



Everglades Cooperative Invasive Species Management Area

“Oldest and Best CISMA”

Tony Pernas and LeRoy Rodgers

The Challenge

▪Everglades Non-Native Taxa

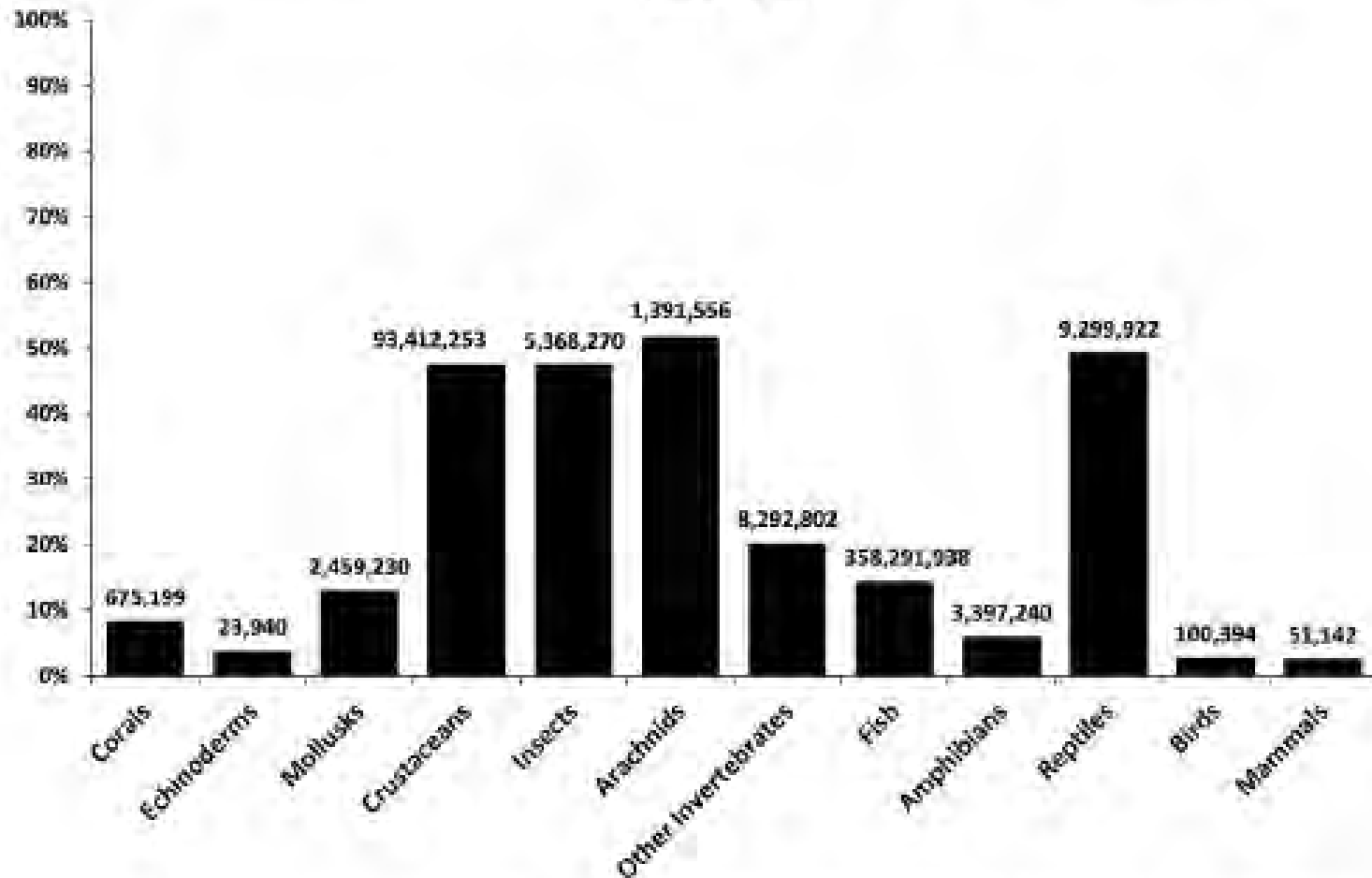
- 71 FLEPPC Cat. 1 Plants
- 34 Invertebrates
- 20 Fishes
- 4 Amphibians
- 38 Reptiles
- 11 Birds
- 12 Mammals



Major pathway of invasion



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.

Reptile Extravaganza!



Everglades Cooperative Invasive Species Management Area

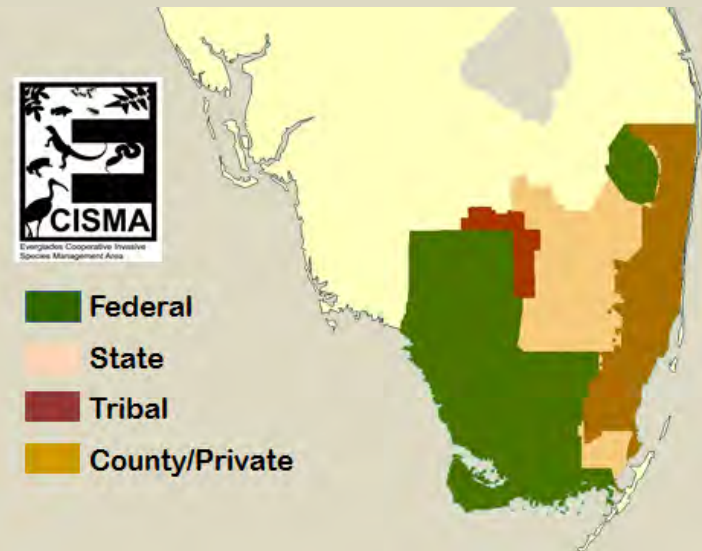
Year Formed: 2006

Geographic Boundaries

Miami-Dade Co., Broward Co., and portions of Palm Beach, Collier and Monroe Cos.

