

## 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>	Sangay Tshering
<b>Project title</b>	Documenting Bat Diversity with focus on Habitat Preference and Capacity Building to Conserve Blandford's Fruit Bat ( <i>Sphaerias blanfordi</i> ) in Chukha, Bhutan
<b>RSG reference</b>	19796-1
<b>Reporting period</b>	June 2016- May 2017
<b>Amount of grant</b>	£4996
<b>Your email address</b>	<a href="mailto:desangma06@gmail.com">desangma06@gmail.com</a>
<b>Date of this report</b>	2 <sup>nd</sup> June, 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
To survey and document the bat diversity of Chukha District.				The bat diversity survey was completed covering the important habitats and roosting sites in study area which helped in documentation of the species. However, project team couldn't access few roosting sites in southern part of the study area near India boarder due to security reasons.
To assess the disturbances and threats on bats of Chukha District.				Conservation threats and disturbances observed during fieldwork were recorded from all mist netting sites and roosting sites. Local residents were also interviewed to acquire further information as locals are the one who daily live with bats.
Study vegetation preference of specific species for its protection and conservation				Nested quadrats of 1 x 1 m for herbs, 3 x 3 m for shrubs and 10 x 10 m for trees was laid at trapping sites and plant species were identified by consulting expertise. This was done to study the vegetation preference of bats as specific species prefer different vegetation and also to understand the habitat suitability.
Rediscovering of Blandford's Fruit Bat and its habitat assessment.				Project team couldn't succeed to rediscover Blandford's fruit bat which was reported its presence only at Ganglakha from Bhutan in 2008 IUCN report. Consequently, we didn't do habitat assessment as it was not captured during our field work. However, after conducting interviews and official meetings with local people and extension forest officers of the area, project team along with forestry officers noted three reasons for unsuccessful capturing of <i>Sphaerias blanfordi</i> : (1) Species might have extinct from the area due to less

			abundance of fruit diversity and lack of conservation priorities as area is not under any protected area till date, (2) project team might not have set mist nets in its right habitat, flight path and feeding sites, and (3) a person who submitted report indicating its presence might have submitted false information because as per the focal research institution i.e. Ugyen Wangchuck Institute of Conservation and Environment (UWICE) of Bhutan, there was no record of any research conducted on bats in Ganglakha.
To carry out conservation capacity-building through education and awareness			People's understanding on bats was promoted and there was positive change in attitude and mind set of people towards bats. Conservation awareness conducted at three levels: (1) farmers of the study area, (2) students and trainees (mainly forestry trainees of College of Natural Resources) and (3) Conservation stake holders of WWF Bhutan and RSPN.

**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).**

To get assistant researcher was challenging as bat works were usually done after dusk and fieldwork mostly ended at 10:00 or 10:30 pm depending on capture rate and weather condition. Similarly, it was difficult to involve rural community and a few field staff during first round data collection because it appeared to be quite unique approach to the people as they were seeing bat research for the first time. Further, as rural community belief bat as sign of good luck from religious perspective, they might have thought there will be high mortality rate so it was challenging to convince them about the project and its objective at beginning. However, problems were resolved through conservation awareness meeting and their involvement in the field work. Apart from religious belief, local people were made clear about the importance of carrying out bat research which is rarely concerned by conservation organisations in Bhutan. To date, conservation organisations mainly focus on flagship species and less conservation priority was given to small mammals like bats. To resolve this, conservation awareness were created to the main organisations i.e. WWF Bhutan and Royal Society for Protection of Nature (RSPN) highlighting bats as seed dispersers, pollinators and pest controllers and made clear that bat has its own role equally to flagship species.

The harsh climatic condition was another challenge. The heavy monsoon rain in summer and varied topographical gradient (rugged and steep slopes) with strong wind at trapping sites was one of the main limiting factors while erecting mist nets. Project team had to wait for favourable weather during summer. To resolve these challenging tasks and to increase the capture rate, project team had selected trapping sites mostly in forest with denser vegetation, around big rocks and water (stream and pond) which usually supply food and water, and favour roosting.

Identification of captured bat was quite difficult as exploration of bat's world is just a beginning in Bhutan. To resolve this, photo and morphometric measurements were recorded at the time of data collection and later consulted expertise outside Bhutan to confirm the species. In addition, field guides on "Bats of the Indian Subcontinent" and "Indian mammals" were referred to identify and confirm the species keeping close consultation with project supervisor and professors from College of Natural Resources. Apart from these difficulties, there were no problems in conducting the study and project went very well as per the schedule with continued guidance from the referees.

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

#### 1. Documentation of bat diversity

The majority of bats are not yet documented in Bhutan due to lack of expertise and also less conservation priority from focal research institution and conservation NGOs. To light the inadequate exploration in bat's world, this project documented 10 bat species and all were new species reported for the first time from study area (Chukha District). As per the "List of mammals of Bhutan" this project has contributed additional seven new species for the country and this documentation has increased the new species list.

