



Loss Due to Man Elephant Conflict in Assam: a Preliminary Study

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ABSTRACT

Man elephant conflict and its consequences are a burning issue in Assam. Although Assam has lost a lot of property and human lives, we do not have proper estimate of the damage. To get a preliminary data, study was carried out to document the number of deaths, injuries and extent of property loss due to man elephant conflict during 2015 in Assam. The data was recorded through primary and secondary sources. Studies have recorded 84 human and 30 elephant deaths, damage to 735 houses, 16 shops, 7 schools, 1590 bigha of paddy fields and also the death of 157 domestic animals. In the study, it was observed that a majority of human deaths or injuries occurred during crop raiding incidents by elephants and killing of elephant's occurred mostly due to poisoning, electrocution or other means.

KEYWORDS

Man-elephant conflict; Losses; Assam

Introduction:

Conflict between man and elephant is not a new topic. Rather, it is as old as human civilization itself. But in today's world, this issue is causing serious concern due to the rapidly decreasing elephant population world-wide. Each year, human-elephant conflict results in approximately 300 human deaths and damage to 10,000-15,000 houses and 8-10 million hectares of crops, while over 200 elephants die due to human-related activities which include poaching for ivory or meat, poisoning, cattle-borne diseases, electrocution and collision with trains (Bist, 2002).

According to the Forest Survey of India report, Assam had maximum loss of forest cover in the entire country including 17 sq km of very dense forest from 2010 to 2011 and 152 sq km of moderately dense forest which in itself is the highest in the country (Kalita, 2012). In Assam, Jorhat district has lost 23 square km of forest area, followed by Kokrajhar district and Sonitpur district with a loss of 13 square km and 11 square km respectively in the year 2015. Decrease of forest cover was mainly due to encroachment on forest land, biotic pressure, rotational felling in tea gardens and shifting cultivation.

Due to tremendous anthropogenic pressure, forest patches have undergone significant degradation. Illegal and unplanned developmental activities on the critical elephant corridor are obstructing the free movement of elephants and are important drivers of the man-elephant conflict. Encroachment of forests in Assam has reached unmanageable proportions (Goswami, 2015; Thakur, 2010).

The population of wild elephants in Assam is gradually declining. The population of wild elephants was 5,524 in 1993. It came down to 5,312 in 1997, and further declined to 5,246 in 2002 (Talukdar, 2006). During 2003 to 2014 total 733 humans were killed by wild elephants in Assam. From 2001 to 2014, a total of 225 wild elephants were killed by poaching

(32), poisoning (37), electrocution (107) and train hits (49) (Saikia, 2015).

In Assam, pachyderms have dramatically expanded their range into neighbouring areas which had no history of elephant presence for several decades or even, centuries (Goswami, 2015). It is estimated that 28,000 wild elephants in India are distributed over an area of about 109,500 sq. km. This is about three per cent of the country's geographical area. In some of these tracts, a segment of the elephant population killed an average of 350 people annually over the last five years (2005-2010), and damaged an average of 330 sq. km. of crops every year in the last three years (2007-2010). The Central and State Governments together spend Rs. 10 to 15 crores every year on controlling elephant depredation and paying ex-gratia to affected people (Goswami, 2015).

Elephants cause enormous financial loss to farmers and householders when they raid crop fields and storage houses to feed on cereals, grains, fruits and other foods. The loss of a season's harvest is an enormous loss for a poor farmer and repeated crop depredations by elephants have created serious problems in many parts of Assam. Elephants also cause human deaths or injuries during crop/property raiding, movement through human settlements near forests and during accidental encounters.

In Assam, traditional methods to chase elephants away from settlement areas and crop fields include prayers, shouting, beating drums, burning bamboo, bursting fire crackers, burning fire at entry points to fields, powerful spotlights and throwing of stones and spears. Tree huts or huts at ground-level are used as look-outs and are manned by individual farmers or groups guarding several fields cooperatively. Such tactics have helped to reduce crop loss upto a certain level but is limited by the inability of farmers to stay awake

over several consecutive nights on a continuous basis. People also endanger their lives by getting too close to elephants or directly confronting them (Goswami, 2015). In order to get a proper estimate of the loss of human life and property in Assam due to man elephant conflict, a study was carried out with the following objectives.

