

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	Narayan Sharma
Project title	Coexistence and conservation of seven sympatric primates in the fragmented habitat of Gibbon Wildlife Sanctuary, northeastern India
RSG reference	62.09.08
Reporting period	February 2009 to July 2010
Amount of grant	£5,989
Your email address	narayan@ncf-india.org
Date of this report	May 14, 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 achieved	Partially achieved	Fully achieved	Comments
To map the entire fragment in order to describe the spatial variation in important ecological and anthropogenic variables			√	At the end of the behavioural observations, the home range area of all six groups of macaques were divided into 300 x 300 m grids and 63 belt transects of 200 x 10 m and 44 belt transects of 100 x 10 m in sizes were placed within these grids. Each transect were sampled for trees (>10 cm), shrubs, lianas and herbs including a few anthropogenic factors such as number of cut stumps and lopping signs.
To quantify use of habitat and resources by primates, identify, habituate and systematically monitor location and activity for at least two troops from each of the macaque species, including other species opportunistically		√		During 1,200 hours of behavioural observation, we collected over 36,000 individual scans on two groups of each macaques—the rhesus, pigtailed and the stumptailed macaque. In addition, we recorded 159 and 141 opportunistic observation on capped langur and hoolock gibbon respectively. However, we failed to find the single population of Assamese macaque, which is likely to have gone locally extinct in the fragment, while the slow loris could not be sampled for behavioural observations.
To carry out phenological study of select tree species in order to describe seasonal variation in the availability of food resources			√	We monitored phenology of important food plants of primates from June 2008 to April 2010, including the project period. Ten individuals each of 32 trees species, including one species each of lianas and shrubs, were monitored for 16 months. In addition, we have also monitored 1-5 individual trees of around 10 rare, but important, food plants of primates in the sanctuary.
To carry out behavioural sampling to understand interspecific interactions among the primate species, whenever two or more species are in close proximity			√	Over 100 inter-specific interactions involving two or more species were observed during the study period and descriptive data collected on each of these interactions.

<p>To proactively explore opportunities of engaging with local communities and the Forest Department to institute a systematic monitoring of primates as well as work jointly for their conservation</p>			<p>v</p>	<p>We involved two extremely motivated local youths for this study. They underwent the necessary training on various techniques of population monitoring and behavioural data collection and have become valuable resource personnel. They can now render their expertise to aid future researchers and become excellent field-guides for eco-tourists as well. We have also managed to establish close links with the Forest Department of the state.</p>
<p>Additional data (Not part of the objectives)</p>				<p>In addition to meet the objectives fully/partially , I was also successful in collecting the following additional data:</p> <ul style="list-style-type: none"> • Opportunistic behavioural and ecological observations of four species of squirrels, namely the Malayan giant squirrel (n=312), hoary- bellied squirrel (n=17), red-bellied squirrel (n=180) and the Himalayan stripped squirrel (n=7) • About 482 records of gibbon calls • Systematic observations on the non-forest timber produce (NTFP) collection from the sanctuary. During 45 days of observation, close to 400 individuals were sampled at the 15 entry points to the sanctuary with each point sampled twice during this period.

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

Initial surveys in this fragment found populations of all seven species; however, we later failed to find the single population of the Assamese macaque in the sanctuary. The species is now possibly locally extinct in this fragment. As a result, we were able to collect detailed behavioural and ecological observations on only three macaque species. Opportunistic behavioural observations were possible only for the capped langur and hoolock gibbon, whereas observations on the nocturnal slow loris were not possible due to various logistic reasons. The budgeted schedule for observations on the Assamese macaque and slow loris was utilised to systematically monitor the collection of non-timber forest produce (NTFP) from the sanctuary. We also extended the study period by three months in order to collect additional phenology and behavioural data.

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

- We found long-term persistence of several species of primates in this fragment following isolation. Indeed, the population of the five diurnal primates has increased significantly over the last decade. This site is probably one of the highest primate biomass areas in the Indian subcontinent and, to the best of our knowledge, harbours one of the largest reported groups of stumptailed macaque anywhere over its distribution range. This also marks possibly the last of the 30-odd fragments in the Upper Brahmaputra Valley where this species still occurs. Its presence in a few contiguous forests of the Valley, reported from secondary sources, however require observational confirmation.

- We found resource partitioning among the sympatric rhesus, pigtailed and stumptailed macaques along two dimensions – space and food, which perhaps allow them to co-exist in the sanctuary. These observations have enriched our understanding of the processes leading to persistence and local extinction of several primates in 30-odd fragments of the Upper Brahmaputra Valley, which we had earlier surveyed in 2006-2007.
- We found greater opportunities to address primate conservation in this sanctuary as the local people are generally tolerant towards primates and neither hunt them for food nor kill crop-raiding primates. However, at the same time, we found that a marginal section of the local populace depends heavily on the forest resources for their daily resource needs, which continues to cause a serious depletion of food resources for the primates of this fragment. The potential way forward to the conservation of these last populations of primates in this fragment would thus essentially have to address the vital biomass needs of the local people and completely identify the underlying socio-economic drivers of population growth and the aspirations of the people.

