

Man-elephant conflict in Assam, India : is there any solution?

Bibhab Kumar Talukdar and Rathin Barman

Abstract Assam is one of the important states in India that have had the legacy of conserving elephants in the wild for centuries. However in recent times, due to gradual shrinkage, fragmentation and deterioration of habitats, and increase in human population around elephant habitats, the conflict between man-elephant conflict has increased in Assam. Fragmentation in elephant habitats has enhanced the level of elephant depredations in crop fields, further worsening the already tenuous interface system. Due to the increased

conflict between man and elephant, mutual intolerance and animosity has also increased resulting in man killing elephant and elephant killing man. This is indeed a crucial and most critical management issue, which needs to be addressed through the adoption of innovative approaches.

Keywords man-elephant conflict, habitat, poison, management, conservation, Assam.

Introduction

The state of Assam occupies a special place in the context of the elephant conservation in India (Stracy, 1963; Gee, 1964; Lahiri-Choudhury, 1980; Santiapillai & Jackson, 1990; Choudhury, 1991, 1997 & 1999; Bist, 2002). Around 20% of India's elephant population are found in Assam. In fact, Assam alone accounts for more elephants than Myanmar, Thailand, Indonesia or other South East Asian countries. However in recent times, as a result of unabated shrinkage, fragmentation and deterioration of habitats, elephant depredation on cultivated crops has increased in various parts of Assam, leading to conflict with man. There has been an increase in the number of incidents of man-elephant conflict in Assam in recent times (Talukdar, 1996) and a number of elephants have also been poisoned in the Sonitpur district of Assam during the later part of the year 2001. This represents an extreme example of man's intolerant attitude towards the elephant, which has now raised widespread concern from wildlife conservationists, NGOs, general public and the mass media.

In this paper, we address the history of elephant conservation in Assam, the gradual changes in habitat and the current trend and people's perception towards elephant conservation. We have also tried to analyze the factors responsible for the mutual intolerance between man and elephant in the context of the recent conflict, and at the end, based on the study, we offer a few suggestions to minimize the man-elephant conflict in Assam.

Elephant population and conservation

The gloomy aspect of elephant conservation in Assam is that from 1993 to 1997, the population of elephants decreased from about 5,524 to about 5,312 (Table 1). Serious decline in elephant numbers has been recorded in the central part of Assam, while the elephant population in the southern part of Assam has virtually gone astray. While fragmentation of habitats has isolated elephant populations, poaching has reduced them to levels below the minimum viable population size, thereby making them extinction prone, as has been the case in southern Assam. There is a need for us to understand the ecological requirements of the elephant for its long-term survival in the wild, and its impact on the flora and fauna.

The protected area network in Assam today comprises some 2,860 km², which represents 14% of the managed forests and 3.6% of the total geographical area of Assam. The reduction of elephant population is mainly due to deaths of elephants from poaching, poisoning, diseases, electrocution and unknown factors besides natural mortality from old age. However the adult male:female sex ratio of elephants in Assam remains healthy at 1:1.29 (in 1997), although reduced somewhat compared to the situation 1993 where the adult male:female sex ratio was 1:1.58 (Table 2).

One of the major concerns about elephant conservation has been the almost total extinction of the elephant population from the Barak valley, located in southern part of Assam. Sukumar (1989) referred to the presence of 100-150 elephant in this area. However this population had been gradually decreasing and by 1993, when the Assam Forest Department carried out a census, there were only 18 elephants. By 1997 the population was reduced to just 5 individuals, which is not viable at all. During 1993-94, almost a dozen elephants were reported from the Barak valley, of which two were declared rouges and subsequently killed by the government in 1996, and poachers are believed to have wiped out the rest. This might be the likely fate awaiting other elephant populations in parts of Assam in the near future if corrective steps are not taken.

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Cultural affinity with the elephant

The cultural influence of the elephant on the people of Assam is unique which could be hardly experienced in other parts of the country. The elephant happens to be the part of the Assamese culture and ethos. Nowhere in India are there are so many folk tales as well as folksongs about elephants as in Assam. Assamese have grown up watching elephants and listening to the stories and songs about elephants, which highlight the amazing bond that exists between man and elephant. The region has also contributed towards the knowledge about elephants, especially that concerning their capture and management. Elephants are used on different auspicious occasions and in cultural processions and pageants. Furthermore, the words of command used to train and handle elephants throughout the country are similar to those used in Assam.