#### 2. Baseline information

This project documented the bat diversity along with conservation threats and vegetation preference of specific species. Reports produced from this project would serve as baseline data to other researchers and conservation organisations to carry out similar bat research in other parts of the country by using the similar methodology and techniques. This project also created baseline information to illiterate local community through public conservation awareness and by incorporating traditional belief about bats, so it played significant role to achieve long term conservation goal.

#### 3. Conservation capacity-building through education and awareness.

At national level, the conservation organizations in Bhutan mainly focus on flagship and keystone species, and as a result small mammals like bats were often neglected. Even at grassroots level, though majority of local community believe bat as sign of good luck and wealth, this traditional belief is not taken on equal footing everywhere. So, conservation awareness were conducted at three levels: (1)

conservation stakeholders, (2) students, forestry trainees and interested lecturers of College of Natural Resources and (3) local community (farmers) by involving local leaders and village heads. Conservation awareness was created by highlighting importance of bats. Students and forestry trainees were taught basic identification keys, animal handling, equipment handling and safety issues with an aim to impart practical field techniques.

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

Large group of people were involved during the entire project period as one of the project objectives is participatory based. Major Involvement took place while conducting conservation awareness campaign at three levels as described above. Stakeholders from Royal Society of Protection of Nature (RSPN), World Wildlife Fund (WWF-Bhutan) and College of Natural Resources (CNR) including forestry trainees have actively participated and provided opportunity to discuss and share their opinions on bats. Stakeholders had achieved basic knowledge about bats such as on basic identification keys, kind of species present in the study area and safety issues. Refreshments were also served to the participants.

Involvement of local community in awareness campaign took place with the help of local leaders who have huge influence in the community. Local people were interviewed to acquire their traditional and social beliefs about bats and also identify more roosting sites in the area as they are the one who lives daily in and around bat habitats. Including local leader (Village Tshogpa), two to three local people were also involved to help and keep project team safe from wild animals as bat field works were usually done at night up to 10:30 PM. Local people had achieved basic information about the kind of species found in their locality. Both local leader and local people who involved in the project were financially benefited as they were provided daily payment as per local rate as wages.

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

As Bhutan has very few researchers working for bat conservation, it is crucial for us (bat lovers) to continue our service in conservation field. To keep my knowledge and experiences alive which I have gained from this current project, definitely I have already planned to carry out similar projects in other parts of the country as majority of our bats are still not yet explored to be documented in IUCN list for conservation purposes. As of now, Bhutan has only three bat researchers including myself working in only three different places. So we have vast areas to be explored and document the bats of Bhutan. It's also quite sure that Bhutan might have even more than 100 species to be documented as its biodiversity hotspot and among that many species there might be some critically endangered species too. So, it's crucial to continue our bat conservation work. The focal research institution Ugyen Wangchuck Institute of Conservation and Environment (UWICE) of Bhutan has also stated that it's high time to explore bats as it has been neglected to date due to shortage of conservation funds and lack of expertise to lead the project. So, by keeping good

knowledge and experiences alive which I have gained from this current project, obviously I would continue the same work in future.

Moreover, majority of the conservation organisations in Bhutan very often neglect the small mammals like bats as their conservation priorities are set for flagship species. In addition, conservation programmes are mainly targeted in protected areas, whereby conservation works outside protected areas are often not prioritised due to inadequate fund. So, I personally feel it is important to create conservation awareness to conserve all kind of species as they play their own ecosystem role in all the potential areas whether it falls in protected areas or not. Therefore, I look forward for a similar grant from RF to continue our bat conservation works as we have vast areas to be explored for bat documentation.

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

To outreach the sustainability in conservation field, the good knowledge and experiences gained from current project including the main project findings are to be shared to research enthusiast, conservationist, focal research institutions and organizations. So far, results of the project were disseminated as mentioned below:

1. Results and information were presented to final year students of BSc Sustainable Development at College of Natural Resources and was chaired by the head of Sustainable Development Department and also attended by interested teaching faculties of the college.
2. The 56 young forest rangers including interested animal science students of College of Natural Resources were trained on survey techniques and skills on animal handling. They were also trained on survey protocol, equipment handling and safety issues.
3. Research finding was presented to conservation NGOs at World Wildlife Fund (WWF Bhutan program) conference hall where seven research focal persons from RSPN and WWF Bhutan were gathered. Results of the project were further shared by circulating the same presentation slides which I have submitted to RSGF.
4. Research findings were also made available to Chukha District (study area) by circulating presentation slides and poster through the hands of Extension forest officer.
5. Information and results were also shared to Wildlife Institute of India (WII) during three days ICECAPS workshop conducted by Indian Polar Research Network (IPRN) and an article on "The Role of Bats in Himalayan Ecosystem" was also published.

Further, the results and information will be submitted to Ugyen Wangchuck Institute for Conservation and Environment (UWICE), National Biodiversity Centre (NBC) and Department of Forest and Park Services (DoFPS). Soon, I will be presenting the findings to the Scientists, PhD research scholars and MSc students of Forests Research Institute (deemed) University, Dehradun (India) which is scheduled on 14<sup>th</sup> June 2017. Findings of this project will be also presented during upcoming Bhutan Ecological

Society (BES) Research Symposium. We are also working out to publish paper in relevant journals for wider accessibility.