PARTNERS

TNC, Miami-Dade Co., Broward Co, Palm Beach Co. FDACS, FDEP, FDOT, FWC, FP&L, Miccosukee Tribe of Indians, Seminole Tribe of Florida, SFWMD, USACE, USDA, USGS, USDOJ, USFWS, USNPS, FDOT, Fairchild Tropical Botanic Garden, the Everglades Foundation, Zoo Miami, UF, UM, FIU, FAU, Auburn University



ECISMA formalized its partnership in 2008 through an MOU



MEMORANDUM OF UNDERSTANDING NO. 4600001287

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

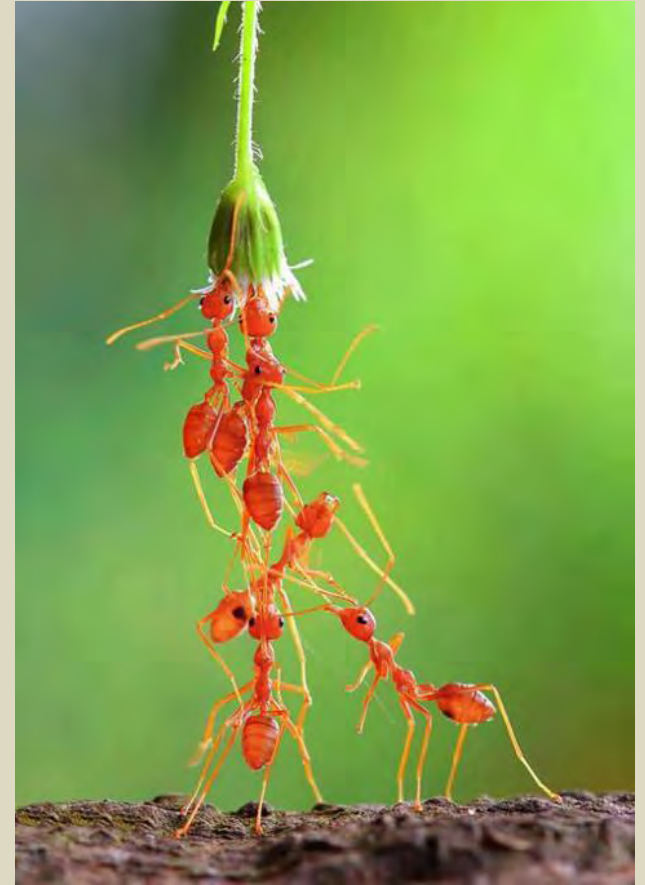
WHEREAS, the parties desire to enter into a cooperative arrangement to share views information and
advice to effectively coordinate and implement invasive species management within the Everglades region.

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:

What is our Mission?

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



What are our 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**



Goal 1: Integrate Coordination, Control and Management Strategies.

- Annual Everglades Invasive Species Summit
- Annual Work Plan/Report
- WEEDDAR Database
- Invasive Plant Contracts
 - Federal Contract
 - Standard Operating Procedures
- Digital Aerial Sketch Mapping (DASM)

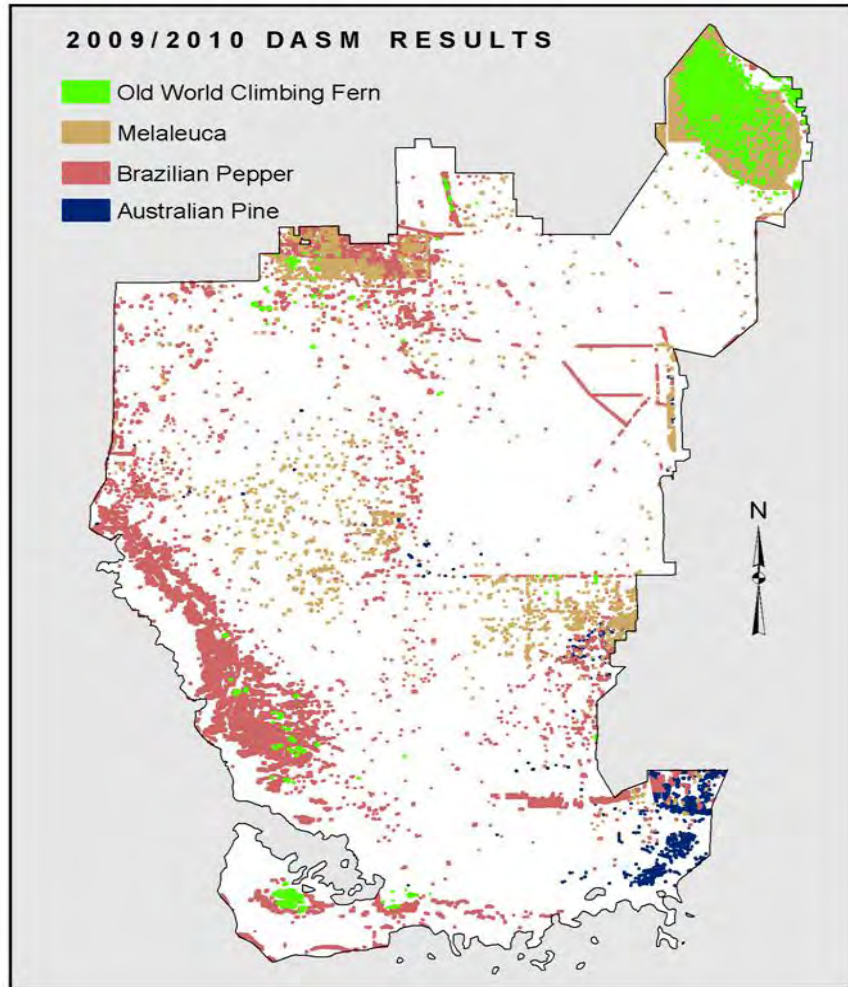


2011 Everglades Invasive Species Summit

Digital Aerial Sketch Mapping (DASM)

Region Wide Invasive Plant Assessment Tool

(4 million acres)



Goal 2: Integrated Outreach Efforts

- Websites (www.evergladescisma.org)
- **Public Events**
 - Pet Amnesty Days
 - Other Outreach Events (7 in 2012)
- “Don’t Let It Loose” Bill Board Campaign
- Social Media (Facebook, Twitter)
- Kiosk
- Non-Native Fish Round-Up



Everglades CISMA



Goal 2: Integrated Outreach Efforts

•Non-Native Fish Roundup




* Post Roundup Surveys


Everglades CISMA

Goal 3: Information and Technology Transfer


- Newsletter
- Species ID Flyers
- Invasive Reptile ID Deck



Newsletter



Volume 3, Issue 1 March 2012



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- Tegu nest in Miami-Dade 4
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- Will natives suppress Mikania? 7
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The Eco-Impact of Tegus Could Be Significant

-Tony Pemas, NPS and Dennis Giardina, FWC

The South American Tegu has become established in Florida and is rapidly expanding its range and population density throughout the central and southern portions of the state. They were first identified living in the Miami-Dade area in September 2008. Two species have become established – the Argentine Black and White Tegu (*Tupinambis merianae*) and the Columbian or Gold Tegu (*T. teguixin*). These reptiles have been imported into the United States as part of the pet trade (between 2000-2006, 13,400 live tegus were imported).

