

The Rufford Small Grants Foundation

Final Report

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

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. 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. 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.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Uttam Babu Shrestha
Project title	Sustaining caterpillar fungus, Cordyceps (<i>Ophiocordyceps sinensis</i>) for mountain life: A study of ecology, economics, and ethnobiology of Cordyceps in the Himalaya
RSG reference	9759-1
Reporting period	2011-2012
Amount of grant	£ 6000
Your email address	ubshrestha@yahoo.com
Date of this report	March 2012

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
Document natural history and ecology of Caterpillar fungus		√		Study will be continued this and coming years. Uncompleted parts are scheduled to complete during this year's field visit.
Measure environmental (temperature, precipitation, humidity, slope, aspects), edaphic (soil pH, moisture, nitrogen, phosphorus, potassium) parameters.			√	Three data loggers were placed in three different localities from an altitude 3800-4700m to measure humidity and temperature every 6 hours. 78 soil samples were collected from the Caterpillar fungus's habitat. Analysis of nitrogen, phosphorus and potassium of the soil, soil moisture and pH has completed.
Monitor vegetation composition in the caterpillar fungus's habitat			√	With 101 quadrats of 1X1 m ² sampling of the vegetation composition in the caterpillar fungus's habitat was completed.
Mapping and Modelling of potential habitat of Caterpillar fungus		√		Gathered more than 70 GPS locations of the habitat of caterpillar fungus. Eleven different bioclimatic parameters were generated for the study area with Worldclim global data. Final potential habitat map will be produced after collection of more GPS locations this year.
Assess the harvesting and trade patterns			√	One correspondence in Nature 482: 35. 2012 doi: 10.1038/482035b was published. One research paper has submitted to a journal (IF >3.5) and is under review. One conference presentation was given.
Examine contribution of household and national economies			√	Household surveys of 203 harvesters, 28 traders were completed. One scientific article is under preparation in this issue.

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

Except the severe climatic condition in the field, there were no any difficulties experienced so far.

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

- a) The impact of trade on the natural population of caterpillar fungus is largely unknown. This study for the first time quantified the trends of harvest over the last five years. Moreover, this study documented the harvester's and trader's perceptions on the abundance, sustainability, supply and demand of the caterpillar fungus based on the surveys of 203 harvesters and 28 traders.
- b) Economic contribution of caterpillar fungus on the household economy of indigenous people of Dolpa and other districts was quantified.
- c) Mapping and modelling of the suitable habitat of the world's most expensive biological resources is on-going.

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

The assistance of local communities was remarkable during the field. They have been experiencing the decline of the resource (caterpillar fungus) for last five years therefore they seemed very curious about the research. We found local communities are very concern about the sustainability of the resources. During the field visit in this year, the preliminary research results will be shared with the local stakeholders. Furthermore, I am planning a mass gathering at the harvester's camp and organize an awareness programme for a day or two among local harvesters.

5. Are there any plans to continue this work?

I am planning to continue this work in future. I will carry out at least two field visits. Future work will be focused on the natural history of the caterpillar fungus, population ecology and genetics. Analysis and publishing of the data so far collected will be carried out in future.

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

The results of this work are shared through various means of communication such as publishing scientific journals, popular media and outreach. The research paper has recently been published as a correspondence in the journal *Nature* (482: 35. 2012 doi: 10.1038/482035b). Three national dailies of Nepal [*Kathmandu Post*, *Nagarik* and *Republica*] covered this research. Two presentations (One conference and another general talk) were given. One scientific paper in a journal (IF>3.5) is under review. Another paper is under preparation. Another photo-article in a National daily is schedule to be published. Last but not least, a website www.himalayancordyceps.com has been started for outreach.

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

Timescale to start the project is perfect as I was conferred with grants in February 2011 and went to field in May 2, 2011. However, the length of the project should not be bound within a year. Most of the conservation projects require continuous monitoring and observations for several years. Therefore, timeframe should be flexible with the provision of reporting the progress every year.

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
Personal	4200	3800	+400	We spend 45 days
Travel Airfare-Kathmandu-Nepalgunj-Jufal-Kathmandu and Taxi	1000	1200	-200	We previously planned for 3 persons but later one team member joined to the crew
GPS	100	200	-100	
Data loggers	150	150	0	
Solar Battery Chargers/Batteries	150	150	0	
Supplies/photography/report preparation	400	200	+200	PI's personal photographic equipment were used
Chemicals	0	300	-300	We missed this in the budget and bought for soil analysis. Soil analysis was done in Tribhuvan University.
International travel	0	1500	-1500	Supported by University
TOTAL	6000	7500	-1500	

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

My research will provide the empirical evidences about the impact of trade on natural population of caterpillar. It will also reveal the dependency of local people on the caterpillar fungus. Next step will be conservation awareness, more outreach, and policy recommendations along with basic research on population ecology and genetics.

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

Yes, the name of RSGF was mentioned in the news published about my research (attached here with). I also used that logo and name of RSGF while presenting my work.

11. Any other comments?

The support provided by RSGF is very helpful for young scientist of developing countries where most of the biodiversity located. Quick review process and flexibility of RSGF are commendable.