Objectives:

To document death and injury incidences due to man elephant conflict in the year 2015

To document property loss due to man elephant conflict in the year 2015

Methodology:

Study area: The survey works were carried out in man elephant conflict districts of Assam viz., Bongaigaon, Darrang, Dhemaji, Dhubri, Dibrugarh, Goalpara, Golaghat, Jorhat, Karbi Anglong, Kokrajhar, Lakhimpur, Nagaon, Dima Hasao, Sivasagar, Sonitpur, Tinsukia, Kamrup, Kamrup Metropolitan, Baksa, Udalguri, and Chirang in the year 2015. Geographical location of Assam is 26°40'N to 26°45'N latitude and 94°20'E to 94°25'E longitude. Assam is bordered in the North and East by the Kingdom of Bhutan and Arunachal Pradesh. Along the South lie Nagaland, Manipur and Mizoram. Meghalaya lies to the South-West and West Bengal and Bangladesh to the West. Study areas were located in hills, forests, crop fields, settlement areas, marshy lands, railway tracks, tea gardens etc.

Survey: The entire frame of the study is categorically built on rigorous field investigation and observation. As such, the data collected was mostly primary and secondary in nature. Primary sources of data included extensive field investigations in man elephant conflict areas by asking some specific questions like village name, date of incidence, damages, financial losses, elephant entry track, name of persons (injured/ death), visual observations and photographs. Data from secondary sources was collected from newspapers like Asomiya Pratidin, Janas-adharadan, Amar Ashom, The Assam Tribune, The Telegraph and The Sentinel.

Data analysis: To analyze the data on number of human and elephant injuries and deaths; crop area damages in bighas, number of houses, shops and schools destroyed and number of deaths of domestic animals, calculations were done on excel sheets and highlighted in the report quarterly form. Tentative financial losses were calculated based on the present market value of animals and goods.

Results:

During January 2015 to December 2015, a total of 84 human deaths and 30 elephant deaths were reported. A total of 735 houses, 16 shops and 7 schools were damaged. 1590 bighas of paddy fields were damaged. A total of 157 domestic animals also died due to the conflict. The total number of incidences is also highlighted in the figure (figure 1 to figure 10). Details of the three top affected districts in Assam are given in Table 1. Other losses that were observed include damage to utensils, furniture, TV, four wheelers, concrete walls and pillars, bicycles, electric posts, goods of shops.

Table 1: Top three districts of Assam affected by man elephant conflict during the year 2015

Sl no	Name of the district	Human death	Elephant death	Crop area damages (Bigha)
1	Sonitpur	24	8	290
2	Udalguri	21	6	215
3	Kamrup Metro	5	2	386

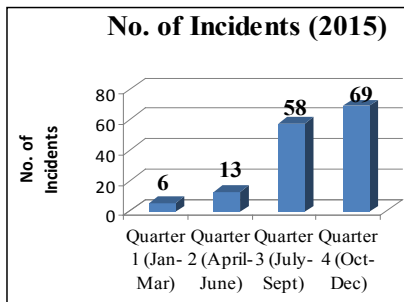


Figure 1: Number of elephant incidents during 2015

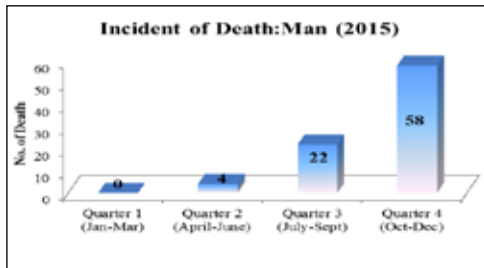


Figure 2: Number of human deaths due to man elephant conflict during 2015

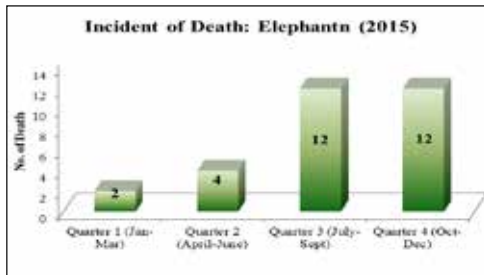


Figure 3: Number of elephant deaths due to man elephant conflict during 2015

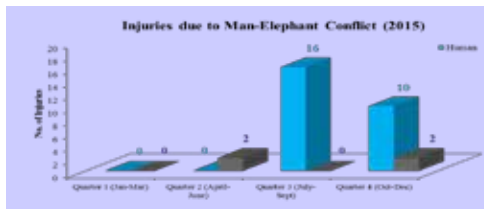


Figure 4: Number of man and elephant injuries due to man elephant conflict during 2015

