

Highlights:

- Cuban treefrogs change native frog calls
- Invasive chytrid culprit identified
- Lamprey larva control efforts
- Record-setting python captured
- Iguana eradication update

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Focal Species: Suckermouth Catfishes

Scientific name:

Pterigoplichthys spp.

Size:

Usually 12-22 inches

Native range:

South America

Notes:

In Florida, most reports of *Hypostomus* spp. (formerly genus *Plecostomus*) catfishes were misidentified *Pterigoplichthys*



Left: rasping mouthparts;
Above: Vermiculated sailfin catfish

Suckermouth catfishes (aka "plecos") are very popular in the aquarium trade due to their hardiness and longevity. As a result, this group of species has joined the ranks of the many species introduced via the aquarium trade pathway with significant impacts. Suckermouth catfish are medium to large in size (12-22 in.) and have a distinctive dorsal sailfin, dark body covered in bony armor, and worm-like markings. Unlike native catfishes, the mouth consists of a sucking disk and rasping plates – they consume algae rather than small animals. As they forage, they disrupt the food chain, reduce food availability for native species, outcompete native herbivores, and incidentally consume the eggs of other fishes. Their foraging activity also uproots native plants, altering aquatic plant communities. These hardy invaders face few threats in Florida, as they tolerate moderate salinity, gulp air when dissolved oxygen is low, and build burrows that allow them to withstand cold and drought. Their burrows destabilize shorelines and significantly increase erosion and turbidity in infested rivers. In addition, the spiny dorsal fins of these fish also pose a mortal danger to endangered, fish-eating birds. The cumulative effects of these impacts have the potential to negatively affect invaded systems. Furthermore, these large fish damage fishing gear, posing an economic threat.



Suckermouth catfish burrows along the shoreline are exposed when water levels fall.

[Learn More...](#)



Calling male
Cuban treefrog
(Photo by
Steve A. Johnson)



Click speaker icon to
hear CTF call
(internet connection
required).

Science: Acoustic Invasion

In natural environments, animals are exposed to loud noises from fast-flowing streams or wind – sounds that pale in comparison to urban noise pollution. Human-related noise pollution arises from a variety of sources--cars, trains, planes, industrial activities, and even oil and gas wells generate noise that scientists have recently learned can have some dramatic impacts on birds. When birds are exposed to this noise pollution, they often change the frequency, amplitude, and even composition of their songs--often with negative trade-offs in terms of their reproductive success. Recently, scientists discovered that frogs respond similarly to biological noise pollution. Frogs have evolved to call for mates amidst the natural background noise of other native frogs, insects, and weather. When non-native frogs infiltrate a breeding site and begin calling for mates, they could upset the natural equilibrium of communication that has evolved among native species. To test this hypothesis, Brazilian researchers played recordings of American Bullfrogs--a species that is highly invasive worldwide--and found that native treefrog calls increased in frequency and decreased in duration, suggesting that a bullfrog invasion could cause a shift in acoustic niche. Similarly, researchers at Pennsylvania State University used playbacks to test the impacts of Cuban treefrogs (CTFs) – an invasive species in Florida – and found that native pinewoods treefrogs weren't affected but native green tree frogs increased their number of calls per minute in response to the calls of CTFs. Such a shift in acoustic niche is energy expensive and could increase their risk of predation. However, CTFs are known to call much later (1-3AM) in the night than most native treefrogs and this temporal variation could reduce impacts; additional research is needed to fully understand the effects of biological noise pollution from invasive frogs. [Learn More...](#)

Invasive Vector for Amphibian Chytrid Fungus

African clawed frogs (*Xenopus laevis*) are the amphibian equivalent of lab rats and are commonly imported for use in research laboratories around the world. In the early 1900s these frogs were also imported to be used by hospitals as a low-tech pregnancy test--if a frog injected with a woman's urine spawned its eggs, the test results were positive. Imported African clawed frogs are also popular in the pet trade. Through a combination of accidental escapes from laboratories and intentional, often well-meaning, releases of pets and lab animals, these frogs have become established in several areas in the western U.S., and in Mexico, South America, Europe, the U.K., and Indonesia. These frogs are generalist predators that prey on and compete with native species and are known to affect water quality.



Worldwide, amphibian species have been devastated by another invasive species – the deadly chytrid fungus, also known as *Batrachochytrium dendrobatidis*, or *Bd*. The fungus attacks the skin of amphibians, affecting their ability to breathe or regulate the levels of electrolytes in their bodies and resulting in suffocation or cardiac arrest. African clawed frogs are a special cause for concern when it comes to *Bd*, because they persist much longer than other species after infection, suggesting they are a potent vector for this disease. In order to determine whether this species may have been the original source of *Bd* outbreaks, researchers tested introduced populations of African clawed frogs in California for the deadly fungus. As suspected, they found that feral populations test positive for *Bd*. The persistence of this fungus more than 50 years after their introduction suggests that this species may indeed be the original vector that brought this pestilence to the U.S. Currently, eleven U.S. states have already restricted the importation and sale of this species. This new finding not only sheds new light on the *Bd* epidemic but also highlights the importance of caution in allowing new species to be imported for the food or pet trade--any new species could be carrying the next devastating disease. [Learn More...](#)

