

Final Evaluation Report

Your Details	
Full Name	Rajendra Dhungana
Project Title	Strengthening Human-Big Cats Conflict Mitigation Efforts in Chitwan National Park, Nepal
Application ID	28875-B
Grant Amount	£10,000
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Date of this Report	March 7, 2021

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
1. To analyze the perception of local people towards tiger and leopard				One paper has been prepared and submitted to Oryx Journal on March 3, 2021.
2. To evaluate the effectiveness of mitigation measures being adopted to address conflicts between human, and tiger and leopard				One paper is under preparation which will soon be submitted to an international peer-reviewed journal (e.g., <i>Global Ecology and Conservation</i>)
3. To prepare local conflict management plans in identified conflict hotspots of tiger and leopard				Two conflict management plans have been prepared (one each for human-tiger conflict and human-leopard conflict) for Chitwan National Park and surrounding buffer zone.
4. To conduct public conservation awareness and school programs				

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

The COVID-19 pandemic-led lockdown and restrictions affected the timely conduction of scheduled activities of this project. In addition, the pandemic resulted in hikes of transportation and logistics costs. These problems were tackled by postponing scheduled activities and making certain changes in programmes to adjust expenses.

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

(i) This study investigated the attitude of local people towards tiger, tiger conservation, leopard, and leopard conservation, considering demographic and socio-economic factors as well as past experience with such predators. The study through questionnaire survey with local people around Chitwan National Park has found some notable results. While majority of the people (51%) strongly liked tigers, fewer people (38%) had a similar view when it came to leopard. However, a greater proportion of people strongly agreed that the conservation of tigers (61%) and leopards (53%) is important. About 12% people had negative attitude towards both big cats. The ordinal logistic regression analysis found females and people with low incomes were likely to have negative attitudes and higher caste Hindus had positive

attitudes towards both big cats and their conservation. Past experience with the predator negatively affected attitude towards the tiger but not leopard. While better educated persons were positive towards conservation of both big cats, owners with larger number of livestock only agreed on conservation of tiger but not leopard. Nonetheless, age, household size, and occupation did not have any effect on any of the subjects examined. I suggest the identified cohort of people with negative attitudes be more targeted in conservation initiatives. The reasons behind the similarities and differences of peoples' attitudes are discussed and recommendations are made for the designation of species-specific programmes for tiger and leopard.

(ii) This project assessed the effectiveness of various measures adopted in Chitwan National Park to mitigate human-big cats (tiger/leopard) conflict. It considered a total of nine mitigation measures in the analysis. Based on a questionnaire survey conducted among local communities around the park and its analysis using generalised linear mixed model, this study has identified the compensation payment towards tiger attacks on human and livestock, construction of wall or fence around settlements, improved corrals for livestock, and prompt capture/management of tigers involved in conflict incidents to be the effective ways to mitigate human-tiger conflict. Likewise, for reducing human-leopard conflict, compensation payment for leopard attacks, construction of improved livestock corral, and avoidance/regulation of grazing in leopard habitats are found to be the significant measures. Other analysed measures, increasing wild prey density, raising conservation awareness among local communities, driving off big cats from settlements and farmlands, and identification/monitoring of conflict-involved big cats were not found to be statistically significant to demonstrate their effectiveness. Yet, based on literature review these measures may also be regarded as important ones. This study highly suggests that the combination of multiple measures with a greater priority to the identified effective measures would produce the best results in reducing human-big cat conflict in Chitwan National Park and beyond.

(iii) Two conflict management plans (Human-Tiger Conflict Management Plan, and Human-Leopard Conflict Management Plan) have been prepared for Chitwan National Park and surrounding buffer zone (*attached as separate files*). Both plans through participation of local communities have mainly analysed conflict situation, formulated conflict management strategies and activities, and presented a framework (action plan) for implementation of respective conflict management plans. The Human-Tiger Conflict Management Plan has recommended 11 strategies and 35 activities, and Human-Leopard Conflict Management Plan has recommended 13 strategies and 51 activities to address the issue of conflict. Previously, it was planned to prepare a conflict management plan for each conflict hotspot (one hotspot of tiger and two hotspots of leopard) but following the suggestion of park authorities and local people during planning workshops, the two species-specific management plans have been prepared such that they can be implemented in the whole national park and surrounding buffer zone.

In addition, the project contributed to raising conservation awareness among local people and school students in the surrounding buffer zone of Chitwan National Park.

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

The local people were extensively involved in every activity of this project. First, a total of 416 local households participated in questionnaire survey while collecting data regarding study on attitude of local people towards tiger and leopard. In addition, 19 local people were surveyed for pre-testing of the questionnaires and 11 national park staff, farmers, community forest users, tourist guides, and hotel operators were interviewed as key informants. Second, to evaluate the effectiveness of conflict mitigating measures, 202 local persons were interviewed using a semi-structured questionnaire. Third, while preparing two conflict management plans (one each for tiger and leopard), a total of seven local level workshops were conducted covering all four sectors (management units) of Chitwan National Park. Finally, three group meetings among local communities were conducted in the buffer zone of the park and four school programmes at local schools. One group meeting previously planned in Madi sector of the park could not be conducted due to prevalence of conflicting situation between local people and the park following demolition of huts in encroached public lands by the park authorities. This project observed participation of a wide range of local people including marginalised ethnic communities (*bote, danuwar, chepang*), farmers, livestock owners, fishermen, hotel operators, tourist guides, community forest guards, victims of leopard/tiger attacks, teachers and school students. Female, senior citizens, and differently abled people were also participated in the programmes.

