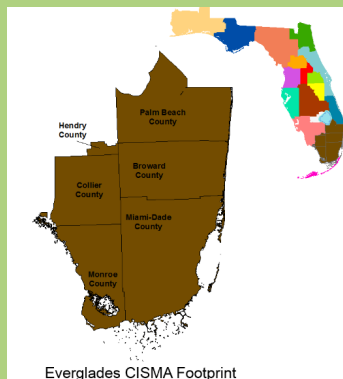




TABLE OF CONTENTS

Everglades and Treasure Coast CISMAs Wrangle Weeds at Galaxy Sand Pine Scrub Preserve	1
Agama vs Anole: The Croc Docs Dive Deeper into the Possible Effects of Agamas in South Florida	2
Smart Surveillance: Using Digital Mapping to Guide Invasive Plant Control	4
First Natural Predator for the New Guinea Flatworm	6
<i>Halophila</i> ; Goodbye Native Seagrasses?	6
Everglades CISMA Halophila Stipulacea Workday	8
Florida Fish and Wildlife Conservation Commission's IveGot1 Hotline Summary for ECISMA's "Dirty Dozen"	10
Meet the Florida Fish and Wildlife Conservation Commission's New Interagency Python Management Coordinator	11
A Termite Tale: The Significance of Public Outreach for EDRR and Eradication Programs	11
EDRR Success Stories	13



Newsletter

VOLUME 14 2025-26



CISMA volunteers (29), plus members from the City and School District joined the Weed Wrangle event coordinated by Michele DeFreitas (COBB), Ellen Brooks (SFWMD), Lisa Toy (School District), Lisa Hanley (Sierra Club), and Chris Lockhart (Habitat Specialists, Inc.) (photo credit: Antonio Rodriguez, PBC ERM; All other photos by Chris Lockhart).

Everglades and Treasure Coast CISMAs Wrangle Weeds at Galaxy Sand Pine Scrub Preserve

By: Chris Lockhart, Habitat Specialists, Inc.

The Weed Wrangle, held in support of National Invasive Species Awareness Week, on February 12, 2025, at the Galaxy Sand Pine Scrub Preserve in Boynton Beach was a huge success. Agencies affiliated with both the Everglades Cooperative Invasive Species Management Area (ECISMA), the Treasure Coast Cisma (TC-CISMA), Americorps, and Sierra Club volunteers tackled persistent snake plant (*Dracaena hyacinthoides*), aka Sansevieria, Guinea grass (*Urochloa maxima*), Australian umbrella tree (*Heptapleurum actinophyllum*), and other invasive plants.

Education was an important aspect. With the support of the City of Boynton Beach (COBB) and the Palm Beach County School District, teachers and about 50 second-grade students from Galaxy Elementary School walked the interpretive nature

trail, learned about scrub habitat, and saw people working to remove invasive plants. The young scientists measured carapaces and enjoyed an engaging gopher tortoise presentation by Youth Environmental Alliance and the Florida Fish and Wildlife Conservation Commission (FWC).



Students from Galaxy Elementary School learn about gopher tortoises.

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Everglades and Treasure Coast CISMAs Wrangle Weeds at Galaxy Sand Pine Scrub Preserve (CONTINUED FROM PAGE 1)

The Sierra Club joined Cisma volunteers from the South Florida Water Management District (SFWMD), FL Department of Environmental Protection (FDEP), FWC, and others to improve gopher tortoise habitat. Trash and snake plant were removed along the nature trail. Mother of millions (*Kalanchoe spp.*) was pulled from the scrub prairie. Other invasive plant targets included rose natalgrass (*Melinis repens*), shoebutton ardisia (*Ardisia elliptica*), balsampear (*Momordica charantia*), and caesarweed (*Urena lobata*).



Cisma members tackle snake plant in the NE corner of the preserve, digging them up, roots and all! Nature trail.

Inspired by ECISMA and TC-CISMA, two additional volunteer Weed Wrangles in 2025 continued invasive plant removal efforts to reclaim scrub habitat. This progress prompted an offer from the Institute for Regional Conservation to provide about 200 native plants and more volunteers to the disturbed northeast corner through their Reviving Urban Nature initiative.



4 days after IRC planting, August 2, 2025.

NEW PROBLEM! Chinese buckthorn, (*Atalantia buxifolia*), a recently discovered non-native plant invading this scrub preserve was a new target.

Volunteers removed many of these thorny shrubs but because the shrubs bore many berries, follow-up is planned.



Ken (Town of Tequesta) and TJ (PBC ERM), wacked a large area of Guinea grass, expanding an open area west of the nature trail.

Kudos to ECISMA, TC-CISMA, and others who inspired volunteers to continue this restoration effort! Many thanks to everyone involved: Michele DeFreitas COBB; Lisa Toy, School District; Ken Kandefer, Town of Tequesta; TJ Wilkerson and Antonio Rodriguez, PBC ERM; Jeff Bach, Jake Thayer, Alex Onisco, Ellen Brooks and Noah Stefanik, SFWMD; Salena Alberti, Amanda Breen, Ruth Rhodes and Emily Harrington, FDEP; Lisa Hanley, Randy Carle, Sabrina Carle, Mike Fitzpatrick and Zindzi Banks, Sierra Club; and District 5 Americorps volunteers!



Before and After - They dig those snake plants!

Approximately 50+ trash bags of invasive plants were removed, each weighing about 30-35 pounds. As a result, 1500 to 2000 lbs. of invasive plants are no longer on the preserve.

