

# amphibian ark

Rescuing amphibians in crisis

## Newsletter

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**Above:** The Critically Endangered Loa Frog finds hope in a new *ex situ* conservation center in Chile (pg. 5).

**Below:** AArk joins the kickoff meeting of the 3rd IUCN Global Amphibian Assessment in Cape Town, South Africa to conduct CNAs (pg 2).



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## AArk conducts CNAs in South Africa during IUCN Global Amphibian Assessment

**Becca Brunner** | Program Director, Amphibian Ark

Prioritizing species in need of rescue is one of Amphibian Ark's core functions. To make this happen, we need to understand which species require *ex situ* conservation in a specific region of interest. AArk's flagship Conservation Needs Assessment (CNA) process is designed to do just that—our questionnaire and associated algorithm identify conservation recommendations, including rescue, for individual species. We prefer to conduct CNAs in conjunction with IUCN Red Listing Assessments in order to receive the most up-to-date information from leading experts.

The third Global Amphibian Assessment, which evaluates every known amphibian species for the IUCN Red List of Threatened Species, kickstarted in April of this year in Cape Town, South Africa. Amphibian experts gathered to assess the conservation status of frogs throughout Southern Africa (including South Africa, Lesotho, Eswatini, Namibia, Botswana, Zimbabwe, and Mozambique). The Red List assessments for all species evaluated during this workshop will be published after a rigorous review process. Amphibian Ark's Program Director, Becca Brunner, joined the team of experts to conduct CNAs for the same group of species. This was our first IUCN-AArk in-person collaboration since the Covid-19 pandemic!

After evaluating over 100 species through the CNA process, we identified 5 South African endemics that need *ex situ* conservation actions, including rescue and research. These species were presented to various South African organizations for future planning. AArk's next steps will include collaborating with South African institutions to help facilitate the creation of *ex situ* conservation programs for those species. Stay tuned!



Amphibian experts from the Southern African region gathered in Cape Town for the 3rd Global Amphibian Assessment. AArk's Program Director, Becca Brunner, conducted concurrent CNA assessments.

**Left:** AArk's Program Director, Becca Brunner, and Jennifer Swandby, Co-Coordinator of the Amphibian Specialist Group Red List Authority, in front of Table Mountain National Park—home to many amazing endemic frog species. **Right:** The organized chaos of an IUCN Global Amphibian Assessment, split into 3 expert groups to finish as many species assessments as possible. Photos: Becca Brunner





## Training community parabiologists to protect a Bolivian national treasure, *Atelopus tricolor*

**Patricia Mendoza-Miranda** | Bolivian Amphibian Initiative (BAI), Atelopus Survival Initiative (ASI), & South American Herpetology Network

**Gabriel Callapa** | Bolivian Amphibian Initiative (BAI)

Historically, the three-colored harlequin toad (*Atelopus tricolor*) occurred from southern Peru, through the central Andes of La Paz, reaching the yunga ecoregion of Cochabamba in Bolivia. Until recently, it was a widely distributed and apparently common species. Yet by 2003, *Atelopus tricolor* populations had all but disappeared; attempts to find at least a few individuals were in vain. The leading hypothesis to explain its disappearance is the introduction of the parasitic fungus *Batrachochytrium dendrobatidis*. Almost 20 years after its disappearance, two naturalist photographers found *Atelopus tricolor* in a small forest in the yungas of La Paz, between streams and a coffee plantation. This remains the only known population of the species. *Atelopus tricolor* is now considered Critically Endangered (IUCN, 2019).

Since then, many organizations and institutions have taken action to protect the remaining *Atelopus tricolor* individuals. Leading this initiative is the Bolivian Amphibian Initiative (BAI), which has spearheaded the project **All in Action: *Atelopus tricolor*, it moves us!** In this project, various actions are carried out in several phases, each designed to help inform conservation decisions for the species.



*Atelopus tricolor*, protected through BAI's All in Action project.  
Photo: Gabriel Callapa

**Edwin, parabiologist in training for the BAI *Atelopus tricolor* project.**

Photo: Patricia Mendoza-Miranda



In 2023, Amphibian Ark conducted a Conservation Needs Assessment (CNA) for *Atelopus tricolor* (<https://conservationneeds.org/summaryreport/6981>). This CNA was then used to reinforce BAI project objectives, as well as to help different organizations take specific actions to safeguard the species. After learning different aspects of its biology and threats, we are now entering the stage in which the active participation of local communities becomes crucial.

One of the conservation actions recommended by AArk's CNA was to better understand the biology of the species *in situ* through natural history studies (on reproductive activity, use of streams, ecological niche, microhabitat, etc.). To carry out this research, BAI recently began training local parabiologists to understand the biology, ecosystem, and conservation requirements of *Atelopus tricolor* and other species in its habitat. Future parabiologists are very excited to learn about the species because, in reality, the communities that surround this crucial *Atelopus tricolor* population do not know much about amphibians.

