



# SOUTH FLORIDA ECOSYSTEM RESTORATION TASK FORCE



LEADERSHIP • PARTNERSHIP • RESULTS

## INVASIVE EXOTIC SPECIES STRATEGIC ACTION FRAMEWORK UPDATE

09/17/2020

Allyn Childress and Carrie Beeler, OERI

[EVERGLADESRESTORATION.GOV](http://EVERGLADESRESTORATION.GOV)

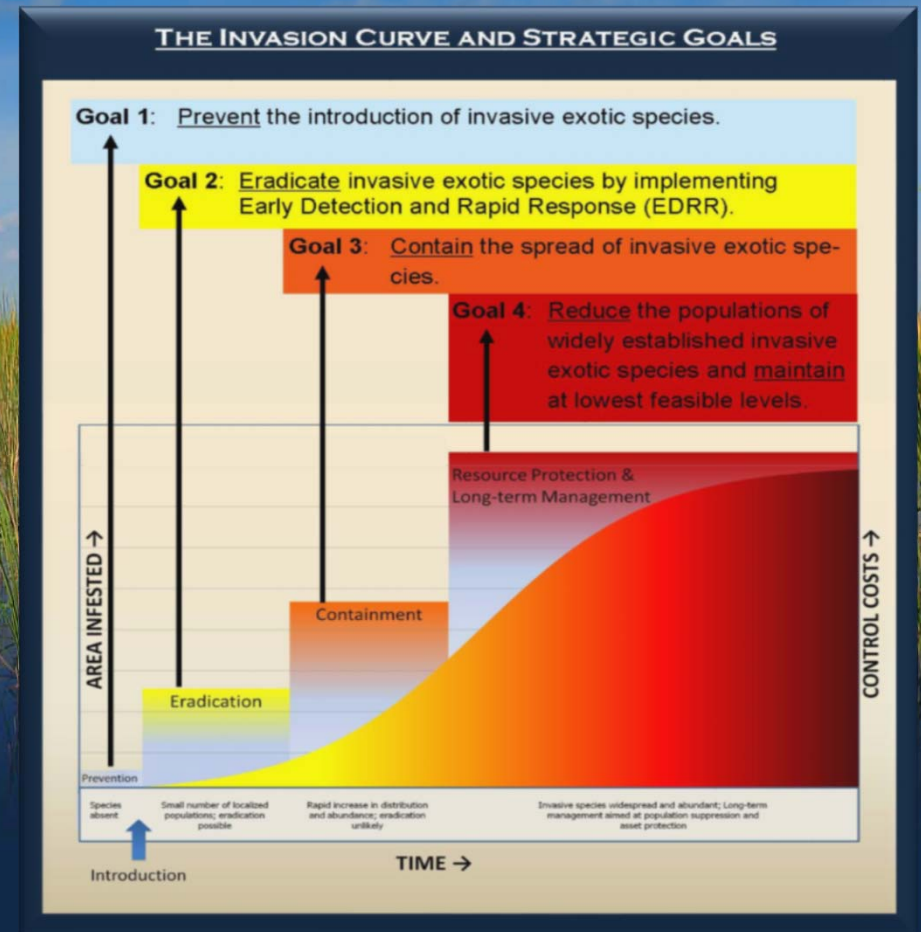
# Working Group/Science Coordination Group (WG/SCG) Priorities

- The updated 2020 Invasive Exotics Species Strategic Action Framework (Framework) is the culmination of a priority discussion that first took place with the WG/SCG at their November 28, 2018 meeting.
- A facilitated brainstorming session on WG/SCG priorities at that meeting recommended updating the Framework.
- The results were subsequently assessed by the Chairs, Vice Chairs, and the Office of Everglades Restoration Initiatives (OERI).
- The Task Force concurred at their April 26, 2019 meeting so OERI kicked off the IES Framework update process later that year.

