

Mysterious python parasite threatens Florida's native snakes, pushing toward their 'extreme decline'

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A mysterious parasite from Asia is infecting snakes over most of Florida, and researchers believe it was likely brought here by invasive

Burmese pythons.

The first documentations of the 3-inch-long [lungworm](#) in Florida occurred about 10 years ago. Since then it has spread to 27 counties in-state, and just two weeks ago, biologists found it for the first time in Palm Beach County.

The parasite, which travels through the food chain before settling into the lungs of a snake, has infected 17 species of snakes in Florida. They can weaken the reptiles, making them more vulnerable to predators and disease.

"On top of all the other threats our native snakes face (disease, [invasive species](#), habitat loss ... poaching) this emerging infectious disease may push, and has pushed, some snake communities to extreme decline," said University of Central Florida researcher Jenna Palmisano, who founded SLAM (snake lungworm alliance and monitoring), a group of universities and conservation groups studying the invasive parasite.

The lungworm takes quite a grisly journey to reach a snake's lungs, where they then suck the snake's blood.

They start out as tiny wormlike crustaceans in the poop of an infected snake. Bugs such as roaches eat the poop, and thus the parasite. Roaches, in turn, are eaten by frogs, [small mammals](#), and lizards, including the nonnative brown anoles, curly-tailed lizards, and rock agamas. Native snakes then eat those lizards.

How do the lungworms travel from the snake's digestive system to the lungs? "They bore straight through," Palmisano said.

Once in the lungs, they molt, mate, lay eggs and feed on the snake's blood. Researchers aren't quite sure how, but the eggs move up to the

mouth and down the [digestive tract](#), then out as feces, where bugs eat them and start the cycle again.

The female lungworms release eggs into the lungs indefinitely. "These [parasites](#) live for years," said Palmisano.

Smaller snakes seem more vulnerable

Smaller snakes, which eat a higher ratio of anoles and other small reptiles and amphibians, suffer the most intense infestations of lungworms, said Palmisano.

Those smaller snakes include black racers, coachwhip snakes, and dusky pygmy rattlesnakes, the smallest, and some would argue the most beautiful rattlesnake species in the U.S.

Adult dusky pygmy rattlers are a mere 1 to 2 feet long, with a black, beige and red pattern on their skin.

Their rattles are so small they sound like cicadas.

Though their venomous bite is not life-threatening to humans, it's quite painful, and if you don't seek treatment and the wound becomes necrotic, you could lose a finger, according to Lt. Chris Pecori, of the Miami-Dade Venom Response Team.

Palmisano searches for them all over Florida to study how the lungworm affects their health. She said she finds them under dried palm fronds near wet areas.

Like dusky pygmy rattlers, nonvenomous black racers feast on small lizards.

"I dissected a black racer last week that had 107 adult lungworms in its lungs," said Palmisano. "I think it's just because they're hammering so many lizards, so many frogs, the lungworms are going to add up."

Burmese pythons, despite being the probable original source of the parasite, tend to have fewer lungworms than the native snakes do. "It could be that pythons are moving on to bigger and cleaner animals to prey upon," said Palmisano. Pythons are 2 feet long when they hatch, and can reach 6 or 7 feet in a year.

Ongoing studies

Could invasive lungworms infect the lungs of other types of animals? There are similar parasites that can be found in birds, said researcher Paul Evans of the University of Florida, who partners with Palmisano on the project. But there is so much unknown surrounding this species that researchers can't definitively say if the invasive lungworms can do that in Florida or not.

Those unknowns are vexing to the team. "That's one of the things ... we want to get other people involved—ornithologists, and mammalogists. We are one county away from the lungworms getting into Georgia. There's nowhere in the Lower 48 that this parasite doesn't have the possibility of impacting," Evans said.

It's unlikely that lungworms could ever directly impact human health. Again, though, the invasion is so new, and the species is so unstudied in Asia, that there are still scientific blind spots.

Palmisano said that in the Middle East, Africa and Southeast Asia, there are different species of pentastomes (respiratory parasites) that can infect people who eat raw snakes and livestock.

But all the other respiratory pentastome parasites can use mammals only as intermediary hosts, not the final host. If a human were to ingest frog's legs from an infested frog, the dangers are minimal, said both Evans and Palmisano, assuming the frog legs are cooked.

A more pressing concern is for reptile or amphibian pets that people catch in the wild. Palmisano advises decontaminating anything that their waste touches. "Or maybe don't take animals from the wild," she said. Still, there have been lungworms discovered in pets purchased through the pet trade.

There is a way you can help. The worms crawl out the mouth of the snake once it weakens or dies. Evans and Palmisano are hoping to get citizens involved in reporting sightings. If you notice a dead snake of any species, take a photo if possible and it to an online database. Scientists will then collect and examine the snake for parasites.

As for why we should care, Evans said, "Snakes are great. Snakes are super-good at removing rodents and species we typically deem as pests. And (native) snakes eat juvenile Burmese pythons." Some might even go so far as to say the dusky pygmy rattlers are cute.

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