Scientists predict the potential range of the Tegu

may be as far north as South Carolina. Its habitat preference is moist tropical forests, semi arid scrub forests, prairies, beaches, dunes and disturbed habitats. Tegus are omnivorous while juveniles are insectivorous. They can dig their own burrows or use the burrows of other animals. Because of their subtropical to temperate origins, tegus can tolerate the damaging effects of freezing temperatures better than pythons.

In Brazil, four tegus were introduced on to the island that contains the Fernando de Noronha National Park to control rats. They rapidly expanded their population size to an estimated

Continued on page 3

Have you seen these snails?

See Page 2

First Annual Pet Amnesty Day in Palm Beach County

-Rebecca Harvey, UF

Prevention and Early Detection & Rapid Response (EDRR) are the most effective and least costly approaches to addressing impacts of invasive species before they become intractable problems. ECISMA's outreach efforts focus on both EDRR and prevention by: 1) teaching field staff and people who work in natural areas how to identify and report nonnative species, and 2) reaching out to the public to foster responsible pet ownership. To meet the latter goal, the Florida Fish & Wildlife Conservation Commission's (FWC's) Nonnative Pet Amnesty Program is a tried and true method that gives people a viable alternative to releasing their pets. This

Continued on page 6



Pest Alert

Nonnative Lizards in Nurseries and Groves

June 2012

Everglades Cooperative Invasive Species Management Area





Oustalet's Chameleon
Image Courtesy of University of Florida

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 National Science Foundation

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 Florida Game and Fish

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 University of Florida

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

In English, Spanish, Creole

Field Identification of Select Native and Nonnative Reptiles in Florida



Everglades Cooperative Invasive Species Management Area

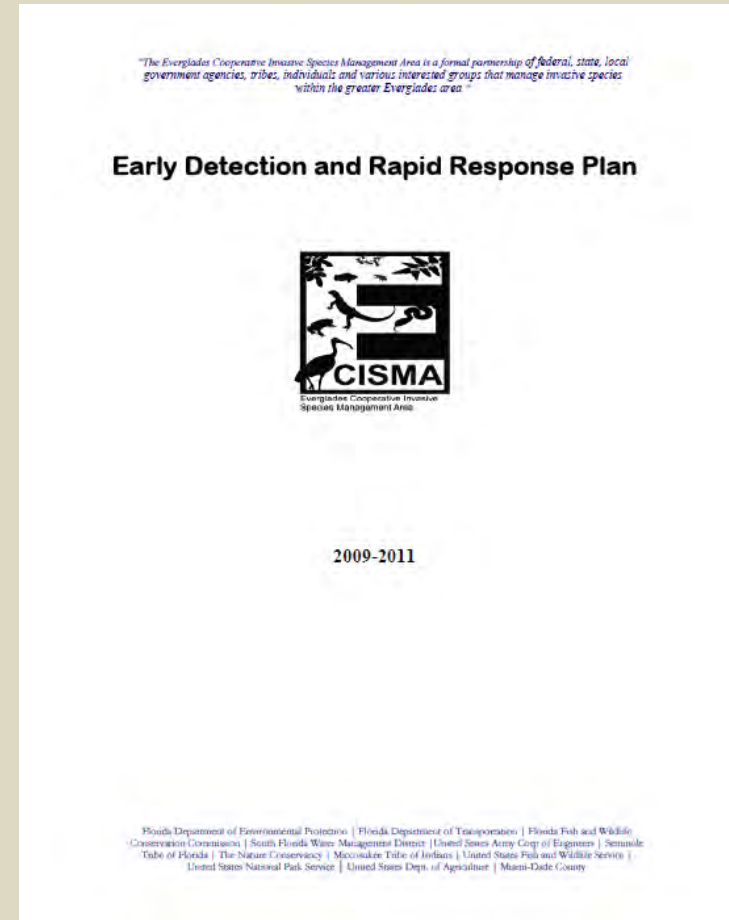
Goal 3: Information and Technology Transfer

- REDDy
- Python Patrol



Goal 4: Early Detection/Rapid Response

- EDRR Management Plan
- Reporting
 - EDDMapS (Ivegot1.org)
 - Apps
 - Hotline(1-888-IVEgot1)
- EDRR
 - Sacred ibis
 - Lumnitzera
 - Northern African Python
 - Tegu
 - Golden False Beard Grass



Goal 4: Early Detection/Rapid Response

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.



Early Detection/Rapid Response

Sacred Ibis (*Threskironis aethiopicus*)

In top one hundred of European Invasive Species

DAISIE (*Delivering Alien Invasive Species Inventories for Europe*)

- **Predators of Eggs, Chicks**

Sandwich Terns

(Cape Cormorant 10-15% annual loss)

- **Tolerant of a wide range of environmental conditions**



Established in :

