

Killer Fungus Attacks Rare New Zealand Frogs

A killer fungus responsible for decimating amphibians around the world has struck one of New Zealand's 'archaic' endangered native frogs.

In September, researchers in the Coromandel Range of the North Island found a dead Archey's frog with skin lesions suggesting that it died from a Chytrid fungus infection. More recently, four dead Archey's frogs were found in the King Country at Whereorino Forest, and it is understood that tests could show some, if not all, were infected by the fungus.

In recent years, amphibians in Africa, the continental Americas, Europe, Australia, and Oceania have been reported as infected by the same fungus. Globally, 93 species of amphibians have been diagnosed as infected. Australia,

where the fungus arrived in 1978, has been the hardest hit, with 46 species affected, including eight listed as endangered and five as vulnerable.

The fungus was first found in New Zealand in two introduced Australian species, the green frog and the golden bell frog, in 1999. Reports from Australia indicate a virus may also be implicated.

Archey's frog is one of New Zealand's four *Leiopelma* frogs, 'species of huge scientific interest internationally as they are the most ancient left on the planet, and survivors of the Jurassic period some 200 million years ago,' according to Andrew Harrison of the Department of Conservation. Before the fungus was found to affect Archey's



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The endangered-native Archey's frog is being attacked by a Chytrid fungus which has affected frog populations worldwide. New Zealand's ancient frog species are notable for having evolved in the Jurassic period 200 million years ago.

frog, the species was already in serious decline.

It is found only in the Moehau and Colville Ranges on the Coromandel Peninsula and at Whereorino forest west of Te Kuiti.

'Chytrid fungus has the potential to decimate New Zealand frogs if it spreads,' according to Andrew Harrison, who is a member of a technical group set up recently by the Ministry of Agriculture to work on the problem. 'Frog populations have been decreasing world-wide since the 1980s and New Zealand is unfortunately following the global trend.'

The technical advisory group set up in response wants to find out more about the fungus, particularly how it transfers from introduced frogs to native species. But the effort is hampered by a lack of knowledge.

'We don't know much about how it moves around,' Andrew Harrison says. Other research is centred on detecting the fungus in water and on vegetation.

'The next step is to survey the extent of population decline and to find out if the survivors have been infected,' says a researcher at Victoria University of Wellington, Dr. Ben Bell, who is also on the advisory group. 'The group is anxious to stop the fungus spreading to New Zealand's other three native species, particularly Hochstetter's frog which shares native forest habitat with Archey's frog.'

Dr. Bell said the group was also considering removing some frogs to a safe facility where they may be bred in captivity.

Department of Conservation workers are taking strict precautions when visiting frog habitats to try to minimise the spread of the fungus. Andrew Harrison says an infected frog would appear emaciated and lethargic, often with abnormalities of the skin or eyes.

'The fungus infects the skin of frogs. We're not yet sure whether it suffocates them or kills them as they absorb the released toxins,' he says.

Other factors have been blamed for some frog die-offs, such as uncontrolled chemical use. But nearly half the dead frogs handed in to a three-year Australian survey were diagnosed with Chytridiomycosis, showing no other disease, and no evidence of depressed immunity.

Researchers question if the Chytrid fungus has always been present and, if so, whether it has only recently become 'active'. There is the suggestion environmental conditions such as increased ultraviolet light levels or pollution have made it suddenly deadly.

Certainly, climate change has been put up as a possible explanation. Some workers say drier conditions are causing amphibians to crowd at water sources, helping the fungus to spread.

— DAVE HANSFORD

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