Loss of elephant habitats

Recent studies carried out by the Indian Institute of Remote Sensing, using the techniques of remote sensing, Geographic Information Service (GIS) and phytogeographical analysis have shown that biodiversity is at great risk in Assam as a result of the age-old practice of jhum cultivation. A continuous belt of dense evergreen forest is now being fragmented. Patches of evergreen forest are gradually being converted to secondary forest and degraded in many areas. Karbi-Anglong and North Cachar Hills have been identified

as the worst affected areas. Such degradation and fragmentation have led to the loss of prime elephant habitat in Assam and have become the main factors contributing to the current intense man-elephant conflict. Between 1991 and 1999, the Forest Survey of India recorded a decrease of about 600 km² in the forest cover. On the north bank of the mighty Brahmaputra River alone, more than 1,500-km² forest area has come under human encroachment. A number of Reserved Forests in Assam such as Nanoi RF, Rowta RF, Majbat RF, Dhekiajuli RF, Batasipur RF, Sonai-Rupai Sanctuary, Chariduar RF, Balipara RF, Nameri NP, Pabhoi RF, Biswanath RF, Naduar RF and Behali RF, that form a continuous Bhutan-Assam-Arunachal Pradesh elephant belt is under severe threat.

Current studies carried out by various remote-sensing agencies have also shown the reduction in total forests to be more in Sonitpur District of Assam between 1999 and 2000 than recorded between 1994 and 1999. More than 86.75 km² (about 1.7%) of the forest area has changed from 1994 to 1999, while 145.44 km² (about 2.86%) has changed from 1999 to 2001 (Srivastava *et al.*, 2002). Moist deciduous forest totaling an area of 229.64 km² has been lost between 1994 and 2001 and the decline has been more acute from 1999 to 2001 where some 143.40 km² of moist deciduous forest were lost. Between 1994 and 2001 encroachers damaged an area of 2.55 km² semi-evergreen forest in the district. Much of the forest cover loss in these parts can be attributed to the large-scale encroachment, aided and abetted by politicians, for subsequent conversion to agricultural land. Well-organized

Table 1 Number of elephants recorded in the Forest Divisions of Assam between 1993-1997

Forest Division Elephants	District	Elephants	
		N (1993)	N (1997)
Goalpara	Goalpara	0	0
North Kamrup	Nalbari	32	0
Kachugaon	Kokrajhar	83	215
Haltugaon	Kokrajhar	93	85
Aie Valley ⁽¹⁾	Bongaigaon	-	70
Dhuburi	Dhuburi	0	0
East Kamrup	Kamrup	403	116
West Kamrup	Kamrup	143	67
East Sonitpur	Sonitpur	174	186
West Sonitpur	Sonitpur	161	305
Darrang ⁽²⁾	Darrang	-	148
Lakhimpur	Lakhimpur	55	128
Orang NP & Barnadi S	Darrang	10	11
Nameri NP	Sonitpur	305	230
Nagaon	Nagaon	896	464
South Nagaon	Nagaon	243	233
Laokhowa WLS ⁽³⁾	Nagaon	-	24
Golaghat	Golaghat	54	109
Jorhat	Jorhat	49	37
Sibsagar ⁽⁴⁾	Sibsagar	-	24
Dibrugarh	Dibrugarh	35	49
Digboi	Tinsukia	157	137
Doomdooma	Tinsukia	13	30
Dibru-saikhowa NP	Tinsukia	131	238
Sikhar	Cachar	21	4
Karimganj	Karimganj	0	0
Hailakandi	Hailakandi	0	1
East Karbi-Anglong	Karbi-Anglong	378	189
West Karbi-Anglong	Karbi-Anglong	294	76
North Cachar Hills	N.Cachar Hills	25	15
Hamren	N. Cachar Hills	74	385
Manas NP	Barpeta/Golaghat	522	289
Kaziranga	Nagaon	1092	945
Total		5524	5312

