





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Topic 2

Structure of Collaborative Efforts

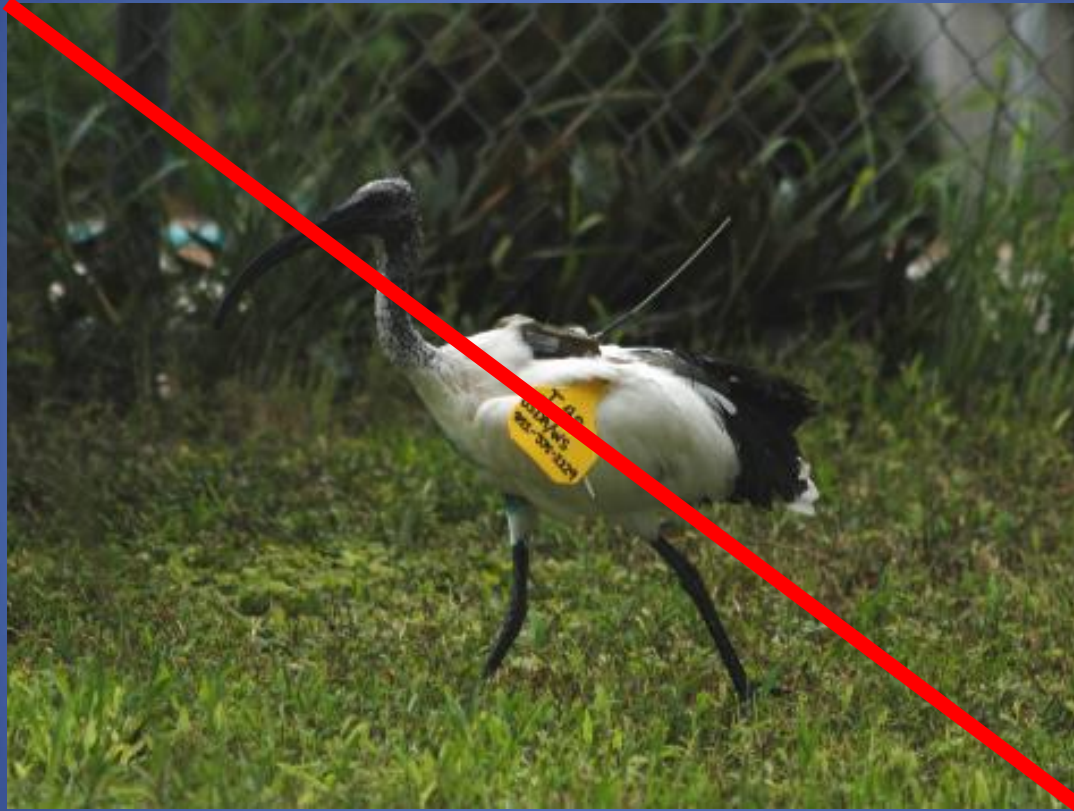
Questions for the panelists? Submit via the “Questions” box or raise your hand by clicking on the hand icon.

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Sacred Ibis

(*Threskionis aethiopicus*)

