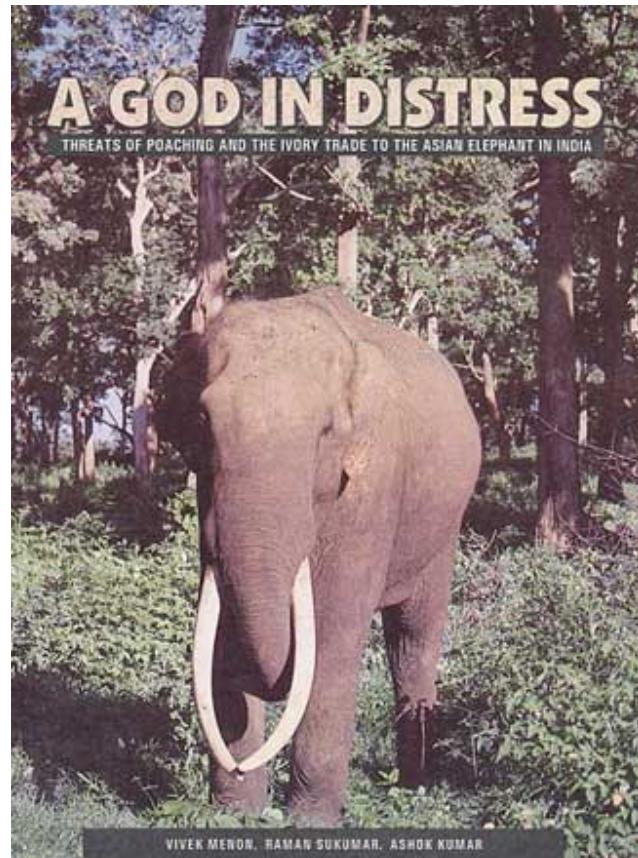




A GOD IN DISTRESS

WPSI





ACKNOWLEDGEMENTS

An elephantine task such as putting together a report on the effect of poaching and the ivory trade on the elephant throughout India, would have been impossible without the active participation of some , constant encouragement of others and input from a few hundred people. To thank them in the space of a short acknowledgement will not be adequate justice to their varied contributions.



Nonetheless we sincerely thank our well wishers and contributors to this report. To begin with, the two advisors to this project, Mr. Ashok Kumar, Vice-President, Wildlife Preservation Society of India and Prof. D.K. Lahiri-Choudhury, Co-ordinator (Eastern region), Project Elephant, played an essential role in almost every phase of this project. Their constant encouragement, suggestions and advice is to a large extent responsible for the final shape of this report. Mr. Thomas Mathew, Director, WWF-USA helped in the initial conceptualisation of this project and was a source of inspiration throughout. Mr. Vinod Rishi, Director, Project Elephant, laid aside, at many times, his official mantle and took on a role of friend, philosopher and guide in the whole process. Dave Currey helped in both procuring funds as well as unofficially in advising us on an entire philosophy of conservation without at any time seeming to want to impose it on us. The entire staff of the Asian Elephant Conservation Centre at the Indian Institute of Science, Bangalore, helped in official and unofficial capacities and Dr. Arun Venkataraman, Surendra Varma and Cheryl Nath accompanied the first author on several invaluable field trips. In Orissa the help of Biswajit Mohanty, Orissa Wildlife Society and Sanjiv Chadda, Divisional Forest Officer played a great part in the understanding of a population that nobody knew much about at the outset. In the North-East the long-standing friendship of Prof. P.C. Bhattacharjee once again reflected itself in the time he gave to the project. Aparajita Goswami and Manideep Raj gave invaluable assistance in the field and helped collect field data. The staff of Wildlife Protection Society of India helped in many ways, with Bindia Sehgal, Alok Narula and Shibu Kumar bearing the brunt of the progress of the report. In Delhi and Bangalore, our secretarial staff, P.V. Suresh and S. Nirmala once again proved their mettle in handling much of the database that finally churned out data which could be analysed. Many a forest official helped in providing official data and doling out the old world hospitality that is sadly a legacy of only a few institutions such as the forest department today. We are especially grateful to the forest departments of Karnataka, Kerala, Tamil Nadu, Orissa, West Bengal, Bihar, Uttar Pradesh, Assam and Meghalaya for their unstinting co-operation to this project.

Much of this work was made possible through data collected in the course of projects funded by the Ministry of Environment & Forests (to the Centre for Ecological Sciences, Indian Institute of Science), by Wildlife Preservation Trust International (to Asian Elephant Conservation Centre) and by Environment Investigation Agency (to Wildlife Protection Society of India).We extend our heartfelt thanks to all these organisations for placing faith in our abilities and supporting our work.

Countless individuals helped this project in ways that cannot be enumerated in this acknowledgement nor anywhere else in the report. These are those brave men and women who helped the trade and poaching analyses by working covertly, many a time risking life and limb and at least half the time without any monetary reward. Most of them do this to satisfy their own personal adrenaline surges that come with the knowledge that such important jobs that can help uncover a hitherto unknown facet of the trade and which can help save a species. To these unsung heroes, our greatest admiration and humble thanks.

We would wish to thank the following people for helping us during the project; their names being arranged both geographically and alphabetically. If during the course of this listing some names have been left out inadvertently, we sincerely apologise and hope that we can make it up with those concerned in some other way.



A GOD IN DISTRESS

WPSI

Assam

Abhijit Rabha, Achinto Barua, Aranidhar Boro, Arun Srivastava, B.C.Das, Bhupen Talukdar, B.S.Bonal, Joydeep Bose, Maan Barua, Manideep Raj, Pankaj Sarma, Parmananda Lahan, P.C. Bhattacharjee

Karnataka

Arun Venkataraman, A.S. Sadashivaiah, B.M.T. Rajeev, B.R. Bhaskar, B. Shekhar, Brijesh Kumar, Chennaiah, Cheryl Nath, G. Jayaramiah, Girish, J.S. Lamba, K. Nirmala, M.K.Srinath, M. Palani, Manjunath Tambakad, P.M.Aiyanna, Poovaiah, S.V.Hosur, Surendra Varma, Venkatesa Kumar, Vijay Anand

Kerala

A.V.George, Balasubramaniam, C.Jayakumar, C.K.Subhash, C.Reghunathan, Chandran, Chengappa, Cherian Kunju, Chindu Sreedharan, D. Jayaprasad, Deepa Kumar, Girish, Hydroskutty, Jacob Cheeran, James Zaccharias, Joseph Karoor, Joy Kaitharam, Manonmohan, Nibha Namboodiri, O.P.Kaler, P.N. Unnikrishnan, P.S.Easa, Peter Pulpally, Pradeep, Radhakrishna Kaimol, Rajan Sahgal, Rajendran, Ravindran, S. Achari, S.K.Sinha, Saboo, Sajan Mathew, Shamsul Huda, Sudhir, T.P.Narayananakutty, Thomas Dominic, Vijayan.

Meghalaya

A.K.Srivastava, Ashish Kumar, B.K.Lyngwah, Chalom, Kennedy Sangma, Majumdar, Robin Shulai, S. A. Nongsiej, S.N. Sangma, S.P. Singh, Subhash Ashutosh, T.T.C. Marak

New Delhi

Alok Narula, Arnold Massey, Belinda Wright, Bindi Sehgal, Dinesh Babu, Jayakrishnan K.P, Kishore Rao, Krishnendu Bose, Mohit Aggarwal, Neeraj Jain, P. V. Suresh, Ravi Singh, Ritu Jain, S.C.Dey, Shibu Kumar, Tariq Aziz, Thomas Mathew, Vinod Rishi

Orissa

A.P.Mohanty, Bimal Acharya, Biswajit Mohanty, Mohammed Huda, Naik, Rajeev Kumar, S.K. Rath, S.K.Patnaik, S.K. Srivastava, Sabyasachi Bose, Sanjiv Chadda, Sushanto Nanda

Tamil Nadu

Bhaskar, Devadas, H.S. Dattaraja, H.S.Suresh, M. Bharannaiah, Mohan Das K, M. Zacchariaah, Noor Din, R. Arumugam, R.P.S. Katwal, Robert J, R. Vellayan, S.K.Srivastava, S. Paulraj, Uma Ramakrishnan West Bengal Aparajita Goswami, D.K.Lahiri-Choudhury

Outside India

Charles Santiapillai, Dave Currey, Esmond Bradley Martin, Steve Broad, Steve Trent, Susie Watts.



A GOD IN DISTRESS

WPSI

CONTENTS

[Acknowledgement](#)

[Introduction](#)

[Background](#)

[Methods](#)

[Ecology & Biology](#)

[Legislation](#)

[Elephant](#)

[Population in India - Analysis of their Current Viability](#)

[Poaching in India](#)

[Trade in Elephant Products](#)

[Conclusion](#)

[Recommendations](#)

[References & Bibliography](#)

[Appendices](#)



INTRODUCTION

The threat to the Asian elephant (*Elephas maximus*) is grossly underestimated at the international level in relation to its African cousin, even though the former species has a total population of only 10% of the latter. This threat is not perceived in India as well, as compared with the official figures of 3750 tigers or 1500 rhinos, the wild elephant seems well placed at 20,000-25,000 individuals.

In India and in several other Asian countries, recent trends indicate that the elephant is under increasing pressure from poaching, which combined with traditional problems of habitat loss and alteration is today proving an alarming threat to its populations. An indication of the recent upsurge of poaching of elephants for ivory are incidents which have come to light since 1994. There have been increasing evidence of poaching for both ivory and meat in different parts of the country.

In 1994, investigations in southern India also indicated that only five adult males were left in a population of about 1000 elephant in Periyar Tiger Reserve in the state of Kerala, one of the strongholds of elephants in the country. Of these, only two were tuskers, the other three being makhnas (tuskless males). The male percentage at 0.2% of the total population here is way below that of 2-7 % in some other areas of southern India. A drastic reduction in fertility has already been seen in this population. This preferential decrease in numbers of tuskers shows clearly the poaching pressures for ivory on the Asian elephant. This is only symptomatic of a larger malaise that seems to be relatively widespread in southern India. During the last 20 years the proportion of sub-adult and adult tuskers in various populations have declined, some by as much as 75%. Added to this are several instances of elephant poaching reported from Orissa, Uttar Pradesh and north-eastern India which corroborate the hypothesis that a fresh poaching wave is sweeping across the country.

What is equally disturbing is the fact that poaching is not confined to adult tuskers (15 + years of age) but that there is a high rate of sub adult (5-15 years) and juvenile (3-5 years) poaching. This results in changes in population structures, not just among adults but among sub-adults and juveniles as well and thus affects the long term demographic structure of these populations. Official government censuses in parts of north-eastern India show that tusker: makhna (tuskless male) ratios have also changed over the past two decades indicating a decline in the number of tuskers.

Elephants, which seemed to have got a respite since the international and national bans on the trade of ivory, are back on the poacher's list. Reports from Orissa and the North-East indicate a new method of poaching; the use of poisoned projectiles in the killing of the species In Assam, the case of an elephant that was electrocuted for its tusks in the Manas National Park adds a new dimension to the problem. In Meghalaya several traps that combine poisoned spears, pits and shooting indicate a determination on the part of the poacher that deserves closer scrutiny. In this state the recent spate of elephant poaching for meat and the subsequent dispersal of meat to neighbouring states in a highly organised fashion also is cause for concern.

At the 1982 price of US\$ 150 per kg the total annual value of ivory poached in India was estimated at US\$ 270,000. Prices of ivory had gone up in India from US\$ 14 per kg in 1966 to US\$ 200 per kg. in 1994 and today has suddenly shot up to range between US\$ 280-300. There is considerable evidence of stockpiling by the trade and concern that the review of the African elephant in the listings of CITES might spur trade in Indian ivory.



A GOD IN DISTRESS

WPSI

The Indian Wildlife (Protection) Act of 1972 banned the sale of ivory and ivory carvings derived from Indian elephants in 1986. In 1991 by an amendment to this act, the import, carving and sale of ivory from African elephants was also banned. This amendment was necessary because it was believed that a small quantity of imported African ivory was being used as a cover for illegally acquired ivory from Indian elephants. It is suspected that the declared stock of ivory carvings held by many ivory dealers exceeded the quantity of African ivory imported by them. Although both these figures are available in Government records, no effort has been made so far to compare them and discover anomalies which are believed to exist. Moreover, despite the ban on display and sale of ivory carvings in commercial establishments, violations of the law continue to take place as evidenced by seizures throughout 1994 and 1995. The Delhi High Court in a landmark judgement, in March 1997, confirmed the decision of the government to ban the ivory trade terming it as 'pernicious' in nature. The judiciary took into account the fact the the elephant in India was threatened by poaching pressures and that the trade was endangering it further.

The Indian policy of protection is based on current enforcement realities and it is a fact that these realities are today struggling to keep pace with the poaching pressure. Immediate steps need to be taken to ensure that the poaching spurt of the past few years does not translate into a more threatening situation for the Asian elephant.

This report is based on the first comprehensive study of the pressures of poaching and the ivory trade on the Asian elephant. The study was carried out between 1995-97 under the aegis of the Asian Elephant Conservation Centre, Centre for Ecological Sciences, Indian Institute of Science in collaboration with the Wildlife Protection Society of India.



BACKGROUND

In 1992 when the first author of this report was taking part in establishing the first wildlife trade monitoring centre in India under the guidance of Mr. Ashok Kumar (the first Director of TRAFFIC-India and a co-author of this report) the fact that the Asian elephant was threatened by poaching was not a well known fact and was in fact thought to be far fetched by many conservationists. To an extent this was true. Decades of conservation had raised elephant numbers like the numbers of a large variety of species in India and the elephants with their long history and tradition of association with the Indian populace was largely protected. When Dr. R. Sukumar, the Chair of the Asian Elephant Specialist Group of the IUCN/SSC and the second author of this report was writing *The Asian Elephant*, some population data were available on the southern Indian populations . In this work he did deal with the poaching issue as a major problem in southern India but no alarms had begun to ring. Unlike the charismatic tiger on which little field work had been done, the Asian elephant was relatively a well known animal. Studies by Sukumar(1989), Johnsingh, Lahiri Choudhury(1985), Daniel(1995), Easa and Desai in the wild and by Krishnamurthi and Cheeran on captive elephants gave the sense of comfort of knowing the species. The fact that the relatively well off species was facing threat on a new front was not being seriously looked at.

This project was initiated in August 1995 after a few months of conceptualising and was basically seen as a natural extension of the work done by the first author on the rhino in the north-east (Menon 1996) where a number of cases of ivory poaching had also come to light and of the second author's long years of work on the ecology and conservation of the Asian elephant. The study of the effects of poaching and the ivory trade on the Asian elephant had not been attempted before anywhere in the continent and this presented a number of problems. Much of the data had to be collected from scratch with the exception of data available with the second author from studies done during the 1980s in southern India. The widespread distribution of the elephant and the very large number of trade centres and routes meant that unravelling the trade in the matter of a year or two for the whole country was a very difficult task. In the end, this was achieved to a satisfactory extent to enable an overview of the situation in India today.

Two factors made the timing of this study an extremely important one. Firstly, the last four years had seen an upsurge in poaching in many parts of the country, and states such as Meghalaya and Orissa were seen as being badly hit. The ivory trade, which had more or less declined to minimal levels by 1990 (Martin 1990), had seemingly got a fresh lease of life and was operating largely to smuggle out raw or semi-worked ivory. This necessitated an immediate understanding of the seriousness of the situation . Consecutive meetings of the Project Elephant Steering Committee had discussed the sudden upsurge in poaching and it was recognised that there was a paucity of authenticated data on the subject. Secondly, a large section of the Indian conservation lobby was of the view that the impending CITES conference of the Parties would play a role in the trade scenario of the country and therefore on levels of poaching. There was no idea if the trade was indeed stockpiling ivory and if prices were rising or were relatively stable. The effect of the African elephant downlisting proposals on the fate of the Asian elephant had become a discussion of considerable significance.

This report analyses only a fraction of the data on mortality and ivory stock that are available with the authors and is meant to be an overview on the situation in India today. There are a number of loopholes to be plugged, fresh data to be collected and more rigorous analyses to be done before a comprehensive report on the Indian and South Asian situation can be prepared. It is hoped that this can be achieved in the coming year.



METHODS

To obtain an overview of the poaching and trade situation for a country the size of India, a variety of techniques and methods were used. Data collection was done over a 22-month period (July 1995- April 1997). Data were collected from the field on mortality records (both natural and poaching), ivory stocks in various forest departments and treasuries, seizures of ivory or elephant parts by the departments etc. These official data were collected from forest department offices, cross-checked wherever possible up to the range level while in other cases up to the divisional level. The data were fed into a database that had been developed by the first author for an earlier study on the rhino with suitable modification for the species in question. Similar data from an earlier period were available with the second author from parts of southern India, which were also incorporated into the database. Most of the fresh data collection was done for the 15 year period of 1981-1996 although many offices had data only for the previous ten years. Data were collected from the states of Kerala, Tamil Nadu, Karnataka, Orissa, West Bengal, Bihar, Uttar Pradesh, Meghalaya, Assam, and Arunachal Pradesh. Seizure data from other parts of the country were fed in on an as-is-where-is basis.

Apart from official data, covert information gathering on poaching incidents, modus operandi of poachers, trade information including routes, prices, etc., were collected by investigators over a two year period. The official information was cross-checked wherever possible in the field. Information gathered from the covert process will also form part of a confidential report that will be made available to enforcement and investigating agencies.

The Wildlife Preservation Society of India made available all the data available with them on elephant mortalities and helped collect fresh data in some areas. Field biologists of the Asian Elephant Conservation Centre collected data on mortalities alongwith their work in areas of southern India. The data were analysed at the Asian Elephant Conservation Centre at Bangalore



'Divergent Tusks', a well-known tusker of south India, fell victim to a poacher's bullet, in the 1980's.

The Asian elephant (*Elephas maximus*) is believed to have descended from *Elephas hysudricus*, whose fossil remains have been discovered in the Shiwaliks of northern India. The genus *Elephas* itself is believed to have evolved in the African continent, about 5 million years ago and radiated into Asia.

The elephant is found in 13 countries in South and Southeast Asia. These include India, Nepal, Bhutan, Bangladesh, Sri Lanka, Myanmar, Thailand, China, Laos, Kampuchea, Vietnam, Malaysia (peninsular Malaysia and Sabah) and Indonesia (Sumatra and East Kalimantan) (Sukumar and Santiapillai 1996). The estimated population of elephants in Asia is 35,000 to 50,000 in the wild and about 15,000 in captivity (Sukumar and Santiapillai 1996, updated with new estimates for Vietnam by S. Dawson and for Kampuchea by A. Desai, pers. comm.).

The geographical range of the Asian elephant, extending over 400,000 sq. km.,



A GOD IN DISTRESS

WPSI

covers a diversity of vegetation types. These include sub-tropical and tropical evergreen forests, tropical deciduous forests, tropical thorn forest, floodplains of rivers and grasslands. Elephants feed on a variety of plants, although certain plant families such as Poaceae (grasses), Cyperaceae (sedges), Palmae (palms), Fabaceae (legumes), Euphorbiaceae, Rhamnaceae and Malvales (the order to which cotton belongs) are their favourites (Olivier 1978, Sukumar 1989). Elephants spend more than 12 hours a day in feeding, and their choice of plant species and plant parts varies considerably with season. Recent studies show that the browse plants generally provide more carbon (protein) for growth, and therefore the preservation of browse-rich habitats is important for elephant conservation (Sukumar and Ramesh 1992 and 1995).

Elephants show distinct seasonal movements, and have annual home ranges which may vary from under 100 sq. km (Rajaji- Justus) to almost 1000 sq. km (Baskaran and Desai) for family herds, and up to 400 sq. km. for adult bulls (Sukumar 1989, Baskaran and Desai 1995).

The organization of elephant society is not very different between the Asian and the African species, with the exception that Asian elephants in typically forested habitats do not group into congregations as the African savanna elephant. The unit of elephant society is the matriarchal family, which typically consists of one adult female elephant and her immature children, both sons and daughters. More often one sees a "joint family" of several adult cows (related as sisters or as mother and daughters) along with their offspring. These typical groups generally have between 5 and 10 individuals.

Higher levels of organization can be seen when more than one family or joint family form temporary associations, or when a large number of related families congregate into a "clan" of anywhere between 50 and 150 individuals. The clans seem to be broadly coordinated in their seasonal movements, and their existence is most obvious during the dry season (when distinct aggregation of elephant herds can be seen) or during the seasonal migrations.

The male elephant disperses from the natal family between 10-15 years of age and moves on to establish its own home range. Such males usually lead a solitary existence, except when they form temporary associations with other bulls. Bull groups rarely have more than 2 individuals, although the largest group recorded among Asian elephant populations is 7 individuals (McKay 1973). The movements of adult bulls is often distinct and independent of that of the family herds. Bulls also use marginal, seemingly unsuitable habitats, such as steep hill slopes, more often than do the herds. The propensity of bulls to spend more time in the vicinity of cultivation also brings them into greater conflict with people at the interface of forest and agriculture (Sukumar 1991).

The older bulls come into musth usually once a year. Musth is a physiological condition, accompanied by rise in blood testosterone, a secretion from the temporal glands, dribbling of urine and behavioural changes. Different bulls in an area usually come into musth at different times in the year (Desai). A bull in musth is more aggressive towards other bulls, may increase its rate of movement, and have a larger home range, in its search for estrous females to mate with.

Both male and female elephants become sexually mature around the age of 12-15 years. When several old bulls are present in a population, the bulls usually get a chance to mate only after about 25 years. The chances of successful matings increases with the size and age of the bull. With a gestation period of 20-22 months, and an inter-calving interval of 4-5 years (in some of the southern Indian populations studied), the reproductive rate in elephants is low. However, the natural death rates are correspondingly low in elephant populations, being under 15-20% annually from birth to age 1 year, under 5% up to age 5 years, and 1-3% above that age (Sukumar 1989 and unpublished data). In this polygynous, sexually dimorphic species, the death rates of males are naturally higher than those of the females.



The sex ratios of progressive age classes thus become increasingly female-biased in elephant populations even under natural conditions. Thus, in Sri Lanka where most of the male elephants are tuskless (makhnas), the ratio of adult male to female elephants is about 1:3 (McKay 1973, Kurt 1974). In other populations in Asia where males are selectively poached for their tusks, the ratio becomes much more skewed. The consequences of this unnatural skew in sex ratios for the demography and long-term viability of elephant populations is one of the central considerations of our study.

LEGISLATION

The Asian elephant as a species is accorded the highest levels of protection that a species can have in both national and international laws and treaties. As befits its endangered status as accorded by the IUCN Red List, the Indian Government has placed it in Schedule I of its Wildlife Protection Act (1972) and the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES) has placed it in Appendix I, thus banning all international trade in elephants and their derivatives. As India is one of the earliest signatory countries to CITES, in 1976 it became illegal to export or import any derivative of the Indian elephant. A decade later, in 1986, India banned all domestic trade as well in ivory from the Asian elephant.

CITES had for long tried to control the trade in ivory world-wide. By the mid 1970s the demand for ivory was far outstripping legal supplies and illegal traders were setting up very complicated trade routes globally in order to circumvent the archaic control methods in place at that time (Currey and Watts 1996). In 1985, the CITES responded by setting up an ivory control unit based in Switzerland to provide a permits database and to mark and register ivory. By 1989 it was clear that even this had not worked and that 94% of the ivory in world trade was from poached elephants (Currey and Watts 1996).. In 1989, the CITES parties finally agreed to put the elephant on Appendix I and ban trade in ivory and other derivatives.

Although,, national legislation has afforded the elephant with maximum protection, local administrative rules or regional acts, sometimes are in variance with or nullifies the effect of the protection. In Kerala, for example, a single provision of the Kerala Forest Code that operates on the maxim " Loss to the employer is to be borne by the employee" translates into stiff pecuniary penalties being levied on staff in case of the death of an elephant. The code ironically is not equitably applied as senior officers are not within the purview of the law and Forest Guards, Foresters and rarely Range Officers are penalised. This has resulted in a large number of cases going unreported and in some cases male elephants being turned to females in order to escape the loss of government property, i.e. ivory (Menon 1992, Menon & Menon 1992). This regressive rule is supposed to ensure that more responsibility is there among the protectors of the wildlife but in reality turn them into willing or unwilling accomplices to the crime.

The major hurdle in the legislative process is not the laws themselves but the slow judicial process in the country which coupled with careless filing of cases or presentation of evidence leads to a very poor rate of conviction. The recent judgements in the Baripada division of Orissa where three different cases resulted in judgements and convictions go against the grain of the general trend in the country. In Baripada, the court first convicted one of six accused in the 31 October 1992 incident of poaching in the Nilgiri Range. Later the division won another case in 1994-95 when two of the four accused were convicted in a poaching case of Simlipal Tiger Reserve. In the 8.November 1995 seizure of elephant bone from within Simlipal all the five accused were convicted. These three cases have given a fillip to an otherwise demoralised staff of the division and can be used as an example of what can be achieved with personal interest and thorough investigation. On the other hand, all the court cases relating to the seizures of ivory carvings are pending in various courts of law and certainly for the last decade not a single case had resulted in conviction. The hope now is in NGO intervention petitions in such cases.



POPULATION OF THE ELEPHANT IN INDIA AND AN ANALYSIS OF THEIR CURRENT VIABILITY

THE ELEPHANT POPULATIONS OF INDIA

The distribution of wild elephants in India can be described under four regions - northern, northeastern, central and southern India. We provide a brief account of the distribution of the elephant and its status in this report. More detailed accounts of the status of elephants for each of the regions can be found in the following publications:

1. Northern population : Singh 1978, Johnsingh et al. 1990.
2. Northeastern population : Lahiri-Choudhury .
3. Central population : Shahi and Choudhury .
4. Southern population : Nair et al. 1980.

Country-wide accounts and summaries are available in Daniel (1980), Sukumar (1986, 1989) and Anon (1993).

Northern population: The elephants in northern India are found in a wide belt along the Himalayan foothills (the terai-babbar region) in the state of Uttar Pradesh.. The populations are broken into 6 distinct sub-populations ranging between Tanakpur and Haldwani, in Dudhwa Tiger Reserve, between Haldwani and Ramnagar, between Ramnagar and Koh river, between Koh and Ganges and between Ganges and the Yamuna river. The latter three sub-populations include the Corbett and the Rajaji National Park and the Sonanadi Wildlife Sanctuary elephants. The present estimate is 700-1000 for this population.

