

### Final Project Evaluation Report

Your Details						
Full Name	Tshering Nidup					
Project Title	A community education programme to curb direct pollution of amphibian breeding sites in eastern Bhutan with particular reference to threatened Amolops himalayanus					
Application ID	26641-2					
Grant Amount	£4987.29					
Email Address	khangpa@gmail.com					
Date of this Report	20.10.2019					



## 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
To eliminate (or at least reduce substantially) the direct pollution of aquatic breeding sites				Through a series of community workshops, surveys and questionnaires especially students and teachers.
To build upon the baseline information gathered during my first R.S.G. project on the distribution and population status of eastern Bhutan's amphibian fauna				Through the documentation of amphibian, another new record of Amolops sp. (probably gerbillus), Megophrys cf. robusta, Megophrys sp. Philautus sp. is found which needs further phylogenetic analysis.
To instruct two junior team members rigorously in water- sampling procedures, chemical analysis, and data recording, enabling each of them to lead his/her own field team				Taught two students and laboratory assistant in field and laboratory techniques, photography, DNA tissue extraction, specimen collection and preservation for future studies and conducting seminars for awareness.
To make a substantive contribution to the current body of phylogenetic information available on Bhutan's amphibian fauna by carrying out DNA analysis of skin samples taken during the project				This is still in laboratory phase in natural History Museum, London. Sent 50 DNA samples for phylogenetic analysis from Amolops sp. (probably gerbillus complex), Amolops himalayanus, Megophrys sp., Nanorana sp., and Polypedates sp. which are recorded from study sites and Bhutan for phylogenetic data.
To provide an up-to-date assessment of the current status within the study area of the Critical/Endangered terrestrial ecoregion IM0115				This is done through the assessment of disturbances in the study site. Most of the sites are still intact although small scale for local consumption logging and unintentional solid waste pollution is seen.
To identify all other (non- pollution orientated) threats both to amphibian and other taxa and to their habitats within the study area				Unintentional solid waste pollution and sewerage discharge is noticed which is prohibited by the National law and policies.



## 2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.

There is not much of unforeseen difficulties, but monsoon of 2019 was very harsh, and rain was very heavy which hindered the timely and seasonal survey of the amphibian fauna in the study sites. In one of the sites, Trashi Yangtse District, due to road widening and fresh cuttings the road was blocked unexpectedly and access to sites were extremely difficult. It was also life threatening at times due to shooting boulders.

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

Although the study was very significant in terms of findings. The below four were the most significant achievements of the project.

- I. Discovery of probable new records of two species (*Amolops* cf. gerbillus & *Megophrys* cf. *robusta*) in Bhutan which will be reported very soon in the scientific journals. RSG will also be informed later.
- II. Trained two students and zoology laboratory assistant in field and laboratory techniques, specimen collection, preservation techniques, tissue extraction for phylogenetic study.
- III. Awareness campaigns successfully conducted involving 608 students which involved male 295 (48.5%) and 313 (51.5%) female.
- IV. Phylogenetic analysis of the species although still in process and will be reported in the scientific journals. RSG will also be informed later.

## 4. Briefly describe the involvement of local communities and how they have benefitted from the project.

The local community benefitted through:

- I. In monetary terms they are benefitted through hiring of the vehicles, sales of the snacks and tea for the participants etc.
- II. In non-monetary terms through involvements in awareness campaigns and becoming aware how they are negatively contributing to the habitat destruction of amphibians

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

Yes, I have a huge plan especially for the phylogenetic and DNA barcoding of the amphibian fauna in Bhutan which is very important for amphibian taxa but still lacking in Bhutan.

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

Results and findings will be mainly shared through scientific publications. The publications will be shared to RSG, Department of Forest & Park Services (DoFPS) especially national Biodiversity Center (NBC) which is the governing body, in Bhutan and Amphibia web as I have done in RSG first grant (please refer the link:



and

#### https://biodiversity.bt/document/show/108

http://research.amnh.org/vz/herpetology/amphibia/Amphibia/Anura/Ranidae/Amolops-himalayanus).

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

Although in the proposal the Training is scheduled as (field-based: September-November, 2018; March-May, 2019; June-August, 2019 laboratory-based: September, 2018-August, 2019) and community workshops (Baylling Central School, Trashi Yangtse in October, 2018; Trashigang Pam Community School in April, 2019; Khaling Community Centre in August, 2019), we could not follow strictly due to busy schedule of schools however, we conducted successfully as tabulated below. Other months of the year is cold and not suitable for either amphibian or for the researchers to go to the field.

March	Awareness campaign in Jigme Sherubling Center School; Pam Community Primary School.						
April	Awareness campaign in Bayling center School						
Мау	Field work and training						
June	Field work and training						
July	Laboratory training for DNA extraction and specimen preservation; field work						
August	Preservation and tissue extraction for DNA.						
September	Sent tissue samples for DNA analysis to Natural History Museum, London.						

8. Budget: 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. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

#### Exchange rate: £1 = Nu. 91.51

The cost of sending and analysing NDA is not for seen and the let over money will be sued for the said purpose. Where £33 is used to transport tissue sample to Natural History Museum (NHM), London. The major shift in the cost is caused by the change of the exchange rate in Bhutan between pound sterling and Bhutanese ngultrum however, we tried to balance by using interim measures like using of available gears and equipment without having to buy.

Item			Budgeted Amount	Actual Amount	Difference	Comm	ents		
Transportation	(to	and	1613	1820	+207	Due	to	exchange	rate
from the study a	area)					differe	nce o\	er the years.	



Daily subsistence cost for Researchers	2183	2100	-83	Hired the car which is cheaper and known personally by researchers
Equipmentcosts(camerabody,microtubes,additionalwatersamplingbottleandchemicals,headlamps,boots,stationaries,NikonexternalFleshforcamera,Wideanglelens;G.R.E.E.N.watertesting kit).Kit	868	650	-224	Used microtubes, boots and others available in the laboratory.
Workshops and outreach programmes Refreshment for participants (tea & Snacks), Awareness leaflet printing, Advertising poster printing	328	300	-28	Due to the varying participant estimated
Total	4992	4870	-122	

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

The next very important step for Amphibian fauna of Bhutan is DNA barcoding and phylogenetic analysis of DNA of all the species recorded.

# 10. 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?

Yes, especially in the campaign and other related materials. RSG will also receive acknowledgement in all the scientific publications that will be made in near future.

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

**Tshering Nidup**: Coordination and materialization of the resources; resource person for field and laboratory trainings; field work; finance manages; report compilation. **Namgay Rincgen**: Awareness campaign, field work, collection and preservation of specimens including DNA samples.

**Kencho Thinley**: Awareness campaign, field work, collection and preservation of specimens including DNA samples; questionnaire data analysis.



**Nub Tshering Lepcha**: A resource person for laboratory works like preparing the equipment and materials ready; field work.

#### 12. Any other comments?

The RSG has impacted the study on amphibia in Bhutan a lot and I personally feel that it made high impact on amphibia conservation in Bhutan through 1<sup>st</sup> and 2<sup>nd</sup> projects that I handled so far.