

Emerging infectious disease threatens Darwin's frog with extinction

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Darwin's frog is likely to be wiped-out by amphibian fungus. Credit: University of Zurich

Iconic species likely to be wiped-out by amphibian fungus, despite lack

of obvious short-term evidence.

The Darwin's [frog](#) (*Rhinoderma darwinii*) is the latest amphibian species to face extinction due to the global chytridiomycosis pandemic, according to an international study published today in the journal *Proceedings of the Royal Society of London B*.

The study has found that Darwin's frogs are infected with the fungal pathogen *Batrachochytrium dendrobatidis* (Bd), and despite an absence of obvious mortality researchers have noted [population](#) declines, leading them to believe that these infected populations are at a serious risk of extinction within 15 years of contracting the disease.

Populations of this unique species, currently known as highly threatened, were previously considered to have remained relatively stable in the face of the disease that has ravaged many amphibian species worldwide, but the frogs may have been infected over a decade ago, with the impacts only recently observed.

Led by scientists from Chile's Universidad Andres Bello (UNAB), NGO Ranita de Darwin, and international conservation charity ZSL (Zoological Society of London), working alongside the University of Zurich, this new revelation highlights a need for urgent conservation action.

First author, Dr. Andrés Valenzuela from ZSL's Institute of Zoology and UNAB said: "Put simply, this study shows that once an individual animal becomes infected with Bd, it is almost certain to die. Unusually for an infectious disease even at very low rates of infection, and in the absence of the dramatic die-offs witnessed in other [amphibian](#) populations impacted by this disease, infected populations of Darwin's frogs are destined for extinction."

Benedikt Schmidt from the University of Zurich, who co-authored the study, added "Whilst this study focuses on the iconic Darwin's frog, its implications could be equally grave for many other species. We've long recognised the dramatic toll chytrid fungus is taking on amphibians globally – but believed the disease's impact on host populations would quickly become apparent".

"This 'cryptic' nature of infectious disease witnessed amongst Darwin's frogs in Chile could potentially be causing similar 'slow-burn' declines among wildlife [species](#) elsewhere – contributing to longer-term [population declines](#) and extinctions despite the lack of obvious mass-mortalities".

Native to the forests of southern Argentina and Chile, Darwin's frog was named in honour of Charles Darwin, who first discovered these amphibians during the voyages of the HMS Beagle. It is the only land vertebrate where the male becomes pregnant, carrying and brooding tadpoles inside its vocal sac until they metamorphose and are spat out as baby frogs.

More information: Andrés Valenzuela-Sánchez et al. Cryptic disease-induced mortality may cause host extinction in an apparently stable host–parasite system, *Proceedings of the Royal Society B: Biological Sciences* (2017). [DOI: 10.1098/rspb.2017.1176](https://doi.org/10.1098/rspb.2017.1176)

Provided by University of Zurich

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