We are very pleased with the first impressions and initial actions of this project. Comments from the parabiologists: "Thank you for working with our community."; "Thank you for introducing me to the harlequin, which has lived in my backyard for so many years and yet I am just now getting to know it". We are aware that this conservation journey will be long and slow, but we are sure that we are on the right track to protect *Atelopus tricolor* and its remaining natural habitat.

We are also initiating other actions that will allow us to soon establish an *ex situ* rescue program for *Atelopus tricolor*, making sure to not harm the remaining population in the process.

## A new partnership with Species360

Amphibian Ark (AArk) is excited to announce a new partnership with Species360. This partnership will give all AArk-recommended Species Rescue Programs access to the world's leading wildlife data management system for *ex situ* populations.

Species360 will be familiar to most zoos and aquariums around the world. It is the key global organization that focuses on using data technology to enhance the care and conservation of animals and plants in *ex situ* programs. Currently, however, many of Amphibian Ark's range state partner institutions operate outside the international network of zoos and aquariums. In many cases, critical amphibian Species Rescue Programs have been managed without access to Species360's key data resources.

Under our new partnership, Species360 is offering free access to its Zoological Information Management System (ZIMS) for amphibian Species Rescue Programs managed by partners of Amphibian Ark in range states.

Sound data and scientific management is crucial for the success of these Species Rescue Programs. For these amphibian species, *ex situ* programs may well become the sole safeguard against their extinction. These populations need careful, scientific management to ensure they remain fit for their eventual reintroduction.

By using ZIMS, AArk and its partners will ensure the data on these rescue populations is standardized, secured, and made accessible now and in the future. With Species360 analytical tools to assess the data, we will help inform the management of these populations so that health and viability is retained.

"Species360 is proud to partner with Amphibian Ark as it works to halt extinction among the world's most at risk amphibian species. We look forward to helping Amphibian Ark's partner institutions gather and analyze critical population data for their programs. Our Zoological Information Management System will help ensure these data can be used to help manage amphibian populations for reintroduction as well to benefit wider amphibian conservation efforts," said Jim Guenter, Chief Executive Officer of Species360.

Amphibian Ark will coordinate this transition, working with Species360 to help bring new partner institutions on board as we work to establish Species Rescue Programs for all amphibian species in need.

### About Species360:

Species360 is a not-for-profit wildlife data organization. Its mission is to provide the tools and resources that empower zoos, aquariums, botanic gardens and conservation organizations to make informed, data-driven decisions on wildlife management. Species360 aims to help improve the well-being and conservation of wildlife around the world. Central to Species360's efforts is the Zoological Information Management System (ZIMS). Species360 members collect and curate data in ZIMS, the world's most comprehensive knowledge database on more than 22,000 species. ZIMS vastly increases what is known about thousands of species and is instrumental in identifying sustainability strategies for many threatened species. ZIMS is used by over 1,400 zoological institutions around the world to help manage their collections effectively and contribute valuable information to global conservation initiatives.



## Thanks for your AArk website feedback!

To everyone who responded to our recent survey and provided us with comments on the current Amphibian Ark website – an enormous thank you. Your views and suggestions have been incredibly useful as we embark on redesigning our website.

Our current website has done us sterling work for such a long time now and has been a linchpin in how we present ourselves to our wider constituency. But now seems an appropriate time for a review. We'll be aiming to make sure that key information on Amphibian Ark is up to date and up front. Our online resources need streamlining, in some cases updating, and we want to make them easier to find and access. And we're looking to our web presence to reflect AArk's new strategy, focus and current programs.

**We're working with an exciting web designer at the moment, so keep an eye out for a new AArk website in a few months!**



## The Loa Biodiversity and Conservation Center prepares for an *ex situ* program for the Loa Frog

**Francisca Oliva Godoy, Paulina Gallardo Gutiérrez, & Patricia Pérez Cortés** | The Loa Biodiversity and Conservation Center, Chile

**Felipe Farias** | The Loa Biodiversity and Conservation Center & Codelco, Chile

**Marco Méndez, Paola Sáez, & Gabriel Lobos** | University of Chile, Santiago, Chile

**Patricia Mendoza-Miranda** | Bolivian Amphibian Initiative, Bolivia



The Loa Frog (*Telmatobius dankoi*) is a Critically Endangered (IUCN 2015) microendemic amphibian from the Antofagasta region, Chile. Its natural habitat is located in a place known as "Las Cascadas", near the oasis of the city of Calama in the Atacama Desert. This species lives has captured the attention of scientists and conservationists due to its uniqueness and fragility—its habitat has been drastically reduced and is further threatened by the advance of urbanization and other human activities.