Native Range: Africa



Eradicated



5369631







UGA5276096



17 exotic fish species

Africa, Central and South America, Southeast Asia

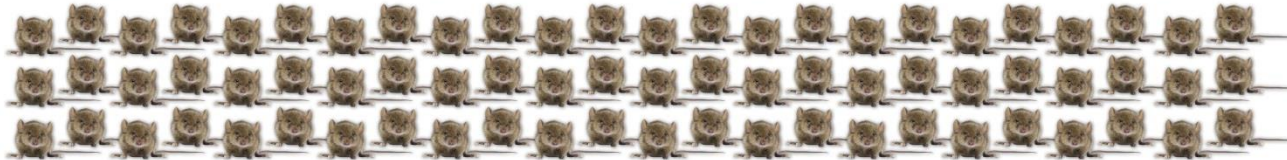
10 species of Cichlidae



6 other families



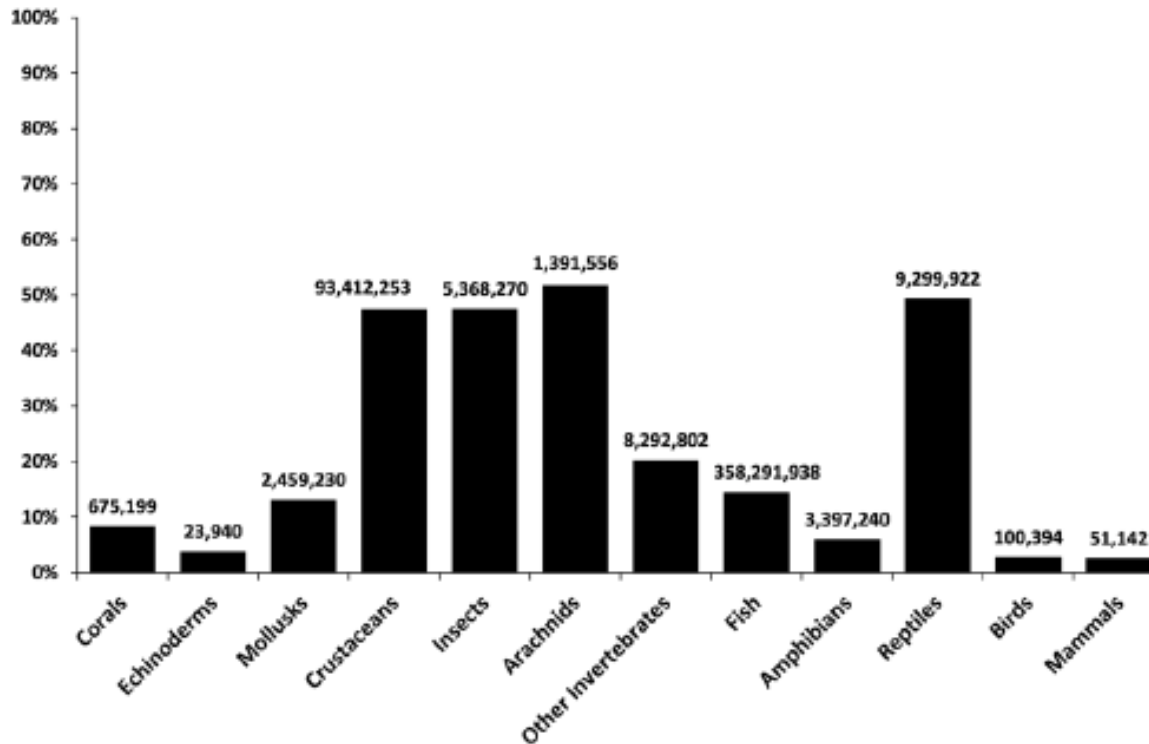
The Building Blocks of a Python



- 1 raccoon
- 1 opossum
- 4 5ft alligators
- 5 American coots
- 6 little blue herons
- 8 ibises
- 10 squirrels
- 15 rabbits
- 15 wrens
- 30 cotton rats
- 72 mice

Animals

Percentage of all live animal imports that enter US through Florida ports
(1999-2010)



Percentage of all live animal imports that entered US specifically through Florida ports of entry (1999-2010). The numbers above each bar represent the quantity of individuals imported for that taxonomic group.



