

FOUNDATION FOR THE CONSERVATION OF SALAMANDERS
The Dan M. DiGiacomo Small Grant 2023

FINAL REPORT



**TRANSFORMING THE RARE BRAZILIAN SALAMANDERS
IN SYMBOLS OF CONSERVATION IN AMAZONIA**

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PROJECT OVERVIEW

Brazil has the largest diversity of amphibians in the planet. However, most of its impressive diversity of over 1200 species (out of 8568) represent frogs and caecilians (Brazilian Society of Herpetology, 2023). Surprisingly, despite such a big diversity of amphibians, only four species of salamanders exist in Brazil—all in the genus *Bolitoglossa* and all from Amazonia. Brazilian salamanders are extremely poorly known, and much of the country's population does not even know these animals exist there. In fact, up until a decade ago only a single species was recognized in Brazil, with the other three only recognized in a taxonomic paper published in 2013 (Brcko et al. 2013, *Zootaxa*). This project aimed to build an educational campaign with the overarching goal to popularize salamanders in Brazil and transform one of the Brazilian species (Pará's Lungless Salamander: *Bolitoglossa paraensis*) into a symbol of amphibian conservation in the country. Our goal was to educate the Brazilian population about the existence of Salamanders in Brazil and about the importance of amphibian conservation in the country. This project is considered a priority because Brazil is a hotspot for amphibian biodiversity, but the group is usually not considered a charismatic one, nor is it given priority in conservation strategies. We aimed to bring amphibians (and especially salamanders) to the forefront of vertebrate conservation talks, by publishing stories and images of these animals in Brazilian mainstream media.

PROPOSAL GOALS AND ACHIEVEMENTS

THE BOOK

We proposed the publication of a children's book. The book was prepared, printed, and officially released in September 2023, during the Brazilian Congress of Herpetology, in Porto Seguro, Bahia, Brazil. The book was written by the award-winning biologist Pedro Peloso, and illustrated by a talented Brazilian illustrator, Fran Matsumoto.

We have signed a contract with a publisher to produce a second edition of the book. Part of the contract predicts that we will attempt to include the book as part of the curriculum in some schools. To do that, the publisher will work closely with the author and local governments. In December 2024 a second (revised and updated) edition of the book was published and released during an event in the city of Vitória, ES, Brazil. The publisher is constantly sharing images of the book on social media and dozens of copies have reached new kids.



Book cover (first edition)

Technical details (1st edition)

The book was published in partnership with the Documenting Threatened Species Project (www.projetodots.org). Detailed specifications are as follows:

- 500 copies were printed.
- ISBN 978-65-981055-0-1.
- 44 pages containing text and color illustrations.
 - Language: Portuguese (Brazil)
 - 20 original color illustrations by artist Fran Matsumoto.
 - 25cm x 25cm format.
 - Hardcover.
- Printed in Brazil, with *Gráfica GSA*.
- The logos of main project supporters are printed in the back cover.
 - Documenting Threatened Species (project).
 - Foundation for the Conservation of Salamanders.

Technical details (2nd edition)

The book was published by Editora Zínia (publisher: www.ziniaeditora.com.br). Detailed specifications are as follows (only those that differ from first edition):

- 500 copies were printed.
- ISBN 978-65-983000-3-6
- 46 pages containing text and color illustrations.

In our original proposal, we mentioned that the book “have a QR code that will direct readers to an online website within the “Documenting Threatened Species” project (www.projetodots.org)”. for logistical and technical reasons, we were not able to add the QR code to the book. However, the website contains a dedicated link with information about the book (<https://www.projetodots.org/livro-salamandra>).

