

Three New Salamanders Found in Remote Cloud Forests

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for [National Geographic News](#)
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Three previously unknown salamanders have been discovered in remote cloud forests in Central America, scientists announced yesterday. The newly revealed amphibians, including a dwarf salamander just the width of a fingernail and a creature with lurid markings resembling a poison frog's, were found in La Amistad International Park on the Costa Rica-Panama border. The discoveries were made last year during expeditions led by Alex Monro of the Natural History Museum in London. La Amistad is Central America's biggest rain forest reserve, but much it remains completely unstudied, Monro said. The new species, which increase the number of salamanders known in [Costa Rica](#) to 45, probably don't exist anywhere else in world, the biologist added. "These particular species will have very small ranges," he said. "This area hadn't been explored, so they just weren't known before."

Unusual Finds

The amphibians, which have not yet been named, include a dwarf salamander just 1.2 inches (3 centimeters) long. From the genus *Nototriton*, the tiny creature lives in mosses and leaf litter. The other newfound species belong to *Bolitoglossa*, a genus that hunts small insects at night. One species is deep brown in color with a pale cream underside. The other, measuring three inches (eight centimeters) in length, has a bright red back and yellow blotches down each side. Its conspicuous coloration resembles the warning markings of poison arrow frogs, Monro noted. All three creatures are very slow moving, he added, "but they have this ballistic tongue that shoots out at incredible speeds and wraps around prey." (Related: "Salamander Tongue Is World's Most Explosive Muscle" [March 9, 2007].) The salamanders were among 5,300 plant, insect, and amphibian species recorded during three expeditions to the cloud forests of La Amistad, a 490,000-acre (198,000-hectare) United Nations World Heritage site that reaches elevations of more than 11,000 feet (3,350 meters) in places. Two suspected new frog species and several unknown plants have also been identified as part of the project, which is funded by the U.K. government's Darwin Initiative to survey biodiversity in the region. The La Amistad project also aims to shed light on the causes of a worldwide decline in tropical amphibians highlighted by recent studies. Falling populations and extinctions have been linked to factors such as global warming, habitat loss, pollution, and a fungus found growing on dead and dying amphibians, Monro said. "If this is a response to climate change, then we would expect amphibians to be shifting their range upwards as it gets warmer, and there is some evidence of that," he said. "We have already documented a significant increase in elevation from one frog species."

Salamander Hunt

Hunting the salamanders was painstaking work because of their small size and nocturnal habits, Monro added. A survey area was marked out during the day, and the study team returned at night. Likening the task to police investigating a crime scene, Monro said researchers had to pick through leaf litter and mossy tree trunks. "They had to tease apart

mosses and loose bark and look all around in very close detail," he said. "In a night, they will have probably done only a few trees and maybe a hundred meters of pathway."

Future Expeditions

Because of the obscurity of the region, four further expeditions are planned for 2008. "Central America is quite a densely populated region, so it's amazing there are areas like this remaining which are relatively unexplored," Monro said. The wildlife is protected largely thanks to the park's remoteness and inhospitable terrain, he added. "It's very steep, very wet forest, and there are no roads, partly because it would be so difficult to put any in," Monro said. Team member Eduardo Boza, a herpetologist at the University of Costa Rica, pointed out that *Bolitoglossa* is the most diverse salamander group in Costa Rica, with 21 described species. But much about the group remains mysterious. Some species are known from less than five specimens, for instance, he said by email. "They don't have lungs but breathe through their skin, and they don't live in water at any time," Boza said. Instead of breeding aquatically, the amphibians lay eggs or give birth to live young on the forest floor, he said. "Costa Rica is one of the best studied countries in the world at the level of herpetology, but despite this we are still describing new species," Boza added.

"Probably there will be more new species discovered in coming trips."

Read the article on National Geographic website
(<http://news.nationalgeographic.com/news/2008/01/080104-new-salamanders.html>)