

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	Ranjeet Singh
Project title	The Impact of Human Activities on Plant diversity in Nanda Devi Biosphere Reserve, West Himalaya, India
RSG reference	20646-1
Reporting period	January 2017 to December 2017
Amount of grant	£5000
Your email address	ranaranjeet92@yahoo.com
Date of this report	28 th January 2018

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
Current plant-diversity status and distribution				One of the main objectives of this study was to measure the current plant-diversity and plant distribution in protected and non-protected areas of alpine zone in Nanda Devi Biosphere Reserve. A checklist of 160 herbaceous plant species was compiled from study site.
Analysis of human activities in conserved area				Increasing human activities are creating threats for a critical ecosystem. For the proper management the list of threats to the protected ecosystem was made. It was found that the conserved area had exotic invasive species e.g. <i>Persicaria wallichii</i> , <i>Rumex nepalensis</i> . So proper measures are needed to conserve site as stopping humans only is not the proper solution for conservation.
Aware local people about the natural treasure of NDBR				Awareness was created by questionnaire survey and personal interaction with the locals.
Compile the list of ethno-medicinal plants and their usage				The locals use forest products for their medicinal needs. These plants and their usages were compiled.

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

The study site lies in alpine region of Himalayas which is a very tough terrain. So during the field work, the major task was to keep everyone physically and mentally fit. The help and support from locals helped us a lot in keeping our moral high and made our journey successful.

Some unexpected surprises in the form of active poachers created fear in the team, but luckily we continued our work without any accident.

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

This was our first self planned research project which was less of giving and more of taking experience. We had benefited a lot by working in this project as it was a lifetime experience for us. The work was completely different than working in experimental plots of University Research Stations. We benefitted by this project in the form of increase in knowledge base by interacting with local tribal who knows nature far better than us.

The most important outcomes of this project were:

Firstly, the current status of plant diversity and distribution will help future researchers in better understanding of Himalayan ecosystem.

Secondly, the threats to ecosystem in the form of human activities were identified and listed. The increasing tourism is leading to more garbage in the area which is a prime concern for the ecosystem. And another concern to this site was shrinking grassland in the state and increasing cattle ranching in the sensitive areas.

Thirdly, the people and government forest department was made aware about the current scenario of NDBR ecosystem and harmful human activities which are needed to be managed and minimized for conservation of this ecosystem.

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

We hired people for helping us in conducting the study which benefitted local people to earn money. Along with this we stayed in local villages and interacted about the current scenario of nature conservation activities. Some took interest in our gadgets so we teach them how to handle a GPS and camera. During informal interaction we troubleshoot their queries about the importance of scientific study of the area and told people about the needs to conserve the environment.

5. Are there any plans to continue this work?

Yes, I am planning to work there again. I had made good contacts with government forest officials and local people. The ecosystem of the area is very sensitive and needs better understanding for betterment of future. By seeing the enthusiasm of people and their interest in our scientific study I would like to work again.

The villagers need more awareness and education about the ecosystem so I am making contacts with local NGOs and I will join awareness campaigns in near future.

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

I am writing research papers based on my study and I will publish it in research journal. The published papers will be sent to government authorities. And the

outcomes of the study will be discussed with government forest department for making them understand the current needs of better conservation management.

The published papers will be converted into local language and awareness material (poster and leaflet) will be distributed in local areas.

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 used from March 2017 to October 2017. It was slightly different from pre-planned schedule. The planned was rescheduled after a stakeholder meeting and consultation with local field experts. The social survey was conducted from March-April, then for diversity assessment the field survey was conducted in May and again from July-August 2017. Then we went to local villages again from September-October 2017 for raising awareness as well as to get suggestions for betterment of forest conservation practices. Most of the grant was utilised during our field study which was three quarter of whole project duration.

After publishing research paper the remaining amount will be used for printing leaflets and awareness material.

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
Field Equipments: DSLR Camera, GPS Device, Voice Recorder	550	520	-30	DSLR Camera @£340, GPS device @ £100 and one sound recorder was purchased @ £80 to record information during social survey.
Field Gear: Tents, Jacket, Boot, Cap, Rucksack, Medicine	580	680	+100	Two tents and field gear for 4 members were purchased @ £150 and £355 respectively. 4 Rucksack bags were purchased @ £150 to carry our luggage and plant samples. Medicines were brought @ £50.
Plant collection Equipment: Plant press, Herbarium sheets, Blotting paper, Collection bag,	400	225	-175	Four Plant press @ £75, herbarium sheets, blotting paper, collection bag, knife, measuring tape, cutter etc

measuring tape, knife etc				were purchased @ £150.
Transportation Expenses	820	950	+130	Vehicle for village survey for 30 days @ £18 per day basis. And during field survey we hired two Packhorses @ £12 per day basis for 34 days.
Food and lodging	1100	1281	+181	The food and stay was arranged in villages and sometimes in hotels. On food about £700 and on lodging £581 was used.
Salary for helpers	750	684	-66	Two helpers were hired at the rate of £6 per day for six weeks. And one helper was hired for social survey for around 30 days.
Literature and Stationery	50	120	+70	Field guide, literature and stationary were purchased.
Public Awareness and Campaign	450	200	-250	Snack and tea incentives were provided to attract the people in which £200 was used.
Contingency	300	-	-	
Total	5000	4660	-340	The remaining amount will be used to print awareness material.

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

In this study and informal interaction with locals indicate the low level of education in the area. So awareness campaigns are needed to be conducted. For better conservation of the area the guidelines are needed to be prepared for tourists and local people to minimise the harm to ecosystem. The damages to ecosystem and diversity in the area are needed to be restored by removing invasive species from the protected area.

Along with this there is very little information is available about NDBR region and still a large area is remaining untouched. So scientifically there are huge opportunities for research for understanding of nature and Himalayan ecosystem.

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 logo of Rufford Foundation was used as stickers in carry bags, tents other equipment and questionnaire sheets. The caps with Rufford logo were used during social survey. By interaction with government authorities, they came to know about

the Rufford Foundation and the grants provided to support nature conservation projects.

Further the Rufford Foundation will be acknowledged in research papers.

11. Any other comments?

I would like to thank my guides for guiding me. I thank my teammates Ms. Smriti, Kailash, Devendra Kunwar and Mr. Keshar Singh Rawat and Darshan Singh for helping us in field. I thank government forest department Uttarakhand to give permission and their cooperation.

I thank Rufford Foundation to give this opportunity to work at our own desire for the cause of nature.



Some plants of study area. Left to Right: *Aconitum violaceum*; *Arnebia benthamii*; *Dactylorhiza hatagirea*; *Meconopsis aculeate*; *Nardostachys jatamansi* and *Saussurea obvallata*



