Final Project Evaluation Report

Your Details	
Full Name	Dipendra Adhikari
Project Title	Status, distribution and participatory based conservation initiatives for Striped Hyaena (*Hyaena hyaena*) in Central Lowland, Nepal
Application ID	25068-1
Grant Amount	£4983
Email Address	Dipen.adk95@gmail.com
Date of this Report	October 30

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
Verify the occurrence of population by assessing the abundance of the species.				For the survey, our field team of five members (three technical team members, one forest guard of Division Forest Office and one forest watchman of community forest) in coordination with staff of Division Forest Office in support help of local citizen scientist (forest watchman) after proper orientation by the investigator and technical field team. Monitoring was carried out by deploying camera traps in the designed grids. Camera trap deployment was based on signs recorded from the sign survey previously conducted in the study area. Camera traps grids of 2 × 2 km was overlaid on the study area under District Forest office and community forests that lie on eastern part from Nijgadh to Dhansar Bridge and its periphery including Singaul area. Altogether 25 grids were required to cover the study area. Two camera traps each were installed in two different locations of every grid to acquire more capture events for the target species. The best locations to install camera traps were determined after conducting a recce in the area. The parameters considered to choose the best locations were, track sign of animal seen, presence of fire line, proximity to water sources, riverbanks, places where dead animals are thrown nearby the settlement etc. In presence of CF members, representatives of local government, and forester of District Forest Office, we conducted sensitisation programmes for the people of Simara,

				Sadak Tole (Nijgadh) and Singaul (October and November 2018). Following this, we conducted camera trapping for the monitoring of striped hyaena from 10th -26th January in two deployments. Out of 25 systematic grids, 18 grids were surveyed, and others were kept offline due to high disturbance in some area which include dense settlement of Nijgadh, a small town, road and high human movement and quite complex to avoid trail cameras from being stolen. Those 18 grids were monitored by camera traps with thermal and motion sensors (Covert, Loreda, Scout Guard, Cuddie Back and Spartan). Cameras were deployed in the evening and pulled out every next morning. Each grid was monitored for 7 nights. First deployment was conducted in 11 grids (Grids: 2, 4, 5, 6, 7, 10, 11, 12, 17, 18 and 23) from 10th-18th January 2019 and second deployment was conducted in seven grids (Grids: 13, 16, 19, 20, 21, 22, 25) from 19th -26th January 2019. The deficit camera traps were supported by ZSL-Nepal, NTNC-BCC and from Rama Mishra: an independent wildlife researcher. We recorded pugmark signs in grid 11, 15 and 17, which is shown in the map whereas we got camera trap image from Judibela, Rautahat. Away from proposed area, we did survey and recorded distinct pugmarks signs in riverbed of Jhigni Khola (27.16613 N, 85.21985E), near Bagmati area of Rautahat district. In brief, we recorded pugmarks of striped hyaena in Bara and an image in camera trap deployed in Judibela grid. Altogether, 20 species of mammals were recorded from camera trap study, direct sighting and sign survey.
Interpersonal communication with				Highway hoarding boards (four) with information related to controlling road

highway drivers for awareness and speed control to avoid road kills.				kill of hyaena has been installed at three stations (one reflective hoarding board that shines brightly 24 hour) in Pathlaiya-Nijhgadh, and Nijhgadh-Dhansar section, which remains for years round and educates rest of all the drivers and passengers, who pass through the way. 1000 colourful vehicle stickers were printed and pasted in 700 vehicles (long route public buses, short route public buses and auto vehicles) in order to inform more about species for the conservation awareness and avoid roadkill.
Public awareness through posters, pamphlets and school outreach program.				1000 multi coloured informative posters was printed and was shared with forest office staff, national park staffs, school students, members of Community Forest User Groups. Likewise, the project team organised drawing competition at four different schools at Amlekhgunj, Pathlaiya and Nijhgadh. Preliminarily, students were well oriented about the species, its ecological significance and then they were given our posters and photos of hyena for drawing. Altogether 68 student participants (from class 6-9) from six schools participated and the best drawings were selected in coordination with schoolteachers and project team and top three best students were awarded with 1st, 2nd and 3rd prizes.
Developing a network of citizen scientist for regular monitoring and continued community advocacy for hyaena conservation.				We conducted three citizen scientist sensitisations cum sharing interactions at Thanimai Community forest, Simara, at Singaul and Shreejansil Community Forest, Sadaktole, Nijhgadh. Altogether 36 citizen scientists with forest watchmen and forest staff of division forest office. People were developed with ideas regarding hyaena details, identification, their signs and behaviours. Besides this, we did interaction with female representatives of community forest

				in periphery of Nijhgadh to attain ideas for hyaena conservation. In addition, we conducted awareness and interaction with forest office staffs of Dhansar Subdivision post under division forest office, Rautahat. Here, altogether 12 participants participated including locals of community.