Agama vs Anole: The Croc Docs Dive Deeper into the Possible Effects of Agamas in South Florida

By: Aaron Chimelis, University of Florida's Croc Docs

It is no secret that Florida is a hotspot for invasive species. When it comes to reptiles, the discourse often shifts to the on-going efforts to contain and manage high profile species such as Burmese Pythons, Nile Monitors, and Argentine

Black and White Tegus. These species are a priority due to their immense impact on native wildlife, yet there are other invasive species in Florida that are beginning to make their presence and impact more known to researchers and the

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Agama vs Anole: The Croc Docs Dive Deeper into the Possible Effects of Agamas in South Florida (CONTINUED FROM PAGE 2)

public alike. A prime example of this: the Peters's Rock Agama (*Agama picticauda*). An invasive, once categorized as 'non-priority', is now becoming a larger topic of conservation. Researchers, with the University of Florida's Croc Docs Wildlife Research Team, are looking to add to this conversation - providing additional information to their potential widespread impact on both urban and rural landscapes.



A male Peters's Rock Agama (photo credit: Aaron Chimelis, UF Croc Docs).

Peters's Rock Agamas were first sighted in the 1970s in South Florida through the pet trade, as well as possibly stowing away on shipments of exotic plants. There they began to multiply, living in large colonies along the highly urbanized coastal ridge. The anthropogenic landscape of concrete and cinder blocks created ideal conditions for this species to thrive. Little by little, agamas, like other invasive lizards, began to spread northward. Yet, due to their size and lack of information regarding their direct impact to native flora and fauna, these lizards often were seen as less important compared to other invasive species. Coupled with a finite amount of funding and resources, researchers and management officials are often pushed to make difficult decisions as to which species to prioritize, meaning Peters's Rock Agamas were often overlooked.

Unfortunately, the once localized population has spread from Miami Dade County. According to FWC, agamas have been sighted in over 20 counties across the Sunshine State, including as far north as Jacksonville. Seeking to better understand what impact this quickly multiplying invasive species is having on Florida's landscape, UF Croc Docs herpetologists teamed up with entomologists out of a Vero Beach Lab to reveal just that. This began a deep dive into the potential indirect effects agamas have on Florida's landscape, including their interactions with another well-known non-native lizard: the Cuban Brown Anole (*Anolis*

sagrei). Yet it is not just anoles that were being studied, but their specific interactions with mosquitoes as well.

The hypothesis was complex: anoles, with their predisposition to sleep at night on the ends of branches, would often get bitten by mosquitoes, which would then transmit diseases such as West Nile Virus to the anoles. However, if another mosquito bit the now infected anole, the new mosquito would not be infected. This interaction would lessen the amount of disease transmission from mosquitoes to vectors of this disease such as birds and livestock. Yet when agamas are present, anoles would be outcompeted. Agamas would then sleep underneath rocks and buildings, leaving mosquitoes with less options - which would lead to higher rates of feeding on other animals that could be vectors of these dangerous diseases.



A female Peter's Rock Agama is captured by members of the UF/IFAS Croc Docs Wildlife Research team during their pilot study in Fort Pierce, FL.

To test this hypothesis, UF researchers went to work surveying anoles, agamas, and mosquitoes in four separate rural/anthropogenic sites. This followed with the removal of as many agamas as possible from three of the four sites through several methods: the use of minnow traps baited with live insects, lines of glue traps laid in high traffic areas, and at the



Mesh minnow trap.

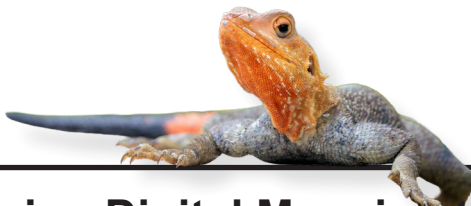
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Agama vs Anole: The Croc Docs Dive Deeper into the Possible Effects of Agamas in South Florida (CONTINUED FROM PAGE 3)

base of trees and captured with poles and nets. The results from this study found that there was a significant shift in what the mosquitoes were feeding on before and after agamas were removed. When agamas were present, mosquitoes fed on more birds. When agamas were removed (over 300 were removed over the course of several weeks), anole populations began to rebound, and mosquitoes turned back to the preferred bloodmeal of anoles.

Even though more data is needed to see how profound these interactions

are between invasive lizards, mosquitoes, and these zoonotic diseases—these preliminary findings show that agamas may have a larger impact than previously thought. Moving forward, The Croc Docs Wildlife Research Team and affiliated researchers continue to investigate these invasive dynamics to further uncover how Peters's Rock Agamas are altering Florida's ecology.



Smart Surveillance: Using Digital Mapping to Guide Invasive Plant Control

By: LeRoy Rodgers¹ and Alex Onisko²

¹South Florida Water Management District and ECISMA Co-Chair

²South Florida Water Management District

Despite decades of management, invasive plants remain a persistent challenge in Water Conservation Area 1 (WCA-1), part of the Arthur R. Marshall Loxahatchee National Wildlife Refuge. Since 2014, the South Florida Water Management District (SFWMD), Florida Fish and Wildlife Conservation Commission (FWC), and U.S. Fish and Wildlife Service (USFWS) have expanded efforts to manage numerous invasive plant species. Under a 2018 agreement, SFWMD leads invasive plant management in WCA-1, while USFWS and FWC provide funding and collaborate to develop a multi-year management plan.

WCA-1 spans 58,275 hectares of sawgrass marshes, sloughs, wet prairies, and tree islands—the latter providing essential wildlife habitat and serving as cultural landmarks for Native American tribes. Among the most damaging invasive species in WCA-1 is Old World climbing fern (OWCF, *Lygodium microphyllum*), which smothers native vegetation, alters habitat structure, and creates “fire ladders” that can kill canopy species. This aggressive vine can overtop all native tree species, eventually causing canopy collapse and the permanent loss of these unique plant communities.

