



# International Journal of Fauna and Biological Studies

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International  
Journal of  
Fauna And  
Biological  
Studies

ISSN 2347-2677

IJFBS 2014; 1 (6): 19-22

Received: 25-07-2014

Accepted: 12-08-2014

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## Human-Elephant conflict by Inter-State migratory elephants (*Elephas maximus*) in Baripada & Balsore, Odisha, India.

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### Abstract

Interstate migration of elephants occurs from Jharkhand & West Bengal to Baripada & Balsore Division of Odisha from last five years. During the study period (2010-13) the largest herd was 115 elephants observed in the year 2012 and smallest herd was 65 elephants observed in the year 2010. Regarding sex concern highest number of Tuskers observed in the year 2012 (30) while highest number of female elephants observed in the year 2013 (58). Highest number of juveniles and calves were observed in the year 2010. Phuljhari, Dalki, Nadapur, Asanabni are the major forest areas cover by the migratory elephants in Baripada Division. Gopalpur and Tinikosia are the major forest areas covered by same migratory elephants in Balasore Division.

During the study period, total 1026.09 acres of crop damage, 81 house damage, 1 human injury and 5 human deaths occurred in Baripada Division whereas total 1204.32 acre of crop damage, 456 house damage and 3 human deaths occurred in Balasore Division due to the migratory elephants.

**Keywords:** interstate Migration, movement, age group & human elephant conflict

### 1. Introduction

The Population of Asian elephant (*Elephas Maximus*) in India is about 50% of the world population. These range in eleven Elephant Reserve spread over about an area 110000 km<sup>2</sup> forest in North East, Central, North West and South India<sup>[1]</sup>. The distribution of Asian elephants used to cover the entire Indian peninsula. However, indiscriminate felling of forests, encroachments and development activities, such as industry, mining, dams etc have led to the shrinkage and degradation of elephant habitats<sup>[2]</sup>. The elephant habitat in the central India extends over 17000 km<sup>2</sup> in the state of Odisha, Jharkhand and Southern west Bengal and holds a population of about 2400-2700 elephants, Odisha has about 57% of the elephant habitat in central India with 1800-2000 elephants spread over 11000 km<sup>2</sup>. To the north of the Mahanadi River, elephants are distributed in Mayurbhanj, Keonjhar, Bamra, Rairakhol, Angul, Dhenkanal, Athamallik, Bonai and Athagarh areas in Odisha and much of this habit is surrounded by a growing human population.

Eastern part of the country Asiatic Elephants the heritage animal of the nation are found in three states like Odisha, Jharkhand and West Bengal. Since the elephant is a long ranging animal it migrates from one place to another place in search of food, Water & mate which is a biological process and common phenomenon. Normally the elephants of Jharkhand (Dalma Wildlife Sanctuary) used to migrate through the corridor that extends from West Bengal-Deuli-Suliapada. From the year 2010, there is deviation noticed in their normal track, changing their route from Rasgovindpur (Baripada Forest Division)-Nilgiri of Balasore wild life Division through Morada-Chitrada (Rasgovindpur Range) to Asanbani-Jugal-Dalki of Betnoti Range. Dalma wildlife sanctuary is at a distance of 10 km south of Jamshedpur in Jharkhand State, having an area of 193 Sqkm. It carries around 158 elephant population (once their number was 300 as per 2007 census, which is beyond the carrying capacity of that sanctuary). Since last four years herd of more than 100 elephants enters in to Baripada Division area through Deuli and Rasgovindpur Ranges. They use to migrate in Baripada Forest Division for at least 15 days through Deuli-Rasgovindpur-Betnoti ranges raiding standing paddy and other cash crops, damaging houses, injuring human beings during their onward journey to Nilagiri Range of Balasore wildlife Division.