- **France**
- **Belgium**
- **Italy**
- **Canary Islands**



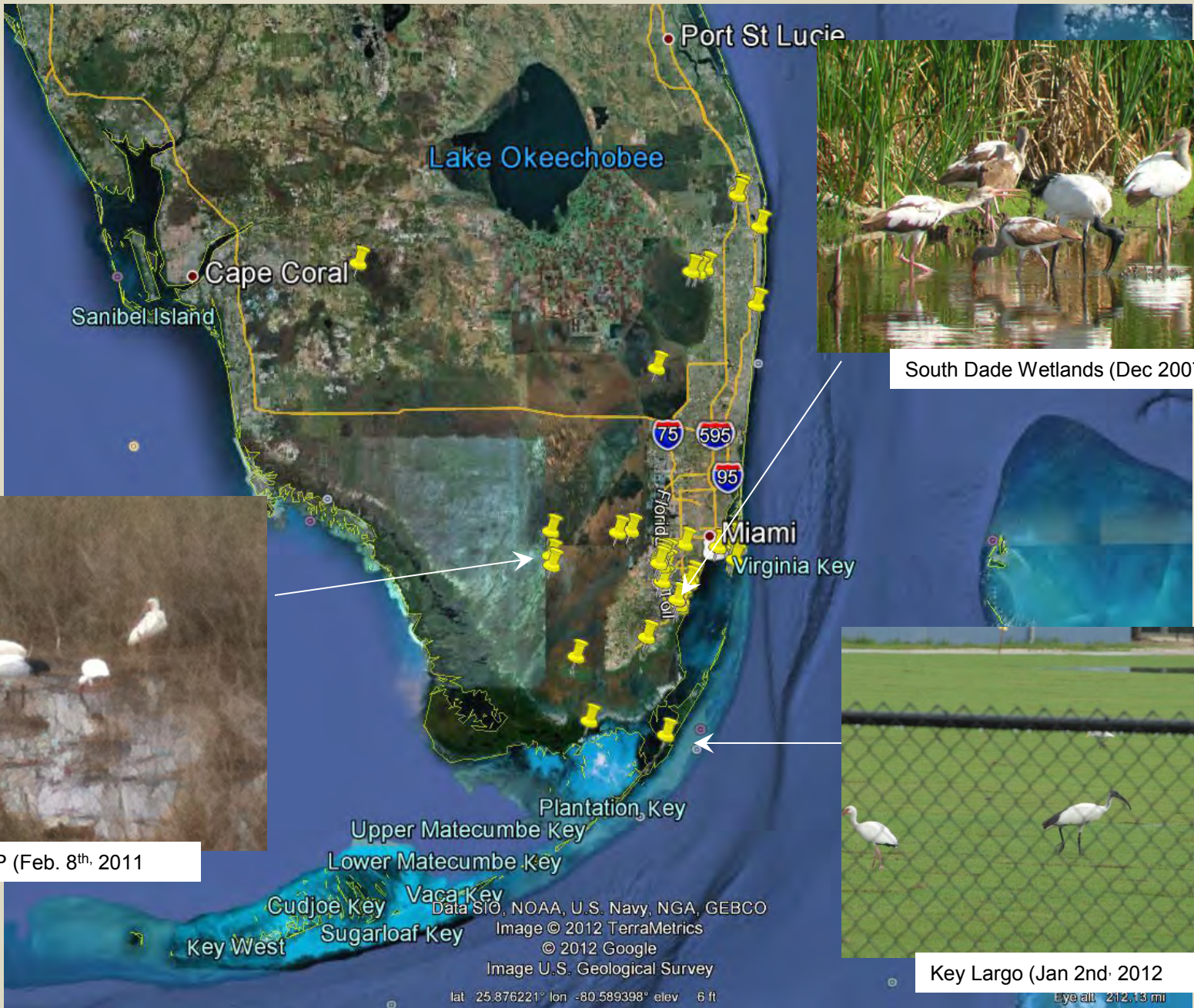
France: Sacred Ibis feeding on Sandwich terns (in 4 hours devoured the eggs of all 30 nesting pair)

Sacred Ibis in South Florida

- Miami Metro Zoo (Hurricane Andrew 1992)
- 2005 Breeding at Loxahatchee NWR
- 2006 Numerous sightings at Miami Metro Zoo, Palm Beach Landfill, Homestead Landfill, Cutler Wetlands and Kendall
- 2008 ECISMA EDRR Sacred Ibis Eradication Plan (EA)/USDA Wildlife Services (Funded by Everglades Foundation)



***Control by USDA Wildlife Services
Radio Transmitters by National Wildlife Research Center***



South Dade Wetlands (Dec 2007)



Everglades NP (Feb. 8th 2011)

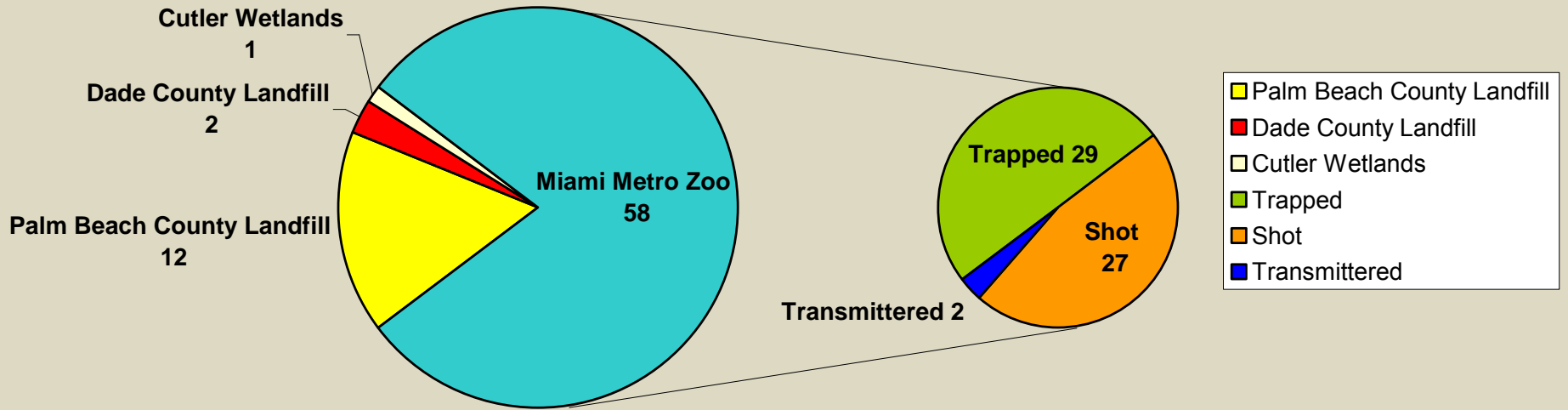


Key Largo (Jan 2nd 2012)

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
 Image © 2012 TerraMetrics
 © 2012 Google
 Image U.S. Geological Survey
 lat 25.876221° lon -80.589398° elev 6 ft
 Eye alt 212.13 mi

122 Reports

Ibis Removed



Eradication?



