

Human-Wildlife Conflict

Challenges for conservation and livelihood security in Sikkim and Darjeeling

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Abstract

With increasing population and pressure on forest areas, human-wildlife interaction and resultant conflict is also increasing (Zubiri & Switzer, 2001). The paper highlights the status of human-wildlife conflict (HWC) in Sikkim and Darjeeling Himalaya, part of a global biodiversity hotspot, through review of existing studies undertaken by WWF-India and DLR Prerna in fringe villages and PA-village interface areas in East and West Sikkim and Darjeeling, West Bengal. The findings show the impacts of small mammals, including herbivores and primates, in remote mountainous areas, in contrast to the conflict caused by large mammals in other parts of the world. The general trend indicates huge economic loss due to the damage of vital crops by wild animals as the main conflict rather than direct encounters between people and wild animals and resultant injury. The communities live in difficult circumstances far removed from social amenities, thus HWC adds a heavy burden of livelihood and food insecurity. The gravity of HWC does not get reflected in larger debates which results in policy gaps in HWC management, mitigation and redress. Different strategies and measures adopted to mitigate the conflict are also discussed and recommendations have been outlined for better management and mitigation of conflict.

Keywords: Human Wildlife Conflict, Sikkim, Darjeeling, Forest Fringe Communities

1. Introduction

Human-Wildlife Conflict (HWC) occurs when wildlife requirements overlap with those of human populations, creating costs both to residents and wild animals. (IUCN World Parks Congress, 2003) Man-animal conflict has been in existence for as long as humans have existed and wild animals and people have shared the same landscapes and resources (Lamarque *et al.*, 2008). Direct contact with wildlife occurs in both urban and rural areas, but it is generally more common inside and around Protected Areas. (Distefano, 2005)

With increasing population and pressure on forest areas, human-wildlife interaction and resultant conflict is also increasing (Zubiri & Switzer, 2001). Sikkim and Darjeeling, being a part of a global biodiversity hotspot (Myers et al, 2000), has diverse fauna which live in close proximity to human beings. Sikkim and Darjeeling have a high concentration of Protected Areas. Majority of conservation efforts are focussed in these protected areas with a predominant paradigm of conservation in islands with little attention to corridor connectivity and integrity. Communities living in and around Protected Areas are not included as primary stakeholders. In many instances, these communities are highly marginalised and living in difficult circumstances.

The paper highlights the exact nature of conflict and its extent in fringe settlements of Fambong Lho Wildlife, Pangolakha Wildlife and Barsey Sanctuaries; Sikkim and Singalila National Park, Darjeeling West Bengal along the Eastern Himalayan belt. It also throws light on the existing mechanism of conflict management and suggests steps and policy level interventions for improvements.

2. Study areas

2.1 Sikkim

Studies in Sikkim were conducted in the fringe villages of three protected areas, Pangolakha Wildlife and Fambong Lho Wildlife Sanctuaries in East Sikkim and Barsey Rhododendron Sanctuary in West Sikkim. Pangolakha, the second largest PA in the state contains diverse habitats and a rich biodiversity while Fambong Lho also forms a vital repository and watershed for the urban areas nearby. Barsey, along with Singalila in West Bengal, forms a vital stretch of habitat for many endangered species.

2.2 Darjeeling, West Bengal

The study was conducted in Samanden Forest Village(FV), Singhalila National Park (SNP) a part of a critical transboundary landscape-the 'Kangchenjunga Singalil Complex' comprises of contiguous forests with Nepal, Bhutan and India. The SNP borders East Nepal and West Sikkim with 17 fringe villages on its lower slopes. The settlements evolved as forest workers were settled by the Forest Department with their land records maintained at the Range Office (3 acres per family with 4 acres for the *mondol*). Samanden with 26 families traces their settlement to 1935 and is the northern most settlement.