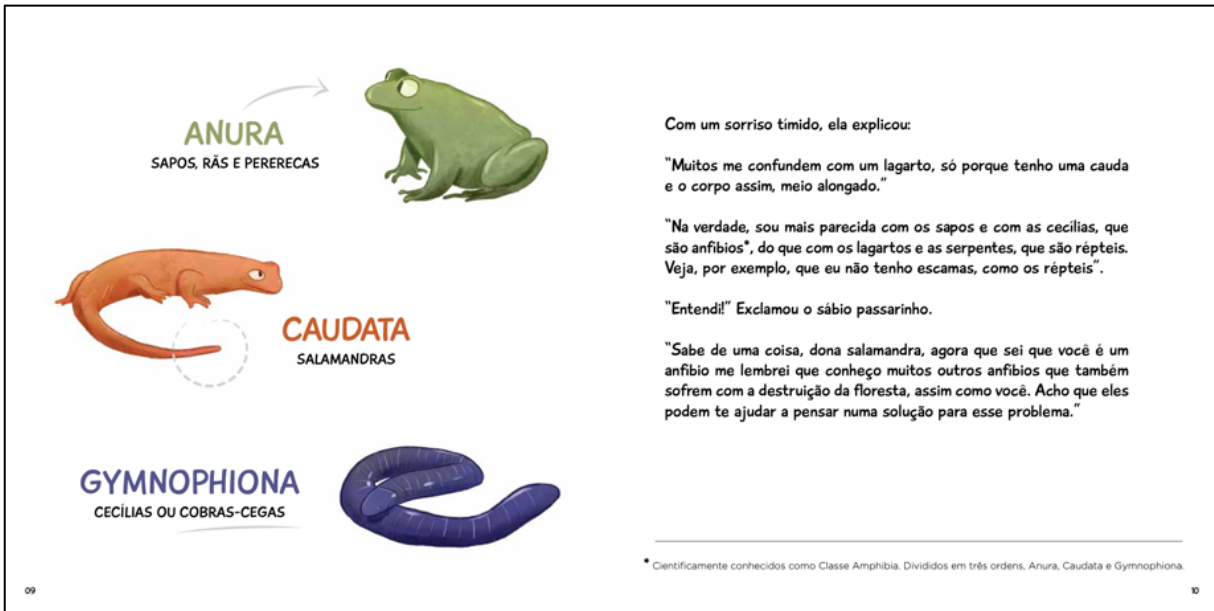
Plot

The story feature a Pará’s Lungless Salamander named LIA (representing the species *Bolitoglossa paraensis*) as the main character. One day our main character (Salamander) wakes up to see its habitat being destroyed (logged). She then starts crying and is heard by a migratory bird named DAVI (a purple Martin, *Progne subis*) that hen starts to talk to LIA. After introductions (where the main character explains what is a salamander), Davi realizes she is an amphibian and not a lizard (many people in Brazil think salamanders are lizards). Then, he tells LIA her that he knows many other amphibians in Brazil that are also endangered due to habitat loss. They then set to an adventure where these two characters travel throughout Brazil and its distinct biomes meeting several amphibians (frogs) that are threatened with extinction.

Central messages: The book is intended to teach and inform readers about amphibian biology and conservation. If we had to summarize its intention it would be: “*science communication for kids*”. Some of the scientific topics covered by the book are:

- clarify what are amphibians;
- introduce salamanders to the Brazilian audience (salamanders are quite rare and largely unknown in Brazil);
- introduce some of the Brazilian species endangered with extinction;

- teach some relevant aspects of amphibian biology for readers
 - microhabitat use
- create/increase awareness about threatened amphibian species and habitats in Brazil



Example pages from the book with educational content.

Top: brief explanation of what are the main groups of amphibians. Bottom: one of the characters eating a fruit, text explains relevance of this biological fact, known only for a single species of frog from Brazil.

Characters

The roles of main characters Lia and Davi, were already mentioned above. The little frogs and toads that Lia and Davi encounter during the adventure are based on real species, which helps the reader understand the diversity of amphibians in Brazil (the largest on the planet!). Furthermore, each species includes, in a light and humorous way, characteristics and personalities of real researchers. This is a tribute from the author to the scientists whose stories are linked to the conservation of the illustrated species.

Below, we describe the species in which they were based, and the people they refer to.



Lia **Salamandra-do-Pará**
Bolitoglossa paraensis

Homage: Lia (daughter of author Pedro Peloso)



Davi **Andorinha-azul**
Progne subis

Homage: Davi (son of author Pedro Peloso)



Sapa Mi **Sapinho-Admirável-da-Barriga-Vermelha**
Melanophryniscus admirabilis

Homage: Michele Abadie. Conservation biologist from southern Brazil. She has worked with the biology and conservation of *Melanophryniscus admirabilis* for many years. One of her favorite hobbies is, of course, dancing.



Xuxu **Rã-das-Pedras-do-Sul**
Thoropa saxatilis

Homage: Patrick Colombo (aka. Xuxu). He is a conservation biologist and specialist in amphibian ecology and conservation assessments.



Helinho **Perereca-comedora-de-frutas**
Xenohyla truncata

Homage: Hélio Ricardo. He is a Prof. of Zoology and has worked with the biology of *Xenohyla* for many years. He is an author in the most detailed study about diet of the species, showing it commonly eats (a behavior unknown to any other frogs in the World).