# Invasive Exotic Species Strategic Action Framework – 2020

Five components:

1. Core Framework document with goals based on the 4 phases of the Invasion Curve
2. Case Studies for each goal/phase
3. Priority Strategies
4. Progress Report (2015-2020)
5. IES “Snapshot” Budget (FY2019)



SOUTH FLORIDA ECOSYSTEM RESTORATION TASK FORCE  
WWW.EVERGLADESRESTORATION.GOV

## INVASIVE EXOTIC SPECIES STRATEGIC ACTION FRAMEWORK

**2020**

**Vision:** The South Florida Ecosystem, including America's Everglades, its environmental, economic, and cultural values and human health, is protected from the harmful effects of invasive exotic species.



# 1) Framework Document

- No changes to the Goals, Objectives, or Strategies.
- Updated Executive Summary.
- New highlighted information (textboxes).
- Updated rules, regulations, and statistics, where applicable.

# 2) IES Case Studies

- **Goal 1 (Prevention)**
  - Risk Screenings & Assessments
  - Exotic Pet Amnesty Program
- **Goal 2 (Eradication/EDRR)**
  - Exotic Species Hotline
  - New World Screwworm Fly
  - *Lumnitzera* (invasive mangrove)

**South Florida Ecosystem Restoration Task Force**  
 Invasive Exotic Species Strategic Action Framework  
*EDRR Case Study: Lumnitzera*

**South Florida Ecosystem Restoration Task Force**  
 Invasive Exotic Species Strategic Action Framework  
*Prevention Case Study: Exotic Pet Amnesty Program*

**Exotic Pets: Pathway for Invasive Species**

The Florida Fish and Wildlife Conservation Commission's (FWC) **Exotic Pet Amnesty Program (EPAP)** is an innovative effort that provides exotic pet owners with an opportunity to surrender or re-home their exotic pet. Exotic pets are not native to Florida and are a primary introduction pathway for invasive wildlife in the state. It is illegal to release nonnative wildlife in Florida. Released or escaped exotic pets can present a threat to Florida's native wildlife. The goal of the amnesty program is to reduce the number of nonnative species released into the wild by pet owners by providing a convenient, legal alternative. The program also provides education and outreach regarding responsible pet ownership and exotic species in Florida.

**Preventing the Release of Exotic Pets**

The EPAP was created in 2006 and codified into law in 2008 (Chapter 68-5, F.A.C.). Through EPAP, pet owners can surrender their unwanted exotic pets, whether kept legally or illegally, without penalty or cost. The FWC also facilitates rehoming these pets with prequalified adopters. To date, over 6,100 exotic pets have been surrendered to the state through this innovative program.

People who can no longer care for their exotic pets are able to surrender these animals, including Conditional species that can no longer be acquired for personal possession in Florida, to the FWC at **Exotic Pet Amnesty Days** held throughout the state. Typically, 3-5 events are held each year. Surrendered pets are given an exam by a veterinarian and healthy animals are made available for adoption to FWC's pre-approved adopters on the same day. Conditional species can be adopted by permitted recipients only. EPAP currently has over 700 active adopters.

Exotic pet owners who cannot attend an Exotic Pet Amnesty Day can contact the FWC's **Exotic Species Hotline** at **888-ive-Got1 (888-483-4681)** for year-round assistance in finding their animal a new home.

**South Florida Ecosystem Restoration Task Force**  
 Invasive Exotic Species Strategic Action Framework  
*EDRR Case Study: Lumnitzera*

The mangrove tree *Lumnitzera* (*Lumnitzera racemosa*) is one of the most aggressive and rapidly spreading nonnative species in Florida. It is a highly invasive species that has spread throughout the state and is causing significant damage to native mangrove ecosystems. Efforts to control its spread are ongoing, and the FWC is working with partners to manage this species.

**Innovation Yields Success**

Florida is the first state to have an established amnesty program to provide options for owners of exotic species. The framework of this program has served as a resource for other states and nations, such as Georgia, Ohio, Arizona, and Australia, working to build similar programs.

