

# ECISMA Outreach 2014 – 2015

Rebecca Harvey  
University of Florida



**EVERGLADES CISMA**

# Outreach Achievements

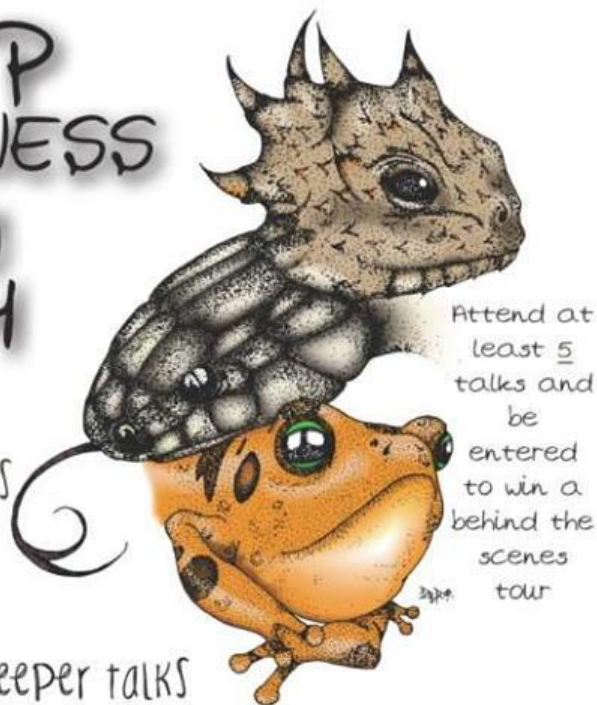
- Presentations and Events
- Public Participation
- New Outreach Materials

Lots of “1<sup>st</sup> Annuals”

# **Presentations and Events**

# HERP AWARENESS DAY 2014

meet our keepers and  
learn all about the reptiles  
and amphibians at  
ZOO miami



Attend at  
least 5  
talks and  
be  
entered  
to win a  
behind the  
scenes  
tour

## keeper talks

- 
- 10:00 Giant Tortoises
  - 10:30 Amphibians of Amazon & Beyond's Cloud Forest
  - 11:00 Caiman Lizards & fish of Amazon & Beyond's Cloud Forest
  - 11:30 Spiny Tailed Iguana in Amazon & Beyond's Flooded Forest
  - 12:00 Reptile Critter Corner at the Sami Amphitheater
  - 12:30 Cuban Crocodiles
  - 1:00 Komodo Dragon in Asian River Life
  - 2:00 Reptile Critter Corner at the Sami Amphitheater
  - 2:30 Cribó Snake of Amazon & Beyond's Atlantic Forest
  - 3:00 Stingrays of Amazon & Beyond's Flooded Forest
  - 3:30 Venomous Snakes of Amazon & Beyond's Cloud Forest



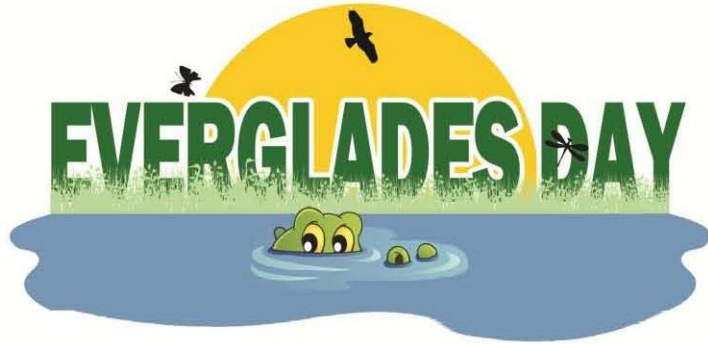
August 16, 2014  
10:00 a.m. - 4:00 p.m.  
12400 SW 152 Street, Miami, FL 33177



# 1<sup>st</sup> Annual

- FWC Pet Amnesty display
- ECISMA invasive reptile display

# 1<sup>st</sup> Annual



**BROWARD**  
COUNTY  
FLORIDA  
PARKS AND RECREATION

Saturday, October 18, 2014

## *Invaders of the Everglades*

Dennis Giardina

## *Reptile Identification Workshop & Demonstration*

Jenny Novak and Jeff Fobb

**EVERGLADES CISMA**



# ECO FAIR

HOMESTEAD

Celebrate Homestead's leadership  
in environmental stewardship!