Large-scale ground and aerial treatments of OWCF have been conducted repeatedly, yet suitable habitat and limited resources have allowed infestations to persist. To better



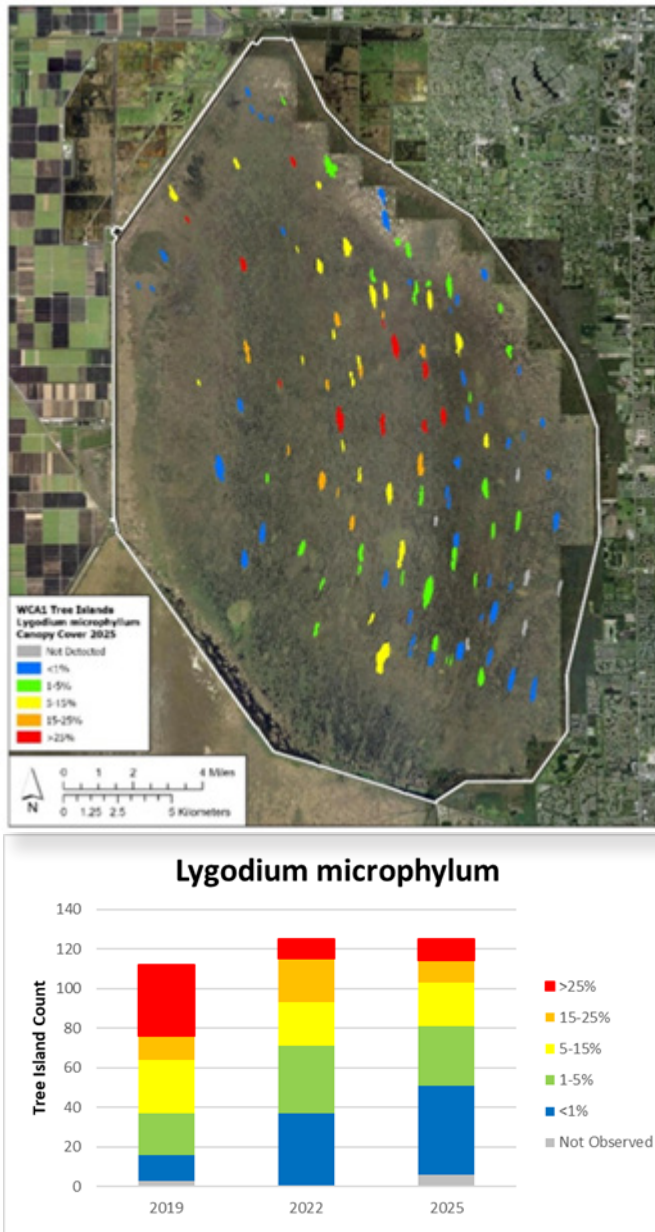
Old World climbing fern causing a canopy collapse on an Everglades tree island.

target control efforts, SFWMD relies on Digital Aerial Sketch Mapping (DASM)—a GPS-linked system that allows biologists to rapidly record infestation data during low-altitude reconnaissance flights. Since 2008, this technique has been used across Everglades restoration areas to track distribution trends, guide control operations, and detect new invasions.

Because tree islands play such a vital ecological role, SFWMD modified the DASM approach to generate higher-resolution data for large tree islands in WCA-1. Using a 100-meter grid overlay, biologists mapped OWCF abundance on all islands larger than eight acres (3.2 hectares). Surveys conducted in 2019, 2022, and 2025 recorded percent cover of OWCF across all large tree islands.

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Smart Surveillance: Using Digital Mapping to Guide Invasive Plant Control (CONTINUED FROM PAGE 4)



Distribution and frequency of Old World climbing fern (*Lygodium microphyllum*) on WCA-1 tree islands ranked by mean canopy cover.

Results from 2025 show encouraging progress. Mean OWCF cover ranged from 0 to 40%, and the number of islands with infestations greater than 25% declined by 54% since 2019. Islands with low infestations (<5%) increased 119%, and 90% of those maintained low levels between 2022 and 2025. Overall, total canopy area occupied by OWCF declined from 271 hectares in 2019 to 112 hectares in 2025—a clear reflection of strong initial control followed by effective maintenance treatments.

Additional data are collected on the canopy condition of each island, based on the density and health of native tree species (e.g., evidence of fire damage, laurel wilt, or non-target herbicide effects from past treatments). By combining canopy condition and OWCF abundance data, SFWMD biologists can better prioritize and plan invasive plant control strategies.

Using OWCF and Canopy data, tree islands are grouped into three management categories:

“Restoration” islands — heavily infested and with impaired canopies, best treated first with aerial applications followed by ground-based control. These islands will require intensive long-term management, and likely native plantings, to restore the plant community.

“Triage” islands — intact canopies with moderate OWCF densities, prioritized for immediate ground treatments that minimize non-target damage.

“Maintenance” islands — low OWCF cover, managed proactively to prevent expansion.

This triage-based approach focuses resources where they will have the greatest ecological benefit—protecting high-quality native canopies while reducing the risk of collapse from OWCF invasion.

By maintaining current monitoring data on tree island infestations and canopy conditions, SFWMD and partner agencies can make informed decisions, optimize limited resources, and evaluate long-term progress. These data also allow managers to track trends over time and adjust strategies when necessary to ensure sustained protection of the Everglades’ unique tree island ecosystems.



Alex Onisko and LeRoy Rodgers, preparing for the next monitoring mission.

First Natural Predator for the New Guinea Flatworm

By: Tiffany Moore, Conservation and Research Specialist, Zoo Miami

It was 2021 when the pine rock-landtrapdoor spider (*Ummidia richmond*) was first described in the literature, although it was found years earlier in 2012. At the time of the publication, we didn't know where a single spider burrow existed. We only knew of the locations where Zoo Miami and Coast Guard staff encountered wandering males during the summer months. That is the time when males leave the burrow for the last time, searching for a mate. These chance encounters led us to collect a few specimens that were later determined to be a new species. Since the 2021 publication, a staff member at Zoo Miami located one spider burrow. From that discovery, we went on to locate nearly 40 more burrows. We quickly filed permits to place tags on each burrow to begin a long-term study. Like most trapdoor spiders, they can live for decades. Surveys indicated little movement during the daylight.

