

Nonnative Fish and Wildlife Update



Staff Update: Item 4A
December 5, 2017



Florida Fish and Wildlife Conservation Commission

Version 1

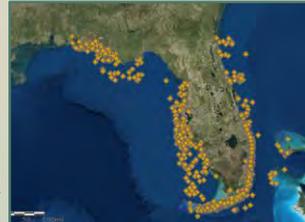
Division: Habitat and Species Conservation
Authors: Kristen Penney Sommers
Contact Phone Number: (850) 488-3831
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Nonnative Fish and Wildlife



FWC 1924 - Present

- Over 500 nonnative fish and wildlife species have been observed in Florida
- At least 150 species are reproducing
- Over 55,000 observations (not lionfish)
- Over 430,000 lionfish removed from around Florida

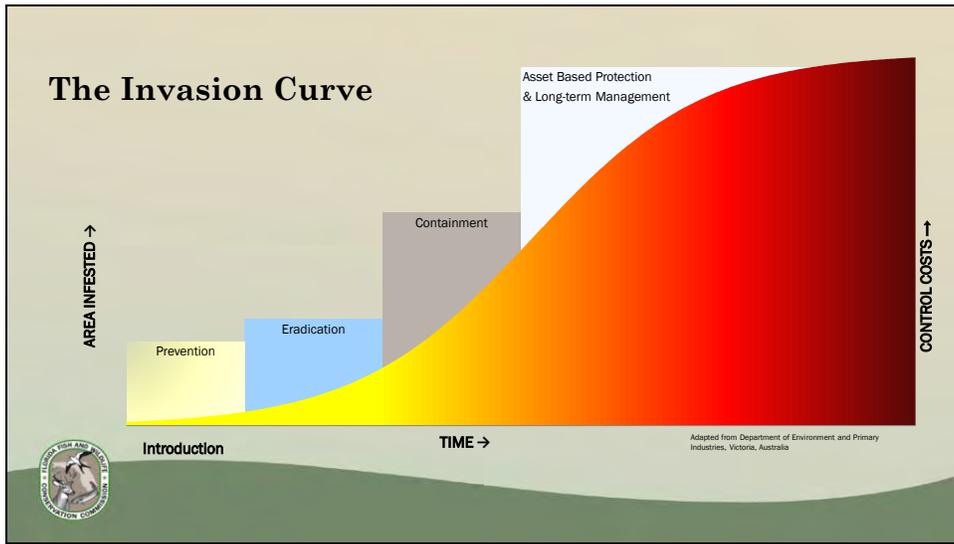


Lionfish reports in the USGS
Nonindigenous Aquatic Species
Database 1985-Present

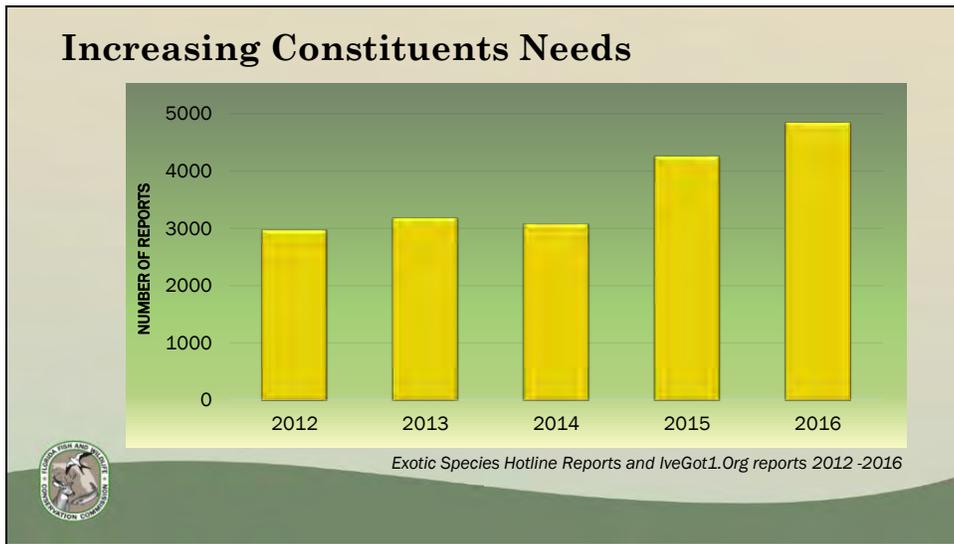


Invasive species are considered species that may be harmful to native wildlife, human health and safety or the economy. Over 55,000 observations of nonnative fish and wildlife representing 500 species have been reported in Florida, and we estimate more than 150 species have reproducing populations. Despite it being illegal to release any animal not native to Florida, it is believed that most of these observations represent single individuals that may have been released or escaped from captivity.

Although this number seems high, not all observed nonnative species result in established reproducing populations. Of those species that do become established, few of these are considered invasive. Although invasive species are not a problem unique to Florida, Florida's subtropical climate has been conducive to the expansion of many exotic species including pythons, Argentine