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

The major and unavoidable difficulty we encountered during this project was theft of camera trap. We lost a pair of cameras from the deployed camera trap station. Also, a unit of camera trap was found 20 m away in grid 10 as shown in the map. Movement of people in community forest affected the chances of losing camera traps for 24-hour survey.

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

Interaction with citizen scientists oriented under our project, Community Forest User Group, staff of divisional forest office Bara and Rautahat was encouraging to us. Besides this, several conservation initiatives have been carried out through this project; sensitising citizen scientists for the conservation of threatened striped hyaena was conducted in Simara, Nijgadh and Singaul. 80 citizen scientists of Simara, Nijgadh, Singaul and Dhansar sub-division office, Rautahat have been sensitised through four awareness raising programmes in September-November 2018. Likewise, open discussion for school students (Grade 7 and 8) of Shree Little Angel School Amlekhgunj, Bara and for Bachelors Level students of Zoology, Makwanpur Multiple Campus was held at Hetauda on 22nd January 2019 for the conservation of striped hyaena in this region. The principal researcher, Dipendra Adhikari delivered a presentation on threats, challenges and opportunities of the species conservation. In addition, we did sensitisation discussion with forest office staff of Dhansar subdivision office, Rautahat in January 2019. Along with the awareness programme, the major objective of this project was to produce and stick vehicle stickers regarding the importance of hyaena and avoiding the species from roadkill in East-West Highway. Altogether 700 such stickers were pasted on vehicles that pass through Hetauda-Jhapa section. We also raised awareness for vehicle drivers, vehicle staffs, passengers, police staffs in Pathlaiya and Nijhgadh.

Scientific biological monitoring of hyena focussed survey in specific grids in Bara and opportunistic biological survey through camera trapping was notable aspect of our project.

Sensitising citizen through capacity building and interaction with the local people and Community Forest User Groups of Simara, Pathlaiya and Nijhgadh was crucial outcomes for the long-term conservation of striped hyena in central terai of Province 2, Nepal.

In addition to, School level hyena conservation drawing competition was organised in five different secondary schools (three government school and two private schools) in Amlekhgunj, Pathlaiya and Nijhgadh of Bara District where 68 students participated in the competition and 15 best drawing participants were awarded after the competition to raise the importance of hyena among school level students.

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

This project remained successful in identifying striped hyena: a different species from wild dog and jackal. Likewise, we are glad to increase the attitude and perception of people about negative rumours of striped hyena existing yet in communities of central terai. Besides this, members of CFUGs promised a strong commitment for its conservation and not to practice retaliatory killing and avoiding the use to poison for the carcass. The public people heartily supported our project and supported with good heart during biological monitoring for the safety of our motion sensor camera traps while on the survey hour. They provided us the previous sighting of striped hyenas in their areas in the past period. This project became quite helpful to clear out their confusion on striped hyena and its ecological significance in the environment. We consider that students are strong source of messengers in community to deliver positive messages. So, we conducted idea sharing interaction for school students at six schools and one campus where BSc level students participated the programme.

This project remained supportive to provide some data to IUCN Hyaena Specialist Group for further conservation work in the days to come.

5. Are there any plans to continue this work?

Yes, I have a wide vision of concept to work on landscape level conservation with some genetics study on striped hyena with implications on human and wildlife health.

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

I have been sharing the outcomes of project through the medium of my personal pages of social media (Research gate, LinkedIn, Facebook, twitter, Instagram) and from the web page of Small Mammal Conservation and Research Foundation (SMCRF). We have brought our study information in media through Himal Magazine with its link

(http://himalkhabar.com/news/10853?fbclid=IwAR0H7cerrEoAK4lRRK588DjT_JL3JGTKRpHw8TlWKjgz5oFReZl02Y9V7ZI).

The results of this project will be disseminated with Department of National Park and Wildlife Conservation (DNPWC), Department of Forest and Soil Conservation (DoFSC), Division Forest Office Bara and local stakeholders. As a principal investigator, I have well plan to get the findings published in journal article.

