

## The Rufford Foundation Final Report

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Congratulations on the completion of your project that was supported by The Rufford Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to [jane@rufford.org](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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Grant Recipient Details	
<b>Your name</b>	TCHASSEM FOKOUA Arnaud Marius
<b>Project title</b>	Influence of anthropogenic activities on the distribution and conservation status of Amphibians of the Bamenda highlands.
<b>RSG reference</b>	19327-2
<b>Reporting period</b>	February 2016 - March 2017
<b>Amount of grant</b>	£5000
<b>Your email address</b>	<a href="mailto:arnaudtchassem@yahoo.fr">arnaudtchassem@yahoo.fr</a>
<b>Date of this report</b>	March 27 <sup>th</sup> 2017

**1. Please 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>Use GIS to record breeding sites and make management plans to restore degraded habitats (if necessary) around these points</p>				<p>We carried out amphibian surveys in five localities of fragmented forest habitat in Bamenda highlands, some of them are new locations which have not been visited by previous researchers. We monitored selected sites on different occasions.</p> <p>We identified breeding habitats of endemic amphibian species. Data collected is to be used to prioritise conservation interventions, notably protection from grazing and cultivation. Using GIS, a map of breeding sites of focal endemic amphibians of Mount Bamboutos (where human activities are most severe) has already been established. We now plan to establish a trees nursery to restore degraded forest habitats on Mount Bamboutos following consultation and partnership with the local community (with whom we have established a positive relationship). A similar map is being produced for Mounts Mbam and Oku.</p>
<p>Evaluate how endemic amphibians disperse relative to other animals in the study site</p>				<p>During field surveys stratified across forest, grassland and farmland, we found no evidence of dispersal of focal endemic amphibians across open or cultivated areas, notably egg frogs (<i>Leptodactylodon</i> sp.). We however found that night frogs (<i>Astylosternus</i> sp.) were occasionally present outside of forest, suggesting</p>

			<p>they could be resilient to fragmentation through dispersing to other forest patches, though they were never found breeding outside of forest. Conversely, we never found the tree frog <i>Leptopelis nordequatorialis</i> (endemic to mountains in Cameroon-Nigeria) in forest We did not know of any bird or mammal specialists working in the area to compare to amphibian dispersal. We intend to pursue field investigations so that to collect and update information of species; <i>Werneria bambutensis</i>, <i>Wolstertorffina mirei</i> and <i>Phrynobatrachus</i> sp.</p>
<p>Assessing the habitat preference to best understand their ecological needs based on human disturbances</p>			<p>In all of the sites we carried out our work, our observation reveals that endemic amphibian species held similar habitat preferences – montane forest. <i>Leptodactylodon axillaris</i> and <i>Leptodactylodon perreti</i> seem to be very sensitive to perturbations. <i>Leptodactylodon axillaris</i> is a critical endangered species previously only recorded only on Mount Bamboutos at around 2400 m asl where the forest seems to be intact along the low moving streams. Only three breeding points of this species have been recorded on the Mt Bamboutos so far, but we have confirmed this species (or a potentially new, similar species, if not, subspecies) occurs also on Mt Oku, suggesting it might not be as imminently threatened as previously thought. <i>Leptodactylodon perreti</i> is found to be sympatric to <i>L. axillaris</i>, but we also recorded this species on Mount Mbam and on Mount Oku. These species have never been observed in forest habitat that has</p>

			<p>been modified. It was revealed that <i>Astylosternus ranoides</i>, <i>A. rheophilus</i>, <i>Cardioglossa oreas</i> breed always in better preserved habitat, while other species (<i>Leptopelis nordequatorialis</i>, <i>Hyperolius riggenbachi</i>) breed sometimes in perturbed areas. On Mount Mbam, reed frog (genus: <i>Hyperolius</i>) occur in degraded former forests. <i>Herpele squalostoma</i> has been collect only on Mount Bamboutos in a forest patch in destruction. However, they are could still be susceptible to by habitat loss (bushfires) for pasture.</p> <p>As with recent published studies from the mountains of Cameroon (Hirschfeld et al. 2016 PLoS ONE) several species that were previously common to the mountains have remained unobserved during this field work, especially puddle frogs (<i>Phrynobatrachus</i> sp.), and montane toad species (<i>Wolterstorffina mireri</i> and <i>Werneria bambutensis</i>).</p>
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**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).**

No major and concerning problem was encountered.

**3. Briefly describe the three most important outcomes of your project.**

Awareness in the community

- Awareness of farmers was generated on the importance of amphibians and their conservation. This seemed at first irrelevant to the local communities but seems now to enhance the status of this animal group in Bamenda Highlands has now has been realized through the improvement of the community's understanding on of the importance of conservation.
- The production and distribution of information pamphlets on the importance of amphibians and preservation of natural habitats in the local community.

#### Research

- During this work we found new localities where endangered species are present and in some cases very precarious populations and where conservation measures are urgently required, notably Mt Bamboutos. In some of these localities we focussed for monitoring part to see the dynamics of the population and also how the habitat change in the different seasons.

#### Habitat restoration

- Important progress towards making an action plan for restoration of degraded endemic amphibian habitats on Mount Bamboutos is being made through regular meetings with farmers and shepherds.
- All optimal breeding sites and migrating corridors (and lack thereof) in each of our study area have been recorded.

#### **4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).**

##### Involvement in decision making

To ensure that local farmers raise their concerns and offset potentially (unknowingly) harmful interventions for their livelihoods, they have been involved with decision making for this project.

