

## The Rufford Foundation

### Final Report

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Congratulations on the completion of your project that was supported by The Rufford 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 [jane@rufford.org](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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Grant Recipient Details	
Your name	Sandhya Sharma
Project title	Assessing Chinese Pangolin Status and Conservation through Community Engagement and Awareness Building in and around Gaurishankar Conservation Area, Nepal
RSG reference	26508-2
Reporting period	November 2018 – January 2020
Amount of grant	£5000
Your email address	Sandhyasharma198@gmail.com
Date of this report	January 2020

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 establish the baseline information on Pangolin spatial distribution				37 grids of 1 x 1 km were laid out. At the centre of each grid, a 500 m line transect with three 100 x 100 m plots was made along each line transect. Each plot was monitored for 6 consecutive days. During the first, day-old burrows were searched and in the remaining five days, active (new) burrows were recorded. For the identification of burrows used by Chinese pangolin during each survey day we used stick and different coloured ribbon. We marked old burrows (first day) using only stick, for second day we marked the active burrows using stick with white ribbon, for third, fourth, fifth and sixth days respectively stick with light-pink ribbon, light-purple ribbon, light-red ribbon and light-yellow ribbon was used. We also collected the ant and termites from the active burrows of Chinese pangolin.
To determine the trade of Chinese pangolin in the site				We collected the illegal trade data from the local, national newspaper and also from the Gaurishankar Conservation Area Project (GCAP).
To collect the social survey on the trade, ethno-zoological uses and hunting of Chinese pangolin				Purposive Snowball sampling was conducted with 400 respondents for collecting the socio-economic status of respondents, hunting, trade and ethno value of pangolin at the study area.
To capacitate the local people on pangolin conservation				We trained 15 local people for 5 days providing both the theoretical and practical knowledge on pangolin status, legal provision, ecology and conservation. We also visited the pangolin habitat and

			<p>help them identifying the pangolin burrow, how to use the GPS, process of entering the data. These trainees were also mobilised in the field for the spatial data collection. Pre- and post-questionnaire related to pangolin were also provided and measure the effectiveness of the training. Post-questionnaire were provided nearly 3 months after the training.</p>
<p>To provide the awareness activities to the locals</p>			<p>15 schools within the premises of Gaurishankar Conservation Area were educated on pangolin status, legal provision, ecology and conservation. Pre- and post-questionnaire were also provided to measure the effectiveness of the awareness campaign. Post-questionnaire were provided after the 1 month of the awareness campaign. One "Pangolin Conservation Eco-club" was established constituting of 20 higher secondary level student. They were also taught the theoretical and practical knowledge on pangolin. They were taken to the field of pangolin habitat also they were given responsibility to teach their gained information to school students while conducting the speech and quiz competition. "World Pangolin Day" was also celebrated with the students, teachers, member of GCAP and other local people. Prize was distributed to the winner of quiz and speech competition. T-shirts were distributed to the member of the eco-club and to the trainees.</p>

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

The study site is the transit for most of the Chinese pangolin illegal trade, so people were hesitating to provide the information on illegal trade activities. So, for this we

used purposive snowball sampling, and friendly behaviour to the local people which make us easy to gather the illegal trade information and ethno-zoological values.

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

- 1. Collect the baseline information on spatial distribution of Chinese pangolin:** Altogether we laid 111 plots within 37 1 x 1 km grids. Different environmental variables like slope, elevation, aspects, major vegetation, soil types, texture and habitat types were recorded along with the proximate variables like distance to settlement and distance to water bodies that affects the spatial distribution of the pangolins. Occupancy modelling was analysed of the data. We found 138 active burrows in the study localities with naïve occupancy (proportion of sites occupied) of 0.55. Single season occupancy model was conducted and found average Chinese pangolin occupancy was  $(\hat{\Psi}) \pm SE$  was  $0.79 \pm 0.09$  and detection probability  $\hat{p} \pm SE$  was  $0.32 \pm 0.05$ .
- 2. Determine the trade of Chinese pangolin:** Purposive snowball sampling was done to collect the information on threat and illegal trade activities. Out of 400 respondents 225 were selected for snowball sampling to gather the information on socio-economic status, trade and remaining respondents were unknown about the trade so they were selected randomly for gathering the information only on socio-economic status. Based on snowball sampling 92% of the poachers are male, 96% are illiterate and 96% of the poachers belonged to poor family background. Highest number of people speculated Gaurishankar Conservation Area-Lamabagar-Lapchi-China as the prime route for pangolin illegal trade. The cost of pangolin scale was nearly NRs. 18000/kg (USD \$ 163/kg) in 2018.
- 3. Capacitating the local people on pangolin conservation:** We provide the pre- and post-questionnaire to evaluate the effectiveness of the training. We found there was significant rise in the knowledge of the trainee ( $t=37.538$ ,  $df=14$ ,  $p\text{-value}<0.0001$ ) at 95% confidence interval.

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

We established "Pangolin Conservation Eco-club" constituting 20 higher secondary level students. Due to the establishment and mobilization of the member of "Pangolin Conservation Eco-club" they were well known about the pangolin inhabitant in their area and also provide opportunity to share their gained knowledge to other school students. These activities not only enhance the knowledge but also enhance the confidence in them. Mobilizing youth is very important as they represent the future.

We also provide 5 days training and after the training we mobilise the local people for collecting the spatial distribution data. This helps in developing the better understanding of local people with pangolin and its habitat and helps to conserve the pangolin at the grass root level.