We theorized that their hunting patterns were likely occurring at night. We bought a time-lapse game camera that had close-focus capabilities, about 6 inches, in fact. To catch the spider in action, we set the camera to take a photo every 10 seconds from 7pm to 7am. These generated thousands of photos,



which we uploaded into time-lapse video software. One afternoon, as we were reviewing the footage, we noticed a New Guinea Flatworm (*Platydemus manokwari*) crawling directly towards the spider burrow. The next photo

frame was the spider lunging out and bisecting the flatworm. The New Guinea Flatworm is listed among one of the worst world invasive species according to the Global Invasive Species Database (2023). It was first recorded in Miami Dade County in 2012. Since then, we've noticed a lot of flatworm activity on the camera, which highlights how invasive this species has become. This observation is the first known natural predator interaction involving the New Guinea Flatworm. The presence of an established New Guinea Flatworm population may have indirect ecological consequences. By reducing populations of soil invertebrates, such as snails, slugs, earthworms, and isopods, the flatworm could alter soil community structure and reduce availability for other native invertebrates, potentially influencing species conservation concern such as the endangered Miami tiger beetle.

Halophila; Goodbye Native Seagrasses?

By: Dennis J. Giardina, Florida Fish and Wildlife Conservation Commission and ECISMA Co-Chair

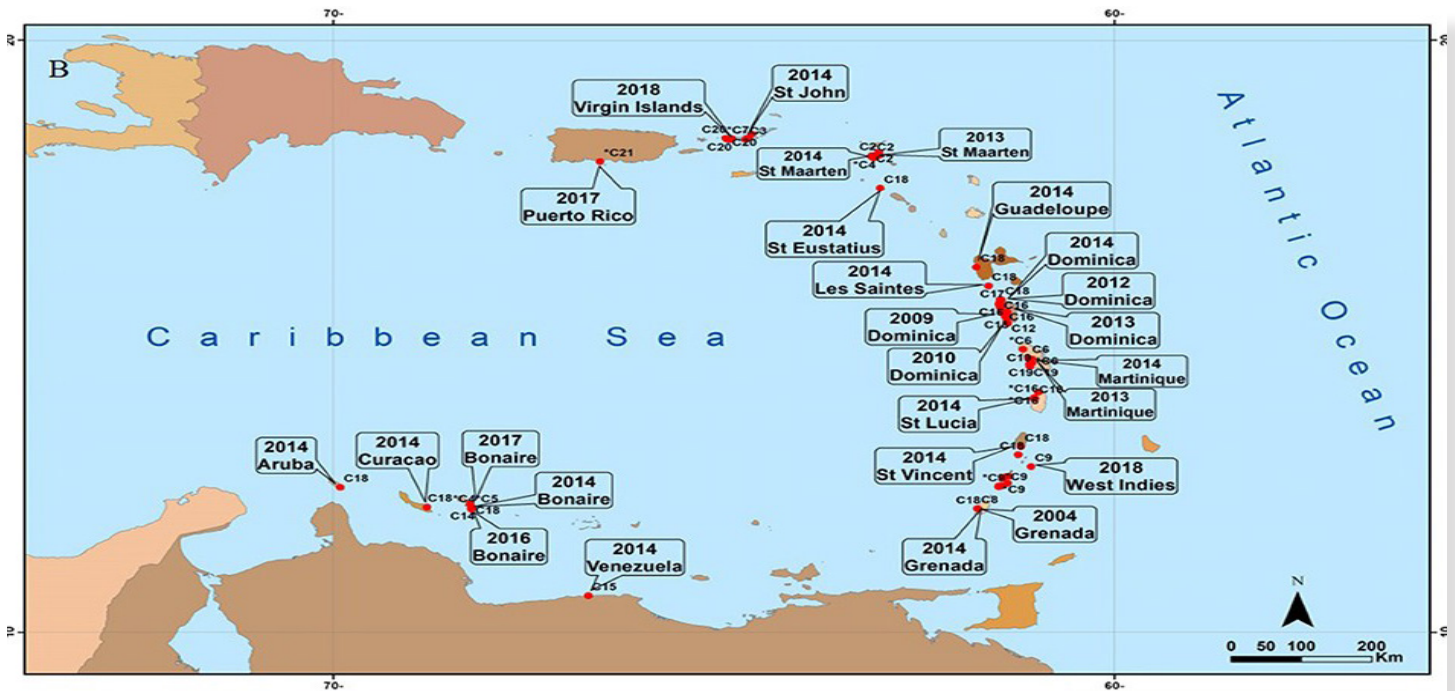
Beneath the surface of the clear, blue waters of Biscayne Bay, a new invasive species has taken root, one that presents a novel challenge in the marine environment. *Halophila stipulacea*, (stip-u-lay-see-ah) is a small seagrass native to the Red Sea, the Persian Gulf, and the western Indian Ocean. In both its native and non-native environments, it grows in a wide range of water depths, temperatures, substrates, light intensities, and nutrient levels. It is dioecious (separate male and female forms), and it can reproduce

sexually by seed and asexually by floating fragments that readily take root in sand, mud, or coral gravel. It is euryhaline (it can tolerate both fresh and saltwater), and it's here...

