

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	Tshewang Dorji
Project title	Seeking the middle path:Using seedling shelters to permit grazing in the restoration and conservation of native brown oak forests in Bhutan
RSG reference	13325-1
Reporting period	April 2014- May 2015
Amount of grant	£5860
Your email address	tshewangdorji1@gmail.com
Date of this report	11 th May 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
Establishment of fences			Yes	Fence plots and unfenced plots of size 10 x 10 were maintained and established (Total 12) using barbed wire with active participation of rural communities
Plantation of 500 nursery raised oak seedlings			Yes	Oak seedlings raised in the nursery are used for this study. About 500 oak seedlings were planted at the study site with the help of rural communities.
Establishment of seedling shelters			Yes	Three types of seedling shelters – Protex poly tube, mesh wire and locally fabricated wooden cart seedling protectors were successfully installed in the field.
Regeneration survey and data collection to understand oak regeneration problems			YES	Regeneration survey in three sites of oak forests successfully conducted and data analysed.
Education/training of rural communities			YES	Rural communities near the study area and herders residing in the study area are educated on the importance of oak forests and trained on plantation techniques
Maintenance of trails and plantations			YES	Periodic weeding and maintenance of fences and seedling shelters carried out with labour engagement from local communities.
Installation of weather monitoring stations (precipitation, temperature and humidity)			YES	For the first time in Bhutan, the climatic conditions in the oak forests are being monitored using hobo data loggers. This will help in understanding the eco-climatic habitat of this oak.
Periodic collection of data			Yes	Preliminary data collected in August 2014 and second data collected in May 2015
Presentations of findings/results		YES		Preliminary findings from the project presented to the field officials and policy makers of Department of Forests and Park Services in the researcher's seminar. Poster presented in the International research Fellowship programme at the University of Tokyo, Japan, funded by Japan Student Services Organisation. Final paper will be published in an international journal

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

The project involved transportation of large amount of equipment and materials to the study site. The study site is located at about 45 minutes walk uphill from the nearest forest road. Due to heavy monsoon in 2014 the forest road was washed down. This had led to manual transportation of all the field materials from the road blockage that led to unforeseen expenses to the project. However, the task became little easier due to strong support from rural communities who were hired/engaged in the transportation of these materials through which they could also earn some income.

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

- i. The project proved a new technique of oak plantation and conservation without the need to fence huge forest areas (which are expensive) by using individual seedling shelters. Using seedling shelter protects the seedlings as well as allows the local communities and herders to graze their cattle freely which is a source of their livelihood.
- ii. Picked from our project, the idea of using seedling shelter is gaining popularity amongst the forestry department plantations and roadside plantations.
- iii. Local communities and herders have strongly realised the importance of oak forests and need to conserve them for their own good.

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

The project has a strong focus on local community participation. Consultative meeting with the farmers and herders followed by hands on training on plantation techniques have really helped them to improve their plantation skills. Further, to boost local economy and to help them earn some income, all project activities such as transportation of materials, timely weeding and watering, maintenance and regular monitoring were done in strong collaboration with the local communities.

5. Are there any plans to continue this work?

Brown oak is a very slow growing species and within a span of 1 year it is too early to conclude any changes in the different treatments and control used for this research. However, the results so far are promising. Hence, periodic monitoring, weeding, maintenance and data collection is still required for a strong basis for sustainable future management of these forests. Further, plans apart from the ongoing activity includes mapping of the natural brown oak distribution and developing a strong conservation-oriented management without compromising the livelihood options is necessary.

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

The results will be published in journals and shared with the international communities. Within the country, the results will be presented to stakeholders through seminars and meetings. The results will also be shared with the local communities and their involvement will be highly acknowledged.

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

Since the inception of RSG, the funding was timely and was fully used for the whole project duration as per the work plan. All proposed activities were carried out without any financial problems.

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
Fencing of plots using barbed wire and wooden posts (12 fenced and unfenced plots)	1400	1000	-400	Due to limitation of study area (steep slope) only 12 plots (10 x10 m) were established and maintained (fenced and unfenced).
Tree shelters and posts to support them	1000	1200	200	On the advice of research advisors, tree shelters have been increased from 100 to 225 involving three treatments: exported protex, locally fabricated mesh wire and wooden carts.
Local labour costs Fencing installation, hiring charge for powerchain, seedling shelter installation, transportation of materials, periodic weeding and maintenance works	860	1070	210	Higher expenses were incurred due to inaccessibility to the study sites by vehicle. Local labours were engaged for manual transportation of materials.
Fuelling of vehicles	600	600	0	
Subsistence allowance for two researchers and four assistants	1500	1550	50	The number of days in the field work was lower than proposed. However, slightly higher expense were incurred due to increased revision in the national daily allowance
Train and involve local communities in plantation of seedlings	500	450	-50	The remaining balance was used in the payment for local labours.
TOTAL	5860	5870	+10	* 1 £= Nu. 98 (Bhutanese currency Ngultrum)

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

Being a long-term research, continued monitoring and maintenance of research trial is required to reach a strong policy decision. Working in the oak forests has taught me and my team that there is

so much to do to conserve these native forests in the Himalayas. Mapping and developing a plan to restore the poor regenerative capacity through facilitative means such as seedling shelters in strong collaboration with local communities is essential. Strict protection of these forests which now occupies small pockets is also necessary.

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?

All presentations, posters and reports produced by this project have the RSGF logo. I have the opportunity to attend the International Research fellowship program at the University of Tokyo, under Japan Student Association funding where I presented the project findings along with poster presentation (poster attached). Further, through my teams' presentations on this project to the Department of Forests, several colleagues have personally come to ask me about the grant. Some of them even applied and got funds from RSGF to carry out their project. We have presented our project work to the Master students during a visit to Forest Research Institute, Dehradun India. The students and faculties were very much impressed and encouraged their students to avail such grants too.

11. Any other comments?

RSGF is the right organisation to seek funds for inspiring young researchers to build their confidence and show their research potentials. Bhutan is a small country with bounty of natural environment (flora and fauna with over 72% of country's area under natural forest) however, with very limited financial resources. Getting individual funds to carry out research is very rare. I feel RSG is the right window for the enthusiastic researchers to peep into future.