SATURDAY, FEBRUARY 7, 2015  
12PM - 3PM

Losner Park 104 N. Krome Ave. Homestead, FL 33030

# 1<sup>st</sup> Annual



EVERGLADES CISMA

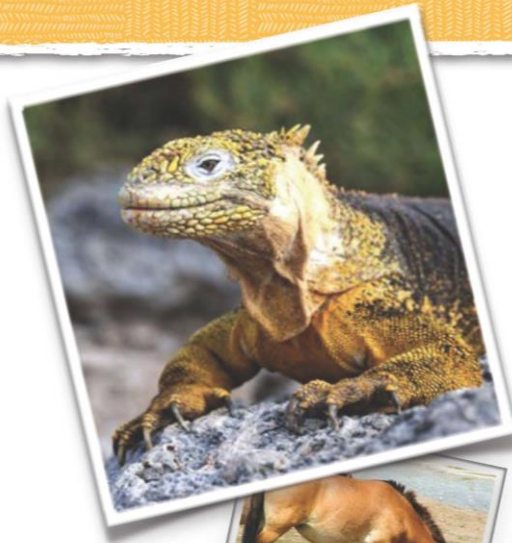
# 9<sup>th</sup> Annual

## Darwin Day Diversity of Life Celebration

Speaker Presentations  
Galapagos Display  
Slide Show  
Demonstrations  
Kids Activities  
Book sale  
Food truck  
and more!

FEBRUARY

7



## The Croc Docs: The Impact of Invasive Species on Our Environment

**Speaker: Rebecca Harvey**  
1:00PM Library Auditorium


Environmental Education & Human Dimensions coordinator; Wildlife Ecology and Conservation Department, Institute of Food and Agricultural Sciences, University of Florida at Fort Lauderdale Research and Education Center.

Harvey's areas of interest, projects, publications and community outreach shine light on environmental attitudes and behavior, invasive species, carnivore conservation, climate change, and environmental education.

Today's topic: Prevention, eradication, resource protection and long-term management of invasive species: what can you do to help?



UF IFAS Extension UNIVERSITY of FLORIDA MIAMI-DADE COUNTY Presents:

**Biological Control & IPM  Workshop**



Use of natural enemies as an alternative to chemical pesticides in pest control.

**Date:** Thursday, October 16, 2014.

**Time:** 8:45 am to 01:00 pm

**Location:** University of Florida Extension  
18710 SW 288th Homestead, FL 33030

Questions? Please Contact:  
Vanessa Campoverde (UF/IFAS Extension Agent)

 [evcampoverde@ufl.edu](mailto:evcampoverde@ufl.edu) or  
 305-248-3311 Ext 241

Applied for FDACS and FNGLA CEUs

## Plus:

- Aquatic Weed Control Short Course in Coral Springs
- Fort Lauderdale Garden Club Presentation



# Giant African Land Snail Outreach

- 26 “Science with a Twist” events at Miami-Dade schools
- 12 other community events
- Elks, Kiwanis, Rotary presentations
- Paid advertising
- Media coverage
- “Be On the Lookout” (BOLO) notices and “wanted” posters



# Public Participation

*1st Annual*  
**Nonnative Fish**



**Catch-Click-Submit**  
**CONTEST**

**February 21-March 1, 2015**

EDDMapS.org ■ IveGot1.org

**For contest rules go to:**  
**[floridainvasives.org/CatchClickSubmit/](http://floridainvasives.org/CatchClickSubmit/)**

**So grab your fishing gear, a camera,  
and enter the contest. You'll be  
having fun and helping out our  
natural resources at the same time!**



# 1<sup>st</sup> Annual



**Race Against Invasives 5K 2015**



**EVERGLADES CISMA**

# 6<sup>th</sup> Annual Non-native Fish Round Up



- 52 anglers
- 1,062 fish caught
- 16 species
- 545 lbs.