Sometime after the opening of the Suez Canal in 1869, *H. stipulacea* entered the temperate Mediterranean Sea from the tropical Red Sea, and in 1894, the first meadow of *H. stipulacea* was documented growing off the coast of Rhodes. Thirty years later "well established" meadows could be found there. Over the course of the 20th Century

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Halophila; Goodbye Native Seagrasses? (CONTINUED FROM PAGE 6)



Map and timeline of the spread of *H. stipulacea* in the Caribbean.

ry, it continued to spread throughout much of the eastern Mediterranean. By 2020, it reached the central Mediterranean with documented populations all along the coast of North Africa, west to Tunisia, north to the southeastern coast of Italy, and all-around Sicily. Sometime in the early 2000s, *H. stipulacea* hitchhiked its way across the Atlantic Ocean, most likely in water sucked into a ship's ballast tank in the Mediterranean, then released into the Caribbean Sea.

The 150-year spread of *H. stipulacea* from the warm, salty, tropical Red Sea into the cold, less saline, temperate Mediterranean Sea has been characterized as "old," and "slow." It is predicted, however, that *H. stipulacea* will continue its spread westward, and as the Mediterranean Sea continues to get warmer and saltier, its expansion may accelerate. The on-going "tropicalization" of the Mediterranean may also create a less favorable environment for its native seagrasses and the impact of *H. stipulacea*, increasingly detrimental to them.

Since it was first discovered along the coast of Grenada in 2002, the invasion of the Caribbean Sea by *H. stipulacea* has been described as "young," and "rapid." In 2007, a meadow of over 50 acres in size, (exponentially larger than the largest known *H. stipulacea* meadow in the Mediterranean) was found growing over 200 miles to the north, off the coast of Dominica. Since then, it has quickly spread throughout the Lesser Antilles, along the Venezuelan coastline, over to Puerto Rico and now, Florida. The spread of *H.*

stipulacea is abetted by storms, inter-island vessel movement, and coastal fishing, all of which break off growing fragments that float until they are deposited by tides and currents into places where they can settle and root.



H. stipulacea floating in Dominica, 2009.

In the Caribbean, *H. stipulacea* most often grows in monoculture meadows or in the understory of taller native, seagrasses like *Syringodium filiforme* and *Thalassia testudinum*. Generally, as *H. stipulacea* density increases in a native seagrass meadow, it sends out rhizomes that grow between the shoots of *S. filiforme* for example, and within a matter of months, it can completely displace the original seagrass. Many studies have been done over the past two decades and they have shown that *H. stipulacea* is having a transformative influence, changing the composition of species in the seagrass environment of the Caribbean Sea.

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Halophila; Goodbye Native Seagrasses? (CONTINUED FROM PAGE 7)



H. stipulacea *insitu*.

In September of 2024, *H. stipulacea* was found growing around Crandon Marina on Key Biscayne. Soon thereafter, it was found to have spread to a seagrass meadow a short distance to the east, and into a seagrass preserve next to Virginia Key. In May of 2025, I went with three colleagues to inspect those areas. We snorkeled around the marina and found that it was growing all around the docks and boat slips out to a depth of about 15 feet. In the shallow water to the east of the marina, we saw beds of *H. stipulacea*, forming around the native seagrass, punching into it, and displacing it. We flew a drone there and over the Virginia Key site to see if we could detect it aerially with limited results. On our return

to Crandon Marina, we collected fragments of *H. stipulacea*, floating on the surface in the deep water of the Miami South Channel, suggesting a more wide-spread local infestation. Recently, fragments of *H. stipulacea* were photographed 90 miles to the north in Hobe Sound and reported on iNaturalist.

All around the world seagrass meadows are contracting. They are disappearing four times faster than tropical rainforests. Their distribution along coastlines makes them especially vulnerable to human impact, which now includes the introduction of this invasive species. This is concerning, considering the biodiversity associated with seagrass meadows and the multiple, valuable ecosystem services and functions they provide. What can be done? At this point, we are exploring the limited control options. There are no herbicides labeled for use in the marine environment. We may try a mechanical control method, i.e., shading *H. stipulacea* with weighted tarps, but as the population grows, and the number and size of infestations increase, that approach seems unlikely to be sufficient. Complicating any mechanical response is the likelihood of fragments breaking and floating off to root somewhere else, and fragments of *H. stipulacea* reinfesting sites where control has been done from areas where it has not.

I wish the prognosis was more encouraging, but at this point from this author's perspective, it seems likely that *Halophila stipulacea* will continue its spread throughout the Caribbean and the tropical Atlantic and it remains to be seen, how wide-ranging the impact will be and what, if anything can be done about it.

Everglades CISMA Halophila Stipulacea Workday

By: Dennis J. Giardina, Florida Fish and Wildlife Conservation Commission and ECISMA Co-Chair

A short history; *Halophila stipulacea* invaded the Mediterranean Sea from the Red Sea in the late 1800s when the Suez Canal connected those two waterbodies. In the 150 years since, it has spread throughout much of the eastern Mediterranean. In 2004, it was documented in the Caribbean Sea around the Island of Grenada. Since then, it has spread across the coast of Venezuela and the Maria Islands, throughout the Lesser Antilles up to Puerto Rico, the Bahamas, and in the fall of 2024, it was documented at the Crandon Park Marina in Biscayne Bay, FL. In 2025, the Florida Fish and Wildlife

Conservation Commission (FWC), contracted FIU Research Scientist Justin Campbell to survey Biscayne Bay to help determine the extent of the population and to test several control methods. In January 2026, the FWC Invasive Plant Management Section installed a several hundred foot floating curtain boom along the edge of a mangrove-lined shoreline across from the Crandon Park Marina to isolate a *Halophila* invaded seagrass meadow where 13 experimental control plots were established to compare treatment methods of hand removal, cut stem removal, and covering with tarps.