Since 2019, the journey to save the Loa Frog from extinction has involved an intense effort, involving both *in situ* and *ex situ* conservation strategies. Organizations such as the Santiago Metropolitan Park Zoo, the Calama Culture and Tourism Corporation and the Northern Codelco Operation have joined forces to develop a second *ex situ* reproduction center for the species.

**A healthy Loa Frog individual found in the Las Cascadas sector of Chile.** Photo: Patricia Pérez Cortés

### The role of the Loa Biodiversity and Conservation Center

The Biodiversity and Conservation Center (CENByC) was established in August 2022, as part of a voluntary commitment by Codelco, to conserve species threatened with extinction and promote environmental education in the community. This center represents an important milestone in the conservation and preservation of the biodiversity of northern Chile.

After seeking advice from national and international scientists and various institutions such as the Santiago Metropolitan Park Zoo, we obtained authorization to operate as a reproduction center for the Loa Frog. In the future, we plan to integrate other threatened taxa from the Loa River basin, such as the Paulina Lizard (*Liolaemus paulinae*) and the Loa Silverside (*Basilichthys semotilus*).

### Areas of scientific development

We have been able to carry out this project with the financial support of Codelco, and the invaluable collaboration of the Calama Culture and Tourism Corporation, which provided us with a two-story building on the premises of Parque El Loa, Calama, Chile. This space has been subject to multiple modifications to ready the facilities for the *ex situ* conservation of the Loa Frog. Thanks to the guidance of all our advisors in Chile and Bolivia, we have managed to make CENByC the first project of this type in northern Chile. Currently, the center is fully prepared in terms of infrastructure and capacity, and is ready to receive the first stock of Loa Frogs from the Amphibian Reproduction Center of the Santiago Metropolitan Park Zoo.

Currently, the CENByC has various areas dedicated to scientific development focused on breeding the species under human care. Initially, the live food production area was established, known as the Bioterio, where insect species such as the Speckled Cockroach (*Nauphoeta cinerea*) and the Black Cricket (*Gryllus fulvipennis*) are raised. Areas intended for *ex situ* breeding of the species were then created. We have worked with our scientific advisors to develop a methodology that meets all the requirements and conditions necessary for animal well-being by attempting to replicate the frogs' natural environment as much as possible.



**Professional Paulina Gallardo Gutiérrez working in the new maintenance area at CENByC.** Photo: Patricia Pérez Cortés





Field trip and training for the monitoring of the Loa Frog in the Las Cascadas sector. Photo: Francisca Oliva

To comply with the requirements established by the Agricultural and Livestock Service (SAG), we set up a clinic area under the supervision of our veterinarian, equipped for the preparation and application of medications and procedures necessary for each individual frog's health. We also established a molecular biology laboratory, which will be essential for scientific development relating to the Loa Frog and eventually other species. Finally, we implemented an area where we will monitor and regulate the water quality in each tank, ensuring an optimal environment for the frogs.

## Environmental education and dissemination

The next step in our Loa Frog conservation project involves environmental education for the general public. To achieve this goal, we have established an exhibition room on the first floor of the building, a space intended for academics and the local community alike to visit and learn more about the Loa Frog and its ecosystem.

## Alliances and collaborations

We have established alliances with conservation programs at the national and international level, both for the protection of amphibians and for environmental education. We are actively collaborating with the Chilean Ministry of Environment in the implementation of the Alliance for Zero Extinction (AZE), an effort aimed at the conservation of crucial sites and the prevention of extinctions at a global level. In January of this year, we participated in the first coordination workshop for the Loa Frog within the framework of this initiative.

We have maintained a valuable collaboration with the Gaviotín Chico Foundation since the beginning of our project. Together with the Santiago Metropolitan Park Zoo, we are working to promote and raise awareness about the care of endangered species through training sessions and joint activities. Recently, we organized a training day between the CENByC team and the Foundation, where we were able to exchange knowledge and environmental education proposals focused on endangered species. These types of collaborations are essential to strengthen our conservation and environmental awareness efforts.

## Future perspectives

We eagerly await the arrival of the first Loa Frog individuals at the CENByC from the Metropolitan Park of Santiago. It is important to acknowledge that this milestone could only have been achieved thanks to the joint commitment of all the institutions and organizations involved, an effort that seeks to protect a species that is part of such a threatened genus.

The conservation of the Loa Frog and its ecosystem in Calama, Chile is an inspiring example of what can be achieved when science, technology and the community work together for biodiversity. However, this is only the first step in a long journey towards protecting and preserving endangered species. It is imperative that we continue to support conservation initiatives and promote greater knowledge and appreciation for the natural world around us. The Loa Frog's plight offers a vivid reminder of the fragility of biodiversity and the importance of our shared responsibility to protect it for future generations.





## Amphibian Ark Donors, January-May 31 2024

The work of AArk is possible due to the generous support of the following individuals and institutions:

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