The largest concentrations of elephants are seen in the Rajaji and Corbett National Parks. Data from these areas indicate that in both these reserves the population structures are healthy and indicative of normal populations. The ratio of adult male to female is 1:1.3 in Rajaji and 1:2.2 in Corbett (A.C. Williams, A.J.T. Johnsingh, S.P. Goyal and P. Krausman, in litt.). A comparison of census data from Singh (1978) and the present indicates that it has increased substantially. It is not clear if this merely reflects the use of better census technique or represents a real increase in the population of elephants in Uttar Pradesh.

Northeastern population: There are three major elephant populations in the northeast of the country.

1. To the north of the Brahmaputra, one population estimated at anywhere between 3000 and 5000 elephants extends along the Himalayan foothills from northern West Bengal eastwards through Bhutan and Assam into Arunachal Pradesh. The Manas reserve (both the Assam and the Bhutan sides) and Namdapha National Park are two important protected areas for the elephant.



2. To the south of the Brahmaputra, a sizeable population of about 2000 elephants inhabit the Kaziranga National Park and the Karbi Anglong hills in Assam, extending into Nagaland.
3. The elephants in the Garo hills and Khasi hills of Meghalaya form a distinct population of over 2500 animals. Balphakram National Park is the only notable protected area for this population.
4. There may be several smaller, isolated populations including those in northern West Bengal to the west of River Torsa, the Jaintia hills-North Cachar, South Cachar and Tripura. Hardly any elephants are left in the states of Manipur and Mizoram.

The simultaneous census of 1993 gave a count of 5524 elephants for Assam, 2071 for Arunachal Pradesh and about 2200 for Meghalaya. Northern West Bengal has an additional 150 or more elephants. As compared with the official censuses of previous years, the data on population structure for the northeastern states showed a downward trend in the number of tusked males as opposed to tuskless males (or makhnas). In the past, the adult tusker to makhna ratio has generally been in the range of 1:1 to 1:2. The 1993 census for Arunachal showed this to be about 1:4.3, while in several divisions of Assam there was a predominance of makhnas, although the ratio for the entire state still remained at about 1:2 (Lahiri-Choudhury). The forest divisions in Assam with predominantly makhnas include Sonitpur (4 tuskers, 27 makhnas), Sonitpur West (8+32), Tinsukia Wildlife (7+20), Karbi Anglong East (31+87), Kamrup West (4+21), Manas National Park (37+52) and Naogaon South (10+41).

In Meghalaya the tusker:makhna ratio in the Garo hills was abnormally low for makhnas (6:1) suggesting undercounting of makhnas, while the picture was the reverse in the Khasi hills (only one tusker was seen among 12 unattached males counted). In West Bengal there is a large proportion of adult tuskers in the population.

Central population: The elephants in central India are found primarily in the states of Orissa and Bihar, with seasonal movement into southern West Bengal and Madhya Pradesh. In Bihar elephants range over the Singbhum and Dalbhum tracts, with a smaller population isolated in Palamu. The elephants of Orissa are also believed to exist as several isolated populations, with the largest populations being found in Simlipal Tiger Reserve and the Satkosia Gorge Sanctuary. The population estimate for central India is 2500-3000 elephants. No reliable data are available on population structure from region for making judgements of the status of the population.

Southern India: The elephant populations of southern India have been better studied and characterized than those in other parts of the country. Elephants are found in the Western Ghats and some adjoining hill ranges of the Eastern Ghats in the states of Karnataka, Kerala, Tamilnadu, and (more recently) Andhra Pradesh.

1. **Northern Karnataka:** An isolated population of about 40 elephants is found in North Kanara district of Karnataka, which is the northern limit of elephant distribution in the southern region.
2. **Malnad plateau-Bhadra:** This population estimated at 150-200 elephants in the Bhadra and Shettihally Sanctuaries is again isolated from the elephants found further west along the crestline of the Western Ghats.
3. **Brahmagiri-Nilgiris-Eastern Ghats:** The largest known population of Asian elephants, estimated at between 6300-10400, is spread over a wide area including the Brahmagiris, the Nilgiris and the Eastern Ghats. This features a good network of protected areas in all the states which include: Karnataka (Nagarahole, Bandipur and Bannerghatta National Parks, Brahmagiri, Nugu, Biligirirangaswamy Temple and Cauvery Sanctuaries), Kerala (Wyanad Sanctuary), Tamilnadu (Mudumalai Sanctuary) and Andhra Pradesh



A GOD IN DISTRESS

WPSI

(Kaundinya Sanctuary). The Nilgiri Biosphere Reserve has also been constituted here. This population probably holds the key to the long term survival of the species in Asia

4. Nilambur-Silent Valley-Coimbatore: This population of 600-850 elephants ranges to the southwest of the Nilgiris (the entire habitat is also part of the Nilgiri Biosphere) in the states of Kerala and Tamilnadu at a relatively low density. It still maintains some genetic contiguity with the population in the Nilgiris-Eastern Ghats. The protected areas include the Silent Valley National Park in Kerala and the Mukurthi Sanctuary in Tamilnadu.
5. Nelliampathi-Anamalais-Palanis: The elephants to the south of the Palghat gap are distinctly isolated from those to the north of the gap. One of the major populations, estimated at 1150-2500, ranges over the Nelliampathi and the Anamalais, with a few herds extending into the Palanis in the states of Kerala and Tamilnadu. The protected areas here include the Eravikulam National Park, and Parambikulam and Chinnar Sanctuaries in Kerala and the Anamalai Sanctuary (Indira Gandhi National Park) in Tamilnadu.
6. Periyar-Srivilliputhur: The Periyar Tiger Reserve of Kerala, along with adjoining forest divisions, and the Srivilliputhur Sanctuary in Tamilnadu are estimated to be home to about 1400-1900 elephants. A splinter population of about 40 elephants is isolated in the Idukki Sanctuary.
7. Agasthyamalai-Ashambu hills: To the south of the Shencottah gap the elephant distribution is sparse, being seen mostly in the interior hill ranges, but extends to the tip of the peninsula. The estimated population of 100-150 elephants is found mostly in the Kalakkad and Mundanthurai Tiger Reserves in Tamilnadu, and the Neyyar Sanctuary in Kerala.



An elephant killed for crop defence surrounded by local villagers.

Data on the population structure of elephants, and trends in recent years, are available for several of the southern populations. Detailed studies in the Chamarajanagar and Satyamangalam Forest Divisions (of the Eastern Ghats) and more limited data from the Mudumalai and Bandipur reserves (in the Nilgiris) during the early 1980s showed that sex ratios were moderately skewed, with a preponderance of female elephants over male elephants from age 5 years onwards (Sukumar 1989). The ratio of adult (>15 years) male to female elephants was 1:5 on average over this region during 1981-83. From this the adult sex ratios skewed further to about 1:9 by the year 1987 when an extensive population survey was carried out. From 1988 onwards a continued monitoring of the Mudumalai-Bandipur (south) population has shown that adult sex ratios have further widened to between 1:12 to 1:15 by 1996. Not only has the sex ratio become more unequal, there has been a disproportionate reduction in the number of older tuskers in the region. As yet there has been no noticeable reduction in the birth rate of the population.

The Periyar Tiger Reserve probably represents an extreme situation with regards to the impacts of ivory poaching. Data from Kurup (1974) indicates that the ratio of adult male to female



A GOD IN DISTRESS

WPSI

elephants was about 1:6 or 1:7 during the early 1970s. Later surveys by Nair (1985) indicate that the sex ratio had skewed considerably ten years later. It is not possible to estimate the ratio precisely because of differences in the methods used for classification, but it seems to have reached a figure of between 1:15 and 1:25. A paper by Chandran (1990) reveals that selective poaching of tuskers was rampant during the 1980s with the result that the adult sex ratios had become as unequal as 1:122 by the late 1980s. Detailed investigations by us (U. Ramakrishnan, J.A. Santosh and R. Sukumar, unpublished data) during 1994-95 showed an adult sex ratio of close to 1:100, with possibly as few as five adult bulls (2 tuskers and 3 makhnas) remaining in this reserve. There was also a drastic depletion in the numbers of juvenile and sub-adult tuskers in the population. The age structure of even the female segment of the population was unstable, with indications of a sharp reduction in the birth rate over a 15-20 period prior to 1994-95.

Little objective information is available for other important elephant bearing areas such as Anamalais-Parambikulam. Limited data from the Nagarhole National Park and adjoining areas of Wyanad (north) and Bandipur (north) indicate that this region probably has the largest concentration of adult tuskers in the south. Adult sex ratios are in the region of 1:4 to 1:6 indicative of a reasonably healthy population. Indeed, this may be a refuge for tusked males, which on attaining maturity may then disperse to regions with far fewer tuskers.

VIABILITY OF ELEPHANT POPULATIONS:

One of the most serious threats facing the Asian elephant, throughout its range, is the loss and fragmentation of habitat, and consequent isolation of populations. There are believed to be less than ten populations with over 1000 elephants each (Santiapillai and Jackson 1990). The majority of populations are small, often with less than 100 elephants each, or even only a few herds or solitary bulls.

Small populations are highly prone to extinction, not only due to deterministic factors such as hunting and loss of habitat, but also because of chance factors. These include demographic (births and deaths), environmental (rainfall) and genetic stochasticity. Population viability analyses for Asian elephants (Sukumar 1995) indicate that a total population of 100-300 elephants, depending upon demography, sex ratio and ecological pressures, would be needed to ensure a >99% probability of survival for 100 years (i.e. in the short term). Two factors having considerable influence on the viability of populations are the intrinsic rate of population growth and the sex ratio. Thus, a population that is stable (intrinsic $r=0$) or nearly so is much more vulnerable to extinction than a population which can potentially increase at a rate of 2% per year. Similarly, a population of 40 elephants growing (potentially) at 2% per year with an adult sex ratio of 1 male to 8 females has a 90% probability of survival for 100 years, while another population with a 1:16 sex ratio has only a 60% chance of survival (see Sukumar 1995 for details). Further, even large populations of several hundred individuals with highly skewed sex ratios have low probabilities of survival.

The selective poaching of male elephants for tusks and the skewing of sex ratios in favour of females would thus considerably reduce the probability of survival of such populations, even in the short term, from the demographic angle. In addition, the loss of genetic variation through a reduction in the numbers of breeding male elephants may represent an equally important threat to the continued survival of the population. The genetic loss may not just be a random loss of genes, but a loss of genes which confer resistance to parasites and diseases, if longer-tusked bulls are preferentially targeted (M.G. Watve and R. Sukumar, in press 1997). Indeed there are reasons to believe that such a loss of parasite-resistant elephants has already occurred in a southern Indian population which has suffered from ivory poaching.



The long term viability of elephant populations is poorly understood. In particular, catastrophes such as severe droughts or disease epidemics which occur at very low frequencies (say, once every hundred or two hundred years) may determine the minimum viable populations for long term conservation of the species. Added to natural catastrophes would be the long term impact of the selective and systematic attrition of elephants due to ivory poaching. To ensure long term viability of an elephant population it may be necessary to maintain 1000-3000 individuals,

POACHING OF THE ELEPHANT IN INDIA

Poaching elephants for ivory and meat is a widespread phenomenon in many Asian countries including India, Myanmar, Thailand, Laos, Kampuchea and Sri Lanka (Sukumar 1989, Santiapillai 1987, Santiapillai 1987a, Santiapillai & Jackson 1990, Venevongphet 1995). In Myanmar, poaching has been reported as rampant in many parts including the eastern and western slopes of Arakan Yoma, lower Chindwin, Pegu Yoma, Shan states, Tennaserim district and Katha district (Santiapillai 1987, Olivier 1978). In some areas, entire populations have been wiped out due to poaching. In Thailand 10% of the country's elephant population were poached between 1975-79 for both meat and ivory especially in the western and northern parts of the country (Santiapillai 1987a, Storer 1981). Poaching for ivory is the major problem in Laos as well, with as many as 42 elephants reported to be poached in 1992 (Venevonghpert 1995). In India poaching has always been a factor affecting the elephant's survival although historically this has been either sporadic or of a low intensity in most parts of the country. Sukumar (1989) estimated that poaching for ivory had indeed become a more serious threat than previously thought in southern India with 100-150 tuskers being lost annually to illegal killings.

Killing elephants has traditionally been for the hunt in most parts of India or for alleviation of conflict situations by eliminating a rogue. Poaching elephants for ivory is relatively a new phenomenon that has become more relevant as newer laws have made the ivory trade illegal thus spurring on the covert killings.

Hunting

Hunting elephants in India is a centuries-old tradition despite the many religious connotations that the species has, and the importance of Ganesha, the elephant-headed god in the Hindu pantheon. In the Ramayana (c.900 BC), the great Hindu epic, Sita is said to be hurt by Rama's refusal to take her into the forests and says that his words had struck her much like the poisoned arrows used for hunting elephants. Rama's father King Dashrath was responsible for the killing of a local youth Shravankumar who was filling water from the river into a pitcher and was shot at by the king mistaking the gurgling for an elephant drinking water.



Despite the fact that elephant trade between Ceylon and India was established probably as far back as the 3rd century BC and that elephant capture was prevalent through most of the range, the killing of elephants probably came into fashion only as late as the 17th or 18th century during British rule (Sukumar 1989). In Kerala, Wyanad was a prime elephant hunting area and there are records that one man alone killed 300 animals in the region. Meanwhile in Sri Lanka at least 3500 elephants were hunted between 1845-48 after being declared nuisances. In India, although sport hunting was prohibited by 1972, hunting elephants for protecting humans and their crops and homes continued till much later. For example, in Meghalaya, hunting licences to shoot elephants as an alleviation to crop depredations continued until 1981 and in the two decades between 1961 and 1981 a total of 226 elephants had been shot (Choudhury & Gogoi 1982, Lahiri Choudhury 1985).



A preliminary incision is made for a post-mortem of a dead elephant in Kodagu, Karnataka.

unthinkable. There is a superstition in Orissa that harm will befall an elephant hunter and that monetary benefits cannot accrue to a killer of elephants. Many professional poachers and hunters are reportedly not doing well monetarily although they earn a lot after selling the ivory. Even a respected ex-hunter who was called upon by the government of Orissa to shoot down a rogue, attributed the suicide of his son to the fact that he had killed an elephant.

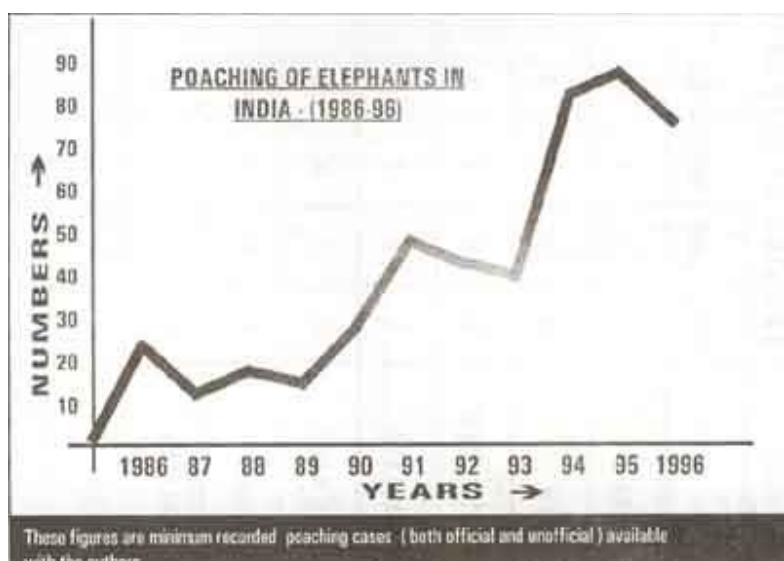
[Click Here](#) for poaching statistics of elephants in India

Poaching over the years

To estimate numbers of poached elephants on an annual basis for a country India's size is difficult given the difficulty in locating carcasses, non-uniformity in keeping records and in some cases deliberate underestimation of mortality by concerned

agencies. The following analysis is based on 2200 mortality records with the authors which have been analysed to get a basic minimum number of elephants poached in the country.

Historically, it is estimated that between 1868 and 1980 more than 40,000 elephants were either captured or killed in India (Sukumar 1989). It was in the late 70s and the 80s that a poaching wave of some intensity swept across southern India. North-eastern and northern India was still largely unaffected by poaching. During 1983-86, at least 42 elephants were poached in Tamil



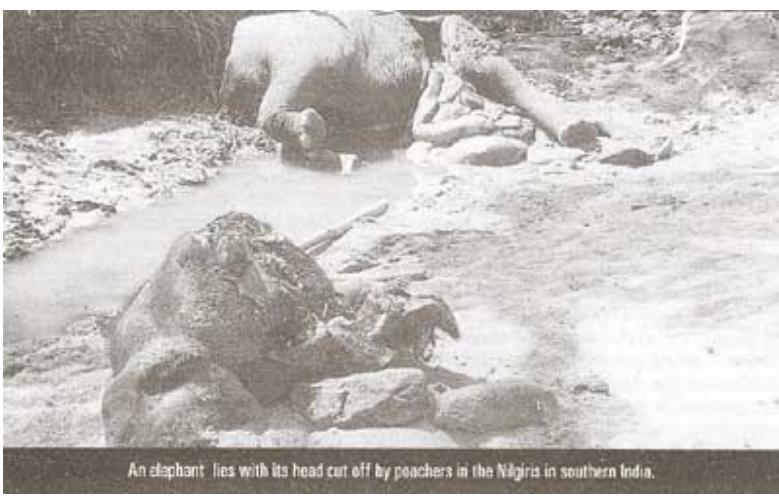


A GOD IN DISTRESS

WPSI

Nadu with nearly a third of the cases being in the Nilgiris North Division (V.Krishnamurthy in litt 1986) . Sukumar (1989) recorded 30-50 elephants being annually lost from the three southern states of Kerala, Tamil Nadu and Karnataka meaning that 100-150 tuskers were lost in southern India to poaching. This was a definite increase from the earlier period of 1977-86 when about 190 tusks were lost to the ivory trade from the three southern states. Periyar Tiger Reserve, in Kerala, for example experienced high levels of poaching during the 1980's (Chandran 1990). In 1981-82, 65% of the elephant mortality in southern India was due to poaching (1989). After a lull in

poaching, a fresh spurt was noticed after 1990 (Menon et al 1994)



An elephant lies with its head cut off by poachers in the Nilgiris in southern India.

The early 90s had a large poaching wave in central Kerala and by the mid 90s poaching seemed to have been established in most elephant range states in India. For example,during 1987-94 scientists have observed an increased frequency of poaching in and around Rajaji National Park in Uttar Pradesh which could be

extrapolated to other elephant ranges in north-western India (Johnsingh 1994). This increase has only further intensified during the last two years (1994-96) as field information collected during the period of study seems to suggest.

Minimum records available with us document 81 poaching cases during 1996-97 . Until 1990, poaching seemed to be on the decline with less than 30 recorded cases. In 1991,there were 49 cases and it continued to be in the range of 40-50 for the next two years .The figure shot up by 50% to 63 and then again by almost the same extent to 88 in 1995. The marginal drop of three cases in 1996 is still indicative of a tendency of more than 80 recorded cases annually across the country. Given field realities we feel that on a conservative estimate at least as many as three times the number i.e. 250 elephants would be poached in the country annually. This is based on the fact that carcass detection is often not possible and that some areas have a history of under-recording poaching cases. This spurt during the last three years is a clear indication of an imminent problem that needs to be tackled immediately.

The year 1997 has started ominously in Tamil Nadu with a possible resurgence of a part of Veerappan's gang or of another equally effective gang cashing in on the former's notoriety. At least 20 tuskers have been poached up to April this year in one pocket of the state. The Sathyamangalam tract adjoining Mudumalai Sanctuary and the contiguous Nilgiris North Division has for long been affected by elephant poaching but this severity causes grave concern. All 20 deaths ,almost all of them with a single shot to the head, appearing to have been fired from a tree platform or machan built at a slightly greater height seem to form a pattern that is easily recognisable. The adjoining Chamrajnagar Division of Karnataka has not been affected thus far but the department has already initiated action to stop poaching from spreading into their area (B. Kumar pers comm. 1997)

The increase in poaching pressures on the Indian elephant are being felt by populations in other countries as well and is not an isolated Indian example. In Sri Lanka about 100-120 elephants are being killed annually which is almost double the number killed annually between 1950-1970 (Santiapillai 1997).



Methods of poaching

1. Hunting with spears and arrows:

Hunting elephants with spears and bows and arrows is a phenomenon that has been documented in Africa by many authors (Douglas Hamilton 1975,Ruggiero 1990.). This rather primitive means of hunting an elephant , that goes back to ---BC (Bedi 1969) is still prevalent in India and has been confirmed by this study from at least four states i.e. West Bengal, Uttar



Post-mortem being conducted on a dead elephant in Tamil Nadu.

punduana. It is reported that other natural poisons are used as well. among others. The shaft of the arrow was made from cane. The arrows were shot into the soft regions of the elephant especially near the rectum and it was recorded that the animals died within a couple of hours (the earliest being 30 minutes) of being shot.

In Rajaji National Park in western Uttar Pradesh several field reports indicated the use of spears and arrows in killing tuskers. In one such case observed in the field, the poachers admitted to the field investigator that the seeds of Abrus spp. were used to poison the tip of the spear. The action of abrine as a poison was later confirmed.

In Simlipal Tiger Reserve and adjoining areas of Mayurbhanj district of Orissa, the use of bows and arrows again seems well established in the hunting of elephants (Singh 1994, B. Acharya pers.comm.,S.K. Rath pers.comm.). Interestingly in all these cases, the practice seems confined to particular pockets and not to the entire state or region. in Orissa for example the use of bows and arrows is not common in most parts of the state to kill elephants (S.Bose pers.comm, S.K.Patnaik pers comm). In the erstwhile state of Mayurbhanj meanwhile, which had the biggest history of elephant hunting in the state, arrows are regularly used in killing elephants. During field investigations these arrows were seen sold commonly in parts of the region for as little as Rs 40 (US \$ 1.10).The shaft is of bamboo or cane and the tip is metal. The vane is of feathers of local bird species. In one case in Simlipal (in Talabundh beat of Bisoi range on 5.2.1996) it was observed that the arrow had penetrated the skull of the elephant (S.K.Rath pers.comm)and the velocity at which it would have entered the skull indicated the use of muzzle loaders to fire the arrow (B.Acharya pers comm). There are two kinds of arrow tips prevalent in the area , one notched and the other plain and it is normally the plain one that is shot out of muzzle loaders. In the Talabundh case there were several arrows shot into all parts of the body, although it was perhaps the temple shot that was fatal. However the recovery of poison from the person of the accused alongwith arrows and ammunition in the poaching of a tusk in Dalkipahar in Simlipal Tiger Reserve shows that poison is used to kill elephants in this area of the country. No toxicity tests were done in this case and therefore poisoned arrow tips cannot be ruled out. Another school of thought believes that in many cases the arrows are shot out of bows and the

Pradesh ,Meghalaya and Odisha. In a spate of killings in 1994 that centred around Buxa Tiger Reserve in northern West Bengal, the elephants were all killed using arrows which were fired from pipe guns (Roy in litt). The traditional bow has in this case given way to bamboo pipe guns although the advantage of this method over using a bow is not immediately clear. In the Buxa killings the arrow heads were smeared with a natural poison that upon investigation turned to be the crushed seeds of Aesculus



A GOD IN DISTRESS

WPSI

tremendous penetration power of the arrows comes from the tips being heated red hot prior to firing (Capt.Mohanty pers.comm.). In cases of elephant poaching in 1994 in the same park where 9 elephants died in four months (Singh 1994), a poisoned projectile was used in killing elephants. Singh (1994) records locals as saying that poisoned bullets were used, rules out the possibility and suggests that perhaps tranquillising darts were used. Field investigation by the first author leads us to believe that poisoned arrows or spears were possibly the cause of death. Elephants appeared drugged prior to dying, went towards water (which is a natural occurrence) and no signs of struggle were seen near the place of poaching. Interestingly in two of these cases there were deep puncture marks on the body (Singh 1994) as would occur with an arrow being fired into the body as well as cuts on the limbs as well as the trunk. The trunk is normally cut off before the tusks are taken out but the cuts on the limbs remain a mystery.

In Gounda-St Floris National Park of the Central African Republic, mounted hunters spear elephants to sever the sciatic nerve (Ruggiero 1990). The same concept with a more organised

and macabre twist is seen in the Garo Hills of Meghalaya. Spearing an elephant is common in these parts and in fact 32% of elephant deaths officially recorded in the Garo Hills between 1984-95 were caused by spearing or shooting (Williams and Johnsingh 1996) Spears in many cases were traditional weapons but in other cases was only a 4" GI pipe pointed at one end and filled with sand to give it weight. This was then hung as high as 15-20 feet so that the impact of the weighted projectile would result in the death of the elephant. It is also reported that the tips of these spears are poisoned which causes the death of the elephant within a 100m distance (S.B.Singh Pers. comm.). Recently two cases of deadly spear traps being used has been noticed. Field investigations near Balphakram National Park in South Garo Hills of the state and the adjoining West Khasi Hills division revealed that an enforcement team had once stumbled across a spear- cum-pit trap for the poaching of elephants. Strung across a traditional elephant path or mongma rama on the borders of the National Park were 5-6 thick, twined ropes at a height of 10 feet or more. These were strung in an intertwined fashion (see diagram) and in between each interloop, a heavy spear was delicately balanced. A passing elephant herd upon touching any of the dozens of draw strings placed around would cause at least a dozen spears to come crashing down on the head and neck region, presumably severing the sciatic nerve of the elephant much as in Africa. The added advantage is that the hunter is not required to be present and be open to the dangers of elephant hunting in this fashion. The frightening ingenuity of the poachers was that in this case , four pit traps were also dug along a possible escape route to trap any of the fleeing herd that may have escaped the falling spears. As if the poachers had thought of every eventuality, a machan was placed a few hundred yards away from which they could easily watch the proceedings as also shoot any individual that escapes both the traps. This combination of spear, pit and shooting traps was the most methodical poaching attempt recorded during the two years of field investigation and also lends credence to the fact that the two states of Meghalaya and Orissa were facing new and very immediate threats of large-scale poaching of elephants.

2. Shooting



Iron pellets and gunpowder wrapped in a cloth recovered from a poacher in Orissa.