There has been continued success with FWC's EPAP. From 2006-2014, FWC held 30 events with over 2,300 exotic pets surrendered. As efforts ramped up since 2015, FWC hosted an additional 19 events with over 3,700 additional exotic pets surrendered. This total since 2006 includes over 430 Conditional animals (species that may only be imported and possessed for research purposes, commercial use, or public exhibition, not as personal pets) that were not released into the wild.



For more information:  
 MyFWC.com/nonnatives  
 888-ive-Got1 (888-483-4681)

PREVENTION

EDRR

CONTAINMENT

LONG TERM MANAGEMENT

# 2) IES Case Studies

## South Florida Ecosystem Restoration Task Force Invasive Exotic Species Strategic Action Framework Containment Case Study: Argentine Black and White Tegu

The Argentine black and white tegu is a large lizard native to South America and popular in the pet trade, and several invasive populations are now established in the southeastern USA, including in southern Miami-Dade County. In their native range, tegus are habitat generalists and eat a wide variety of fruits, insects, small vertebrates, and specialize in eating the eggs of ground-nesting animals. Their high reproductive capacity, lack of potential predators, and adaptability to a wide variety of resources and environmental conditions make them a threat to Florida's wildlife and environment. From their current location in Miami-Dade County, tegus are dispersing west towards the sensitive habitats in Everglades National Park (ENP), south toward the Florida Keys, east towards Biscayne National Park and American crocodile nesting habitat at Florida Power and Light's Turkey Point power plant, and north into residential and agricultural areas. Since they are already widely established, the goal is to contain them to their current range and decrease the population size.

### Case Presentation

A population of tegus was discovered in Florida City, a town just east of ENP, in 2008 by members of the Everglades Cooperative Invasive Species Management Area (ECISMA), an inter-agency group dedicated to cross-jurisdictional collaboration on invasive species management efforts. The following year, more investigation and limited trapping efforts confirmed that the tegus were breeding. There was no dedicated staff from any agency to initiate a rapid assessment and response effort at that time. The National Park Service (NPS) and Florida Fish and Wildlife Conservation Commission (FWC) were able to hire one trapper and redirect limited staff resources to develop trapping methods and track five telemetered tegus, including one female that led to the discovery of the first tegu nest in Florida. The stomach contents of tegus were analyzed to determine diet. During subsequent years, volunteer trapping efforts by more ECISMA partners enabled the continued assessment of tegus but did not appear to limit the expansion of the tegu population.

There was no dedicated funding for trapping efforts until 2011. Private trappers have also become involved with trapping tegus, and many of their captured tegus are re-sold into the pet trade. The exact number of tegus removed by private trappers and their ultimate fate is not available; nonetheless, the general number given by at least one trapper is that hundreds of individuals have been taken out of the wild and placed back into the pet trade. No permit is required to possess pet tegus in Florida at this time. People selling nonnative wildlife must have a valid License to Possess Class III Wildlife for Exhibition or Public Sale from FWC that authorizes the sale of Class III reptiles. Any sales to out-of-state entities must be conducted in compliance with any applicable federal or state rules.

From the first reports of tegus in 2008 in Florida City through 2019, the tegu population has continued to

### The Tegu Curtain

The Argentine black and white tegu is a large, invasive lizard native to South America that has become established in southern Miami-Dade County. The goal is to protect sensitive habitats, including nearby national parks and crocodile nesting areas, by containing them within their current range and decreasing the population size.



Photo: Dennis Giardina.

## System Restoration Task Force Strategic Action Framework

### Case Study: Lionfish

es native d breed- first ob- i species ited the S. coast threat to e of in- all coral jeopole- tner col- ful man-

### Management Strategies

Removal studies have shown that regular, targeted removals of lionfish are successful. Fortunately, while having venom in their spine, lionfish are not poisonous to eat, providing another avenue for removal. Current management strategies include strengthening (and easing some) regulations, targeted removal, and public engagement.