black and white tegus, green iguanas, monitor lizards, and many freshwater fish species. The marine environment also represents its own challenges. Over 430,000 lionfish have been removed from coastal Florida waters, as documented by FWC staff since the beginning of the FWC Lionfish Program in 2014 through 2017.



As a reminder, this is what we refer to as the invasion curve. Our agency is charged with determining which of the nonnative fish and wildlife species may become established and cause a problem. As more area becomes infested, it is less likely the species will be eradicated and costs of management go up. Preventing the release and establishment of nonnative wildlife is the key.



Over the course of the last 5 years, reports of nonnative fish and wildlife have increased dramatically. The increase in constituents' needs has required FWC to be more aggressive at addressing the impacts invasive species pose.

Addressing Impacts of Invasive Species

- Conflict Wildlife Strategic Initiative
- Realigning resources
- Increased dedicated staff
- Increased budget
- Prioritize species by risk level

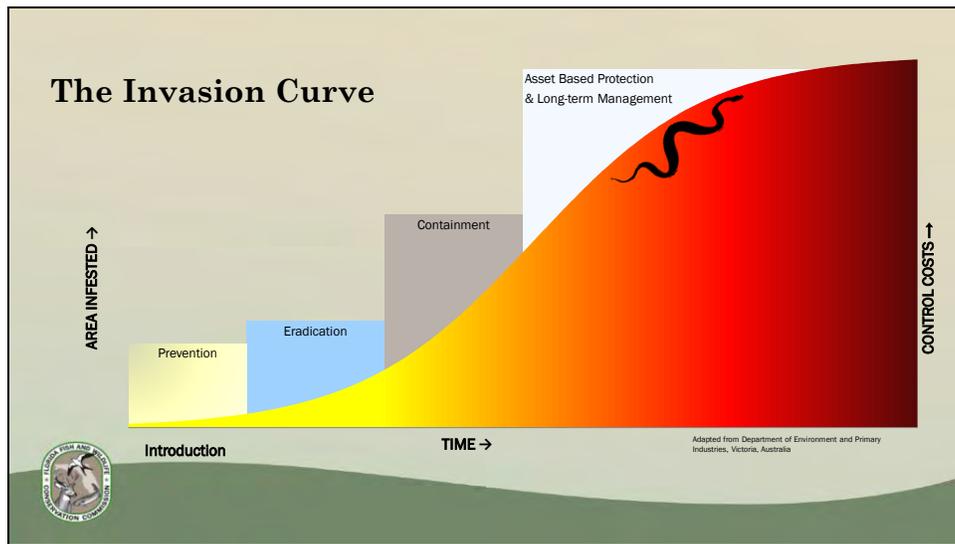


To address the impacts of invasive species, we have realigned resources and developed programmatic approaches to identify priority species. Three of our current high priority species are Burmese pythons, lionfish and Argentine black and white tegus.

Burmese Pythons



Burmese pythons have been firmly established in south Florida for some time. Concerns about pythons have revolved around the impacts to native wildlife and the perceived human safety threat when encountering a large snake.