Local communities are an important partner for us, since the beginning of the project, with NGOs (Conservation Research and Action for Amphibians of Cameroon (CRAAC) and Cameroon Herpetology-Conservation Biology Foundation (CAMHERP-CBF), we contacted local communities and youths from our study sites and since then we are working very closely with them.

One member of the community called Idesse was particularly interested by the project and was working with us for about 2 years in the field component, by learning how to keep the frogs and also other tools about the work in research and education, Idesse is also the main guide trained by us since the first project, now he intends going to the National Forestry School in Mbalmayo in order become a Ministry of Wildlife technician for wildlife protection. We are exploring the options to keep working together.

The immediate cash (daily and monthly salaries) have been received local persons (guides and porters) during the project, it is clear that we conducted other researchers through Bamenda highlands. These local people were to assist on other similar projects. It is also worth noting that we brought in youths whom we interacted with on weekly basis to be very interested by biodiversity conservation for their high studies.

## **5. Are there any plans to continue this work?**

The need to work in conservation of amphibian in Bamenda highlands is very high, the situation of most of endemic species in this area is very worrying. We think that with our project, we have the possibility to provide necessary tools to preserve endangered frogs on Bamenda highlands. For this reason we definitely are going to continue with this work because much more is needed to be done. In future, our conservation efforts will seek:

- To plant around 3000 trees in degraded habitats, with native plants identified together with the local community (no further clearance).
- To put in place a monitoring of amphibians in restored and protected areas, evidenced through surveys of breeding adults and densities of tadpoles before, during and after the project.
- To proceed to a transference of this model project to another mountain, Mt Mbam, which is also threatened by forest degradation but has fewer threatened species compared to Bamboutos.
- To implement a conservation action plan for the protection of Mount Bamboutos' forest and grassland, involving biodiversity scientists from other disciplines such as ornithology.

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

This field work forms part of my PhD studies presently at its writing phase and a final version will be deposited in libraries for public use. We also are preparing scientific papers where we are going to describe our main findings about the species we are studying. The paper will be made available to Rufford Foundation and scientists through different congress, meetings with biologists, ecologists and conservation institutions with several presentations. We already published in Camherp-cbf's website ([www.camherp-cbf.cm](http://www.camherp-cbf.cm)) the research about our project as a result of the joint work with a work of other students from Cameroon that work with us. We also are sharing our results at different levels also for general public using different tools, such as the brochures. We also intend to share our knowledge and results with master students, coming from universities, we teach them how we work in the field because of our experiences in education and research.

I intend also to attend scientific meetings as the 19th Student Conference on Conservation Science, Cambridge (SCCS, 2018) in UK where I could present the results of our work.

**7. Timescale: Over what period was The Rufford Foundation grant used? How does this compare to the anticipated or actual length of the project?**

The time plan of my project was from February 2016 to March 2017. I used the grant in the same length of time. The order of the activities has not been changed and all of them accomplished.

**8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.**

Item	Budgeted Amount	Actual Amount	Difference	Comments
Travel-local (day): Transportation	£672	£744	-72	Transport costs were more than originally budgeted. Urban and inter-urban transport costs in Cameroon vary widely. We spend £15/day/per instead of £14 as budgeted
Communications	£147	£147	0	No change made
Salaries/field staff & assistants	£2160	£2160	0	No change made
Accident insurance	£50	£50	0	No change made
Food/per diems:	£1440	£1530	-90	We planned to spend 2£/ person for nutrition. Due to price inflation we rather spend 2.25£/person.
Supplies for fieldwork	£100	£80	+20	Supplies were more expensive than originally budgeted. The rest of money helped us to cover Food/per diems cost and paying some of our guides and porters.
Overnight	£192	£180	+12	Adjusted for Food/per diems cost and daily subsistence.
Miscellaneous:	£239	£239	0	No change made
<b>TOTAL</b>	<b>£5000</b>	<b>£5130</b>	<b>-130</b>	

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

With the experience acquired on the field during these years, it's important to promote and enhance forest protection of Bamenda highlands forest in general



and preserve particularly degraded breeding points of some critical endangered amphibians, it is the most important means to save this unique and endemic fauna. We consider the following to be the most important next steps:

- 1) Establish community tree nurseries to raise seedlings of native species.
- 2) Plant the seedlings in the degraded frog's habitats on Mount Bamboutos.
- 3) Sustain the educational programme to ensure villagers and politicians understand the importance of protecting these animals; creating a spirit of conservation throughout the community.
- 4) Improve water quality (i.e. reduced nutrient pollution) in streams subjected to riparian protection measured before, during and after the project.

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

Yes, we used the RSGF logo on materials we produced such as some leaflets and posters presented during workshops at the University of Yaoundé I and during national scientific conferences recently held at the Université des Montagnes, Bangangté, West Region in December 2016. The RF logo has also been used in different occasions during presentations about our projects as Ph.D student in 2016.

We also made publicity about RSGF last year during the World Wildlife Day.

**11. Please provide a full list of all the members of your team and briefly what was their role in the project.**

**12. Any other comments?**

We are extremely grateful to the RF for granting us such a great opportunity to contribute to species conservation in Cameroon. Without this RF we could never have accomplished what we did and the persistence of these Critically Endangered frogs could never have been guaranteed. There is a lot of work to be done in Bamenda Highlands and especially with amphibians and we need to work with more people and this is the reason why we are trying to involve more people in the project under different levels of involvement. We are especially grateful to Jane Raymond for all her tireless efforts. We thank the traditional chiefs and all local people of Bamboutos, Oku and Koutoupit for making the project successful. We greatly thank Dr Thomas Doherty-Bone, Royal Zoological Society of Scotland, UK, for his precious advice on appropriate design and data collection methods.