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

Yes, although the methodology applied in the project is the new for collecting the occupancy of Chinese pangolin i.e. occupancy modelling. Further I want to understand the behaviour of pangolin, home range through the use of camera traps and radio-telemetry respectively. I also want to understand the impact of climate change on the behavioural pattern of Chinese pangolin and the influence of elevation on Chinese pangolin interaction with its prey base (ants and termites).

I also want to establish the conservation unit for conservation of Chinese pangolin. This conservation unit will patrol and also report to the governmental officials on the trade. I want to focus on only on the hilly area of Nepal but also on all the other prime habitat of pangolin (both Chinese and Indian pangolin).

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

The results and information of the projects will be disseminated through different methods such as poster presentation, pamphlets/brochures distribution, class presentation and presentation of project findings. I also presented the finding of the project in the training of Xishangbanna Tropical Botanical Garden in China. I plan to participate in oral and verbal presentation in sharing the finding. In order to outreach to the large number of people the finding of the projects will be put on peer reviewed publication. Me and my team had prepared the draft based on the result for publication.

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

Grants was received from November 2018 to January 2020. We plan and completed our project according to the time frame mentioned in the project.

**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
Travel Long Route	510	510	0	We worked according to budget
Local travel	624	624		
Food and Accommodation	1920	1920		We worked according to the budget

Capacity development training to selected people	150	36	-114	Local people are interested in the pangolin conservation hence, we selected 15 locals and the training was conducted for five days.
Printing awareness materials (posters and brochures, flex)	500	500		We worked according to budget
Celebration of world pangolin day and distribution of prizes to the winner	200	200		We worked according to budget
T-shirt preparation	50	50		We worked according to budget
Remuneration of field assistant	800	800		We worked according to budget
Consultation meeting	65	50	+15	The consultation fee was higher
Sensitization workshop	70	70		We worked according to budget
School outreach event	225	225		We worked according to budget
Insurance	15	15		We worked according to budget
<b>TOTAL</b>	<b>5000</b>	<b>5129</b>	<b>+129</b>	<b>Personally covered</b>

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

Pangolins in the world is vulnerable due to habitat loss and illegal trade therefore it is essential to regular monitor the pangolin and its habitat. Government officers are not in every part of the country hence for the grass root level conservation, local people should be sensitised as locals live in and near the habitat of pangolin. Hence, pangolin conservation unit should be established which will not only monitor the pangolin regularly but also patrol and report the illegal trade activities in the study area to the local and national governmental organisation.

Locals are highly involved in the pangolin illegal trade to uplift the economy hence; alternative livelihood should be developed to mitigate the illegal activities. Overall, school students should be made awareness but theoretically and practically as young represent the future. Not only burrow study should be made, further studied should focus on behaviour, prey base, home range through the use of camera trap and radio telemetry respectively which is key for the conservation of pangolin.

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

Yes, I have used the Rufford Foundation (RF) logo in the presentation, awareness materials (poster, brochures, pamphlets). Further, the logo was included in the

presentation slides made during the course of the project. During awareness programme, t-shirt preparation I have use the logo of RF. The students and all the participants were made understood that the prizes and all the supports for the project successful completion were made by RF. The findings of the project in the peer-reviewed paper will be published using RF logo.

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

**Sandhya Sharma:** Conceptualized the research project, performed the field visit, social survey and data analysis, report writing.

**Chanda Sharma:** Assist in the field and social survey.

**Rajendra Chhetri:** Assist in the field study.

**Hem Bahadur Katuwal:** Provide intellectual and conceptual input.

**Binita Pandey:** For pinning the collected sample of Ants and termites.

**Indra Prasad Sharma:** For the identification of collected Ants and termites.

**Bishnu Pandey:** For the identification of potential sites of Chinese pangolin and selection of member of "Pangolin Conservation eco-club" and trainee for the pangolin conservation.

**Damber Bista:** Design for the field study for collecting the spatial distribution data.

**Hari Sharma:** For helping in preparation of draft for publication and also in data analysis.

**12. Any other comments?**

I would like to thank the Rufford Foundation for supporting throughout the whole project. I would also like to thank Department of National Park and Wildlife Conservation (DNPWC) for providing the permit letter and Gaurishankar Conservation Area Project (GCAP), Pipaldada Community Forest of Sindhupalchowk for supporting the team throughout the project. Xishangbanna Tropical Botanical Garden for providing the platform presenting some finding of the research project. Besides, special thanks goes to all the local people, youth, teachers for full support for the project successful competitions.



Figure 1. Post questionnaire to the member of "Pangolin Conservation Eco-club"



Figure 2. Member of "Pangolin Conservation Eco-club"





Figure 3. Practical knowledge to the members of "Pangolin Conservation Eco-club"



Figure 4. Awareness campaign in schools



Figure 5. Student carrying flex after the awareness campaign



Figure 6. Pre and post questionnaire during the awareness campaign



Figure 7. Prey base (termites' mound and ant nests) of Chinese pangolin in the study area



Figure 8. Social survey to the respondents



Figure 9. T-shirt on pangolin conservation with the logo of RSGF distributed to the trainees



Figure 10. Pre and post questionnaire distributed to the trainees



Figure 11. Participants of training on Pangolin conservation



Figure 12. Practical session in the training



Figure 13. Certificate distribution to the trainees



Figure 14. Focus Group Discussion with the locals



Figure 15. Distribution of pangolin conservation educational materials



Figure 16. Field study for spatial distribution of Chinese pangolin



Figure 16. Sharing the findings of the research in Xishangbanna Tropical Botanical Garden, China