# Lionfish Awareness & Attitude Survey

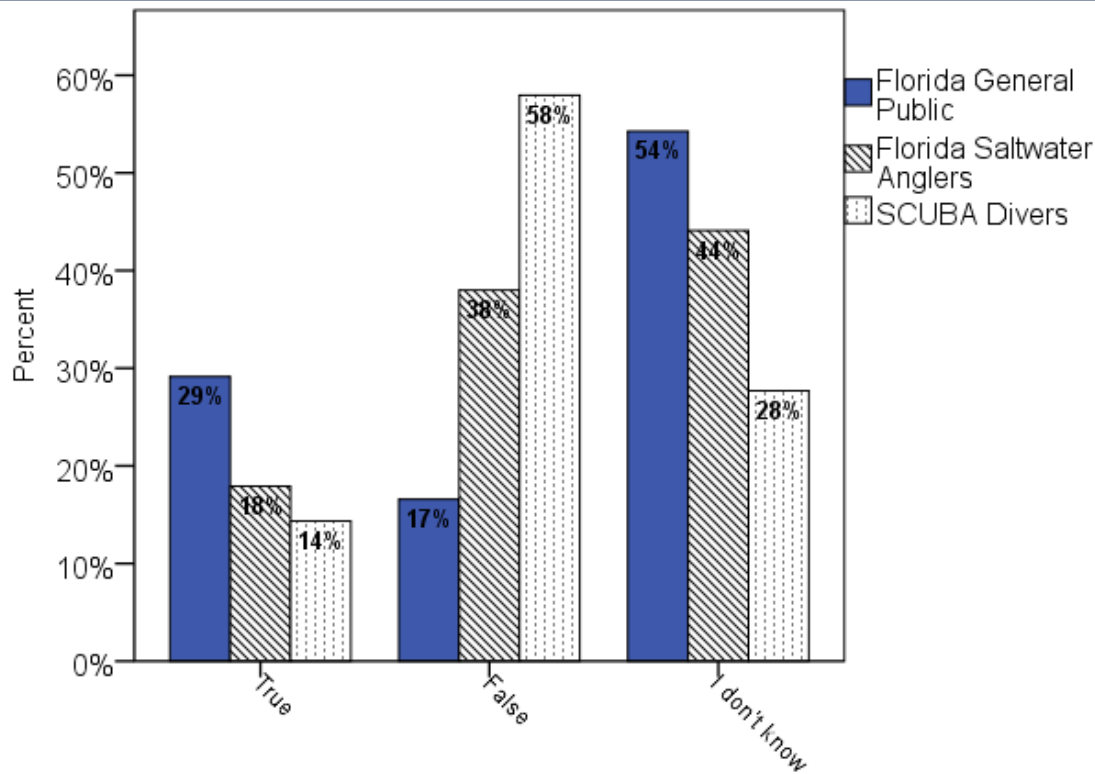


Figure 8. True or False? You must have a recreational fishing license to legally remove lionfish in Florida using a spear or handheld net.



# Pet Amnesty Events

**West Palm Beach**  
**10/4/14**

**101 animals**

- 31 mammals
- 25 turtles
- 16 birds
- 15 lizards
- 12 snakes

**Zoo Miami**  
**3/7/15**

**79 animals**

- 32 birds
- 22 turtles
- 10 mammals
- 8 snakes
- 7 lizards





- 18 months as FWC program
- 54 training workshops (47 Python Patrol, 7 Reptile ID)
- 800+ participants
- General public (as well as professionals)

# FWC Volunteer Projects

NEW South Region Volunteer Coordinator:

Ashley Taylor

[Ashley.Taylor@MyFWC.com](mailto:Ashley.Taylor@MyFWC.com)

(561) 882-52716

# Outreach Materials

## Field Identification of Select Native and Nonnative Reptiles in Florida



U.S. Army Corps  
of Engineers



Everglades Cooperative Invasive  
Species Management Area

- Minor revisions
- 3000 printed
- SFWMD and FWC funding

## Burmese python fast facts

- Can grow up to 20 feet in length.
- Average size removed in Florida: 8-10 feet. Longest: 18 feet 8 inches.
- Native to South Asia.
- In cool months, active during the day.
- In warm months, seen at night on roads.
- Females lay about 30-40 eggs per year.
- Can live past 20 years in captivity.
- Skin pattern provides effective camouflage in landscape, making snakes difficult to see in the wild.
- "Sit and wait" predators that prey on birds, mammals and reptiles.
- In Florida they can no longer be acquired as personal pets.
- Federal law prohibits transport across state lines or import into the country without a federal permit.



FWC officer Dave Weis with Burmese python caught off Alligator Alley. FWC photo by David Bingham.

## If you see a python:

The FWC does not recommend that you attempt to capture the animal!

1. Take a picture
2. Note the location
3. Report the sighting

In addition to Burmese pythons, the FWC would like reports of all nonnative species in Florida.

