

Final Evaluation Report

Your Details	
Full Name	Tchassem Fokoua Arnaud Marius
Project Title	Intensifying Efforts to Rediscover and Save the Last Mountain Toads of Mount Bamboutos, Cameroon
Application ID	36102-B
Date of this Report	13/01/2023

1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
<p>Undertaking focused surveys for <i>Werneria bambutensis</i> and <i>Wolterstorffina mirei</i> at higher elevations of Mount Bamboutos to identify possible remnant populations, assess threats, and characterize habitats for key areas of conservation priorities.</p>				<p>All gallery forests and savannas were surveyed twice (dry and rainy season) looking for toads. During the fieldworks, no individuals of <i>W. bambutensis</i> nor <i>W. mirei</i> were observed, especially at the higher elevations where new surveys were set up. It is possible that the toads may have locally disappeared at this site, or even may have totally extinct as they have not been found on the neighbouring Mount Oku for over a decade.</p> <p>A total of 79 specimens belonging to three families and nine species of anuran were recorded during the period of the project. These are the families Arthroleptidae (seven species: <i>Arthroleptis</i> cf. <i>perreti</i>, <i>Astylosternus ranoides</i>, <i>Astylosternus rheophilus</i>, <i>Cardioglossa oreas</i>, <i>Leptodactylodon axillaris</i>, <i>Leptodactylodon perreti</i> and <i>Leptopelis nordequatorialis</i>); Bufonidae (one species; <i>Sclerophrys maculata</i>); Ptychadenidae (one species; <i>Ptychadena mascareniensis</i>).</p>
<p>Assess the presence/absence of chytrid fungus on the focal species and threats to the amphibian survival</p>				<p>None of the samples screened for amphibian chytrid fungus were found to be positive based on diagnostic real time PCR assays. This is possibly due to most of the species sampled being <i>Leptodactylodon</i> sp., which are probably not competent hosts for this pathogen.</p>
<p>Collaborate with local communities to protect and restore mountain forest through reforestation</p>				<p>The conversion of suitable habitat for toads is a major threat for the endemic amphibian's population on Mount Bamboutos.</p>

Programmes			<p>Around the mountain, population growth and pressure on land grew these last years due to the security situation that occurred in neighbouring regions. However, the collaboration of locals allowed to demarcate and line out three main degraded areas (probable breeding sites) where a mixture of about 1000 <i>Prunus africana</i>, <i>Cola acuminata</i> and <i>Persea americana</i> trees have been planted.</p> <p>About 1000 trees have been successfully planted as planned at the beginning of the project.</p> <p>About 200 dead trees have replaced and regularly weeded as planned.</p>
<p>Reinforce local awareness of the species' conservation needs and sustainable use of natural resources to conserve the habitat of <i>W. bambutensis</i> & <i>W. mirei</i>.</p>			<p>Our conservation education focused on two communities exploiting the main project areas for agriculture or pasture. Our activities have resulted in significant behaviour change among local people. For example rate of dilution of pesticides and herbicides directly in the mountainous streams (where amphibians are known for live and breed); the abandoning of an area very close to an identified breeding site of <i>Leptodactylodon axillaris</i>, <i>L. perreti</i> & <i>Cardioglossa oreas</i>); reduction of tree cutting for firewood has been observed over the project period and this is likely to continue; the curiosity aroused among the population about the role that amphibians play in the ecosystem also remains a convincing result.</p>

2. Describe the three most important outcomes of your project.

a) About 1.5 ha at around 2500 m asl for the conservation of a Critically Endangered frog species in general and other animals have been secured during this project. About 1000 indigenous trees have been planted with the collaboration and help of locals who consented to preserve them from any bushfires and any cattle intrusion. This is the fruit of a general mind change observed within the communities, what is considered as one of the main accomplishments. We obtained the insurance from the traditional authorities that they will further sustain us in coming projects.

b) Two "zero chemical" agricultural plots belonging to our guides have been set up to show the efficiency and profitability of compost instead of chemicals in a region that does not normally require them.

c) Working with farmers, cattle herd men, community leaders and traditional authorities, we successfully acquired about 2 ha of land for the regeneration of the natural habitat, what could favour the colonisation of very rare and endemic animals and plants. The area obtained from the communities comprises historical key habitats for the target species. This includes the breeding habitats as well for *L. axillaris*, *L. perreti* and *C. oreas*. The data recorded from the field surveys on Mt. Bamboutos is used currently to develop a management for the upper part of the mountain where these endemic amphibians are concentrated. It will be also share with the Ministry of Forestry and Wildlife for the implementation of a long-term conservation of the habitat of this group of animals unique in the world.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

N/A: Activities have been carried out as planned.

4. Describe the involvement of local communities and how they have benefitted from the project.

Local communities have been significantly involved both in the planning and final execution of this RSG project.

By getting involved in the preservation of their environment, local communities will gain more due to several research that would be done in future in their various localities, which would provide periodic employment for a longer time for the youths. Added to that it will be an opportunity for them to get in contact with some other cultures and at the same time share their own cultures and make it known by others.

