

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	Nawal Shrestha
Project title	Sustainable utilization and management of threatened medicinal plants in Tinjure Milke Jaljale area, Eastern Nepal
RSG reference	14863-1
Reporting period	May 2014 - May 2015
Amount of grant	£5984
Your email address	nawalshrestha@gmail.com
Date of this report	May 26, 2015

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
Assess the status and utilisation of medicinal plants in TMJ area			√	Our work documented use reports of 42 species of medicinal plants from the study area with some previously undocumented use too. So the objective was fully achieved.
Identify vulnerability of medicinal plants and evaluate their extinction risk		√		Vulnerability assessment was carried out using eight predictors of vulnerability. Although our study identified vulnerable species, we feel that in absence of other climate change studies (e.g. ecological modelling) we cannot fully evaluate their extinction risk. Therefore, we regard this objective as partially achieved.
Evaluate local and commercial threat to high valued medicinal plants			√	We were able to evaluate local as well as commercial threat to medicinal plants based on use value and trade data. This objective was more or less fully achieved.
Prioritise medicinal species for cultivation and further conservation			√	Five species with high use value and high commercial demand were selected as priority species for cultivation and further conservation.
Facilitate social awareness programmes and training campaigns on sustainable utilisation, cultivation and harvesting methods of medicinal plants to ensure their long term viability		√		As planned we could not organise formal programmes and training sessions in all the villages. However, we managed to conduct informal awareness program in <i>Chauki</i> and <i>Gufapokhari</i> to brief sustainable harvesting techniques as well as an interaction programme at local high school in <i>Dhankuta</i> .

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

- Our study area lies in the remote terrain of the Eastern Himalaya, access to major part of which is very challenging and difficult. Especially during the monsoon season, roads are taken away by landslides. During second field visit, we faced this problem and we made a very narrow escape through the trails.
- During a survey in the sub-alpine region of our study area, we were offensively approached by caterpillar fungus (*Ophiocordyceps sinensis*) collectors questioning our motive to visit the area. They mistook us for traders and they thought that we came to collect valuable medicinal herbs from the area. After briefing them our purpose of visit and the proposed work, they spared us. They assisted our work by providing useful information on medicinal plants trade afterwards.

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

- **Documentation of ethno-botanical information and identification of hotspot areas**

In order to assess the utilisation of local medicinal plants we conducted interviews, informal group discussions in our study area with the help of local field assistants. Over 50 knowledgeable key persons between age groups 30-75 were interviewed to collect information on medicinal plants utilisation. The documented data provided valuable information on how local people have been utilising medicinal plants in treating various human ailments. Some of these are previously undocumented use, and therefore the finding of present work is expected to facilitate novel drug discovery. The data also provided information on which plants are the most preferred in the area and which has the highest demand. Altogether, 42 species of medicinal plants were found to be widely utilised in local therapeutics with roots being the most utilised parts and nine areas were identified as major distribution centres for medicinal plants.

- **Threat assessment of useful medicinal plants**

Based on the method developed by Cunningham (1996) and using eight predictors of vulnerability (see Tripathi & Schmitt, 2001; Ghimire & Aumeeruddy-Thomas, 2005; Shrestha & Shrestha, 2012), we successfully calculated threat scores of medicinal plants and identified vulnerable species that are exposed to high threat risk in our study area. This finding can serve useful purpose in evaluating which species need special conservation attention.

- **Prioritisation of top medicinal plants for cultivation and further research**

Although the Government of Nepal in recent years has prioritised few species of medicinal plants for agro-technology development, our study identified few more species that could possibly be included in the list. Based on our study, the species with high use values were *Swertia chirayita*, *Paris polyphylla*, *Aconitum spicatum*, *Neopricrorhiza scrophulariiflora* and *Bergenia ciliata*. Based on the data from District Forest Office, local traders as well as national level trade data, these species have the highest trade demand too. Therefore, we prioritised above species for cultivation and further agro-forestry research.

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

We included knowledgeable key persons from the local community in our team to assist us in our work. Chiefly we included school teachers, local healers and members from local grassroots level organisation, Rhododendron Conservation Committee. They helped us in collecting useful data on medicinal plants utilisation and trade in the area. They also acted as facilitator during questionnaire interviews and informal group discussions. With their help, we were successfully able to materialise our project. Their involvement in the project made them aware about the status of medicinal plants and their conservation benefits. They showed great enthusiasm in initiating cultivation of medicinal plants in their farm lands. They however, addressed the need of technical assistance and support to grow medicinal plants, which we provided within our capacity.

