

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	Preeti S. Virkar
Project title	Conservation of Non- <i>Apis</i> Bees and their Habitat in Doon Valley
RSG reference	26094-1
Reporting period	October 2018-2019
Amount of grant	£4973
Your email address	preetivirkar85@gmail.com
Date of this report	30-11-2019

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
To identify the habitats of native bees based on preliminary species assemblage information from the earlier investigations				
To assess possible threats to native bees from different natural and anthropogenic stresses				Insufficient data collection due to field assistant inefficient efforts
Capacity building of stakeholders (farmers, citizens and forest managers) in conserving native bee communities and enhancing their habitats				

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

The collaborating agency Navdanya Trust has a rule of allotting 20% of the sanctioned grant as overhead/institutional charges. This rule is common in all governmental or non-governmental institutions, agencies, organisations or universities in India. The percentage of the overhead charges varies from 15% to 20% subject to the rules of the collaborating body. I requested my collaborating agency to waive the overhead charges, since the project budget was prepared keeping in mind the RSG rules before October 2018. They agreed to exempt the overhead charges for the first RSG. However, in future proposals a 20% of the total grant amount will have to be allotted as an overhead charge.

Objective number 2 was to be achieved from January to March 2019. Inefficient efforts from the field assistant resulted in partial achievement of objective 2. I immediately discontinued the field assistant and hired volunteers which resulted in collection of data partially. The remaining amount of field assistant wages was distributed for fuel, lodging-boarding of volunteers and in purchasing a better model of GPS. I plan to complete the remaining data collection for the achievement of the objective as soon as a booster grant is approved.

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

Under the proposed work of the project the following highlights were achieved.

Thirty-four species of non-*Apis* bees and their habitats across five farms and 14 urban sites were recorded. Stingless bees are a good source of highly valued honey that can benefit the local community's socio-economically. We identified their nests in the wild. Efforts to monitor and domesticate these bees are currently underway.

Three outreach workshops were conducted, two for farmers and one citizen science during the project duration. Farmers were educated about the importance of bees and their conservation through habitat restoration. The educational materials used for the workshops included slideshows, short documentaries and information flyers. Field based hands-on activities were also conducted on identifying bees and other pollinators as well as their habitats. The citizen science programme was conducted for students, local communities and farmers. It included hands-on in constructing bee hotels as well as identifying bees in the locality. Pollinator conservation awareness flyers and habitat assessment sheets were published and distributed among the local communities. These materials and workshops aided to sensitise and capacitate local communities towards identifying pollinators and their habitats for future conservation. An interactive book on bees is under preparation.

The preliminary outcomes of the project were presented at the 29th International Congress for Conservation Biology, Kuala Lumpur, Malaysia in July 2019. Presenting the findings with a diverse group of conservation biologists, social scientists and stakeholders at the congress gave invaluable inputs with respect to pollinator habitat conservation that can be included in the next stage of the project. Presenting the outcomes of the project on an international platform was made possible by support received through ICCB 2019 Travel Grant, Hem Chandra Mahindra Foundation Travel Grant and opportunity of volunteering at the ICCB 2019.

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

Bee species and their habitat identification was carried out in selected habitats such as farms and urban setups. The local communities in these habitats consisted of farmers and citizens. While commencing the field work stakeholders were explained the significance of bees, threats that compromise their function and conservation measures. The bee and habitat assessment activities were elucidated to the communities. Methods to record bees and assess availability of their habitats were demonstrated. In addition, the communities were also exposed to field hands-on activities, films and slide shows. Flyers highlighting information on pollinators, threats they face, and conservation measures were distributed to the local communities. A team of local youth were formed who sensitised the people through activities of bee keeping and conservation of bees.

5. Are there any plans to continue this work?

Yes, I will like to continue this work to complete the partially achieved objective 2 regarding threats to native bees and their habitats. I would like to add supplementary objectives on examining the interaction of non-*Apis* bees with wild floral resources in different habitats. I want to prepare short documentaries in local and English languages for sensitising people from different socio-cultural backgrounds.

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

The preliminary outcomes of the project were presented at the 29th International Congress for Conservation Biology, Kuala Lumpur, Malaysia in July 2019. A Facebook page is in place where with information on bees of India is updated from time to time (<https://www.facebook.com/groups/1451988081605891/>). A popular article for a broader audience and scientific publication with the project outcomes is under review. Preparation of a pictorial bee book with written information in the local language, Hindi as well as in English is underway.

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 RSG was used over a period of 12 months. The project length was sufficient for this period, except for 3 months (January to March) during which field data collection was not conducted due to inefficient efforts from the field assistant. This resulted in partial achievement of objective 2. I plan to complete this as soon as a booster grant is approved.

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
Lodging and Boarding	400	649	+249	
Thermometer and other small equipment	22	22		
Sweep net and other sample collection equipment	56	56		
GPS	89	168	+79	
Field Assistant	999	291	-708	Field assistant was deployed for 3 months only. However, after 3 months of dormancy in proposed

				project activities the field assistant was discontinued. The remaining amount was distributed for fuel, lodging-boarding of volunteers and better model of GPS.
Stationary	110	110		
Capacity building programs and Habitat assessment activities	1276	1276		Bee booklet for community education is under publication
Food	889	889		
Fuel	300	680	+380	
Travel	832	832		
Total	4973	4973		

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

Completing of objective number 2 is the first activity I would like to take up. I look forward to promoting wild floral resources native to the respective study site among the local communities. I would like to accomplish this through experimental plots in different habitats and measure the interactions of the wildflowers with the non-*Apis* bees in selected habitats across different seasons. The outcomes will highlight which floral combinations attract diverse bees. These can be promoted among local communities with the aim to enhance the production of managed, wild and aesthetic value floral resources.

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 on publicly available habitat assessment sheets, short clips, workshop presentations and the flyers. These were shared widely on social media. The Rufford Foundation was also tagged on Facebook posts regarding the project

(<https://www.facebook.com/PreetiSVirkarPitulee/videos/2350557241663162/>;
https://m.facebook.com/story.php?story_fbid=2479133108805574&id=100001267281709).

The Rufford Foundation was also acknowledged at the 29th International Congress on Conservation Biology and the logo was used in the presentation. The logo will also be included in the bee book that is under preparation.

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

The team consisted of 3 collaborators, 1 intern, 4 volunteers and 1 field assistant.

Name	Particular	Role
Navdanya Trust	Collaborator	1. Financial Monitoring of the project 2. Public outreach facilitation 3. Co-author for publications
Dr. V. P. Uniyal	Collaborator	1. Co-author of the bee booklet for community education 2. Co-author of study outcome presented at the ICCB 2019
Shivam Shrotriya	Collaborator	1. Field data collection 2. Monitoring project volunteers 3. Local community outreach 4. Co-author for publications from the project
Mr. Ashu Tomar	Intern	1. Field data collection 2. Monitoring project volunteers 3. Co-author for publications from the project
Pooja Chand	Volunteer	Field data collection
Mr. Nabdeep Singh	Volunteer	Field data collection
Mr. Mohit Rawat	Volunteer	Field data collection
Mr. Shubham Rana	Volunteer	Field data collection
Mrs. Bhuwaneshwari Semwal	Field Assistant (Staff from collaborating agency)- From December 2018 to February 2019	1. Local community outreach 2. Field data collection

12. Any other comments?

The current project demonstrated positive response from the local communities, which included farmers and youth. Due to engagement of collaborators, people from local, national and international levels were exposed to the outreach during the duration of the project. I plan to take the project further asking newer queries as well as involving diverse socio-cultural communities to conserve bees.