A GOD IN DISTRESS

WPSI

As with the rhinos in the north-east, elephants are more often than not killed by shooting. Each gang operating in a particular area have their own methods of shooting and in certain areas this could be a telltale sign of the people responsible. For example, the Veerappan gang operating in the forests of Kollegal and Satyamangalam (in the states of Karnataka and Tamil Nadu) prefer a head-on shot fired from up above. The shooter sits on a tree top and ground evidences can show the cutting of the branches around the area in which the elephant carcass is found. The gunman shoots just behind the skull and the elephant is very often found in a kneeling position indicating that it had died without much of a struggle. This gang also prefers to cut the whole skull after which the tusks are removed.

On the contrary, in Orissa it is seen that the poachers normally use four or five muzzle loading guns simultaneously and load a piece of iron rod as the projectile which despite having little accuracy over a long range can be lethal at short ranges. The elephant is fired upon from different directions and it has no chance to escape or run away. The elephant collapses due to heavy bleeding and as soon as it dies the poachers use a hacksaw or acid to take out the tusks . The use of acid or lime to take out tusks is a phenomenon recorded in the south as well. In some cases (for example a case of 2.6.1996 in Athgarh division) it is found that the trunk is cut off to facilitate the easy removal of the tusks. In Orissa an analysis of the numbers of elephants shot and recorded officially shows that a vast majority of them died after receiving a number of bullets all over the body and also that in many cases the elephant is shot in the forelegs first causing it to collapse before the temple shot is used. In one case in Simlipal Tiger Reserve, it was seen that the elephant was first shot with a country made muzzle loader and then was showered with arrows to ensure that the animal died. This indicates an amateurish and less skilful means of shooting down an elephant than what is prevalent in the south and north-eastern parts of the country.

The use of heavy bore .500 and .470 rifles was once common for elephant poaching and nobody would think of tackling an elephant with a bore smaller than a .370 . A 500 single bore rifle was once documented at hitting a female elephant some 23 cm below the ear, penetrating the heart and making a hole a metre deep (Bedi 1969). Today however, the use of heavy bore guns for shooting elephants is not very common in the state as there is a paucity of guns of that caliber as well as being very expensive. most poaching gangs use muzzle loaders although some of them contact arms dealers in the state for heavy bore guns or for helping them to shoot the elephant down. One ex-hunter in Orissa has been approached several times with the offer of shooting down an elephant for Rs 30-50,000 (US\$ 850-150). There would be, he was told, a vehicle which would take him to the spot and immediately transport him back after the killing. This sort of pre-planned and meticulous operation indicates an ivory gang that is quite organised in the state. In another case, an arms dealer of the state was approached by a well known scion of a ruling family with a penchant for hunting and a reported involvement in the ivory trade for a supply of hard nosed bullets for his .500 rifle. When told that these were not available the hunter reportedly used soft nosed bullets turned around to act as hard nosed ones for killing an elephant. These methods of ingenuity are a hallmark of professional poachers in India where arms, ammunition and several other basic facilities required by a hunter are in short or unreliable supply. The constant changes in methods and local ingenuity on the part of the poachers require an equal adaptiveness among enforcement officers to be able to stop them.

In most parts of the country the commonly used firearm is the muzzle-loader. In a few cases rifles have been recovered from poachers. A Winchester rifle was recovered from one poaching gang in Nilambur in Kerala. This muzzle loader barrel is made of GI pipe or even the steering rod of jeeps resulting in the bursting of a large number of them during firing . Despite this hazard, these guns sometimes re-inforced with copper wiring wound around the barrel is used for elephant poaching. In Wayanad, in one instance an arrested poacher admitted that he had only the barrel and did not use a stock for firing. A tiny, hand-made trigger would be carried by him into the forest



while the barrel or GI pipe was always hidden inside the forest. In this way he could move around with the minimum amount of detectable evidence on his person. Even if detected, the trigger would not look like part of such a deadly weapon. As there is no stock to this muzzle-loader it is impossible to fire the weapon from the shoulder. Instead, the half-gun is jammed between the stumps of trees or some appropriate rock -cleft from where the shooting takes place. This is useful for most country-made muzzle loaders anyway as some of them are too big to be fired from the shoulder (one seen by the first author was over 6 feet in length) and it also obviates the danger of the gun exploding on the poacher. Apart from the trigger, ammunition has to be carried and even this does not often look like bullets. Sometimes rough leaden balls are used with a charge of gunpowder while in many cases in southern and eastern India, it has been observed that iron rods cut into 6" bits are most often preferred. These rods can be cut off the bars of a window or cut from a solid iron bar. Very little shaping is done of these projectiles before firing. Some light-bore cartridges are also often part of the poacher's repertoire when he enters the forest. These are mostly refilled 12 bore cartridges and is used for hunting smaller game while in the forest in search of their prime objective.

In many places traditional methods such as hunting with bows and arrows and spears exist but recently seems to be giving way to guns due to their easy availability. In Africa the traditional mounted spearing of elephants by Central African Republic poachers gave way to shooting whole herds with semi-automatic weapons in the late 1980s and early 1990s (Ruggiero 1989). In Simlipal National Park, although arrows were used it was seen that they were sometimes fired out of muzzle loader guns (B.Acharya pers.comm.). In the North-East, rhinos were killed more by guns in areas where weapons became easily accessible and modern fire arms infiltrated the area (Menon 1996). In Meghalaya it was seen that apart from muzzle-loaders a favourite weapon was the official .303 which is standard issue for Indian police and was once used by the army. This indicates the use of official weapons (many a time by non-officials) in poaching. The use of AK-47s and other short-range weapons was also seen in Meghalaya and Assam (Menon 1996) where weapons are easily available. In one case in Meghalaya AK 47s were used for the initial burst of firing and other weapons used to kill it.

3. Poisoning



An elephant dying of suspected poisoning in Wyanad, Kerala being attended to by a forest guard.

Poisoning as a method for killing elephants, rhinos and other wildlife has been documented by several authors (Parker & Amin 1983, Sukumar 1989, Menon 1996).

In November 1973, possibly the worst documented case of wild elephant poisoning occurred in the Biradia forests of Dhenkanal Division of Orissa. Eight elephants died in a pesticide poisoned field and at the time of detection all the animals were lying in the field in varying stages of poisoned stupor. Despite efforts by the forest department these animals died. It was later confirmed to be a cause of organo-phosphate poisoning caused by the spraying of certain pesticides in the field but it was never established whether the poisoning was intentional or accidental (L.N.Acharjyo pers. comm.). In 1978, the third author was told of poison being introduced into a jack fruit and then being left for elephants to eat (S.R.Chowdhury pers.comm.).



A GOD IN DISTRESS

WPSI

Poisoning of salt licks for poaching is the most common method of introducing poison into an animal's system (Menon 1996) although poisoned food material, random spraying of crops with pesticide and use of poison on spears and arrow tips are also known. In the Udaigarh area of Simlipal Tiger Reserve in Orissa, there are at least three to four natural salt licks - Rani bhol, Gudri bhol and Raju Pal . There have been several recorded cases of poisoning the salt lick especially for gaur (*Bos gaurus*) . Although there is no reported instance of an elephant dying at such a salt lick in Simlipal, it is not impossible to believe that elephants too would in some cases be affected by these poisons. In Manas National Park of Assam, similarly, a poisoned salt lick in the early 1990s caused the death of a number of hog deer but elephants and rhinos seemed to have escaped the poacher's death trap (Menon 1996). As poisoned salt licks are indiscriminate in nature and given that elephants are partial to salt, these poison traps must be a priority for monitoring during anti-poaching operations.

The spate of deaths during the first half of 1996 in Wayanad (Kerala), Bandipur (Karnataka) and Mudumalai (Tamil Nadu) were suspected to be a case of poisoning. Jayakumar (in litt 1996) reported that upon personally interviewing farmers he had been told of pesticides being put inside jackfruits which are then placed on forest edges. In one recorded instance, a cracker put inside a jackfruit had blown up the palate and tongue of a young elephant in Wayanad, so the use of the fruit as an elephant trap is not unknown. The second author had seen a similarly wounded bull in 1983 with its mouth and trunk damaged by the explosive. In Kerala, a number of people said that Folidol was the poison used to kill elephants but J.V.Cheeran (pers.comm.) felt that this was highly unlikely given the wrong usage of the term by the locals. Folidol is reportedly used as a synonym for poison in parts of Kerala after a 1950s poisoning spree that left a large number of people dead from Folidol poisoning. During April and May of the year nearly 25 elephants died of reportedly natural causes, 18 in Bandipur Tiger Reserve, 5 in Wayanad Sanctuary and 2 in Mudumalai Sanctuary (Rishi 1997). The highly localised nature of the occurrence narrowed the cause of death to an epidemic, a peculiar climatic or vegetational change in a micro-habitat or poisoning. Official enquiries felt that these were natural deaths and that the high number of recoveries were due to the fact that more surveillance was there on the ground (Rishi 1997). Sukumar (1996) felt that the early withdrawal of the winter monsoon during 1995 had created drought-like conditions by early 1996, and that the higher death rate may have simply indicated a natural correction occurring after several years of very low mortality and a high elephant population density and growth. The death rate came down substantially after the monsoon of 1996 and remained so during the dry season of 1997.



Field investigation in the region revealed a very high human -elephant conflict in the region and the fact that there were many symptoms that could potentially have been due to poisoning makes it difficult to rule out the possibility completely. Cheeeran (pers.comm and in Rishi 1997) felt that some symptoms could be of arsenic poisoning and the possibility of tea estate workers leaving out arsenic in certain localities could not be ruled out without toxicological tests. Field investigation revealed that placing urea out for elephants in the hope that after eating it there would be a greater absorption of water by the intestine leading to distension and then death, was also prevalent in some parts of the affected region. Urea can also cause bronchial symptoms which many of the elephants suffered from although it should release an ammoniac smell if the stomach is cut open during post-mortem (J.V. Cheeran pers.comm 1996) What is of paramount importance is the fact that in all these 25 odd cases, toxicological tests were not carried out. Two of us (VM &RS) have witnessed three post-mortems being conducted during this particular epidemic and no toxicological tests were conducted on tissues collected from any one of them. Rishi (1997) correctly feels that poaching and conflict deaths are diagnosed on the basis of external symptoms such as bullet wounds and injuries. However, poisoning would not necessarily leave any mark and it would be potentially misleading to conclude that a death is natural without conducting toxicological tests which must be made compulsory in a post-mortem.

There have been other stray incidents as well which lend credence to the theory that elephants are being poisoned in some parts of the country. In Sriviliputhur Sanctuary , one or two elephants died annually for a few years in the 90s due to a mysterious cause that had many symptoms of poisoning (Paulraj pers.comm 1996). In Midnapore district of West Bengal at least 6 elephants died in the first half of 1995 under circumstances where poisoning could not be entirely ruled out. Although anthrax was suspected in the beginning, post-mortem reports indicated the presence of pesticide in the viscera of the elephants leading to the theory that irate farmers had poisoned the crops with an overdose of pesticides meant to kill elephants. However, in this case the tusks were not the object of killing and therefore its documentation as poaching would not be entirely appropriate.



Elephant electrocuted in a crop field of southern India. The tusks of the female had been removed.

4. Electrocution

Electrocution as a means to kill elephants is known in India from all parts of the elephant range (Sukumar 1989, Lahiri-Choudhury 1985) but normally this is a crop protection endeavour by the farmer or a retaliatory killing by affected villagers. Electrocution as an organised poaching method has only been documented thus far in rhinos on any scale that would cause concern (Menon 1996). However, a few elephants have also been electrocuted for their tusks.

In Meghalaya a group of elephants had been electrocuted in Rongra at Balphakram and all investigations led the forest department to presume that the elephants were deliberately electrocuted . As the tusks were missing this was clearly a case of poaching for ivory by electrocution. In Orissa an electrocution case in Satkosia Gorge Sanctuary in 1990 was clearly for poaching. The technique used for electrocution in the North-East has been earlier described for rhino poaching (Menon 1996). It consists of a simple wire that is attached to a high tension 11 kv line running through known elephant or rhino paths, with the help of an insulated rod (which in most cases is a bamboo). This death trap is left dangling at approximately chest high for the intended victim. The animal normally dies instantaneously. The method has the advantage of being totally silent for the poachers, thereby not alerting possible enforcement staff with the



sound of a gun shot. Because of its indiscriminate nature electrocution is one of the deadliest traps in the forest.

5. Others

In Simlipal there has been reports of nets made of nails tipped with poison being spread on the ground, covered with vegetation and left for elephants (Mishra 1996). Baits of jack fruits or other attractants are then used so that the elephants step over the poisoned nails and die. This gruesome and novel method of killing has, however, not been substantiated and not reported from any other part of the country. In Vazhachal division of Kerala , a poacher confessed that ganja cultivators are trying pit poaching encouraged by the fact that elephants used to occasionally fall into elephant proof trenches that they dug around their illegal cultivation in the forests. Learning from this experience, they would dig pits resembling elephant trenches but cover them with leaves and branches similar to the rhino pits of north-east (Menon 1996) in a more crude, but perhaps, equally effective manner. Pit poaching for killing elephants is also reported from the Balphakram National Park-Siju Sanctuary area (S.N.Sangma pers.comm 1996). Pits of 6-7 feet depth are dug and 10-12 spears placed in them. This is then concealed with leaves and branches for an elephant to fall in.

Poaching for meat

Killing elephants for meat is not entirely a new phenomenon in India and parts of South-East Asia (Lahiri-Choudhury 1996, Santiapillai 1987a). In Thailand, for example, elephant meat is often sold as dried water buffalo meat (nuea khem) (Storer 1981, Santiapillai 1987a). The resurgence of the phenomenon in an organised and large-scale manner in some parts of the country is, however, of immediate concern. Field investigations shows that elephant meat is not being utilised as part of any tribal tradition and that it does not have any medicinal value (T.T.C.Marrack pers.comm.,D.K. Lahiri Choudhury pers.comm.) although ancient Hindu texts prescribe it for constipation. The one quality that seems to be dictating the killing of elephants for meat apart from the fact that enormous quantities can be got with minimal risk, is that elephant meat fibres are very long and reportedly can preserve for the longest among wild meats without refrigeration. This belief has resulted in elephant meat being very popular wild meat for underground camps of various militant organisations in the north-east in particular the wild-meat eating tribes such as the Nagas.

Poaching elephants for meat is of immediate concern in India in the states of Meghalaya, parts of Assam bordering Meghalaya, and Tripura. Not much information exists of this phenomenon in Arunachal Pradesh and the pockets of Nagaland where elephants occur but it cannot be ruled out in either of these states which has traditionally been wild meat consuming states. The state of Mizoram has already finished off most of its elephants for their meat.

It is widely believed in the north-east that not all tribes consume wild meat and of these not every one will eat elephant meat. The Karbis for instance do not eat elephant meat as it is considered sacrilegious to do so (U.Ghate pers. comm) and the Garos do not have a history of elephant meat eating (T.T.C.Marrack pers.comm). However the Mizos (especially the Lushai tribe), the Kukis and the Nagas do have wild meat and elephant meat eating traditions. The entry of Mizo hunters into Meghalaya and the training of local Khasi and Garo hunters into killing for meat is a worrying example. In the 80s an elephant was accidentally killed near Samsok in Balphakram National Park and the villagers ate the meat including some decomposed portions (A.K.Srivastava pers.comm.) . This would probably be the first documented instance of meat eating in the Garo



A GOD IN DISTRESS

WPSI

Hills. Then again in September 1991, a female and a juvenile elephant were killed in Rongbing Chirring in Balphakram for meat. In October 1995 at least 10 elephants were killed near the Wablei river in the West Khasi Hills of Meghalaya by Mizo and Naga poachers primarily for meat (D.K.Lahiri Choudhury 1996). In a case in Siju Wildlife Sanctuary a female elephant was killed and the liver, the right lobe of the lung, the trunk etc. were cut off and taken reportedly for eating (S.B.Singh pers.comm). Poaching for meat being considered a delicacy is only reported from Karbi Anglong in Assam (Lahiri Choudhury 1996) although Karbis may not themselves eat elephant meat.

In the Garo hills, field investigations showed that poaching for meat has become a relatively common occurrence in all three districts and in the neighbouring West Khasi district. Poaching is most often done by Mizos. In cases where the Garos were involved, it is seen that one or two members of the poaching parties were non-Garos. Locals say that these members would often cover their faces with handkerchiefs and avoid speaking, perhaps to escape identification as Mizos. The Garos and some Khasis definitely act as colluders because Mizos would be unable to locate elephants in the Garo Hills, poach and carry away meat without local help. In one instance the first author saw dried elephant meat which was packed into local tins in a cottage industry form of packing. Some of the meat was packed after being powdered. The non-powdered meat had extremely long fibres and was dried with salt and then made into rough blocks before packing. The meat is often sun-dried on bamboo stakes and sometimes smoked and therefore villagers around the area know of such occurrences. Collusion in these cases is often due to fear or general apathy to the local forest officials. A number of these cases are in private akhin forests making it more difficult for enforcement. In one case in the West Garo Hills an elephant was killed and the whole village directly and actively obstructed the forest department and the police from even going near the village. With such hostile local sentiments, controlling this form of poaching takes on an as serious if not more serious aspect as the poaching for ivory. Meat is smuggled out from the forests in sacks in private jeeps or trucks. Timber trucks in the West Khasi Hills and coal trucks are very often used. Some times timber trucks are abducted at gun point and forced to carry the illegal contraband. In one case an Atomic Energy Station vehicle was taken away at gun point in the West Khasi Hills and used for transporting elephant meat (Lahiri Choudhury 1996).

At one time, elephant meat was openly sold in some markets in Nongstein, Shillong and Guwahati. However, some enforcement in Shillong has recently driven the trade relatively underground. Eleven sacks of elephant meat were confiscated and two people arrested despite all this in May 1997 in Shillong proving that the trade is alive and well. During field visits it was seen that markets such as Happy Valley in Shillong where elephant meat was previously sold did not have the commodity for sale. It was learnt that traders would indent the weekly requirements of their regular customers and that every Monday a delivery would be made,. There is evidence that the packaged meat makes its way to Mizoram and Nagaland (S.B.Singh Pers comm) and unconfirmed reports of it going in to Bangladesh to supply extremist-camps as also to Myanmar where an elephant-eating community seem to be ready buyers. There are also reports from Tripura, which is a new entrant into the meat eating habit, that an extremist group from Bangladesh called Shantibahnis are entering the state, poaching elephants for meat and ivory and taking it back into Bangladesh. This along with the rough canning and preservation of the meat makes the whole business of poaching for meat rise above subsistence level killing to a commercial operation with more serious ramifications.

It is equally worrying to note that poachers from Meghalaya have begun to infiltrate into some reserve forests of Assam to poach for meat. In the Rani Reserve Forests near Guwahati which lie almost on the Meghalaya border, scientists evaluating socio-economics and biodiversity conservation in the area found villagers reporting the phenomena (U. Ghate 1996 pers.comm.). In February 1997 they were told that Khasis from Meghalaya used to come in and poach elephants for meat which would then be transported back to Meghalaya. They also said that occasionally



A GOD IN DISTRESS

WPSI

Nagas and Kukis would also poach but did not mention Mizos as hunters. Field investigations around the area later confirmed this occurrence although it was also seen that meat does reach some homes in Guwahati and is indented in much the same fashion as in Meghalaya. In the incident reported to Ghate (1996) the villagers said that after killing an elephant, the poachers would cut and dry the meat in the sun using salt as a preservative. They would then pack the meat and transport it to Meghalaya in 3-4 jeeps which are required to take away the meat of one elephant. As the settlement near Rani is predominantly Karbi, and as they have a religious sentiment for the elephant, the villagers protested for sometime in the early 90s by forming a village committee of seven villages to stop poaching. This was however discontinued after support from official sources was not forthcoming (Pramod pers.comm).

In Tripura, where an elephant population of 184 is reported (1984 census) there seem to be practically no tuskers left due to poaching (D.K.Lahiri Choudhury pers.comm 1997). The poached elephants are also eaten in many cases and elephant meat eating by the Riang tribe is a completely new phenomenon. This transformation, like what has happened with the Garos, bodes ill for the elephant in these parts of north-eastern India.

Man-Elephant conflict deaths

In a scenario where man-elephant conflict is acute and on the rise in some places (Sukumar 1989, Lahiri-Choudhury 1985), the mortalities that arise as a result of this conflict must be

addressed seriously. For the purposes of this report man-elephant conflict deaths are defined as those which were caused intentionally by man but not with a commercial motive for ivory or meat. These do not include accidental deaths such as elephants hit by trains but include crop-raiding deaths as also elimination of rogue tuskers by the forest department or police.



A large crop-raiding tusker being captured by two domestic elephants and forest staff. The elephant had more than 2 dozen bullet wounds when captured.

In 1989, Sukumar estimated that 65-73% of male elephant deaths and 17-19% of female elephant deaths in Karnataka and Tamil Nadu during 1978-87 were caused by people. This included poaching, conflict deaths and those which could not be differentiated. It is this ambiguity of whether a death is a poaching case or a genuine non-commercially motivated conflict case

that makes figures redundant in many areas. Conflict deaths must therefore be viewed as elephant slaughter by man and be taken into the overall purview of mortality control. However, each case has to be studied in detail before a decision is made as to whether the term poaching applies to it or not.

Elephant deaths due to conflict in parts of Karnataka, e.g. Kodagu district and near Bandipur, is not uncommon (Anon 1996). A large number of elephants captured in Kodagu have multiple bullet wounds on them caused by .12 bore and .22 bore shots sprayed on them by resisting farmers. In adjoining Kerala, two elephants of the Guruvayoor Devasthom temple had bullet wounds with small lead pellets being recovered from them. One was brought to the temple from Bihar and the other from Karnataka. In Wayanad, Kerala, a large tusker (10'8" at the shoulder) was captured in 1995 because of crop raiding problems. It had over 25 bullet wounds on various parts of the body. Similarly another tusker sub-adult captured in Kerala had the roof of its palate



A GOD IN DISTRESS

WPSI

blown off with a jack-fruit bomb. These are examples of extreme aggression by man towards elephants due to crop raiding and manslaughter, which has led to an increase in the number of elephants killed by man. It is important to note that in both the above mentioned instances, the elephant was captured alive and cannot be recorded as poached or killed by man. However, both were in an advanced stage of deterioration with festering sores, where bullets had pierced the skin, and maggot formations in some of them. These would have probably led to a death which could have been recorded as a natural one as no single wound was large enough to cause death. In Kodagu district of Karnataka alone, 27 elephant deaths were recorded in two years (1992-94) (Anon 1996) and it is important to analyse the number of them which can be proved to be caused by man.

In Andhra Pradesh for example, a relatively new and small population of elephants which came to the state from Karnataka and Tamil Nadu during 1983-84 started to reside here. The present population of 46 animals have had 12 deaths reported during 1987-95. Of these, 8 cases (66 %) was caused by electrocution which was not for poaching. This high mortality due to conflict in an area where the enmity to the beast is relatively a new phenomena is worth considering (Rao 1995)

In many cases, it is not immediately apparent as to whether an elephant mortality, although caused by man, is by accidental or done intentionally. Similarly, it is also difficult to determine if deliberate killings of elephants are done by ivory or meat poaching gangs or by people protecting their crops and homesteads. Between 1983-86 at least 4 elephants were electrocuted in Tamil Nadu (V.Krishnamurthi in litt 1986). In cases such as the ones in which 7 elephants were killed in the same area between February 1991 and April 1994 in Champua range of Keonjhar division in Orissa, in retrospect it is evident that the deaths were due to elephant-human conflicts. As the deaths involved electrocutions and poisonings, individual cases needed to be verified to see the whole truth. A common factor in all the cases was the recovery of the tusks and thus the working of an ivory gang could be ruled out. The reason for poaching was worked out as crop protection by an increasingly irate local population facing constant elephant depredations in their area (B. Mohanty pers comm) This can be done, however, only after careful scrutiny of a number of cases in the area as in some instances tusks are recovered but the elephant is poached by ivory gangs which, due to some reason or the other, were unable to retrieve their illegal booty.

In many parts of eastern India crop raiding and the sentiment of local people are both increasingly damaging to the future of the elephant. In the Garo Hills crop raiding is a major problem (Williams & Johnsingh 1996, Lahiri-Choudhury 1985). In the east Khasi hills places such as Mawryngkrieng, Umsao and Mawpat-Mawtawar face problems from raiding elephants from the Karbi Anglong hills. During a survey, the first author heard the local village leader extorting his people to shoot the elephants as help was not forthcoming from official quarters. This kind of local village resentment is the seed for larger damage in the years to come and should be immediately dealt by the state officials.

As bull elephants are the cause of most crop raiding (Sukumar 1989, 1991), the selective removal of problem males has long been considered an option for alleviating man-elephant conflict. However, it has been seen that this otherwise cautious scientific dictate has been translated by certain overzealous managers and officials into meaning an indiscriminate capture of male



Forest department officials on a domestic elephant examine an electrocuted wild elephant .



elephants. It is to be remembered that in areas, such as southern India, where poaching has already skewed male-female ratios(Sukumar 1991), the family groups indulging in crop raiding may also have to be identified and captured (Baskaran and Desai 1996). However, where problem males are the sole cause of crop damage, then remedial measure could involve the capture of the single male. It is also to be seen if the capture would genetically affect the remaining populations, especially in case of small populations and whether it would lead to decrease in genetic variance(Sukumar 1989,1991). What is of paramount importance is that the problem animal or animals must be identified objectively by a team of experts before local management takes up capture operations. There must also be considerable expertise available with the local forest departments before such capture operations are carried out. While it is seen that in many cases such expertise is available in India , in some cases a large number of mortalities have occurred after capture which may have been avoided. Every effort should be made to minimise these deaths especially so that a potentially useful management tool (elephant capture) would otherwise get the same public image as phenomena leading to mortality in elephants which is highly undesirable.

Elephant capture in northern Bengal has an age-old tradition and 127 elephants were captured in 1937-39 in the area bordering Bhutan and Assam (Barua 1995). In the decade 1957-67, another 93 elephants were captured from Buxa and Cooch Behar divisions and after a few years of suspension, the decade 1971-81 resulted in the capture of 117 elephants. After independence, therefore, about 10 elephants have been captured annually from the forests of North Bengal.

