

Highlights:

- Hurricanes alter ocean currents, aiding dispersal of invasive species.
- Comparing eDNA methods suggests past false negatives.
- More constrictor snakes added to Lacey Act list.
- New fish invasion from tsunami?

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Focal Species: House Sparrow

Scientific names:

Passer domesticus

Size:

6-7 inches long

Native range:

Europe, Asia, India



House Sparrows are small, seed-eating birds native to the Old World, where they are found mainly in human-modified, urbanized or agricultural landscapes from the British Isles south to northern Africa and eastward to Siberia and India. House Sparrows have been widely introduced and are now found throughout much of the Americas, Hawaii, South Africa, and New Zealand and Australia. Their initial introduction into North America was intentional--European immigrants released these birds in New York City in the early 1850s and they spread rapidly, with the help of additional, intentional introductions in western states.

Invasive House Sparrows are stockier than similar native species and have shorter tails. Males have gray bodies and black-streaked, brown backs and can be identified by the reddish-brown stripes on the sides of the head above white cheeks and the black bib on their throat and upper chest. Females are gray-brown with black-streaked, brown backs and have light stripes above and behind their eyes and short, yellow bills. Females can be distinguished from similar native species found in Florida by the presence of black streaking on their backs and the absence of streaking on their breasts.

House sparrows feed primarily on seeds and human food scraps, and are commonly seen foraging in urban areas around restaurants, but also prey heavily on insects during the breeding season. They are highly social, roosting and nesting communally, often under eaves, gutters, drain pipes, and signs on buildings (see photos) where their droppings create an unsightly mess and a potential health hazard for humans. They are a host species thought to speed the spread of West Nile virus. Their nests can pose a significant fire hazard and often clog drain pipes and gutters. Invasive House Sparrows will also use nest boxes set up for native birds, evicting the native birds, destroying their eggs, and killing their nestlings and incubating females. The invasive sparrows can replace native species, altering community dynamics and becoming the most dominant species in urban or suburban settings. [Learn More...](#)





Science: Hurricanes Spread Lionfish

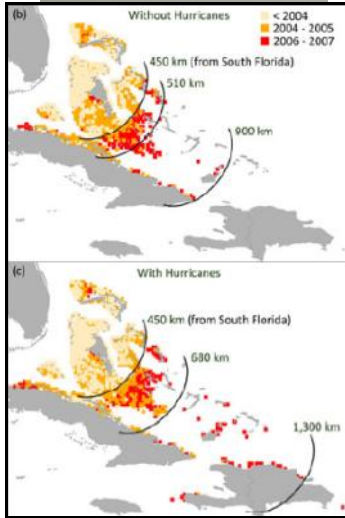


Figure: Johnston & Purkis, 2015

How does an introduced, non-migratory fish disperse across the Florida Current to the Bahamas and then continue to spread throughout the Bahamas and to other islands against prevailing currents? Researchers at Nova Southeastern University recently used historical data on ocean current velocity and direction as well as life history traits of invasive lionfish to address this question. Their analysis of historical data showed that major hurricanes passing through the Florida Straits interrupted the northerly currents, generating east-west flow patterns that serve as a temporary gateway for lionfish dispersal. Biophysical simulation models based on life history traits, currents, and dispersal patterns showed that hurricanes increased the spread of lionfish by 45% and the number of lionfish present by 15%. Results of models that included all major storm events provided the best fit to database records, but suggested that lionfish invasion records may reflect a lag time between fish arrival and detection. Disruption of currents by hurricanes may be exploited by native fishes for juvenile dispersal and gene flow, but could also aid dispersal of other invasive species such as Asian tiger shrimp. [Learn More...](#)

Noteworthy: Army vs. Iguanas

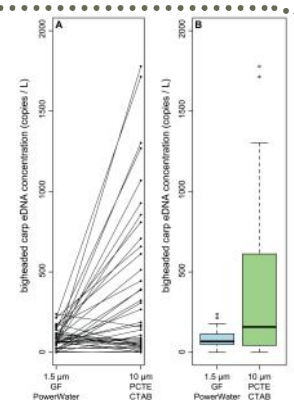
Green iguanas (*Iguana iguana*) are not only an [invasive species in Florida](#), they've also become quite a pest in Fiji. These large, herbivorous lizards were first introduced on Qamea, but then spread to other islands. They pose a risk to food security, as they consume taro and cassava leaves, tomatoes, cabbages, and bean and yam plants. Fiji has waged war against these invasive lizards for several years and recently decided to get serious. In February, over 100 members of the Republic of Fiji Military Force were trained to kill iguanas and deployed to the islands armed with shotguns. A military spokesman has been quoted as being hopeful that the military would be able to eradicate the iguanas from three islands – Qamea, Matagi, and Laucala – within two weeks' time, a task that seems an admirable, if highly ambitious, goal..



