

Study on Human-Elephant Conflict in Baripada Division of, Mayurbhanja, Odisha, India

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Abstract

In this study, human-elephant conflicts in 36 villages of Baripada Division from the year 2000-2014 were collected and observed. Human death, elephant death, crop damage, house damage, harm to livestock, injury to human are the consequences of this conflict. Peak depredation seasons were October to December. Most human killings were by solitary male elephants and depredation of crop by family groups. Baripada Division is one of the major places for migratory elephants from West Bengal and Jharkhand from last several years in which Fuljhari, Saria, Nadapur are most affected and vulnerable Villages.. The banana and paddy types of cultivations were the most affected, while 12 human death and 19 injuries occurred. Most of the human-elephant conflicts were due to accidental face to face with wild elephants by human entered into the forest to collect the non-timber forest products, where the elephant shelter during the day time. Most victims are woman, older ages and also some person in drunken stage. Since from 2000 to 2014, total 2925.36 acre of crop damage occurred in Baripada forest Division, while total compassionate amount paid was 7481023 during the study period. However, rate of amount paid gradually increase from the year 2009 due to the frequent incidents of migration of elephant occurred.

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1. Introduction

India holds by far the largest number of wild Asian elephants, estimated at about 26,000 to 28,000 or nearly 60% of the population of the species (Bist, 2002) data from project elephant Directorate in 2011. *Elephas maximus* is placed in schedule 1 and part 1 of the Indian wildlife protection Act (1972) conferring it the highest level of protection. Most of the populations in India are now restricted to the remaining patches of forests of the Himalayas and the Western and Eastern Ghats of Southern India (Mishra *et al.*, 2014).

Habitat loss, degradation, fragmentation, conversion and resource exploitation due to human activities result in alterations of the extent and spatial configuration of habitats available for wild species (Gascon *et al.*, 1999). As the largest terrestrial mammal the Asian elephant (*Elephas maximus*) requires large areas for its home range and is badly affected by habitat degradation and corridor loss as they over long distances. Large scale conversion of forests to monoculture plantations, croplands and developed areas has drastically reduced and fragmented available

habitats and confined them to isolated patches (Santiapillai and Jackson, 1990; Nyhus *et al.*, 2000; Sukumar, 2003; Hedges *et al.*, 2005).

The aim of this study is to document consequence and reason of human- elephant conflict in Baripada Division of Mayurbhanj Elephant Reserve which is one of the common places for migratory elephants of neighbouring states like Jharkhand and West Bengal from several years.

2. Study Area

The Study area was conducted In Baripada forest division is situated towards northern most part of Odisha between 22^o 33' 45" and 21^o 17' North latitude and 85^o 45' 30" and 87^o 13' 15" east longitude and is bounded on the North by the Singhbhum Medinapur district of West Bengal on the south by Balasore district and Keonjhar district on the east. Total area of Baripada division is 4666.539753 sq. km. As the division situated at the border of the state its division boundary touch the West Bengal (70 km) and Jharkhand state (40 km).

3. Methodology

3.1 Field Monitoring

The study was conducted during the period of 2009-14. During these periods the migratory places of elephant and affected villages were visited. Data were collected by following two methods.

3.1.1 Direct Observation

Migratory and Residential elephants, their migration routes, crop damage, house damage by elephants and affected villages were observed directly during field visit.

3.1.2 Discussion with Local People

Interaction was taken place with local people along with victims of human- elephant conflict through questionnaires to collect data regarding different aspects of conflict.

3.1.3 Official Collection of Data

Data were collected officially from the Divisional Forest Offices on human-elephant conflict in previous years from 2000 to 2014 to make a comparative study on human-elephant conflict in Baripada Division of Mayurbhanj Elephant reserve.