## How to report a sighting:

1. Call the Exotic Species Hotline  
888-Ive-Got1 (888-483-4681)
2. Report online  
[www.IveGot1.org](http://www.IveGot1.org)
3. Download the IVEGot1 app  
Free for smart phones and tablets



If you live near affected areas, you can make your yard less attractive to Burmese pythons by removing excess debris and maintaining landscaping.



Burmese pythons can hide in overgrown vegetation. Kevin Enge, FWC.

**It is illegal to release any animal into the wild that is not native to Florida!**

Follow us on:



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1/2015

# Burmese Pythons in Florida



Pat Lynch, SFWMD

Help Stop the Spread of an Invasive Snake



Florida Fish and Wildlife Conservation Commission

[MyFWC.com](http://MyFWC.com)



### Nile monitor fast facts

- Large, semi-aquatic lizard.
- Can grow over 5 feet in length.
- Native to Africa.
- Seen most frequently on canal banks.
- Have a rudder-like tail which can assist with swimming.
- Active during the day.
- Females lay an average of 20 eggs per year in their native range.
- Can live up to 20 years in captivity.
- Active foragers that prey on birds, mammals, amphibians, fish, reptiles, carrion, and eggs.
- In Florida they can no longer be acquired as personal pets.



### If you see a Nile monitor:

The FWC does not recommend that you attempt to capture Nile monitors.

1. Take a picture
2. Note the location
3. Report the sighting

In addition to Nile monitors, the FWC would like reports of all nonnative species in Florida.

### How to report a sighting:

1. Call the Exotic Species Hotline  
888-Ive-Got1 (888-483-4681)
2. Report online  
[www.IveGot1.org](http://www.IveGot1.org)
3. Download the IveGot1 app  
Free for smart phones and tablets

If you live near affected areas, you can make your yard less attractive to Nile monitors by removing excess debris and maintaining landscaping.



Nile monitors are hard to find in overgrown vegetation.

**It is illegal to release any animal into the wild that is not native to Florida!**

Follow us on:



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4/2015

# Nile Monitors in Florida



## Help Stop the Spread of an Invasive Lizard



Florida Fish and Wildlife Conservation Commission

[MyFWC.com](http://MyFWC.com)

## 4 CATEGORIES OF INVASIVE SPECIES MANAGEMENT

### Prevention

The most cost-effective way to reduce impacts of invasive species is to prevent them from establishing in the first place. Restricting the trade of nonnative species at both their points of origin and ports of entry prevents their introduction. Quantitative risk assessments and screening procedures can identify “risky” animal and plant species for which trade is restricted. Public involvement can help through programs such as Don’t Pack a Pest ([www.dontpackapest.com](http://www.dontpackapest.com)) and Exotic Pet Amnesty ([www.myfwc.com/nonnatives](http://www.myfwc.com/nonnatives)).

### Eradication

Complete removal of an invasive species may be possible if we detect it soon after its introduction and immediately take steps to eradicate it. Early detection and rapid response (EDRR) can be effective, yet it is more costly than prevention. EDRR is enhanced by ongoing regional monitoring, research into species’ life histories and impacts, and development of detection and removal tools. The public can help by learning how to detect and report invaders at [www.IveGot1.org](http://www.IveGot1.org) or 1-888-IVE-GOT1.

### Containment

If people do not take immediate action to stop them, invasive species reproduce and spread. Complete eradication becomes increasingly unlikely as species increase in number and populations become established, at which point the goal shifts to preventing the spread of a species. Intense efforts are necessary to contain the core population of a species and eradicate it from new areas. It is at this stage that the public typically becomes aware of the invasive species and the problems they present.

### Resource Protection and Long-Term Management

When an invader is too widespread and abundant to control everywhere it occurs, eradication becomes impossible. Long-term management aims to reduce populations to the lowest feasible levels and to protect specific highly valued resources. Community support can be critical to ensure success of long-term management programs.

## HOW YOU CAN HELP

Public involvement is needed at every stage of the *invasion curve*. You can:

- **PREVENT** further invasions by being a responsible pet owner. Do your research before buying exotic pets and remember, *Don’t Let It Loose!*
- Contact the Pet Amnesty hotline at 1-888-IVE-GOT1 to find a home for an unwanted exotic pet.
- Apply to be an exotic pet adopter at [www.myfwc.com/nonnatives](http://www.myfwc.com/nonnatives).
- Help with **ERADICATION** and **CONTAINMENT** by reporting invasive species at [www.IveGot1.org](http://www.IveGot1.org), 1-888-IVE-GOT1, or on the IveGot1 mobile apps.
- Remove invasive plants and animals from your yard and consider landscaping with native plants.
- Inspect boating and fishing equipment and remove any plants and animals before going out and coming home.
- Support **LONG-TERM MANAGEMENT** efforts by learning about laws and regulations and supporting organizations that manage invasive species.

