

Oryx

Beyond borders: joining forces to protect the unique Darwin's frogs

By Darwin's Frog Alliance, 17th July 2020

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Darwin's frogs have become a symbol of the current amphibian extinction crisis (Fig. 1 and Video). Males of these species are renowned for their unique brooding behaviour: tadpoles are incubated inside their vocal sacs. These frogs have an extraordinary history also. They were first collected by Charles Darwin when he landed on Chiloé Island, southern Chile, in December 1834 (Fig. 2).



Figure 1: A pregnant male southern Darwin's frog *Rhinoderma darwinii* on a typical humid substrate of the temperate forests of the southern Andes. Photo: Claudio Azat.

Because of their critical conservation status, more than 30 organizations, including public agencies, academic institutions, private companies, as well as local and international NGOs, recently

launched a binational conservation strategy to guide the conservation of the two species of Darwin's frogs over the next decade.

Endemic to Chile and last recorded in 1981, the northern Darwin's frog *Rhinoderma rufum* has enigmatically disappeared and is categorized as Critically Endangered and Possibly Extinct by the IUCN. Its sister species, the Endangered southern Darwin's frog *Rhinoderma darwinii*, still survives across its native range in Chile and Argentina, but its severely isolated populations are rapidly declining, even in protected areas and undisturbed ecosystems.

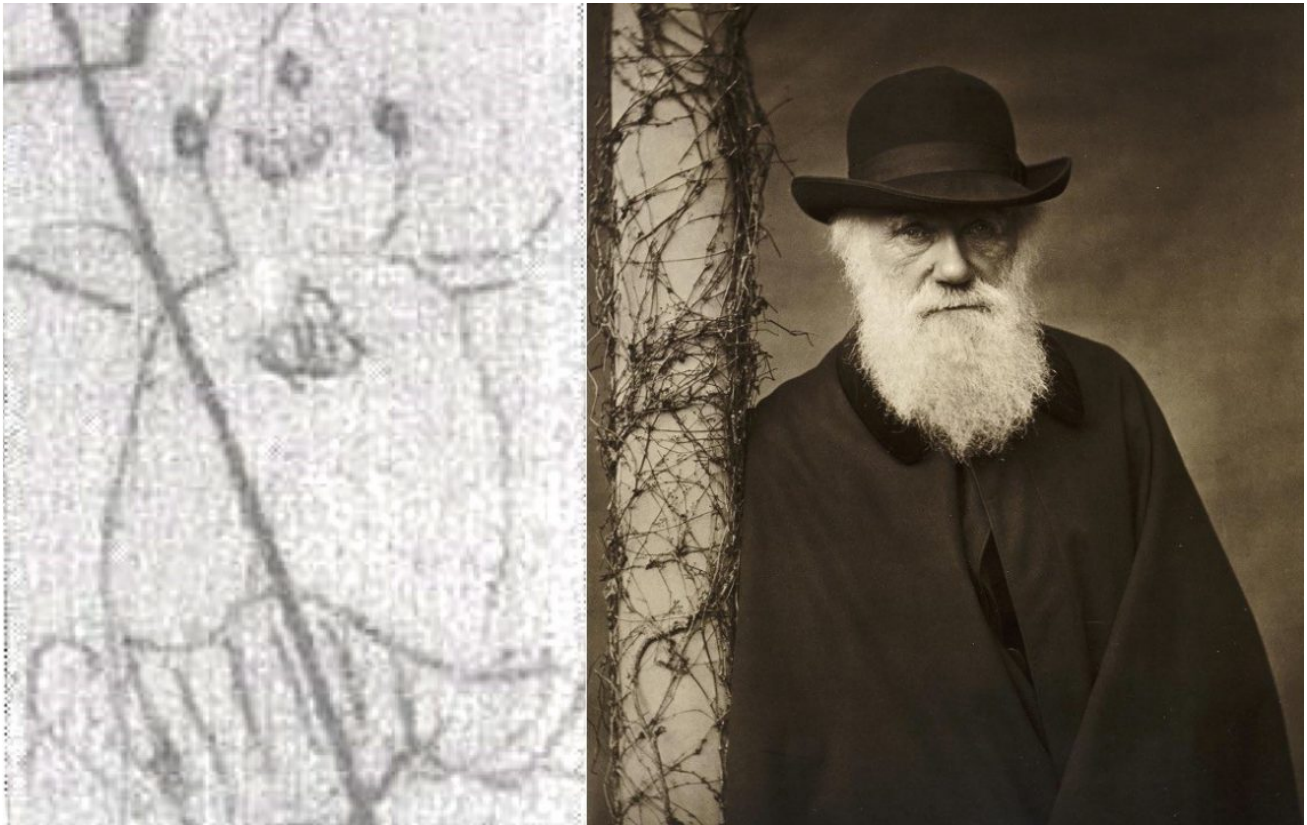


Figure 2: First sketch of a Darwin's frog, made by Charles Darwin in Chiloé Island southern Chile in December 1834. Photo: Chancellor, G. & van Wyhe, J. (2009) Charles Darwin's Notebooks from the Voyage of the Beagle. 615 p. Cambridge University Press, Cambridge, UK

Led by the Chilean branch of the IUCN Species Survival Commission Amphibian Specialist Group, and with the support of the Environmental Ministries of Chile and Argentina, a network of 47 stakeholders (grouped under the Darwin's Frog Alliance) met in Santiago, Chile, in 2017, where a public symposium with over 250 participants discussed and presented current knowledge on *Rhinoderma* spp. and guidelines on how to build a species conservation strategy (Fig. 3).

