

### 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. 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 <u>jane@rufford.org</u>.

Thank you for your help.

### Josh Cole, Grants Director

Grant Recipient Details	
Your name	Sharif Ahmed Mukul
Project title	Status, Indigenous Uses and Population Dynamics of Decreasing Medicinal Flora in a Biodiversity Hotspot Area of Bangladesh
RSG reference	69.01.09
Reporting period	July 2009 to November 2010
Amount of grant	£5,625
Your email address	sharif a mukul@yahoo.com
Date of this report	January 2011



# **1.** Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not	Partially	Fully	Comments
	achieved	achieved	achieved	
Document ethno- botanical knowledge of medicinal plant usage by indigenous communities residing within and around the Lawachara National Park.			V	A total of 68 plant species have been documented during the study that has been reported by the four indigenous communities for healing various ailments. The indigenous <i>Garo</i> community seems to use highest number of medicinal plants for curing ailments (37), followed by <i>Khasia, Tripura</i> and <i>Monipuri</i> communities. A research article based on the indigenous knowledge of medicinal plant usage by the study communities is in progress and is planned to submit to the <i>International</i> <i>Journal of Biodiversity Science</i> and <i>Management</i> (a Francis and Taylor journal published from UK).
Identify population status of decreasing medicinal flora in and around the national park			V	Ecological surveys were conducted to identify population status of medicinal plants in the park. We have identified a total of 169 plant species (with seven being unidentified yet!) within the park in different land-use/cover.
Conduct community awareness programmes and formulate a guideline for conservation of decreasing medicinal plants of the area.			V	We have organised four community awareness programmes amongst the people living in the vicinity of the park. The main focus however was on the ethnic <i>Garo</i> community since initial survey revealed that, they hold the richest ethno-botanical knowledge and have highest stakes on nearby forest. We include local traditional healer Mr. Sreenath Sangma, representatives from local educational institutes and non- governmental organisations in our awareness programme to raise awareness on the usefulness of medicinal plants, their status and necessity of conservation both <i>in situ</i> and <i>ex situ</i> . About 106 school children of different classes from local ethnic communities were integrated in the programme in order to enrich their ethno-medicinal and conservation



	knowledge.
	Each community awareness programme
	consisted a 3-hour workshop headed by
	Mr. Sangma to train school going
	students the uses of medicinal plants to
	cure some primary ailments. Additionally
	we distributed 200 seedlings of locally
	available and useful medicinal plants
	amongst the students, and local
	educational institutes. Mr. Sangma was
	also supported to raise a medicinal plant
	garden in his yard to conserve and
	secure a source of decreasing medicinal
	plant species outside its' natural habitat.

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

One of the main difficulties we have faced during the project was to communicate with age-old ethnic medicinal plant healer (locally known as *Kabiraj*), who were most of times unwilling to share their ethno-medicinal knowledge as they considered that as sacred and sometimes threat to their plea and respect in community. So, it was our first challenge to get their trust and made them understand the necessity of documentation of their ethno-medicinal knowledge. Also, as same plant was named differently by different indigenous communities it was another challenge to identify them properly using a unique code for further comparison of local knowledge among different communities. To overcome this difficulty, we prepared a pictorial manual and used a unique code for all species reported by the communities. The third and another most challenge was to identify the species in the field since a complete list of flora for this biodiversity rich national park is still lacking. Also, as phenology and flowering time was different in different life stage of plants it was sometimes difficult to identify the plant species properly in the field. In such circumstances, we prepared herbarium and identify them with the help of taxonomist afterwards. Though all the difficulties described above were overcome during the study, but definitely sometimes it hinders the flow of our fieldwork and cause some additional expenditure.

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

## i. Conservation and documentation of indigenous ethno-medicinal knowledge of ethnic communities:

Traditional and indigenous forest related knowledge is disappearing rapidly worldwide due to deforestation, globalisation and lack of their proper recognition. The scenario is not exceptional in Bangladesh. Though the country is one of the most densely populated countries in the world but exceptionally endowed with vast variety of biological and cultural diversity. Indigenous communities living near forests have traditionally relied on wild medicinal plants for curing various ailments in the country. However, very unfortunately this traditional ethno-medicinal knowledge is now in the verge of extinction due to rapid forest loss followed by lack of interests from young generations, and scientific communities' unawareness. This study initiates the documentation and conservation of ethno-medicinal knowledge of four indigenous communities (i.e. *Khasia, Tripura, Garo, Monipuri*) living inside and around *Lawachara National Park*, one of the country's' biodiversity hotspot zone.