Seasonality of poaching

The dry season is very often preferred by poachers in both Africa and India. In the Central African Republic it was seen that the rainy season made poaching difficult as the grass was tall and diseases rampant. Also elephants are more dispersed during times when food and water are plentiful and are thus more difficult to track down. In contrast, the dry season, when forest fires had shortened the grass, and when water and food were available only in select places, caused a definite spurt in poaching (Ruggiero 1990) . This is largely confirmed in India with reports of poaching from most places show these to occur during the dry season. In Kerala, poachers based at Vazachal confessed that the dry season was their best poaching time.

Effect of poaching on social structure of the elephant

It is seen in some cases that poaching attempts or gunshot wounds affect the elephant in more than traditionally understood manners. For example in the case of the radio-collared elephant Admiral in the Nilgiris, a gunshot wound had resulted in the bull not coming into musth for a whole year and had thus drastically shrunk his home range for that year. Males in musth have a larger home range than non- musth males. (Baskaran and Desai 1996).The poaching can also cause a disruption in breeding as the older males are often the first targets leaving males too young to breed to remain. In Africa males under 24 years rarely come into musth (Poole,1987). This might also result in competition between these young bulls as older males have already been poached (Ruggiero 1990) resulting in unnaturally high mortalities due to inter-specific fights. A wounded elephant is also easier prey to inter-specific fights. In one case in Rajaji National Park in Uttar Pradesh, a wounded tusker (it is debatable as to whether the wound was caused by a poacher's bullets or by officials protecting a crop-raiding incident) was given treatment by veterinarians and appeared to be recovering when it was killed in an intra-specific fight with another tusker (Johnsingh 1995). In Wayanad , Kerala a number of tuskers captured after crop-raiding complaints had multiple bullet wounds. Most of these were not serious enough to cause death but had weakened the elephant to an extent that it had chosen to feed on crop and other easy food. This may also be a result of the social status of the animals receiving a setback after being



injured. The weakening of the individual because of wounds would result in large number of these 'natural deaths' which nevertheless may owe its occurrence to man-inflicted causes.

In Africa it was seen that a population under severe poaching pressure in the Gouna-St. Floris National Park in Central African Republic resulted in the animals having a reduced ability to forage during dry season and to undertake traditional migrations in response to food and weather changes (Ruggiero 1990). In the Gouna area, the congregations of over 1000 elephants bear testimony to the inability of the herds to utilise its full home range and being confined to certain areas because of poaching (Ruggiero 1989). A study conducted in a selection of parks in Eastern Africa showed that in heavily poached populations, where there are fewer males of breeding age, conception rates are likely to be significantly lower. The scientists found that there was a tendency, as there is in some parts of India, to be complacent about a population with a high proportion of immatures as this might look like "good breeding success". However they recognised that such young populations are a result of poaching and that these populations are far from healthy (Poole 1989).

Age/sex analysis of poaching

For a detailed age/sex analysis of poaching of elephants a pre-requisite is the meticulous recording of mortalities at the time of occurrence. It is easy enough to assume that an overwhelming majority of poached elephants in India would be males as ivory is still the major cause for poaching and the Asian female elephant does not possess tusks. However, it is known that often in areas seriously depleted of males, females have been killed for their tusks and in other cases for their tail hairs. Female mortality also comes into play when the poaching is for meat as in the case of Meghalaya or parts of the north-east as also when shooting into a herd for sub-adult males have resulted in female deaths. To estimate the age preferred by poachers and the subsequent result in the age structure of a population requires much more detailed data. A major limiting factor in this sort of analysis is that many states do not record the age of the elephant during post-mortem and others record it only as an adult, sub-adult or calf without specifying ages. It is also seen that there is considerable confusion over juvenile and calf segregation as also sub-adult and adult distinctions. In case the ages are noted these do not sometimes tally with other measurements given for the elephant making the exercise of analysis more difficult.

Sukumar (1989) sampled 95 males poached in the Nilgiri-Eastern Ghat region and concluded that over 5 years a bull elephant is susceptible to poaching. Those in the 5-10 year class were poached to a lesser extent than their availability in the population, but there seemed to be no clear selection for males over 10 years old with poachers taking them off seemingly randomly.

In Africa a study found that a poached population of elephants at Meru had much more of a middle-aged age structure (53%) than an unpoached population at Amboseli (31%). The Amboseli population had more old and young elephants (Njumbi 1995) The same study showed that the poached populations were highly skewed towards females (up to 90% adult females) despite the fact that in Africa both males and females have tusks.

The Sri Lankan experience is extremely important to take into consideration while considering the fate of southern Indian populations. The small island country had as many as 12,000 elephants before the 19th century (Olivier 1978). During 1845-48, 3500 elephants were shot in the Northern provinces, and during 1851-55 another 2000 killed in the Southern Provinces (Tennent 1867, Olivier 1978). Although elephants were declared protected in 1937, there were only 2,500 left in 1979 of which only 7% of the males had tusks (Santiapillai 1987)



Mean tusk weight

The dramatic reduction of mean tusk weights over the years has been well documented by both African and Asian scientists (Pilgram & Western 1986, Sukumar 1989, Ruggiero 1990) and by trade investigators (Currey and Watts 1996).



A biologist poses with a large pair of tusks at a forest department treasury in Kerala.

Mean tusk weights have been documented by scientists to try and establish a co-relation that would also help them convert the amount of ivory in the trade to elephants. Parker and Amin (1983) talk of 10 kg as the average tusk weight in Kenya which would mean that 100 kg of ivory would come from 5 elephants (as most elephants have two tusks). This would, of course, translate into many more elephants if the mean tusk weight in the trade reduces.

The mean tusk weight of a poached elephant in the 80s in southern India was 9.5 kg (Sukumar 1989) which matched well with the African average weight of 10 kg (Parker & Amin 1983). At approximately the same time the average weight of a tusk in trade in Dubai (which included a huge quantity from Africa) was down to 3 kg indicating a dramatic reduction of big tuskers (Currey and Watts 1996).

In March 1982, a consignment of 26 tusks was confiscated in the Gounda park area of the Central African Republic that averaged under 2.5 kg each which was far below the 15.2 mean tusk weight recorded by the same country in the same year for its ivory exports (Froment 1985)

The Poacher's profile

An average elephant poacher in India is an armed criminal who enters the forests illegally on a high risk-high gain strategy. Unlike poachers of smaller animals, elephant poachers are better trained, better organised and operate more ruthlessly. This does not mean that in a country India's size there are not a variety of people who indulge in such poaching. Much like the rhino poachers of north-east India (Menon 1996), it is difficult to categorise an elephant poacher according to social or economic class although they are by definition needy enough to take the risks of entering the forests illegally and risking apprehension which could have a maximum sentence of 3 years in prison (6 years in case of a repeat offence). It is a known fact that although certain tribes or communities who have a long tradition of wild animal hunting or poaching are often blamed for poaching a number of other communities are also involved in the actual poaching (Menon 1996). In Meghalaya, for instance, although the Garos do not traditionally have elephant poaching habits and the Khasis and Mizos are often blamed, it was seen that Garos were also involved to some extent.

Sukumar (1989) felt that poachers hail from villages in and around the forest and enter the forest for a variety of illegal activities including sandalwood and timber smuggling. He distinguishes a lesser organised poacher who shoots with muzzle-loaders and a better organised poacher who uses high-velocity rifles. In places like Orissa elephant poachers enter the forest in gangs of 8-10 with axes and sharp knives to fend off forest department staff, while in the south elephant poachers have since two decades been armed with sophisticated weapons including high velocity rifles (V. Krishnamurthy in litt 1986) and, in the north-east, even semi-automatic guns have been used.

Although in general, an elephant poacher is a low profile villager, the poacher who becomes legendary is quite often seen in different parts of India. Veerappan, the dreaded forest brigand of Karnataka and Tamil Nadu has operated for ivory and sandalwood in the forests of



A GOD IN DISTRESS

WPSI

Sathyamangalam, Kollegal, Erode and Nilgiris creating for himself a notoriety probably unmatched in the annals of crime in the region. From Male Mahadeshwera forests of Karnataka to the Nilgiris of Tamil Nadu and Waynad of Kerala, a bloody reign of terror started by Veerappan has claimed innumerable lives. Veerappan is supposed to have killed 500 elephants by the 80s and then abruptly switched to sandalwood,. Although he started operations in the 1970s, the Karnataka and Tamil Nadu Governments started to take notice only with the killing of Range Officer Chidambaram in July 1987.

The hunt for Veerappan is the biggest ever manhunt launched in India and although it now enters its tenth year, he continues to elude the state police forces and the paramilitary. A Special Task Force constituted in 1987 for catching him has been unsuccessful in nabbing him, although at least four senior police officers and at least three senior forest officers have been killed by Veerappan in alleged retaliation. The brutality of Veerappan has given him a larger than life figure which is not always the case with an average elephant poacher.

To a lesser extent there are poachers in Kerala such as Jose who has only one arm and is reportedly famous for shooting out of a rifle fitted into the stump of the missing arm with a specially made brace. There is John Chacko who gave an interview to a leading newspaper confessing to have killed 113 elephants himself although he is only in his early thirties. Chacko, however also says that he was never paid more than Rs 25,000 per killing which he had to share with a few others. He would then make Rs 10,000 (US\$ 300) for himself per poaching. If the killing yielded 20 kg of ivory this would be one-twentieth the price the ivory would fetch in Indian markets at today's rates.

The role of militancy and armed uprisings in the illegal poaching and trade of wild animals has been well documented (Austin et al 1992, Menon 1996, Currey and Watts 1996, Santiapillai 1997). In 1988 the militant outfit UNITA confessed in Angola that it had earned US \$ 1 million from ivory sales which it had used to fund its rebellion (Currey and Watts 1996). In Mozambique, the Renamo rebels have traditionally used elephant ivory money to buy military supplies (Austin et al 1992). In India, various civil uprisings such as the ULFA, Bodo, Naga have at some time or the other used wildlife to fund their activities (Menon 1996). In Meghalaya it was seen that the shortest route to Bangladesh (where several militant underground camps are located), from parts of Assam and Meghalaya was through Balphakram National Park making the area vulnerable to the operation of militants. In Palamau Tiger Reserve of Bihar a robbery of 136 kg of ivory in 1995 and the subsequent investigations revealed the involvement of the Marxist Communist Centre, an outlawed group of the area which is known to have links with the People's War Group of Andhra Pradesh, another extremist group. In Tripura, locals talk of the Shantibahini terrorist group of Bangladesh coming into their state for poaching elephants.

On the other hand in some countries, the role of security personnel and the military in poaching is also recorded. In Myanmar armed security personnel have in the past been involved in poaching (Santiapillai 1987). In Sri Lanka the main suppliers of raw elephant ivory are members of the armed forces who are based in the vicinity of elephant areas and who sometimes gets elephant ivory from individuals killed by land mines (Santiapillai 1997). In Meghalaya, field investigation showed at least two unrelated cases where the poaching was done by policemen in one case with the rifle of a Superintendent of Police. In Nagaland a senior police officer is under enquiry on charges of poaching

Recent incidents in Orissa show the role of poachers from other states operating in the forests here. This links with the recent upsurge in stockpiling of ivory as also the emergence of the north-east as a carving and smuggling centre. In two unrelated incidents, poachers from the north-east were seen operating in the state. In 1992, officials recovered a letter from a poacher in which direct links with poaching gangs in Meghalaya were established (Singh 1994). Later in October 1994 two Manipuris were arrested along with two Oriya poachers from Simlipal Tiger Reserve after poaching an elephant. In a strange twist the courts acquitted the Manipuris on lack of



evidence but convicted the Oriyas. Upon preliminary investigation it was established that the Manipuris were part of an inter-state gang that poached elephants, took the ivory to Manipur and either in the raw form or after carving in the newly established carving centre in Imphal, smuggled across to Myanmar.

It is also seen that elephant poachers often have arms suppliers who do not actually indulge in poaching but supply high velocity rifles and other logistical support for a price. In the north-east it has been seen that arms suppliers give rifles for Rs 10,000-20,000 for a poaching case (Menon 1996). In Orissa arms suppliers were receiving as much as Rs 15,000 for the rifle and Rs 30,000 if he actually shot the elephant as well. In a case at Simlipal Tiger Reserve one of the 4 accused in a poaching incident had only supplied his gun for the poaching while another man had actually done the shooting. In Wyanad in Northern Kerala, it is well known that most of the illegal country-made guns come from Nilambur where a sort of 'cottage-industry' exists for manufacturing these guns. Here illegal guns can be purchased for as little as Rs 1500. It is even lesser in and around Satkosia Gorge Sanctuary in Orissa where poachers can buy hand-made muzzle loaders in Narsinghpur for as little as Rs 1200. In Uttar Pradesh a lot of the kattas or country made weapons are made in districts of western Uttar Pradesh and parts of northern Bihar.

In some cases poachers die while attempting to kill elephants. In Simlipal Tiger Reserve two poachers lost their lives in 1984 and a man died again in 1991 while trying to poach elephants. This adds to the high risk nature of the poaching business and it is only the very high gain that can be got if the operation is successful that keeps the poachers going.

Modus operandi of poaching

Previous chapters have described the methods of poaching i.e. shooting, electrocution, killing with spears and arrows, pit poaching, etc. as also the type or profile of poachers operating in the Indian jungles for poaching elephants. The modus operandi that these men use to kill elephants is a vital piece of the jigsaw that might ultimately help control poaching. Elephant poachers, much like any other poacher of wildlife (Menon 1996, Sukumar 1989) wish to operate inside the forest for the minimum amount of time with the maximum amount of profit. They would also wish to use methods which help deter detection.

In southern India, small poaching gangs of 4-5 people track elephants, sometimes keeping watch at waterholes and at other times using dogs to separate sub-adult males from a herd for easy shooting (Sukumar 1989, 1993). After an elephant is killed using any one of the methods described in the earlier chapter, poachers are quick to arrive on the scene. A shot elephant is traced, if it runs away, to the point of collapse, pits or other traps are checked regularly and the dead elephant is quickly approached. Normally gangs of 4-5 poachers operate and it is found that this number somehow optimises the poacher's efficacy for killing without making a noise in the forest. The poachers who kill for ivory very efficiently cut off the tusks, many a time by hacking at the base with an axe and taking it clean out of the socket and sometimes pouring lime or acid to help soften the basal tissues before using an axe (Sukumar 1993). The whole operation would be over in about three hours at the most. In many cases the trunk is cut off first as it hampers the recovery of the tusk. The tusk is cleaned off the surrounding tissue and taken away either intact or cut into 2-3 large pieces. This may have a large bearing on the final sale of tusks and therefore it may be pre-planned depending on type of smuggling to be done and the buyer's known preference (for example a carver of bangles would not mind if the tusk is delivered to him cut while a large artefact carver will pay a higher price for an intact tusk. In a few cases in Karnataka and Kerala, the entire head of the elephant is chopped off before the tusks are retrieved. In one particular case in Bandipur National Park in July 1996, the elephant had "sat" on its hind legs with the force of the shot and the decapitated sitting corpse made for a much-talked about gory sight.



A GOD IN DISTRESS

WPSI

The tusks are carried out of the forest on foot unlike parts of north-east India where vehicles are used to transport ivory.

In Meghalaya, poaching gangs sometimes establish camps which may be in the interiors of the forest. This may be a result of their knowledge that detection by the forest department is low in akhin or private forests especially in districts such as the West Khasi hills, which does not have even one protected area. In some of these camps as many as 15 guns have been recovered showing the presence of a large number of people involved in the shooting operations. The poachers here buy rations for several days from nearby towns and sometimes will come back during the operation to the nearby town to replenish rations or buy essentials such as candles and tarpaulins . This degree of fearlessness is not seen in most other states especially in southern India. One camp in the West Khasi Hills had folding beds, nylon tarpaulins and rations to last several days apart from arms and ammunition showing the preparedness of the poaching party.

Instances have been recorded of poachers using several new and ingenious means of gaining access to the park and to avoid detection. In southern India, a common method seems to be to wear forest department uniforms or at least to be clad in khaki which symbolises official uniform. The dreaded poacher Veerappan is known to dress in khakhi or fatigues and his men have been known to wear police and military uniforms on a number of occasions. In April 1996, a group of 5-6 poachers from Idukki in Kerala who entered Mudumalai Sanctuary were dressed as forest guards (S.K.Srivastava pers.comm.1996). They were recognised as impostors by alert field staff who challenged them upon which the poachers fired on the officials and ran away after lighting forest fires in their wake to keep away the pursuing guards. The wearing of official looking clothes can therefore be usually to reduce risk of challenge from any stray patrol that they may run into especially if seen from a distance. Local villagers would also be led astray and might help the poachers unwittingly.

The Mudumalai instance detailed above also reveals another favoured modus operandi of the poachers which is to light forest fires. Although forest fires in deciduous forests may be a natural phenomenon, a large number of fires lit in central, southern and parts of northern India are intentional. In the dry deciduous forests of the Deccan for instance the fires coincide with the flowering of mohwa (*Madhuca latifolia*) and the gathering of tendu leaves (*Diospyros spp.*) both of which are greatly helped by the clearance of the forest floor. Villagers often set fire beneath trees to clear the undergrowth but this gets out of control with the result that ground fires are a common occurrence during the dry months and fire-fighting and fire-watching are an integral part of the management of these sorts of forests in India. This study also reveals that these fires are set very often by poachers and smugglers of timber who find it advantageous either to cut off one part of the forest from officials and also perhaps to distract them. In parts of Orissa, it was noticed by field investigators that fires were placed deliberately to cut off areas that are otherwise geographically cut off by gorges or ravines on all other sides. The poachers, who may have accessed an area by means of a local boat through a river in the gorge, light a fire that ensures that forest personnel would either have to fight the blaze before entering that chunk of forest or otherwise have to go around and procure a boat and row across the river. Such simple but ingenuous techniques often find traditionally trained forest guards flat-footed.

Access to the park, protected area or reserve forest is gained by the poachers using a number of ways. In many cases the role of minor forest collectors in poaching has been established by this study. This by no means is to be translated to read that all Minor Forest Produce collectors are part of the poaching epidemic. The presence of a large number of people in forests for legitimate purposes merely provide poachers with a cover for their operations for which they use some corrupt elements in these societies. For example, in the Vazhachal Forest Division of Kerala, reed collectors are formally allowed to go into the forests. Similarly, in Satkosia Gorge Sanctuary in



A GOD IN DISTRESS

WPSI

Orissa, bamboo coupes run by the park authorities necessitate the bringing in of labour from the paper mills.

After poaching the tusks are normally concealed by burying underground or stowing it away in a remote place. They are normally not kept with the poachers and in their houses which is a basic fact to be known while conducting enforcement operations. In one case in Nilgiri range of Baripada division, the tusks of the poached elephant were recovered from a pond where they had been immersed .

Poaching Centres for various elephant populations

State : Orissa

--Simlipal and surrounding area population
Khunta village
Udala village
Kodadiha village
Balma village
Dingam village

--- Satkosia gorge and Athgarh population

Balikeri village
Sisupathar
Janisahi
Nuagoan
Panchama
Purnakhote
Badamba
Narsingpur town

--- Bonai population
Jhumpura village (for Koira range areas)
Tamra and Jarda range

State :Tamil Nadu

---Mudumalai, North Nilgiris division
Manavayal
Nagampalli
Puthur vayal
Chemmanatham ?
Bokkapuram ?
Muthanga
Bathery
Anaikatty



A GOD IN DISTRESS

WPSI

--- Satyamangalam population
Bhawansagar,

---Erode population
Bargur

---Coimbatore population
Irugur ?
Coimbatore

---Sriviliputhur population
Rajapalayam?
Sriviliputhur?

State: Kerala

-- Ranni-Konni population
Mundakayam
Pooyamkutty
Vadasserkara

---Idukki population
Adimally
Neriamangalam
Idukki

--- Vazhachal -Chalakudy- Parambikulam population
Randu kayye village
Athirampally
Vellikulangara
Anapantham
Kormala
Viranchara
Kundukuzhi padam

---Neyyar population
Puthur

--Wayanad population
Sultan Bathery
Nilambur
Manjeri
Chedelayath
Kallur

--North Wayanad
Kutta ?
Masalpet in Kakankote ?

--Periyar population
Gudalur



A GOD IN DISTRESS

WPSI

Kambam
Varushanad ?
Vandiperiyar
Erumalai
Peermade ?

--Silent Valley-Nilambur
Attapadi
Nilambur
Mannarghat

State:Karnataka

--Bhadra populaation
Narsingraja pura (NR Pura)
Kalasa
Athigundi

--Bandipur
Begur
Hediyalla
Gundulpet

--Kollegal
Kollegal
Gopinatham

--Nagerhole
Hunsur?
HD Kote

State: Meghalaya

--South Garo Hills population
Rongru Agal
Rongcheng
Sooling
Siju
Rongraa

--West Khasi Hills
Nongstein
Stad-Dhakar
Mawein
Aradong
Shallang

--East Garo Hills
Williamnagar

State: Assam

--Manas population



A GOD IN DISTRESS

WPSI

Kokrajhar
Barpetta road
villages on Bhutan side

Kaziranga population
Bokakhat
villages in Karbi Anglong

Rani population
-villages in Meghalaya



TRADE IN IVORY AND ELEPHANT PRODUCTS

History of the ivory trade in India

Ivory craft in India probably developed even as far back as 4000 years ago as shown by the recovery of ivory work among the Harrappan and Mohenjo-Daro excavations (Bedi 1969). Apart from ornaments, ivory articles of utilitarian household values and ivory toys for children have been found from these sites. There were also several elongated ivory items with lines and circles engraved on their 'faces' found in these excavations pointing to their use as pendants and amulets as the lines seem to connote magical significance and may have been used to protect its wearer. Ivory wrist bands have long been considered auspicious at Hindu weddings and playing dice were also made from ivory for the royalty (Induchudan 1989, Bedi 1969). Bana Bhatt (630 BC) writing of the empire of Harsha Vardhana talked of gargoyle sculptures in royal palaces made of ivory. Valmiki in the Hindu epic Ramayana (900 BC) talks of Queen Kaikeyi of Ayodhya having an ivory seat and the pillars of the palace of King Ravana of Ceylon having been made of ivory. Ivory inlay work was also described in Ravana's war chariots.

According to a theory, King Solomon of Africa could have imported ivory from Southern India as far back as 900 BC. A reference in the old testament of the Bible talks of import of Ibha from Southern India which is said to refer to ivory (Induchudan 1989). Presenting ivory works of art to visiting foreign dignitaries has continued through the ages and Jacqueline Kennedy on her official state visit to India was given an ivory table-lamp (Bedi 1969)

Today, elephant ivory is traded primarily in two forms ; as raw or unworked ivory (which can be in the form of whole tusks or cut into 2-3 large pieces) and as worked ivory in the form of bangles, bracelets, statues, carved artefacts, chesspieces etc. (Menon et al 1994)

Apart from elephant ivory , ivory from the teeth of hippopotami, tusks of narwhal and plant sources (nuts) are also known in the international trade (Espinoza and Mann 1989) although this study has shown none of these forms of ivory being traded in India.

Carving

India, along with China and Japan, has for long been considered a major Asian ivory carving centre (Martin&Martin 1990). India, in fact, had at one time the largest number of ivory craftsmen in the world and nearly 7,200 workers were supposed to be employed by the industry (Martin 1990, Sukumar 1989) . In 1992, a petition before the Delhi High Court pitting the Ivory Traders & Manufacturers Association against the Government of India talked of as many as 20,000 carvers and artisans dependent on the ivory trade (Menon and Menon 1992). However upon investigation this figure was seen to be grossly exaggerated. For example in Kerala, where a majority of carvers were supposed to be, the Forest department had given out only 12 dealer's licence in 1992 (Achari pers.comm in Menon and Menon 1992). Considering that each dealer would employ not more than 10 artisans the total number of carvers registered in the state would be less than a hundred and fifty people. Allowing for twice the number in the non-registered, illegal segment there would be less than 500 carvers in the state. This is a major fall in number from the 3000 estimated by Sukumar in 1989 but which corresponds with the collapse of the Indian ivory industry (Martin 1990) Similarly an ivory trader in Bangalore interviewed during the study felt that within a few years there would be no carvers left, at least not of the skill that used to be there if the ban continues. He was of the view that the number of carvers had gone down drastically in Mysore (the major carving centre of Karnataka) and although a few carvers were present in



A GOD IN DISTRESS

WPSI

Sagar in Uttara Kannada, the total number was negligible. This reduction corresponds well with the general global trend that had seen a drastic reduction in ivory workers from the late 80s to the mid 90s. In 1990-91, while 500 ivory artisans subscribed to a government scheme, the Hong Kong Ivory Manufacturing Workers General Union and Hong Kong and Kowloon Ivory Manufacturing Union estimated the number of carvers in ivory in 1994 as less than 50(Chan 1994). Similarly, in Sri Lanka the number of ivory carvers has drastically declined and one of their two carving centres, i.e. Kandy, almost virtually shut down with carvers now resorting to carving wood and horn (Santiapillai 1997).

In India carving ivory is part of an ancient tradition and the towns of Delhi, Murshidabad, Mysore, Travancore (now Tiruvananthapuram), Monghyr and Hoshiarpur were famous in earlier days as carving centres (Bedi 1969). Jaipur, Agra and Varanasi have also been major carving centres in northern India. In India the sculptures of gods and goddesses were a favourite for ivory carvers. Other aesthetic sculptures as well as articles such as bangles, bracelets, necklaces, ear-rings, combs, cigarette cases, chess pieces, caskets, etc. are all traditionally carved in ivory. Sukumar (1989) documents Kerala (3000), Delhi(2000), Jaipur (800) and Mysore (600) as having the largest number of carvers in the country. In Uttar Pradesh the region of Awadh (also spelt Oudh) has an age old history of carving ivory. The modern day towns of Varanasi and Gaya are in this belt where ivory carving has been practised both on genuine ivory and on imitation materials. This area is especially known for carving of ornaments such as bangles, brooches and necklaces as opposed to larger pieces of work. During field investigation in Kerala, a trader in Trichur revealed that larger pieces of ivory which would be carved into statues and furniture is normally channelled in to Trivandrum for the south and Jaipur for the north while scrap and small pieces of ivory go to Lucknow and Varanasi. The fact that Varanasi was indeed an important carving centre especially for small artefacts was established with the June '95 seizure of nearly 43 kg of ivory carved into artefacts from two emporia in the town, along with 700 gm of ivory chips indicating that the

artefacts were carved in Varanasi and not brought as carved pieces from elsewhere (R.Talwar in litt). Uttar Pradesh and Rajasthan have a carving tradition where electric lathe machines are used as opposed to the hand-work of Southern India thereby increasing the quantity of the produce. So important is this trade for the region that an official brochure brought out by the Development Commissioner (Handicrafts) of the Govt. of India talks of ivory carving and says "ivory craft has not just been kept alive in Oudh.... in many ways it has kept Oudh alive"1.



