

New research offers clearer picture of cold snap's effect on Everglades

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Just over a year ago, a killer freeze dropped iguanas from trees, turned pythons into snake-sicles and left Mayan cichlids and other tropical fish bobbing like bloated corks in lakes and canals.

Now, the exotic invaders are back - and in surprisingly healthy numbers, particularly in the case of the most infamous of the bunch, the Burmese python.

Water managers are again routinely pulling snakes off canal levees, only last week bagging a 13.5-foot male along the bank of the L-28 in West Miami-Dade. In Everglades National Park - epicenter of the exotic invasion - the record cold last January appears to have had only a mild chilling effect.

"Right now, the numbers aren't all that different," said park biologist Skip Snow. "We're finding them in the same places we've been finding them."

While scientists can only estimate the toll the Big Chill took on the army of exotic reptiles, fish and plants in the wilds of South Florida, field observations over the last year suggest nature knocked them down but not out. Some already are speeding down the road to recovery.

David Hallac, the park's biological resources chief, said he expected a sharp decline in captured snakes. But last year's total of 322 fell only about 10 percent from 2009.

"That actually shocked me," Hallac said. "We couldn't believe how many snakes were coming in. At a minimum, I was thinking maybe a 50 percent drop."

Wildlife managers and biologists have long considered [cold weather](#) the best hope for controlling the spread of exotic species. Most are tropical imports that were either illegally released by owners or accidentally escaped. Some, such as pythons, pose major [ecological threats](#), competing for space and food and preying on native wildlife.

The frigid weather last January was the coldest 12-day stretch since the 1940s, according to the National Weather Service, with temperatures in the Everglades never rising above 50 degrees. It claimed countless victims, native and exotic, across diverse habitats.

The Florida Fish and Wildlife Service documented at least 244 manatees killed by cold, leading to a one-year record for total deaths. A plunge in ocean temperatures all but wiped out corals in shallow waters from Biscayne Bay through much of the Florida Keys and left hundreds of sea turtles dead or stunned and sick. The 100-plus carcasses of rare North American crocodiles represented about 10 percent of the coastal population.

The cold snap also produced one of the largest fish kills seen in decades.

Peter Frezza, Everglades research manager for Audubon of Florida in the Keys, took more than a dozen trips across Florida Bay and into the Everglades to study the effects, which he documented in a recent report published in the Tropical Audubon Society's winter newsletter.

In one backcountry basin alone, he did a detailed count and came back with a staggering 39,800 dead snook and tarpon - fish prized by anglers. The final tally from all his trips: about 90,000 dead snook, staggering but

only a small fraction of a loss that forced the state to shut down snook fishing for much of the year. Snook fishing remains restricted on the Gulf Coast and in Everglades National Park and Monroe County, where only "catch and release" is allowed until at least this September.

While Frezza, also an avid fisherman, still reports "an incredible lack of snook" in Florida Bay and the southern Glades, he has been encouraged by other rebounds. Pilchards, a key bait fish, have returned en masse and there's been a surge in young cold-hardy redfish, which should reach legal size next year.

In the coastal marshes, he has also seen an explosion of mosquitofish and other tiny prey fish that are the main diet for rare roseate spoonbill and many wading birds. That's a result, he said, of healthy water levels and the cold slamming what had been unhealthily large populations of exotic fish.

The plentiful food is promising for wading birds, Frezza said: "We're hoping for a very successful breeding season."

But if history holds, Mayan cichlids, spotted tilapia and other [tropical fish](#) will push deep into the marshes sooner or later, said Kelly Gestring, director of the FWC's Non-Native Fish Research Laboratory in Boca Raton.

Canals and other warmer refuges have sheltered enough of the fish in past freeze to fuel renewed population booms, he said. "It's probably going to be a temporary reduction."

The tree-dwelling green iguana was a rare invader that appears to have been beaten back hard, but no one doubts the species will rebound.

Once about as common as coconuts, green iguana have grown scarce all

the way down to the Keys. At previously infested Bill Baggs Cape Florida State Park on Key Biscayne, the largest lizards - six-footers that might give a pit bull pause - have vanished.

But Elizabeth Golden, the park's biologist, said she's seeing small greens pop up. There also are plenty of black spiny tail iguanas in all sizes, another species that seems to have weathered the chill, she said, possibly protected by its underground burrows.

"I have a feeling we'll never get rid of them entirely," she said.

That also could be the case for exotic plants that [wildlife managers](#) have struggled for decades to eradicate. LeRoy Rodgers, the South Florida Water Management District's lead scientist for vegetation management, was hoping for a big hand from nature. He didn't get it.

The frigid temperatures damaged some species, he said, but not enough to stem their spread. One, the thicket-forming Brazilian pepper, tolerated the cold better than many natives.

"It's frustrating," he said.

As for pythons, the brutal cold did accomplish at least one significant thing, said Frank Mazzotti, a University of Florida wildlife ecologist. It flattened a rising trend line in Everglades captures for the first time in a decade.

But he dismissed arguments from python breeders and collector that the freeze had largely wiped out the population or shown the giant constrictors were unlikely to continue spreading north from the Glades. The groups are battling federal efforts to stop the importation and interstate sale of pythons.

The debate was fueled in part by a study Mazzotti published last year showing nine of 10 pythons equipped with radio tracers in the park perished in the cold.

He cautioned against applying that ratio to the entire Glades, pointing out his research team also found that 60 percent of the 99 snakes spotted during the study were alive and slithering.

Overall, he said, the "impression" is that more recent captures seem to be smaller and younger, which could point to at least a disruption in breeding.

But big snakes also continue to show up. Last March, two months after the freeze, Mazzotti's team found a 15-foot female - one of the largest found in [Everglades National Park](#) - mating with three males. The python bagged on the L-28 last week was the largest male that water managers have found.

Mazzotti, echoed by park biologist Snow, said it will take more study and perhaps several breeding seasons to get a better picture of the full effects.

But one thing is clear, Mazzotti said: "To paraphrase Mark Twain, those people who think all the pythons have died are greatly exaggerating."

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