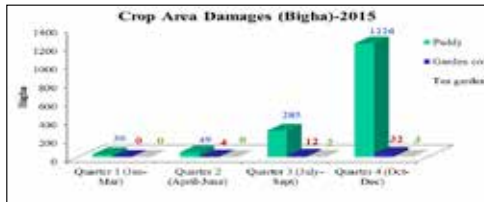


Figure 5: Crop area damages by elephant during 2015



Figure 6: Property damages by elephant during 2015

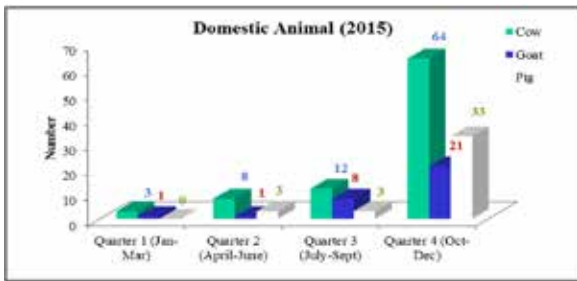


Figure 7: Domestic animal killed by elephant during 2015



Figure 8: Property damages due to elephant raiding during 2015

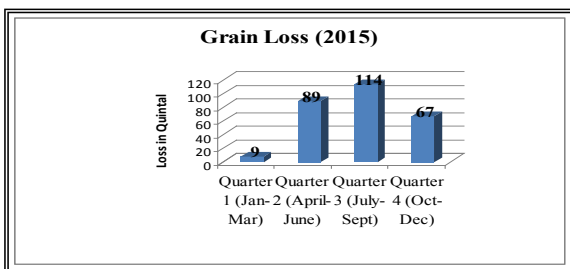


Figure 9: Grain losses due to elephant raiding during 2015

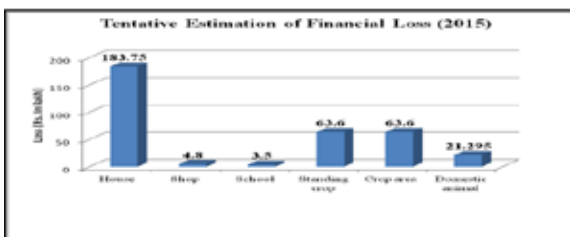


Figure 10: Tentative estimation of financial losses due to elephant raiding during 2015

Conclusion and discussion:

From the study it was observed that incidences of man elephant conflict gradually increase from the second quarter of the year and reach a peak in the third and fourth quarter as these quarters correspond with the cropping (paddy) season. Moreover, forest areas become dry in this period due to winter season.

Increasing human population, agricultural expansions, encroachment on forests and consequent habitat and corridor loss of elephants, human interference within the natural habitat and shortage of food and water in the habitat has increased the number of man elephant conflict incidents in Assam. Most existing elephant habitats do not have permanent sources of water. The run-off water from channels is very rapid and during winter seasons, these channels dry up. Water is retained only in small pockets of the habitat. As such, elephants often go to ponds in marshy lands and villages in search of water. The human population of the particular area feels threatened and tries to drive away the elephants resulting in conflict between the two. In some pockets of Assam,

people from nearby tea-garden areas make and consume home-made country liquor, which these elephants are very fond of. Thus, in search of this liquor, elephants frequently visit tea garden areas and plunder the houses. Elephant habitats near the tea gardens are highly degraded due to continuous illegal felling and encroachment by the local people especially by the labourers of adjoining tea gardens.

From the study, it was clear that man-elephant conflict in Assam is an outcome of habitat loss and food shortage of wild elephants. Keeping this in view, the following suggestions have been made to tackle the problem of man-elephant conflict in Assam: (a) Livelihood alternatives should be provided for neighboring villages. (b) A buffer zone can be created between the natural habitat and settlement area by planting unpalatable crops like Chilly, Citrus, Tobacco, Lantana, Citronella, Jatropha etc. (c) To provide food, and proper emphasis should be given to developing a more variable dense forest cover. (d) Emphasis should be given to developing a permanent fresh water ecosystem, so that sufficient drinking water is available for the elephants within their habitat. (e). Avoid traditional methods of depredation and use scientific methods

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