Photo credit: [Wikimedia Commons](#)

Science: eDNA methods revisited

Scientists monitor invasion pathways in the Great Lakes region for introduced bigheaded carp (*Hypophthalmichthys* spp.) by testing for their DNA in the environment (eDNA). A recent study conducted by researchers at Notre Dame and the University of Delaware compared standard eDNA techniques to a new and improved technique. The revised procedures use a less expensive filter to capture eDNA and a more rapid eDNA extraction technique, and incorporate negative controls to evaluate the extraction procedure. The assay targets *Hypophthalmichthys* at the genus level using a combination of primers and probes, which also facilitates real-time fluorescence visualization rather than slower gel electrophoresis visualization techniques. Their method resulted in a 22-fold increase in detection probability and yielded five times more eDNA. Their results suggest that previous surveys may have failed to detect bigheaded carp eDNA. [Learn More...](#)



Standard eDNA methods (left of each plot) capture less carp DNA than revised methods (right), as shown here by (A) paired samples and (B) boxplots. Turner et al., 2014)

Science: Lionfish Prey Type

Researchers at Oregon State and Simon Fraser Universities recently used lionfish to develop a new model for predicting prey selection across species assemblages. Their goal was to identify common features that may make some prey species more vulnerable to lionfish than others and produce a model that could also be relevant for better understanding other species invasions. They found that lionfish are voracious predators but do exhibit some preferences. Small, solitary fish, especially shallow-bodied species that rest just above the reef, are at greater risk of predation by lionfish. In contrast, lionfish tend to avoid the cleaner fish that remove parasites. Because species that have these traits are selectively preyed upon by lionfish, certain species may be at higher risk of extinction than others. [Learn More...](#)



Photo credit:
www.Reef.org/lionfish

Legislation: Feral Cat Bills in Virginia

When the Virginia Senate and House of Delegates recently considered three bills that would have impacted feral cat management as well as wildlife conservation, the Virginia Chapter of The Wildlife Society (TWS) wrote letters and provided testimony to the legislature in opposition to these bills. Of the bills, one sought to authorize trap-neuter-release (TNR) programs, another to reimburse veterinarians for performing spay-neuter surgeries for feral cats, and the third to authorize "community cat programs." Sterilizing feral cats does not reduce population levels, impacts on wildlife, or the risk of spreading diseases. In their letters and testimony, the VA TWS reported that feral cats in Virginia alone kill up to 26 million songbirds, 78 million small mammals, and 9 million reptiles each year and, worldwide, feral cats have been responsible for extinction of 33 bird species. Two of the bills were not approved by Senate committees and the third was passed by the House but was voted down by committee in the House. This represents a huge victory for invasive species management in Virginia. [Learn more...](#)



(Photo: Tom Bjornstad,
Wikimedia)

Regulations: More Constrictors on Injurious List

In March 2015, the U.S. Fish and Wildlife Service added the reticulated python (*Python reticulatus*), DeSchauensee's Anaconda (*Eunectes deschauenseei*), green anaconda (*E. murinus*), and Beni anaconda (*E. beniensis*) to the list of species designated as "injurious" under the Lacey Act. These species can no longer be imported into the U.S. or transported across state lines but can still be possessed in states in which they are not prohibited by state laws. This follows the 2012 listing of the Burmese python (*P. molurus*), yellow anaconda (*E. notaeus*), and northern and southern African rock pythons (*P. sebae* & *P. notalensis*). Although the Service also considered listing the boa constrictor (*Boa constrictor*), the final listing did not include this species and stated that "the circumstances surrounding the species, which include widespread private ownership and domestic breeding, render importation and interstate transport prohibitions less effective." [Learn more...](#)



Reticulated python – one of four species recently added to the injurious wildlife list in 2015.

(Photo: Pat Lynch, SFWMD)

Noteworthy: Tsunami Fish

In 2013, a floating boat containing five striped knifejaw fish (*Oplegnathus fasciatus*)—a species native to Asia and Hawaii—was found off the coast of Washington, having drifted over from Japan with tsunami debris. In February 2015, another knifejaw fish was found in a crab pot off the Oregon coast. However, experts believe the fish is no more than 1-2 years old and could not have drifted over with tsunami debris. This raises concerns that the species could be reproducing in waters off the coast, although it is equally likely it was dumped from an aquarium.

Photo: Seaside Aquarium



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 Winter 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

- ◆ [Florida's Introduced Birds: House Sparrow \(*Passer domesticus*\)](#) - UF/IFAS EDIS
- ◆ [Researchers discover hurricanes helped accelerate spread of lionfish](#) - PhysOrg
- ◆ [Fiji military in major iguana-culling operation](#) - Radio New Zealand International
- ◆ [Soldiers Target Specific Areas For Iguana Fight](#) - Fiji Sun Online
- ◆ [Current tools for Asian Carp eDNA monitoring fall short, study shows](#) - Science Daily
- ◆ Turner et al. 2014.. [Improved Methods for Capture, Extraction, and Quantitative Assay of Environmental DNA from Asian Bigheaded Carp \(*Hypophthalmichthys spp.*\)](#). PLoS ONE 9(12): e114329.
- ◆ [Lionfish analysis reveals most vulnerable prey as invasion continues](#) - Science Daily
- ◆ [Victory for Virginia Chapter on Feral Cat Management](#) - The Wildlife Society
- ◆ [Service Lists Four Nonnative, Large Constrictor Snakes as Injurious Wildlife](#) - USFWS
- ◆ [Fish native to Japanese water found in Oregon crab pot](#) - KGW News
- ◆ [New Asian 'Tsunami Fish' Causes a Stir with Oregon Coast Scientists](#) - Beach Connection
- ◆ [FWC Non-native Amnesty Day Events](#) (next scheduled: May 16th, Osceola Heritage Park- Extension Services Building, Kissimmee)