

Rescuing and recovering a Darwin's frog stronghold

The invasion of the amphibian-killing fungus *Batrachochytrium dendrobatidis* (Bd) — one of the main threats to Darwin's frogs — into Tantauco Park in 2023 is causing the extinction of the largest known contemporary populations of Darwin's frogs. In response to this emergency, a task force composed of members of the Binational Conservation Strategy for Darwin's Frogs has been formed. Here, we present our plan for rescuing and recovering these populations. Financial support is urgently required to implement the emergency response phase of this plan.



Why Darwin's frogs?

Evolutionarily unique and highly threatened species. A flagship for Austral temperate forest conservation, one of Earth's most biodiverse yet imperiled ecosystems



Illustration of an internal view of the vocal sac

The only amphibians where males brood tadpoles inside their vocal sac

Red List status (IUCN)

There are two species of Darwin's frogs: *Rhinoderma rufum* and *Rhinoderma darwinii*



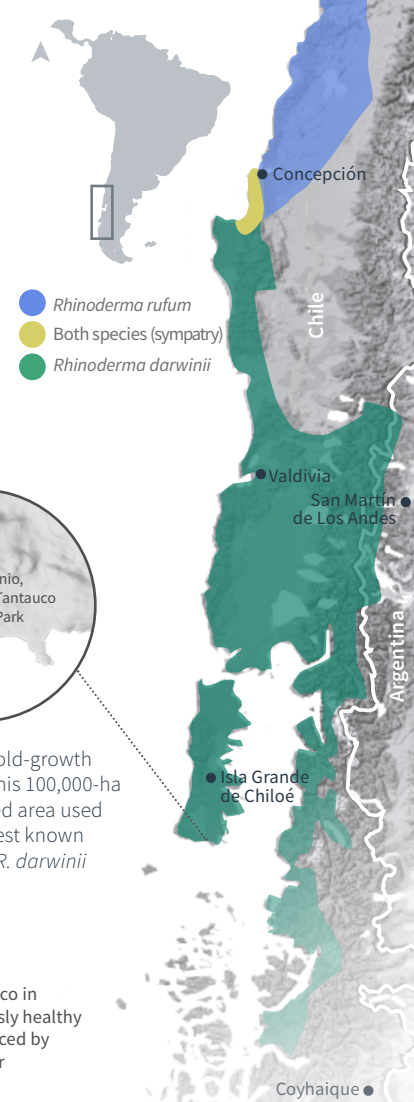
Rhinoderma rufum is Critically Endangered (Possibly Extinct) and was last seen in 1981



Rhinoderma darwinii is Endangered

Rhinoderma distribution

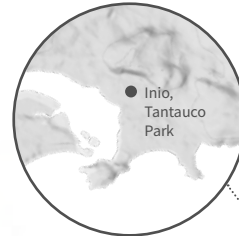
Darwin's frogs only inhabit the native forests of Chile and Argentina



Tantauco Park - a Darwin's frog stronghold



Tantauco Park is located in the Chiloé Archipelago, southern Chile, where Charles Darwin first collected *R. darwinii* in 1834



In its extensive old-growth native forests, this 100,000-ha private protected area used to host the largest known populations of *R. darwinii*

A brooding Darwin's frog male, observed in Tantauco Park in 2022 when the populations of this species were still healthy

Invasion of chytrid fungus and *R. darwinii* population collapse

Abundance over time in two local *R. darwinii* populations

- Based on intensive epidemiological and population monitoring that started in 2010, Tantauco was defined as a Bd-free area and a refuge for *R. darwinii*
- In 2023, we detected the invasion of Bd into Inio, the southernmost remote area of Tantauco, where abundant *R. darwinii* populations used to live
- After the invasion of Bd in Tantauco in 2023, abundance in two previously healthy *R. darwinii* populations was reduced by 89.1% and 95.5% in only one year



In an extensive follow-up survey in 2024, we evidenced the extinction of most local populations of *R. darwinii* in Inio.

One remaining abundant population was discovered deeper in the park, where Bd has probably not yet reached.

What is our plan?

Our long-term goal is to restore the *R. darwinii* populations within Tantauco Park to their pre-Bd state, characterised by abundant and stable populations widely distributed across the park, as observed prior to 2023.

To achieve our long-term goal, we have outlined two stages: an emergency response phase followed by a recovery phase. The long-term goal will be fulfilled during the recovery phase. Financial support is urgently required to implement the emergency response phase.

The general objective for the emergency response phase is:

By 2028, the genetic diversity of *R. darwinii* in Tantauco Park has been adequately protected, enabling the initiation of the recovery phase.

Our specific objectives for this phase (2024-2028) are as follows:

- 1 Safeguard at least 150 reproductive *R. darwinii* frogs from Tantauco Park through placement in wild enclosures and captive-breeding facilities.
- 2 Track the Bd invasion wave in Tantauco Park and protect at-risk populations either by *in situ* disease management or *ex situ* rescue.
- 3 Construct a decision-analytical model to guide the selection of the optimal strategy for the recovery of *R. darwinii* populations within Tantauco Park.
- 4 Secure long-term funding for implementing the recovery phase of our plan.

A project led by

Tantauco task force – a chapter of the Binational Conservation Strategy for Darwin's frogs



For more information, visit us at www.EstrategiaRhinoderma.org

www.RanitaDeDarwin.org