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Topic 3

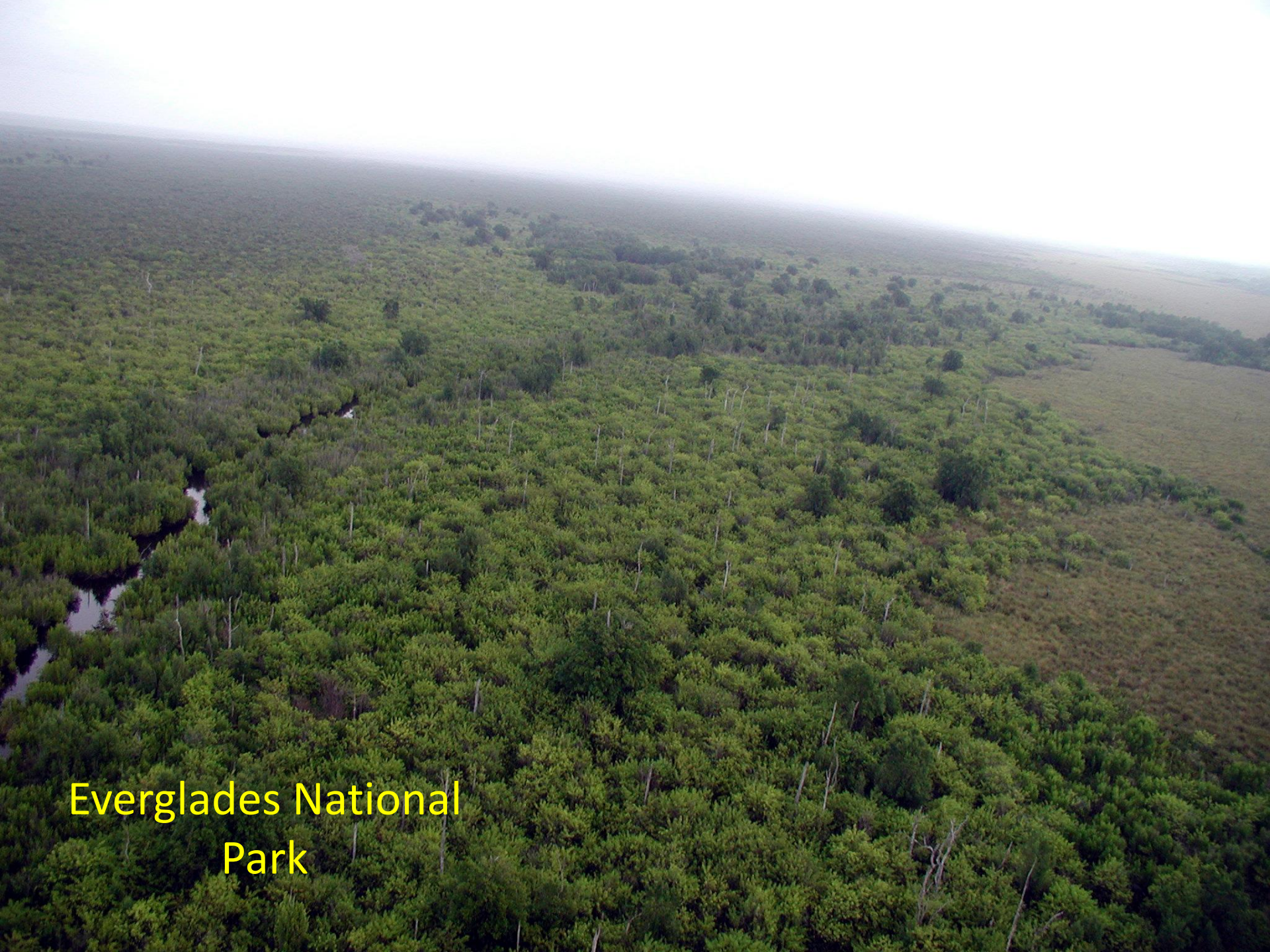
Resources and Funding

Questions for the panelists? Submit via the “Questions” box or raise your hand by clicking on the hand icon.

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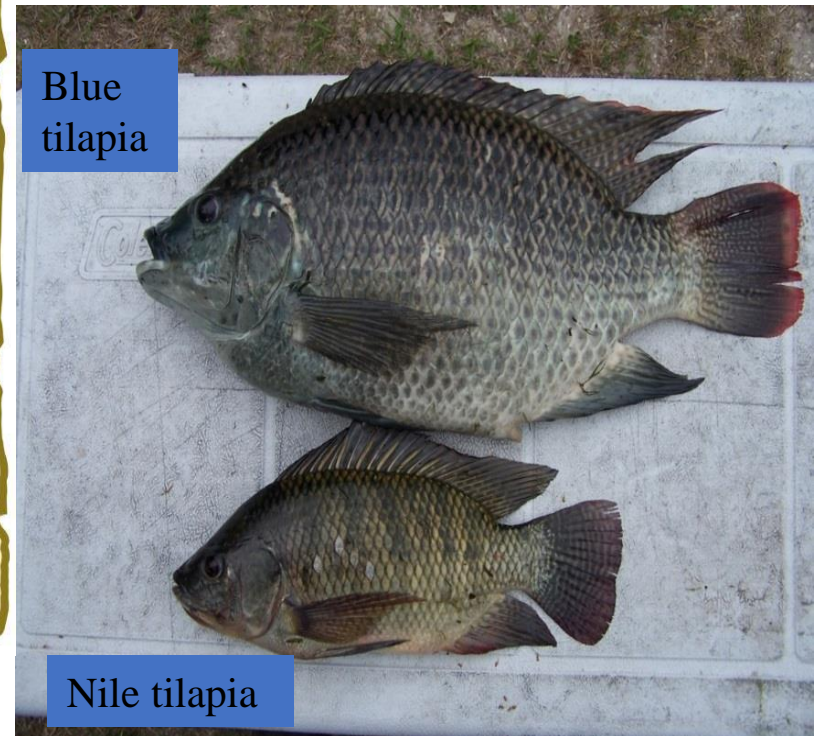