Source: Forest Department, Assam. (Note: in 1993 ⁽¹⁾ Aie Valley was within Haltugaon Division; ⁽²⁾ Darrang was within Sonitpur Division; ⁽³⁾ Laokhowa WLS was within Nagaon Division; ⁽⁴⁾ Sibsaagar was within Jorhat Division. NP = National Park; WLS = Wildlife Sanctuary, S = Sanctuary)

encroachers with the support from political leaders are destroying the forest cover in the Sonitpur District. They are well armed and prepared to foil eviction at the risk of life. On one occasion, on 28 April 2002, when the forest officials accompanied by police started the eviction drive against encroachers in Nameri National Park of Sonitpur District, a local member of legislative Assembly (MLA) of Assam and his supporters set ablaze the Rangajan Chapori anti-poaching camp inside the national park to halt the eviction drive. A case was registered against him in Rangapara Police Station for violating Sections 147/148/149/353/436/447 and 506 of the Indian Penal Code. The MLA has been interfering in the eviction drive against encroachers for a long time, ever since he was elected as MLA. Such political interference has led to further degradation of present elephant habitat. Hence, it is inevitable that ordinary people will suffer along with elephant from the intense man-elephant conflict in the district.

The forest area management for the elephant and other animals has suffered greatly from an acute scarcity of funds. The forest staff has not been paid salaries for months. Lack of funds has also curtailed anti-poaching and forest protection activities. The flow of funds is either belated or uncertain given the lack of priority at the State government level. This has led to a shortage of manpower, equipment, and poor infrastructure development. The plight of the forest staff working in far-flung areas goes unnoticed by the government. However, Mr. S.S. Bist, Director, Project Elephant of the Government of India, has revealed that the north-eastern states currently receive a large amount of financial assistance from the Ministry of Environment and Forests for conservation of forests and wildlife, including special fund for conservation of the elephant under the Project Elephant of the Government of India. Nevertheless, the situation in the field remains rather gloomy in view of the general insensitivity and lack of vision on the part of the state government. As a result the state government of Assam finds it difficult to utilize fully the funds earmarked for wildlife conservation or elephant conservation. This problem needs both political and administrative solutions. The finance secretary of Government of India should be informed well in advance about the anticipated central government funds earmarked for the state government for elephant or other wildlife conservation initiatives, so that the same provision is made in the state annual budget. It is mainly due to the non-provision of the allocated money in the state budget, that problems get worse and the central funds hardly reach the field to deal with the situation effectively.

Man-elephant conflict

It appears that areas where the maximum deforestation has taken place are the areas where the man-elephant conflict is intense. Large-scale destruction of forest in the Golaghat, Sonitpur, Darrang, Tinsukia, Dibrugarh and Lakhimpur Districts has resulted in intense man-elephant conflict here. The Gohpur RF in the Sonitpur District is now totally encroached with no sign of the forest evident. Similarly other Reserved Forests such as Balipara, Chariduar, Naduar, Biswanath, Behali, and Singri in the Sonitpur District are under heavy encroachment and forest destruction is on full swing due to political patronage given to the encroachers. In the Golaghat District, which is one of the prime elephant habitat and migratory route from Kaziranga NP to Nagaland, has been badly affected because of forest destruction and subsequent encroachment by tea plantations in some areas. RFs in Rengma and Doyang are merely on paper, since in reality tea gardens and other crops and development activities have taken over. The Nambor RF in Golaghat is also threatened with forest destruction, timber extraction and subsequent encroachment. In the eastern Assam, RFs in the Upper Dihing and Lower Dihing are also degraded from timber felling and other developmental activities including the oil refineries, thereby forcing the elephant to move out of the forest in search of its basic necessities and in the process causing man-elephant conflict as well. This is seen as a consequence of the destruction of the elephant habitat.