Palmetto Bay (Nov.2, 2011)

74 Birds Removed Nov 2008-present

Lumnitzera

(*Lumnitzera racemosa*)

- Geographic Range: Southeast Asia





FAIRCHILD TROPICAL BOTANIC GARDEN
MATHESON HAMMOCK COUNTY PARK

Lumnitzera

- 2008 Infestation discovered
- 2009 Two ECISMA workdays
- 2010 Herbicide trials/contractor treatment
- 2011 Workday
- 2012 Eradication is imminent

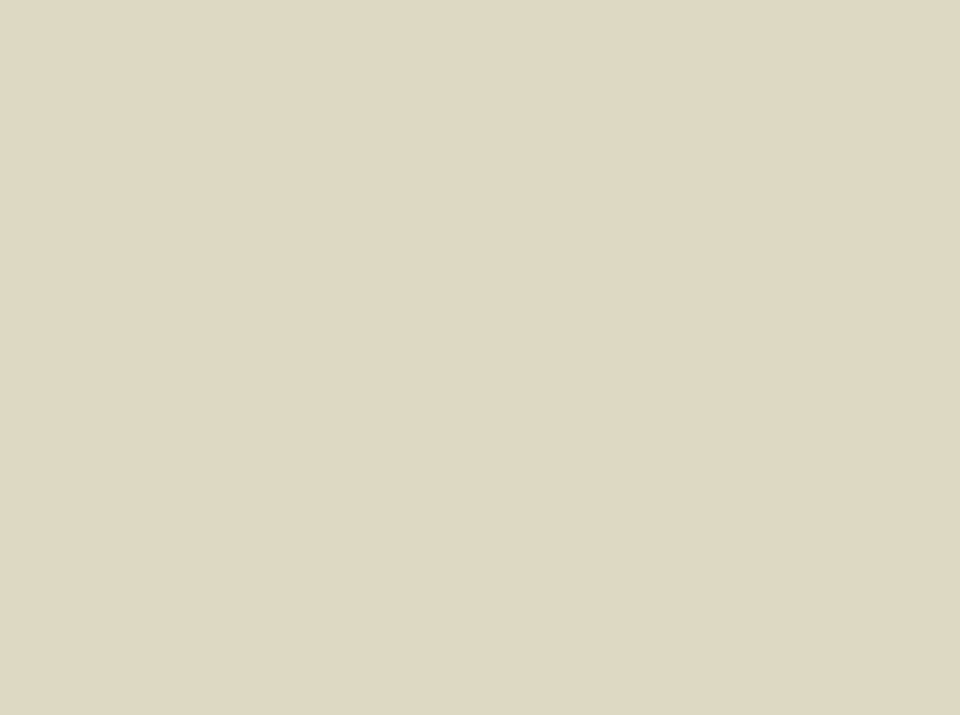


Collaborative Treatment and Mapping Workdays 2009-2013









2010 Herbicide Trials



2010-2012 FWC Funded Treatment Contracts





Eradication Is Possible!



North African Rock Python (*Python sebae*)