One of the greatest challenges with removing pythons from Florida continues to be low detection probability in natural habitat. Despite concerted efforts by FWC and our partners to remove pythons when encountered and incentivizing removal efforts, Burmese pythons are in the asset-based protection and long-term management portion of this graphic.

Burmese Pythons- Program Highlights

- 2013 and 2016 Python Challenge™
- New Python Contractor Program
- New Incentive Program: Python Pickup
- Python Patrol Program
- Innovative Research Support
- Public Workshops on Python Management
- Partner Collaboration
 - Support SFWMD on Python Elimination Program
 - Everglades National Park Interagency collaboration



Over 5,000 Pythons have been removed from Florida

The FWC has taken the lead in developing programs to control the Burmese python and prevent its spread. In the last year, with new resources we have developed several new programs. The FWC launched a program in April designed to contract individuals with experience removing Burmese pythons from the Florida Everglades. The intent of the Python Removal Contractor Program is to expand efforts to remove Burmese pythons while compensating the contractor monetarily. The Python Pickup Program was also developed to incentivize python removal by members of the public. In November, FWC in partnership with Everglades National Park held a series of 7 workshops to gather public input on python management. This is our first step in developing an interagency python management and control plan.

Piloting Innovative Techniques



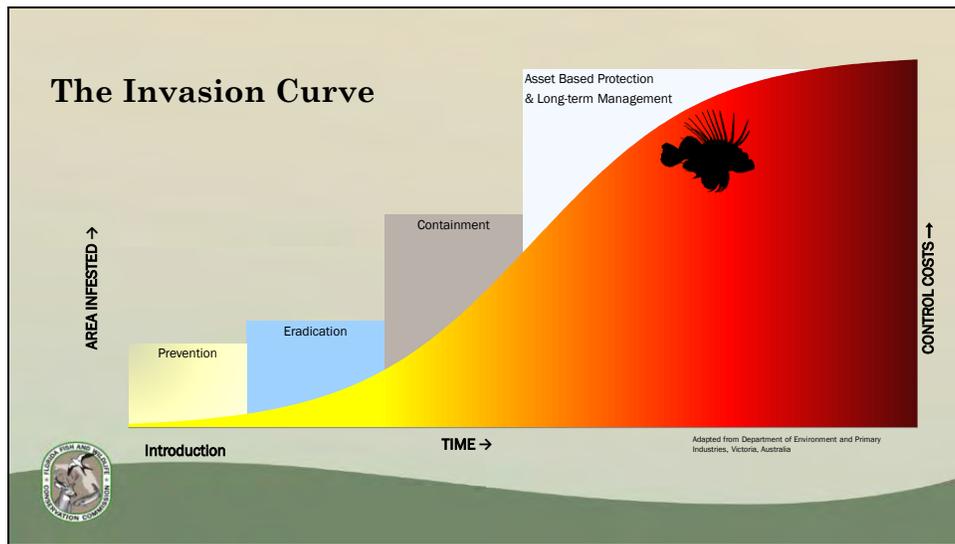
In cooperation with University of Florida and Auburn University, a detector dog program was conducted earlier this year in south Florida. Two teams of dogs were trained to locate scent trails of pythons in the wild, thus assisting human searchers by identifying areas to target search and removal efforts. Field training testing of this technique ended in the spring, helping staff and partners to identify additional search areas.

The Irula tribe from India, known as some of the world's best snake catchers, were also brought to the US through a contract between FWC and the University of South Florida. The intent of this project was to see if there were skills that could be passed onto our snake experts to help us collectively become more effective at finding and removing pythons from the wild.

Lionfish



The lionfish, *Pterois miles* and *P. volitans*, are native to the Indo-Pacific region. First reported off of southeast Florida in 1985, they are believed to have been introduced from an aquarium release. The subsequent expansion of this invasive species includes the Caribbean, much of the southeastern US and Gulf of Mexico, and as far north as the northern Atlantic states.



Like pythons, lionfish are firmly in the long-term management and asset based protection area of this curve. With a high reproductive output and an absence of natural control measures in their invaded range, diver removal by spearfishing is currently the most effective method for control. FWC has eliminated many regulatory barriers to encourage lionfish removals and help prevent further introductions.

