Smithsonian Scientist Discovers Lost Species of Nightsnake in Mexico

Adapted from the Smithsonian Newsdesk

After eluding scientists for nearly 80 years, the Clarion nightsnake (*Hypsiglena ochrorhyncha unaocularus*), a nocturnal reptilian species that was initially discovered in the first half of the 19th century and then struck from the scientific record, was rediscovered by National Museum of Natural History researcher Daniel Mulcahy. The new snake species is found exclusively on the Mexican island of Clarion and could have remained unknown to science if not for the team’s efforts to solve the case surrounding its disappearance. Details of this discovery are published in *PLoS ONE*.

Mulcahy was inspired to begin the search for the Clarion nightsnake after studying the lone specimen in the American Museum of Natural History’s collections. The snake’s unique scale pattern and markings led the research team to believe it represented a new species that might still live on Clarion today. Mulcahy also uncovered the controversy surrounding the inclusion of this snake in the scientific record, and found that it appears to be the only species ever to be discarded due to a presumed locality error. Tests of the museum specimen’s ancient DNA were inconclusive, prompting Mulcahy to collaborate with Juan Martínez-Gómez, an expert on the Revillagigedo Islands, and venture into the field using the naturalist William Beebe’s writings as guide to find the lost nightsnake themselves.

“The rediscovery of the Clarion nightsnake is an incredible story of how scientists rely on historical data and museum collections to solve modern-day mysteries about biodiversity in the world we live in,” said Mulcahy. “Proper identification is the first step toward conserving this snake, and we plan to continue monitoring this species to learn more about the role it plays in the delicate Clarion Island ecosystem.”

Beebe first discovered the Clarion nightsnake in 1936 while on an expedition to western Mexico, where he wrote about its unusual coloration and found only a single specimen. During the next several decades, scientists were unable to detect any trace of the Clarion nightsnake in their field studies, leading them to negate the validity of Beebe’s findings. In May 2013, Mulcahy and Martínez-Gómez’s team at the Instituto de Ecología in Xalapa retraced Beebe’s steps on Clarion in an effort to locate the lost snake species. After an intensive search, the team identified 11 snakes that matched Beebe’s description, and conducted a series of DNA tests at the Smithsonian’s Laboratories of Analytical Biology to confirm that the Clarion nightsnake, now recognized as a full species (*Hypsiglena unaocularus*), is genetically distinct from other snakes located on the mainland of Mexico.

While never formally declared extinct, this species remained absent from scientific literature due to two main factors: the nightsnake’s home on Clarion is extremely remote and only accessible by military escort, significantly restricting the number of biologists who can access this area, and the snake’s secretive, nocturnal behavior and dark coloration make it difficult to detect in the field.

While current populations of this species appear to be viable, Clarion’s fragile ecosystem is threatened by invasive species such as feral cats on neighboring islands. These cats prey on lizards, which are likely a main food source for the Clarion nightsnake.
Losing Large Mammals Increases Human Risk from Rodent-borne Diseases

Adapted from Smithsonianscience.org

Save the Rhinos! Save the Elephants! Save the humans?! It seems strange to be connecting our own fate to that of wildlife but new research suggests that protecting these large animals may also be, in effect, protecting our own health.

As populations of large wildlife decline around the world, scientists are concerned about the potential effects this will have not only on the smaller animals they leave behind, but also the diseases they carry. Hillary Young, former Smithsonian Post-doctoral Fellow and now Assistant Professor at the University of California, Santa Barbara, and Kris Helgen, Curator of Mammals from the Smithsonian’s Museum of Natural History, have provided new experimental evidence showing that the risk of rodent-borne disease doubles in landscapes that have lost these large animals.

This experimental study used 24 acres of savanna in East Africa that had been fenced off to keep out large wildlife species, such as elephants, giraffes, lions and zebras. The exclusion of these large animals, which has been ongoing for nearly 15 years at Mpala Research Centre, a research station in Kenya, provided the scientists a perfect opportunity to observe the effects of large animals on the remaining rodent population and the number of infected fleas they carry. The results of the study were published in the Proceedings of the National Academy of Sciences.

An interview with Young and Helgen about how a reduction in large wildlife can impact human health is available online at Smithsonian Science.

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