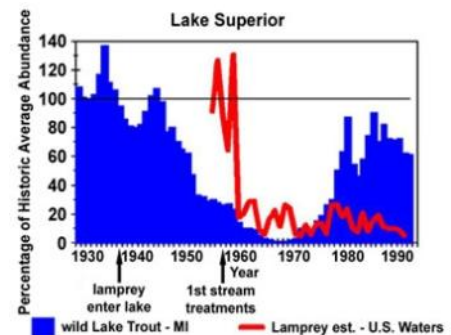
Reevaluating the 'Away-field Advantage'

One commonly-held assumption in invasion ecology is that invasive species are able to perform better in their introduced range than they do in their native range. According to this 'away-field hypothesis,' extremely successful introduced species are able to thrive due to more hospitable climate, escape from native predators and parasites, and – for some – mutually beneficial interactions with other introduced species known as 'invasional meltdown.' Several studies support this hypothesis, finding that some invasive species do indeed show increased size, reproduction, and abundance in their introduced range, supporting this hypothesis. However, other species have *not* been found to perform better as compared to the native range, suggesting that certain characteristics of individual species – such as ability to disperse and grow rapidly – may play a bigger role in determining successful invasion. Lack of research on this topic recently led an international group of researchers to review 221 studies of 53 highly invasive species – including nutria and brown treesnakes – in over 100 countries. They evaluated whether size, reproductive traits, and abundance of these species varied between their native and introduced ranges. On average, they found that these studies did support the 'away-field hypothesis.' However, when they looked at individual species, they found that this hypothesis held true more for plants than for animals and that certain extremely successful species were driving up the average, whereas individual species varied greatly in their ability to thrive in their new environment. [Learn More...](#)



Waging War on Lampreys

The sea lamprey is an invasive, parasitic fish that attaches its sucker mouth to native fishes and uses rows of rasping teeth to scrape away the flesh and feed on the fish. Since their introduction into the Great Lakes in the 1830s, lampreys have had devastating effects on native fisheries and are believed responsible for the extinction of lake trout in most of the Great Lakes. Lampreys travel upstream to spawn in the tributaries that feed into the Great Lakes and their larvae grow and mature in these streams. Over the years, efforts to eradicate lampreys have cost more than \$400 million, but have effectively reduced populations by more than 90%. Stream treatments that target larval lampreys have been especially effective at reducing lamprey populations and allowing native trout to recover, as shown in the graph above. In early June, The U.S. Fish and Wildlife Service plans to continue these efforts by treating Mitchell Creek – a tributary of Lake Michigan – with poison to cull lamprey larvae and they expect that this effort will be very successful for continuing to control these blood-sucking invaders. See Resources section for related news links..



Record-sized Python Captured in the 'Glades'

Recently, a Florida man captured a record-breaking Burmese python. Measuring 18.8 feet, the snake exceeded the previous record by a full foot and was more than four feet longer than the longest Burmese python captured in the 2013 Python Challenge™. When Jason Leon encountered the python on the road in rural Miami-Dade County, he proceeded to wrestle the giant python out of the brush and kill it with a knife. The Florida Fish and Wildlife Conservation Commission recommends that anyone who spots a python should report it by calling the toll-free hotline at 888-IVE-GOT1.



Photo by FWC

Gasparilla Island Iguana Eradication Update

Gasparilla Island in southwest Florida has been home to hordes of black spiny-tailed iguanas for over 30 years. The iguanas eat the eggs of shorebirds and tortoises. Their burrows destabilize sand dunes and sea walls and their bacteria-laden feces poses a health risk. When the infestation reached epic proportions, with an estimated ten iguanas per human resident, George Cera began trapping the Lee



County portion of Gasparilla Island while USDA-APHIS began eradication efforts on the Charlotte County portion. Cera estimates that the iguana population has been reduced to 1,500-3,000 animals and the population age structure has been altered considerably--most of the remaining individuals are not yet breeding age and there are few breeding adults. Cera is hopeful that, in time, eradication efforts will be successful. However, the success of these efforts will depend on efforts to gain access for Cera to trap the entire island, including some Florida Power and Light property.

The Invader Updater is a quarterly newsletter focused primarily on providing information on invasive vertebrate animals in Florida and the southeastern U.S. and was first published in Fall 2009. This newsletter is produced by:

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Do you have questions, comments, or suggestions, or want to be added to the mailing list? Email monicaem@ufl.edu



Related Resources

- ◆ [Suckermouth Catfishes \(*Pterigoplichthys spp.*\)](#) – Global Invasive Species Database
- ◆ Hoover et al. (2004) [Suckermouth catfishes: threats to aquatic ecosystems of the United States?](#) Aquatic Nuisance Species Research Program Bulletin, 4(1).
- ◆ [Croaking chorus of Cuban frogs make noisy new neighbors](#) - Science Daily
- ◆ [The Cuban Treefrog in Florida](#) – UF/IFAS EDIS Fact Sheet
- ◆ [Frog once imported for pregnancy testing brought deadly amphibian disease to U.S.](#) - Science Daily
- ◆ [Xenopus laevis profile](#) - Global Invasive Species Database
- ◆ [Invasive species: 'Away-field advantage' weaker than ecologists thought](#) - Science Daily
- ◆ [U.S. Fish and Wildlife Service to up the war on the invasive sea lamprey](#) - Nature World News
- ◆ [Scientists plan to exterminate sea lamprey larvae in Lake Michigan with poison](#) - Science World Report
- ◆ [Longest Burmese python found in Florida](#) - National Geographic Newswatch
- ◆ [Island iguana population significantly diminished](#) – Gasparilla Gazette
- ◆ [FWC Non-native Amnesty Day Events](#)