Lionfish Accomplishments: FWC Leading the Way

- Leads coordination and management
- Focused on three key areas
 1. Encourage and incentivize removal efforts
 2. Increase public awareness
 3. Promote consumption and commercial market




FWC leads coordination and management in order to minimize adverse environmental, social, economic, and human health and safety impacts from invasive lionfish. With dedicated resources starting in FY 2014/15, FWC initiated the Lionfish Outreach Program to raise awareness about the impacts of invasive lionfish in Florida waters, encourage diver involvement in localized control efforts, and promote the consumption and commercial market of lionfish. The program has several components to address the three key areas listed here including a traveling outreach booth, workshops and presentations, school programs, social media presence, incentive based removal programs, tournament assistance, and an active diving team.

Lionfish Program Highlights

- Maintain statewide control plan and strategic initiatives
- Support of lionfish tournaments and festivals
- Hosting workshops, removal excursions, and attending events
- “Lionfish: Classroom Invasion”
- Lionfish Removal & Awareness Day
- Reef Rangers Program and Facebook Page
- Lionfish Challenge removal incentive program
- Innovative technology research support
- Collaboration with other states



Outreach and education programs are a key component of increasing awareness and encouraging stakeholders and the general public to take action. FWC priorities include the support of lionfish tournaments, hosting workshops and attending events focused on lionfish and removal efforts. Recently, an educational module was developed: “Lionfish: Classroom Invasion”, which is geared towards middle and high school aged students. We continue to hold Lionfish Removal and Awareness day the weekend after Mother’s Day each year.

The Reef Rangers Program, developed as a localized control effort to allow divers to “adopt-a-reef” and remove lionfish helps improve the efficiency of statewide control efforts and mitigate the impacts of lionfish at a local scale.

With additional resources this year, FWC is funding the development of innovative technologies for lionfish removal in deep water. Staff received multiple proposals, and awarded funding to the successful applicants in November.

FWC’s lionfish team is also collaborating with other Gulf states to provide guidance on the design and implementation of their states’ lionfish programs.

Lionfish Tagging Program 2018

- Novel program that will tag lionfish on public artificial reef sites and reward participants for harvesting those tagged fish

Goal: Increase statewide removal efforts as it gives divers a greater incentive to harvest lionfish while in search of valuable tagged fish

Thank you to our sponsors!



To encourage divers to continue removing lionfish from Florida waters and conserve our marine resources, FWC is hosting a novel program that will tag lionfish on public artificial reef sites and reward participants for harvesting those tagged fish. This unique program aims to increase statewide removal efforts as it gives divers a greater incentive to harvest lionfish more often while in search of the valuable tagged fish. Additionally, the program can provide valuable data on the movement of lionfish based on the location of the fish when tagged and when harvested. The subsequent increase in usage of Florida's waterways, artificial reefs, and businesses will also provide a boost to the local economy.

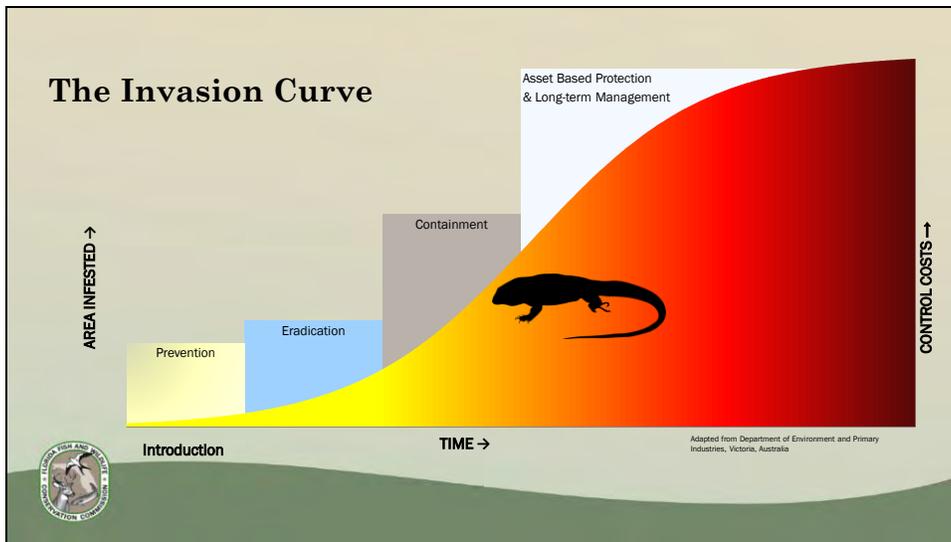
This program will coincide with the existing annual Lionfish Challenge removal incentive program. Lionfish will be tagged at randomly selected public artificial reef sites between the depths of 80' – 120'. Participants will have access to the reef locations at ReefRangers.com. The maximum number of tagged lionfish that are recovered and will receive reward payout will be dependent on the total sponsorship funds. The first tagged lionfish harvested from a site will receive the highest reward and the subsequent tagged lionfish harvested from that same site will receive rewards of lesser value.