### Prevention Through Regulation

- Strengthening regulations on importation and breeding. In 2014, the Florida Fish and Wildlife Conservation Commission (FWC) prohibited the importation of live lionfish into Florida, the intentional breeding of lionfish in captivity in Florida, and the

esent the elf in the lionfish sn't until d in the tablished ie: estab- ezuela to i been as as Brazil, range of ay result Lionfish waters of land ca- rিকা Bay

threat to omic ingical ingical ing for dy. Sex- ually mature within one year, lionfish can spawn as often as every four days, year-round, with a larval sac that floats on the currents and can survive approximately one

### An Invasion Below

Since first observed in the 1980s, two predatory species of lionfish have populated the Caribbean, Gulf of Mexico, the Southeastern US coastline, and the Bermuda coastline.



Photo: Cory Walter, Mote Marine Laboratory.

- Goal 3 (Containment)
  - Argentine Black and White Tegu
- Goal 4 (Long-term Management)
  - Burmese Python
  - Lionfish
  - Long-term Invasive Plant Management

PREVENTION EDRR CONTAINMENT LONG-TERM MANAGEMENT

PREVENTION EDRR CONTAINMENT LONG-TERM MANAGEMENT

## 3) IES Priority Strategies

- The IES Framework identifies 31 strategies (all important) to meet the four overarching goals.
- Earlier this year, the IES team of experts and the WG/SCG participated in a priority ranking based upon the Framework's strategies.
- Priorities for the next 5 years build upon the progress made to date and include expanding many programs and tools that were implemented priorities identified in the 2015 effort.
- While the 2015 priorities focused on Goal 2 (Eradication through Early Detection/Rapid Response or EDRR), in 2020 there is an increased focus on prevention tool development and prevention capacity building (Goal 1).

# 3) IES Priority Strategies

Goal 1 Priority Strategies (Prevention)	Needs/Gaps
Strategy 1A1: Identify pathways and prioritize potential threats and invasive exotic species.	<ul style="list-style-type: none"> <li>• Improved horizon scanning for emerging species in trade.</li> <li>• Improved coordination between state/federal prevention programs.</li> </ul>
Strategy 1A2: Engage stakeholders and the public to support prevention efforts.	<ul style="list-style-type: none"> <li>• Initiate new and increase existing efforts such as the “Don’t Pack a Pest” program for a greater presence at ports of entry and in social media.</li> </ul>
Strategy 1B1: Enhance and improve the pathway inspection/screening process.	<ul style="list-style-type: none"> <li>• Expand detector dog/staff programs and other tools at ports of entry.</li> </ul>
Goal 2 Priority Strategies (Eradication/EDRR)	Needs/Gaps
Strategy 2A1: Implement a systematic, prioritized, multi-species monitoring and inventory plan.	<ul style="list-style-type: none"> <li>• Enhance monitoring efforts outside of the Everglades Cooperative Invasive Species Management Area (ECISMA) footprint to include all areas within the South Florida Ecosystem.</li> </ul>
Strategy 2A4: Engage the public and provide exotic species reporting mechanisms.	<ul style="list-style-type: none"> <li>• Enhance staff/resources to enable full coverage of the 888-Ive-Got1 hotline and enhance ability to respond to calls.</li> </ul>
Strategy 2A5: Establish rapid assessment and response programs/processes/cooperatives/tools that allow for nimble attempts at eradication.	<ul style="list-style-type: none"> <li>• Enhance coordination of rapid response reports, particularly when involving federally protected species.</li> </ul>
Strategy 2B1: Rapidly assess the status and potential threat of newly detected incipient invasive exotic species populations and develop a response/no response plan.	<ul style="list-style-type: none"> <li>• Continue refinement of existing tools.</li> </ul>