4. Results and Discussion

About 36 villages were severely affected due to human- elephant conflict in Baripada Division. Human death, elephant death, crop damage, house damage, harm to livestock, injury to human are the consequences of this conflict. Peak depredation seasons were October to December. Most human killings were by Solitary male elephants and depredation of Crop by Family groups. Baripada Division is one of the major places for migratory elephants from West Bengal and Jharkhand from last several years.

4.1 Description of Human Elephant Conflict

From the year 2000 to 2014 collected data from field level and also from the Divisional forest office. Crop damage was the most common incident during the study period. Elephant damage more than different type of cultivation plants in which banana and paddy, were the most common crops. In Baripada forest Division's Fuljhari, Saria, Nadapur are most affected and vulnerable Villages.

4.2 Human Death and Injury

A total 12 human Death and 19 injuries occurred from 2000 to 2014. All of them are accidental as the victim came face to face with wild elephants. Human death and injuries also occurred adjoin to the

Reserve forests where the elephant shelter during the day time and the same time the local people entered into the forest to collect the non-timber forest products. Most victims are woman, older ages and also some person in drunken stage. In Betnoti range elephants attacked in the search of the houses, where people storage the paddy crops, mahua and handia.

4.3 Crop Damage and Compassionate Paid

From 2000 to 2014 total 2925.36 acre of crop damage occurred in Baripada forest Division. Mostly affected ranges were Rasgovindapur, Betnoti and Deuli range where the movement of migratory elephants occurred from last five years. Similarly total compassionate amount paid 7481023 during the study period and rate of amount paid gradually increase from the year 2009 where the incidents of migration of elephant frequently occurred.

4.4 Causes of Conflict

Though there are different causes behind human- elephant conflict but the three main causes of conflict are discussed below.

4.4.1 Habitat Loss

Habitat loss is one of the major problems leading elephant movement towards human habitation. This problem is related to the increase in India's human population. Biotic pressures from such as a large population have led to the loss of forests there by loss of sufficient fodder for this large species. Irrespective of the suitability of the area for permanent agriculture, degradation of such lands into wastelands happens due to defective agricultural practices and absence of appropriate soil conservation measures. This has further increased the dependence of the local people and their cattle on the forests and is ultimately accelerated throughout the elephants range in the country.

4.4.2 Alteration of Corridors

Over a few decades the vast elephants ranges have been fragmented and precariously connected by narrow corridors due to expansion of human habitations and agriculture, indiscriminate growth of various developmental activities, severe biotic pressures etc. Forest corridors can be defined as the narrow strips of forests connecting two habitats that facilitate major functions such as exchange of genes between populations, dispersal, provide access to variety of seasonal foraging grounds and prevention of faunal collaps. Elephant corridors have received lot of attention in conservation and are widely used in devising conservation strategies especially in recent -

