

New family of legless amphibians found in India

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In this photo released by www.frogindia.org, a chikilidae egg is shown in the soils of northeast India. Since the age of dinosaurs the chikilidae has burrowed unbothered beneath the monsoon-soaked soils of remote northeast India, unknown to science and mistaken by many villagers as a deadly, miniature snake. Their discovery, published Wednesday, Feb. 22, 2012, in a journal of the Royal Society of London, gives yet more evidence that India is a hotbed of amphibian life with habitats worth protecting against the country's industry-heavy development agenda. (AP Photo/ www.frogindia.org, Sathyabhama Das Biju)

Since before the age of dinosaurs it has burrowed unbothered beneath the monsoon-soaked soils of remote northeast India - unknown to science and mistaken by villagers as a deadly, miniature snake.

But this legless amphibian's time in obscurity has ended, thanks to an

intrepid team of biologists led by University of Delhi professor Sathyabhama Das Biju. Over five years of digging through forest beds in the rain, the team has identified an entirely new family of amphibians - called chikilidae - endemic to the region but with ancient links to Africa.

Their discovery, published Wednesday in a journal of the Royal Society of London (Proceedings B), gives yet more evidence that India is a hotbed of amphibian life with habitats worth protecting against the country's industry-heavy development agenda.

It also gives exciting new evidence in the study of prehistoric species migration, as well as evolutionary paths influenced by continental shift.

"This is a major hotspot of [biological diversity](#), but one of the least explored," Biju said in an interview with The Associated Press. "We hope this new family will show the importance of funding research in the area. We need to know what we have, so we can know what to save."

His first effort in conserving the chikilidae was to give it a scientific name mirroring what the locals use in their Garo language. The chikilidae is a caecilian, the most primitive of three [amphibian](#) groups that also include frogs and [salamanders](#).

"We hope when the locals see the name, and their language, being used across the world, they will understand this animal's importance and join in trying to save it," Biju said. "India's biodiversity is fast depleting. We are destroying these habitats without mercy."

The chikilidae's home in long-ignored [tropical forests](#) now faces drastic change under programs to cut trees, plant rice paddy, build roads and generate industry as India's economic growth fuels a breakneck drive in development. More [industrial pollutants](#), more pesticides and more people occupying more land may mean a world of trouble for a creature

that can be traced to the earliest vertebrates to creep across land.

Biju - a botanist-turned-herpetologist now celebrated as India's "Frogman" - has made it his life work to find and catalog new species. There are too many cases of "nameless extinction," with animals disappearing before they are ever known, he said. "We don't even know what we're losing."

Amphibians are particularly vulnerable, and have drastically declined in recent decades. The same sensitivity to climate and water quality that makes them perfect environmental barometers also puts them at the greatest risk when ecological systems go awry.



This photograph released by www.frogindia.org on February 22 shows an adult Chikilidae, a new species of legless amphibian known as a caecilian, with eggs and hatchlings at an undisclosed location in north-east India on February 11. Researchers digging in the mud in northeast India discovered the new family of

amphibians in a rare scientific breakthrough detailed in a study released on Wednesday.

Biju, however, is working the reverse trend. Since 2001, he has discovered 76 new species of plants, caecilians and frogs - vastly more than any other scientist in India - and estimates 30-40 percent of the country's amphibians are yet to be found.

Within the chikilidae family, the team has already identified three species, and is on its way to classing three more, he said.

The chikilidae's discovery, made along with co-researchers from London's Natural History Museum and Vrije University in Brussels, brings the number of known caecilian families in the world to 10. Three are in India and others are spread across the tropics in Southeast Asia, Africa and South America. There is debate about the classifications, however, and some scientists count even fewer caecilian families.

Because they live hidden underground, and race off at the slightest vibration, much less is known about them than their more famous - and vocal - amphibious cousins, the frogs. Only 186 of the world's known amphibious species are caecilians, compared with more than 6,000 frog species - a third of which are considered endangered or threatened.

Even people living in northeast Indians misunderstand the caecilians, and rare sightings can inspire terror and revulsion, with farmers and villagers chopping them in half out of the mistaken belief that they are poisonous snakes.

In fact, the chikilidae is harmless, and may even be the farmer's best friend - feasting on worms and insects that might harm crops, and

churning the soil as it moves underground.



An egg clutch of Chikilidae, a new species of legless amphibian known as a caecilian in an photograph released by www.frogindia.org on February 22 at an undisclosed location in north-eastern India on February 11, 2012. Researchers digging through mud in northeast India have discovered the new family of legless amphibians in a rare scientific breakthrough detailed in a study released Wednesday.

Much remains to be discovered in further study, Biju said, as many questions remain about how the creatures live.

So far, Biju's team has determined that an adult chikilidae will remain with its eggs until they hatch, forgoing food for some 50 days. When the eggs hatch, the young emerge as tiny adults and squirm away.

They grow to about 4 inches (10 centimeters), and can ram their hard skulls through some of the region's tougher soils, shooting off quickly at the slightest vibration. "It's like a rocket," Biju said. "If you miss it the first try, you'll never catch it again."

A possibly superfluous set of eyes is shielded under a layer of skin, and may help the chikilidae gauge light from dark as in other caecilian species.

DNA testing suggests the chikilidae's closest relative is in Africa - with the two evolutionary paths splitting some 140 million years ago when dinosaurs roamed what was then a southern supercontinent called Gondwana, since separated into today's continents of Africa, Antarctica, Australia, South America and the Indian subcontinent.

Biju's team worked best during monsoon season, when the digging is easier and chikilidae lay eggs in waterlogged soils. Gripping garden spades with blistered hands, the researchers along with locals they hired spent about 2,600 man hours digging for the elusive squiggles, usually found about 16 inches (40 centimeters) deep.

"It was backbreaking work," said research fellow Rachunliu Kamei, who even passed out in the forest once, and some days found not even one specimen.

"But there is motivation in knowing this is an uncharted frontier," said Kamei, lead researcher and main author of the study paper.

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