Ivory carvings in open sale at Kathmandu , Nepal .

In Rajasthan, Jaipur and now Udaipur are the major carving centres with a host of smaller centres such as Sikar area, Jhunjhunu providing for smaller centres. In Orissa the handicraft centre of Pipili between Konark and Bhubhaneswar is a small carving centre. In Karnataka the towns of Sagar and Sarab in the north have a small numbers of carvers settled in who work on ivory as well. A resident of Hosabale village in Sagar Taluk is reputed to have had an ivory embedded in sandalwood throne made in the early 80s.

It is a well documented fact that the trade responds to external pressures to shift carving centres and establish new ones especially if traditional centres are being better policed after new legislation came in or if trade routes have significantly shifted. For example as worked ivory was not controlled in the early 1980s by CITES, carving centres had sprung up in Dubai, Singapore, Taiwan, Macao and Zaire (Currey and Watts 1996) where partial working was done on ivory to



A GOD IN DISTRESS

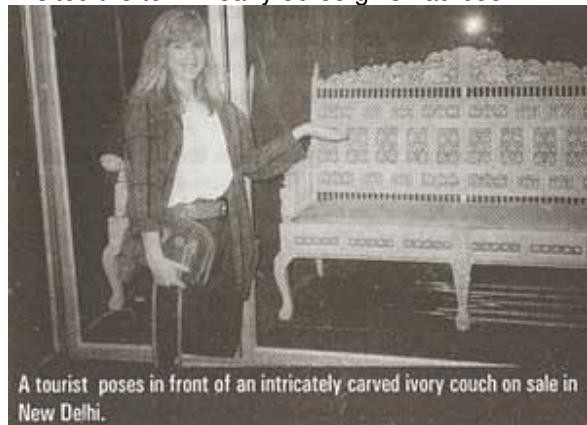
WPSI

then be re-exported to Hong Kong and Japan. It is therefore noteworthy to record that at least one completely new centre of carving has started in India as late as 1994. Field investigation in the state of Manipur (primarily started due to the arrest of two Manipuris in Orissa while purchasing ivory) revealed the establishment of the capital town of Imphal as a new carving centre. During this study when an investigator visited the town nearly 30-35 girls had been employed by the trade. All the girls were in the 20-30 age group and were locals. There seemed to be no external teacher or master carver and the Manipuris seemed to have picked up ivory carving.

The carvings were in a typically Manipuri style with ladies combs, Manipuri bangles, long strings of ivory beads to be worn as necklaces and ivory paintings on small pieces of ivory on display and for sale.

This also coincides remarkably with the establishment of the Manipuri border as an important smuggling route into Myanmar, at times surpassing the traditional route out of Tuensang and

Mokokchang in Nagaland. This could be due to increasing enforcement pressure in Nagaland or some other factor that has developed very recently. The starting of a carving centre, albeit small in Manipur is as worrying for the conservation of the Asian elephant as the starting of regular eating of elephant meat by the Garos of Meghalaya. Both represent new trends going if not against then certainly slightly away from prescribed traditions and will be newer pressures on the already beleaguered species. In Nepal, investigations in 1997 has shown a small carving centre established in Patan which is carving figures in both Indian and Chinese styles. This is also a new phenomenon.



A tourist poses in front of an intricately carved ivory couch on sale in New Delhi.

While the heyday of the Indian carver seemed to be during 1900- 50 a gradual decline came about with the drop in elephant numbers and the consequent policy of the Indian government to first regulate and then finally ban the trade. In 1978 the entire amount of ivory sold by legal auctions of the Indian Government was only 3 tonnes (Martin 1980). During 1974-80 the southern states used to auction 1 tonne annually (Sukumar 1989). Even before the total ban, ivory carving had shifted from elaborate and intricate work to less detailed tourist trinkets (Barbier et al 1990)

It is of interest to note that different carvers in India have differing views on the subject of Indian ivory versus African ivory. Most carvers in southern India preferred Indian ivory to work on while Jaipur carvers seem to find no great difference in the ivory, some of them preferring African ivory for their work. This could in some part be due to the fact that a large part of the African ivory imports went to northern carvers and a substantial part did not reach southern India. Lahiri Choudhury (pers.comm) is of the opinion that wet area ivory is softer and therefore more malleable and less brittle. This is good for more intricate carvings. Most of the African ivory that was imported to India came however from East African savannahs (see chapter on African ivory) and therefore was probably better for the machine carvings of the northern carvers. The hand-work of the Kerala carvers for intricate work probably required 'wet' ivory. Barbier et al (1990) felt that the African imports into India were softer ivory than the Indian ivory which is why the Indian carvers preferred it. This also explained the reason why India was exporting ivory to Japan (which preferred harder ivory for making into name seals) in the early part of the century while still importing African ivory for work at home. Whether the Indian deciduous forest ivory is any softer than the African one is a matter of conjecture and requires further study before a conclusion is reached. Recent trade investigations have shown that Japanese distinctly prefer Asian ivory over African ivory for making hankos and this perception is of great importance in understanding the trade dynamics.



Domestic trade in Ivory and non-ivory elephant products

The trade within India of ivory has always been negligible when compared to the Far East markets or the older markets in Europe and the USA. Over 85% of the finished African ivory was being sold to foreigners in the late 80s (Sukumar 1989).

Trade in non-ivory derivatives of the elephant is well documented in Africa (Steenkamp and Massyn 1994) and recent studies in south-east Asia (Martin & Phipps 1996) also documents such trade in Asian elephants. In Cambodia, for example, elephant bone, skin, tail, teeth, trunk and penis are recorded to be on sale in the market places of O Russei and Poipet. Martin and Phipps (1996) records that elephant skin is used as an acne cure and elephant bone also as a poison detector while the penis is used as an aphrodisiac. They also record that elephant hunting does not take place generally for meat. In southern Africa wildlife authorities earned US\$ 1.7 million from sale of elephant hide during 1985-91 when the country was producing 38 tonnes of dry, salt-cured hide annually since 1986 from its culling programmes in Kruger National Park (Steenkamp and Massyn 1994).

In India ancient texts and medical prescriptions talk of various uses of elephant parts and products,. According to Charaka (superscript 2 for notes) elephant flesh is beneficial for consumptive diseases. An ointment made from elephant bone and the leaves of neem (*Azadirachta indica*) is prescribed by him as a cure for piles. The musth fluid of elephants has been described as being good for growing hair, disorders of bile, phlegm and wind and as an antidote to poison (Bedi 1969). It is also prescribed for leucoderma and for leprosy sores and in the Andamans the elephant musth fluid is used to massage genitals with as an aphrodisiac.. Elephant dung (called karivenna in Malayalam and kankushta in Hindi) of calves that are new born is also considered to be of great medicinal value. It is used as a cure or colic pains, wind and rectal disorders (Bedi 1969). The extracted juice of the dung mixed with honey is prescribed by Charaka as a cure for coughing with phlegm. The same concoction if taken for seven days is said to be a good contraceptive for women. An elephant's milk is said to be good for the eyes . In parts of Karnataka ivory chips and elephant nails ground together and applied is considered good against skin disorders in a general way while ivory and lemon juice together is good against scabies (Ramananda pers.comm 1996). The molar tooth of elephants is often used for carving and is sold as a souvenir in some places. None of these products however is commercially traded in India currently and even on rare occasions where it is, does not cause the poaching of elephants. Apart from ivory only meat and in a rare case tail hair are the only derivatives causing poaching of elephants in India.

During early 1996, a curious case was reported from Periyar National Park in Kerala (which incidentally has perhaps the lowest number of tuskers among the major populations) where three female elephants were poached ostensibly for the hair tufts at the end of the tail. There were various theories which included that the elephants were shot mistakenly and then the hair tufts taken, or that they were killed intentionally for the tufts. The 60-70 hairs that grow at the end of the tail reportedly fetched a poacher Rs 80 per hair (i.e. Rs 5500-6000 per tuft) in certain markets in Kerala and Tamil Nadu for making into lucky charm rings. The elephant hair is set into a flat gold ring which is commonly used as wedding or engagement ring and is supposed to bestow the wearer with good luck. In northern Karnataka these hairs fetched only Rs 15-20 and were considered a coastal tradition. Although this is an age old custom in Kerala, the killing of elephants specifically to get the hair tufts, when the state has a 600 odd strong captive elephant population which would cater to this demand, is a completely new phenomenon. There has been no other such case reported from any other part of India. There is also no prescribed medicinal property for tail hair in either the Ayurveda or the Unani schools of medicine.



International trade

The international trade in ivory which reached an average of 800-1000 tonnes annually in the 1980's (Dobson & Poole 1991) has largely been studied for its implications for African elephant populations. The impact of the trade on the Asian elephant has not been dealt with in detail with the exception of Sukumar (1989). The period when India was a major player in the global market was just after World War II when the country was a significant importer of African ivory. This fell sharply thereafter although the international trade in African ivory carved in India continued to play a significant role in the world markets in the 1970's and 80's. Indian imports of worked ivory, however, was always negligible in the global market (Barzdo 1984).

India's net exports of ivory carvings increased in weight by 226% between 1981 and 1982 to over 57 tonnes in the latter year. Among importers of Indian carvings, Italy imported 61% of India's carvings in 1981 and the USA 98% in 1982 showing the importance of these two countries in the mid-80's (Barzdo 1984). In the late 80s this shifted to the Japanese and the Middle Eastern Arabs (Barbier et al 1990) as illegal exports tended to overshadow the legal ones . India allowed raw ivory import up to January 18, 1990 (Caldwell & Luxmoore 1990). At that time the minimum estimate of the wholesale value of India's ivory exports was US\$15 million (Martin 1989). It is, however, notoriously difficult to estimate volumes for Indian ivory exports (Barbier et al 1990) as custom's data for the country records monetary value for many transactions without giving volumes. Even when they are given, the export has to be calculated from three heads i.e. "worked ivory and articles thereof", 'ivory manufactured as artware' and 'wood inlaid with ivory, metals etc.'. Many of these especially the last category would not be only ivory and to calculate the amount of ivory in a piece of wooden furniture or metalware would not be precise.

In 1988, the Indian government abolished the customs duty on ivory imports. A large number of ivory dealers in India had by then stopped importing African ivory. A preliminary survey in 1989 indicated that there were only about 2000 ivory carvers in India (compared with 7200 carvers in 1978), still higher than in any other country (E.B. Martin, Pers.comm. in Sukumar 1989).

Sukumar (1989) records that "in late 1989 an international ban on all trade in ivory came into force after a meeting of CITES. Following this legal ban the price of raw ivory fell sharply in the international market, the trade collapsed and poaching of African elephants declined sharply. In southern India, too, the incidence of ivory poaching had dropped since 1988, except perhaps in the state of Kerala, although this was not necessarily linked to the international ivory ban. The ivory ban countries to be in force after a 1992 meeting of CITES, in spite of efforts by southern African countries, which manage their elephants through culling and where poaching is not a problem, to have the lifted at least partially to allow trade of their ivory stocks".

While this study has proven conclusively that a very significant quantity of Indian ivory finds its



A pair of cut tusks on a bed of leopard skins - part of a seizure in Palia, western Uttar Pradesh.



way into the Middle East (especially Dubai), it has not been possible to prove the movement of consignments thenceforth. The importance of Dubai as an ivory mart has already been proven by several covert operations . In 1986 and 1987, the Environmental Investigation Agency had tracked 15 shipments from the small African country of Burundi to Dubai with the largest consignment containing 29 tonnes (Currey and Watts 1996). It has been equally well established during this study that a majority of Indian ivory was also going to Dubai. At least three different consignments have been traced during the investigations that have left the west coast for the Middle-East. However, it has not been possible to trace it any further.

Going by trader talk it is safe to presume that both Hongkong and Macau were used at some time as conduits of Indian ivory. Today world trade seems to be dominated by the Japanese (S.Broad pers comm, Kunoki in litt) and this is of special significance as the Japanese have always preferred Asian ivory to African ivory for their carvings (Martin 1985).Links between Japan and Hongkong as well as Singapore are well established. In the second week of January 1997, a large quantity of ivory worth JPY 100,000,000 (US\$ 900,000) was smuggled in to Japan's Kansai airport from Singapore and detained by Japanese Customs (Sakamoto in litt). This ivory was reportedly meant for carving in to Japanese ivory seals (hankos) . It is not immediately known as to whether Indian ivory was involved. In a statement made by a major ivory dealer of Japan to the CITES standing Committee, the loopholes of Japanese enforcement were laid bare and should be taken seriously as it comes from a trader. From the statement it is clear that Japanese regulation systems cannot effectively control ivory coming in to their country by illegal means and in fact get legalised under their licensing system. To quote the trader of Japan Ivory Hall, "The most significant aspect of this system is that once ivory enters the country (which, under the current ivory ban means smuggling) and once a registration sticker is put on it, it is impossible to tell legal ivory products from illegal ones and all smuggled ivory can be officially registered. To obtain registration stickers and recognition of the Government, the trader has to possess a very large stockpile already. This means that only a handful of dealers benefit from the system. On top of that, using the registration sticker is purely voluntary, and nowadays retailers do not bother to label their ivory. In fact, since the new registration system came into effect, ivory smuggling has become more widespread. Semi-processed ivory for hanko (Japanese name seals) are sold so widely that the price has dropped significantly. Whether it was imported legally or not, it can easily be registered. From my observations in the ivory industry, I have no hesitation in saying that the volume of smuggled ivory products exceeds legally obtained ivory products".

In this statement he also points out that Japanese traders are stockpiling cheap ivory in the hope of making bigger profits later on.

In 1994, an investigation in Cambodia found that the most common wildlife product on sale was Asian elephant ivory (Martin & Phipps 1996). A stockpile of ivory is present in the island of Timor in Indonesia which has had historic Portuguese links with the country of Macao (Santiapillai 1987), for long a laundering centre for ivory. In 1996, Scott Market in Yangon, Myanmar, had at least 4 shops selling ivory (Lahiri Choudhury pers comm 1997)

In October 1995, a field investigator visited Nepal and surveyed 22 shops in Kathmandu and Pokhra.. About 70-80 kg of ivory carvings were offered to the investigator during the survey, including a set of 8 carvings for NRS 2,80,000. There was ample evidence of the carvings having come from India (style of carving and trader talk) although some carvings were Chinese in style. Again, in the first week of April 1997, the Wildlife Protection Society of India surveyed the ivory markets of Kathmandu, Nepal, and made a listing of all the ivory carvings and raw ivory that were seen.The 20 shops surveyed by the trade investigator all had ivory carvings.The investigator was told that there were many other shops in Nepal in addition to these 20 shops which could supply him with carvings and raw ivory if necessary. The largest carving on display was 16 inches high and was a figurine of a king and a queen which was valued at Nepali Rupees 1,20,000 (US\$---)



The total weight of carvings displayed in these shops was estimated by the investigator as 60 kgs. The investigator was told that many more stocks were available and could be had for the asking. Handicrafts that had ivory inlay was also on display. The style of carving in most cases were Indian pointing to a smuggling from India although a small carving industry in Patan was seen to have been set up.

The African scenario and possible effect on Asian populations

The fate of the Asian elephant is today inextricably linked to its African cousin through a quagmire of international treaties, laws and conservation policies. The immediate linkage comes from the Appendix I listing of both the species (*Loxodonta africana* and *Elephas maximus*) by CITES which bans international trade in both of them including in the derivatives and products made from them. The Appendix I listing of the Asian elephant was done in 1976 and the African elephant uplifted to the no-trade status in 1989. Today at least 11 nations, all African, prominent among them Zimbabwe, South Africa, Malawi, Namibia, Botswana and Sudan want a partial or complete reversal of the listing (Satchell 1996). Japan, one of the world's largest consumers of ivory has also indicated from the highest rungs of their polity that they are willing to consider a positive support of the call to lift the ban and other nations such as Norway have also indicated their possible support.

Africa has a long history of providing ivory to India despite Indian elephant ivory being traditionally the favoured medium by Indian carvers (Barbier et al 1990). With the exception of small amounts of ivory that came into the country from Sri Lanka (Santiapillai 1997), the continent of Africa provided Indian carvers with their vast majority of ivory from international sources. As early as the 6th century BC, Ethiopian ivory was sent to India (Warmington 1974). In the 1600s ivory that came from elephants poached in South Africa by the Boers were sold to the Dutch East India Company (Douglas-Hamilton & Douglas-Hamilton 1975). In 1983, Parker and Amin documenting the ivory crisis in Tsavo National Park, Kenya, after examining 457 cases of elephant and rhino poaching, wrote "for every nineteen hunters in the field there were three dealer agents who moved among them purchasing trophies.... All dealers recorded by the campaign were either Indians or Arabs".

The earliest figures of imports that are available is for 1875-81, when 250 tonnes were imported into India annually (Sukumar 1989). During 1925-69 out of the 60 odd countries that imported ivory from East Africa, only the UK, Belgium, India, Hong Kong and Japan had ever taken more than 10% of any consecutive 5 year period (Parker & Amin 1983). Although the UK was the largest importer of African ivory, India emerged as the major buyer during World War II. Between 1940-44, India accounted for more than 80% of all exports from East Africa (Barbier et al 1990) and was still importing about 250 tonnes annually (Sukumar 1989).

After the war Hong Kong was importing around 50% of the East African ivory, Japan about 15% and India just over 10% (Barbier et al 1990). By 1965-69, India, Hong Kong, Japan and China were taking 77% of the tusks exported. This fell sharply thereafter as a 100% import duty on ivory crippled the trade (Sukumar 1989, Martin 1990). The Indian industry shows imports of about 150 tonnes in the early 50s to less than 50 tonnes in the late 60s and less than 10 tonnes in the late 70s (Barbier et al 1990). It is however important to note that, as the high import duties were probably the major reason for this fall in documented imports, the possibility of a large quantity of ivory coming into the country in a 'hidden' form could not be entirely ruled out. Despite the sharp fall India was importing 2-3 % of the total net imports of worked and unworked ivory during 1979-88 (Barbier et al 1990).



Compared with the supply of African ivory to the world trade , the ivory from Indian elephants was very little in quantity. Why was there a demand for Indian ivory ? India continued to have a sizeable population of ivory carvers even though trade volumes went down,. These men and women required ivory to carve and this was available from poached elephants at a much cheaper rate than that from Africa through legal channels.The dealers could also easily pass off finished products made from Indian ivory as African in origin. (Sukumar 1989). A point to remember is that it has been estimated that 90% of the 1000 odd tonnes that entered the world market annually in the 1980s was possibly from illegal sources (Dobson & Poole 1991).

An analyses of 3800 import and export entries by the CITES Management authority between 1979-1989 shows that ----- RS ADD FROM GRAPHS OF NIRMALA - TOTAL EXIM FOR THE PERIOD AND COUNTRYWISE ANALYSES. SHE HAS YET TO GIVE ME A PRINTOUT

There have been instances of India being used as a conduit, for African ivory being smuggled to final consumer countries. For instance on 12.4.1991, the Assistant Collector of Customs posted at Nehva Sheva port in Maharashtra while checking a ship named V.C.M.B Mellor stumbled across some concealed ivory in a refrigerator. One of the crew, Lionel. J. Taylor, a fourth engineer of the ship, had illegally brought three packets containing 20 pieces of ivory (tips) ranging from 10 inches to 21 inches in length and 3-4 inches in diameter with a total weight of 27 kilos in Tanzania. At the time the market value was estimated at Rs 5000 (US\$ 220) per kilogram and thus the total seizure was worth Rs 1,35,000 (US\$ 5943). In a testament, Mr. Taylor admitted to buying it in Tanzania with the intention of gifting it his friend in the USA. The ship was however progressing to Karachi in Pakistan and the ivory may have then gone on from there to the USA. There were some doubts in the conservation community as to whether African ivory was still coming into India illegally. This was looked at in some detail during this study and no evidence was found of this happening. Kunnamkulam in Kerala was reportedly an entry point but investigations there did not turn up anything. However until a much more thorough investigation is done, the possibility cannot be completely ruled out.

The Indo-African trade in ivory is also marked by a past history of laundering of stock and mismatching of figures. For example, during 1970-77, Kenya officially exported 21 tonnes of ivory to India. Indian records, however, show 118 tonnes imported (Parker and Amin,1983), a classic case of mismatching of figures and proof that the controls operating while exports and re-exports were going on was far from foolproof. Similarly, Tanzania did not show any export to India in the years 1979-81 while India showed successive imports of 605 kg, 1499 kg and 1997 kg of tusks in the relevant years (Mlay 1997). This enormous disparity between declared exports and actual imports is a hallmark of the trade in ivory between India and Africa.

An examination of the carved ivory object by a trained scientist is the only sure method of obtaining a positive identification of the species source, especially between ivory from Asian and African elephants (Menon et al 1994) and is usually not possible at an enforcement site. Two scientific methods are currently being tested by various scientists to determine the true geographic origin of ivory. One is based on the fact that tusks from each region has a specific microchemical composition (stable isotopes of strontium, lead, oxygen and possibly carbon).The other is to use genetic markers obtained from DNA of the tusks to determine its parent population (Georgiadis et al 1990). While the first is considerably expensive, the other is still technically far from being applied to regulate the ivory trade.

The problem about laundering stocks is that a number of ways and legal loopholes exist for illegal traders and dealers to exploit, once the ban is lifted even partially. When African ivory is imported into India for example for carving and re-exporting, normally a 5% wastage is given consideration while re-exporting as chips and dust naturally go waste when an ivory block is whittled down. However, this wastage can in many cases be as much as 40% (Currey and Watts 1996). As



traders show only 5% normally, the remaining 35% going out could be Indian ivory. For example if a dealer in New Delhi had imported 1000 kg of African ivory and legally exported carvings of 950 kg suspicions could be easily lulled. Based on Currey and Watt's premise , however, this hypothetical dealer may have wasted (by wastage it does not mean that the ivory is thrown away; the chips, shavings and dust have there own market which is much more difficult to monitor) as much as 400 kg which could have been substituted by Indian ivory.

[Click Here](#) for Country-Wise Ananlysis of Indian Trade of African Ivory (1979-89)

Another factor that presents problems in enforcement is that true trade volumes can never be established accurately due to a time lag factor. Although a tusk may be exported in a given year, it may not be re-exported for many years given the time taken for carving, stockpiling etc. Thus the volumes of CITES records for example would never be the actual number of elephants killed (Barzdo 1984). This is particularly true as there is little to no knowledge on the ivory wasted in carving, on the ivory stockpiled at a particular time and how much of this is released per year for carving.

A study in nine African range states for the elephant had documented declines in budgets and staffing levels in some places by over 90% causing an increase in poaching (Kelso 1995). As late as September 1996 over 200 elephant carcasses with their tusks removed were seen in the Congo (Satchell 1996) sending a sombre warning that the ban on ivory had not meant a complete safe present for the elephant .It is important therefore to note that coupled with India's continued low budgetary allocations to wildlife and the overall political will prevalent in the country, it would be very difficult to enforce controls in trade if it is re-opened.

Interestingly, many conservationists feel that the South African proposals to seek international trade in elephant hide and meat (Steenkamp and Massyn 1986) will also endanger the Asian elephant. This is because the proposals are viewed as a first step towards downlisting the African elephant which would then open the way for legalising ivory trade (Currey 1996, Kumar 1997).

Trade in ivory from domestic elephants

One of the important findings of this study is that a significant amount of ivory does enter the illegal ivory markets from domesticated elephants. India has a long tradition of domesticating elephants for both timber working and for using in cultural processions and ceremonial occasions. Domestic elephants exist through the country but are concentrated more or less around their wild cousins i.e. in the states of Kerala, Karnataka, Tamil Nadu, Bihar, West Bengal, Assam, Meghalaya, Arunachal Pradesh and Uttar Pradesh. A detailed listing of number of domesticated elephants in India is given in the table below.

State	Forest Dept.	Private	Total	No. of Tuskers
West Bengal	40	5	45	
Assam	60	250	310	75
Meghalaya	4	0	4	0
Tripura	30	0	30	0
Arunachal Pradesh	3	250	253	75



A GOD IN DISTRESS

WPSI

Orissa	10	5	15	0
Bihar / East Uttar Pradesh	5	250	255	150
Kerala	25	550	575	500
Delhi	0	35	35	15
TOTAL				

In India, the elephant is kept in captivity in zoos, circuses, temples, by the forest department and by private timber merchants. In South India alone it is estimated that between 150-200 elephants are kept in Hindu temples. In Kerala nearly 600 elephants are kept in captivity (Pannicker pers.comm) while in Tamil Nadu 36-40 elephants are kept in Hindu temples (Gokula and Varadharajan 1996) In addition, in states such as Kerala, the Muslims have also started to keep or hire elephants for religious processions and in many cases such as in Nelliampathies, Muslims overshadow traditional Hindu temple processions with their extravagant elephant shows (R. Kaimol pers.comm). In Tamil Nadu, too, Muslim communities in Tirunelveli district have started keeping elephants. In the east, both Assam and Arunachal Pradesh keep significant numbers of elephants in captivity and the states of Bihar and Uttar Pradesh put together also harbours more than 250 animals (Lahiri Choudhury pers.comm 1996).

Interestingly, the state of Orissa has next to no domesticated elephants either for temple or procession work or by the timber trade and the forest department. A couple of elephants are kept in Nandankanan Zoological Park for carrying visitors around and a few others dot the state. This is despite elephants from Orissa being greatly prized historically and captured to be traded in traditional centres such as Sonepur. The king of Mayurbhanj for example was in control of his forests till 1949 and regularly took 5-10 elephants (once in 2-3 years) using the khedda operation to capture them (A.P. Mohanty per comm).

