

# Little African snake can swallow biggest prey relative to its size

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A Gans' egg-eater swallows an egg whole in a UC biology lab. Credit: Bruce Jayne

Pythons have huge appetites, but which snake around the world would win an eating contest?

Surprisingly, it's a harmless little African snake that consumes eggs whole.

Biologist Bruce Jayne at the University of Cincinnati discovered that the Gans' egg-eater, or *Dasypeltis gansi*, can consume bigger prey relative to its own length and mass than even Burmese pythons, among the most

massive snakes on Earth.

"They probably would hold the Guinness world record," said Jayne, a professor of biological sciences in UC's College of Arts and Sciences.

"It's spectacular but on a small scale," he said. "People focus on big snakes eating big things, but if you correct for their size, these little guys are pretty scary."

The study was [published](#) in the *Journal of Zoology*.

## How it eats

The Gans' egg-eating snakes grow to about three feet long. Named for herpetologist Carl Gans, the egg-eater is skinnier than many egg-loving snakes found in the United States such as the yellow rat snake, which is known to pillage chicken coops.

But thanks to stretchy skin between its left and right lower jawbones, the Gans' egg-eater has the ability to consume eggs many times larger than its head.

"They can consume prey three to four times bigger than snakes that are generalists such as the black rat snake," Jayne said.



A quail egg is a snack for a Gans' egg-eater, which can swallow whole eggs even bigger than this one in a UC biology lab. Credit: Andrew Higley/UC Marketing + Brand

The egg-eater consumes the egg whole and contorts its spine to crack it, releasing the gooey contents, before regurgitating the empty, broken shell. Rat snakes, by contrast, typically digest the egg, shell and all.

Burmese pythons are no slouches when it comes to eating big meals. In [previous studies](#), Jayne found that adult [pythons](#) can consume deer weighing more than 70 pounds and alligators 100 pounds or more. Still,

the little egg eater can consume prey with a cross-sectional area more than twice that of a Burmese python of similar weight.

Others such as the rat snake, queen snake, brown tree [snake](#) and western diamondback rattlesnake don't even come close to the egg-eater.

Jayne said the superpower is an effective survival strategy. Most [bird eggs](#) are nearly spherical, like a Ping-Pong ball. Birds, mice and rats are elongated, providing more calories than an egg of the same circumference.

But the Gans' egg-eater compensates by being able to swallow far bigger [eggs](#) for its size, Jayne said.

"One likely reason this extreme gape evolved in African egg-eating snakes is that they specialize on a prey shape with a modest amount of mass per cross-sectional area," Jayne said. "That puts a premium on having a wide mouth."

As a specialist, the Gans' egg-eater has evolved a soft mouth with precious few teeth, which could interfere with gripping a smooth-shelled egg.

The harmless snakes defend themselves against predators [by mimicking venomous saw-scaled vipers](#), Jayne said.

"They put on quite a show, making a hissing sound by rubbing their scales together. They'll flatten their heads and strike," Jayne said. "It's comical because it's all bluff. They're toothless wonders."

**More information:** B. C. Jayne, Scaling relationships of maximal gape and prey size of snakes for an egg-eating specialist (*Dasypeltis gansi*) and a dietary generalist (*Pantherophis obsoletus*), *Journal of Zoology*

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