Human-Elephant Conflict: Improved Co-existence through Multiple Stakeholder Interaction in Kerala, India

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Introduction

Maintenance of biodiversity and conservation of wildlife is considered an essential component for the sustaniable development of a nation. While the benefits of conservation are enjoyed by all, villagers living near conservation areas often bear the associated costs (Gubby 2012). Poor tolerance towards wildlife conflict is observed in Kerala, where losses due to human-wildlife conflict is less than the national average (Sinu & Nagarajan 2015). Taking suitable action in conflict situations will enhance people's tolerance and facilitate wildlife conservation. This is particularly important for conflicts caused by elephants, which is least tolerated by people, as the damage per incident is much higher than with any other species (Naughton-Treves 1998). Human-wildlife conflict involves the interaction among several stakeholders with different perceptions and roles (Niraj *et al*. 2012), but their interactions and perceptions are not much discussed (Kanagavel *et al*. 2013).

Here, we discuss human-elephant conflict (HEC) in fringe areas of Moothedam Panchayath in Kerala, India, and evaluate the reaction of villagers and the response of authorities subsequent to a series of elephant conflict incidents in one area, and the way media communicated this issue.

Methods

Moothedam Panchayath lies between N11.29º E76.30º to N11.31º E76.34º and N11.35º E76.31º to N11.35º E76.35º. The forests in this area come under the administration of Nilambur South and North Forest Divisions, Kerala, and are part of the Western Ghats. There are six Wards (8, 9, 4, 3, 2, 1) adjoining forests in Moothedam Panchayath.

To assess all HEC incidents in this panchayath data collection was done on a monthly basis from June 2014 to May 2015 by visiting farms and households in forest fringe areas. Observational methods and secondary data collection were used (Easa & Sankar 2001). Compensation data of Nilambur South Forest Division during the year 2014-2015 was analyzed. Field data collection and analysis of newspaper articles were conducted related to the increased conflict.

Results and discussion

Intensity of HEC

A total of 134 incidents of crop damage, nine incidents of property damage and two human injuries were recorded, due to conflict with elephants. Of the total crop damages, 57% were caused by individual elephants and the rest by herds. People engaged in deterring elephants from their farms and human injuries occurred due to response of elephants to human aggression. Property damage included damage to private solar fences, pipelines, slabs of wells, water tanks and barbed wire fences. About 60% of damages occurred at immediate forest fringes not more than 50 m away from the forest boundary.

A total of 109 applications were sanctioned for ex-gratia payment for damage caused by elephants, of which 99 were for crop damages, one for injury and nine for property damages. A total of Rs. 1,134,931 (US$ 17,350) was sanctioned

with Rs. 1,042,580 (US$ 15,950) being for crop damage and Rs. 4000 (US$ 60) and Rs. 88,351 (US$ 1350) for injury and property damage respectively.

The least conflict happened in Ward 3 during the year of study. The Forest Department had provided several mitigation methods in Ward 3, including an elephant proof trench, solar electric fence and stone fence, each approximately one km in length (Figs. 1 & 2). The solar fence and elephant proof trench were not properly maintained possibly due to lack of manpower and funding.

Recent incidents

Unlike last year, recurrent incidents of elephant crop raiding and property damages were observed since June 2015 in Ward 3, associated with the fruiting of Jack trees. Discussion with villagers and forest authorities along with observation of footprints revealed that all the conflict incidents were caused by the same elephant, with one partially broken tusk. Property damage caused included damage to window glasses of households, water tanks and pipelines. The solar powered fence and stone fence were also damaged. Crop damage included damage to banana, tapioca, coconut and jack trees. The elephant moved out up to about 450 m from the forest boundary. The path traversed by the elephant outside the forest was about 1 km in length, mostly through human habitations.



Figure 1. Elephant proof trench in ward 3.



Figure 2. Stone fence damaged by an elephant.

The regular conflict incidents and their perception regarding the mild response from the authorities agitated the residents. As a result, people submitted a mass petition to the Panchayath office demanding quick action to end the conflict.

Conflict resolution

Proper handling of conflict issues is mandatory to generate a better attitude among residents towards Forest staff and thereby towards conservation. As a result of the public agitation, a meeting was organized to discuss the conflict issue at the Panchayath office. Multiple stakeholders involving villagers, politicians, the Divisional Forest Officer, the Forest Range Officer and media persons participated in the meeting.

