

Search for 'lost' frogs yields important warnings, few findings

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India - Chalazodes Bubble-nest Frog (*Raorchestes chalazodes*) Last seen in 1874! Rediscovered after 136 years. This striking fluorescent green frog with ash-blue thighs and black pupils with golden patches (highly unusual traits among amphibians) frog leads a secretive life, presumably inside reeds during the day. It is thought that the species does not have a free-swimming tadpole stage, but completes development inside the egg. Rediscovered by Ganesan R, Seshadri KS and SD Biju. Listed by the IUCN as Critically Endangered. Credit: SD Biju

A glimmer of hope, but much cause for concern. Those are the reactions from teams of scientists from around the world that have returned from an unprecedented search for 100 species of “lost” amphibians – frogs, salamanders, and caecilians that have not been seen in a decade or longer, and may now be extinct.

The Search for Lost Frogs, launched in August by Conservation

International (CI) and the IUCN Amphibian Specialist Group (ASG), with support from Global Wildlife Conservation (GWC), sought to document the survival status and whereabouts of threatened species of amphibians which they had hoped were holding on in a few remote places.

However, five months of multiple, targeted expeditions have led to disappointing findings that conservationists say should sound an urgent wake-up call for countries, and prompt coordinated efforts to prevent further declines in the populations of these environmentally sensitive barometer-species. Only four of 100 missing amphibians that scientists set out to find were located. Eleven more rediscoveries were unexpected surprises.

The search – a first of its kind – took place between August and December 2010 in 21 countries, on five continents, and involved 126 researchers. It represented a pioneering effort to coordinate and track such a large number of “lost” amphibians. The goal was to establish whether populations have survived increasing pressures such as habitat loss, climate change, and disease, and to help scientists better understand what is behind the amphibian crisis. Amphibians are the most threatened group of vertebrates, with over 30 per cent threatened with extinction due to habitat loss and a fungus that causes chytridomycosis -- an infectious disease -- among others.

Out of an initial list of 100 “lost” species, only four amphibians were rediscovered during the 2010 global search. Three of these were previously been reported by Conservation International: the Cave Splayfoot Salamander (*Chiropterotriton mosaueri*) of Mexico (last seen in 1941), the Mount Nimba Reed Frog (*Hyperolius nimbae*) of Ivory Coast (last seen in 1967), and the Omaniundu Reed Frog (*Hyperolius sankuruensis*) of Democratic Republic of Congo (last seen in 1979).

One new and exciting rediscovery, however, is the Critically Endangered Rio Pescado stubfoot toad of Ecuador (*Atelopus balios*), which was found this past October. The team of scientists led by the Ecuadorian herpetologist Santiago Ron spoke with members of the local community, who gave convincing accounts of recent sightings of the species -- it is often the case that local people know of the existence of species even if scientists do not. A single healthy adult toad was then found during a night search beside a river in an area dominated by farms and tropical rainforest.

The striking, spotted toad was the only species identified in the campaign's "top 10" list to be found. The Rio Pescado stubfoot toad is found only in Ecuador and is restricted to a very small area -- four localities in the Pacific lowlands of southwestern Ecuador. The land where it was found is unprotected and the future of this species is uncertain. It is likely that this represents the last population of the species because it has not turned up in any other known localities.

Stubfoot toads – or harlequin toads as they are sometimes referred – have been particularly hard hit by amphibian declines and extinctions, with only a handful of species clinging to survival. Researchers feared that the chytrid fungus had wiped out the Rio Pescado stubfoot toad, which was previously last seen in 1995, along with many other closely related species in Ecuador. Its rediscovery is significant and encouraging, said CI's amphibian expert Dr. Robin Moore, and should offer Ecuadorians a unique opportunity to protect this gorgeous and rare species.

Other rediscoveries were made in India, where scientists, who were inspired by CI's global search, launched their own campaign to focus on rediscovering local species. The effort resulted in five missing amphibians being rediscovered, so far, including one that was last seen in 1874 and another which was found by pure chance in a rubbish bin.

Dr. SD Biju, of the University of Delhi, organized the “Lost! Amphibians of India” to track approximately 50 missing species, and described his reaction to the incredible rediscoveries:

“I was so excited to see the *Chalazodes* Bubble Nest Frog in life after 136 years. I have never seen a frog with such brilliant colors in my 25 years of research! It has an unusual combination of fluorescent green dorsum, ash blue thighs and patchy yellow eyes. I feel assured that these rediscoveries will infuse more enthusiasm in our pursuit of the remaining 45 ‘lost’ amphibians. Our hunt has just begun and it is a good start.”

In Haiti, searches in the country’s diminishing forest regions of the southeast and southwest yielded six surprising rediscoveries of species (previously reported by CI) that were not on scientists’ initial list of 100, but that had not been seen in two decades – including the Ventriloquial Frog and Mozart’s Frog. In Colombia, no species were rediscovered, but three potentially brand new species to science were documented.

Dr. Moore added, “Rediscoveries provide reason for hope for these species, but the flip side of the coin is that the vast majority of species that teams were looking for were not found. This is a reminder that we are in the midst of what is being called the Sixth Great Extinction with species disappearing at 100 to 1000 times the historic rate -- and amphibians are really at the forefront of this extinction wave. We need to turn these discoveries and rediscoveries into an opportunity to stem the crisis by focusing on protecting one of the most vulnerable groups of animals and their critical habitats.”

To that point, Dr. Moore noted that his teams did not find the #1 species on their “top 10” list: the emblematic golden toad from Costa Rica, which some consider to be the poster child for the global amphibian extinction crisis. The last specimen, a solitary male, was seen in 1989.

Dr. Moore said: “I’m not completely surprised that it was not found, but I’m pretty disappointed. While it does not confirm that the species is extinct, with every unsuccessful search it does become more likely. It is very sad to lose unique species such as this – I feel like the world becomes a little bit less colorful with every one that is lost.”

Amphibians provide many important services to humans such as controlling insects that spread disease and damage crops and helping to maintain healthy freshwater systems. The chemicals in amphibian skins have also been important in helping to create new drugs with the potential to save lives, including a painkiller 200 times more potent than morphine. Not to mention their incalculable role in human cultures, from classical literature to fairy tales, and the aesthetic worth of their bright colors and melodic calls.

Even though the “Search for the Lost [Frogs](#)” campaign is coming to an end, CI and ASG will continue their efforts to prevent further extinctions of amphibians and ensure that their habitats remain intact and continue to provide benefits to people, thanks to the support from Andrew Sabin and the Sabin Family Foundation, George Meyer and Maria Semple, the John D. and Catherine T. MacArthur Foundation, Save our Species Fund, the U.S. Fish and Wildlife Service and Global Wildlife Conservation.

"Searching for lost [species](#) is among the most important conservation activities we can do as scientists. If we're going to save them, we first have to find them," said Dr. Don Church, Global Wildlife Conservation's President.

Besides the campaign in India, searches for “lost” amphibians will continue in Colombia and Dr. Moore will spearhead a project over the next three years to adopt amphibians as an indicator group to monitor climate change impacts on ecosystem health and incorporate findings

into protected area management. The work – to be implemented with several local partners – will take place in Papua New Guinea, Solomon Islands, Haiti and Madagascar.

Provided by Conservation International

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