CONTINUED ON PAGE 9

Everglades CISMA Halophila Stipulacea Workday (CONTINUED FROM PAGE 8)



On Tuesday, April 14, 2026, Everglades CISMA organized a volunteer workday to assist with the removal of *Halophila* material from the research plots and to better secure the anchorage of the floating curtain boom. Around 30 volunteers from Broward, Miami-Dade and Palm Beach Counties, Biscayne Bay Aquatic Preserve, UF/IFAS Sea Grant, and FWC braved the Miami morning traffic and stinging jellyfish to participate in this effort. At least two dozen (heavy) large mesh laundry bags full of *Halophila* were removed from the plots, and our ad hoc snorkel surveys unfortunately turned up an expanding population of *Halophila stipulacea* both within and outside of the curtain boom that encircles the control plots.



Halophila booty.

So, we have a quickly spreading non-native plant in the marine ecosystem, a novel environment even for those of us with decades of aquatic plant control experience, and one for which we have no chemical control option. Although at this point, the outlook seems kind of bleak, a correspondence that I had with Dr. Bradley Furman, a Scientist with the Florida Marine Research Institute, gave me cause for a little optimism.

His points were:

1. The Caribbean *Halophila stipulacea* invasion is still dominated by a single male clone so there is limited sexual reproduction, if it is occurring at all.
2. Our bioregion is seagrass species poor (5) relative to our Pacific counterpart (24), so the expectation of stability after a period of expansion is not unreasonable.
3. Florida already has three other *Halophila* species that have distributions not intuitively connected to their autecology, none representing substantial competition with our three canopy-forming species.
4. The Caribbean clone will now have to acclimate to subtropical and temperate thermal regimes which could impact invasiveness.
5. Florida (generally) supports a more robust herbivore guild than many of the islands in the Caribbean, including large manatee populations, but also more complete fish assemblages (Acanthuridae and Labridae).

I guess time will tell. In the meantime, we'll be looking for whatever chink in *Halophila stipulacea's* biological armor we can find and exploit it to prevent it from becoming the *Hydrilla* of the sea.

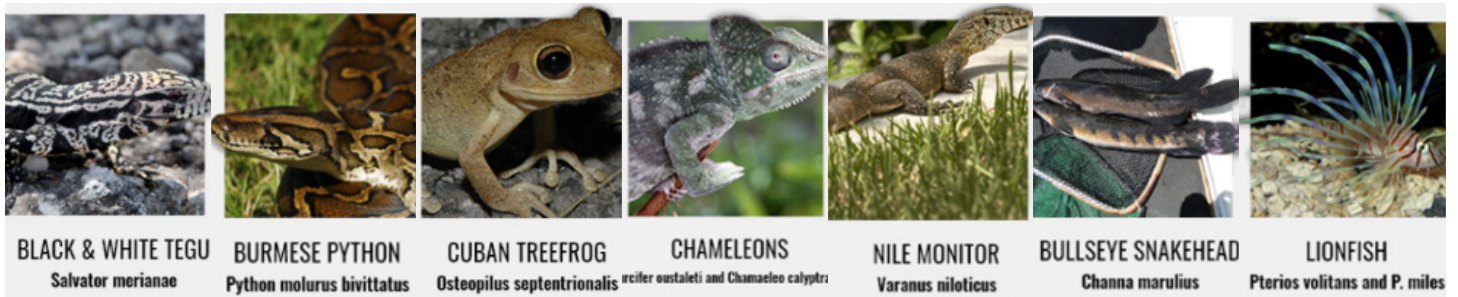
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Florida Fish and Wildlife Conservation Commission's IveGot1 Hotline Summary for ECISMA's "Dirty Dozen"

By: David Lingenfelter, Florida Fish and Wildlife Conservation Commission

The Florida Fish and Wildlife Conservation Commission's (FWC) IveGot1 Hotline is an important tool for Early Detection Rapid Response (EDRR) to prevent the spread of non-native and invasive species in Florida. During the 2025 calendar year, a total of 3438 calls were received by FWC's IveGot1 Hotline. Of these calls, 1,035 were credible reports

of nonnative species, resulting in the successful capture/removal of 274 nonnative animals. Below are the IveGot1 Hotline statistics regarding species on the Everglades Cooperative Invasive Species Management Area (ECISMA) Dirty Dozen List. Of the 12 invasive organisms on this list, 7 are animals that we have received credible reports of in 2025:



2025 IveGot1 Total Hotline Calls (ECISMA Dirty Dozen)

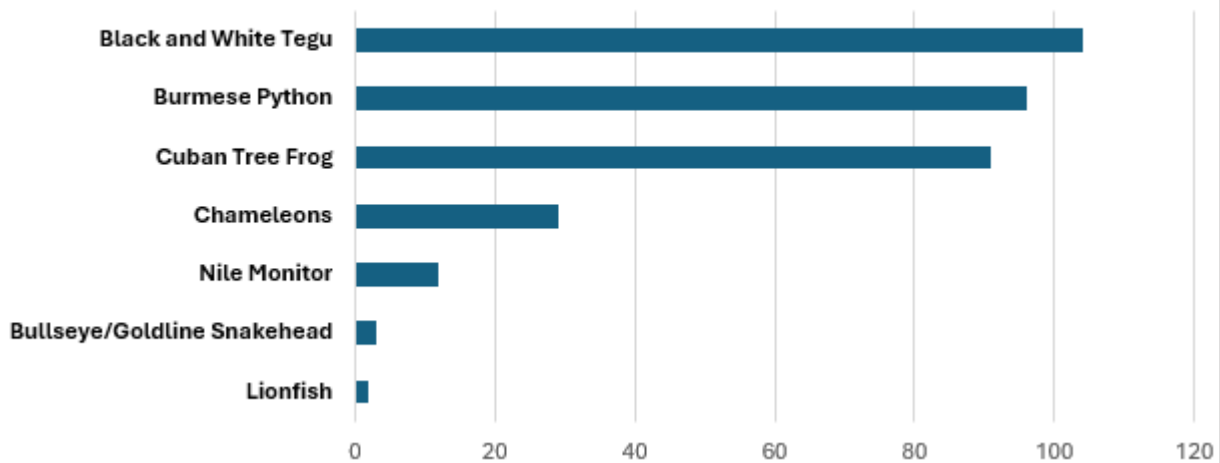


Figure 1. Chart indicating how many credible IveGot1 Hotline calls were received for each animal.