The meeting demonstrated that people perceive wild animals as the property of Forest authorities, which illustrates their general negative attitude towards crop raiding wildlife. People considered that the authorities prioritized wild animals over humans when dealing with conflict. The suggestion by authorities to remove jackfruits near the forest fringes before ripening, was totally opposed by villagers. People demanded increase in ex-gratia amount, which they considered was too low compared to the losses. Villagers expressed their willingness to work together with conservation authorities for the participatory management of conflict. With regard to the present conflict situation, people considered the tusker causing conflict as problematic and requested the authorities to end the issue either

by translocating it or by placing an order to shoot it. People even demanded the permission to shoot elephants which were causing regular conflict.

Authorities explained that wildlife conservation is not for the Forest Department but for all. The various ecological and behavioural parameters associated with the conflict were discussed. The practical difficulty associated with the amendment of compensation amounts was also explained. Regarding the present situation, authorities assured that the damaged solar fence and stone fence will be repaired to prevent further conflict. The officials intimated to the villagers that the Forest Department is taking efforts to bring *Kunki* elephants to control the crop raiding elephant. Villagers were unwilling to accept the explanation regarding the ecology and behaviour of crop raiding elephants and demanded a quick solution that will prevent elephant conflict in the same day. Finally a decision was taken by authorities to appoint watchers along the forest boundary. Also a committee including Forest authorities, politicians and villagers was appointed, to ensure implementation of the mitigation methods and to monitor conflict incidents.

Media and conflict

We collected elephant mortality records for the period January to July 31, 2015 from the DFO office, Nilambur North and South Forest Divisions. A total of seven elephant deaths consisting of six males and one female were recorded. Though final autopsy reports are awaited, preliminary reports suggested that one of the deaths was due to poisoning (Fig. 3). It was a male elephant that died near human habitations near the Vazhikadavu elephant corridor in Gudallur-Nilambur Ghat road, Nilambur North Division (Sukumar & Easa 2006). Media reported the incident as retaliatory responses due to recurrent conflict in the area.

We analyzed the words used by journalists and the content of the stories published regarding con-flicts, in six regional newspapers (in local language) - Mathrubhumi, Malayala Manorama, Madhyamam, Desha-bhimani, Chandrika and Koumudhi. A negative tone was noted while mentioning elephants in five newspapers. Elephants were described as 'attacker', 'problematic', 'life threatening' etc. One of the newspapers had a headline as 'Finally forest authorities considered those lives destroyed by elephants', to describe the above mentioned meeting held at Moothedam Panchayath Office to discuss the conflict issue. Reports such as this, further add to the negative impression towards elephants. There was little discussion on underlying proximate causes while reporting conflict by media. Lack of scientific awareness about conservation issues among journalists, could be a reason for this bias (Barua 2010). Often, instead of addressing the multi dimensional aspects of conflict, mass media mainly talks about complex causality (Anderson *et al*. 2005). Mass media can play an important role in mitigating conflict by carefully addressing the issues in a more informative way as it has the capability to influence public opinion. Therefore, working closely with individual journalists and providing them scientific training is very important for addressing conservation issues (Barua 2010).

Keeping stakeholder's interests and maintaining a healthy working relationship with them



Figure 3. Elephant suspected to be killed by poisoning.

is essential to effectively address issues of biodiversity and conservation, especially for forests which are not under protected area status. Conservation issues can be addressed effectively by including the perceptions of key stakeholders (Kanagavel *et al*. 2013) particularly in the present context where conservation strategies such as "guard and gun", are replaced by 'participatory methods' (Mishra *et al*. 2009). The current complex socio-economic scenario of conservation (Sukumar 2004) adds value to participant interaction. Interaction among stakeholders makes them aware of each other's problems and limitations, changing the approach towards conflict and making its mitigation more realistic. Although large amounts are spent as ex-gratia payments to victims of conflict, this may not add much value in solving the problem. Management plans involving regular monitoring and assessment of conflict situations by a committee including Forest authorities, media persons and villagers will probably facilitate more interaction among them and possibly be a realistic step towards collaborative management of human-wildlife conflict in the study area.

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