Elephant collects highway toll

As a result of the large-scale destruction of forest cover in the Golaghat District in the past two decades, elephants moved to the National Highway 39 (which goes to Dimapur in Nagaland from Kumarbandha) in their search for food from the trucks, buses and other vehicles passing using the highway and a few accidents have taken place. The highway bisects the Nambor RF, which is one of the oldest RF in Assam and had dense forest cover until two decades ago. At present, about 40% of the northern side of Nambor RF have almost been encroached, thus putting immense pressure on elephants on their way to seek food. However, elephants have also learnt the art of stopping vehicles on the highway during food crisis, and only after they are provided with some fruits, do they allow the vehicles to pass through the highway. This may appear fanciful but it is true. In a stretch from Rangamati in Golaghat District to Silanijan in Karbi-Anglong

Table 2 Changes in the population composition of elephants in Assam (1993-1997)

Year	Adult	Subadult	Juvenile	Cow : Calf	Makhna : Tusker	
	M : F	M : F	M : F		Adult	Subadult
1993	1:1.58	1:1.47	1:1.52	1:0.55	1:0.54	1:0.77
1997	1:1.29	1:1.05	1:1.12	1:0.63	1:0.59	1:0.42

District of Assam on the highway 39, elephants often block the road for vehicular traffic and ask for 'tax' in the form of food. Transporters use this highway to haul sugarcane from Nagaland to Assam and other parts of India. Some truck drivers started the habit of providing sugarcane to elephants on the road as a gesture of goodwill. But subsequently, this has habituated the elephant to expect food from all the vehicles going down the highway! Elephants would stop vehicles for food. It is still unclear when elephants in Nambor developed this peculiar habit, but Choudhury (1993) reported an observation dated 14 March 1982, when a forest range officer saw a herd of 18 elephants stopping a truck carrying sugarcane and pulling out the canes from the loaded truck and disappearing into the forest. This phenomenon can still be seen especially between November to April. Local people and even the drivers passing along the highway have become so familiar with this type of 'toll' collection by the elephant that they often carry with them food such as bananas, sugar cane or biscuits. Such phenomenon has also been reported from Digboi area of eastern Assam where the elephant herds block the vehicular traffic for a long time during April-May and November-February.

Crop damage by elephants

The main season of depredation by wild elephants is from October to January, which is also the main harvesting time in Assam. This is also the time when elephants find it increasingly difficult to find food inside the forest since the condition of forest itself has deteriorated substantially in the past few years due to over exploitation and encroachment. In order to save the crops from the marauding wild elephants, there has been a direct conflict of interest between the cultivator and the wild elephant. Every year wild elephants in Assam damage a sizeable area of cropland. However the exact area of crop damage has not been calculated through lack of verifiability on the part of the concerned agencies. In order to protect the standing crop of the cultivators residing close to

forest areas or illegally settled in the forest areas, so far, no schemes have been implemented for providing compensation for the loss of revenue. Even cases of human deaths and injuries are not properly attended with *ex-gratia* payments. This has eroded much of the public sympathy towards the elephant in areas where the human-elephant conflict is severe.

Elephant mortality

According to the Forest Department of Assam, from 1989 to 1997, poachers killed 41 elephants. From 1998 to 2001, some 147 elephants died from various causes (Table 3). Poaching, electrocution and poisoning have been identified as the major threats to elephants in Assam. Some elephants have died of diseases, which needs to be studied in-depth studies if elephants are to be secure against outbreaks of such contagious diseases as anthrax or Foot and Mouth Disease (FMD). During the same period, 37 elephants died from unknown causes which may be concerned with diseases. Deaths due to unknown causes must be investigated scientists of the veterinary department. They should also be reported to these scientists as early as possible so that they get have time to visit the spot, examine the carcasses, and perform postmortems to determine the exact cause of death.

Mass poisoning of elephants

Poisoning of elephants by culprits in Sonitpur District of Assam has dented the age-old bond between the elephant and man. It is related to the encroachment of forests. Assam currently accounts for about 90% of the cases of poisoning of elephants, about 25% of the cases of electrocution and about 50% of the cases of elephants being run over by trains in the country. Indeed nothing has defamed the elephant management in Assam more than probably the mass poisoning of elephants in 2001. Mr. S.S. Bist, the Inspector General of Forests and also the Director, Project Elephant of the Government of India, has commented that the incident of

Table 3 Causes of elephant mortality from 1998 to 2001 in Assam. (Source: Forest Department)