Reported Species (IveGot1 Hotline)	Total Calls	Total Individuals	Captured	Observations (Not Captured)	Observations (Found Dead)
1. Black and White Tegu	104	115	27	80	8
2. Burmese Python	96	96	36	50	10
3. Cuban Tree Frog	91	122	39	82	1
4. Chameleons	29	30	16	13	1
5. Nile Monitor	12	12	2	10	0
6. Bullseye/Goldline Snakehead	3	3	3	0	0
7. Lionfish	2	2	1	0	1

Figure 2. Table indicating how many credible IveGot1 Hotline calls were received for each animal, the total number of animals reported, the number of animals captured, and the numbers of observations of animals that were either not captured or found dead.

Meet the Florida Fish and Wildlife Conservation Commission's New Interagency Python Management Coordinator

By: Kodiak Hengstebeck, Florida Fish and Wildlife Conservation Commission

You may notice a new face at invasive species events, so I'd like to take a moment to introduce myself. My name is Kodiak Hengstebeck, and I am serving as the Interagency Python Management Coordinator for Florida Fish and Wildlife Conservation Commission's (FWC) Nonnative Fish and Wildlife Program. While this role is new, the ECISMA community is familiar to me. I spent nearly ten years at the University of Florida working under the advisement of Dr. Christina Romagosa, where I earned both my M.S. and Ph.D., and later served as an adjunct instructor teaching herpetology-related courses in the Department of Wildlife Ecology and Conservation.

While the focus of my graduate projects spanned topics from spatial ecology to ecomorphology, they always centered around biological invasions, particularly those involving snakes. I worked closely with partners at Rookery Bay National Estuarine Research Reserve and the Conservancy of Southwest Florida to investigate the use of dry, xeric habitats by invasive Burmese pythons (*Python molurus bivittatus*) and to assess interactions between pythons and native gopher tortoises (*Gopherus polyphemus*). I also studied morphological plasticity in well-established invasive snake species, including brown treesnakes (*Boiga irregularis*) in Guam and Burmese pythons in Florida. This work incorporated samples from numerous partners, including the University of Florida, U.S. Geological Survey, FWC, and U.S. Department of Agriculture, to examine how environmental factors such as changes in diet may influence snake skull morphology.

I am excited to continue collaborating with long-standing partners and to build new relationships across agencies and organizations. Outside of work, I enjoy camping, hiking, and herping, and I've recently taken up fishing, which is quickly becoming a favorite pastime. I'm always happy to talk about my English setter, Gus, or discuss the latest sports news (especially regarding Detroit teams). I look forward to working with you all to support ongoing Burmese python management efforts throughout Florida.



A Termite Tale: The Significance of Public Outreach for EDRR and Eradication Programs

By: Katie Tenn, Florida Department of Agriculture and Consumer Services

While the importance of public outreach for early detection and rapid response (EDRR) is likely a well understood concept in invasive species management, this document highlights a recent example of success in the detection, reporting and quick action taken to prevent establishment of a novel ter-

mite species discovered on Florida soil. The Florida Department of Agriculture and Consumer Services (FDACS) has been working for over a decade to eradicate the conehead termite (*Nasutitermes corniger*) from Broward County. The Conehead Termite Eradication Program is both a management and

education program whose focus is on awareness of the dangers of this invasive species as well as on the high potential likelihood of new introductions from abroad or unintentional human spread of this species across the state. While the currently known populations in Florida are limited to a small area of southeast Broward County, FDACS

CONTINUED ON PAGE 12

A Termite Tale: The Significance of Public Outreach for EDRR and Eradication Programs (CONTINUED FROM PAGE 11)

places a high priority on spreading awareness via both targeted and broad outreach opportunities to identify any potential unknown populations that may exist in other areas.

It can often be difficult to assess if an outreach program is successful, especially if the target species population is not widespread. However, the Conehead Termite Eradication Program received a report in late April 2024 that proved the years of outreach and education shared by the program was indeed succeeding.

A discovery by staff at the Port of Palm Beach in Riviera Beach, FL of a large and strange looking insect nest prompted a quick call to their contracted pest control company. While the Port staff may not have known what they were seeing, the termite experts from the pest control company knew right away that this was not something they had previously encountered. A quick best guess of species by the termite team told them that this may be a conehead termite which they knew, by way of those years of FDACS' targeted outreach to the pest control industry, was a species of high concern, and under eradication from the state. The pest control company also knew how to contact the program and quickly completed both an online reporting form and a phone call to the program lead.

Once contacted, and after seeing the initial photographs, FDACS conehead termite staff knew that this needed to be addressed immediately. Not only was this location over 50 miles removed from the current known infestation of conehead termites, but it was days away from what is considered the beginning of swarming season. They knew that if this nest were to swarm, that the new kings and queens that would emerge could quickly spread this colony across the region making it potentially a much larger problem.

Amazingly, the pest control company was just as interested in helping to eliminate this termite colony as they were quick about reporting it. In just over 24 hours, a team of not only FDACS biologists, but local pest control field technicians and company termite experts from other regions of the state met at the Port to investigate and immediately treat and remove this termite nest.

It was quickly apparent to FDACS staff who knew so much about the conehead termite that this termite found at the Port of Palm Beach was not the same species, although closely related by appearance and behavior. After closer



Katie Tenn (FDACS) standing on the removed nest carton of *Nasutitermes acajutlae* at the Port of Palm Beach (Photo credit: Dr. Barbara Thorne).

inspection, this discovery turned out to be of ***Nasutitermes acajutlae***, which is the first documented on-land detection of this species in the state of Florida. The large approximately 3-foot-wide nest was removed from its crane pad substrate, destroyed to the best ability, and treated with pesticide. While it was full of worker and soldier termites, there was no sign of any ongoing reproduction within the nest structure. No immature termites, no kings or queens, and no alate reproductives ready to swarm were found. A follow up survey of the entire Port also did not locate any additional signs of ongoing *N. acajutlae* activity.