### Authors

Rebecca G. Harvey and Frank J. Mazzotti  
Institute of Food and Agricultural Sciences  
IFAS Publication Number WEC-347  
December 2014

**UF** UNIVERSITY of  
**FLORIDA**  
<http://crocdoc.ifas.ufl.edu>



[www.EvergladesInvasives.org](http://www.EvergladesInvasives.org)

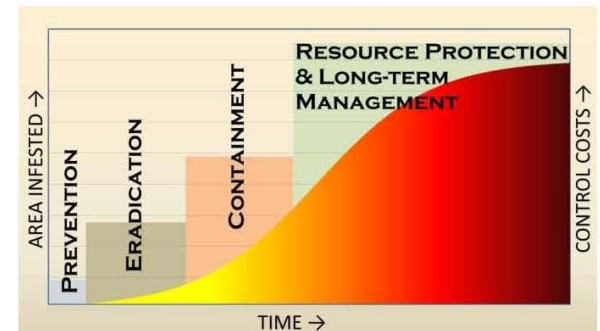
# The Invasion Curve

## A TOOL FOR UNDERSTANDING INVASIVE SPECIES MANAGEMENT IN SOUTH FLORIDA

*Nonnative, exotic, or alien* species are animals and plants living outside their native ranges as a result of human action. Some of these species become *invasive*, meaning they cause harm to the environment, to the economy, or to human health. South Florida has more than its share of invasive plants, reptiles, amphibians, fish, mammals, birds, and invertebrates.

Nonnative species often spread quickly. Research and monitoring can help managers anticipate which species will cause harm before it is too late to remove them. Identifying where a species is on the *invasion curve* is the first step to taking management action.

**THE INVASION CURVE** shows that eradication becomes less likely and control costs increase as an invasive species spreads over time. Prevention is the most cost-effective solution, followed by eradication. If a species is not detected and removed early, intense and long-term control efforts will be unavoidable.



The *invasion curve*. Adapted from *Invasive Plants and Animals Policy Framework*, State of Victoria, Department of Primary Industries, 2010.

# Examples of Species in Each Phase of the Invasion Curve

## PREVENTION:

### Puff Adder (*Bitis arietans*)

This venomous snake was identified as a potential invader because it is frequently imported and difficult to manage as a pet. If it establishes in Florida, this species poses danger to humans and the ecosystem. In Africa, puff adders are responsible for more snakebite deaths than any other species.



## ERADICATION:

### Giant African Land Snail (*Lissachatina fulica*)

The GALS is a voracious plant eater that threatens Florida agriculture. An emergency eradication program was initiated immediately after these snails were detected. Aggressive removal and treatment have proven successful at all known locations, indicating that eradication is possible.



## CONTAINMENT:

### Argentine Black & White Tegu (*Tupinambis merianae*)

Tegus have established populations in south Florida and are expanding to new areas. To stop the spread, managers are removing tegus, monitoring the populations, and educating the public about reporting tegus. These large lizards were introduced through the pet trade and are a threat to native wildlife.



## LONG-TERM MANAGEMENT:

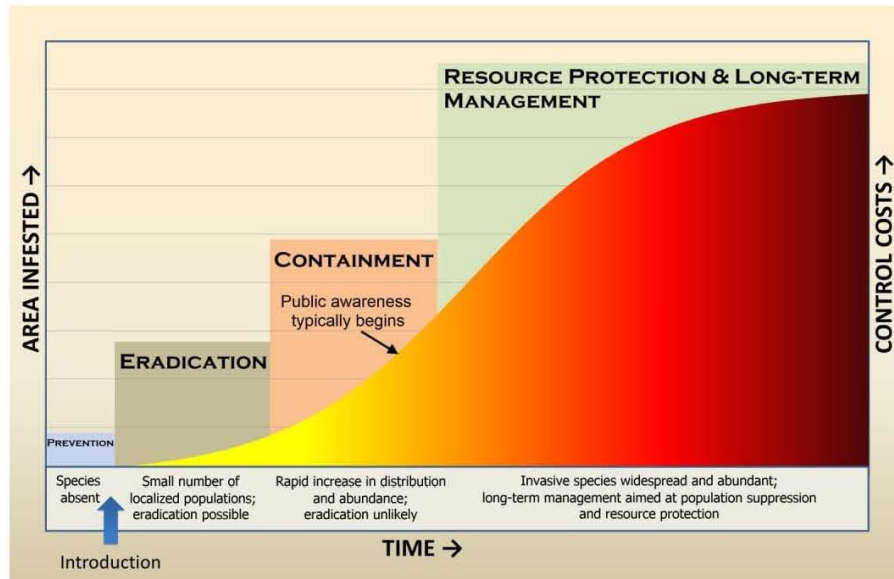
### Old World Climbing Fern (*Lygodium microphyllum*)