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## 2. Study Area

The study was conducted in Baripada forest division is situated towards northern most part of Odisha between 22 33 45 and 21 17 0 North latitude and 85 45 30 and 87 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. Balasore division is located on the

northern front of the state being bordered by Subarnarekha River. The Passage of elephants in these two districts- Mayurbhanj (total area: 17489.82 sqkm, forest are 5264.82 ha) and Balasore (Total area: 1,968 sqkm, Forest area: 447.37 ha) show that elephants use both forest and non-forest areas. They use forests when chased by the people or during the daytime.

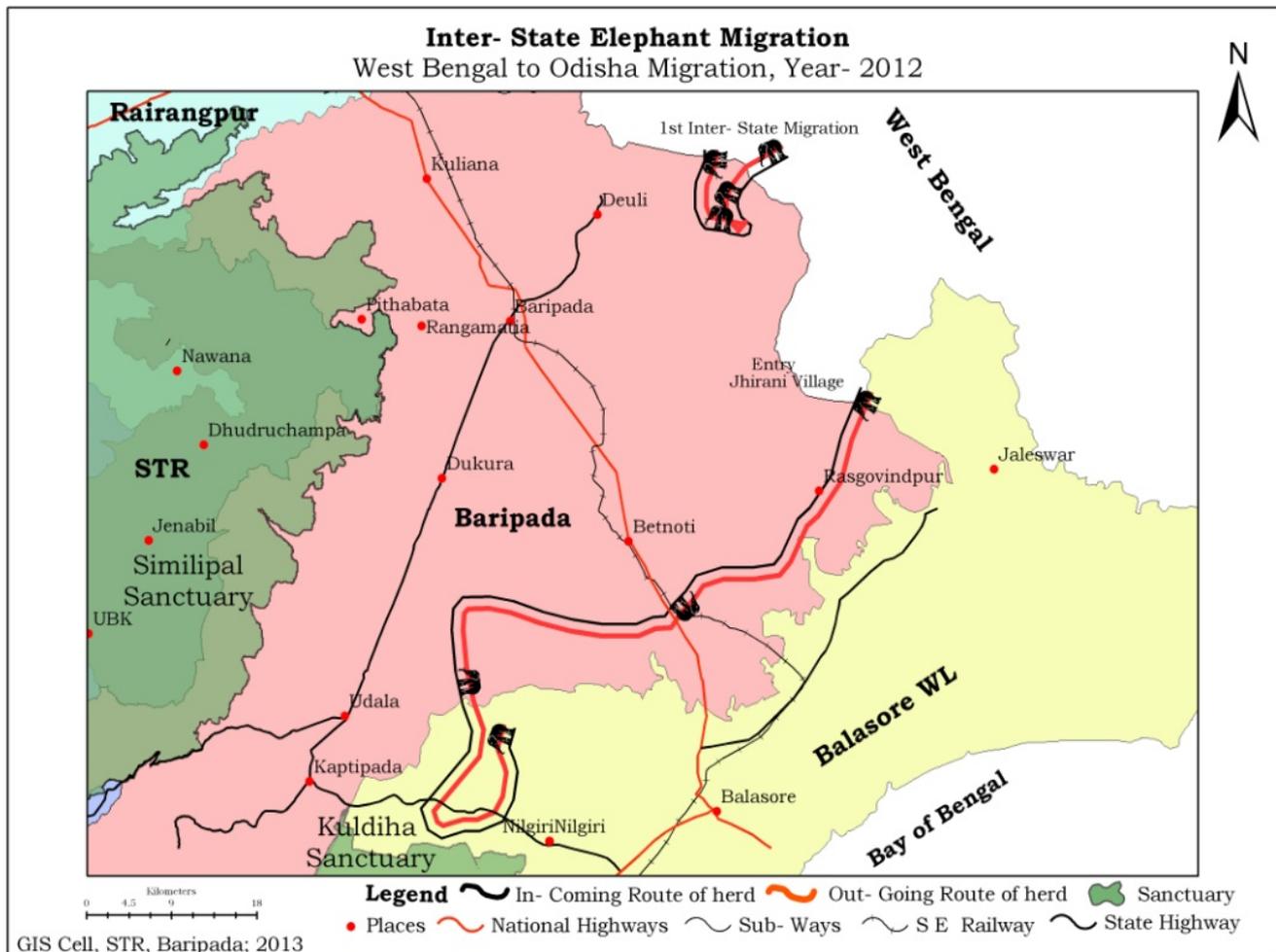


Fig 1: Map Showing the Study area & inter State migration route of Elephant

## 3. Methods

The data regarding movement of elephants and man-elephant interference in Baripada Forest Division due to migratory elephant was collected and analysed for the year 2010 to 2013. The methodology was based on direct sighting and availability of indirect evidences such as feeding sign, foot print and dung piles. The direct sighting were noted on duly prepared data sheet recording the sighting place, sighting time, group composition, age and sex. Local people and forest personnel were also interviewed for collection of information.