For the purposes of this study the domestic elephant scenario in Kerala was examined in detail. Kerala has a very high percentage of tuskers among its captive elephant population of about 575 with more than 80% bearing tuskers (Pannicker pers.comm, Namboodiri pers.comm.) Of the 550 temple and other private elephants in Kerala, 490 are tuskers with 10 makhnas and 50 females. Adding the 25 odd elephants with the forest department, the state will have around 500 captive tuskers at any given point of time. This large percentage of tuskers in the state is due to the temple dictate which demands large and well proportioned tusks for processions. An ideal tusked male elephant can be hired out for as much as Rs 40,000 (US\$ 1000) per day for processions. The first author visited the Guruvayoor Devasthom one of the largest single owners of elephants in Kerala which keeps 40 elephants for temple processions. It had 37 tuskers among the 40 thereby vindicating the high tusker ratio that the state is supposed to have. 35 of the 37 were adults while two were sub-adults. Kerala does not allow the breeding of their captive tuskers which are all wild caught (from their own and the



Ivory shavings being collected from the tusks of a domestic elephant during the tusk trimming process in Kerala.



A GOD IN DISTRESS

WPSI

forests of other states) as a popular superstition dictates the downfall of the house which allows mating of a domestic elephant. This has probably stemmed from the fact that an additional baby elephant would mean a huge monetary burden which would be very difficult to bear for individual owners.

It is a known fact that the tusks of all temple and working elephants are cut, pruned and shaped regularly to prevent abrasion, to lessen danger to mahouts in case of the elephant turning rogue and also to encourage growth in a particular fashion as is considered ideal by temple pundits. The tusks of timber working elephants are known to have constant wear and tear and it is thought that as much as 15 cms of ivory is lost every year due to wear and tear (Bedi 1969). This was the reason that the elephants were worked only six months in a year so that the ivory could regrow. In 15 years of constant work elephants would, it is recorded, have very little of the former tusks and have only small buttons of ivory left to show !

In southern India this cutting of tusks is done once in 2 years although in the north-east this is done every year. The tusks of an elephant are not cut till it attains about 10-12 years of age (Namboodiri pers.comm.1996). After this the tuskers undergo the cutting operation where a skilled craftsman cuts off 4-8 inches of tusks yielding about 4 kg of ivory per tusk. However, it is known that from 10-30 years of age a tusker produces about 0.8 kg of ivory per year which drops to 0.5 kg per year after that. The 4 kg cuts would therefore either be done after the tusker has reached a certain age or else would mean that more ivory is being harvested than is being put on by the elephant. This aspect requires more study before quantification of the ivory emanating from this process is calculated. The single craftsman in Kerala who cuts tusks was interviewed during the study and the cutting operation seen in two different places in Kerala. Although opinions vary on the amount to be cut during every operation, the ivory cutter estimates this with a practised eye taking the measurements from the lip of the elephant, the cracking of the tips of the ivory, the temperament of the elephant and the final shape needed, as indicators. In Kerala the measurement taken is one channa below the lip and an extra inch for safety. This will be about 11 inches approximately. In north-eastern India the cracks of ivory are seen as indicators that the dental pulp does not extend to the portion being cut. This measurement is critical because the elephant could bleed to death if the cut is made into the pulp portion of the tusk. The initial cut is made with a chisel and hammer and then a saw is used to cut off the main portion of ivory. After this is done, the ivory is washed, weighed and marked before being handed over to the owner. The tusk of the elephant is then shaped to attain the outward and upward thrust required for processions with a chisel, hammer and files. Ivory chips that fall during this process is collected in a towel held below the filing. One cutting operation was yielding about 1/2 a kilo of shavings in southern India. The artisan cutting the ivory gets Rs 500 per cutting and shaping and thus earns about Rs 1,00,000 every year, a sizeable amount for an artisan.

The ivory that was being cut from domestic elephants was entering the illegal trade although larger temples had a treasury and a means of keeping a record. There are several instances recorded by this study of ivory from these elephants entering the illegal trade. In Kerala a trader offered a field investigator ivory from a domestic elephant for Rs 6000/kg. In Uttar Pradesh, village Bichpai, near Narora, District Badayun has a history of keeping elephants. The trade is run primarily by two brothers although three to four people are involved in the business. One of the brothers told investigators that they cut off a portion of tusks every year (as against every two years in Kerala) which yields ten to fifteen kilograms in case of a large tusker. This figure appears to be grossly exaggerated. They reportedly sold 110 kilograms of ivory a few months before investigators reached the village (in December 1996). This would by their calculations be the annual yield of about 10 elephants which coincides well with the number of domestic elephants in the area. They claim to be selling to buyers from different parts of Northern India (although Sambhal in District Moradabad, Uttar Pradesh was mentioned as a major centre) for as much as Rs. 8,400/- per Kg. This would mean an annual income of Rs. 80,000/- to 1,00,000/- for the people engaged in the trade. Although two independent sources confirmed this information, it was



not immediately evident whether wild elephant ivory from the neighbouring regions of the Corbett-Rajaji tract also finds its way into this trade centre.

Interestingly, the trade in ivory from domestic elephants was a well established fact from the elephants of Sri Lanka (Martin & Martin 1990, Santiapillai 1997) as the country had a great paucity of wild tuskers. Here in 1979-80 the 575 domestic tuskers were the major source of tusks to the ivory market both from the pruning and shavings from live tuskers but also from the tusks recovered from elephants that die in captivity (Martin & Martin 1990). In Kerala it is estimated that about 150 elephants have died during 1976-96. This would also mean a large amount of ivory (anywhere between 1500-3000 kg) may have entered the trade from these deaths. One trader estimated that 90% of the ivory of elephants dying enters this trade in the state as there is no custom of burying the elephants with its tusks in Kerala.

Stockpiling of ivory in India

Stockpiling is a trade practice widespread in both Africa and Asia, in producer and consumer countries and among ivory traders and dealers (Caldwell & Luxmoore 1990,Austin et al 1992,Milliken 1996). There may be several reasons for stockpiling including an anticipated increase in prices or the volume of trade, currently depressed prices, trade bans, anticipated decrease in supply etc. Different estimates show between 500-600 tons of ivory stockpiled in Africa, which is one of the causal factors for some African nations wanting to resume commerce in ivory (Milliken 1996, Satchell 1996). One must remember that in comparison one of the main consumers of ivory, Hong Kong, had declared its total stocks in July 1990 as 463 tonnes which had decreased to 335 tonnes in July 1994 (112 tonnes of worked ivory and 223 tonnes of raw ivory) due to domestic consumption (Chan 1994). According to Austin et al (1992), the initial figure given by Hong Kong was 670 tonnes which itself was whittled down by nearly 400 tonnes during a six-month reservation period. This is a classic case of confusion over the size of stockpile which in the case of India is even more so as conflicting quantities are often seen reported in the many official communiqué. Long periods of ban has also driven the trade underground and quantities of stock by the trade is virtually impossible to estimate with a degree of accuracy.

An important finding of this study has been that Indian traders have been stockpiling ivory in the last two years and that significantly large quantities of ivory are available at all levels of the trade. Field investigators have particularly checked the markets of Jaipur, Bombay and Kathmandu in Nepal and the primary dealers in Orissa, Meghalaya, Kerala, Karnataka, North Bengal and Uttar Pradesh. Nearly all the traders met who are currently operating in ivory (arguably, the number of people dealing in ivory has gone down from the 70s and early 80s) were seen to be possessing or knowing where to quickly acquire stocks of ivory. A large number of them are stockpiling ivory (B.Mohanty in litt,S.Biswas in litt). The price for ivory seems to have gone up already in many cases touching the Rs 10,000 per kg mark in North Bengal, Orissa and Calcutta. This represents a 40-45% increase in prices in the last two years (see Price fluctuations), which coincides with the stockpiling of the traders. It was also seen that in many instances, larger traders are now eliminating middle levels and personally travelling to smaller or primary trading centres nearer to the areas of poaching and buying up larger consignments.

Orissa is a good example of the current levels of stockpiling in India. Undercover investigations carried out in Orissa revealed large stocks in the state that were being offered at highly inflated prices (which was seen to be rising throughout the period of investigation).



A GOD IN DISTRESS

WPSI

In June 1996 there was information in the Badamba -Narsinghpur area of Cuttack district of a reported stock of 70 kgs of ivory from Satkosia Gorge Wildlife Sanctuary. A further offer of 70 to 80 kg of tusks was received from residents of Choudhury Bazar, Cuttack presumably also of Satkosia origin. An anonymous letter the next month to the investigators mentioned four tusks (two were already sold) in Khajuripara village. In July 1996, 12 kg of ivory was being held in stock in Koraput town, 32 kg in Junagarh-Mallichagarhand and 40 kg in Khatiguda (Indravati Project H.Q.). There were reports of 50 kg of tusk that had recently been despatched from Junagarh and the investigator could actually see the fresh skin of an elephant killed near Khatiguda as proof. On 31.7.1996 information came in of 70 kg of tusks lying near Atgarh and 60 kgs at Parjang near Talcher..This stock was being offered at a price of Rs.6,000/- per kg as the seller wanted money quickly . On 30.8.96 the investigator was told of some persons who had sold 200 kg of tusks in May of the year in the interiors of Gudari Block of Rayagada District, about 10 kms away from Badanalla Irrigation Project. In Berhampur, meanwhile, the investigator was assured a supply of 200 kg of ivory, while it was verified that a stock of 82 kg ivory was being held at Kendrapada. From the town of Chandikhol information was obtained of 13 kg at Dhenkanal town, 10 kg at Joranda and a stock of 40 kg at Nayagarh town . 45 kg was being offered in the capital town of Bhubhaneswar and the villages of Lehengera and Laulai in Dhenkanal district had stocks of 1.9 kg,7 kg and 17 kg respectively.

In December 1996, a stock of 100 kg of ivory was located about 20 kms from Angul town.. When an undercover investigator was sent to verify the stock, the contact also disclosed a further stock of 140 kgs at Rairakhol. However, this stock could not be physically verified due to shortage of time. A carpenter of Baramba also spoke of two separate stocks of ivory at Baliput and Mitakarpur in Narsinghpur Range, Cuttack district, weighing about 30 kg. More definitive information regarding the stock of about 400 kg of ivory at Bhadrak town was obtained and in this case the stockist wanted to dispose off the ivory as he was short of money. In Bhubhan town a stock of 45 kg of ivory was located. Sellers from the town of Talcher made contact with the investigator and an offer of 264 kg of ivory was made. This stock was being held at Nirakpur. Earlier investigations had also indicated a substantial quantity of ivory being stocked at Nirakpur although the amounts could not be verified.

In January 1997, a contact from the town of Narsingpur which has been established as the main holding place for ivory poached from Satkosia Gorge Sanctuary, informed the investigator of 20 kg of ivory that had been lifted from Bada Bhuin village which is about 6 km from Narsinghpur. A buyer from Cuttack had bought the 20 kg of genuine ivory along with 20 kg of elephant bone that the sellers managed to palm off as ivory .The transaction took place at a reported rate of Rs.10,000 per kg. This is the first recorded rate of the price of ivory touching Rs 10,000 at a primary trading level and represents a dangerous trend in the escalation of prices.

Meanwhile on 27.2.1997 the investigator was offered 200 kg of ivory at Bhanwanipatna. The investigator could physically see about 50 kg of ivory (two tusks) as the stocks were being held in various hiding places all around the area. On 9.3.97 the investigator learnt that about 15 kg of ivory had been recently bought by Munda tribals of Bokaro who are reportedly in possession of a large quantity of ivory. On 23.3.97, a tribal inside Simlipal Tiger Reserve made an offer to give ivory at Jassipur although he wanted a month's time to gather the stock.

Thus ten months of field investigation (June 1996-March 1997) had uncovered evidence of more than 2200 kg of ivory being held in various big and small stocks in only half the districts of Orissa. This can be taken as a field verification of earlier trade information from northern Indian markets of a large amount of ivory being held in Indian towns.



Similarly field investigations in North Bengal in 1996-97 resulted in operatives being offered 22 kg in Kumargram, 18 kg in Joygaon and 11 kg in Saligram towns of North Bengal.

Trade Centres

A number of trade centres exist for ivory, which can be distinguished from centres of poaching and carving centres. In some cases carving centres may also act as primary trade centres. The following centres are documented as having traded in ivory at some point of time or the other during the investigations carried out during the past 2 years.

West Bengal

In the state of West Bengal a number of important trade centres are in northern Bengal coinciding with the elephant distribution, the international borders with Nepal, Bhutan and Bangladesh and the town of Siliguri. Siliguri has developed into the most important wildlife trade centre in the state, displacing even the capital Calcutta in its importance. On the Bhutan border the twin towns of Phuntsholing and Jaigaon are the important transit points on either side of the border. From here, wildlife products from North Bengal and the north-eastern states are transported to Siliguri and onwards to Nepal or Calcutta. Another route is towards Paro in Bhutan from where the goods are sent abroad by air. Other important centres in North Bengal include Hashimara a small market town 20 km. from Phuntsholing, Kalchini with a migrant tea garden population which helps abet poaching and trade, Shamsing and Gorubathan on the Bhutanese border. On the Indo-Nepal border, the towns of Panighata, Kakarvita and Panitanki are important trade centres as is the town of Alipurduar near the Buxa Tiger Reserve.

The older nerve centre of Calcutta is still very active, although its importance has been significantly reduced by the emergence of Siliguri. Old time traders still operate there and ivory from Orissa, Bihar and the southern parts of West Bengal find their way into Calcutta. The city is still a transit, storage and dealing point in both raw and carved ivory.

Orissa

Simlipal Tiger Reserve in Mayurbhanj district of Orissa is dictated by three trade centres. This is to be expected as the park is bound on either side by national highways. While National Highway No 6 from Calcutta to Bombay passes along its northern side, National Highway No 5 from Calcutta to Madras runs alongside the southern boundary. The district headquarters of Baripada which is on the southern side is therefore an important primary trade centre for the southern areas (Singh 1994). The northern areas feed into the towns of Jassipur and Karanjia. Interestingly, these three towns form the administrative headquarters of the park itself. While the Director of the park and the DFO (Buffer) Baripada division are both located in Baripada, the ACF (Simlipal) is located in Jassipur and the DFO buffer (Karanjia division) in Karanjia. The distinct use of two sets of trade centres catering for the northern and southern parts of the park is also to be expected as the size of the park is very large.

Ivory from the Keonjhar population of elephants seem to be primarily traded from the villages of Jhumpura and Chadaibal, both of which have large Muslim populations. Jhumpura has a history of harbouring notorious characters and it is reported that the illegal arms trade of the area alongwith a number of other illicit activities are carried on from this village (B.Singh pers.comm, S.Nanda pers.comm)

During 1994, a TRAFFIC-India undercover investigator in the area was offered 35 kg of ivory at Chadaibal, a highway village between Keonjhar and Dhehkikot.



Uttar Pradesh

The towns of Palia and Lakhimpur-Kheri are important primary trading centres of the ivory originating in the terai . This could be from Dudhwa National Park or the belt surrounding it although it is possible that ivory from Nepal ie. from Royal Bardia and Sukla Phanta sanctuaries may also find its way here.. A number of seizures have been made in these two towns and investigators have been offered ivory here. These towns may also be important in the smuggling of ivory through to Nepal although Tanakpur is the actual transit point for many illegal shipments that pass through western Uttar Pradesh.

During this study field investigations established the importance of village Bichpai, near Narora, District Badayun in Western Uttar Pradesh as a trade centre for the collection and the sale of ivory from domestic elephants. Three to four people from this village are engaged in this trade and they sell to buyers from Northern India. One important town from which buyers seem to come is Sambhal in District Moradabad (Uttar Pradesh). Bichpai is four to five kilometers from the industrial town of Narora across the river Ganges.

Varanasi has become an important trade centre due to two major reasons. For one, the influx of foreign tourists into the holy city makes it a lucrative proposition for sellers of ivory. Then again, the proximity of the city to the Nepal border and the starting of direct flights to Kathmandu has transformed it into a major ivory trade centre. The town is also a traditional carving centre and raw ivory often passes through it before being carved (R.Talwar in litt) and then smuggled outside the country.

Assam

In Assam, the Brahmaputra and Barak Valleys have distinct centres of trade. While the Brahmaputra valley trades mainly in Assam and Arunachal stock, the Barak valley trades in ivory from Cachar, Meghalaya and some stock from the Brahmaputra valley. In the Brahmaputra valley, Guwahati is an important trade centre as it is for rhino horn. Many Siliguri despatches are made after stocking in Guwahati. Both Jorhat and Naogaon are important secondary trade centres in central Assam and Tezpur is important for stock that goes up to Arunachal Pradesh and through Tibet. Dimapur in Nagaland alongwith Tuensang and Mokokchong continue to be important trading centres of ivory originating in the Brahmaputra valley. Siliguri in West Bengal continues to be a major recipient.

In Cachar, the important trade centres are Karimganj and Silchar. Situated around 50 km away from each other these two towns are the district headquarters of Cachar and Karimganj district of Assam. The area is predominantly Bengali and also has a very large Muslim population. The area has an international border with Bangladesh and state borders with Meghalaya, Mizoram and Tripura. With the sensitive autonomous hill district of Karbi Anglong also a stone's throw away, the area assumes importance for a large number of wildlife commodities. Ivory is finding its way through these two towns although there are still no confirmed reports of smuggling ivory through to Bangladesh. In one case rhino horns found its way (possibly) from Kaziranga through Karbi Anglong to Cachar and from the town of Silchar to Shillong where it was seized (S.B.Singh pers.comm) Ivory probably follows a similar route

Kerala

The town of Calicut (Kozhikode) on the Kerala coast is perhaps the single most important exit point for the ivory from the south. Along with Mangalore in Karnataka, the city channels ivory to Dubai through country made boats and Arabian dhows. Time and again during investigations



conducted during the study and by Forest Department of the southern states the movement of ivory pointed to these towns, apart from Bombay on the west coast. Smaller coastal towns such as Mattanchery near Ernakulam are also increasingly being used especially when enforcement is tightened in larger towns. In northern Kerala, the historic town of Sultan Bathery in Wayand district is an important trade centre from two perspectives. Firstly is its proximity to Calicut (under 5 hours by road). Secondly not only does the district of Wayand have a large number of elephants but neighbouring sanctuaries and national parks of Nagarhole and Bandipur in Karnataka and Mudumalai in Tamil Nadu make it surrounded by elephants. It is very easy therefore for a poacher to kill in any of these areas and lie low with the stock for sometime in Sultan Bathery before progressing further to the coast. Conclusive evidence of ivory reaching Sultan Bathery from Kollegal (in Karnataka) and Satyamangalam (in Tamil Nadu) was also available during the study.

The town of Idukki is a centre of poaching and secondary trading. Manjeri, a Muslim populated town is important as a primary trading centre for northern Kerala ivory, especially that which is taken by Idukki based poachers. Nilambur as an arms supply centre also acts as a hoarding place and primary trading centre for Northern and Central Kerala.

Historically, the towns of Thrissur and Thiruvananthapuram have always been the most important for the ivory trade in Kerala. Thrissur still has a few active ivory traders but a very prominent trader died and a few others have gone off the trade due to incessant pressure by enforcement authorities and also the perceived threat of the demand for ivory dying out. A few traders were recently seen re-emerging from closed closets during field investigations due to the fueling of the rumour that trade might be re-opened for African ivory. One trader told the first author that in case the trade does open, Thrissur still has the masterminds of the trade who would perhaps get back into the business of ivory trading.

Tamil Nadu

The Mudumalai Wildlife Sanctuary and the adjoining divisions of Satyamanalam and Nilgiris North has been beset with an uncharacteristically high number of poaching cases during the last two years. The Moyar Gorge that runs through the north-eastern boundary of Mudumalai is one of the important route for poachers to approach the park. The gorge has steep slopes and a depth of about 500 m, making it relatively inaccessible. During field investigations the importance of the villages of Manavayal, Aiyankoli, Puthur vayal, Mettakarai and Nagampalli as hideouts for poachers was established. In some cases poachers from these villages are actively involved while in other cases they merely harbour poachers from outside. A part of the core area of the park ie Dodagatti in Theppakadu range is beset with poaching problems although this is not reflected in the official data. This is because the area is not normally patrolled and despite being at the trijunction of the three states of Kerala, Karnataka and Tamil Nadu has virtually no official presence. The town of Mettur is also important for poachings that occur in Erode division while Bhawansagar seems to be the centre for the Satyamangalam operations.

Trade Routes

In the early 80s, three trucks were stopped at the international border between Myanmar and Manipur with a cargo of ivory destined to go through to Nagaland (Lahiri Choudhury pers.comm.1996). Nearly two decades later the flow of ivory has largely reversed with Myanmar being an important eastern exit route out of India for Indian ivory. This is largely due to the collapse of India's carving industry as well as the banning of trade within the country. Illegal trade routes therefore exist by which ivory from poached elephants in the wild enter primary carving and trading centres and then later finds its way outside the country. As is explained in an earlier chapter, the domestic demand for ivory is more or less negligible and a majority of ivory that



A GOD IN DISTRESS

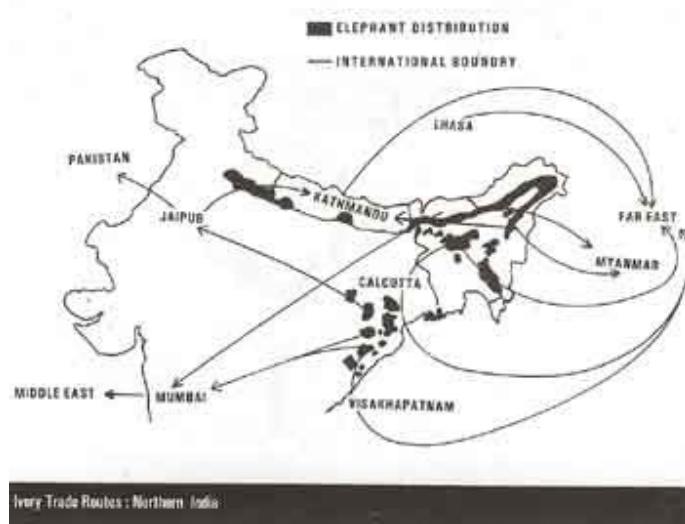
WPSI

enters the Indian black market is destined for foreign shores. Unlike countries like Sri Lanka which have a number of trade routes operating within the country supplying only its domestic market (Santiapillai 1997), India has trade routes that connect the major international players in ivory.

The importance of the United Arab Emirates and especially Dubai has been established by this study as a major trade entrepot for smuggled ivory from India. The importance of the ports of Jebel Ali, Rashid and Hamriya in Dubai has been documented for African ivory (Barbier et al 1990, Currey and Watts 1996) and the routes out of Dubai ie to Taiwan, Singapore and Hong Kong were also already established (Currey and Watts 1996).Mlay (1997) has recorded at least three illegal shipments from eastern Africa to Dubai . In 1986, a shipment of 4.5 tonnes of ivory was smuggled to Dubai from Tanzania and another one of 4.7 tonnes intercepted in Mombassa,Kenya,while on its way to Dubai. In 1989, another 70 tonnes of ivory destined for Sharjah was intercepted in Tanzania. However, there has been little proof of Indian ivory travelling to Dubai before reaching the Far East. In 1983-84, the third author had recorded the ovement of a truckload (7-8 tons) of Indian ivory from Fujera in the east coast of the United Arab Emirates to Dubai overland. During this study, months of undercover operations carried out in the trade proves conclusively that a significant portion of Indian ivory does, in fact, go from the west coast of India (mostly from Bombay and small towns in Gujarat, Karnataka and Maharashtra) to Dubai. It is interesting to note that a large proportion of eastern Indian ivory also finds its way to the west coast before being shipped to Dubai.

The importance of Gujarat as an entrepot before shipping to Dubai is yet to be investigated thoroughly. Recent information reveals that nearly 100 pairs of tusks have been stockpiled in a small Gujarat town ostensibly for bangle making (R. Chundawat pers.comm.) Whether some of this finds its way into the Middle Eastern trade is yet to be confirmed. Preliminary investigation in Africa also show the movement of cargo ships from western Africa to Sharjah in the U.A.E and then onwards to Bombay. It is suspected that African ivory moves to the U.A.E in this manner and that the ship carries Indian ivory from Bombay on the way out. It is significant to note that some of the owners of the large cargo firms are Chinese and Hong Kong businessmen.