This invasive vine smothers trees and plants in swamps and other wet areas. It forms thick mats of dead plant material that increase fire risk. *Lygodium* is widespread in south and central Florida and cannot be eradicated. Management aims to suppress its growth through biocontrols and herbicides.



## Asian Longhorned Beetle (*Anoplophora glabripennis*)

The U.S. Department of Agriculture and Customs and Border Protection inspect imported agricultural products for insect "hitchhikers." The ALB is currently destroying forests in the northeastern United States. Preventing this high-risk species from entering Florida will save millions of dollars in management costs.



## Burmese Python (*Python molurus bivittatus*)

Burmese pythons eat a variety of prey including endangered species, and may be responsible for a severe decline of mammals in the Everglades. Despite considerable research and development of control methods, no effective management option currently exists to remove pythons year-round across the landscape.



# SOUTHWEST RANCHES NILE MONITOR SIGHTINGS

**We Need Your Help!**



Photo above: Nile Monitor (*Varanus niloticus*) spotted in SW Ranches (via EDDMaps)



## Monitor Facts

- . Invasive species from Africa
- . Greenish-yellow side stripes. Patterns can vary
- . 4-5 feet in length
- . Forked, black/blue tongue
- . Long sharp claws
- . Most likely to be seen along canal banks

Photo (left): Monitor caught in Pembroke Pines (via EddMaps)



Photo above: Patrick Lynch, South Florida Water Management District, 2009. Photo (right): Bill Bayless

# IF SPOTTED IN YOUR AREA

- . Take a picture
- . Note the location

## **PLEASE CONTACT:**

- . 1-888-I've-Got-1 (Invasive species hotline)
- . (954) 577-6362



**Thank you for your cooperation!**



I'VE-GOT-1 website

**UF**  
UNIVERSITY of  
FLORIDA



## Invasive Exotic Species Strategic Action Framework

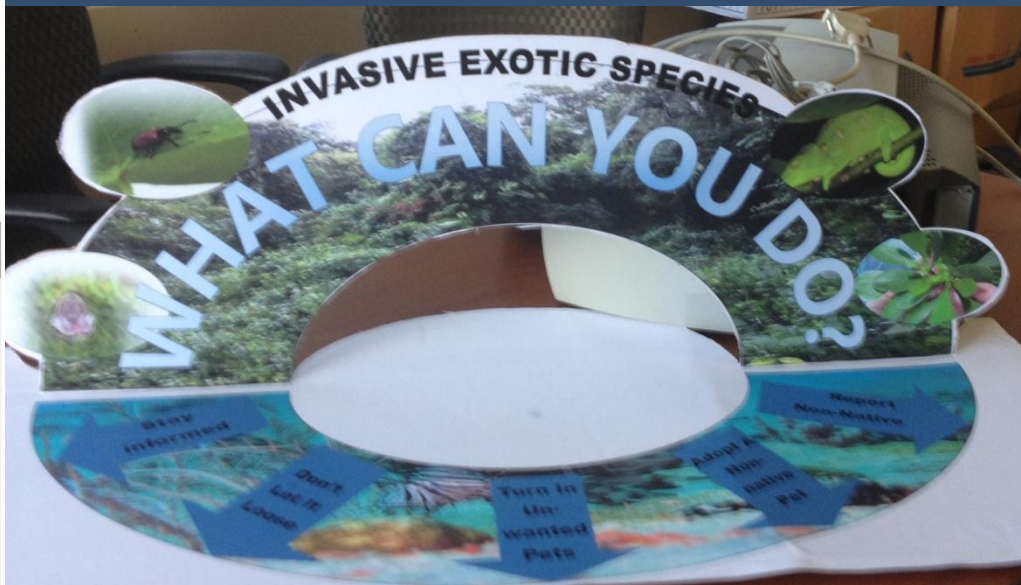
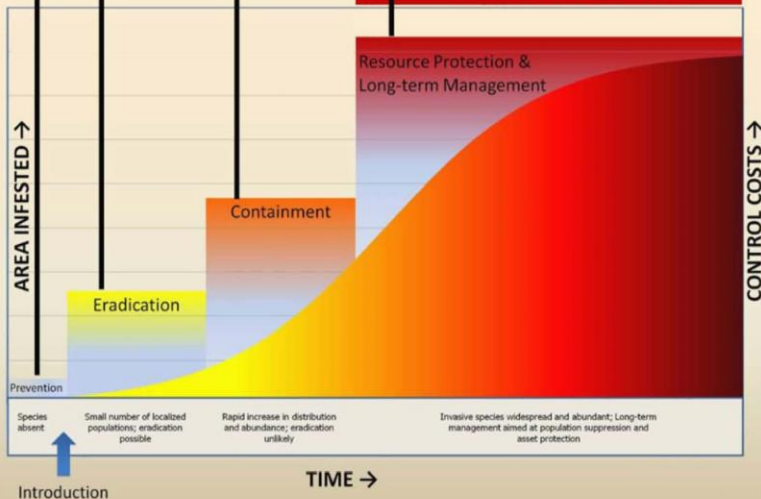
### THE INVASION CURVE AND STRATEGIC GOALS

