

1. Project Title: Bolivian Amphibian Initiative

2. Names, institutional affiliations, and email addresses of project leaders:

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3. Total funding amount requested from Amphibian Ark in USD\$: 5000

4. Executive summary (300 words or less), including brief background, methods, and anticipated outcomes, with emphasis on actions utilizing AArk funds

Bolivia is a mega-diverse country with very unique fauna; unfortunately this high richness contrasts with limited economical resources, and current deficient knowledge of its biodiversity. Still areas in Bolivia never studied, or species and their natural history completely unknown for biologists. We want to focus our work in the Bolivian High-Andes where very few studies were carried out, and where several events like habitat loss, pollution, global warming and a lethal fungal pathogen *Batrachochytrium dendrobatidis* (*Bd*), are causing local and global extinctions. The project will work with the poorly known aquatic frogs of the genus *Telmatobius* mainly with the critically endangered species Titicaca Water Frog *Telmatobius culeus* and with the vulnerable Water Frog *Telmatobius hintoni* in Cochabamba Department. We will use these two species as model species so in the near future we will be able to work with the other 12 Bolivian species of *Telmatobius* that are classified as endangered in the IUCN red list of threatened species.

This project is based in three main components: Monitoring, Education, training and captive breeding. The aim is the conservation of threatened Bolivian amphibians; we want to give an emphasis on *Telmatobius* because this group is being under pressure and high risk of extinction. The goals are:

a) To provide information regarding ecological requirements, breeding periods and activity, population status estimation, determination of the presence of *Bd* fungus in both species. b) To develop *in-situ* capacity building with local community members and to train young Bolivian biologists in amphibian work. c) To increase awareness about amphibian crisis in local communities and general people through activities, exhibitions and different media at the communities and in the Museum. d) To set up a captive breeding facility in the Museo de Historia Natural Alcide d'Orbigny with two species of *Telmatobius* for research and education purposes.

5. Introduction, identifying the main conservation problem, the proposed corrective actions, the anticipated outcomes, and how these relate to the AArk values

Bolivia is considered a megadiverse country, holding a great number of species, several are unique in the world and some of them are endangered. But the actual status of knowledge about Bolivian amphibians is very poor; at the moment there are some projects in Bolivia but almost all of them are working just in research with no conservation actions. Amphibians are suffering severe declines. A recent global assessment classified all known species according to their level of threat using IUCN Red List criteria. With at least 32.5 percent of amphibian species globally

threatened; amphibians are declining much more rapidly than either birds or mammals. This fact makes amphibians a high-priority group to conserve. Due this situation there is no time to wait for data, it is necessary to act immediately, so conservation activities are necessary now to rescue these species before they get extinct, that is the case of most of the threatened Bolivian amphibians that are disappearing from different areas of our country.

For some years, our institution is developing conservation and monitoring projects in different areas of Bolivia, working with threatened species and carrying out research in areas where we are reporting amphibian decline. For this reason we started the Bolivian amphibian Initiative that is aimed to provide data and to develop conservation activities at the same time in areas where conservation is needed. With the present project we want to support this initiative working mainly with research, education, training and with captive breeding of species of *Telmatobius*. We want to complement some aspects that our other projects are not working with and also to support each other to have a better use of our resources.

At the moment we have contacts with some national and international institutions that are interested to support this initiative and they offered to support with the knowledge, experience, contacts. Some of these institutions are the Asociación Boliviana de Herpetología, Conservation NGO PROMETA, Museo de Historia Natural Alcide d'Orbigny, Durrell Wildlife Conservation Trust.

The Bolivian Amphibian Initiative project wants to work with four main components: monitoring, training, education and captive breeding.

6. Methodology, including a succinct description of the proposed work with enough technical detail for evaluation by experienced reviewers. The cumulative length of sections 1-6 should be 3 pages or less.

- a) In the Research component we will develop studies in Bolivia across the distribution area of all the species of *Telmatobius* (where complete genus is in the red list of the UICN) mainly in the areas where *T. culeus* and *T. hintoni* are present. We will obtain data, such as population status, biotic and non-biotic requirements of the studied species and this will provide basic information for future captive breeding programs. Once we obtain these data, we will focus our studies in 3 chosen localities to develop monitoring programs for a long-term period. For this activity we will choose specific sites and will develop monitoring transects obtaining data about the populations, the habitat and threats. In each survey we will take samples of *Bd*. This sample will allow us to determinate the presence of *Bd* spores on the skin of the frog through DNA analysis.
- b) For the development of the *in-situ* capacity building, we will choose 3 localities, organize a workshop where the project will be presented and then with the people that are more interested in the project we will carry out a workshop to train them about amphibians, monitoring methods and conservation aspects. These new partners will support the project and future projects obtaining data, organizing and developing the educational workshops in the local communities where the mother language is mostly aymara and quechua. We also will train park-guards, young Bolivian biologists from biology career

and will be trained in amphibian monitoring methods, captive breeding and other facts about conservation. With those activities we will be able to have a team that will support us in the fieldwork and in the activities the project will develop and also will increase the opportunity to develop other amphibian projects that the team can organize and develop.

- c) To increase the awareness about the amphibian crisis we will use all possible media like newspapers, radio, television, and website, but mainly with a direct work with local communities through educational workshops. These presentations will be aimed at showing important facts about amphibians and declination problems. We will involve members from the local communities so they can help with the communication and at the same time we will compromise the community in the conservation of the present species. Also during the field work will be the opportunity that some members of the communities can join us specially kids, we will take advantage of this situation and will show them about the amphibians.

