

**Conservation of *Scinax alcatraz* (Anura: Hylidae): Captive breeding and *in situ*
monitoring of a critically endangered tree-frog species**

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Executive summary

Scinax alcatraz is a tree frog, endemic of Alcatrazes Island and is listed as “Critically Endangered” on the International Union for the Conservation of Nature (IUCN) Red List. Part of the island belongs to the Brazilian Navy, and it is used as a target practice by navy ships. This practice often cause spot fires on the island and consequently destroy the bromeliads, the habitat of the *S. alcatraz*. For this reason the establishment of a *ex situ* breeding program, as well as maintaining a viable population in captivity, is really necessary and urgent. The founders will be collected during the rainy season and will be placed in a captive biosecure breeding facility (modified shipping container), inside of FPZSP facilities. The fund requested to AArk will be used to husbandry and care materials. Parallel to the captive program, constant monitoring of the species will be conducted to enable the investigation of possible population declines, and if necessary, the genetic and sanitary viable population of *Scinax alcatraz* maintained in captivity will be ready for some possible supplementation or reintroduction. The results of this project will be processed in a guideline, which can be used to make the amphibian conservation a priority in public policies in Brazil.

Introduction

Scinax alcatraz (Lutz, 1973) is a tree frog of the *perpusillus* group (Hylidae family), which is characterized by species that have the life cycle restricted to bromeliads. These tree frogs are endemic of Alcatrazes Island and are listed as “Critically Endangered” on the International Union for the Conservation of Nature (IUCN) Red List.

Alcatrazes Island, with an area of 135ha, is the main island of Alcatrazes Archipelago (24° 6' S 45° 42'O), which is located about 35 km from the coast of São Sebastião (SP). Part of the archipelago is inserted in the Tupinambás Ecological Station (SP), under the current administration of ICMBio (Instituto Chico Mendes de Conservação da Biodiversidade - *Chico Mendes Institute for Biodiversity Conservation*), however, part of the island belongs to the Brazilian Navy and is used as a training target by Navy ships. This training can lead to fires on the island (has happened in the past, burning 25% of the vegetation of the island) that can destroy the bromeliads, habitat of the *S. alcatraz*, and consequently decimating the entire population. Measures to minimize the impact during the training season were agreed between the researchers and the Brazilian Navy, but the only way to eliminate this major threat to this population is the completely end of this practice. At the same time researchers have been discussing to change the status of an Ecological Station into a National Park. The changing of the categorization will bring an increase of the restrictions regarding protection, will limit the use of the island and will increase size of protected area.

Due to the endemism of this species (restricted to Alcatrazes Island), the tree frog is susceptible to several threats that can easily decimate the population, like natural disasters or the introduction of new diseases. For this reason the establishment of a *ex situ* breeding program, as well as maintaining a viable population in captivity, is becoming extremely necessary. Moreover, what intensifies the urgency of this conservation program is the historic use of the island by Brazilian Navy as a shooting target, which is performed exactly in the location where the species has been founded so far.

S. Alcatraz has never kept in captivity, for that reason, to initiate this project, it was necessary a previous study with a surrogate tree frog named *Scinax perpusillus*, which is common in the wild and founded in the Atlantic forest in the continent portion. The husbandry and reproduction of this common tree frog has been proved successful, and the skills acquired during this process (2 years) can now be applied for this threatened frog. At the same time of the captive program, constant *in situ* monitoring of the species will be conducted to allow the investigation of possible population declines, permitting interceptive measures if needed, as well as the supplementation or even reintroduction of captive-bred amphibians.

This project is based on values established by the Amphibian Ark, as will be used to promote *ex situ* program as a tool for conservation of a critically endangered species which *in situ* measures are not enough so far. This is the first *ex situ* conservation program of a frog

species developed in Brazil, and the results of this project will encourage other researchers to work with different Brazilian endangered species of amphibian.

Outcomes

- Maintenance of a genetic and sanitary viable population of *Scinax alcatraz* in captivity for possible supplementation or reintroductions;
- The results of this project will be processed in a guideline, which can be used to make the amphibian conservation as priority in public policies in Brazil;
- An internet link will be create on the FPZSP website containing periodic update to promote the spread of the goals of the project.

