

The Death of Jumbos on Railway Tracks in Northern West Bengal

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Introduction

Elephant habitat in northern West Bengal, India, is part of the Eastern Himalaya biodiversity hotspot and the western-most extension of the north-eastern elephant population (Roy *et al.* 2006). The habitat is characterized by a high degree of fragmentation and intense human-elephant conflict, resulting not only in loss of agricultural crops and properties but also of human lives, ~50 annually (Lahiri-Choudhury 1975, Choudhury *et al.* 1997, Sukumar *et al.* 2003). The total geographic range of the elephants in northern Bengal is 3051 km² and covers about 24% of the total area of northern Bengal (Barua & Bist 1996). The gross forest area forming the elephant zone is about 1954 km² (Lahiri-Choudhury 1980 and Barua and Bist 1996).

On average, 20 elephant deaths take place every year due to various causes, out of a population believed to be less than 500 individuals (Sukumar *et al.* 2003; Mangave 2004). The elephant population inhabiting the region is spread across the districts of Darjeeling and Jalpaiguri comprising nine forest divisions of Kurseong, Wildlife-1, Baikunthapur, Kalimpong, Wildlife-2, Jalpaiguri, Cooch-Bihar, Buxa Tiger Reserve (West), and Buxa Tiger Reserve (East) in a forest area of 1954 km² (Barua and Bist 1996). There is a 161-km railway track between Siliguri and Alipurduars of which 74 km passes through various forest divisions of northern West Bengal (Table 1).

In recent times, elephant conservation in northern West Bengal has been setback due to high-levels of human-elephant conflict and mortality owing to railway accidents. The British constructed the Siliguri-Alipurduar Junction, meter gauge railway line (less than standard railway line of 4'

8½") during 1910–1911. Major areas of the forest were cleared off to establish the railway line. Railway sleepers were supplied from cutting off trees in the prime natural forests, which supported the elephant population.

The railway stretch is a major threat for free movement of the elephant population in the fragmented present habitat. The railway also acts as a conduit for illegal transportation of fuel and wood from northern Bengal forest areas. The Siliguri-Alipurduar (SGUJ –APDJ) meter gauge (MG) route was the only main route prior to the construction of the New Jalpaiguri-Bonagaigaon (NJP-NBQ) broad gauge (BG) line linking the North East Frontier region with the rest of India. The 161-km-long Siliguri-Alipurduar junction was converted from MG to BG in 2003 and the BG train movement started in 2004. Every single day 20 trains run on this track (5 pairs of passenger trains and 5 pairs of goods trains). There is thus a high possibility of accidents involving wild animals on this track. Before gauge conversion, the trains that ran on this track had limited speed, but after it the speeds are so high that many times elephants dash against the trains while passing through from one forest patch to another or during crop raiding season while passing through tea garden to villages, and die.

Table 1. Railway stretches in forest areas of various forest divisions of northern Bengal.

Existing railway track	Length (km)
Buxa Tiger Reserve	18
Jaldapara WLS	12
Jalpaiguri Division	6
Chapramari WLS	12
Kalimpong Division	8
Baikunthapur Division	6
Mahananda WLS	12
Total	74

Methods

Data on elephant mortality for the period 1958–2008 was collected from various sources like forest department records, newspaper cuttings, railway divisional manager’s offices and personal field visits. The data on elephant deaths before and after gauge conversion were compared.

Results

Mortality over the years in northern Bengal

A total of 39 elephant deaths were reported during the period of 1958–2008. Twenty-nine deaths took place during the operation of meter gauge over a period of 44 years from 1958–2002 (0.6 incidents/year). Ten deaths were reported after gauge conversion in a time span of just 4 years from 2004–2008 (2.5 incidents/year). Overall the deaths of 14 adult males, 8 adult females, 2 sub-adult males, 5 juveniles/calves, and 10 of unknown sex were recorded over the time period (Table 2).