3. Human Wildlife Conflict Assessment

3.1 Pangolakha Wildlife and Fambong Lho Wildlife Sanctuaries

- **WWF- India & FEWMD, Government of Sikkim (October-November, 2009)**

Repeated consultations were held with the Divisional Forest Officers and Range Officers, Block Officers of Forest, Environment and Wildlife Management Department (FEWMD). Gram Panchayat Units from the fringe areas were selected based on the opinions and experience of the field personnel and history of complaints registered on HWC.

The 18 target GPUs had a total population of 51,101 (DESME Demographic Census Data, 2005), in 97 villages or Gram Panchayat Wards. Out of this, 1494 respondents were interviewed on a single person/household basis out of a total 5082 households in all the study villages thus representing a household coverage of 29.4%

3.2 Barsey Rhododendron Sanctuary

- **WWF-India & North Eastern Regional Institute of Science & Technology (June-July, 2011)**

The baseline data was collected from the fringe villages of Barsey Rhododendron Sanctuary with the format for the questionnaire designed in consultation with the various stake holders. While choosing the areas, emphasis was given on the proximity of the household to the sanctuary area and previous history of conflict. Local Eco Development Committee members were appointed as guides and interpreters.

A total of 183 respondents from 11 Gram panchayat units were thus interviewed on a single person/ household basis, and the resultant data was compiled and analysed for extent of conflict and top damage causing animals.

3.3 Singhalila National Park, Samanden FV

- **DLR Prerna and Rufford Small Grants Foundation, April 2011- April 2012.**

Samanden was chosen as it was most affected by human wildlife conflict in 2010-11 discussions with the SNP fringe communities. The conflict was mapped intensively for one year using direct observation and verifications as well as secondary information.

4. Findings and outcomes

4.1 Socio economical status of the Respondents

- In all the 4 study sites most of the respondents interviewed (93.2% to 95%) were exclusively subsistence farmers, followed by a very small percentage of Government Employees, wage labourers and seasonal migrants.
- The huge dependence on rain-fed agriculture, with small land holding between 2 to 3 acres, as the sole livelihood results in difficult living circumstances.

4.2 Nature and extent of conflict

Crop damage came out to be the main source of conflict across the different studies, rather than direct encounter between man and animals and resultant injury.

4.2.1 Pangolakha Wildlife and Fambong Lho Wildlife Sanctuaries

- Macaques, porcupines and barking deer occupied the top three slots with a total of 9 animals inflicting various degrees of damage to crops.
- Barking deer and porcupines caused the maximum damage in crops like maize, millet, potato and tubers, while macaques had the widest range of depredating crops, also including fruits.
- Himalayan palm civets reportedly caused maximum damage to cardamom, one of the most valuable cash crops in the state.
- Majority (91%) of the livestock damages involved attack on poultry. Golden jackals came out to be topmost predator, followed by yellow throated martens and leopard cats.

4.2.2 Barsey Rhododendron Sanctuary

- Wild boar causing damage in 98% households, was found to be the top damage inflicting animal, followed by porcupine and barking deer damaging potato, maize and peas.

4.2.3 Singhalila National Park

- A total of 13 species of wild animals were inflicting various degrees of damage on crop and livestock.
- Wild Boar ranks top most followed by Porcupine, Deer, Macaques, yellow-throated marten, Eagle, Eurasian Jay, White throated laughing thrush, Jungle Rat and Squirrel respectively in terms of quantum of damage done to crops and livestock.
- The top three wild boar, porcupine and barking deer destroyed 25.2%, 24.1% and 19.78% of these major crops: beans, peas, potato, squash, maize, millet, radish, soyabean and pumpkin.
- Eagles and Yellow throated martens were recorded to cause the maximum damage to livestock (mostly poultry).

4.3 Human Wildlife Encounter

- Instances of crop depredation by Asiatic black bears were recorded from the study sites; however, no such incidents were reported during the study period.
- There were no recorded incidences of direct human wildlife encounter and injury till the time of completion of the study.