Metodology

Fieldwork

The field trip will be conducted in one expedition that will last 3 days. There is no dock on the island and for this reason the researchers will need to camp on the site. The trip is scheduled to happen between October and December 2011, during the rainy season and consequently, the species reproduction period. The population monitoring will be conducted annually.

The intention is to collect 20 adults of *Scinax alcatraz* (10.10.0) and 20 tadpoles, that will be the founders of the captive breeding program.

The capture of adults will be held by active calling search during the night. The capture of tadpoles will be conducted at daytime, looking for them in the water deposited in bromeliads axils.

All material and personal equipment will be disinfected prior to the field trip to prevent the carrying of continental diseases to the island. Samples from the wild population will be taken to investigate the presence of *Bathrachochytrium dendrobatidis* in the island.

Ex situ program

A captive breeding facility will be built in a shipping container (40 foot) inside of the FPZSP dependences, but far away from the resident amphibian collection and from the population that are present on FPZSP forest. The model of Amphibian Research Center

(www.frogs.org.au) will be followed in this case. The biosecure facility has to be ready in October 2011, when we are going to collect the founders.

The facility will consist in a room for housing permanent, a room for culturing live foods, a room to shower and disinfection and a place to install de water equipment supply.

The knowledge and expertise obtained with *Scinax perpusillus* will be used to start the captive program of *S. alcatraz*. Tanks with no substrate, plants for the animals hide and a fogger to stimulate the reproduction will be installed. The founders will be held in groups of 5 to 8 individuals in tanks of 60x45x45cm while the juveniles will be kept in groups of 4 individuals in tanks of 30x30x30cm (WxDxH).

The tadpoles will be held in groups, with filtered water (reverse osmosis and filtration system) that will be changed every day. The specimens will be in constant monitoring and will be examined periodically for *Batrachochytrium dendrobatidis* by running PCR assays of skin swabs. Parasitic, viral and bacterial diseases will be also investigated. All the biosecure procedures will be followed by the recommendation of *ex situ* conservation programs for amphibians.

Budget

Budget category	Item/amount	Requested from AArk	Other sources (to request)
First year field work and collection of founders	Transport: São Paulo/ São Sebastião Fuel and tax for 2 cars	\$0	\$200
	Ship transport rental: 3 days	\$0	\$2,500
	Food: 6 people, 3 days	\$0	\$300
	Camping equipment: tent, sleeping bag, cooking material	\$0	\$600
	Personal equipment: boots, gaiter, headlamp, hook, machete, batteries	\$0	\$400
<i>Ex situ</i> facility	Purchase and fitting out shipping container	\$0	\$15,000 in house (FPZSP)
	2 years keeper salary	\$0	\$24,000

	Air conditioner	\$400	\$0
	Water supply filtering system	\$1000	\$0
	Wastewater treatment: ultraviolet system and central collecting tank	\$0	\$500
	Autoclave	\$0	\$1,000
	Lightning	\$600	\$0
	Material for live food	\$200	\$0
	20 tanks 30x30x30cm (WxDxH) \$60/each and 5 tanks 60x45x45cm (WxDxH) \$130/each	\$1850	\$0
	Digital precision balance	\$500	\$0
	Digital caliper	\$100	\$0
	Termohygrometer	\$50	\$0
	5 Ultrasonic Water Fogger	\$300	\$0
Total		US\$5,000	US\$44,500
Percentage		10%	90%

Timeline

Activity	Start date	Finalization	Duration
Fundraising for program expansion	Apr 2011	May 2011	2 months
Internship of the team member	May 2011	Jun 2011	1 month
Construction of <i>ex situ</i> facility	Jul 2011	Sep 2011	3 months
Fieldwork and collection of founders	Out 2011	Nov 2011	1 month
Breeding program	Nov 2011	Indefinite	-
Monitoring	Out 2011	Indefinite	-
Report of results to AArk	-	Jun 2012	-

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