## 4. Result and Discussion

Continuous Interstate migration of elephants occurs from Jharkhanda & West Bengal to Mayurbhanj Elephant Reserve of Odisha from last five years. During the study period (2010-13) the largest herd was 115 elephants observed in the year 2012 and smallest herd was 65 elephants observed in the year 2010.

Regarding sex concern highest number of Tuskers observed in the year 2012 (30) while highest number of female elephants observed in the year 2013 (58). Highest number of juveniles and calves were observed in the year 2010. Detailed figure regarding herd composition in different years and their entry routes is given in table-1. Phuljhari, Dalki, Nadapur, Asanabni are the major forest areas covered by the migratory elephants in Baripada Division. Gopalpur and Tinikosia are the major forest areas covered by same migratory elephants in Balasore Division.

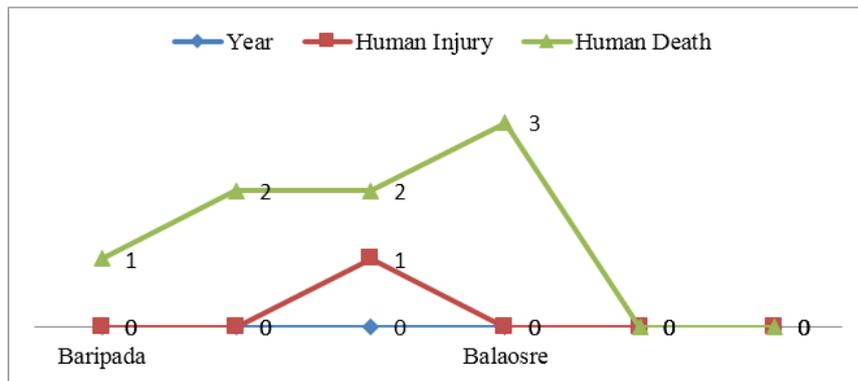
During the study period total 1026.09 acre of crop damage, 81 house damage, 1 human injury and 5 human deaths occurred in Baripada Division whereas total 1204.32 acre of crop damage, 456 house damage and 3 human deaths occurred in Balasore Division due to the migratory elephants. Detailed figure regarding elephant depredation and compensation paid is given in table-2.