Following this, a group of 30 stakeholders attended a 2-day workshop to develop the strategy for both species of Darwin's frog. The workshop was held at the Huilo Huilo Reserve, a private wild protected area in southern Chile near the border with Argentina. This reserve was chosen to host the workshop as it protects one of the last and largest populations of *R. darwinii*, and is considered key to developing the foundations of the conservation action plan (Fig. 4).



Figure 3: Poster of the Darwin's Frog Conservation Symposium, celebrated in Santiago – Chile, September 2017. Figure 4: Darwin's frog conservation alliance members attending the action plan workshop at Huilo Huilo Park, southern Chile. Photo: Huilo Huilo Foundation.

After a year of hard work, the strategy was presented in October 2018 in Santiago to a full auditorium of nearly 300 people. The strategy (currently available only in Spanish) can be downloaded from www.estrategiarhinoderma.org. The website, available in both Spanish and English, is a dynamic document containing the strategy and its updates, and also provides supporting information on the biology, ecology and conservation of Darwin's frogs, including institutional and individual strategy members, literature and multimedia resources.



Figure 5: The temperate forests of south Chile and Argentina. Photo: Andrés Charrier.

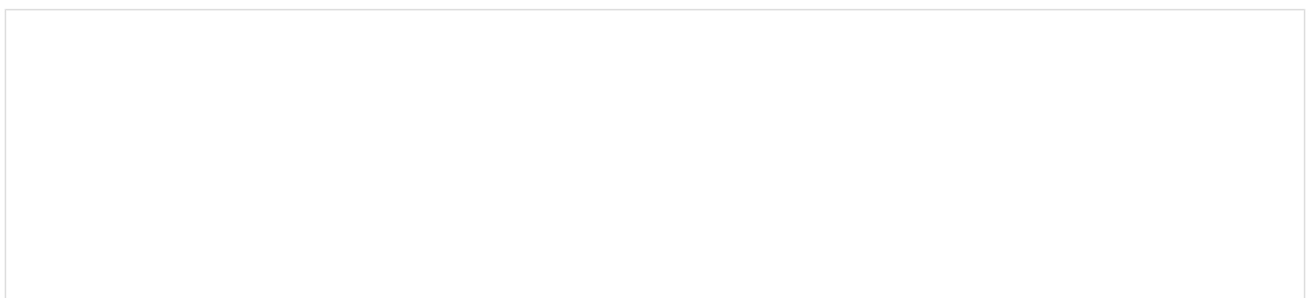
Under the vision “Darwin’s frogs, unique in the world for their reproductive peculiarity, are conserved and valued as an emblem for the protection of the native forests of southern Chile and Argentina” the strategy is a rare, but highly valuable, example of an amphibian being used as a flagship for the conservation of an entire ecosystem spanning two countries: the temperate forests of Chile and Argentina (Fig. 5).



Figure 6: Outreach education activity at a primary school in Chile. Each student is given a book of the printed version of the Binational conservation strategy for Darwin’s frogs. Photo: Claudio Azat.

Using an evidence-based approach, the strategy contains a comprehensive status review on *Rhinoderma* spp., including a critical analysis of the main threats: habitat loss, climate change and the infectious disease, amphibian chytridiomycosis, along with future research directions. Based on 39 prioritized conservation actions, the goal is that by 2028 we will have filled key information gaps on *Rhinoderma* spp., reduced the main threats to these species, and achieved financial, legal and societal support. The strategy will also involve an educational public engagement programme (Fig. 6) and the involvement of key decision-makers. The Binational Conservation Strategy for Darwin’s Frogs is a multi-disciplinary, transnational endeavour aimed at ensuring the long-term viability of these unique frogs and their amazing habitat. We hope this initiative will inspire others and help guide conservation planning elsewhere.

The article [A flagship for Austral temperate forest conservation: an action plan for Darwin’s frogs bringing together key stakeholders](#) is available in *Oryx—The International Journal of Conservation*.





Darwin's Frog Alliance

The Darwin's Frog Alliance is a network of 47 individuals, representing 31 institutions, who work together to secure the long-term conservation of Darwin's frogs. Led by members of the IUCN Amphibian Specialist Group, and with the endorsement of the Argentinian and Chilean Ministries of Environment, participants represent a diverse array of stakeholders, including academia, government, zoological institutions, local communities, non-governmental organizations (NGOs) and the private sector.