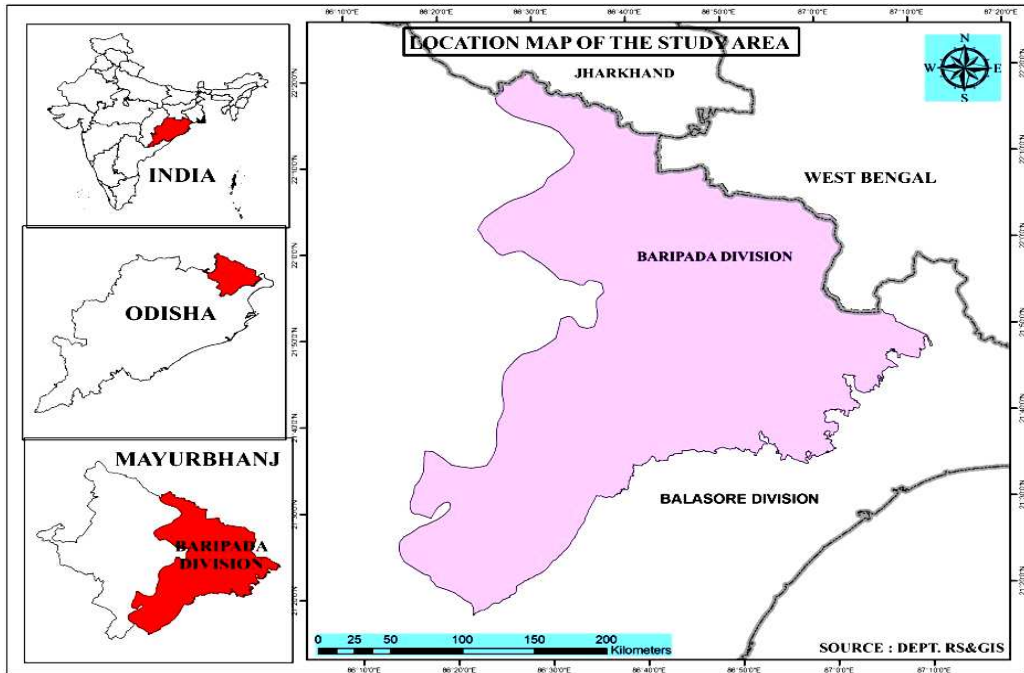


Fig 1: Location Map of the Study area

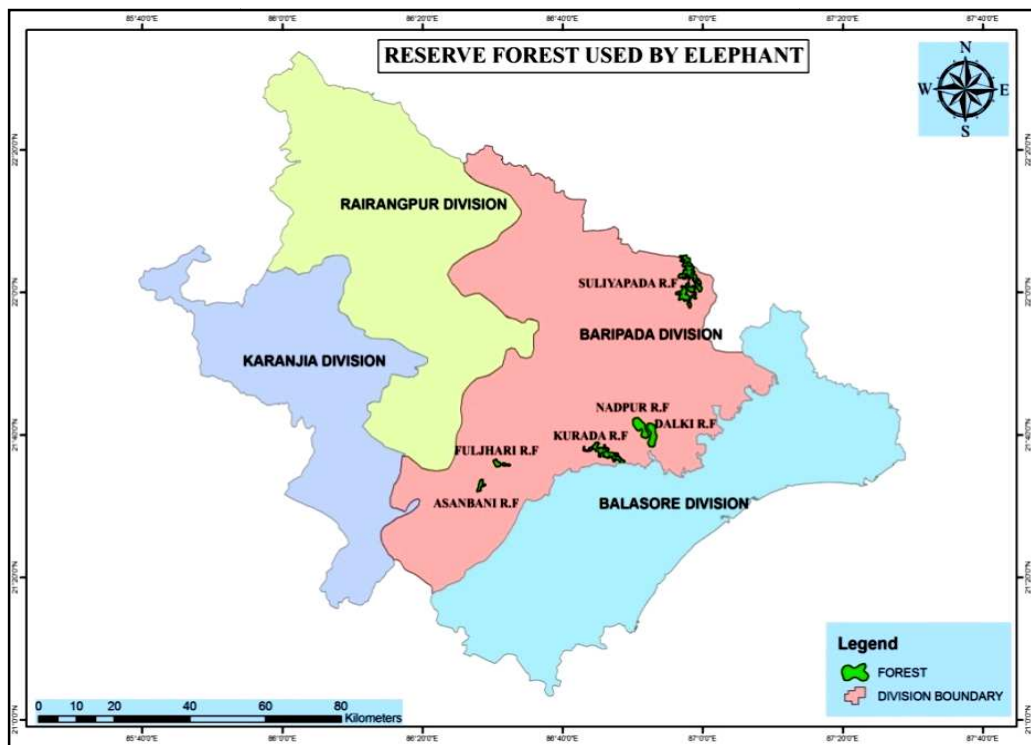


Fig 2: Affected villages by elephant in Baripada Division

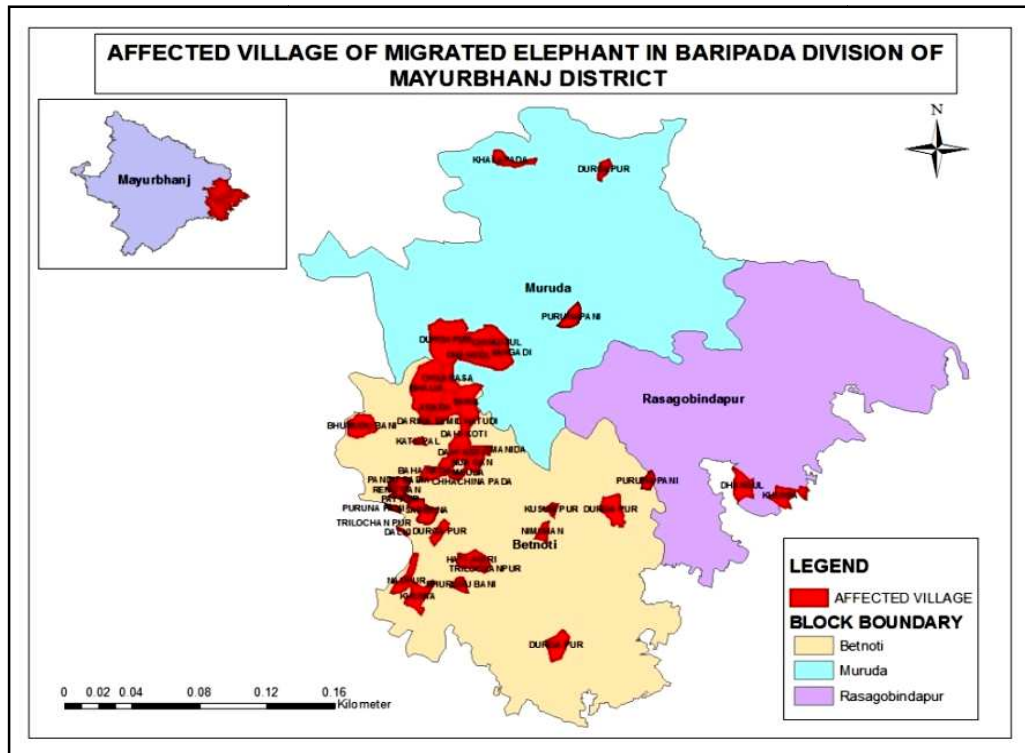


Fig 3: Major Reserve forest used by Elephant

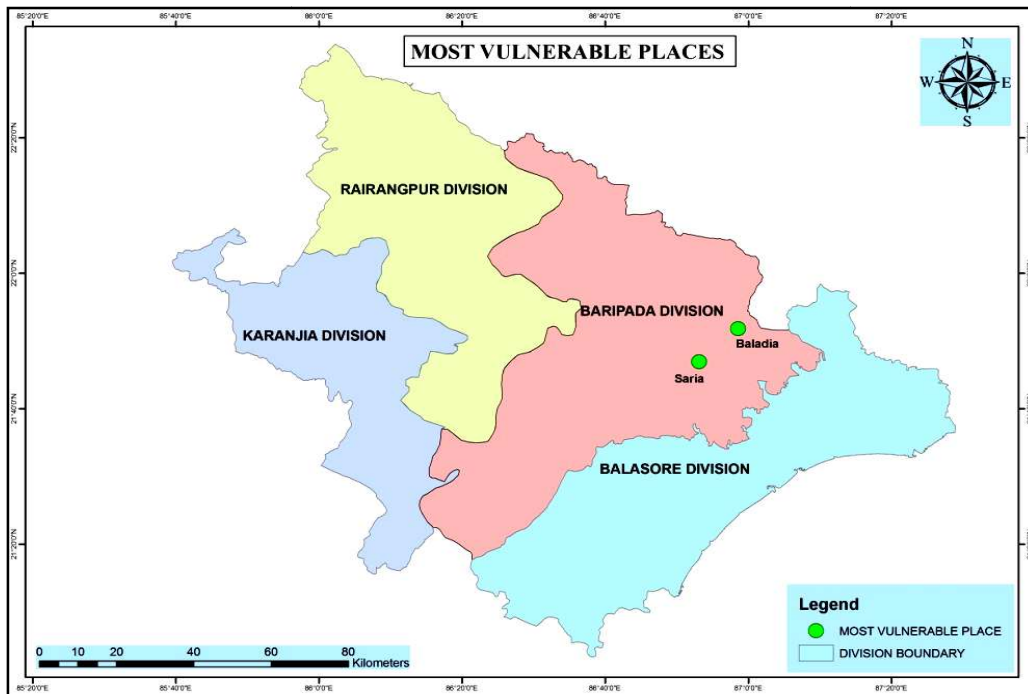


Fig 4: Vulnerable places in Baripada Division

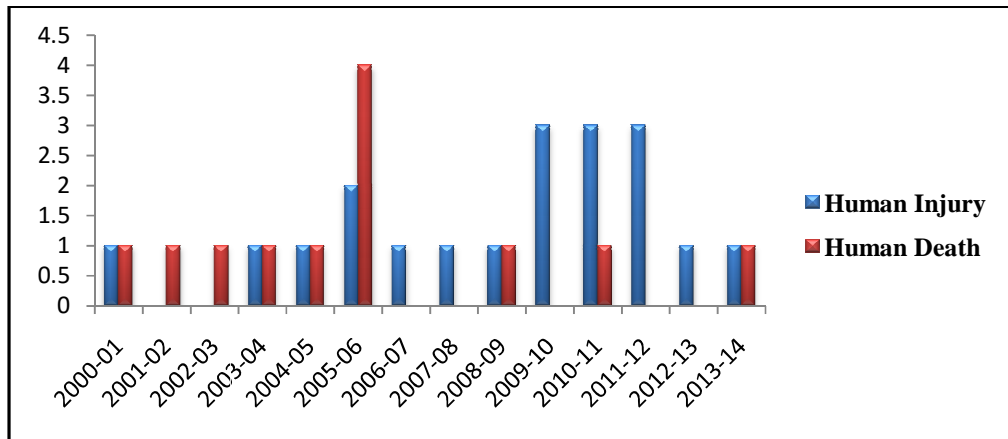


Fig 5: Human Injury and Human Death from 2000-14

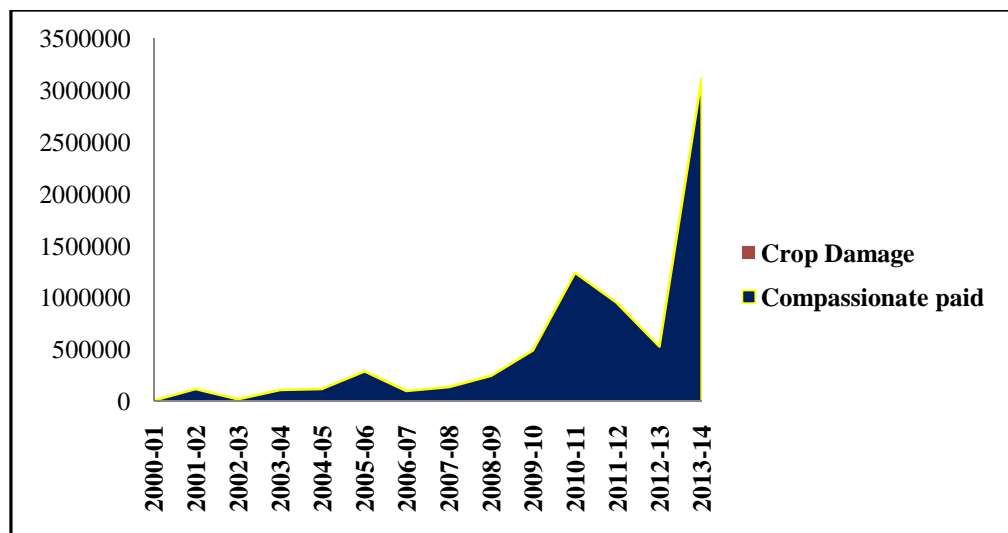


Fig 6: Crop and Compassionate amount paid

years, with the reduction of contiguous habitats into islands. To address the issue and for long-term conservation of elephants, it is important to maintain viable populations within viable habitats and this could be maintained by linking the fragmented habitats by protecting and strengthening the existing corridors. But these corridors are lost day by day due to increase anthropogenic pressure. In Baripada Forest Division one corridor i.e. Deuli-Suliapada-West Bengal plays an important role of migration and movement of elephant from west Bengal to Odisha.

4.4.3 Poaching

According to estimation about 100 male elephants were killed in the country every year by

