

Final Evaluation Report

Your Details	
Full Name	Priya Singh
Project Title	Carnivores in a Multi-Use Landscape: Understanding Distributions and Conceptualizing Conservation Strategies for the Larger Dampa Landscape, Mizoram, India
Application ID	24259_1
Grant Amount	£5000
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Date of this Report	20 th Feb, 2020

1. 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
Develop spatial models to assess distributions of carnivores and their prey species across different land-uses in Dampa				An occupancy survey was conducted across an approximate area of 1100 km ² which comprised of the core and buffer area of Dampa Tiger Reserve, and a part of the neighbouring Thorangtlang Wildlife Sanctuary. Signs and tracks of all mammals encountered, habitat variables, and human disturbance signs were recorded during the survey. Scats of felids, ursids and canids were also collected with the aim of them being analysed for species identities using molecular techniques. Systematic camera trapping was conducted across an area of 85 km ² , to support the data obtained via sign surveys. Collectively, this information is currently being used to analyse effects of differing habitat-uses on the presence of target species.
Assess relationship between local communities and carnivores				Interviews were conducted across three villages on the northern boundary of Dampa, covering 53 randomly selected interviewees. Post informal interactions with local people, it was noticed that an assessment of existing knowledge of people with respect to carnivores and other species found in the landscape was more pertinent, before assessing their attitudes towards these species. An important finding from the interviews was that most respondents lacked the ability to differentiate between species of felids found in the landscape, although all correctly identified the Asian elephant, wild pig, and the Asiatic black bear.
Create awareness about carnivores and				By collaborating with the Village Sports Association of Terei, it was possible to

their importance				involve all teams participating in a local football tournament in adopting an animal found in Dampa as a team mascot and giving a public speech on it. This became a fun activity and was well received. Apart from this event, any other opportunity to interact with local community members was utilised to speak about the rare carnivore assemblage in Dampa, associated biodiversity, and its global significance.
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.

Field work for this study could not begin until November 2018, post the monsoon season in NE India. Thereafter, the field component of this work was relatively smooth, except for delays in work during November and December due to State Assembly Elections, followed by celebrations associated with the New Year and Christmas. However, data entry for this study was a prolonged exercise since it required usage of specific software required by the collaborating organisation. Furthermore, the quantity of data to be entered and processed was extensive, slowing down the work considerably. Also, in order to improve the veracity of our sign survey in field, all carnivore scats encountered were collected for molecular analysis. This process of species identification using molecular techniques has been cumbersome and is still not complete.

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

- Conducted within a period of less than 4 months (November-mid February), restricted to a single season, this survey covered the entire Dampa landscape, inclusive of the core and the buffer area, along with a part of the neighbouring Thorangtlang Wildlife Sanctuary. The final findings from this study, hence, will be of great significance to expand our understanding of carnivore distributions not just within a limited highly protected area, but across a mosaic of habitats within the larger landscape.
- The study also allowed obtained information on human induced threats, such as presence of snares, indirect evidence of fishing and movement of unauthorised people within the park boundaries, hence allowing generate information that can be used by park authorities to identify areas for enhanced patrolling initiatives.
- Interactions with local people drew attention to the lack of knowledge regarding common felid species found in the area.

4. Briefly describe the involvement of local communities and how they have benefited from the project.

During the span of the study, over 50 forest guards, belonging to three ethnic groups, i.e., Mizo, Bru and Chakma, were trained in data collection, using a protocol established by the National Tiger Conservation Authority. While conducting interviews, selected members of the Village Councils were also engaged with and encouraged to support and communicate ideals of conservation to the larger community. The Football Tournament conducted by the Village Sports Association of Terei was a success and well received, with a renewed agenda of conservation awareness implemented as a fun activity. Inspired by this tournament, Sports Association of a larger neighbouring village has already begun contemplating conducting a similar event at a larger scale.