**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.

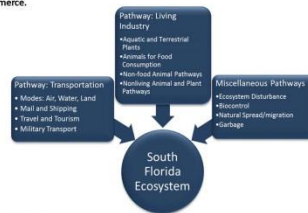


#### Goal 1: Prevent the Introduction of Invasive Exotic Species.

Preventing introductions of new invasive exotic species is the most cost effective strategy and can yield benefits provided funding and current barriers are addressed up front.

##### PREPARE & PRIORITIZE

A better understanding of pathways can lead to more robust and effective measures that prevent introductions before they produce significant economic and ecological damages, while simultaneously protecting safe commerce.



##### PREVENT

Preventing the introduction of potential harmful invasive exotic species will rely upon a cooperative and cohesive multi-jurisdictional approach.

Securing current and potential pathways will require:

- enhanced import screening and risk assessment tools,
- development of new voluntary and regulatory tools,
- and maximum utilization of existing voluntary and regulatory tools

Engaging the public, through such programs as Don't Pack a Pest, is also key to successful prevention.



#### Goal 2: Eradicate Invasive Exotic Species by Implementing Early Detection and Rapid Response (EDRR).

Successful early detection and rapid response (EDRR) of newly established invaders requires formal collaboration and dedicated staff and funding.

##### PREPARE & MONITOR

Preparation and monitoring are conducted in order to identify invasions as early as possible. Early detection requires effective communication between experts, responders, and the public. Employment of Science and technology for development of early detection tools, such as surveys, traps, and inspections are needed.



Source: US, Photo by Don Moran



##### Gambian Pouched Rats

Gambian pouched rats are large rodents native to Africa that are a vector for serious diseases, including monkey pox. Efforts to eradicate this species from the Florida Keys are being led by the Florida Fish and Wildlife Conservation Commission (FWC). Photo: FWC.

##### ASSESS

Once a new invader is detected, rapid assessment, including the status and potential threat of newly detected invasive exotic species populations, should occur so that the response priority can be determined.

##### Respond

All of the prior steps should enable a rapid response to identified threats. Eradication depends upon dedicated funding and an effective logistical framework in order to be able to quickly respond to threats.

Barriers, such as permitting issues and authorities for responders, must be identified and solutions found to ensure rapid response and increase our ability to eradicate the species.



Source: US, Photo by Louise Pezzer

# New Website Coming Soon!



## Everglades Cooperative Invasive Species Management Area

PROTECTING THE EVERGLADES FROM INVASIVE SPECIES

HOW YOU CAN HELP

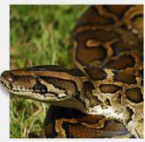
WHAT WE DO

THE DANGEROUS DOZEN

PUBLICATIONS & LINKS

INFORMATION FOR PARTNERS

### MEET THE EVERGLADES DIRTY DOZEN



**BURMESE PYTHON**  
*Python molurus bivittatus*



**OLD WORLD CLIMBING FERN**  
*Lygodium microphyllum*



**BLACK & WHITE TEGU**  
*Salvator merianae*

Have you spotted an invasive animal or plant in Florida? Please report all sightings to I'veGot1!