The local people have benefitted from the participation in this project in different ways. The local people, through their participation in questionnaire survey, local workshops and group meetings, have been able to express their views on different aspect of human-big cat conflict. The local workshops, group meetings, and school programmes helped to raise level of conservation awareness among local communities and provided them with information on behaviour of tiger and leopard, measures to protect human lives and livestock from such predator attacks, and informed existing provision of compensation for human casualties and livestock depredation by big cats. In addition, local people got an opportunity to interact face-to-face with the park authorities to get their problem heard and resolved. Four local youths were employed for questionnaire surveys and accompanied the researcher during field works. As such, local youths developed data collection skills.

5. Are there any plans to continue this work?

Yes, I have a plan to continue the work on tigers and leopards in Chitwan National Park and other lowland national parks of Nepal. The intended future project could include the study on dietary aspects, climate change vulnerability, and potential impact of physical infrastructure on big cats and awareness campaigns, among others. It is expected to conduct research works in future through collaboration with other parties and access funds from other organisations as well.

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

The preliminary findings of this study were shared among local communities and park authorities. One paper has already been submitted to the Oryx journal for publication and the second one is under preparation to be submitted in a peer-reviewed journal in the near future. The two conflict management plans prepared under this project will soon be submitted to the Department of National Parks and Wildlife Conservation (DNPWC) and Chitwan National Park for implementation. Likewise, the results of this work will be shared among protected area managers of DNPWC and officials in the Ministry of Forests and Environment, Nepal. The study findings will also be shared through presentation on any relevant conference.

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

The grant has been used to conduct scheduled project activities between December 2019 and February 2021, with a complete interruption of field works from March 24, 2020 to July 20, 2020 due to country-wide lockdown owing to COVID-19 pandemic. As such, previously scheduled timescale of this project (November 2019-October 2020) had to be extended by 4 months due to lockdown and certain restrictions then after, significantly affecting the timing of fieldworks.

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
Travel costs	2220	2475	+255	Hike in fare of vehicle hire due to COVID-19
Accommodation and food	2500	2310	-190	
Allowance for field assistants	2000	2160	+160	Remuneration rates increased
Field accessories for researcher and field assistants	675	735	+60	
Stationery	750	600	-150	
Tea and snacks	1200	1065	-135	
Report writing	155	155		
Management overhead costs	500	500		
Total	10000	10000		1 £ = Nepalese Rupees 159.14

All the financial transactions of this work have been recently duly audited by a registered auditor as is required by prevailing law of Nepal.

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

Tigers and leopards are highly involved in human casualties and livestock depredations in Chitwan National Park and elsewhere. This situation has resulted in retaliatory killing of these big cats on one hand and endangered human lives and livelihood on the other. These cats, despite being sympatric and having comparable dietary and ecological requirements, possess notable differences in nature, magnitude and extent of human and livestock attacks in which they get involved. To this end, this project was conducted to examine attitude of local people towards these cats, identify effective conflict mitigating measures, formulate conflict management plans, and raise conservation awareness among local communities.

As next steps, conducting conservation interventions among the identified cohort of people having negative attitudes towards tigers and leopards, prioritised implementation of identified effective conflict mitigating measures, and participatory implementation of human-tiger and human-leopard conflict management plans prepared for Chitwan National Park and surrounding areas are suggested. These efforts should be augmented by research on niche partitioning and ecology of tigers and leopards, habitat use by big cats in bottlenecks and corridors, climate change impacts on big cats, and identification of key factors affecting conflict incidents. Further, formulation of protocols for management of tigers and leopards involved in conflict incidents is highly recommended. To better address threats to tigers and leopards, the wider involvement of a range of stakeholders including the local and provincial governments should be ensured.

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?

I used The RF logo in the banners of the workshops on conflict management plan preparation, and in presentation slides used in presenting the preliminary research results among local communities and national park officials. The RF logo will also be used in slides during dissemination of the research results among the officials of the Nepalese Department of National Parks and Wildlife Conservation (DNPWC), the Ministry of Forests and Environment, and the workshop/conference where I intend to present. Yes, the RF got publicity during the course of our work. The participants of the workshops and group meetings were informed about the RF and support received from the foundation. The government institutions were informed about RF while requesting for research permit.

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

I was accompanied by **Mr Rishi Ranabhat** (Assistant Conservation Officer, DNPWC), **Mr Prakash Uprety** (Assistant Conservation Officer, Chitwan National Park) and **Mr Kapil Khanal** (Senior Programme Officer, WWF *Hariyo Ban* Program). Mr Ranabhat

was involved in designing project activities, supervising questionnaire surveys, and selecting and training field assistants to administer questionnaire surveys. Mr Ranabhat and Mr Upreti supported in organizing group meetings, conducting local workshops for preparation of human tiger/leopard conflict management plans, and conducting school programs. Mr Khanal helped in project design and developing questionnaires. In addition, the then deputy director general of DNPWC, Dr. Ram Chandra Kandel provided overall guidance in project design and implementation.

12. Any other comments?

I am grateful to The Rufford Foundation for providing the opportunity to conduct this project in Nepal. I wish to collaborate with the foundation for conducting research projects in future as well.