João Sapão **Sapinho-da-Restinga**
Melanophryniscus setiba

Homage: João Luiz Gasparini. Gasparini is a self-trained wildlife biologist who have discovered many new species of amphibians, reptiles and fish. He was the Peloso's advisor during his senior project when he discovered the *Melanophryniscus setiba*, which they both described and named as coauthors.



Belinha **Perereca-de-capacete-pintada**
Nyctimantis pomba

Homage: Cybele Lisboa. She is a Zoo specialist, and heads the ex-situ conservation program for *Nyctimantis pomba*.



Rãzinza **Rãzinha-da-Maranguape**
Adelophryne maranguapensis

Homage: Diva Maria Borges-Nojosa. Biologist who discovered the species in 1994 and has worked intensely to preserve the frog and its habitat in the state of Ceará.

IMPACT

The book was a tremendous success. Half of the printed books was donated. 50 copies of the book were donated to scientists and researchers in Brazil working on the conservation of amphibians. 200 copies of the book were distributed to public school and non-profit organizations focused on the conservation of amphibians.

The book was well received by the community in Brazil. Both scientist and non-scientists have reached out to compliment and to highlight how their kids enjoyed the story. Most importantly, many of the comments show that some of the central messages were conveyed.



Donation of books.

Left, with Ibere Machado, president of Instituto Boitatá, with books that will be further distribution in public schools and events. Right, donation to a public library, Santa Cruz State University, Bahia, Brazil

Posts on social media (personal and that of the DoTS Project) directly related to the book have reached between 1000 and 2000 people each—we cannot access how many unique accounts were reached in total.



Social Media

Promotion of the book in the publisher's Instagram account

ADDITIONAL GRANT ACTIVITY

To further the impact of the grant and help achieve our goal of transforming *Bolitoglossa paraensis* into a symbol of amphibian conservation in the country we used remaining funds of the grant to support initiatives that involve the conservation and popularization of salamanders in Brazil. One of Instituto Boitata's flagship initiatives, *Documenting Threatened Species* (DoTS) has launched a massive campaign to raise awareness about the problem of amphibian extinctions in Brazil. DoTS is a bold initiative to study, document and protect threatened species of amphibians in Brazil through the creation of a database and images of endangered amphibian species, and by bringing scientific knowledge to new audiences. One of the main deliverables of this campaign was the development of an art exhibit designed to be showcased in various settings.

The development of the exhibit involved a careful selection of imagery to be displayed. We included artwork by three female artists, Jamie Hefley (USA), Dani Cafaggi (Mexico) and Gabriela Luiza (Brazil) and photography by Pedro Peloso. Among the art included, there are two images of salamanders, an illustration by Gabriela and a photo by Pedro Peloso. Funds from this grant were used to support the development of this exhibit.

Exhibit Dates

Reese Bullen Gallery, Arcata, CA (Fall 2025). Our primary goal was to create an exhibit on the Cal Poly Humboldt campus, and most of our energy and resources were dedicated to this effort. The exhibit has received strong support from the Departments of Biological Sciences and Arts + Film at Cal Poly Humboldt. A total of 12 original illustrations and eight of Dr. Peloso's photographs were combined and framed by Art Center Frameshop, a local supplier. All artwork is now being prepared for mounting as an exhibit scheduled to debut at the Reese Bullen Gallery in Arcata, CA, in Fall 2025. As of March 2025, we are collaborating with gallery staff to design the exhibit, including plaques and promotional materials. FCSal will be mentioned as a supporter of this initiative.

Manaus, Brazil (Summer, 2025). We were invited to showcase the EXTINTOS exhibit in Brazil during the XI Brazilian Congress of Herpetology in Manaus, Amazonas. This year's congress theme, "*Meeting of Ancestral and Contemporary Knowledge in the Heart of the Amazon*," emphasizes the integration of traditional knowledge and modern scientific practices, with a focus on the Amazon's unique biodiversity and advancements in herpetology. The event will feature a diverse program, including lectures, roundtable discussions, presentations, and networking opportunities, offering a unique experience in the heart of the Amazon.

Together, these two events will be an exceptional opportunity to highlight Brazilian species threatened with extinction, including salamanders.



Bolitoglossa madeira (image included in Exhibit)

Rio Madeira's Lungless Salamander Color Pencil on Paper. Illustrated by Gabriela Luiza.



Bolitoglossa paraensis (image included in Exhibit)

Photograph by Pedro Peloso.