**Table 1:** Herd Composition in different years

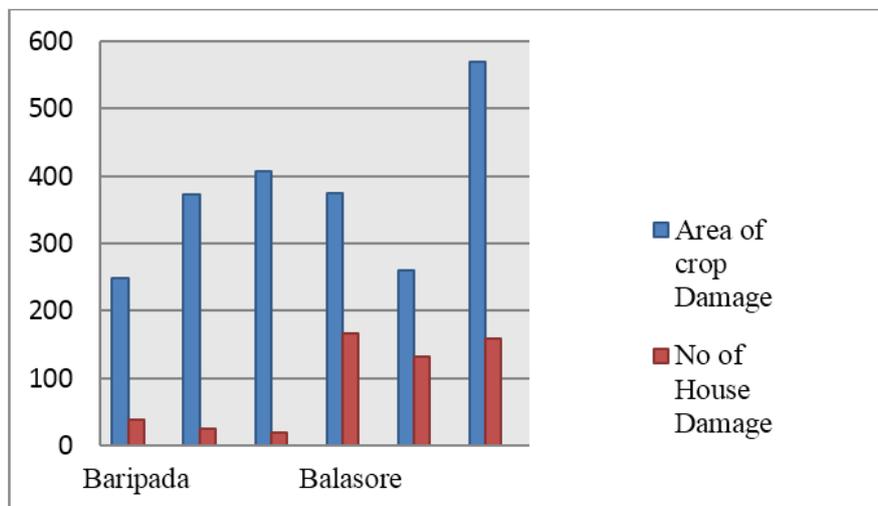
Year	Entry Route	Adult Tusker	Adult Female	Sub-Adult Tusker	Sub-Adult Female	Juvenile	Calf	Total Number
2010	Bhadusul	07	04	12	09	21	12	65
2011	Dheridihi under Rasgovindapur	08	12	14	24	17	04	79
2012	Suliapada & Rasgovindapur	10	25	20	30	20	10	115
2013	Rasgovindapur	12	30	10	28	16	9	105

**Table 2:** Man-Elephant Interference in Baripada and Balasore Divisions

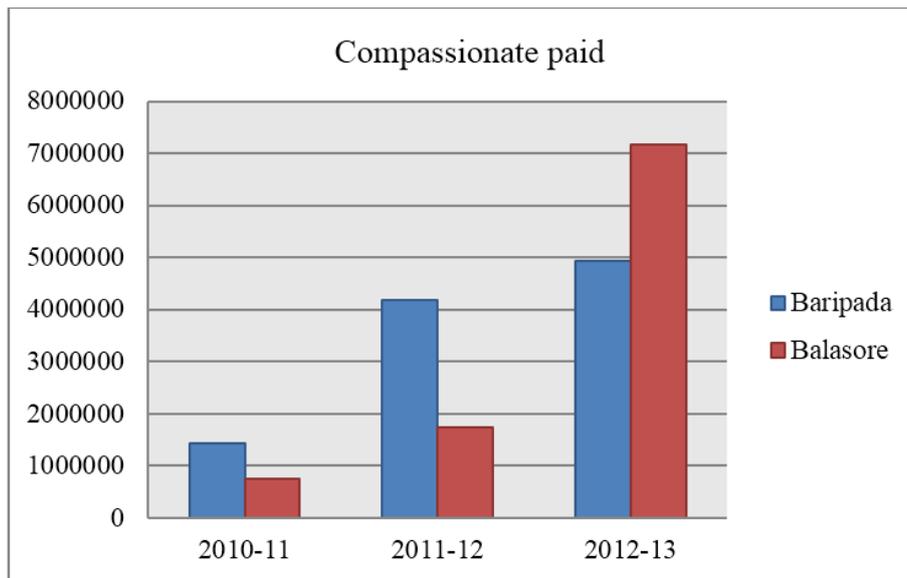
Division	Year	Area of Crop Damage (Ac)	No of House Damage	Human injury	Human death	Total Compassionate
<b>Baripada</b>	2010-11	247.7	37	00	01	1424220
	2011-12	371.88	25	00	02	4173000
	2012-13	406.51	19	01	02	4933400
<b>Balasore</b>	2010-11	374.54	166	00	03	755540
	2011-12	259.41	131	00	00	1739422
	2012-13	570.37	159	00	00	7175260



**Fig 2:** Human Injury & Human Kill during 2010-13



**Fig 3:** Area of Crop Damage & House Damage



**Fig 4:** Compassionate amount Paid in Baripada & Balasore

### 5. Acknowledgements

We thank to the Bijay Kumar Panda, Divisional Forest officers, Baripada and Kedar Kumar Swain, Divisional forest Officer, Balasore for their cooperation during the field study.

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