Causes of death	1998	1999	2000	2001	Total
Gunshot	3	1	3	3	10
Poisoning	1	-	1	17	19
Old age	4	7	6	7	24
Electrocution	4	5	3	5	17
Train accident	-	-	2	7	9
Tiger predation	4	2	-	-	6
Infighting	4	-	-	-	4
Diseases	2	7	2	3	14
Injury	3	1	-	3	7
Unknown	8	18	3	8	37
Total	33	41	20	53	147

mass poisoning of elephants provides a case study of the insensitivity and technical handicap that generally characterizes the forest administration in the North East India. Although the first carcass of poisoned elephant was detected in Nameri on 2 July 2001, yet it was not before the mid-August that the state forest department took notice of the incidents and sent senior officers to visit the site of mass poisoning of elephants. By the time the senior officials visited the site, considerable damage has already been done to elephant. Lack of technical competence has been a major disadvantage of the forest department in taking stock of the crisis.

There were reports from the villagers and forest staff that about 8-10 elephants were found dead in the reserved forest and village areas outside the Nameri National Park since May 2001. In fact we found a dead elephant just outside the Nameri NP on 3 June 2001 on way to Seijusa in Arunachal Pradesh, which is adjacent to Pakhui wildlife Sanctuary. However no forest officials found it necessary to examine the cause of death or alert their counterparts in other forest areas. It seems everyone is just concerned on what happened within his area of jurisdiction. If the elephant died just one meter outside his area of jurisdiction, he hardly attends the case. The territorial division of forest department often thinks that the wildlife matters, even within its territorial jurisdiction, will be taken care of by the wildlife wing, whose office may be located 100 km from the site where the elephant died. Shifting of the responsibility for protecting and dealing with poisoning has been responsible to some extent for the forest department inability to control the mass poison of elephants in the district of Sonitpur. Even the role of the police in nabbing the culprits involved in this heinous crime has been a disappointment. Over 17 elephants were reportedly poisoned to death, and police could arrest only one person!

Furthermore, the forest staff was also confused on the cause of elephant deaths once the carcasses were detected. At first they claimed the elephant deaths were the result of infection by liver fluke, followed by anthrax and only then identifying the cause as poison using chemicals called "DEMECRON". Identification of causes of elephant deaths should be left to the scientists from veterinary department. Forest staff should not pretend to be veterinarians. What the forest staff should have done was to call the veterinary expert from the College of Veterinary Science, based at Guwahati to visit the site and discern the cause of death as soon as possible. These experts, if informed on time, could have investigated the cause and offered possible preventive measures for the future. The seriousness of this kind of crisis, whether epidemic or man-made problem, needs to be understood and realized. Of course everyone learns from mistakes, but it should not take too long to rectify such mistakes. It is a good sign that the press in Assam has helped publicize the tragedy, as a result of which the state government became more serious about the plight of the elephants. Even the Chief Minister of Assam has convened a meeting of forest officials to discuss the problem and expressed his deep concern.

The current study found that the rampant and uncontrolled use of pesticides, mainly by the tea estates, has become a major threat to elephants as far as poisoning is concerned. It

has been found that the labourers of various tea estates around the elephant habitat have easy access to these pesticides, which they often use to kill fishes in lakes and ponds. They also sell these pesticides to villagers. Thus most of the water bodies are affected with these poisonous chemicals and much of the fish population has suffered by their accumulation in their tissues (bio-amplification). A few culprits have used these pesticides inside fruits preferred by elephants, which die as a consequence of eating them. What is more disturbing is that the elephant being the largest mammal received much publicity from the poisoning cases, but the same process has killed numerous fishes, insects, reptiles and other animals inhabiting these water bodies with no attention being directed towards their plight. The government should monitor the easy access of the tea plantation workers to such pesticides, and to the culprits intent on killing elephants.

On October 2002, five more wild elephants were poisoned to death in areas of tea plantations in the Sonitpur District suggesting that the poisons were used either within the estates or in their vicinity. The use of pesticide by tea growers needs to be monitored strictly, and legal action should be taken against them if they are guilty. It appears that the organophosphate pesticides used to kill elephants were from the tea gardens.