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

I spent Rufford Small Grant throughout the project period plus some months more added in permission RSG committee for the field and data analysis. We spent on more additional area in eastern part from our proposed area on the basis of information that we gathered from local people in the field. So, our field time was extended.

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
Long Route Travel (Two Way) (2 *3 person *3 times @ £7) and Motorbike fuel	£126	£140	+14	We extended our study area to Rautahat and travelled twice more for community outreach program and biological monitoring and consultation
Food and accommodation	£880	£900	+20	We extended one more study site than proposed area and Local cost varied
Local transportation	£162	£155	-7	
Communication and Internet	£20	£26	+6	Price rate higher in remote areas.
Health insurance and First aid kit	£60	£55	-5	
Posters and stickers printing (700 pieces respectively)	£495	£525	+30	We printed 1000 copies of awareness stickers instead
Hoarding Boards Designing (4 Hoarding boards with 1 reflective) & flex banner	£1050	£1080	+30	Increased price of iron than proposed and need to hire more people for fixing in the sites.
Camera traps Purchase and hire	£500	£600	+100	Need more camera traps at a time. Most of them were support freely and few were hired.
Awareness Programs for	£330	£300	-30	

Vehicle Drivers				
Community awareness program	£300	£310	+10	
Detailed information display board of hyaena	£300	£300		
Expert Fee (GIS expert and data analyst)	£200	£225	+25	
School Outreach Programme (Art &Essay Competent: stationary, prize for winners)	£270	£295	+25	Venue were at different school so that we could organize at suitable points and it caused increment.
Stationary for survey (Printing, Photocopy, Topographic map, notebook, pen, files etc.)	£85	£80	-5	
Report Preparation, Publication and dissemination	£155	£150	-5	
Total	**£4983**	**£5141**	**+£158**	Additional expense than the funded amount was supported by Small Mammals Conservation and Research Foundation.

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

The crucial need is to make people conscious on hyaena as a major carnivore species to maintain ecological surrounding. Then after, making or generating biological information through biological monitoring to know at what level is their population status. In addition, conservation of prey species plays significant role in species conservation. Landscape level genetic study and their sympatric relation with canids will be proceeding way for me in the days to come.

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, I have used RSG logo in the outreach materials and on presentation slides published for this project.

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

Mr. Shashank Poudel, MSc (Environment Science), Wildlife expert. Supported in research design and field implementation.

Mr. Pradeep Raj Joshi, MSc (Environment Science), Wildlife expert. Supported in Field implementation and GIS mapping.

Mr. Suraj Baral, MSc (Zoology, Remote Sensing). GIS cum Remote sensing and Wildlife expert. Supported as a Data Analyst in the project.

Mr. Tejab Pun, MSc (Zoology). Supported in Field work, biological monitoring and data collection.

Mr. Shravan Ghimire, MSc (Environment Science). Wildlife cum GIS expert. Supported in research design and GIS mapping.

Mr. Pramod Raj Regmi, MSc (Forestry). Supported in Fieldwork and Community outreach program.

Mr. Surendra Chaudhary, Wildlife Technician, Supported in Camera trapping and data collection.

Mr. Sanyog Basnet, MSc (Forestry), Assistant Forest officer, DoFSC. Supported in research design and field logistics.

Mr. Ganesh Karki, Citizen Scientist. President; Janajyoti CF, Nijhgadh. Significant role in community outreach.

Mr Umakant Mahato, Forest Guard, Division Forest office, Bara. Supported in Field locations and community outreach.

12. Any other comments?

I am indebted to Rufford Foundation for funding me grant to carry out striped hyaena conservation activities in central lowland of Province 2, Nepal. I expect similar support from Rufford foundation to conserve less thought species of Nepal.

In addition, my sincere thanks to Department of National Park and Wildlife Conservation (DNPWC), Department of Forest and Soil Conservation (DoFSC), National Trust for Nature Conservation-Biodiversity Conservation Censer (NTNC-BCC) and their field staff, Zoological Society of London-Nepal office and field staff, official team and staff of Parsa National Park, Division Forest office Bara and Small Mammals Conservation and Research Foundation (SMCRF). I have just wordless to thank to my supervisors whose regular guidelines are most for me. Many thanks to Sirte Acharya for her cordial support in the field. My sincere thanks to IUCN SSC Hyaena Specialist Group (HSG) and Stephanie Dloniak, Chair, IUCN SSC Hyaena Specialist Group (HSG) for their contribution.

Biological Monitoring

Community Outreach