Human-Elephant Conflict in Patheria Hills Reserve Forest along the Indo-Bangladesh Border in Northeast India

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Introduction

Negative interaction between human and wildlife is an extensive and complex challenge to conservation (Fenta 2014). The Asian elephant (*Elephas maximus*) is a species that causes severe damage to crops and human lives in India (Gubbi 2012).

Patheria Hills Reserve Forest, located at the Indo-Bangladesh Border in the Karimganj District of Assam has been a site of human-elephant conflict for decades. The forest falls under the jurisdiction of Patherkandi Range of Karimganj Forest Division, Assam. Although the majority of human-elephant conflict cases are undocumented, as per the records of Karimganj Forest Division, there were 112 cases of elephant depredation in the area between 2000 and 2013. However, the issue has not been studied in the area, except for a preliminary documentation by Talukdar & Choudhury (2017).

Methods

The most prominent sites of conflict in the area are Bhubrighat and Sepinjuri tea estates (Fig. 1) and adjoining paddy fields, located in the fringe areas of the Patheria Hills Reserve Forest at the Indo-Bangladesh Border. The estates consist of tea gardens spread over hillocks, interspersed with narrow roads. The paddy fields are located in the adjacent plains.

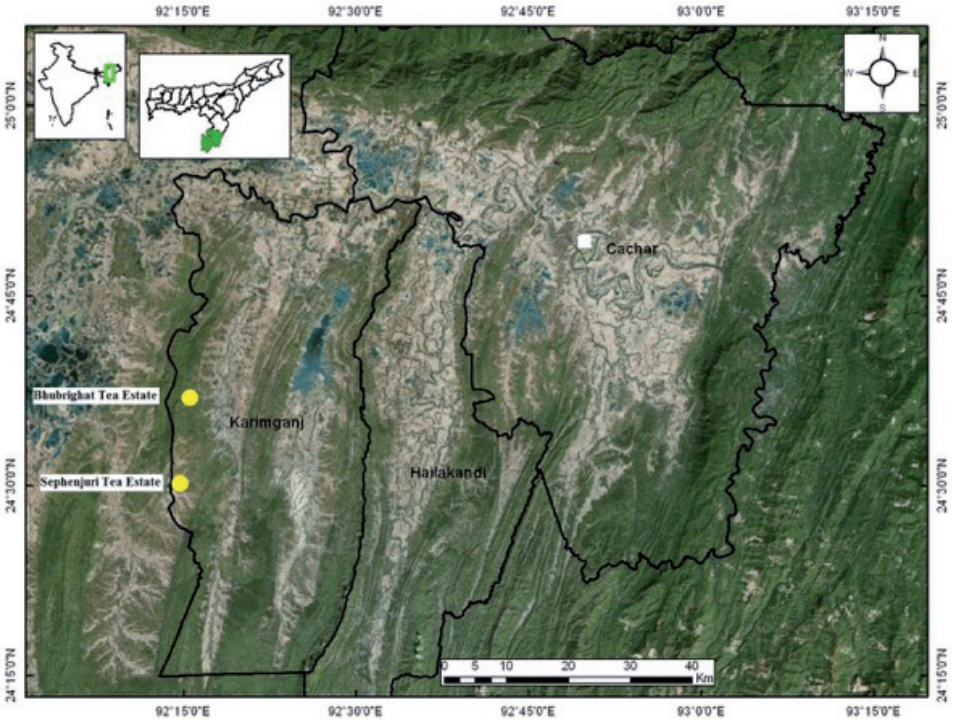


Figure 1. Location of Sephenjuri Tea Estate and Bhubrighat Tea Estate.

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Figure 2. Elephants foraging inside a forested hillock (Tilla No. 6) in Sephenjuri Tea Estate during day time.

Discussions were undertaken with Forest Department officials, tea estate authorities and employees, local people and officers of the Indian Border Security Force to collect qualitative information. In addition, observations were made in the field.

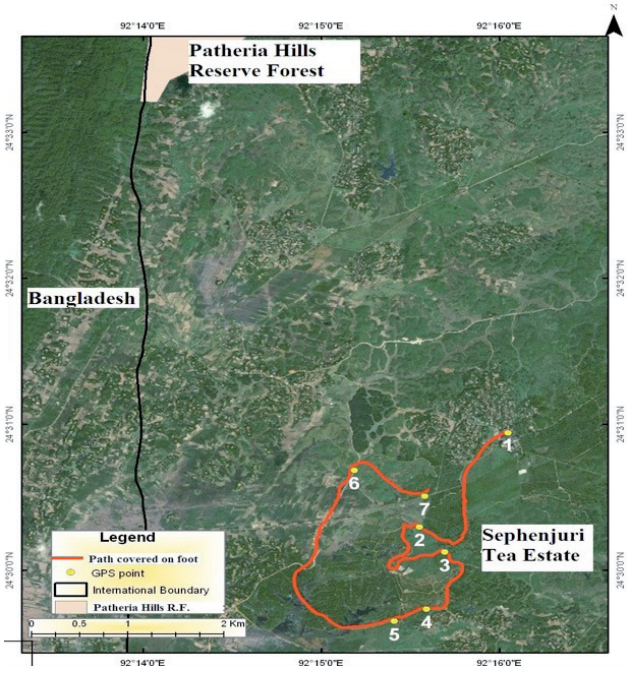


Figure 3. Human-elephant conflict locations in Sephenjuri Tea Estate. 1 = tea factory; 2 = Tilla No. 6 used by elephants for foraging; 3 = Mooli Jungle hillock used by elephants for foraging where they were sighted in November 2014; 4 = site where one person was killed by elephants in 1998; 5 = Kalabeel, a site of rampant paddy depredation; 6 = Kukirthal bamboo plantation occasionally visited by elephants for feeding; 7 = North Kuchi Hillock used by elephants for foraging (sighted in November 2015).

