

The Rufford Foundation Final Report

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.

Thank you for your help.

Josh Cole, Grants Director

| Grant Recipient Details | |
|-------------------------|--|
| Your name | Shivish Bhandari |
| Project title | Assessment of suitable habitat, estimation of population and conservation of Striped Hyaena in Sarlahi and Rautahat, Nepal |
| RSG reference | 18121-1 |
| Reporting period | July 2015- Aug 2016 |
| Amount of grant | £5000 |
| Your email address | shivish.bhandari@yahoo.com |
| Date of this report | 10 August 2016 |

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 explore suitable habitat of striped hyaena | | | √ | 60 quadrats were laid in the all possible habitat of striped hyaena and gathered more than 60 GPS locations of the habitat of striped hyaena. Final potential map will be produced after collecting some more data from other potential sites such as other districts of lowland Nepal. |
| To estimate the population of striped hyaena | | | √ | Camera traps were installed in 60 stations. All traps were installed only in night time (approximately 6 PM to 6 AM) due to the security of traps. |
| To develop community conservation awareness programme highlighting the species ecology role | | | √ | Printed outreach materials such as T-Shirts, Posters, Banners, etc. and conducted school outreach programme in 24 schools covering all study sites. Moreover, radio programme and village group discussions were conducted in those areas where there striped hyaenas were recorded. |
| Explore the people's attitudes towards striped hyaena | | | √ | It was conducted to explore the peoples' attitudes towards striped hyaena conservation. |
| | | | | |

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

I did not have any difficulties during the project except some climatic and political conditions.

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

a) This study demonstrated that large carnivore presence in all the studied habitat types in this human dominated landscape. I recorded 20 mammalian species including the striped hyaena through camera trapping, direct observation and sign survey (Table 1).

Table 1: Mammalian species and their conservation status found the study sites

| Name of the species | Survey methods | IUCN Status | NPWC Act 2029 (1973) |
|---|------------------------------------|-------------|----------------------|
| Striped hyaena <i>hyaena hyaena</i> (Linnaeus, 1758) | Camera trapping and sign survey | NT | protected |
| Rhesus macaque <i>Macaca mulatta</i> (Zimmermann, 1780) | Direct observation | LC | |
| Asian elephant <i>Elephas maximus</i> (Linnaeus, 1758) | Direct observation and sign survey | EN | Protected |
| One-horned rhino <i>Rhinoceros unicornis</i> (Linnaeus, 1758) | Sign survey | VU | Protected |
| Nilgai <i>Boselaphus tragocamelus</i> (Pallas, 1766) | Direct observation and sign survey | LC | |
| Barking deer <i>Muntiacus vaginalis</i> (Boddaert, 1785) | Direct observation | LC | |
| Wild boar <i>Sus scrofa</i> (Linnaeus, 1758) | Direct observation | LC | |
| Common leopard <i>Panthera pardus</i> (Schlegel, 1857) | Sign survey | NT | |
| Bengal fox <i>Vulpes bengalensis</i> (Shaw, 1800) | Camera trapping | LC | |
| Large Indian civet <i>Viverra zibetha</i> (Linnaeus, 1758) | Camera trapping | NT | |
| Golden jackal <i>Canis aureus</i> (Linnaeus, 1758) | Camera trapping | LC | |
| Jungle cat <i>Felis chaus</i> (Schreber, 1777) | Camera trapping | LC | |
| Grey mongoose <i>Herpestes edwardsii</i> (É. Geoffroy Saint-Hilaire, 1818) | Direct observation | LC | |
| Small Asian mongoose <i>Herpestes javanicus</i> (É. Geoffroy Saint-Hilaire, 1818) | Direct observation | LC | |
| Terai grey langur <i>Semnopithecus hector</i> (Pocock, 1928) | Direct observation | NT | |
| Lesser bandicoot Rat <i>Bandicota bengalensis</i> (Gray, 1835) | Direct observation | LC | |
| Five-striped palm squirrel <i>Funambulus pennantii</i> (Wroughton, 1905) | Direct observation | LC | |
| Indian hare <i>Lepus nigricollis</i> (F. Cuvier, 1823) | Direct observation | LC | |
| Common Indian field mouse <i>Mus booduga</i> (Gray, 1837) | Direct observation | LC | |
| Asiatic lesser yellow bat <i>Scotophilus kuhlii</i> (Leach, 1821) | Direct observation | LC | |

b) Most of striped hyaena sign evidences (scat, pugmark and kill) i.e. 37 (36.27 %) were located in riverbed, followed by mixed forest i.e. 27 (26.47%), Accacia forest i.e. 21 (20.58 %), sal forest i.e. 16 (15.56 %) and grassland i.e. 1 (0.98%) (Figure 1).