Ivory poachers between 1980 and 1986. The tusker elephant of the migrated elephants were targeted by the poachers which results in elephant death. The levels of poaching in south India seem to have reached unacceptable level during the past few years. In the states of Karnataka, Kerala and Tamil Nadu about 100-150 male tuskers were shot annually during 1980-83 (Sukumar, 1985).

4.4.4 Crop Damage by Elephants

Raiding of agriculture crops by elephants is common over most of its range. Further people guarding their fields may be sometimes killed by elephants. These have served to label the elephant as a pest to human interests. Conservation of the elephant

will never gain acceptance among the vulnerable villagers as long as this state of affairs is not rectified.

Table 1: List of affected villages

Sr. No.	Name of the Affected Villages	Sr. No.	Name of The Affected Villages
1	Sangadihi	19	Dhansole
2	Chua sole	20	Bhalia
3	Saria	21	Amanida
4	Gudisahi	22	Chitadihi
5	Nimudiha	23	Dahikuti
6	Agada	24	Chhachinapada
7	chilbasa	25	Mouda
8	Bahanada	26	Nuagon
9	Pandugadia	27	Nadpur
10	Renugaon	28	Khunta
11	Kutubadi	29	Dariha
12	Sarbana	30	Kath pal
13	Sarbana	31	Chilbasa
14	Patpur	32	Khirpada
15	Purunapani	33	Hatijhuri
16	Gobrasole	34	Bhudurubani
17	Durgapur	35	Kusunpur
18	Tikarbat	36	Dalki

4.5 Suggestion

The problem of man-elephant conflict has evolved due to man's own activities which they had to solve themselves. Man should bear in mind that we are depend on nature but nature is not. So we have to conserve it. Sufficient plantation of tree consumed by elephant through public awareness should be conducted in degraded forest area and elephant movement path.

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Creation of Water bodies adjoining to the reserve forest and elephant movement path. Public awareness among the local people how to tackle the situation during the elephant movement period. Good network among the neighbouring state (Jharkhand, West Bengal) during the migration period. Information exchange regarding the elephant movement path, herd composition etc.

4.6 Personal Observation During the Field Visit

Forest patches, paddy fields and water bodies are the major requirements to elephants. During April 2014 migratory elephant travelled more than 50 km in a single night to reach Nilgiri area (Balasore division) from Asanbani Forest division Betnoti Range (Baripada forest division). They prefer specific forest patches on their migratory path which are found to be comparatively dense having nearby water sources. Before coming for crop raiding during evening hours they prefer taking bath. Even in winter season they take heavy bath in the night.

5. Conclusion

Migration of elephants is essential for gene flow between populations. Migration paths, called the corridors linking two forest patches plays important role in elephant movement. But these corridors gradually got fragmented due to increased human population and anthropogenic activities. Therefore corridors should be well protected and male tuskers should be provided security with strict vigilance on their movement. Besides this local people of the corridor areas should be well trained how to behave and encounter with the migrated elephants and they should be provided with proper compensation for elephant depredation which will be helpful for co-existence of both human and elephant with reduction of conflict.

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