We will prepare permanent and itinerant exhibitions in the Natural History Museum Alcide d'Orbigny, to show general public, school children, and tourists the important facts of the amphibians, their ecological role, and its importance to our environment. An important aspect that will be considered is the threats that are affecting them currently, sharing the main results of our project, for example a key component will be the captive breeding component that will allow then to have a direct contact with the amphibian threatened species of Bolivia and also will show them about the importance to protect those unique species.

- d) An important point is the captive breeding component that we will set up. The Museo de Historia Natural Alcide d'Orbigny will provide the space for the facilities to build the captive breeding laboratory and we will use most of the funds of this application for this activity, where independent tanks and aquariums will be set up and designated to our two endangered species, we also will set up an exhibition with printed material like banners, interactive games and aquariums with some individuals of *Telmatobius hintoni* that is present in the surroundings of the city so the visitors can have a direct contact with the species that we are talking about.

For this activity we will take tadpoles and juvenile frogs from the field (we already have the permits from the government for this component) and will follow the established procedures to hold a captive population of amphibians, avoiding animal stress, crossing diseases and others. For this we will have the support and experience of some conservationist and amphibian keepers from other countries like herpetological and veterinary departments of "The Durrell Wildlife Conservation Trust": This Institution will support the project with guidance and will share their knowledge on amphibian conservation work that they are developing in several countries. This will be a key factor for the success of this captive breeding component. Their backup will help us work in the correct manner in aspects like biosecurity and facility requirements.

7. Budget, no more than 1 page, with distinction between funds requested from AArk and those from other sources, with the latter specified as ‘requested’ or ‘received’ and from where. Clearly identify the role of AArk Funding as a proportion of overall project cost. All costs should be in USD\$.

	Item	AArk \$	Museum \$	Others \$	
Field equipment	General equipment (Digital camera, diving equipment, computer, sound recording equipment, head lamps, drift fence traps)	600		3280	received from Rufford, personal contribution and Idea Wild
	Camping equipment (eg. Tents, stoves, backpacks, gps, sleeping bags)		150	1200	received from Rufford, personal contribution and Idea Wild
Transportation	Accident insurance			75	
	Transport for fieldwork (Bus, boat and fuel)	500		500	
Food	Supplies for fieldwork	300		300	received from Rufford
Personnel costs	Subsistence payments			3200	received from Rufford
	Porters and field-guides services	200		200	200
	payment for an assistant in captive breeding	500			
Education and training activities	Printing and office (ink, photocopies, printing, phone calls)			70	Museum
	Community workshops	200		255	received from Rufford
	Park-guards and young biologists training workshops	300		200	received from Rufford
	Material for workshops	200		200	received from Rufford
	Amphibian activities in the museum	500	200	200	received from Rufford
Captive breeding	Captive facility		4000		Museum
	captive breeding equipment (aquariums, filters, thermometers, reactive, etc)	1200			
	water and electricity expenses for captive breeding facility	200			
	food and maintenance of captive populations	300			
	Total	5000	4430	9930	

8. Scientific citations, limited to half page, not counted towards body of proposal

Angulo, A. 2008. Consumption of Andean Frogs of the Genus *Telmatobius* in Cusco, Peru: Recommendations for their Conservation. *Traffic Bulletin* 21: 95-97.

Barrionuevo, S. & M.L. Ponssa. 2008. Decline of three species of the genus *Telmatobius* (Anura: Leptodactylidae) from Tucumán Province, Argentina. *Herpetologica* 64:47-62.

De la Riva, I. 2005. Bolivian frogs of the genus *Telmatobius* (Anura: Leptodactylidae): synopsis, taxonomic comments, and description of a new species. Pp. 65-101. *En*: Lavilla, E.O. & I. De la Riva (Eds.). *Studies on the Andean Frogs of the Genera Telmatobius and Batrachophrynus*. Asociación Herpetológica Española, Monografías de Herpetología 7.

De la Riva, I., J. Köhler, S. Lötters & S. Reichle. 2000. Ten years of research on Bolivian amphibians: updated checklist, distribution, taxonomic problems, literature and iconography. *Revista Española de Herpetología* 14: 19-164.

Reichle, S. 2006. Distribution, diversity and conservation status of Bolivian Amphibians. Tesis Doctoral, Fakultät der Rheinischen Friedrichs-Wilhelm Universität Bonn, Germany. 182 pp.

Stuart, S., J. Chanson, N.A. Cox, B.E. Young, A.S.L. Rodrigues, D.L. Fishman & R.W. Waller. 2004. Status and trends of amphibian declines extinctions worldwide. *Science* 306: 1783-1786.

Stuart, S. N., Hoffmann, M., Chanson, J.S., Cox, N.A., Berridge, R.J., Ramani, P., and Young, B.E. (Eds.) (2008). *Threatened Amphibians of the world*. Lynx Editions, Barcelona, Spain; IUCN, Gland, Switzerland; and Conservation International, Arlington, Virginia, USA.

9. Timeline of work (example below) and intended dissemination of results

Activity	Aug 2010	Sep 2010- Jun 2011	Jul-Aug 2011	Sep-2011
meetings and preparation for the project	x			
fieldwork		x		
education activities		x	x	
captive breeding		x	x	
data analysis, writing			x	
fundraising for program expansion			x	
start of the following step of the project				x