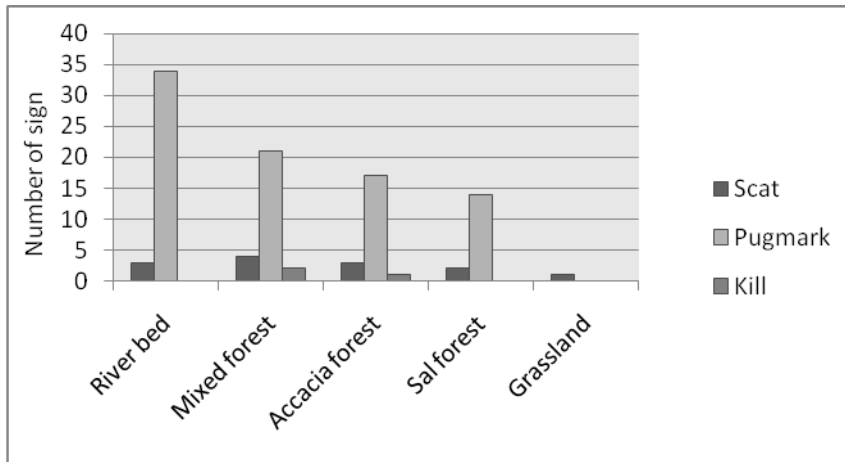


Figure 1: Sign of striped hyaena in different habitats.

c) The respondents (n=400) demonstrated mostly positive attitudes toward the striped hyaena with 63 % people liked the striped hyaena, while 37% did not like them and wanted them to be eradicated. The answers for yes/no questions were relatively positive.

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

Interaction with local people, community forests users and district forest authorities were imperative. To continue monitor and conservation awareness for striped hyaena as well as other wildlife conservation the Village Youth Club (VYC) was established under the supervision of District Forest Office - Rautahat and Sarlahi. The capacity building of local people and community forest users has been great achievement of this project.

Three students (Mr Sujan Khanal, from Institute of Forestry, Hetauda, Makawanpur; Mr Bishnu Thapa from Central Department of Zoology, Tribhuvan University; and Mr Roshan Kumar Thakur from Central Department of Zoology, Tribhuvan University) were trained in camera trapping method and sign transect sampling in the field. Now, they all are capable to handle the camera traps and interested in the field of wildlife research and conservation. Moreover, two local people were also involved during field, so they are also capable to share the hyaena's ecological role in the nature among the villagers.

5. Are there any plans to continue this work?

Yes, I will continue work on striped hyaena in the other parts of the lowland, Nepal. My future work will be focused on the hyaena's prey species, human-striped hyaena conflict, population structure, general behaviour, etc.

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

The results of this work were published in some local newspapers and media. Moreover, the result of this work will be disseminated to the concerned authority such Department of National Park and Wildlife Conservation (DNPWC) and Department of Forest; Ministry of Forest and Soil Conservation with recommending future conservation actions. I have already submitted one research papers to the Journal of Natural History Museum and another paper has been submitted to the Journal of Threatened Taxa, I hope these papers will be published soon. Moreover, I have planned to send one brief report to the District Forest Office - Rautahat and Sarlahi as well as some community forest office such as Deependra Community Forest, Maaisthan Community Forest and Jan Sewa Community Forest.

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

I spend RSG throughout the project period for the field and data analysis. This period is more or less similar to the actual length of 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 |
|--|-----------------|---------------|------------|--|
| Food and accommodation for team | 1440 | 1500 | - 60 | Food was slightly more costly. |
| Travelling | 264 | 280 | -16 | We used general public bus and travelled four times from Kathmandu to Rautahat/Sarlahi |
| Vehicle rental | 375 | 425 | -50 | Fuel was costly due to some political parties' strike in Terai (lowland), Nepal |
| Radio Program for hyaena conservation | 1140 | 1100 | +40 | Radio programme was conducted from December 2015 to May 2016. Per month two episodes were broadcast. |
| Conservation awareness materials (Poster, Hoarding boards, Brochures, T-shirt and Notebooks) | 1250 | 1300 | -50 | T-shirts and brochures printing costs were high. I printed high quality of striped hyaena's image in T-shirts. |
| Batteries for camera | 240 | 300 | - 60 | Rechargeable batteries and |

| | | | | |
|----------------------------|-------------|-------------|------------|--|
| traps, GPS and torchlight. | | | | chargers were also bought. |
| Books | 100 | 100 | 0 | |
| Miscellaneous/stationary | 191 | 191 | 0 | I have printed some colour photographs for reports; additionally communications and sometimes local transportation were also costly. |
| Total | 5000 | 5196 | 196 | I have requested to provide this difference amount from Department of Forest; Ministry of Forest and Soil Conservation, but still it is not confirmed. |

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

Lowland - Nepal is one of the potential sites for large carnivore such as striped hyena, wild dog, common leopard, and tiger. However, much of the wildlife including striped hyaena and its prey population has been degrading an outside the protected areas system due to the high anthropogenic pressure. Therefore, conservation awareness programme should be continued in this outside the protected areas (Rautahat, Sarlahi, Mahottari and Dhanusha districts of Nepal). These districts (Rautahat, Sarlahi, Mahottari and Dhanusha) are directly jointed to the Terai Arc landscape in the west and one of the best habitats of striped hyaena and other mammals in Nepal. So, this is important to explore the prey structure, and density, feeding ecology and conservation approaches of striped hyaena, it may be helpful to mitigate human-striped hyaena conflict and lead to conservation. Moreover, population structure of striped hyaena should be monitor in these regions.

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 RSG logo in my presentation, and conservation materials (t-shirts, hoarding boards, poster, brochures and notebooks). I have mentioned RSGF's name in all papers, reports and program related to this project.

11. Any other comments?

The support provided by RSGF was very helpful for me as well as striped hyaena conservation in Nepal. I would like to thank the RSGF. I am hoping for similar support from RSGF in the future. I am also thankful to Department of National Park and Wildlife Conservation (DNPWC) and Department of Forest; Ministry of Forest and Soil Conservation for providing permission letters. I am sincerely grateful to district forest office Rautahat/Sarlahi, community forests users, VYC and locals.