Everglades National
Park

Snakehead

- Bullseye snakehead
- Tilapia spp
- Other unwanted fish





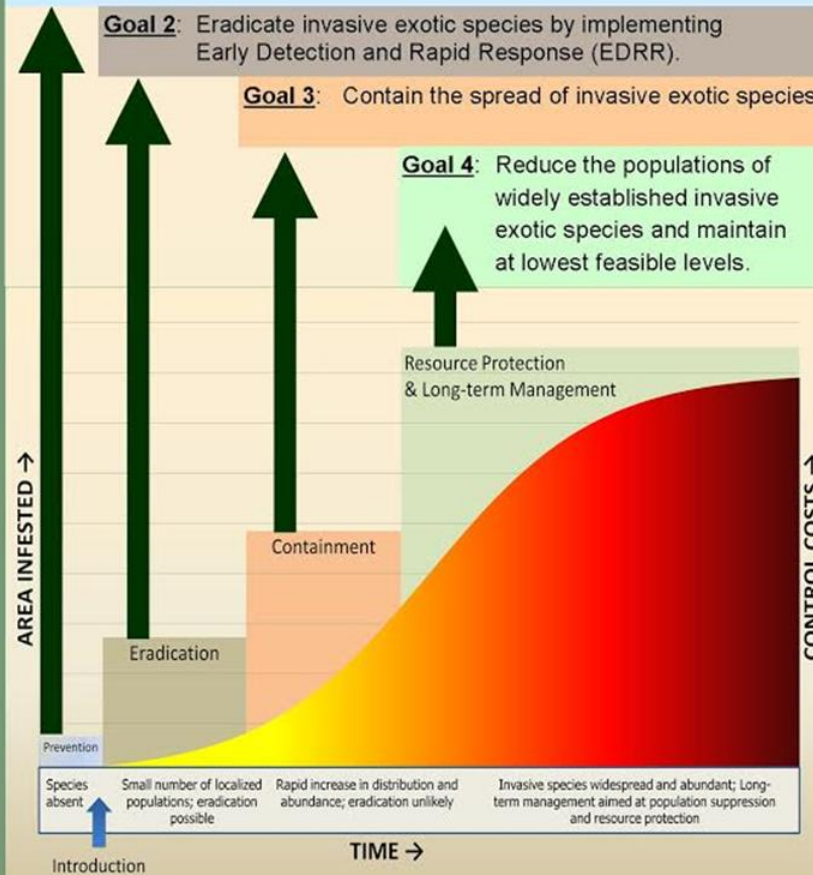
THE INVASION CURVE AND DRAFT STRATEGIC GOALS

Goal 1: Prevent the introduction of invasive exotic species.

Goal 2: Eradicate invasive exotic species by implementing Early Detection and Rapid Response (EDRR).

Goal 3: Contain the spread of invasive exotic species.

Goal 4: Reduce the populations of widely established invasive exotic species and maintain at lowest feasible levels.



U.S. DOI OFFICE OF EVERGLADES RESTORATION INITIATIVES

South Florida Ecosystem Restoration Task Force

WWW.SFRESTORE.ORG/IES.HTML

Tegus

in Florida



Dennis Giardina, FWC

How You Can Help Stop The Spread Of An Invasive Lizard



Florida Fish and Wildlife
Conservation Commission

MyFWC.com







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Topic 4

Control and Management

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Snakehead and an assortment



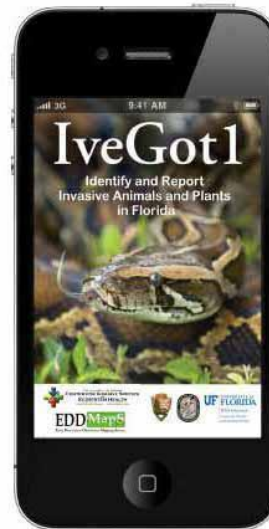






UGA5281016

Invasive Species in Florida?