Four youths received trainings concerning reforestation techniques and trees nursery. This represents another income mean that could be develop within the population to minimise human impact on the ecosystem. Now they are now able to serve as local assistant to diverse research groups.

They are now conscious that local knowledges and perception they have towards different groups of animals could be document and published to attract more visitors in their localities.

5. Are there any plans to continue this work?

Two main aspects of this project deserve absolutely to be pursued. These include the restoration of riparian habitats and involvement of local communities.

First, we will seek continuous funding to sustain the restoration of key riparian habitats demarcated with local communities during the previous project. It is important to note that people have particularly accepted this aspect of the project with enthusiasm (planting of *Prunus africana*), since it is a native species that has disappeared from this site because of unsustainable exploitation of its bark so much sought by pharmaceutical companies.

We also plan to sustain behaviour change outcomes in the local community and to promote for people other alternative livelihood options aimed at reducing human impact on the frog's habitat. This concerns mostly beekeeping.

6. How do you plan to share the results of your work with others?

A manuscript prepared from project monitoring reports is almost ready to be published to in an international peer-reviewed journal (*Oryx* probably). A copy of the technical report would be submitted to all major stakeholders and would be available on social media platforms.

A conservation guideline in collaboration with farmers and cattle herd men is in progress and will be submitted very soon to traditional authorities for suggestions and consideration.

7. Looking ahead, what do you feel are the important next steps?

Important next steps in the conservation of this species include:

- The consolidation of demarcation of the designated areas in collaboration with riparian local populations.
- The continuation of the restoration of degraded key habitats for these species and sympatric; this could help recolonise sites.
- Establishment of a network of protected corridors.
- The reintroduction of the toad (*W. mirei*) to these other ranges where it now appears to be extirpated; since the species exists on Mount Manengouba,
- The continuation of the conservation education within the population.
- The training of a personnel in field surveillance.

8. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?

The RF logo was used in our brochures and posters used during awareness raising in the communities. It is also acknowledged in the manuscript drafted for publication in an international peer-reviewed journal.

9. Provide a full list of all the members of your team and their role in the project.

Project Team

Dr Arnaud Tchassem Fokoua co-ordinates this project. He has recently received his PhD from the University of Yaoundé I am researching the conservation biology of amphibians in the Bamenda Highlands, especially on Mount Bamboutos. Dr Tchassem Fokoua has recently won a postdoctoral fellowship with the MOPGA Program to undertake eDNA analysis to trace small populations of endangered frogs in the Highlands of Cameroon.

Dr Tasse Taboue has a PhD in wildlife management and ecology from the University of Buéa. He currently works at the Institute of Agricultural Research for Development, Ministry of Scientific Research and Innovation (MINRESI), Cameroon. During the project, Dr Tasse has applied his skills and experience in analysing the ecological data as well as the data generated from the questionnaire. He has also served as a field assistant for conducting research on amphibians in different habitats along the altitudinal gradient of Mount Bamboutos. His experience has been very important to our project and has been very helpful in protecting the potential associated habitats.

Dr Thomas Doherty-Bone is an ecologist researching conservation biology, management, and herpetology. Thomas is associated with the Royal Zoological Society of Scotland and the Natural History Museum, London, United Kingdom. In this current project, Dr Doherty-Bone has provided guidance in the field in all aspects for a very long moment. A lot of knowledge has been acquired during camping. He was involved in the supervision of the field survey, amphibian ecology, amphibian chytrid fungus and conservation and training for habitat assessment and mapping.

Tsekane Sedrick (MSc) is a trained amphibian conservationist. Mr Tsekane is a graduate of Zoology at the University of Douala. In this present study, he assisted in sampling, collection, ecological studies, biodiversity assessment and identification of amphibians; in coordinating and supervising field surveys and initiating awareness-raising for amphibians.

Ntene Soh is pursuing a PhD student on amphibian ecology and conservation the University of Buéa. He has participated regularly in field surveys, conservation education and outreach programmes, and coordinated data entry. During that period, he participated in different community conservation education and awareness programmes both in local communities in Cameroon. Such experience has been very important in many aspects of the project including: Conservation education programmes, outreach and awareness raising in the surrounding communities and capacity building.

Camus Tchanchou is currently a Master candidate at the University of Dschang, Cameroon. Camus received his Bachelor's degree at the same university, completing multiple research projects in Animal biology. He helped in the coordination of the local team members.

Djouba Kenang is a trained conservationist. She is a graduate of Conservation of the biodiversity. She has a Bachelor of Sciences degree with specialized interest in nature photography. Djouba was the team photographer but due to some other commitment could not stay with the team for the entire project duration.

Guides and porters (Seydou, Idrissou, Denis, Abdou) have served as excellent facilitators and guides because of their experience of the study site. They have also served as translators during talks with farmers and shepherds.

10. Any other comments?

A publication entitled: Perception and knowledge of Amphibian conservation among indigenous communities around Mount Bamboutos Cameroon: Ecosystem conservation, and health is prepared and will be ready to be submitted probably to *Oryx*.