We identified 68 plant species during the study that has been reported for healing at least 37 different ailments by the study communities.

#### ii. Understanding status and diversity of medicinal plants in Lawachara National Park:

A complete set of ecological surveys were conducted within the national park to understand the status and diversity of medicinal plants within the park. A total of 169 plants species (with seven being unidentified yet) was recorded from the survey that includes 61 medicinal plant species reported during the ethno-botanical investigation. The status of many of the species was however critical in the wild due to unwise harvesting and other anthropogenic pressure.

**iii.** Awareness on conservation of decreasing medicinal plants amongst future generations: One of the major achievements of the project was to raise awareness amongst young generations about necessity of conservation of medicinal plants and their sustainable use. We organised an extensive awareness campaign targeting the school children's where they also got practical knowledge on medicinal plant use for primary health care.

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

The project was linked with local communities from its' very early stage. In fact, one of the major objectives of our study was to document ethno-medicinal knowledge of indigenous communities and build community awareness on their sustainable harvesting and conservation, both *in situ* and *ex situ*. A local youth from each of the four indigenous communities was hired during our study as interpreter during our conversation with age old medicinal plant healer and other respondents. Also we have arranged several awareness meeting and workshops targeting mainly local school going children to increase their awareness and knowledge on medicinal plant use and conservation. The project finally supports a community nursery to secure supply of medicinal plants one of the ethnic communities, as well as to reduce the pressure on national park for medicinal plants.

### 5. Are there any plans to continue this work?

There is of course a plan to continue this project in the future. The Chittagong Hill Tracts region is another biologically and culturally diverse region of the country. Part of this area falls within the Indo-Burma Global Biodiversity Hotspot and is also believed to support more than 2000 flowering plants. We are now considering feasibility of a similar study in that region.

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

Preliminary research findings have already been shared with local communities through public workshops and during awareness campaign. Several lectures have also been delivered in public seminars in Bangladesh as well as in international seminars outside country (in Germany, Korea). Some of the data are still in processing, and two full length research articles for peer reviewed international journals are now under preparation based on the study. Few more presentations for international conference are also planned based on the key findings of the study. The research articles in preparation are.



Mukul, S.A., Rashid, A.Z.M.M., Uddin, M.B., Houque, M., Pranto, F.I. and Fox, J. In prep. Indigenous knowledge and medicinal plant usage by four ethnic communities in and around Lawachara National Park, Bangladesh (Int. J. Biodiversity Sci., Ecosyst. Mngt. & Funct., A Taylor & Francis Journal). Mukul, S.A., Uddin, M.B., Rashid, A.Z.M.M. and Fox, J. In prep. Status and diversity of medicinal plants in Lawachara National Park of Bangladesh (Int. J. Forest. Usufruct. Mngt.).

Also, during the study, additionally we recorded two new species from the area that have already been published in refereed international journal.

- Reza, A.H.M.A. and Mukul, S.A. 2009. Geographic Distribution. *Rhacophorus bipunctatus* (Twinspotted Tree Frog). *Herpetological Review*.
- Reza, A.H.M.A. and Mukul, S.A. 2009. Geographic Distribution. *Calotes emma* (Spiny-headed Forest Lizard). *Herpetological Review*.

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

It was extremely difficult to follow the anticipated timeframe (in the following table) of the project in the field for political instability. Also, as the study was partially based on community survey, sometimes we had to reschedule or wait long to meet our expected person. During project implementation period we sometimes had to postpone some of our field activity due to unavailability of our local staff and research team members. Also, obtaining permissions for using local infrastructure for arranging community awareness program and workshops was sometime very time consuming. Finally, reporting of the final report was delayed due to problem arise during identification of the herbarium prepared during the study.