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

Two motivated youths from a fringe village of the sanctuary were employed during this project and their expertise and knowledge utilised to complete the project successfully. We were able to impart knowledge of the various techniques of population monitoring, handling of GPS, vegetation sampling, phenological monitoring and behavioural observations during their training.

5. Are there any plans to continue this work?

Yes, we are very keen to continue this important work further. As the local people are generally tolerant towards the primates of the region and the fact that the extraction of forest biomass has been the biggest threat to the continued survival of the primate populations in this forest patch, there is an urgent need and an enormous opportunity for conservation intervention. In order to formulate conservation solutions, however, it is critical to understand the socio-economic drivers that are pushing the marginal populace towards a virtual complete dependence for their resource needs and use on this fragment.

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

- The preliminary findings of this study were presented in the XXIII Congress of the International Primatological Society, Kyoto University, Kyoto, Japan, September 12th-17th 2010.

- A few articles featuring this work were published in a popular conservation magazine (<http://tinyurl.com/3tvxsr>; uploaded in October 2010), a local newspaper (*The Assam Tribune*, Guwahati, September 25th 2010), as a blog article (<http://conservation.in/blog/wildlife-under-wheels/>; uploaded in September 2009) and an article in *Bushchat*, newsletter of Nature Conservation Foundation in a special issue of 2010.
- I engaged and shared the results of this work with more than 300 school students from different districts of Assam state during the Chief Minister's Gyan Jyoti Programme in the Gibbon Wildlife Sanctuary in October 2009.
- An interim report was submitted to Assam Forest Department, Government of Assam, in January 2009.
- We are in the process of preparing the final report of this project to the Assam Forest Department while two manuscripts are being submitted to peer-reviewed scientific journals.
- I am working closely with the authorities of the Jorhat Forest Division in preparing the Management Plan for the Gibbon Wildlife Sanctuary (now known as the Hollongapar Gibbon Wildlife Sanctuary) for the next 10 years.

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

The RSG was budgeted for a period of 15 months from February 2009 to April 2010. We, however, used these funds from February 2009 to July 2010 as we needed additional behavioural and phenology data. We thus overshot our project by 3 months but for the sake of a much more comprehensive understanding of the problem at hand.

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 (in £)	Actual Amount (in £)	Difference (in £)	Comments
Stipend per diems and wages	3,381	3,905	524	As we extended the study period for another 3 months to collect additional data, this additional amount was spent towards the per diem and wages.
Equipment	1,048	0	1,048	We did not procure any equipment, as had originally been requested for, as we were gifted these items subsequent to the receipt of the project. We, therefore, diverted these funds towards our travel and stipend costs
Expendables	375	375	0	
Travel	730	1,254	524	One unexpected round air trip has to be made to and fro the institute and the field site as well as for visit to various institutes for plant

				identification. The amount was spend towards the additional travel
Communication	180	180	0	
Miscellaneous	275	275	0	
TOTAL	5,989	5,989	0	

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

Conservation interventions often fail primarily due to a poor understanding of the critical issues involved or because the focus and resources of the interventions are often directed on populations that could be beyond recovery. More importantly, for a country like India, increasing conservation efforts should be aimed at understanding and modifying human resources needs and use, rather than on the targeted wildlife populations alone. We are very optimistic that conservation efforts are most likely to succeed in areas like our study area, the Hoolongapar Gibbon Wildlife Sanctuary, primarily because the local people are rather tolerant of the threatened wildlife of the region and where a rather pro-active management body, like the Assam Forest Department, is in place. In our opinion, therefore, the next most important step, in this area, would be to better identify the socio-economic drivers of habitat degradation and fully understand the needs and aspirations of the local people that live in this critical primate-rich rainforest fragment, one of the last strongholds of the rare stumptailed macaque in entire northeastern India and a patch with one of the highest-known densities of the endangered hoolock gibbon.

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?

I did use the RSGF logo in several Windows Powerpoint presentations that I made in various research, conservation and educational institutions during the course of this project. In future, we would like to use the RSGF logo in the final technical report of this study while the RSGF has been duly acknowledged in the publications under preparation and would be in those that result from this study in the near future.

11. Any other comments?

I am extremely grateful to the Rufford Small Grant Foundation (RSGF) for supporting this important study as I am to the other donors (Primate Action Fund, Conservation International and ATREE, Bangalore, India) that supported different aspects of this long-term research and conservation endeavour. As we continue our involvement with and commitment to the last primate populations of the Hoolongapar Gibbon Wildlife Sanctuary, we can only hope that the RSGF would continue to support our research and conservation efforts in the future. Thank you very much once again for all your help and support.