Sponsorships will be accepted in either monetary or product form. Sponsorships are donated to the Fish and Wildlife Foundation of Florida Lionfish Control account and will serve as the reward for harvesting a tagged lionfish.

Argentine Black and White Tegu



A more recent invader of increasing concern to FWC and our partners is the Argentine black and white tegu, a large species of lizard.



Tegus were first documented in Florida just over 10 years ago and quickly became established. Despite recent efforts to remove tegus when encountered and where they are reproducing, this species is likely somewhere in the containment portion of this graphic, but approaching the long-term management.

Argentine Black and White Tegu

- Up to 4 feet in length
- Varied diet; animals and plants, eggs
- Burrowing animal able to withstand cool winters
- Popular in the pet trade



The primary concern around tegus is the potential impact this species may have on native wildlife. They have a wide diet, and have been documented eating gopher tortoises (hatchlings, yearlings), freshwater turtles, alligators (eggs, hatchlings), snakes, and ground-nesting birds – along with many nonnative and native plant species. They tend to become less active in the winter, burrowing or taking shelter and are able to withstand cool winters. They have been popular in the pet trade for some time.

Tegus are considered established and expanding in two areas of Florida – areas of Miami-Dade county and in eastern Hillsborough county – however, reports have occurred elsewhere across the state. In these instances, we work with the land owners to rapidly respond and set traps to remove the tegus.

Tegu Management

- Collaborative trapping efforts
- FWC Trap-Loan Program
- Expanding Efforts in Hillsborough County
- Outreach to get accurate reports
- Research to support removal
- Use of private contractors



We have been using a multi-pronged approach to address the expanding tegu population. Starting in 2012, FWC began funding efforts to better understand the potential impacts. That same year, we and others started more aggressively removing tegus from South Florida. Through a collaborative effort across agencies and research units, over 5,000 tegus have been removed from the wild, mostly in South Florida.

Other Priority Work Areas

- Prevention- Expansion of the Pet Amnesty Program
- Risk Screening/Risk Assessment Process
- Building Rapid Response Capacity
- Other Species Management
 - Northern African Python Eradication
 - Nile Monitor Control
 - Florida Keys Green Iguana Initiative

Exotic Pet



Amnesty Program



Our resources have been heavily weighted towards addressing these three species, however our programs also include prevention activities such as our popular Exotic Pet Amnesty Program. We are also working with UF and USGS on developing more risk screening tools and a formal risk assessment process to mitigate potential impacts of species reported in the wild in Florida. Another highlight includes our new initiative, focusing first in the Florida Keys, to provide technical assistance to members of the public that are experiencing impacts posed by green iguanas. Our first technical assistance workshop will be held on December 13th in Marathon.

Collaboration

State, federal, local, county agencies, & tribes, universities, and NGOs

Cooperative Invasive Species Management Areas (CISMAs), e.g. Everglades CISMA, Treasure Coast CISMA, Southwest Florida CISMA, Heartland CISMA)

Interested Members of the Public



We will not be successful without the continued collaboration and support of our partners and members of the public.

Thank you