- Geographic Range: Sub-Saharan Africa



Detention/Prison Area
Bird Road Basin
Bird Road Basin South
Tree Island Park

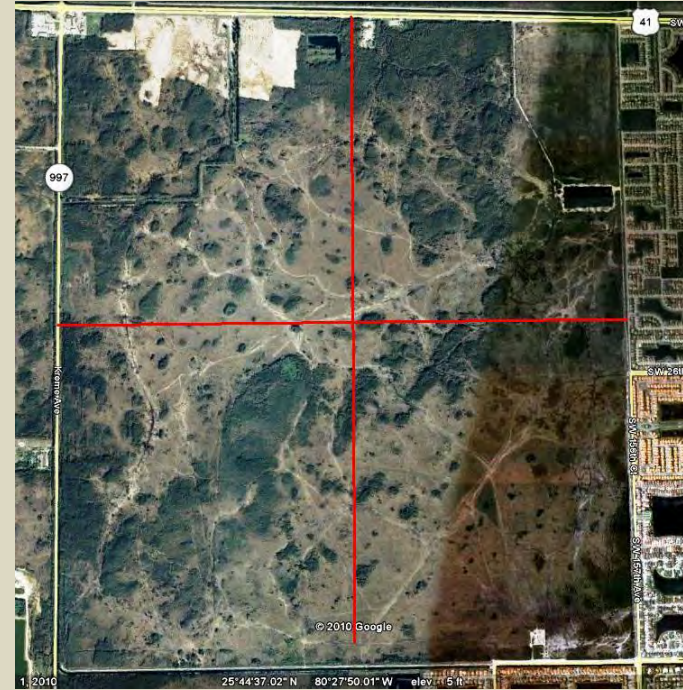


ECISMA Rock Python Surveys

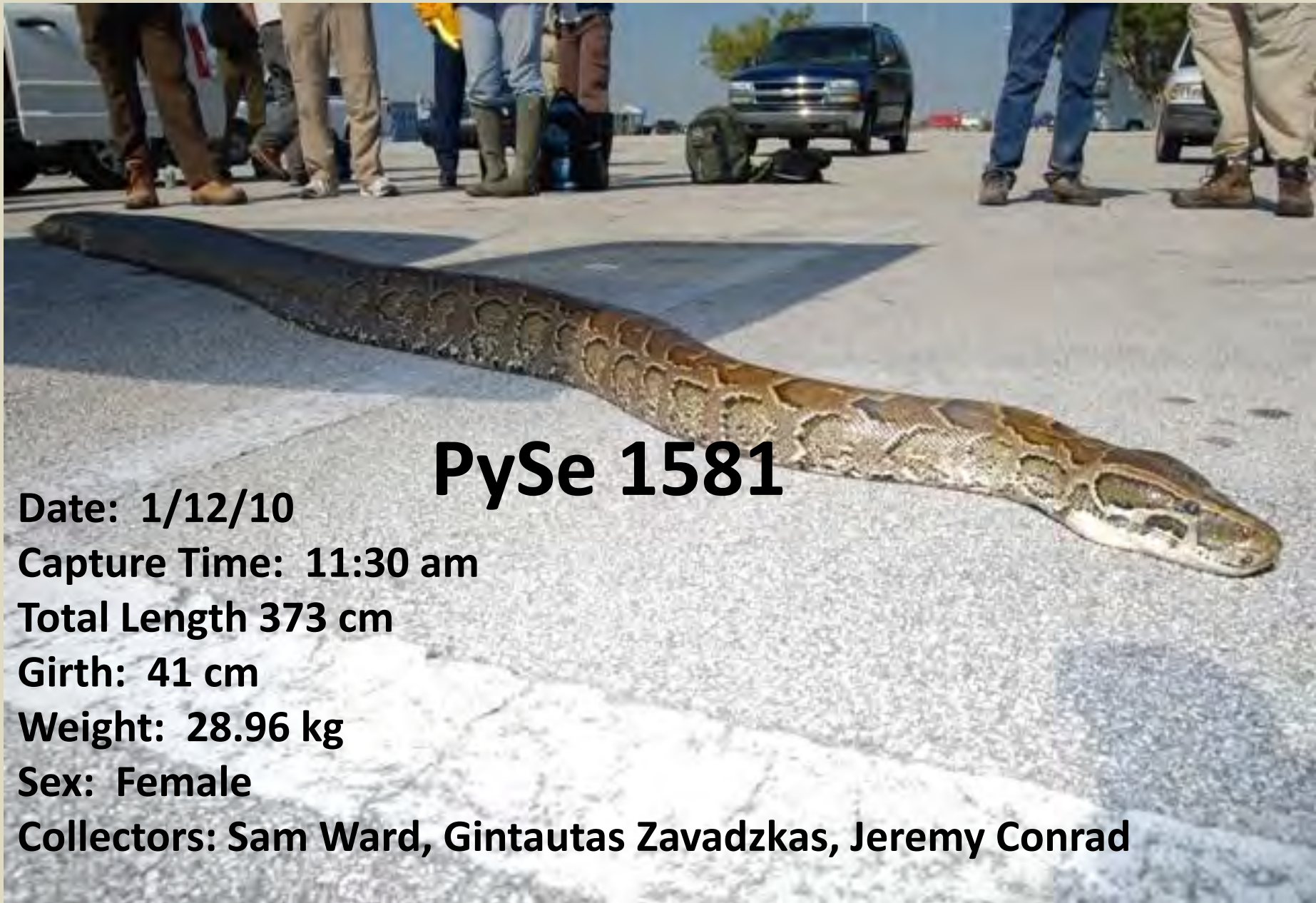
1/12/ 2010 - Present



Walking/Boat
Surveys



Road Survey



PySe 1581

Date: 1/12/10

Capture Time: 11:30 am

Total Length 373 cm

Girth: 41 cm

Weight: 28.96 kg

Sex: Female

Collectors: Sam Ward, Gintautas Zavadzkas, Jeremy Conrad

PySe 1579

Date: 1/12/10

Capture Time: 2:28 pm

Total Length: 440 cm

Girth: 59 cm

Weight: 62.96 kg

Sex: Male

Collectors:

Jane Dozier,

Dallas Hazelton,

Jose Prieto





PySe 1583

Date: 1/12/10

Capture Time: 2:43 pm

Total Length: 400 cm

Girth: 38 cm

Weight: 27.09 kg

Sex: Female

Collector: Marty Main

PySe 1591

1/14/10

Capture Time: 1:30 pm

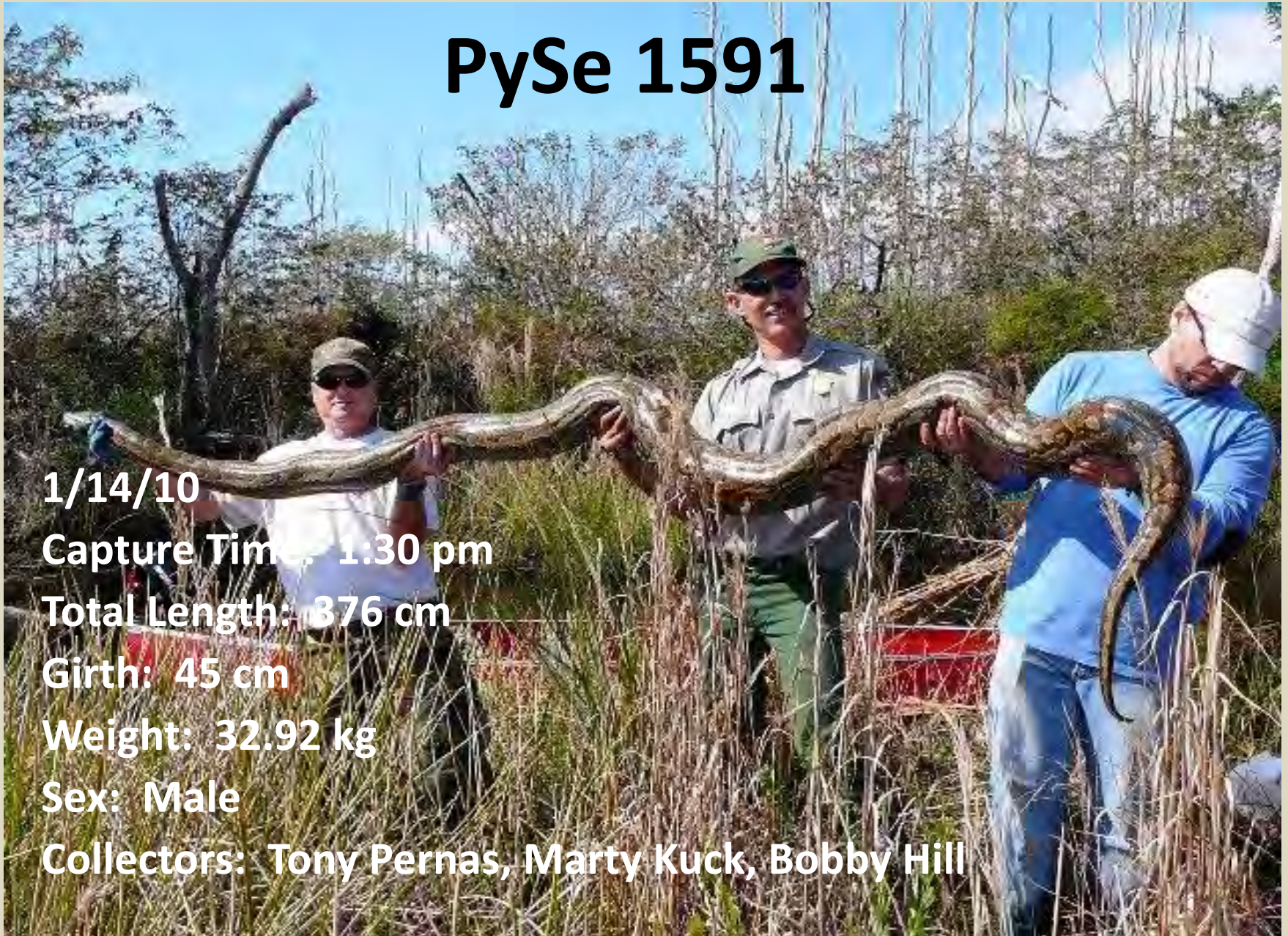
Total Length: 876 cm

Girth: 45 cm

Weight: 32.92 kg

Sex: Male

Collectors: Tony Pernas, Marty Kuck, Bobby Hill



PySe 1590

Date: 1/14/10

Capture Time: 1/14/10

Total Length: 297 cm

Girth: 31 cm

Weight: 14.76 cm

Sex: Female

Collectors: Scott Goetz, Bob Reed, Christina Romagosa,
Stewart Krantz

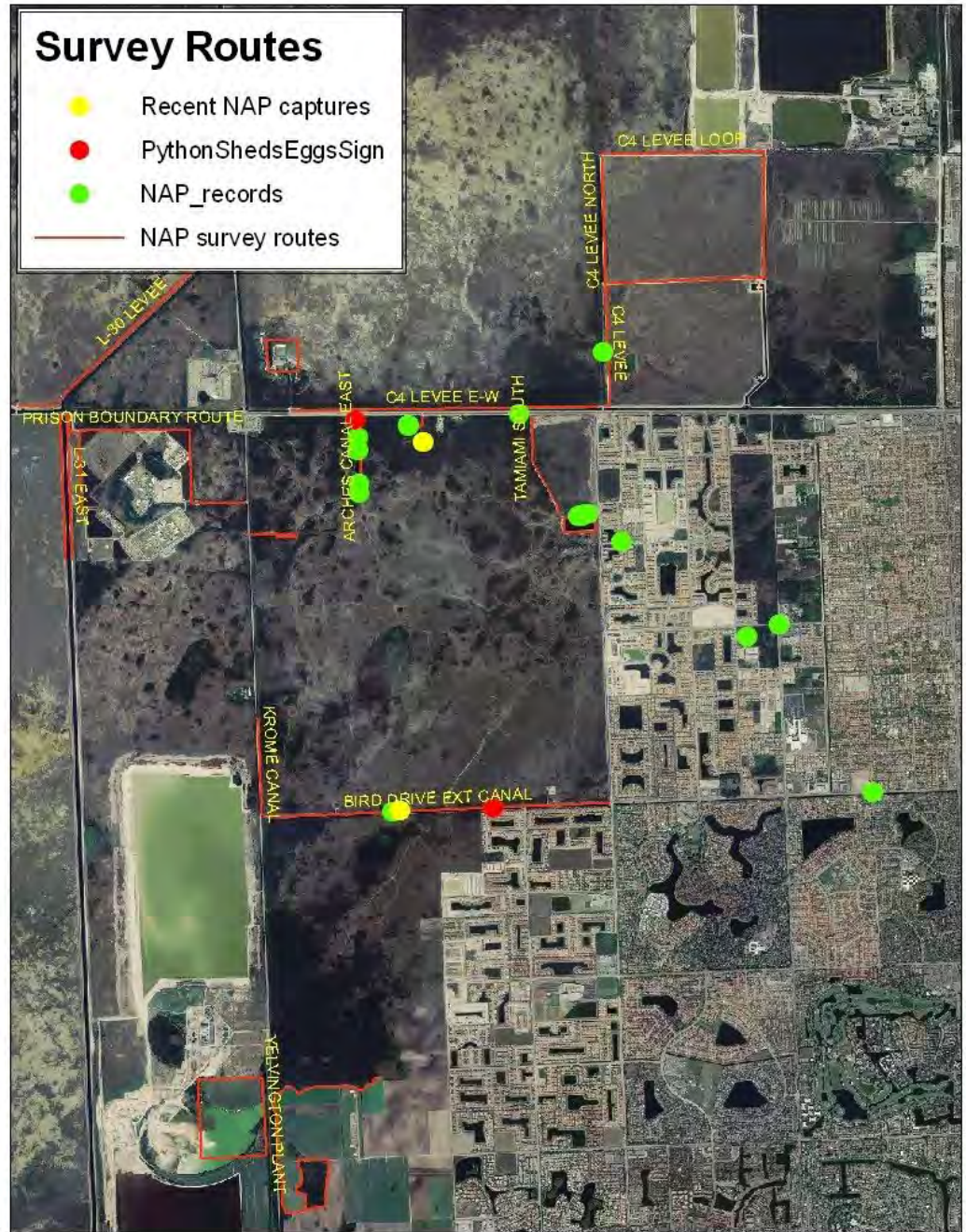


2009-2010 19

2011-1

2012- 1

2013 - 1



Argentine Black and White Tegu (*Tupinambis meriana*)

Native Range: Argentina/Paraguay



ECISMA Tegu Assessment

2008

- First Identified (Sept. 2008)

