

Captive Breeding Program May Ensure Survival for African Frogs

By Lindsey Hoshaw
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A female Bolifamba Reed Frog, collected along a forest stream near the team's camp in the Dja Forest Reserve. There are more than 140 species of Bolifamba Reed Frogs in Africa.

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Click PLAY to hear mating calls from Cameroonian frogs in quarantine at Cal Academy:

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On a recent June evening, herpetologist **David Blackburn** of the **California Academy of Sciences** was knee-deep in a west African lake hoping to capture a critically endangered frog.

In the cold, clear water of Cameroon's Lake Oku, hundreds of brown and gray frogs with webbed feet were paddling around looking for food.

The Lake Oku clawed frog, found nowhere else but in this lake, is like other frogs across the globe that are fighting for survival.

Thousands of frog species worldwide are losing habitat due to deforestation and an amphibian disease caused by a type of fungus called "**chytrid fungus**." The fungus grows on the frogs' skin and causes sloughing skin and extreme lethargy. The changes to the frogs' skin can be deadly, because frogs absorb water, salts and other nutrients through their skin.

More than a third of the world's amphibians are threatened with extinction. The disease is a leading cause of frog population declines worldwide.



Researcher Rebecca Tarvin, joined Blackburn's team to collect novel data on African frogs' secretions to determine whether they have chemical defenses in their skins.

"Frogs are the canaries in the coal mine," said **Tom Smith**, director of the **Center for Tropical Research** at the **University of California – Los Angeles**. "They tell us about the health of ecosystems like no other organism. When their populations decline it's time to pay attention because what is affecting frogs may ultimately affect us."

As part of an expedition to the mountains of northern **Cameroon** this summer, Blackburn led a group of students and colleagues to collect the clawed frog and other species.

The researchers hoped the fragile amphibians would survive the 10,000-mile journey back to San Francisco where the team will breed the species in captivity at the California Academy of Sciences in **Golden Gate Park**.

By breeding the amphibians and learning about the frogs' biology and reproduction habits, Blackburn and his team expect to gain key insights that could help save the frogs – and other species like them – in the

future.

"We know so little about some of these species," Blackburn said. "We'd like to figure out what it would take to be able to breed these frogs in captivity should they suddenly become under serious threat in the only place they're known to occur."

If an **invasive species** or predator entered the lake, it would be difficult for scientists to save the frogs because they don't fully understand their lifecycle and what they need in order to survive.

Blackburn and his team took video of their expedition. As he knelt close to the water and bagged 25 frogs, he said, "the clock started ticking."

"Once they are out of the lake, we want them back at the Academy in clean and cool water as soon as possible."

In addition to the clawed frog, Blackburn and his colleagues also collected four other species: Riegenbach's Reed Frog, Bamenda Reed Frog, Rio Benito Long-fingered Frog and the Black Long-fingered Frog.

Three of the species they brought back, including the clawed frogs, are considered threatened by the International Union for Conservation of Nature.

The tiny frogs, which are roughly the size of a quarter, were fed a diet of fish or termites before they were placed in a box aboard an international flight bound for San Francisco.



While Blackburn's team surveyed frogs in the highlands of Cameroon, they camped in the Bamboutos Mountains, a region with several endemic frog species.

"In some cases, we had the frogs for two weeks before we traveled back so we had to feed them in the field," said Cal Academy Senior Biologist [Brian Freiermuth](#). "One of the things we actually did was use termites; we found nests and could break them open and feed the frogs. Termites are actually really high in fat so it's good if you want to fatten up an animal."

After more than 30 hours in transit, 54 of the 56 captured frogs survived and now sit in quarantine at the California Academy of Sciences.

About 60 percent of the frogs tested positive for *chytrid fungus*, which Blackburn said he expected based on his studies of the same species in 2011.

"It wasn't a surprise to me to find [the fungus] in the frogs that we brought back," Blackburn said. "It just reiterates why our work is so important."

From late August to early September, the frogs will be treated with a fungicide that will work to clear the disease. After that, Blackburn and his team will begin breeding these species as Academy staff build an exhibit in the facility's aquarium so the public can finally meet the frogs.

"One huge part of our goal was public awareness," Blackburn said. "We really can't conserve what we don't know. I'm excited that we can celebrate biodiversity at the Academy's aquarium. That diversity is threatened and it's exactly what we're hoping to conserve."