5. Compensation for damage

In Sikkim a set of rules and guidelines exist for assessment and disbursement of compensation for damage to crop and livestock in the fringe of Protected Areas. Most often, amounts were distributed without actual regards to the quantum of damage and the process failed to reach the genuine victims. Only 4% of the respondents in Pangolakha and Fambong Lho fringe areas had received compensation, while the number was 29% in case of Barsey Rhododendron Sanctuary. In case of Samanden Forest Village and the remaining 13 other villages SNP, however, there were no instances of compensation being given ever to any of the affected households. Nor were the villagers aware of if any such complaints would be addressed.

6. Preventive measures

6.1 Pangolakha & Fambong Lho Wildlife Sanctuaries

- A staggering 69% of the respondents reportedly did not have any measures installed in their fields.
- The most common measure used was the scarecrow, followed by bamboo fencing, both were ineffective against macaques.

6.2 Barsey Rhododendron Sanctuary

- Bamboo fencing and scarecrows were the most commonly used measures in the field which had little or no effect on the wild boar depredations.

6.3 Singhalila National Park

- Sections of Samanden had been fenced using a combination of barbed wire and plants which was ineffective.
- Night watch, scarecrows, rattling tins and catapults were also used to some effect.

7. Wild boar - The most prolific crop damager?

Barsey showed that 98% of the households reported damage by wild boars with approximately 1890kg potatoes destroyed on an average per household annually. 85% of the

interviewees revealed that wild boar damage has increased in the last five years, which they attributed mostly to the lack of food inside the forest.

Almost identical results were derived in Samanden (45.4% and 81.7% of total damage to potatoes and maize respectively 2011-12 by wild boar).

It is undoubtedly clear that wild boars rank among the topmost conflict causing animals in the region in the higher mountain villages which needs to be featured in the HWC discourse.

8. HWC in Eastern Himalaya- conservation and livelihood challenges

From the case studies in Sikkim and Darjeeling, it is clear that the general nature of conflict in the region follows a similar pattern. The gravity of the situation and regular economic loss to the villagers needs to be recognised at a larger level with mitigation and management interventions undertaken. Within the discourse of conservation, bio-diversity hotspots and protected areas, communities such as in the study areas are bearing the brunt of conservation efforts and their voices and difficulties are going unheard and unattended in these global and national movements. While the absence of large mammals like elephants and tigers means that incidences of direct conflict and human casualties are fewer, the presence of myriad smaller animals inflicting various degrees of damage on both crop and livestock creates a complex situation for managing and mitigating conflict.

Traditionally, communities residing in the fringe areas of forests in the region have depended on agriculture and agro forestry as their main source of livelihood. Due to their challenging socio-economic status, these communities cannot access adaptive measures involving high investment to manage HWC. In this situation the Forest Department is continuing to play its traditional role and other departments and stakeholders have not risen to the occasion to address HWC.

9. Summary of HWC

The nature of damage across the four areas investigated shows the following common factors:

- Maximum conflict arising out of crop damage and depredation caused by small to medium sized wild animals
- Conflict negatively impacts lives of marginal communities living in forest fringes yet no reported instances of retaliation.
- Migration, resorted to as an adaptive measures when traditional livelihood is uprooted
- Insufficient and inefficient compensation mechanisms
- A general lack of awareness regarding the mechanism of compensation
- No compensation in West Bengal
- Compensation without proper verification in many cases, lack of swiftness between the complaint registration and money disbursement.
- Lack of investment and innovative measures regarding damage mitigation.

10. Recommendations

- **Recognise Human Wildlife Conflict in Mountain Regions at all levels**
- Increase research on all aspects of HWC in the region.
- Revise mechanism for compensation, update list of animals and include interim relief
- Enhance community empowerment and participation and include Panchayati Raj Institutions in HWC management.
- Explore and encourage new and innovative mitigation measures.
- Develop effective bio-fences with multiple uses.
- Explore possibilities of alternative livelihoods with market linkages in case of severely affected and displaced victims.
- Ensure HWC is not perceived as only a Forest Department issue by enhancing linkages and cooperation between various other departments and agencies.
- Increase broad leaf forest and reduce plantation pines so that wild animals get their food in the forest.

11. Acknowledgements

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