5. Are there any plans to continue this work?

As a priority, I will be focussing on completing the analysis and publishing results of this study. Only post completion of findings from this current study (tentatively by end of 2020), will I be considering moving to the next phase of field work in this landscape. Meanwhile, I will continue visiting the area for other purposes, and continue to share findings of this study with policy makers in the central and state governments.

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

Findings from this study will be shared with the scientific community through peer-reviewed scientific publications. Currently, the data collected in collaboration with the Wildlife Institute of India, is being analysed, a part of which will be shared via the Tiger Estimation Report being submitted to the Government of India. This outreach platform will allow findings from this study to reach a larger group of administrators and policy makers, in-turn influencing future management decisions related to the Reserve.

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

The fieldwork for this study started in November 2018 and continued until April 2019. Thereafter, data entry and analysis has been considerably delayed due to technical issues with the software required to be used for this purpose by the collaborating organisation. Also, the molecular component of the work, which was incorporated as an additional tool to improve the veracity of field identification of scats has taken much longer than anticipated, due to the quantity of the data that requires being organised, processed, validated and analysed.

8. Budget: 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. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Research scholar stipend	824	824		
Field assistants	1400	979	-421	The project did not hire permanent field assistants as planned. Instead, assistants were hired on daily wage basis, depending on work to be conducted.
Living expenses (Incl. fuel & vehicle maintenance)	1929	679	-1250	Since the project involved collaborating with the Wildlife Institute of India, it was possible to avail official accommodation which significantly reduced this cost.
Communications (incl. phone & couriers)	70	145	+75	Since the project added a component of scat identification using molecular techniques, samples had to be regularly couriered to the laboratory to ensure they did not decay. This led to added courier expenses.
Equipment (includes AA batteries for camera traps)	212	275	+63	The budget had not incorporated costs of AA batteries required for camera traps.
Travel (local and outstation)	565	691	+126	With a leading airline stopping services across India, including Mizoram, air-travel became exorbitant.
Institution collaboration fee		391	+391	In order to expand the reach of the study and avail government support for the project, reduce unnecessary purchase of equipment such as GPS units and to fulfil a common agenda of sampling the entire Dampa landscape,

				this collaboration was initiated. Also, it gave access to camera-traps which were borrowed from the institute.
Total	£5000	£3984	-£1015	Local exchange rate £1=89.56. Underspend returned to Rufford.

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

Through this study we have accomplished the objective of surveying the entire Dampa landscape for species distributions. The next step would involve using findings of the study to identify sustainable livelihood options for this region, which do not negatively interact with wildlife presence. The villages surrounding the reserve could also greatly benefit from conservation awareness activities, especially those routed through local community groups, such as the Young Mizo Associations. Interactive programmes between senior representatives of the Forest Department and representatives from villages surrounding Dampa would be imperative to encourage interest of local people in Dampa's conservation, as evinced from interactions with local community members.

10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?

Yes, with permission from the Rufford Foundation, it was used on football jerseys provided to the team that won the local football tournament.

11. Please provide a full list of all the members of your team and briefly what was their role in the project.

Priya Singh, Project Researcher: Designed or modified (provided by the collaborating institute) data collection protocols, collected data from November 2018 to April 2019, entered data into software- a requirement of the collaborating organisation, analysed/ analysing data. Will also be volunteering time in the molecular lab to conduct species identifications.

Dr. Y.V. Jhala, Scientific adviser, and collaborator: Provided scientific inputs at different stages of the project.

Forest guards: **K. Muansanga, Lalthazuala, Thimmaiah, Laltanpuia**, and **Zakhuma** assisted in field extensively, along with many other staff members from Dampa Forest Department.

Research assistants: **Chiranjivi Sinha** (18th Nov-14th Dec 2019), and **Niranjana Basu** (7th-24th Nov 2019), assisted with data-collection during the mentioned period.

12. Any other comments?

I am grateful to The Rufford Foundation for this grant which allowed conduct this extensive study. I also want to acknowledge the support of my collaborating institute, the Wildlife Institute of India, and the Mizoram Forest Department, for their advice and support.