Activity	Мо	nths										
	01	02	03	04	05	06	07	08	09	10	11	12
Pre-project appraisal												
(Secondary data collection,												
managing contacts and permissions,												
field arrangements)												
Household ethno-botanical surveys												
(using semi-structured												
questionnaire)												
Interim report - 1												
Random plot sampling /												
transect survey												
Interim report - 2												
Data input and analysis												
Developing participatory action												
plan and workshop with local												
NGOs/FD												
Preparing publications and												
outreach												
Publication of result and												



submission	of	complete	project						
report									

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	Actual	Difference	Comments
	Amount	Amount		
Pre-fieldwork activities				
Contacts, permits, stationeries and photocopies.	125£	100£	+25£	The actual cost was lower than anticipated, as we get some waiver from local authority.
Insurances for the research staff	40£	40£	0£	As anticipated.
Purchase of reference materials	160£	245£	-85£	We had to purchase additional reference material (Encyclopaedia of Flora and Fauna of Bangladesh, 28 vol., published by Asiatic Society of Bangladesh) for identification of the species.
Total	325£	385£	-60£	Overall expenditure was little higher than expected.
Travel				
From stay to research site	800£	950£	-150£	The number of trips to research site was greater than expected as it was not always possible to meet our desired person on desired time that cause additional cost.
Intra transportation (project members movement within the study site)	200£	220£	-20£	Same as above.
Total	1000£	1170£	-170£	Total travel cost much higher than as anticipated.
Subsistence				
Accommodation	800£	780£	+20£	Though stay in the research site was higher than as we planned but we used cheap accommodation that support us to save expenditure a little.
Food	450£	460£	-10£	Stay and work in the research site was longer than as anticipated that cause some additional cost here.
Total	1250£	1240£	+10£	



Salaries				
Graduate field assistant (@150£ per month)	800£	800£	0	Though total time spent in the field by research assistants was greater than as we planned at the end they agreed to work for us voluntarily for the sake of the project.
Salaries/per diems for local guide cum translator (@150£ per month)	750£	800£	-50£	As fieldwork was prolonged salaries spent for local guides were a bit higher.
Total	1550£	1600£	-50£	
Equipment		1	<b>-</b>	
Hand-held GPS	220£	180£	+40£	Older model was purchased to save money.
Digital camera and tripod	325£	365£	-40£	Price was higher than the anticipated budget.
Voice recorder	35£	30£	+5£	
Batteries (Energizer)	30£	30£	0	
Others (e.g. herbarium sheets, poly bags, diameter and Luftkin tape)	40£	65£	-25£	Purchase of some additional equipment for preparing herbarium and packing cause extra cost.
Total	650£	670£	-20£	
Health and safety allowances	20£	15£	+5£	Lower than anticipated.
Total	20£	15£	+5£	
Post-project activities				
Purchase of analytical software's and maps	200£	160£	+40£	We got complementary access to some analytical software that reduces our expenditure for that.
Publication of brochures, awareness folder, reports, banners etc.	550£	450£	+100£	The total cost was reduced by minimising the quantity and item of publications and using the same banners as long as possible during awareness campaign.
Dissemination of project result through awareness programme	750£	850£	-100£	The actual cost was higher than as anticipated as we had to include refreshments to attract school going children's in the awareness campaign.
Total	1500£	1460£	+40£	Total cost was greater than as expected.
Miscellaneous (e.g. contingency allowance)	225£	245£	-20£	Miscellaneous cost was used to cover the extra costs incurred, and unexpected costs arise due low exchange rate of GBP (£)



				during project implementation period.
Total	225£	245£	-20£	Actual cost was little short than the anticipated cost and was covered from personal fund.
Total	6,920 £	6,940 £	- 20 £	

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

The vanishing forests and forest related traditional knowledge is one of the major concerns worldwide nowadays. Bangladesh is not an exception. This small project was an initial small step to better understand and document the ethno-medicinal knowledge of indigenous knowledge passes through generations which are now in verge of extinction due to unavoidable clutch of so-called modernisation. The study disclosed that even in the present time the importance of wild medicinal plants to indigenous communities are highly significant, and many of their usage is still unknown to us. Further in-depth studies are necessary to explore the disappearing ethno-medicinal knowledge in other parts of the country endowed with similar bio-cultural diversity.

### **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?

The RSGF logo was used extensively during the project. The logo was used in the banners and other printed materials (for distribution among the students) used during the community awareness campaign. The research initiative was also highlighted in one local and national newspaper during the project period.

### 11. Any other comments?

Indigenous communities living in the forest are not only living on nature, in some way they also safeguard it, and they teach us how to use nature for the sake of human wellbeing. It is now time to recognise the contribution of such peoples, honour and respect their knowledge, and safeguard this from fading.