Figure 1 shows the increasing trend of occurrence of accidents on railway tracks in recent years. Over the period 1958–2008, 11 cases have been reported from Gulma (Mahananda sanctuary stretch), 9 deaths from Panjhora (Chapramari Wildlife Sanctuary stretch), 2 on Goodhope TE stretch, 4 from the Mongpong stretch (Kalimpong division, Fig. 2), 3 in Jaldapara stretch and 7 from the Rajabhatkhawa stretch (Buxa Tiger Reserve, Fig. 3) (details in Appendix1).

The elephants are sighted more frequently in Gulma-Sevoke, Rajabhatkhwa- Alipuduar, Madarihāt–Hasimara, Hasimara–Kalchini area (Table 3).

Table 2. Details of elephant deaths from 1958–2008.

Age class		Number
Adult male	tusker	9
	makna	5
Subadult male	tusker	1
	makna	1
Adult female		8
Juvenile/calf		5
Unknown		10
Total		39

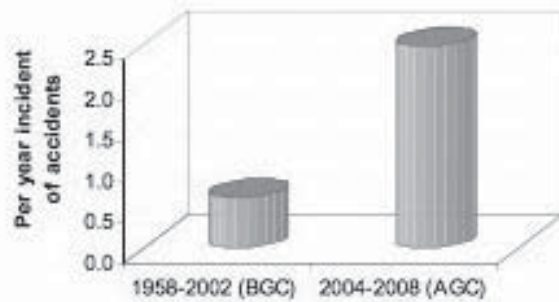


Figure 1. Annual frequency of accidents before (BGC) and after (AGC) gauge conversion.

At the time of gauge conversion, an expert committee reviewed the situation and suggested cautious driving in the four stretches of forest areas:

- Buxa Tiger Reserve at km post 140/2-141/3 (Kalchini–Hasimara section)
- Jaldapara Wildlife Sanctuary km 128/1-130/8 (Hasimara–Madarihāt section)
- Chapramari Wildlife Sanctuary km 66/6-70/0 (Chalsa-Nagrakata section)
- Mahananda Wildlife Sanctuary km 24/8-26/0 (Sevoke-Gulma section)

Recommendations

- 1) The driver should negotiate curves skillfully and at a low speed on the tracks where elephants pass through frequently. If possible night driving should be avoided.
- 2) The driver should have a full view of the frontal side. If possible, two or more drivers should be engaged on trains passing through the forest areas.
- 3) There should be good communication network in the moving train so that forest staff and railway patrolling staff can pass on information prior to the trains passing through forest areas.
- 4) Strong barriers be established on both sides of the track except a few passages where the elephants pass through frequently.
- 5) Inspection trolley can be sent prior to trains passing through forest areas in order to ascertain information on elephant movement close to railway track.
- 6) Frequent counselling should be given to drivers for cautious driving on this stretch.

Table 3. Number of elephant sightings on railway tracks (Sep. 2007– Feb. 2008)*

Railway section	Herd	Solitary	Unknown	Total
Gulma–Sevoke	29	6	4	39
Sevoke–Bagrakote	2	0	2	4
Damdim–New Mal	1	0	0	1
Chalsa–Nagrakata	3	2	2	7
Banarhat–Binnaguri	0	1	0	1
Dalgaon–Mujnai	0	1	0	1
Madarihat–Hasimara	5	3	1	9
Hasimara–Kalchini	6	2	2	10
Kalchini–Rajabhatkwa	1	3	1	5
Rajabhatkhawa–Alipurduar JN	7	2	2	11
Total	54	20	14	88

*Source: Railway record, Alipurduar Sub divisional Railway office

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Figure 2. Elephant death at Sevoke-Mongpong stretch (18. Nov. 2006).

Appendix 1

Elephant mortality on railway tracks in northern Bengal (1958-2008).