5. Are there any plans to continue this work?

We wish to continue this work in the future emphasising more on capacity building activities. We would like to provide further technical expertise for cultivation of medicinal plants prioritised in the present study. During this work we felt that people lack scientific cultivation and sustainable harvesting techniques. Since collection pressure on some medicinal plants were found to be quite high, training them to cultivate such species would not only decrease the collection pressure on wild resources but also help to increase their economic condition. For example, *Paris polyphylla* and *Swertia chirayita* were the most preferred species in our study site, both of which are under CAMP threat categories (see Bhattarai *et al.* 2002). With regard to their high preference and low availability, dependency on wild collection alone would not be sufficient to ensure their long term viability. Therefore, in the next step we would like to focus on cultivation and conservation of the medicinal plants prioritised in the present study.

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

The findings of the present work are currently under consideration for publication in a peer reviewed scientific journal. In addition, we are preparing a report with recommendations to submit to the Department of Forests, Ministry of Forests and Soil Conservation, Nepal. Our recommendation is expected to assist in the preparation of future management plans by the Government of Nepal. During our work we found that our study area is rich in biodiversity and resource exploitation is a major threat to it. Although, local villagers were enthusiastic to aid in conservation related activities, they were seeking support from the government too. Since there are no checkpoints, outsiders can freely enter to hunt/collect any wildlife they desire. During our work, we accidentally encountered a group of armed poachers from outside village with a hunted wildlife. Therefore we felt that no matter how hard local villagers try to save their resources, absence of checkpoints to monitor illegal poaching activities can make them helpless. We would like to include this issue in our recommendation too.

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

RSG was used for a period of approximately one year starting from June 2014 to May 2015 which is in accordance to what we had planned. Since we obtained permission from the Department of Forests only in June 2014, we could not start our field trip before that time. Our first field visit was made during June-July 2014 followed by second visit in September. The third visit was made in March 2015. Our each visit lasted for about 15 days. We planned for a fourth visit in early May 2015.

However, massive earthquake on April 25, 2015 made this trip impossible. Numerous aftershocks after that have traumatized people still and we are looking for situation to become normal. Although we did not plan for the fourth trip initially, we felt the necessity of having a wrap up session before we finally submit our final report. Our project has however more or less achieved what we had planned to accomplish.

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
Air fare/bus fare	130	185	-55	Due to general strike, the air/bus fare slightly increased and we had to pay more than the normal price
Equipment's	730	610	120	The actual price of the equipment's varied from our initially calculated amount.
Field allowances	3960	3960	0	Payment was made as proposed
Logistics for field work	245	272	-27	We proposed a lump sum amount for it and the actual amount was likely to vary
Stationeries and other items	184	151	33	We did not know exact price of all the materials initially. We found the items to be cheaper than our evaluated price
Field support to B.Sc. students	490	490	0	Support was provided as previously proposed
Expenses for group discussions, meetings, awareness	61	92	-31	We proposed a lump sum amount for this category and we expected the amount to vary
Overhead expenses	184	0	184	Since we had surplus, we did not require this amount
TOTAL	5984	5760	224	1£ = NRs 162.39

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

As stated earlier, technical assistance in cultivation of prioritised medicinal plants should be the first step followed by introduction of other income generation activities. Although, few residents have started cultivation of medicinal plants in their farmlands, the farming is in the experimentation stage and they feel that they still need further technical assistance. The interests in medicinal plants cultivation is seen to be growing and therefore, by providing proper support we could help them to cultivate highly demanded and threatened medicinal plants. This will not only save the dwindling

resources but also create good opportunity for income generation. At the same time, we also feel that other income generation activities should be introduced in order to reduce sole dependency on wild medicinal resources.

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?

RSGF logo was used in the questionnaire sheet used to collect information from the local people. It was also used in my research presentation at Institute of Botany and Peking University. I have duly acknowledged the support from Rufford Foundation in the research paper resulting from current work.

11. Any other comments?

Community participation is very crucial for any in-situ conservation programs. This will not only create awareness among local people about conservation need but also encourage their active participation in the conservation initiatives. In the present work we have therefore, sought maximum participation from the local community in identifying key issues and possible solutions to these problems. We highly appreciate their enthusiasm and support. We duly thank the residents of *Guphapokhari, Jorpokhari, Sukebazar, Mangalbaare, Chowki, Tinjurephedi, Paanchpokhari* and *Ghurbise* for assisting in our work. We would also like to thank the Rufford Foundation, UK for providing financial assistance to our project.