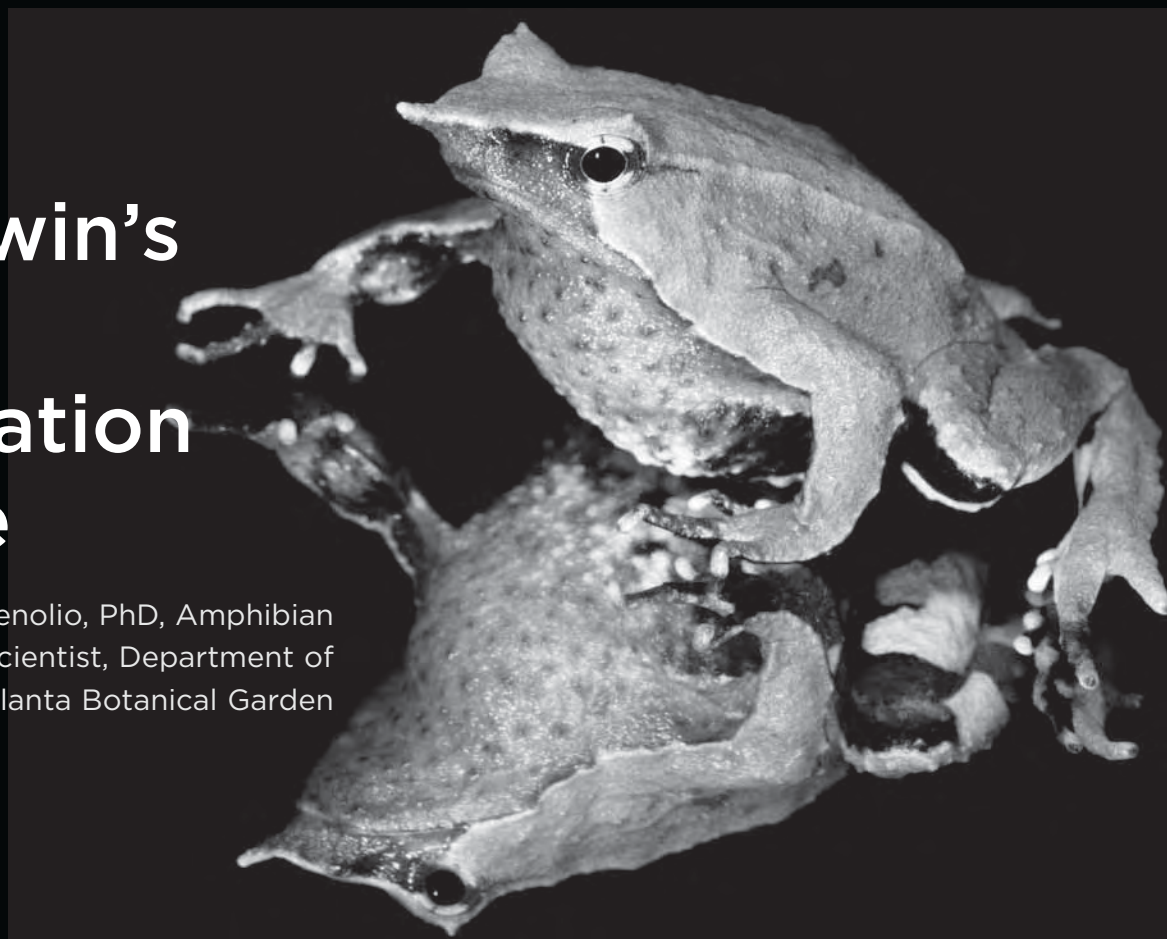
The Darwin's Frog Conservation Initiative



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Secluded by the Andes Mountains to the east, the Pacific Ocean to the west, and the Atacama Desert to the north, a narrow strip of southern Chile accommodates temperate rainforest. These forests are biologically unique owing to isolation dating back to the Tertiary Period. Chile's humid forests contain significant numbers of endemic plants and animals, including amphibians. Many of these amphibians are IUCN listed and are in decline. The Darwin's Frog Conservation Initiative (DFCI) works toward conserving some of these critically imperiled species.

The DFCI is a collaboration between the Atlanta Botanical Garden (ABG), The National Zoo of Chile in Santiago (NZC), the Center for Advanced Studies of Ecology and Biodiversity at the Catholic University of Chile, and several biologists. The initiative aims to elucidate the reasons behind the declines of Darwin's Frogs and other endemic amphibians in southern Chile. Further goals include trying to curb the declines using techniques such as the development of captive assurance colonies within Chile, *ex-situ* breeding of endangered amphibians within Chile, and monitoring of diseases in wild populations. Over the last three years, a lab has been developed on the grounds of the NZC, modeled after an amphibian lab at ABG. The lab has 32 front-opening enclosures with automated misting systems and climate control, pre-filtered water, a backup generator and a gravity-fed backup water supply (both proved necessary after the Chilean earthquake of 2010). One wall of the lab is glass, accommodating the visiting public. Signage in front of the facility explains the project in English and Spanish.

Darwin's Frogs were the project's first target. Of the two known species, Chile's Darwin Frog *(Rhinoderma rufum)* hasn't been seen since the 1970s; the Darwin's Frog *(R. darwinii)* has declined across much of its range. The normal suspects all come into play: habitat loss, conversion of native forests to cultivate tropical pines, invasive species, agrochemicals, and emergent infectious amphibian disease. Breeding groups of Darwin's Frogs were collected from wild populations and added to the facility in 2010. Reproductive activity and the first babies were produced a few months later; more juveniles have been produced in 2011.

With this success, the project now looks to expand the amphibian conservation program within Chile to include four new goals: (1) implement another cost effective amphibian conservation breeding laboratory, made from two repurposed cargo shipping containers; (2) increase the capacity of our existing in-country project to accommodate six more imperiled Chilean amphibian species; (3) work toward assurance colonies 50-to-65 individuals in size to maximize numbers and genetic diversity; and (4) train two additional NZC staff members in captive amphibian management. None of the six species we propose to work with have any conservation activities associated with them and all are critically imperiled. If drastic conservation actions are not immediately taken, all species are at serious risk based on current rates of decline. Our target species are: *Telmatobufo venustus*, *T. bullocki*, *T. australis*, *Insuetophrynus acarpicus*, *Alsodes montanus*, and *Eupsophus contulmoensis*.