Human casualties

Between 1990 and 2001, wild elephants killed more than 450 people across Assam. On average some 38 people lost their lives (range 15-52), which translates roughly into a human death once every 9.6 days. According to Choudhury (1999) between 1980 and 1994, some 670 elephant related human deaths occurred in Assam. He further adds that in 1985 alone, 85 persons died in the conflict in Assam. Some of the state government officials are of the view that elephants have increased in number and hence human casualty at the hand of elephant is on the rise, which is not true. On the contrary, elephant numbers have gone down in Assam from 5,524 in 1993 to 5,312 in 1997. Some state government officials are of the view that more elephants need to be captured from the wild to minimize the man-elephant conflict in Sonitpur and elsewhere.

However, it is unlikely to solve the conflict since no one has seriously addressed the issue of people straying into habitats occupied by elephants, which in fact is the crux of the problem. Most of the administrators and politicians in Assam overlooked the fact that capture of wild elephants in Sonitpur and elsewhere in Assam had failed to give desired result. This due to the fact that the contractors, who get the permit to capture wild elephants often target the calves or juveniles which are easier to capture and train. This has not helped minimize the man-elephant conflict. Even the electric fences erected in parts of Sonitpur district have not offered any respite owing to poor design and management coupled with the lack of goodwill of the local people. It is high time we evaluated the past efforts and develop a sensible strategy that could reduce the man-elephant conflict in Assam. If only when problematic elephants are identified and captured, that villagers around the affected areas may get some relief.

Inter-state Elephant Reserves

There are four inter-state elephant reserves in Assam, and they too have experienced great disturbances due to human interference, as a result of which elephant depredation has become a cause for concern among the forest managers, especially those directly involved with elephant management. The frequency of elephant depredation is given in Table 4.

ARANAYAK, a Society for Biodiversity Conservation in North East India, started an education-awareness programme in the Assam part of the Kaman-Sonitpur Elephant Reserve in March 2002 with the support from the U.S. Fish and Wildlife Service. As part of the project, ARANAYAK has been working closely with the district administration, police and forest officials along with all the village heads of the fringe villagers living around the Assam part of Sonitpur-Sonitpur Interstate elephant reserve. Already five villager-level meeting and more than 20 educational cum awareness programmes have been organized in various parts of the Sonitpur District in collaboration with other NGOs and Police and Forest departments. Such effort has paid dividends since no case of elephant poisoning was recorded since March 2002 in the district. Once this awareness cum education programme proves effective, ARANAYAK will initiate a similar programme in other interstate elephant reserves in Assam.

Recommendations

The recommendations can be divided into two categories: (a) those that are feasible, and (b) those that are challenging. The feasible recommendations are those that can be implemented by the government and the people, while the challenging recommendations, as can be inferred, are difficult but not impossible to implement, provided the government and the people are determined to solve the problem of man-elephant conflict in Assam.

(a) So far the construction of elephant-proof trenches, establishment of electric fences and adopting other measures to prevent crop degradation had been the responsibility of the forest department. Such initiatives need to be taken at individual level too so that the people living along the periphery of elephant habitats can look after the maintenance of the barriers. Eco-development initiatives need to be taken up in the fringe villages to encourage the villagers to adopt alternative livelihoods such as horticulture, poultry, pig farming, bee-keeping and fisheries instead of expanding traditional agricultural practices by encroaching into more forest areas. Anti-elephant depredation squads involving the villagers need to be set up especially in those few months when elephant depredation is known to escalate. Furthermore, awareness programmes for the villagers must be carried out by the NGOs and government agencies to enlist the support and participation of the people in protecting elephants and minimizing the conflict. Compensation as *ex-gratia* should be paid to the affected families within the shortest possible time to minimize their suffering, otherwise they would be further antagonized. In addition, we realize that it may not be practical to stop jhum cultivation, as it is a way of life among the villagers in Assam. However, some effective measures should be taken along the fringe areas of elephant habitats and elephant corridors in order to reduce such agricultural practices. Furthermore, commercial timber extraction in the remaining patches of elephant habitat should be stopped immediately. Power lines passing through prime elephant habitat and corridors should be relocated. It has also been observed during the study that the digging of ditches by oil companies often become death traps for many calves and juveniles. These ditches must be filled to minimize the death of elephants.