Results and discussion

Seven elephants were said to raid paddy fields in the fringes of the Reserve Forest. These were the only elephants in the area. Crop raiding and depredations have been taking place approximately for the past 25 years during the months of October to December every year, which was also stated by Talukdar *et al*. (2017). Crop depredation was most rampant in Kalabeel adjacent to Sephenjuri Tea Estate. In addition, the elephants also raided paddy fields adjoining Kalabeel and Sephenjuri Tea Estate. This resulted in heavy economic losses to local farmers.

During daytime, the elephants foraged in the hillocks of the tea estates (Fig. 2). Within the tea estates, there are unplanted areas, which give refuge to elephants, as these are covered by thick natural vegetation. The daytime behaviour of the elephants was said to be calm and they did not pay any attention to people who passed by. The elephants most frequently foraged at North Kuchi hillock (point 7 in Fig. 3) and Mooli

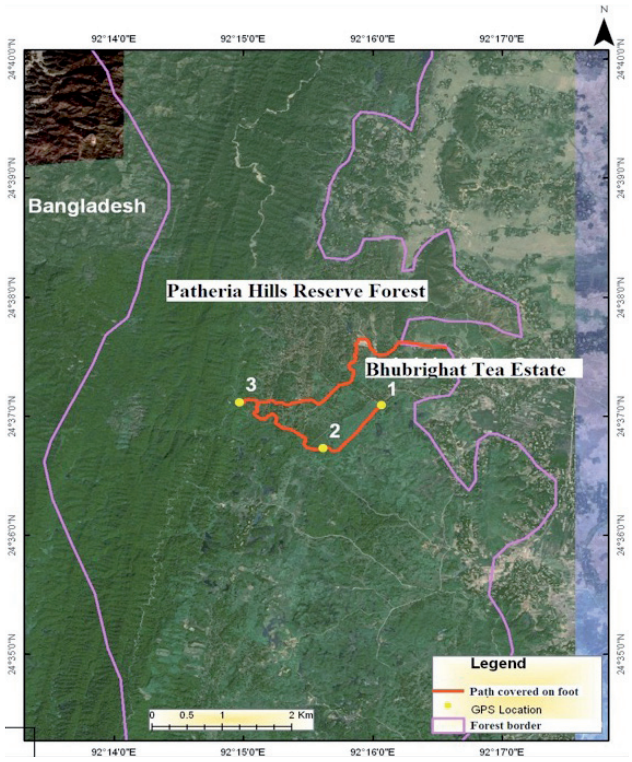


Figure 4. Human-elephant conflict in Bhubrighat Tea Estate. 1 = site of human death due to elephant attack; 2 = Adamtilla Hillock frequently used by elephants for foraging; 3 = Genai Hill, where a soldier of the Indian Border Security Force was attacked by elephants in 2012.

Jungle hillock (point 3 in Fig. 3) in Sephenjuri Tea Estate. These two sites, along with Tilla No. 6 (point 2 in Fig. 3) and Adamtilla (point 2 in Fig. 4) hillocks, were the main foraging grounds of the elephants. The elephants usually remained divided into two groups of four and three in daytime, but united together to raid paddy fields in the evening. From this time onwards, they became aggressive towards humans.

There have been a few cases of attacks on humans. For instance, in Genai Hill in Bhubrighat Tea Estate (point 3 in Fig. 4), a Border Security Force soldier was attacked in 2012, he however escaped. At another site within Sephenjuri Tea Estate (point 4 in Fig. 3), a labourer was killed in 1998. In this case, the victim was drunk and the villagers thought that the scent of liquor had attracted the elephant. In addition, elephants incurred infrastructural damage. The nursery for raising tea saplings, located within Bhubrighat Tea Estate was completely destroyed in 2015. These were only a few prominent incidents that could be recalled by the locals within the period of discussions in field. It was likely that a number of such incidences had occurred in the past that had been unrecorded or forgotten. Border Security Force officials stated that the elephants also frequently caused damages to the fences and light posts located at the international border.

Displacement of villagers had occurred and the abandoned land was later converted to tea gardens. Large areas of agricultural land had been abandoned by farmers in Kalabeel. This was because Kalabeel was raided by elephants to the extent that farmers were unable to cultivate. Displacement and abandonment were gradual and could not be traced back to any specific point of time. People were not compelled to move but they themselves preferred to move to sites where there was no conflict rather than continue to contend with elephant riding.

Crop raiding occurs when conservation areas are surrounded by traditional or rural farmland (Eden *et al*. 2016). Such a situation is prevalent in the fringe areas of the Patheria Hills Reserve Forest, leading to elephant depredation. Deterrents of raiding used included fire crackers and setting up of campfires, which were not very effective.

Except for the period from October to December when conflict was highest, elephants ranged inside the Patheria Hills Reserve Forest in Assam and adjoining forested areas of Bangladesh, indicating the trans-boundary nature of their movements.

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