**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 grant was fully used for a period of 12 months as project commenced from June, 2016 to May, 2017 as same time scale proposed in the project. However, I had to make little adjustment with proposed time scheduled depending on weather condition, capture success and convenience. The conservation capacity building which was supposed to be carried out in first two week in the month of May 2017 as per the proposed time scheduled in project was little adjusted and carried out as follows:

1. Conservation awareness presentation to College of Natural Resources (5<sup>th</sup> December 2016)
2. Training young forest rangers of College of Natural Resources (2<sup>nd</sup> February 2017).
3. Conservation awareness for various stakeholders of WWF Bhutan, Royal Society for Protection of Nature (RSPN) and Department of Forest and Park Services (DoFPS) (March 2017).
4. The presentation of findings to Forest Research Institute (deemed) University which was supposed to be carried out in the third week of May, 2017 has been scheduled to 14<sup>th</sup> June 2017 due to changes in universities' project presentation guideline.

However, project team has not omitted any of the planned activities while conducting the study other than these few above mentioned minor changes. Rests of the activities were carried out as per the time scale proposed in the project.

**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
Salaries/wages for 1 field assistant and 2-3 local field guides	£ 1584	£ 1944	- £ 360	The costs for wages have escalated due to involvement of more local field guides during fieldwork.
Transportation	£ 550	£ 645	- £ 95	Vehicle hiring charge was higher in remote villages due

				to high maintenance costs.
Field gears (mist nets, tent, torch, harp nets, digital camera, measuring tape, vernier calliper, GPS, spring balance, hand globes and Thermometer)	£ 1183	£ 893	+ £ 290	We couldn't purchase harp nets as it was not available in Bhutan and also neighbour country. So we hired it from other researchers from India and we paid only hiring charge.
Lodging	£ 35	£ 35	£ 0	The fund was sufficient
Education and Awareness	£ 1490	£ 1195	+ £ 295	The allocated budget was more than enough as WWF Bhutan has sponsored refreshment during stakeholder awareness meeting.
Communication	£ 129	£ 104	+£ 25	The fund was more than enough
Miscellaneous	£ 25	£ 25	£ 0	The allocated fund was sufficient
<b>TOTAL</b>	<b>£ 4996</b>	<b>£ 4841</b>	<b>£ 155</b>	This remaining budget (12,799.9 in Bhutanese currency) will be used to print the booklet after final presentation to Forest Research Institute, Dehradun, India on 14 <sup>th</sup> June, 2017. Booklets will be distributed to various conservation agencies and organizations.

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

1. As majority of bats are not yet explored due to lack of conservation fund and expertise, the next very important steps is to document the bat species of Bhutan as it has been neglected till date.
2. As per the experience and knowledge gained from this current project, it is also important to strengthen public understanding on bats through community engagement as social perspective on bats are not taken on equal footing everywhere (some region cursed bats as an evil spirit and ugly creature where as some belief bat as sign of wealth and good luck).
3. To explore the bat roosting sites and documentation of habitats with the help of remote sensing and GIS. This would assist to conduct detail bat study for its conservation through monitoring.

4. No adequate studies on bats had been conducted so far in Bhutan, particularly in eastern Bhutan. The two ongoing studies on bats are in Royal Manas National Park (southern Bhutan) and Phobjikha Conservation Area (western Bhutan). My current study is also in Chhukha District (southern Bhutan). So I feel it's important to carry out bat studies in eastern Bhutan as it is further characterized by sub-tropical low land and broad leaved forest where it is opportunistic to explore more bat diversity.

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

With an aim to publicize RSGF to conservationists, students, local community, focal research institution and organisations, I have used the Rufford Foundation logo while making presentations to:

1. The final year BSc Sustainable Development students of College of Natural Resources, Lobesa.
2. World Wild life Fund (WWF Bhutan programme), Thimphu.
3. The District Forest Officer, Extension Forest Officers and local people of Chhukha District (study area). By this time, majority of the people in study area can recognise the RSGF logo.
4. The Rufford Foundation logo was used while conducting training on survey techniques and skills on animal handling to 56 young forest rangers including interested Animal Science students of College of Natural Resources.
5. It was a good opportunity to use RSGF logo at Wild life Institute of India (WII) while attending 3 days conservation workshop initiated by Indian Polar Research Network (IPRN).
6. The logo was also used in posters.
7. RSGF logo will be used in upcoming presentation scheduled on 14<sup>th</sup> June, 2017 at Forest Research Institute (Deemed) University, Dehradun, India. Further, RSGF logo will be used in all the materials produced from this project and most importantly, RSGF will be highly acknowledged in relevant publications of this study in future.

**11. Any other comments?**

With a heartfelt appreciation, I would like to thank your esteemed RF for providing kind financial grant, without which I could not have captured a single bat.

To keep the good knowledge and experiences gained from this project alive, and to progress the bat conservation work in near future, I look forward to a similar financial support from your esteemed foundation. So with deep reverence, I would like to request your esteemed foundation to look into the consideration to reopen and continue granting support to Bhutan with some formalities. The continuation grant from your esteemed foundation would make vast contribution in nature conservation projects.