# 3) IES Priority Strategies

Goal 3 Priority Strategies (Containment)	Needs/Gaps
Strategy 3A2: Implement control efforts at containment boundaries and known pathways.	<ul style="list-style-type: none"> <li>• Expand existing efforts at containment boundaries.</li> <li>• Establish comprehensive monitoring programs to prevent spread of species beyond boundaries.</li> </ul>
Strategy 3A5: Enforce existing laws regarding transporting and releasing exotic species to prevent spread.	<ul style="list-style-type: none"> <li>• Increase resources to enhance enforcement capabilities.</li> <li>• Increase penalties for transport and release of invasive exotic species.</li> </ul>
Goal 4 Priority Strategies (Long-term Management/Resource Protection)	Needs/Gaps
Strategy 4C3: Develop and improve tools to assist in the long-term control of invasive exotic species.	<ul style="list-style-type: none"> <li>• Establish long-term and consistent funding for the management of invasive species.</li> <li>• Enhance research capabilities through grants/contracts.</li> <li>• Maintain toolbox for invasive plants (e.g., concerns regarding glyphosate restrictions/substitutions).</li> <li>• Increase aquatic weed biocontrol research.</li> <li>• Enhance toolbox for invasive animals (ex. Burmese python detection tools).</li> </ul>

## 4) Progress & Accomplishments, 2015-2020

**Divided by 4 Goals and then by five general categories:**

Tool Development, Changes to Policy or Laws, Capacity Building and Outreach, Coordination Improvements, and Research.

- Rule-making and policy changes have made a big impact on how we prevent and manage invasive exotic species.
- Additional EDRR tools, programs, and creative capacity building have increased the number of individuals looking for newly introduced species.



**Nile Crocodile Removed through an Inter-agency and FAU Coordinated Effort**

## 4) Progress & Accomplishments, 2015-2020

- Research is key in identifying ways to manage and where to manage.
- Coordination efforts are routine and integrated throughout the landscape at many levels and have been a central component to success.
- Great strides in managing several species previously considered somewhat “hopeless” for management actions, such as pythons and lionfish.



## 4) Progress & Accomplishments, 2015-2020

“Collective and collaborative efforts, along with leadership support and sustained predictable resources, make the difference in protecting natural resources from the harmful impacts of invasive exotic species.”

## 5) IES “Snapshot” Budget

- The Snapshot Budget is a look back at a single year of funding and separated spending by agency in each of the 4 goal areas.
- Research and outreach were broken out to highlight the differences in spending from operational work.
- Both Federal (Oct 1, 2018-September 30, 2019) and State (July 1, 2018-June 30, 2019) fiscal years are included.
- Contributing agencies: USACE, USGS, NPS, USFWS, FDACS, FDEP, FWC, SFWMD, PBC, and MDC.

# 5) IES “Snapshot” Budget

- Priorities from 2015 are reflected in this Snapshot Budget
- Both plants and animals spending saw an increase:
  - Animals \$20,062,576
  - Plants \$54,868,998
- Research and outreach dollars have increased
- Prevention and EDRR spending has increased

**Invasive Exotic Animals – DRAFT**

	USACE	USGS	NPS	USFWS	FDACS	FDEP	FWC	SFWMMD	Palm Beach County	Miami-Dade County	Total
Prevention	\$0	\$0	\$0	\$48,750	\$2,223,000	\$0	\$146,537	\$0	\$0	\$0	\$2,418,287
Research	\$0	\$0	\$0	\$0	\$2,360,565	\$0	\$97,595	\$0	\$0	\$0	\$2,458,160
Outreach & Ed	\$0	\$0	\$0	\$10,000	\$173,880	\$500	\$74,451	\$0	\$0	\$0	\$258,831
<b>Prevention Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$58,750</b>	<b>\$4,757,445</b>	<b>\$500</b>	<b>\$318,583</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$5,135,278</b>
Eradication	\$5,000	\$0	\$0	\$108,000	\$1,223,885	\$50	\$253,835	\$0	\$550	\$0	\$1,591,320
Research	\$0	\$630,843	\$20,000	\$0	\$81,601	\$0	\$94,580	\$12,876	\$0	\$0	\$839,900
Outreach & Ed	\$0	\$0	\$0	\$0	\$250,000	\$0	\$850	\$1,001	\$0	\$0	\$251,851
<b>Eradication Total</b>	<b>\$5,000</b>	<b>\$630,843</b>	<b>\$20,000</b>	<b>\$108,000</b>	<b>\$1,555,486</b>	<b>\$50</b>	<b>\$349,265</b>	<b>\$13,877</b>	<b>\$550</b>	<b>\$0</b>	<b>\$2,683,071</b>