(b) It is only through the adoption of a coordinated and balanced effort for overall forest management and rural development can the present trend in man-elephant conflict be reversed. Since Assam still has more than 16% of forest cover,

Table 4 Intensity of elephant depredation in the four inter-state reserves

Name	area (km ²)	elephant number (N)	no. of protected areas	frequency of depredation
Manas-Buxa-Jaldapara	2,622	504	12	low
Kameng-Sonitpur	1,265	670	6	very high
Dibru-Deomali	1,498	336	38	high
Kaziranga-Karbi Angolong-Intanki	4,316	1,828	37	high

the state budget should provide at least 8% of the total annual budget for forest conservation initiatives. Such a provision of financial assistance may go a long way to reduce the man-elephant conflict and save the lives and properties of the people.

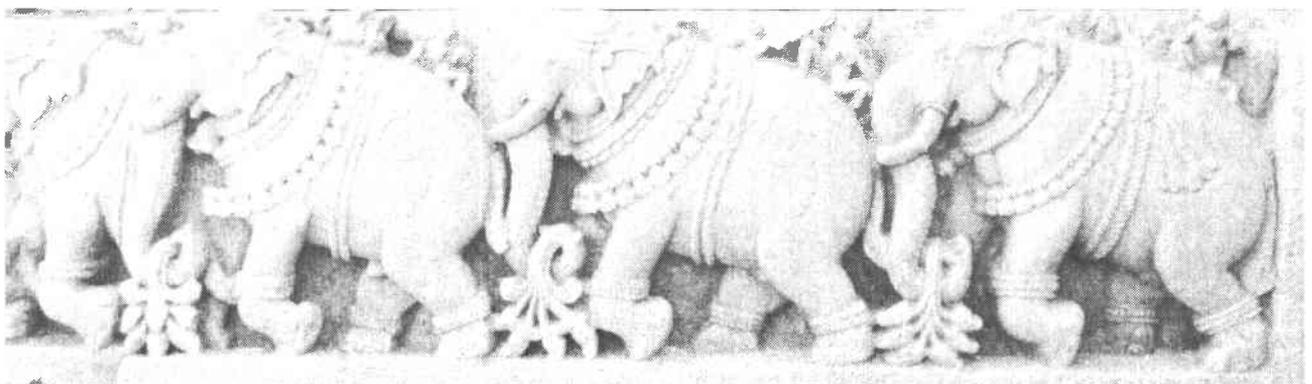
Planners and economists must realize the need to enhance allocations to ensure not only the protection of elephants, but also to ensure the overall ecological security of the habitat. This would be a wise investment and one that would certainly improve the quality of life of the poor, even as it strengthens the economy in the long run. Furthermore in important elephant corridors where human encroachment is a problem, measures must be taken to evict the encroachers so that the elephants can follow their traditional migratory routes. This will minimize the conflict between man and elephant to a great extent, but in order to evict the encroachers strong political and administrative will is needed. In fact legal protection should be given to all the elephant corridors under the Wildlife Protection Act, 1972 to arrest further encroachment into the corridors. Uncontrolled and unsustainable over harvesting of bamboo from the forests must be checked. Some railway lines and national highways need to be diverted as they pass through the prime elephant habitat in Assam resulting in increased mortality of elephants caused by accidents with trains and vehicles.

Conclusion

Man-elephant conflict situations need urgent amelioration to prevent them from becoming a launching pad of retaliatory action against elephants by the people affected, and subsequently foci of illegal trade in elephant products. There are many lessons learnt and few yet to be learnt from managing elephants in the wild in Assam in recent times. It will be foolish if we do not learn from these lessons and remain indifferent to the conflict and its causes. The efficiency of forest staff needs to be improved, followed by the adoption of massive public awareness campaigns against forest encroachment and the wanton slaughter of wild elephants. The people of the area who bear the brunt of elephant depredation must be made aware of those aspects of their farming systems which make them particularly susceptible to crop-raiding by elephants.

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Elephants from the Channakeshara temple at Somanathpur, Karnataka, India (photo: courtesy S. Wijeyamohan)