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Lionfish











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*Tackling Invasive Species at the Landscape Level:
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Thursday, March 31, 2016 • 2:00pm – 4:00pm ET

Topic 5

Early Detection and Rapid Response

Questions for the panelists? Submit via the “Questions” box or raise your hand by clicking on the hand icon.

Please visit the event page (<http://tinyurl.com/invasiveflorida>) for background materials and resources.



UGA1624033

Evergaldes

Non-Native Fish Round-up



North African Rock Python

(Python sebae)

Native Range: North Africa



2010-10-09 1:25:59 PM M 1/10



HC600 COVERT





Tegu

Non-Native Fish Roundup





Nile Monitor





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Topic 6

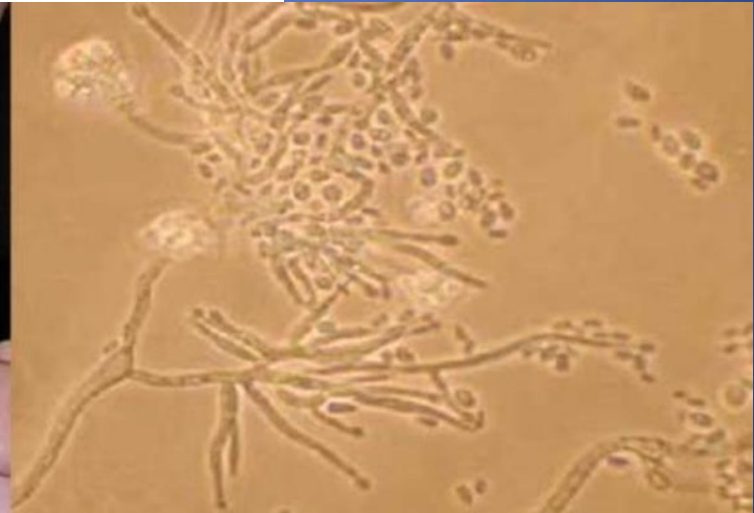
Prevention

Questions for the panelists? Submit via the “Questions” box or raise your hand by clicking on the hand icon.

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Red Ambrosia Beetle (*Xyleborus glabratus*)

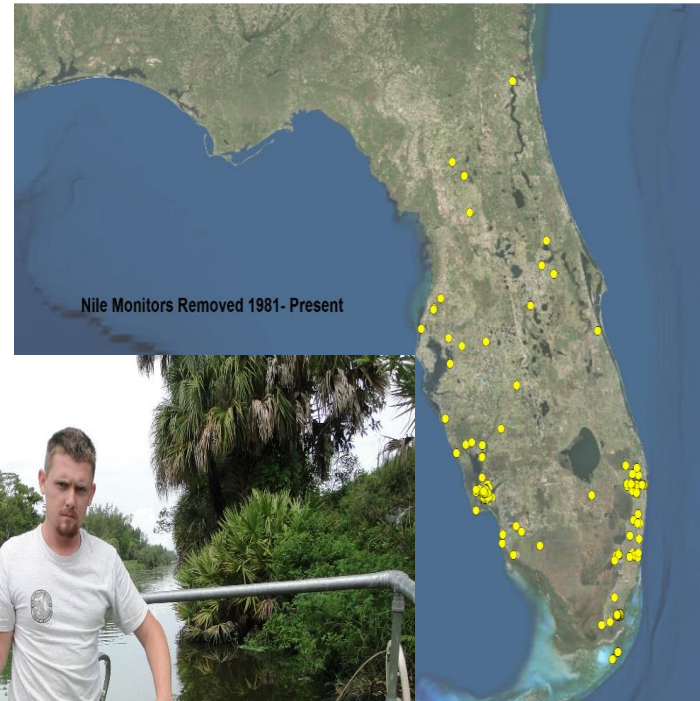
(Native to India, Japan, Mynamar and Taiwan)



Raffaelea lauricola - Ophiostomatales



- Nile Monitor Occurrences in the state
- Staff member that has removed one from the wild





Laurel Wilt in Big Cypress National Preserve



- Burmese
Pythons



Black spiny-tailed iguanas (*Ctenosaura similis*)





Melaleuca



Some folks with
Burmese pythons.
On right, UF folks
with a big one.
Gives perspective





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