#*	Date	Year	Place of occurrence	Forest division	Animal	Sex
1	Feb	1958	Mahananda WLS	Wildlife-1	Calf/Juv.	Female
2	Feb 23	1974	North Sevoke,MWLS	Wildlife-1	Adult	Female
3	Jun 12	1977	North Sevoke,MWLS	Wildlife-1	Adult	Male/makna
4	Feb 7	1979	Gulma ,MWLS	Wildlife-1	Subadullt	nil
5	Oct 15	1980	Oodlabari -Bagracote	Kalimpong (G&Sp)	Adult	Female
6	NA	1979-1982	Gulma ,MWLS	Wildlife-1	4 Adults	nil
7	NA	1979-1983	Gulma ,MWLS	Wildlife-2	Subadullt	nil
8	Oct 15	1986	North Cabin , MWLS	Wildlife-1	Calf/Juv.	nil
9	Jan 8	1992	Chapramari WLS	Wildlife-2	Adult	Male/tusker
10	Jul 1	1992	Madarihat	Coochbehar Div	Adult	Male/tusker
11	17-Jun	1993	Gulma ,MWLS	Wildlife-1	Adult	Male/tusker
12	NA	1993	Jaldapara WLS	Coochbehar Div	Adult	Male/tusker
13	Oct 12	1995	Mongpong	Kalimpong (G&Sp)	Adult	Female
14	Oct 12	1995	Mongpong	Kalimpong (G&Sp)	Adult	Male
15	Jun 4	1996	Hamiltonganj	Buxa Tiger Res. (W)	Adult	Female
16	Sep 25	1999	Chapramari WLS	Wildlife-2	Adult	nil
17	Aug 8	2000	Jaldapara WLS	Coochbehar Div	Calf/Juv.	nil
18	Aug 22	2000	Chapramari WLS	Wildlife-2	Adult	Male/tusker
19	Sep 24	2000	Majiaghat ,Jalpaiguri	Jalpaiguri	Adult	Male
20	Oct 11	2000	Chapramari WLS	wildlife-2	Adult	Female
21	Jun 9	2001	Rajabhatkhawa	Buxa Tiger Res. (W)	Adult	Female
22	Oct 4	2001	Mongpong	Kalimpong (G&Sp)	Calf/Juv.	nil
23	Feb 7	2002	Chapramari WLS	Wildlife-2	Adult	Male/tusker
24	Feb 7	2002	Chapramari WLS	Wildlife-2	Subadullt	Male/tusker
25	Feb 7	2002	Chapramari WLS	Wildlife-3	Subadullt	male/makna
26	Oct 10	2002	Chapramari WLS	Wildlife-2	Adult	Female
27	May 28	2006	Good hope TG	Kalimpong (G&Sp)	Calf/Juv.	nil
28	May 28	2006	Near Damanpur	Buxa Tiger Res. (W)	Adult	Male/tusker
29	May 29	2006	Good hope TG	Wildlife-2	Adult	Female
30	Nov 13	2006	Madarihat -Hasimara	Coochbehar Div	Adult	Male/makna
31	Nov 18	2006	Bagrakote-Sevoke	Kalimpong (G&Sp)	Adult	Male/tusker
32	Apr 11	2007	Rajabhatkhawa	Buxa Tiger Res. (W)	Adult	Male/makna
33	Jul 25	2007	Gulma -sevoke	Wildlife-1	Adult	Male/tusker
34	Nov 9	2007	Rajabhatkhawa	Buxa Tiger Res. (W)	Adult	Male/makna
35	Jan 15	2008	Rajabhatkhawa	Buxa Tiger Res. (W)	Calf/Juv.	Male
36	Oct 4	2008	Rajabhatkhawa	Buxa Tiger Res. (W)	Adult	Male/makna

* 1-26: before gauge conversion, 27-36: after gauge conversion



Figure 3. Elephant death at Rajabhatkhawa area (28. May 2006).