2009

- Surveys/Trapping/Necropsy

2010

- Surveys/Trapping/Necropsy

2011

- Surveys/Trapping/Necropsy
- Radio Telemetry
- Camera Traps
- Burrow Camera

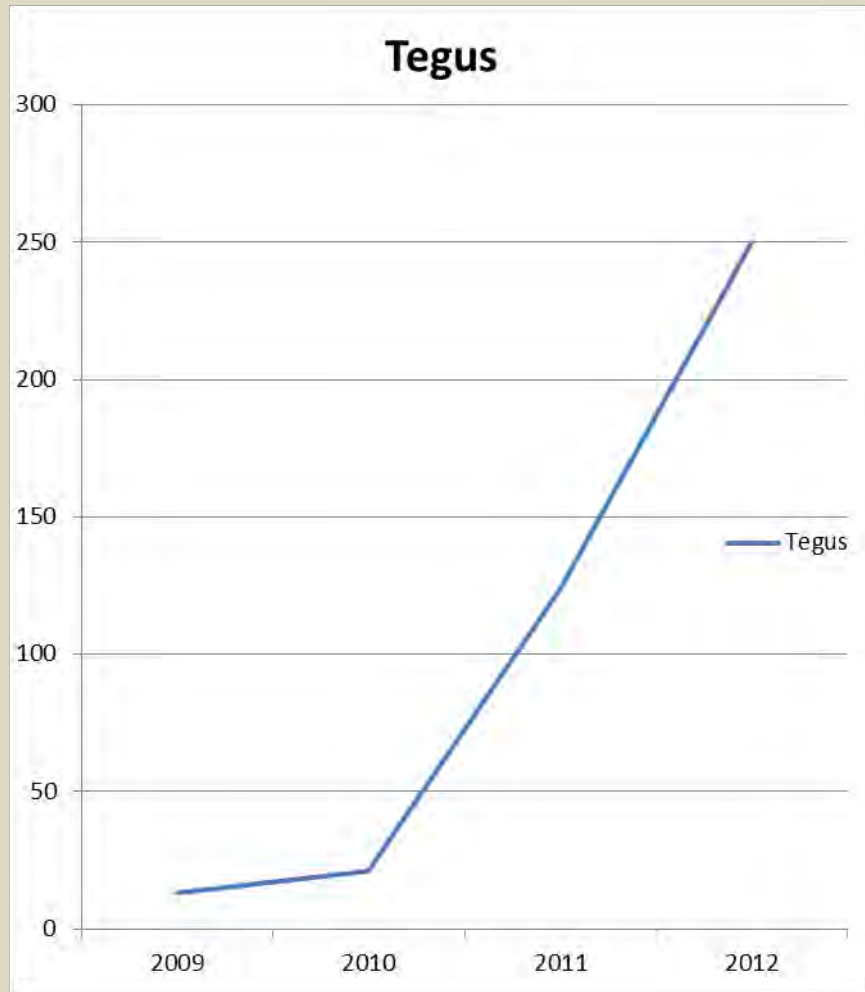
2012/2013

- Surveys/Trapping
- Radio Telemetry
- Camera Traps



FWC, NPS, USGS, UF, Zoo
Miami, Miami Dade County, FAU

Tegu Capture Data



Trail Camera US 1



Golden False Beard Grass

(Chrysopogon aciculatus)

SE Asia

Federal /Florida Noxious Weed

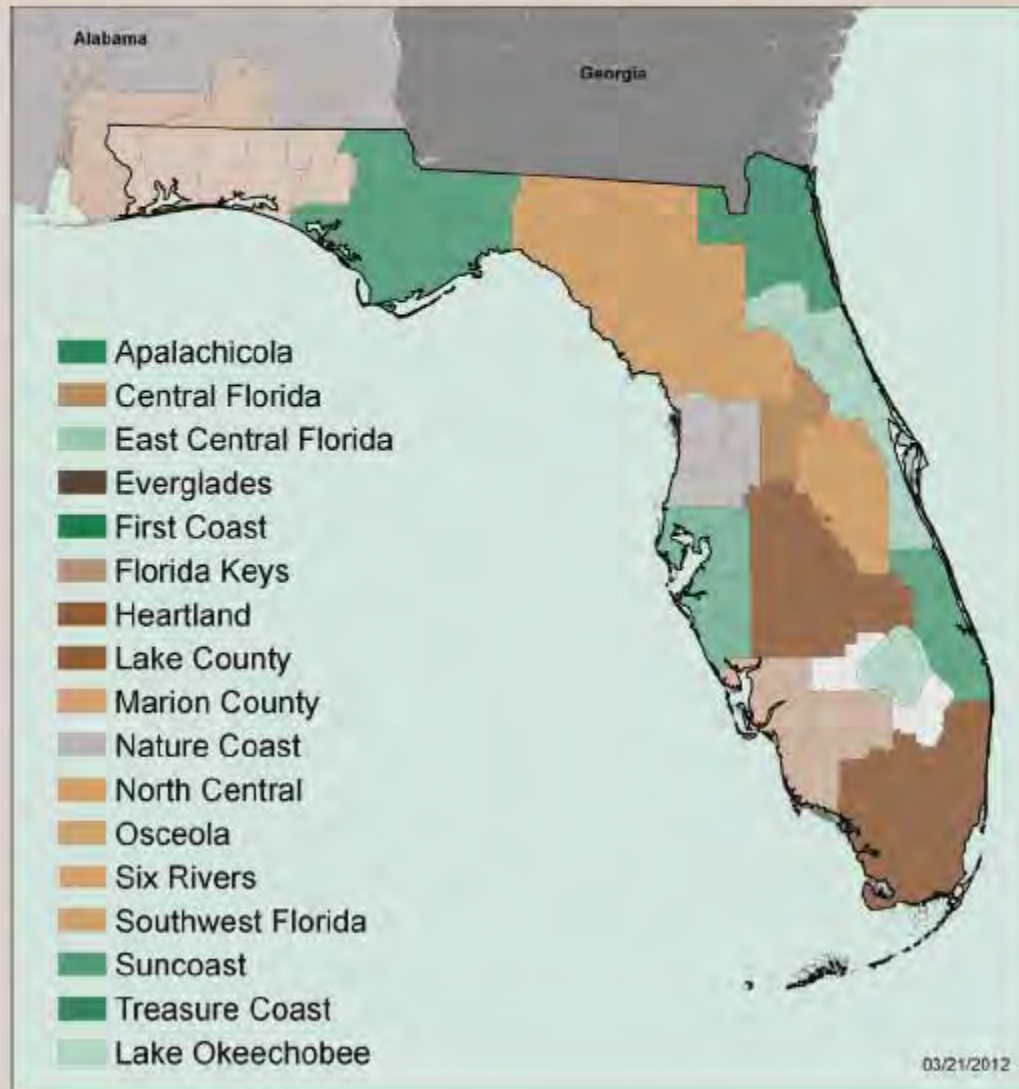


Florida
Invasive Species
Partnership



Think Locally, Act Neighborly

Invasive exotic species know no boundaries!



Friends of ECISMA (FOE)

- 501-C3
- Goal: Generate revenue for EDRR and outreach in support of ECISM's mission
- President, Stuart Krantz
- Seeking grants, donations



2012
Department of Interior
Partners In Conservation Award



Everglades CISMA



**US Army Corps
of Engineers®**



Everglades Cooperative Invasive
Species Management Area

UF UNIVERSITY of
FLORIDA



THE UNIVERSITY OF GEORGIA
**CENTER FOR INVASIVE SPECIES
AND
ECOSYSTEM HEALTH**
WARREN H. BESSANT SCHOOL OF
FORESTRY AND NATURAL RESOURCES SCHOOL OF AGRICULTURAL
AND ENVIRONMENTAL SCIENCES



