

The Rufford Foundation

Final Report

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.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details

Your name	Pritha Dey
Project title	High-altitude moth (Lepidoptera: Heterocera) assemblages: Assessing the diversity and potential bio-indicator species in Kedarnath Wildlife Sanctuary, India
RSG reference	24289-1
Reporting period	15 th January 2018-15 th January 2019
Amount of grant	£5,000
Your email address	dey.pritha126@gmail.com
Date of this report	29.01.2019

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
Creating a comprehensive taxonomic inventory of the moths of the region				I was able to document 153 species from the eight locations along the elevation gradient from the study area. Post-monsoon sampling was not completed due to harsh weather conditions and, early onset of snowfall and winter conditions.
Understanding local factors that affect moth diversity across an elevational gradient.				Forest type and structure, temperature and humidity were found to be governing the moth diversity.
Assessing the importance of Geometridae family of moths as an indicator group for rapid habitat-quality assessment.				Due to missed post-monsoon sampling, indicator properties of this family of moths could not be tested.
Capacity building through outreach programme, training of local volunteers and publishing pocket guide books for easy identification moth species.				I was able to conduct a number of capacity building sessions with the Forest Department in collaboration with the NGO Titli Trust. Public moth-watching sessions were conducted at Devalsari Titli Utsav (annual moth-butterfly meet held at Devalsari, Uttarakhand by Titli Trust); for students at the Forest Research Institute, Wildlife Institute of India and Dehradun Zoo. Also, I published a guidebook for the moths of Wildlife Institute Campus, with Kunjan Joshi -a student whose dissertation I had supervised.

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

This year, the post-monsoon schedule (September-October 2018) of the fieldwork coincided with a spell of heavy rainfall and snow in the study area. I could not

complete a part of the sampling and outreach activity planned for that part of the year.

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

1. The project led to first documentation of moth diversity from the study area. Observations were uploaded to the Moths of India website, which also contributed to map the unknown distributions of many species. Elevational and distributional range extensions were documented for a lot of species which would add to the sporadic records for moths in India. All the records will be published in due time as peer-reviewed articles.
2. The guidebook which was published, generated a lot of response from people appreciating the need for moth conservation and my credibility to work towards it. I was able to reach out to wider groups of people (different age and backgrounds) through outreach activities, which had helped in getting attention towards the need to study moths.
3. During the fieldwork period of the project, I was able to sensitise the local people about moths. Moths are generally overlooked, as was the case here, but during my stay I interacted with local curious villagers, told them about my work and they happily participated in my sampling sessions. Till now, I get photographs of moths clicked by the villagers, who send them to me for identifications.

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

Unfortunately, I could not involve local communities in the project as planned, as my schedule did not work out with early onset of winter conditions in the study area. But the local people who assisted during my fieldwork and also interacted with me, including the Forest Department staff are excited for such kind of documentation and willing to participate in any which way possible.

5. Are there any plans to continue this work?

Yes, I plan to continue this work as there remains some unachieved objectives from the project. Also, I feel that the study area, which has not been studied for months before and thrown up many interesting species during the study, needs to be explored in terms of documenting unknown moth diversity. The local outreach programme within the study area could not be completed because the outreach scheduled during the post-monsoon was hampered due to missed field session. So, more work is remaining which I am aiming to fulfil in the near future.

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

The scientific findings will be published in peer-reviewed journals (a research article about the range extension of one species of moth, found in this study is currently

under review). The moth species observations have been and will be uploaded to the citizen science initiative (<http://www.mothsofindia.org/home>). Besides this, there is always the scope to spread the word about the findings through popular articles (one already published from this project) and social media for effective communication of the work and results.

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 Rufford Foundation grant was used over a period of 12 months. The actual work involved in this project demands some more time.

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
Data Storage- one 32GB SD Card and one 1TB external hard disk	60	60		
Pocket size field guides - Printing cost	120	150	+30	
Field Assistant wages @ Rs.8000/month/person for 5 months	934	800	-134	I missed post-monsoon sampling so wages were not required
Stationery and phone bills	50	60	+10	
Batteries-around 50 units of non-rechargeable Duracell batteries	20	20		
Lights- two headlamps and flashlights to provide for the field assistants.	60	70	+10	
Camera- (specifications matching Nikon Coolpix P900) to be used for photo documentation	300	200	-100	Got a different model at a lower price
GPS- one unit of Garmin eTrex 30x for recording site coordinates	234	234		
Light Trap-Two units of LepiLED developed by Dr. Gunnar Brehm of University of Jena (http://www.gunnarbrehm.de/en/science.html)	800	850	+50	Two protective glasses were also bought which costed some extra

Volunteers expenses (Food, boarding and lodging)	350	300	-50	
Food for 3 people(including field assistants) on an average of Rs. 150 / person / day for 5 months (150 days)	788	400	-388	
Boarding & Lodging for 3 people (including field assistants) on an average of Rs. 200 / person / day for 5 months (150 days)	1050	800	-250	
Local transportation within the field site (bus, hired vehicles)	117	70	-37	
Taxi Fare for two roundtrips from Dehradun	117	70	-37	
Moth booklet		916	+916	Moth booklet
TOTAL	5000	5000		

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

I feel that I missed out in the past 12 months to involve the local communities, which I would like to build upon. The first step was to introduce people to moths, create awareness about the need to conserve them, which has been achieved from this tenure. Also, the region is subjected to a lot of anthropogenic pressure as it is an important Hindu pilgrimage zone, which I think needs to be assessed through monitoring smaller taxa like moths, acting as biological indicators.

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, the Rufford Foundation logo was used the guidebook "Common moths of WII" and in all the presentations/talks made during the outreach activities. The Rufford Foundation was also tagged in any social media post regarding this project.

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

My team comprised of the following people:

Prabhat Singh Bisht- Full-time fieldwork assistant

Zareef Khan- Part-time fieldwork assistant

Baseer Baniya- Part-time fieldwork assistant

Kunjan Joshi- My student, co-author of the published guidebook and Volunteer during field session

Mohit Patel-Volunteer during field session

Bhargav Bhadreshvara- Volunteer during field session

Meghavi Purohit- Volunteer during field session

Sanjay Sondhi- Founder of Titli Trust who collaborated for the outreach part of the project

Anchal Sondhi- Co-founder of Titli Trust who collaborated for the outreach part of the project

Dr. V.P. Uniyal- Co-author of the guidebook on the Common moths of Wildlife Institute of India campus

12. Any other comments?

I wish to apply to Rufford Foundation again for the completion of the unachieved work.