1-888-IVE-GOT1

[www.IveGot1.org](http://www.IveGot1.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

LIKE US ON FACEBOOK

RECENT EDMAPS REPORTS

[Knight snake](#)

spotted on June 6 by Orlando Hidalgo



## 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

## How You Can Help

The Everglades CISMA needs YOU to help control invasive plants and animals in south Florida. There are many ways to get involved.

### Don't Let It Loose!

Burmese pythons, tegu lizards, lionfish, and many other invasive animals were introduced to south Florida through the pet trade. You can help prevent more invasions by being a responsible pet owner. NEVER let an exotic pet loose into the wild.

- Do your research before buying an exotic pet. Make sure you understand how long it will live, how big it will get, what care it needs, and if it is a safe pet for your household. Read more in the [Buyer's Guide to Pet Reptiles](#).
- If you can no longer care for your exotic pet, surrender it at one of FWC's Exotic Pet Amnesty Day events. You will not be penalized and the animal will be placed in the care of a pre-approved adopter.
- Can't wait until the next Amnesty Day event? Call the Pet Amnesty hotline at 1-888-IVE-GOT1 and they will help find a home for your exotic pet.
- If you are an experienced exotic pet owner, you can provide a home for surrendered pets through FWC's Exotic Pet Amnesty Program. Adopters must apply and be approved before adopting an animal at an Exotic Pet Amnesty Day event.
- Learn about regulations and permitting requirements for certain exotic pets at FWC's [website](#).
- Never release aquarium fish or plants into Florida's water bodies.



## Report Invaders!

After an invasive species has been introduced, early detection and rapid response (EDRR) is the best tool we have to remove invaders before they cause problems. Public reports can help us detect new invaders and better understand the abundance and locations of established invasive species.

- Learn how to identify nonnative animals and plants so you can tell them apart from native Florida species. The Everglades CISMA offers many identification tools on our [Publications & Tools](#) page.
- Download the "I'veGot1" app for iPhone or Android so you can identify and report invaders wherever you go.
- Report invasive species by calling 1-888-IVE-GOT1 or online at [www.IveGot1.org](http://www.IveGot1.org)
- Take the [Introduced Reptile Early Detection and Documentation \(REDDy\)](#) online training course to learn how to recognize and report large, invasive reptiles.
- Join the Python Patrol! This training program teaches people how to identify Burmese pythons, capture them safely and humanely, and properly report the data to FWC. Visit [FWC's website](#) to find out about upcoming workshops.



## Remove Weeds!

Many invasive plants are popular landscape species that grow and spread aggressively. When they escape into natural areas, they can smother native plants, change wildlife habitats, and make fires more likely. Even in your own yard, these plants can crowd out other species and be very hard to remove once they establish themselves.

- Learn how to identify invasive plants and remove them from your yard. The Everglades CISMA offers many identification tools on our [Publications & Tools](#) page.
- Landscape with native plants. Not only are they unlikely to be invasive; they also require less water and care, and they often



# EVERGLADES CISMA

# Thank you!

## ECISMA Outreach Volunteers and Collaborators

Chuck Barger, Liz Barraco, Carrie Beeler, Robin Bijlani, Todd Campbell, Vanessa Campoverde, Colleen Closius, Hillary Cooley, James Paul Cuda, Andrew Derksen, Jane Dozier, Jenny Ketterlin Eckles, Jake Edwards, Mark Fagan, Meaghan Faletti, John Galvez, Kelly Gestring, Dennis Giardina, Rose Godfrey, Cynthia Guerra, Pat Howell, John Humphrey, Tom Jackson, Steve Johnson, Stuart Krantz, Ellen Lake, Jon Lane, Sarah Martin, Christen Mason, Tiffany Melvin, Erin Myers, Amanda Nalley, Jenny Novak, Tony Pernas, Meg Raabe, Mike Rochford, LeRoy Rodgers, Christina Romagosa, Mike Roman, Min Rayamajhi, Kristina Serbesoff-King, Kristen Sommers, Melissa Smith, Ryan Steele, Ashley Taylor, Sonya Thompson, Adam Wallner, Sara Williams, Gintas Zavadzkas

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