Some trade routes traced by this study for ivory and meat are as follows



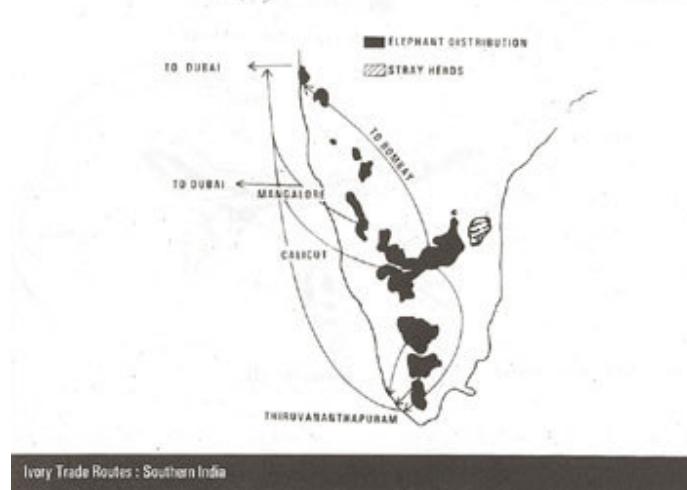


A GOD IN DISTRESS

WPSI

For ivory

1. Garo hills(P)-Guwahati-Cooch Behar-Siliguri-Calcutta
2. Garo hills(P)-Cooch Behar-Siliguri-Calcutta
3. Garo hills(P)- Phulbari -Dhubri-Calcutta
4. Garo Hills (P)- Mahadeo - Khormakhana-Netrukona- Maimonsing-Dacca (Bangladesh)
5. West Khasi Hills/Garo Hills - Aradong-Boko-Gauhati - by train to Silchar- Bangladesh
6. West Khasi Hills(P) - Thateja-Shallong-Nongstein-Shillong
7. North Bengal (Buxa, Mahanada etc) (P)- Arunachal Pradesh (perhaps Bomdila)- China
8. Kollegal/Satyamangalam Divisions - Bhavanisagar-Sultan Battery -Calicut/Mangalore-Middle East
9. North Simlipal (P)- Jamuani village - Jassipur/Karanjia - Bhadrak -Jamshedpur (Tatanagar)/ Calcutta
10. North Simlipal (P)- Jassipur- Pal Lahara-Bombay
11. Western Orissa (Kalahandi,Bolangir etc) - Jaypur/Koraput - Srisailam (Andhra Pradesh)/ Vishakapatnam- by sea to Bangladesh/ South east asia
12. South Simlipal(P)-Baripada-Jhamsola-Bahangora-Kharagpur- Calcutta
13. Keonjhar division (P) - Jassipur/Karanjia - Calcutta
14. Keonjhar division (P)- Charpua -Chaibasa-Jamshedpur-Calcutta
15. Satkosia and Anugul (P) - Pal Lahara -Sambalpur-Raipur-Bombay -Middle East
- 15 Satkosia and Anugul (P)- Narsinghpur-Athgarh-Cuttack-Calcutta/Bombay
16. Deogarh & Bonai (P)- Pal Lahara -Sambalpur-Raipur-Bombay -Middle East
17. Calcutta-Bangaon, Twenty-four Pargana district , West Bengal - Bangladesh



18. Jaipur - Sri Ganganagar- Hindumal Kot - Pakistan
19. Jaipur- Tanakpur - Kathmandu(Nepal)
20. Southern India (P)- Udaipur(by train) - Sri Ganganagar- Hindumalkot-Pakistan
21. Arunachal Pradesh (P)- Bomdila- Tawang- walking to Liensong(Tibet)- Lhasa
22. Imphal- border town (Manipuri)- Myanmar
23. Lower Assam/North Bengal (P)- Siliguri - Dulabari-Kathmandu (Nepal)
24. Wayanad(p)- Sultan Bathery- Calicut -Bombay-Dubai
25. Wayanad(P)- Sultan Bathery- Mangalore- Dubai
26. Wayand(P)- Mallapuram/Trichur- Trivandrum-Bombay-Dubai



A GOD IN DISTRESS

WPSI

27. Wayand(p)- Shimoga/Kodagu-Port town on western coast-Dubai
28. Wayanad(P)- Manjeri -Trivandrum-Bombay-Dubai
29. Central Kerala(P)- Cochin (by air)-Bombay
30. Lower Assam (P)/North Bengal - Siliguri-Jaigaon-Paro-South-East Asia
31. Lower Assam (P)/North Bengal - Siliguri- Kakadibhita -Kathmandu-South-East Asia
32. Central Assam (P) - Karbi Anglong hills- Dimapur-Tuensang - Myanmar
33. Eastern Arunachal (P) - Dibrugarh -Dimapur - Mokokchong/Tuensang - Myanmar
- 34 Central &Upper Assam(P) - Manipur border town - Myanmar
35. Central and Lower Assam (P) - Rangia-Darranga-Samdrup Jongkha - Shangrila(Tibet)
36. Assam & Arunachal Pradesh (P) - Guwahati-by lorry to -Bombay- Middle East
37. North Kanara (P) - NR Pura- Shimoga-Belgaum-Bombay-Middle East
38. North Kanara (P)- Mudigere -Charmadi-Mangalore -Kasergode- Middle East

For meat

1. Garo hills and West Khasi Hills- Shillong- Silchar- Aizawl
2. Garo hills and West Khasi Hills- Shillong-Guwahati
3. Garo hills and West Khasi Hills- Nongstein- Bangladesh
4. Rani RF(Assam)- Guwahati-Shillong

Prices and fluctuations

Ivory has for centuries been viewed as a valuable commodity and prized for its intrinsic value as much as for the artistic excellence of its carvings. The rise and fall of ivory prices has affected trade through Asia and Africa and dictated on many occasions the trading strength of the country. The price of Asian ivory saw a dramatic rise in the early 1970s within India, a rise unparalleled till then, and not repeated until the current price rise in the mid 90s. Between 1870 and 1930 the ivory price index was generally steady and parallel to the Gold index, pound sterling index and the commodity price index. It continued to be steady from 1930 to 1970 or so and then the ivory index shot up with a vengeance and by 1978 had caught up with the other indices. This paralleled a similar upsurge in the world market price of raw ivory. People had suddenly realized that raw ivory could be stored as profitable investment in order to counter inflation (Sukumar 1989). In absolute terms, however, the annual legal export of Africa's raw ivory declined from 991 tonnes in 1976 to 680 tonnes in 1980. About 83% of this quantity was exported to Hong Kong and Japan (Parker & Martin 1982). Large quantities were also purchased by the Arab countries.



A Female elephant and calf in North-East India.

By the late 80s trade in ivory had dropped significantly in India but despite a 85% recorded drop in trade between 1988 and 1990 (Martin 1990), Indian traders did not drop prices significantly. Ivory was being supplied to carvers in 1990 at about US\$200 per kg (INR---) only a drop of 15% from the corresponding price in 1988. They seemed to feel that buyers would still buy at the price and that the crash was largely due to buyers fearing arrest during smuggling.



A GOD IN DISTRESS

WPSI

In 1989, the average price of raw ivory in the country was around Rs 3000 per kilo (Sukumar 1989). Between 1995 and 1996 the price of ivory shot up by nearly 100% from Rs 5000 to Rs 10,000 per kg. Even ivory from the domestic elephants of Kerala which was sold for Rs 4500-5000/kg in Dec 1995 was Rs 7000/kg by July 1996 (R. Kaimol pers.comm. 1996). In early 1997, field investigators in Nepal were offered about 50-60 kg of worked ivory and an unspecified quantity of raw ivory at very high prices of INR 10,000-12,000 (US\$ 300-350). This price of raw ivory is the highest ever quoted in the Indian subcontinent as of date.

It is important to see if the price of Asian ivory is significantly different from that of African ivory in the Far Eastern markets as this would then determine the effect of the release of some stock of the African ivory in to the market on the Asian populations. Several economists and biologists feel that there is no price difference. However, the third author has documented that the Asian ivory price was roughly double the African price in the trade in Dubai during the 80s. While Asian ivory was selling for US\$200 per kg, African ivory was selling at US\$100-110 per kg. A recent report on the Far Eastern markets by TRAFFIC (Nash et al. 1997) documents that Asian ivory is preferred over African ivory in the manufacture of hankos which constitutes more than half the demand for ivory in Japan, the world's largest consumer nation.

The price for good quality ivory often differs from 'cracked' ivory or small pieces of ivory. For example, in Cambodia when good quality ivory was US\$400 per kg in 1993, cracked ivory was only US\$100 per kg (Martin & Phipps 1996). It is also known that in some cases curved tusks fetch better prices than straight ones as carvers prefer the aesthetics of a curved tusk (C. Santiapillai pers. comm)

The price of ivory carvings in Jaipur, when negotiated by a trade investigator for this study in 1996, was found to be Rs 7.40 per gram for chess pieces, bangles, small statues, etc. A normal carving of around 400 gm would cost anywhere between Rs 2800 and Rs 16,000 depending on the intricacy of carving.

Sri Lanka is the only country where the price of ivory has reportedly crashed in recent years from Sri Lankan Rs 8000 (US\$228) before the imposition of the CITES ban to about Rs4000(US\$72) today (Santiapillai 1997). In most other countries after an initial crash, prices have once again risen.



A GOD IN DISTRESS

WPSI

PRICES OF ASIAN IVORY				
Level of trade	Year	Location	Prices/Kg.	Source
Trader selling price	1965	Orissa	Rs 200-400 (US\$42-85)	A.P.Mohanty (pers.comm.)
Carver buying price	1979	Sri Lanka	US\$142-171	Martin & Martin (1990)
Trader selling price	1987	Sri Lanka	US\$228	Santapillai (1997)
Carver buying price	1990	South East Asia	US\$200	Martin (1990)
Carver buying price	1991	Battambang, Cambodia	US\$150	Martin &Phipps(1996)
Carver buying price	1993	Phnom Penh, Cambodia	US\$340	Martin &Phipps(1996)
Trader selling price	1993-94	North Bengal	Rs.3500 (US\$112)	FI
Retail trader selling price	1994	Phnom Penh, Cambodia	US\$400	Martin &Phipps(1996)
Carver buying price	1994	Phnom Penh, Cambodia	US\$400	Martin &Phipps(1996)
Trader selling price	1996	Itanagar, Arunachal Pradesh	Rs.8-8500 (US\$ 230-245)	FI
Trader selling price	1996	Moredabab, Utter Pradesh	Rs.8500 (US\$ 240)	FI
Trader selling price	1996	Rajaji, Utter Pradesh	Rs.7000(US\$200)	FI
Trader selling price	1996	Katubandi, Orissa	Rs.9000(US\$250)	FI
Trader selling price	1996	Norura, Utter Pradesh	Rs.8500(US\$240)	FI
Trader selling price	1996	Uttar Pradesh	Rs.8400 (US\$240)	FI
Trader selling price	1996-97	North Bengal	Rs.7000-8000 (US\$200-230)	FI
Trader selling price	1997	Calcutta, West Bengal	Rs.7000(US\$200)	FI
Trader selling price	1997	Kathmandu,Pokhra,Nepal	Rs.8-10000 (US\$285-340)	FI
Trader selling price	1997	Sri Lanka	US\$72	Santapillai (1997)

Note : FI - Field Investigation

Trader's profile

The international ivory trader has traditionally been a major player backed by politicians and financiers. One of the largest syndicates in the Middle and Far East was by the Poon family whose two factories, M.K. Jewelleries and Dubai Ivory Factory, accounted for a large part of the international trade (Currey and Watts 1996). International traders such as Cheong Pong who operated out of South Africa and Hong Kong (it was not at all uncommon to see traders with multiple bases, especially in the source and end country) was reportedly backed by powerful



interests in the South African government and was shielded allegedly to alleviate the economic damage caused by sanctions against South Africa (Currey and Watts 1996).

In India at least three levels of traders are common in the ivory trade. One is the middleman who organises the poachers, collects the tusks and passes it on to the primary level trader. This man is normally a city based man who may be an ex-licensed dealer or someone who has the contacts to sell the stocks to a bigger buyer. The primary level trader is often the stockpiler and it is his holding power that dictates prices within the country. Today, the secondary level of trader is the man who arranges for the illegal export of the goods. This man in most cases is a powerful man with political connections who uses established smuggling routes to get the ivory across to his own men stationed in recipient countries. Deals struck in other countries with consumers are done by this level of trader who might also ensure that the goods reach the final destination by further arranging the movement of ivory from transit and holding countries to consumer countries. This part of the chain is however lesser known in the Indian context as of today.

The links with Dubai seem to not only be historic but also largely to do with the community of Malayalees who control the trade. Malayalees have for long had bases in Bombay and the Middle East emerging out of their native state of Kerala to do business in the Middle East. It is an established fact that trade largely follows familiar routes. For example, Anglophone Africa tended to ship ivory to Anglophone destinations in Europe while Francophone countries tended to use Belgium as a conduit (Barbier et al 1990). Just as Belgium is not a final consumer, neither is Dubai.

The Malayalee link, however, allows collection from all over southern India (and parts of eastern India where they have established themselves), easy hoarding in Bombay where they have safe hideouts and then couriering it to Dubai where a large number of them are important players in the smuggling business. During this study, Malayalees were seen operating as far as Arunachal Pradesh buying ivory to take back to Bombay. Most of the traders in the eastern and North-eastern region however continues to be Marwaris. This business community has a stranglehold of the trade in other wildlife products in the region (Menon 1996) and ivory is no exception.

Modus operandi of the trade

A key facet to enforcement operations is to understand the modus operandi of the traders. It is a well known fact that the trade changes its modus operandi frequently to keep pace with the efforts of enforcement agencies. Various means of smuggling ivory have been documented through the world. In Zambia, for example, ivory is smuggled out in trucks by dropping a bag containing the contraband into the water tank of the truck or to carry chopped ivory in spare tyres after slitting open the tyres and filling them with ivory (Austin et al 1992). The use of diplomatic channels to smuggle out ivory from Africa has been used in Zimbabwe, Zambia and Tanzania (Currey and Watts 1996).

In Orissa, this study uncovered the importance of a hitherto unknown modus operandi of transportation. In the state, the most important minor forest produce is the leaf of kendu (*Diospyros spp.*), known elsewhere in India as tendu which is used as bidis, country-made cigarettes. The first kendu operations in the state were carried out in Sambalpur in western Orissa and even today the main operations are carried out from there. Main kendu producing areas are Sambalpur, Bolangir, Keonjhar, Bonai and Deogarh etc. All along the National Highway No 6 that runs from Calcutta to Bombay minor trade centres for kendu leaf have sprung up (for example, the town of Pal Lahara). Undercover investigators have established the importance of this small town as an ivory trade centre, and in the past, towns near Sambalpur and Bolangir have also been seen as being very important. This is despite the fact that the major elephant concentrations are not in western Orissa. It was evident that the towns were being used as conduits to Bombay



A GOD IN DISTRESS

WPSI

or Calcutta. The kendu or tendu leaf operations prove to be a convenient cover for transportation of ivory. Like the coal trucks of Meghalaya it is physically impossible to check the hundreds and thousands of kendu leaf sacks, each containing either 12 kg or 100 kg each of leaf. The sacks go to a number of destinations but Bombay is a major buyer and interestingly a number of Pakistanis come and buy these leaves which are transported via Bombay to Karachi. Similarly, Sri Lankan and Bangladeshi buyers also buy kendu from the auction at Sambalpur. Ivory can be put into the kendu sacks in intermediate towns such as Pal Lahara or in hundreds of intermediate stages. The only repacking is done at Bombay prior to export where further concealment can be done. The kendu leaf operandi can be a very important route of ivory transport out of Bombay into the Middle East (Karachi being the first step in the process) and needs further investigation. In other parts of Orissa, especially western Orissa, the ivory is smuggled out by traders who also deal in precious stones from Bolangir, Koraput, Jaypur and Bhawanipatna .From Simlipal National Park, drivers of tourist vehicles that regularly visit the park act as couriers (Singh 1994).

In northern Kerala, investigations showed that Wyanad is a poaching centre from where tusks go to various centres on the west coast, to be then shipped out by Arabian dhows to the Middle east (mainly Dubai). There are many ways in which the tusks reach the ports of Calicut, Mangalore, Bombay and other small ports in Karnataka, Maharashtra and Gujarat. Although road and rail transportation by concealment is the normal method this is done with the help of established internal transportation routes. In one instance in Wyanad sanctuary, investigations showed that ginger cultivators in Shimoga and Kodagu districts of Kaarnataka use hired migrant Kerala labour who then can easily carry these tusks into Karnataka and then to the coasts. Similarly the Mallapuram-based sandalwood lobby is also a major conduit as ivory can easily be taken along with their other illicit wares. Sometimes the ivory goes from the northern parts of Kerala into Trivandrum just because it is an old ivory centre and the trade routes out of there into Bombay are well established. Also, some carving still exists in Trivandrum. Similarly if an Idukki-based poaching gang is involved in the killings then other towns such as Cochin and Thrissur etc are used as mid-way storage points. Several towns in Kerala were involved in some way or the other with the trade. Although Trivandrum still appears to be the nerve centre, a number of emerging towns may be staking a claim as trade centres of importance in future.

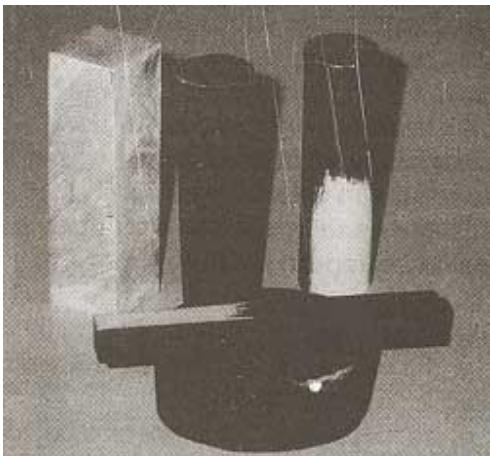
In Meghalaya, there were several methods of smuggling, but a constant factor in a number of them was the use of coal lorries for smuggling out ivory. The state sits on a small yet important coal reserve and the districts of Jowai, West Khasi and parts of the Garo Hills have a large number of coal trucks passing in and out of small towns. Ivory can be easily hidden in the midst of coal (hidden in a sack) and it is virtually impossible to check every coal truck. This has been made easier still with the abolishing of several forest check posts and an unwritten mandate to the remaining ones not to check coal lorries. Both these forest department dictates will make it next to impossible to stop smuggling of ivory. Intelligence needs to be strengthened to find out coal operators involved and a rigorous checking pattern established to discourage such smuggling. Like the tendu business of Orissa, the coal of Meghalaya is by far the most important smuggling modus operandi being used by the trade today.

It is seen that ivory carvers now specialize in producing articles that are easier to smuggle out, rather than big, cumbersome pieces. These large pieces are carved only if they have a ready customer or by order. Several carvers attested to this during the investigation. A dealer in Jaipur showed the investigator a large carved sofa set that he claimed had not been sold for over a year despite attempts to take it across the border to Nepal. In Cambodia, in 1994, investigators found that most of the ivory carvings were small 'which allows them to be easily concealed in luggage belonging to foreign buyers, who are said to be mainly Thai, Japanese and French". (Martin & Phipps 1996). In India, Martin (1990) recorded that small jewellery and paintings on ivory continued to be done even when there was a 85% fall in the trade largely because these small items found buyers willing to smuggle it out of the country.



A GOD IN DISTRESS

WPSI



Ivory blocks painted brown to resemble wood being smuggled from Zaire, seized at Brussels.

An aspect of the trade that came to light during the study and requires immediate redressal is the tendency of the trade to attack 'soft' targets rather than go into the forest to poach wild elephants. There have been a number of cases of theft of ivory from various forest offices, museums, army messes, etc and these enter the trade. For example, a pair of tusks stolen from the High Range Club of Munnar in Kerala was seen by an official in the trade in Bombay in less than two weeks. The tusks of the elephant Shahjahan measuring 50 cm were stolen on 13.5.79 from Agratoli Range of Kaziranga National Park. These were ultimately recovered. A massive pair of tusks in the possession of the Meghalaya Forest Department was stolen from their museum in Shillong in 1989 and is yet to be traced. In 1994, a daring raid on the Bansbari Range Office of Manas National Park left a Range Officer critically wounded and his stock of elephant ivory and rhino

horns stolen, along with arms and ammunition stored in the range. In September 1995, a theft of 136 kg ivory took place from the Nature Education Camp at Palamau Tiger Reserve in Bihar and was recovered only after a detailed investigation from a secondary level trader. These instances spread across the country proves the increasing tendency of the trade to attack caches of ivory and rhino horn and thus requires redressal as to the security of stocks and their constant inventory.

Fake ivory and trade malpractices

The most common wildlife trade malpractices in India are concealment, misdeclaration, forgery of permit, false captive bred claims, re-export laundering, laundering under legal stocks, using safe transit countries and trade adulteration or faking (Menon et al 1994). Of these, except for false captive breeding claims, all the other malpractices have been recorded at one time or the other in India with respect to the ivory trade. While legislation permitted a certain amount of trade in ivory, malpractices such as re-export laundering, misdeclaration and laundering under legal stocks was a common occurrence. Similarly the use of safe transit countries such as Dubai and Macao for Indian ivory was also well known. Laundering bad ivory was one of the most common trade malpractices globally and was used by several countries to convert illegal stock into legal purchase. Once legalised prices soared and in many cases doubled in the mid 80s, even the CITES permits that were being issued were almost as valuable as the ivory itself as it could be used for laundering fresh ivory (Currey and Watts 1996). Many countries in Africa and Asia also had a number of dealers colluding with corrupt officials to confiscate and legalise ivory using CITES permits (Currey and Watts 1996) . In India the use of African imported ivory to launder Indian illegal ivory was a well known phenomenon. Apart from that ivory used to be commonly treated with oils such as the one obtained from the flowers of Madhuca indica or mohwa to make it look yellow and aged and therefore to pass it off as old stock obtained when the trade was legal. This practice observed in Jaipur had an additional value to the trade. Not only was yellow ivory old ivory and therefore legal in the eyes of enforcement officers, but it was also antique ivory in the eyes of the consumers doubling and sometimes tripling the value. The first author has during this study seen an entire sofa set made of ivory (with wooden supports) being dyed in oil by a complex treatment that alternates the application of oil and sun-drying, for later smuggling into Nepal where an order had already been procured for an antique sofa from the palaces of an Indian maharajah!



A GOD IN DISTRESS

WPSI

Today with all legal channels to conceal bad ivory having been foregone, the trade has shifted to concealment and trade faking as common malpractices. While the first is the most commonly used method to smuggle out real ivory, the second brings in welcome income that substantiates the money from ivory and other times is used to keep enforcement officers off track.

Misdeclaration of ivory is still a common trade practice and at times statues and carved articles are exported alongwith camel bone carvings and other artefacts of bone that is virtually indistinguishable in the field. After one inspection of more than 2000 articles packed into two large crates at Delhi's Indira Gandhi International Airport, the authors feels that such distinctions are not possible in the field where a few ivory articles may be smuggled amidst hundreds of genuine bone articles and detection would require careful examination of each, a highly time consuming and skilfull process. In 1994, international seizures also threw light on ivory being exported to Europe declared as wood. In August 1994, two shipments of ivory weighing 100 kg and 63.5 kg were seized in Brussels on their way from Zaire to China (Anon 1994). The ivory had been machine-cut into 10 cm long blocks and were painted or dyed brown in order to resemble wood. This practice has been seen in other seizures in Europe as well and is therefore to be considered an established trade practice.

It is now a common practice in the Indian ivory trade to increase weight of the ivory by filling it with mortar, cement or plaster of Paris. In May-June 1996 in a seizure of 7.5 kg of ivory from Bahminigaon in Baliguda division of Orissa, cement mortar was filled into the hollow portion of the tusks by a trader in Behrampur. In another seizure in March 1997 in Cooch Behar (West Bengal) similar cement filling was noticed inside the cavity of the tusks. From the instances recorded it can be summarised that this is a trade malpractice and is not done by the poacher. Cement or plaster of Paris on drying is a flaky white in consistency and colour and matches the internal appearance of the hollow part of the tusk. It is estimated that such fillings can increase the weight of the ivory substantially, one trader interviewed during investigations claiming that even a 10-15% increase in weight was possible In Cooch Behar, the production of fake ivory and rhino horn is said to have become a fine art.

Fake ivory being sold in retail markets has been noticed in many markets in India and abroad. In 1979, elephant bone being carved and sold as ivory (it can be distinguished with experience by its yellowish colouration and straight line markings versus the triangular hatchings of ivory) in Galle, Sri Lanka was a common trade practice (Martin & Martin 1990). The same carving cost US\$ 65 if from genuine ivory and US\$13 if from bone of elephant, cow, dog or fish (Martin & Martin 1990). If a customer bought it as ivory therefore, the trader was getting a 500% profit, a huge incentive to pass of fake ivory as genuine. In other cases in Sri Lanka, sambar (*Cervus unicolor*) antler carvings and even carvings made from the white stem of a local plant are in the trade being sold as elephant ivory (Santiapillai 1997). In 1992, fake ivory made of animal bone was seen being sold in Poipet market on the Cambodia-Thailand border (Nash 1992)

In India, at least two recorded instances of elephant bone being sold as ivory has been detected by forest department personnel. On 8.11.95, two pieces of elephant hind leg bone fashioned to look like tusks (19x11 and 14x11 inches in measurement) were seized in Taldiha section of Baripada divsion in Orissa. Upon investigation, the offenders confessed to having killed an elephant, sold its tusks (it was a female) and then collected the hind leg bones after a few days to carve and sell as tusks. In this case the offenders were convicted by a local court. The second case was detected in Buxa Tiger Reserve in West Bengal.

IVORY SUBSTITUTES



A GOD IN DISTRESS

WPSI

Substitutes for elephant ivory have for long been sought after by conservationists and scientists as a plausible method of reducing the pressure on wild elephant populations while continuing the tradition of carving. Elephant ivory, however, has that particular feel and grain and the mystique of the exotic that makes these suggestions to be viewed suspiciously by both the consumer and the industry (Caldwell & Luxmoore 1990). Teeth of the hippopotamus (*Hippopotamus amphibius*), the walrus (*Odobenus rosemarinus*) and the narwhal (*Monodon monoceros*) have all been considered as plausible substitutes although none of these have been carved in India. In India two types of animal substitutes exist and have had varying degrees of success.

mammoth (*Mammuthus spp*) ivory was tried in India and was accepted

by the trade and carvers. Seemingly large numbers of tusks were available from permafrost deposits in the former USSR and Alaska. Mammoth ivory had however a problem of cracking. Ivory that has been recovered from the permafrost continued to crack while others did not (Caldwell & Luxmoore 1990). This ironically helped enforcement people distinguish mammoth ivory from elephant ivory, because a large number of unscrupulous people were attempting to carve elephant ivory and pass it off as mammoth ivory.



An ivory carver works on a fake tusk in Kerala.

The other animal substitute used in India is cattle and camel bone. Camel bone carving is widespread in Northern India with carvers from Jaipur, Delhi and Varanasi in particular adapting to it. The carvers of Kerala would however not carve in animal bone considering it inauspicious. In Varanasi and Gaya several carvers have also turned to soapstone and these carvings are now available in markets in Delhi. A WWF-TRAFFIC-India project in 1992-93 helped a segment of these carvers to market these products in Delhi thereby allowing them more confidence to give up ivory as a medium. These carvers have felt no problem in switching medium and feel that the tools used on ivory can be used on soapstone with equal effect. In fact, it is believed that the income of the carvers has risen as a result of this switch because middlemen were no longer needed to market the produce.

Carvers in Kerala, however, prefer to switch to carving sandalwood, rosewood or ebony and a number of them are now in this business. This is partly due to the availability of these carving media in plenty around Kerala, the familiarity of the carvers with these (they used to carve on these even when ivory was legal) and due to the fact that animal bone is not an alternative possible in these parts due to tradition.

Both soapstone and various forms of precious wood would in the Indian context be more acceptable to the carvers and desirable from a conservation perspective. It is to be emphasised that all three wood species are endangered or rare in the wild and it would take judicious plantations and harvesting using India's age-old forestry expertise to supply carvers with these media if it is to be used as substitutes. Soapstone or camel-bone (where acceptable) on the other hand has no conservation implication and may be encouraged among erstwhile ivory carvers.



CONCLUSION

The elephant in India is today facing an immediate threat from poaching. Of particular worry is the sudden spurt in some areas with a corresponding increase in the ivory entering the illegal market from these areas. The very sudden and steep increase in price and relatively new 'trades' such as the one in elephant meat are also of paramount concern.