Because of the cryptic nature of young termite colonies, it is premature to say that this one treatment event completely removed this species from Florida shores, however

CONTINUED ON PAGE 13

A Termite Tale: The Significance of Public Outreach for EDRR and Eradication Programs (CONTINUED FROM PAGE 12)

the lack of colony reproductive activity and no additional sightings in the past year make this an optimistic EDRR success story. It especially highlights the collaboration between government biologists who are tasked with protecting the state from invasive species threats, and the industry workers who are often the first line of discovery when unusual species are spotted. The public outreach efforts of FDACS' Conehead Termite Eradication Program had reached the audience that it needed with a message that highlighted the importance of quick action and best reporting procedures. Without this knowledge network built of trust and urgency, successful EDRR events such as this would not be possible.



*FDACS staff and the Conehead Termite Program's Science Advisor stand with Truly Nolen pest control termite staff around the *Nasutitermes acajutlae* nest as it was found at the Port of Palm Beach on May 1, 2024.*

EDRR Success Stories

By: Aaron Chimelis, University of Florida's Croc Docs

Early Detection and Rapid Response (EDRR) is a process in which research and wildlife management organizations can act quickly and efficiently to respond to newly emerging invasive species or spreading populations of already existing nonnatives. This process requires collaboration, a variety of skillsets, and citizen involvement. Yet, when done correctly, EDRR shows how when organizations can collaborate, progress can be made in managing the spread of invasive species and stopping the emergence of others. Here are a few examples of successful EDRR cases:

Asian Water Monitor - Brevard County

First spotted and reported by a local citizen via IVEGOT1, this roughly four-foot Asian Water Monitor (*Varanus salvator*) lizard was seen basking along a pond inside near a residential com-



munity. Once identified, a collaborative trapping effort between FWC, local citizens, and the UF Croc Docs Wildlife Research Team began to take shape. Over the course of a month, weekly updates were made to the responding team on the success of traps and additional sightings. Eventually, the animal wandered into a storage facility, and due to proper local involvement, the responding

team was notified. The animal was captured and identified through its unique markings to be the original ID'ed monitor. The monitor lizard was eventually adopted by one of the Croc Docs staff and now goes by the name of Craig.

Asian Water Monitor - Broward County

'Black Dragon' Asian Water Monitors, an all-black variant of the standard Asian Water Monitor, are a hot commodity in the pet trade. Unfortunately, some pet owners may not be equipped to care for a large, intelligent lizard, leading to releases or escapes. This monitor was often spotted splitting its time: moving between a large pond behind a shopping center near a community, and a CVS, where it was often seen by shoppers who were shocked to see the all-black animal crawling through a parking lot. FWC biologists

CONTINUED ON PAGE 14

EDRR Success Stories (CONTINUED FROM PAGE 13)

and members of the Croc Docs Wildlife Research Team were notified and immediately set to work tracking the animal to a shipping container adjacent to the CVS. After an hour-long struggle of trying to snare the animal in trash-filled tight quarters, the decision was made to place baited traps in the parking lot. Within two days, the animal was safely captured and rehomed via FWC's pet amnesty program.



'Black Dragon' Asian Water Monitor (Photo Credit: Alex Romer, UF Croc Docs)

Argentine Black and White Tegu - Miami Dade County

Argentine Black and White Tegus (*Salvator merianae*) have become a sizable threat to Florida's sensitive ecosystems. With their numbers growing from several populations around the state, reports of tegus in new areas are extremely vital to not only help track their spread, but to potentially stop any additional population centers from being established. When a tegu sighting was reported via IVEGOT1, FWC, local community members, and the Croc Docs went into action- conducting a coordinated trapping effort in and around the area where the animal was sighted. After several weeks, the animal was finally captured and removed from the area - ensuring that no additional tegu breeding hubs would be established in this particular area of Miami-Dade.



An Argentine Black and White Tegu captured in a Tomahawk trap (Photo Credit: UF Croc Docs)

How Can I Help?

EDRR begins with the public. Without the support of citizens reporting invasive species many of these animals would often go unnoticed until their numbers begin to grow. When the public utilizes apps such as [EDDMapS](#), [IVEGOT1](#), or [iNaturalist](#) as well as calling FWC's Invasive Species Hotline at 888-lve-got1 (483-4681), that information goes to organizations and agencies that are working tirelessly to help manage non-natives, often going out on weekends or nights to ensure that EDRR cases are seen fully through. By engaging with the public, and allowing proper collaboration between organizations to occur, Early Detection and Rapid Response is a vital tool in the struggle for invasive species management.

Agency/Organizations Abbreviations

ECISMA- Everglades Cooperative Invasive Species Management Area
 EDDMapS- Early Detection & Distribution Mapping System
 EDRR- Early Detection & Rapid Response
 EPAP- Exotic Pet Amnesty Program
 FOE- Friends of Everglades Cisma, Inc.
 FDACS- Florida Department of Agriculture & Consumer Services
 FWC- Florida Fish & Wildlife Conservation Commission
 NPS- National Park Service
 SFWMD- South Florida Water Management District
 UF- University of Florida
 USDA- U.S. Department of Agriculture
 USGS- U.S. Geological Survey



ECISMA was created to formalize cooperation among land management agencies to improve the effectiveness of exotic species control by sharing information, innovation and technology across borders through a memorandum of understanding with the ultimate goal of helping to ensure the success of the Comprehensive Everglades Restoration Plan.

www.evergladescisma.org

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