**Invasive Exotic Plants – DRAFT**

	USACE	USGS	NPS	USFWS	FDACS	FDEP	FWC	SFWMMD	Palm Beach County	Miami-Dade County	Total
Prevention	\$0	\$0	\$0	\$7,000	\$0	\$0	\$0	\$0	\$0	\$0	\$7,000
Research	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Outreach & Ed	\$23,329	\$0	\$0	\$0	\$200,000	\$1,000	\$176,513	\$0	\$0	\$0	\$400,842
<b>Prevention Total</b>	<b>\$23,329</b>	<b>\$0</b>	<b>\$0</b>	<b>\$7,000</b>	<b>\$200,000</b>	<b>\$1,000</b>	<b>\$176,513</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$407,842</b>
Eradication	\$0	\$0	\$9,816	\$17,000	\$0	\$0	\$0	\$105,124	\$42,227	\$0	\$174,167
Research	\$0	\$93,292	\$0	\$0	\$0	\$0	\$33,956	\$0	\$0	\$0	\$127,248
Outreach & Ed	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$15,088	\$0	\$0	\$15,088
<b>Eradication Total</b>	<b>\$0</b>	<b>\$93,292</b>	<b>\$9,816</b>	<b>\$17,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$33,956</b>	<b>\$120,212</b>	<b>\$42,227</b>	<b>\$0</b>	<b>\$316,503</b>
Containment	\$0	\$0	\$0	\$90,340	\$0	\$0	\$0	\$99,157	\$0	\$0	\$189,497
Research	\$0	\$93,292	\$0	\$0	\$0	\$0	\$135,873	\$0	\$0	\$0	\$229,165
Outreach & Ed	\$0	\$0	\$0	\$0	\$0	\$0	\$49,500	\$22,632	\$0	\$0	\$72,132
<b>Containment Total</b>	<b>\$0</b>	<b>\$93,292</b>	<b>\$0</b>	<b>\$90,340</b>	<b>\$0</b>	<b>\$0</b>	<b>\$185,373</b>	<b>\$121,789</b>	<b>\$0</b>	<b>\$0</b>	<b>\$490,794</b>
Long-term Mgt.	\$2,711,136	\$0	\$1,424,347	\$3,416,583	\$0	\$12,000	\$19,622,955	\$18,150,751	\$4,181,511	\$2,425,071	\$51,944,354
Research	\$17,836	\$93,292	\$0	\$0	\$200,000	\$0	\$742,193	\$370,000	\$0	\$81,780	\$1,505,101
Outreach & Ed	\$0	\$0	\$0	\$0	\$19,894	\$0	\$73,564	\$30,177	\$0	\$80,769	\$204,404
<b>Long-term Mgt. Total</b>	<b>\$2,728,972</b>	<b>\$93,292</b>	<b>\$1,424,347</b>	<b>\$3,416,583</b>	<b>\$219,894</b>	<b>\$12,000</b>	<b>\$20,438,712</b>	<b>\$18,550,928</b>	<b>\$4,181,511</b>	<b>\$2,587,620</b>	<b>\$53,653,859</b>
<b>TOTAL</b>	<b>\$2,752,301</b>	<b>\$279,876</b>	<b>\$1,434,163</b>	<b>\$3,530,923</b>	<b>\$419,894</b>	<b>\$13,000</b>	<b>\$20,834,554</b>	<b>\$18,792,929</b>	<b>\$4,223,738</b>	<b>\$2,587,620</b>	<b>\$54,868,998</b>

# Next Steps

- Final Draft will be presented to the Task Force at their October 22, 2020 meeting.
- The 2020 Framework and associated materials will be available at:

[EvergladesRestoration.gov](https://EvergladesRestoration.gov)



**Thank You**