It has been proved time and again that well-planned, immediate anti-poaching measures are an effective anti-poaching deterrent against poaching and must be used to apply the brakes in the short term as opposed to long-term ecological planning. In Tanzania, Operation Uhai was responsible for controlling poaching before reduced demand by the Appendix I listing could fully take effect (Mlay 1997). In Zambia a special task force to combat poaching and corruption was set up and was primarily responsible for curbing elephant poaching (N. Mumba pers.comm.)

Immediate measures must be taken by all concerned, governmental officials and non-governmental, scientists and conservationists to counter this threat by appropriate anti-poaching measures. Indeed, one of the important thrusts of the Project Elephant should now be anti-poaching operations all over the country. The following recommendations are general ones outlining some of the key thrust areas for combatting the menace of poaching.



An orphaned calf being force-fed milk with an improvised bamboo dropper in Karnataka.



RECOMMENDATIONS

The following recommendations are a result of two-years spent in the field looking specifically at the problem of poaching and the ivory trade. It is realised that further work for at least another year is required to work these recommendations into region-specific action plans. Most of these recommendations, especially the general ones deal with pragmatic tackling of the situation confronting the species today. The more specific recommendations are grouped in a state-wise order keeping in mind the administrative set up of the enforcement agencies. It is hoped that relevant agencies would take these recommendations seriously in order to put into place an anti-poaching and anti-smuggling mechanism that could pose a serious enough threat to the poacher-trader nexus.

General Recommendations

1. To recognise poaching as a serious threat to the Asian elephant in India and to organise appropriate sections of the forest department into a forest protection force and to provide all necessary monetary, training and equipment assistance for them to combat poaching in a methodical and effective fashion.
2. To draw up specific anti-poaching plans for each state in collaboration with the forest departments of the state, the Ministry of Environment and Forests, GOI , non-wildlife enforcement agencies and non-governmental experts.
3. To provide arms, ammunitions, communication apparatus and vehicles to anti-poaching squads in all elephant range areas including currently non-protected areas. This may be done in a prioritised fashion by each concerned state administration .It is recognised that a significant percentage of elephants occur either seasonally or permanently in non-protected areas. Poaching is high in such areas for example West Khasi hills adjoining Balphakram in Meghalaya and Kollegal / Satymangalam division in Karnataka and Tamilnadu. Enforcement staff in these areas are more prone to risks than in protected areas and have less motivation towards wildlife and should be adequately equipped to deter poaching.
4. To recognise that intelligence gathering is the most cost-effective way to combat poaching, to give it the top priority and to set up networks at division level (supported by non-wildlife intelligence networks and those run by specialised NGOs such as Wildlife Protection Society of India etc) to gather information in a systematic manner. Those involved in running these networks may be trained by appropriate intelligence agencies before commencing work. Adequate monetary backing with provisions for secret payments may also be provided.
5. To recognise the importance of field level forest staff especially forest guards, watchers, foresters and even range officers in preventing anti-poaching and to implement measures for motivating such field staff. This should include a revision of their pay scales, welfare measures for them and their families and a betterment of field conditions that they have to be in. Adequate incentives may be given for special anti-poaching duties given the risk involved in the operation and special incentives given for exceptional work done beyond the call of duty.
6. To conduct, standardised, thorough and prompt post-mortems for all elephant mortalities and to preserve field evidence present at the time of post-mortem. A standardised format for the carrying out of post-mortems be evolved which would instruct the veterinarian doing the post-mortem of the various field realities and peculiarities of elephant post-mortems. Toxicological tests must be made compulsory. In cases of male-female identifications, photographs of the pelvic bones (in case it is decomposed) or of the elephant should be filed with the report. If possible pelvic bones and skull must be preserved by the department till a proper assessment is done. The



A GOD IN DISTRESS

WPSI

promptness of the postmortem is of great essence to the proper conduct of such an examination and emphasis should be placed on detection of carcasses by patrolling the forests regularly and also in doing away with any procedural regularities that necessitate delay in the post-mortem. In the case of gunshot wounds the injuries must be photographed and the bullets be sent for ballistic examination. Bullet wounds must be searched for thoroughly and the elephant carcass must be turned over and the recumbent side examined before passing a verdict. If possible metal detectors may be used to sweep the area for the recovery of bullets that may not be visible to the naked eye. It is important to note that bullets from high powered rifles may get embedded between folds of skin making it very difficult to detect by ordinary methods. Field evidence around the carcass must be carefully recorded and if possible photographed so that a complete picture can be got as to the cause of death. If tusks are removed then the details of the axe marks on the head region must be noted, chips if present collected and the head region photographed. It is recognised that some times the carcass is burnt by the concerned officials in an attempt to suppress a poaching case. Although this is not generally the case, such instances are increasing and must be immediately stopped. All poaching cases must be recorded as such and appropriate action taken against those who attempt to conceal evidence.

7. To specifically combat the positioning threat to elephants by monitoring known salt licks in the area (both natural and artificial), testing water quality at known water holes especially during the dry months and by intelligence gathering in villages where man-elephant conflicts are recorded as being high. The conducting of toxicity tests as a routine post-mortem procedure of dead elephant, even if believed to be natural, is essential.
8. To conduct an immediate, objective inspection of all ivory stocks in the states, be they in government treasuries, with the forest department at various ranges, in museums, army messes, etc or with private licenced owners including temples and timber merchants. The inspection must be carried out by a joint team of central government and state government nominees from the forest department and an independent nominee of concerned NGOs with technical expertise such as the Asian Elephant Conservation Centre. Inspection should include verifying stocks including number, weight and measurements of the ivory. The inspection must be commenced and completed in a time-bound manner to obviate the possibility of tampering with existing stock.
9. To make non-wildlife enforcement agencies such as the police, customs, paramilitary etc aware of the current crisis to the Asian elephant and alert them about the possibilities of ivory being smuggled out from their region. To devise region-specific anti smuggling plans especially for the western coast, Nepal border and the Myanmarese border.
10. To set up special courts to try wildlife cases . To enlighten the judiciary at the district and magisterial levels about the importance of curtailing poaching and the ivory trade and make them aware of judgements such as the Delhi High Court judgement banning the ivory trade.
11. To initiate cooperation with Nepal to halt the cross-border trade in ivory.



State-specific recommendations

Orissa

1. Simlipal National Park and Tiger Reserve and Satkosia Gorge Sanctuary be treated as priority areas that require better patrolling and intelligence gathering. Presently, resources allocated to both are totally inadequate especially considering the large area of Simlipal.
2. A mobile strike force needs to be created in and around these two sanctuaries to monitor poaching and trade .
3. Gun licences within 10 km radius of STR should be registered.
4. Special attention must be given to set up anti-poaching squads that will monitor the populations that use forest corridors that are today not protected or are semi-protected. The most important of these are:
 - a) Kuldiha-Hadgarh-Simlipal.
 - b) Simlipal-Badampahar- Gorumahisani.
 - c) Satkosia Gorge- Rairakhol-Ushakothi.
 - d) Karlapat-Belghar-Kotghar-Lakhari-Mahendragiri.

Karnataka

1. The area between Kerala and the Coorg (Kodagu) district of Karnataka is susceptible to poaching pressure, mainly from poachers from the former state and anti-poaching presence in this area is vital.
2. North Begur Range of Bandipur Reserve be identified as a priority area for alleviating man-elephant conflicts and to take remedial measures.
3. Specific anti-poaching plans be devised for Bandipur, Biligiri Rangan Temple Sanctuary, Kollegal, Cauvery and Nagerhole pooling in on the experience available within the state. The southern part of Bandipur is especially vulnerable to poaching and anti-poaching efforts should be concentrated here.

Tamil Nadu

1. To provide arms, ammunitions, communication apparatus and vehicles to anti-poaching squads in non-wildlife divisions such as Sathyamangalam division which has a lot of poaching activity but does not have a wildlife protected area status to try and combat it.
2. To encourage Tamil Nadu Special Task Force to comb this division especially the areas of Talamalai, Peerkadavu, Gajjalatti and Geddessal beats.
3. To identify the Moyar and Bhavani river valleys as centres of poaching activity in and around Mudumalai and to set up a flying squad to patrol these areas. The squads must cover the divisions of Nilgiri North,Sathyamangalam, Coimbatore and Erode.



A GOD IN DISTRESS

WPSI

4. To use departmental elephants in Mudumalai, Anamalai and other suitable areas where some of the terrain is innaccessible to vehicles in anti-poaching work and patrolling. Communication apparatus be provided to these patrol units
5. To establish intelligence network in the state and to devise specific anti-poaching plans for the Nilgiri Biosphere area and other areas which could be affected in the future such as Kalakaad-Mundanthurai, Srivilliputhur etc.
6. To establish anti-poaching camps along the border with Wyanad in Kerala i.e in the Benne and Dodaighatti blocks which are at present poorly patrolled.

Kerala

1. To recognise that a large proportion of the ivory trade of southern India is masterminded from Kerala and therefore make intelligence gathering a top priority .
2. To treat Wayanad as an area currently undergoing a poaching crisis and to prepare anti-poaching plans and to devise methods to curb transportation of goods to Calicut and other coastal towns
3. To monitor Calicut and other coastal towns with the help of non-wildlife enforcement agencies sucha s the coastguard, the customs etc to prevent smuggling of ivory
4. To raise mobile squads outside protected areas in vulnerable towns such as Konni, Chalakudy, Nemmara and Thodupuzha to supplement wildlife staff posted inside sanctuaries to stop smuggling of ivory
5. To maintain outposts in the sensitive Parambikulam-Sholayar belt and the Sholayar-Edamalayar belt manned by anti-poaching personnel
6. Field veterinary laboratories need to be established at Sultan Bathery in Wayanad to cater to cases of elephant-man conflict and poaching cases at the trijunction border areas.

Uttar Pradesh

1. To specifically monitor the Dudhwa National Park- Sukhaphanta sanctuary and the Katerniaghata-Royal Bardia National Park Indo-Nepal borders for incidents of poaching. As these are established coridoors for elephant movement, more care should be given to prevent poaching in these areas.
2. To devise specific anti-poaching plans for the Rajaji National Park-Corbett National Park population and the Dudhwa National Park populations.

Meghalaya

1. A concerted effort must be made by the state forest department, Project Elephant, GOI and other concerned agencies and or NGO's to acquire forest land in certain areas that support a high density of elephants or are vital coridoors for their movement. This will augment the 15% control that the forest department has on the forests of the state and ensure better protection for the elephants. Areas for acquirement include Baghmara RF, areas between Siju and Rewak, the



A GOD IN DISTRESS

WPSI

entire forest area surrounding Emangiri and Nokrek, West Khasi hills forest abutting Balphakram etc.

2. Districts with no protected area network such as West Khasi Hills must be given top priority while planning future protected areas. Forests adjoining Balphakram and around the Wablei catchment may be considered for immediate protection
3. As most of the crop-raiding and the resultant man-elephant conflict takes place during three months in the year (when the paddy is ready to be harvested), a special effort must be made to monitor areas previously identified as sensitive during these months. These are also times when elephants stray from the forested areas into lesser protected areas and poaching is a distinct possibility.
4. An armed forest (and if need be police) outpost should be maintained on sensitive roads leading out of forest areas, e.g. the Wablei road where poachings have been reported
5. Some level of enforcement must be carried out in the towns such as Nongstein, Shillong and Shallang where wildlife produce is openly on sale. This must be curbed with immediate effect.
6. Anti-poaching plans must be prepared for Balphakram, Nokrek and adjoining areas, Nongkhyllam and RF'S and akhin areas where elephants occur. These must specifically address the issue of poaching for meat apart from ivory.
7. Coal trucks must be subjected to checking just as any other transport moving through a forest area. Intelligence must be strengthened to ensure that information on transport of illegal shipments of ivory is got well beforehand
8. The border with Bangladesh especially near Balphakram must be seen to be particularly porous and non-wildlife enforcement agencies such as the Special Intelligence Bureau and Directorate of Revenue Intelligence involved in monitoring operations

Assam

1. To establish an intelligence network in the state for anti-poaching work and to curb the ivory and rhino horn movements from within the state.
2. To install checkpoints at strategic locations such as Methoni, Kohora and Bokakhat for Kaziranga, Barpetta Road, Banasbari etc for Manas to ensure monitoring of these sensitive areas
3. To remove high tension electricity lines from the vicinity of Kaziranga and Pabitora protected areas.
4. To give utmost priority to Manas in trying to resolve the terrorist crisis in the park and to protect the remaining elephants in the park by posting an armed squad specially trained in anti-terrorist activities. Arms and ammunition be provided to the protectors of the park.
5. To recognise Karbi Anglong as the most important area in the state for the long term survival of the elephant in Assam and to establish protected area networks in the area. To identify key areas for poaching in the district and to devise an anti-poaching strategy with the help of the district council

West Bengal



1. To make specific anti-poaching plans for Buxa ,Mahananda and Jaladapara and to trace the north-east connections of poaching incidents through an intelligence network.
2. To recognise Siliguri as the single most important trade centre in the region and to ensure adequate monitoring especially with the help of the police and other non-wildlife enforcement agencies
3. To devise an anti-smuggling strategy in key areas of the Indo-Nepal border and the Indo-Bangladesh border.

NOTES

1. From a brochure titled Naemat-e-Awadh (Traditions of Awadh) brought out by Janmanas Vikas Sansthan in collaboration with Office of Development Commissioner (Handicrafts), Ministry of Textiles, Govt. of India.

REFERENCES AND BIBLIOGRAPHY

- Acharya, B (pers.comm 1997) Assistant Conservator of Forests, Simlipal Tiger Reserve, Orissa
Acharya, L.N. (pers. comm.1997) Veterinary surgeon and elephant doctor, Orissa
Animon, M.M (1996) Habitat Utilisation of Animals and their Parasitic Burden with special reference to elephants (*Elephas maximus*) in Vazhachal Forest Division, Kerala, South India, M.Sc Dissertation, Thrissur University
Anon (1989) The Ivory Trade and the Future of the African Elephant, Summary of the Interim Report of the Ivory Trade Review Group, No 12, Pachyderm,Newsletter of the African Elephant & Rhino Specialist Group
Anon (1992) Statistical Handbook. Directorate of Economic and Statistics, Shillong
Anon (1994a) Meghalaya Project Elephant Document, Wildlife Wing, Meghalaya Forest Department, Shillong
Anon (1994) Seizures and Prosecutions- Europe, TRAFFIC Bulletin Vol 15, No 1, Cambridge, UK
Anon (1995) The Elephant Dilemma, CITES/C&M International Magazine, Beunos Aires, Argentina
Anon (1996) Resolution of the Elephant-Human Conflict in Asia, Interim Report, Asian Elephant Conservation Centre, Bangalore
Austin. K, Currey.D, Galster.S, Reeve. R, Thornton .A & Watts.S (1992) Under Fire: Elephants in the Front Line, Environment Investigation Agency
Barbier, E.B., Burgess,J.C, Swanson,T.M. & Pearce D,W (1990) Elephants, Economics and Ivory. Earthscan Publications,London
Barua, P (1995) managing a Problem Population of Elephants in A Week with Elephants, Proceedings of the International Seminar on Asian Elephants, B.N.H.S
Barzdo, J (1984) The Worked Ivory Trade, TRAFFIC Bulletin , Vol VI, No 2
Baskaran, N & Desai A.A (1996) Ranging behaviour of the Asian elephant (*Elephas maximus*) in the Nilgiri Biosphere Reserve, South India
Bedi, R (1969) Elephant- Lord of the Jungle, National Book Trust, New Delhi
Bhargava, R (pers.comm.) Programme Officer, TRAFFIC-India
Bose,S (pers.comm) Former hunter, wildlife conservationist and registered arms dealer
Caldwell,J.R(1984) International Trade in Elephant Ivory,TRAFFIC Bulletin Vol VI,No 2
Caldwell,J.R(1988) Current Trends in Ivory Trade and Prices-patterns of demand and consumption, WWF Presentation, unpublished
Caldwell,J.R & Luxmoore, R.A (1990) Recent Changes in the World Ivory Trade, TRAFFIC Bulletin Vol II, No 4
Caughley, G (1988) A Projection of Ivory Production and its Implications for the Conservation of



A GOD IN DISTRESS

WPSI

- African Elephants, CSIRO Consultancy Report to CITES
Chan, P.K(1994) in litt to J.A. Mills in TRAFFIC Bulletin ,Vol 15, No 1,Cambridge, UK
Currey,D and Watts,S (1996): Elephant Ivory Trade: A case Study of the African Elephant, CBI Bulletin, Vol IV, No 2, New Delhi
Daniel, J.C, et al (1995) Ecology of the Asian Elephant, Final report, Bombay Natural History Society
Dobson,A.P & Poole, J.H (1991) Ivory Poaching and the Viability of African Elephant Populations, Conservation Biology
Dobson,A.P & Poole, J.H (1992) Ivory: Why the ban must stay, Conservation Biology , Vol 6, No 1
Douglas-Hamilton, I & O (1975) Among the elephants, William Collins, Glasgow, UK
Espinoza--- and Mann--- (1989) Identification of ivory , CITES Secretariat
Froment, J.M (1985) L'exploitation des elephantesen Republique Centrafricaine, FAO Document de Travail, No 3, FAO/CAF/78/006
Futraha,P (1996) The Wild Elephants of the Royal Bardia National Park, Nepal, unpublished report, Asian Elephant Conservation Centre
Georgiadis,N, Patton,J & Western,D (1990): DNA and the Ivory Trade: How Genetics can help Conserve the Elephant, No 3 , Pachyderm, Newsletter of the African Elephant& Rhino Specialist Group
Ghate, U (1996) pers.comm. Centre for Ecological Sciences, Indian Institute of Science Bangalore
Gokula, V and Varadharajan, M (1996) Status of Temple elephant Management in Tamil Nadu, Southern India, Gajah, No 15, Journal of the Asian Elephant Specialist Group
Hameed S,V.A & Zaccharia V.J Population Studies on Asiatic Elephants (*Elephas maximus*) in Periyar Tiger Reserve, unpublished paper
Hendavitharana, W, Dissanayake, S, de Silva, M & Santiapillai, C (1994) The Survey of Elephants in Sri Lanka, Gajah, 12
Husain, M (1981) Shifting cultivation in the north-eastern region of India - an ecological problem.Proc. int. Congr. Neth. Soc. Landscape Ecol. Veldhoven
Induchudan,V.T (1989) The Elephant in Indian Mythology In Proceedings of the Symposium on Ecology, Biology, Management and Diseases of the Asian Elephant, Kerala Agricultural University
Jayakumar,C (in litt1996) Killing of jumbos assumes elephantine proportions, Times of India 24.6.1996
Johansen, S. (1997): The Positive Effects of Appendix I, Paper presented at the African Elephant Conference, Johannesburg, South Africa, May 1997
Johnsingh,A.J.T, Narendra Prasad,S and Goyal S.P (1990) Conservation Status of the Chila-Motichur coridoor for elephant movement in Rajaji-Corbett National Parks Area,India. Biological Conservation 51, 125-138
Johnsingh, A.J.T (1991) Rajaji, Sanctuary Magazine XI 14-25
Johnsingh, A.J.T (1994) An Action Plan for the Conservation of the Asian Elephant in North-West India, unpublished report, Wildlife Institute of India
Johnsingh, A.J.T (1995) A dead elephant can leave a very long trail, Times of India , 27.10.1995
Kaimol, R.K (pers.comm 1996) Elephant veterinarian, Guruvayoor Devasthom, Kerala
Kelso, B.J (1995) No peace yet for African elephants, New African, March'95
Krishnamurthy, V (1986) Elephant poaching in Tamil Nadu, Unpublished report
Kumar, A (1996) Pers.comm Vice President Wildlife Protection Society of India and Fouding Director TRAFFIC-India
Kumar,B (1996) pers.comm. Divisional Forest Officer, Chamrajnagar Division, Karnataka
Kunoki, T(1996) : Short statement to CITES Standing Committee in Rome
Lahiri-Choudhury, D.K. (1985) Elephants in north-east India, In the Status of the Asian Elephant (*Elephas maximus*). IUCN/SSC Asian Elephant Specialist Group Report, Bandipur
Lahiri Choudhury,D.K (1996) Elephant Poaching in Meghalaya, unpublished Document
Lahiri Choudhury,D.K (1996) pers.comm. Member Project Elephant Steering Committee and Co-ordinator, Eastern Region, Member IUCN/SSC Asian Elephant Specialist Group



A GOD IN DISTRESS

WPSI

- Marrack, T.T.C (1996) pers.comm, Conservator of Forests, Meghalaya
Martin,C.P & Martin E.B (1990) Sri Lankan Ivory Sculpture in Retrospect, No 13,
Pachyderm,Newsletter of the African Elephant & Rhino Specialist Group
Martin, E.B (1985) The Japanese Ivory Industry, Tokyo
Martin, E.B (1990) The Rise and Fall of the Ivory Market in Elephants: Majestic Creatures of the Wild, Weldon-Owen
Martin,E.B & Vigne,L (1989) The Decline and Fall of India's Ivory Industry, No 12,
Pachyderm,Newsletter of the African Elephant & Rhino Specialist Group
Martin E.B & Phipps, M (1996) : A review of Wild Animal Trade in Cambodia, TRAFFIC Bulletin
Vol 16 No 2, Cambridge, UK
Menon,G and Menon, V (1992) Memories of Maximus, WWF-India Quarterly Vol 3, No 3,New Delhi
Menon, V et al (1994): Wildlife Trade, A Handbook for Enforcement Staff, TRAFFIC- India (WWF-India), New Delhi
Menon, V (1996) Under Seige: Poaching and Protection of greater one horned Rhincoceros in India, TRAFFIC-India/ TRAFFIC-International, Cambridge, UK
Milliken T (1996) Africa's Ivory Stocks in the Post-CITES Ban Period, Unpublished presentation
Mishra, A (1996) In Simlipal sanctuary, poachers kill tuskers with a nail, The Asian Age, 13.3.1996
Mohanty,A.P (pers.comm.) ex- Range Officer, Champua Range, Keonjhar division, Orissa
Mohanty, B (pers.comm.) Secretary, Wildlife Society of Orissa
Mohanty,Capt (pers.comm) former hunter and retd. police officer of Orissa
Namboodiri,N (pers.comm 1996) Zoo Outreach Organisation, Coimbatore
Nanda,S.K.(pers.comm.) Divisional Forest Officer, Bonai Division, Orissa
Nash,S (1992) Trip Report, Aranyaprathet, Thailand, 18-19 October 1992. Unpublished report, TRAFFIC South-East Asia.
Njumbi, S.J Effects of poaching on the population structure of African elephants (*Loxodonta africana*): A Case Study of the elephants of the Meru National Park
Olivier, R (1978) Distribution and Status of the Asian Elephant, Oryx, Vol XIV, No 4
Pannicker (1996 pers.comm) Elephant vetrinarian,Kerala
Patnaik, S.K (pers.comm) Director Nandankannan Zoological Park, Orissa
Paulraj, S (pers.comm. 1996) Divisional Forest Officer, Dharmapuri division, Tamil Nadu
Pilgrim,T & Western,D (1986) Inferred hunting patterns on African elephants from tusks in the international ivory trade, Journal of Applied Ecology, Vol XXIII
Poole,J.H (1987) Rutting behaviour in African elephants: the Phenomenon of Musth, Behaviour, Vol CII
Poole,J.H & Thomson J.B.(1987) Elephants are not beetles, Implications of the ivory trade for the survival of the African elephant, Oryx Vol 23, NO 4
Poole,J.H (1989) The Effects of Poaching on the Age Structure and Social and Reproductive Patterns of Selected East African Elephant Populations, Final Report to the African Wildlife Foundation
Pramod (1996) pers.,.comm. Centre for Ecological Sciences, Indian Institute of Science, Bangalore
Ramananda, T.S (pers.comm 1996) Veterinary Surgeon, Upper Karnataka
Rao,C.N (1995) Status report of elephants in Andhra Pradesh, In A Week with Elephants, Proceedings of the International Seminar on Asian Elephants, B.N.H.S
Rath, S.K (pers.comm.) Divisional forest Officr, Karanja division, Orissa
Rishi V (1997) A Note on the Mortality of the Elephants in Kerala, Karnataka, TamilNadu Border areas in the North Western Ghats during April-May 1996-97
Roy,S.(1994): In litt to D.K.Lahiri Choudhury
Ruggiero,R (1989) The Ecology and Conservation of the African Elephant in Gounda- St.Floris National Park,Central African Republic,PhD dissetation, Rutgers University, 1989
Ruggiero,R (1990) The Effects of Poaching Disturbance on Elephant Behaviour, No13, Pachyderm, Newsletter of the African Elephant&Rhino Specialist Group
Said, M.Y, Chunge, R.N., Craig, G.C, Thouless,C.R, Barnes,R.F.W, Dublin H,T (1995) African



A GOD IN DISTRESS

WPSI

- elephant database, African Elephant Specialist Group, IUCN/SSC
Sakamoto, M (1997) : In litt to Belinda Wright
Sangma,K (1996 pers.comm) Range Officer, Balphakram National Park, meghalaya
Santiapillai, C (1987): The Status, Distribution and Conserveation of Elephant in Burma, WWF-Indonesia Programme, unpublished report
Santiapillai, C (1987a) The Status, Distribution and Conservation of Elephant in Thailand, WWF-Indonesia Programme, unpublished report
Santapillai,C (1996) No 15, Gajah, Newsletter of the Asian Elephant Specialist Group
Santiapillai, C (1997) Ivory Trade in Sri Lanka, unpublished document
Santiapillai, C, Chang,Y.Y, Hua,D.Y and Zhong,S.Q (1993): Management of Elephants in Yunnan Province, China with Special reference to Xishuangbanna
Satchell, M (1996): Save the elephants:Start shooting them, U.S. News and World Report,November 25,1996
Singh,B (pers.comm1996) : Divisional Forest Officer, Keonjhar Division, Orissa
Singh, V (1994) Ivory Trade and Poaching of Tuskers in Mayurbhanj District, Orissa, TRAFFIC-India, unpublished report
Singh, V.B (1986) The elephant in UP(India)- the change in status in two decades, Cheetal, 28
Singh, S.B (pers.,comm. 1996) Chief Wildlife Warden, Meghalaya
Srivastava, A.K (1996 pers comm.) Divisional Forest Oficer, Balphakram National Park
Steenkamp, C & Massyn .P(1994) in litt to T.Milliken in TRAFFIC Bulletin, Vol 15, No 1, Cambridge, UK
Storer, P (1981) Elephant populations in Thailand, nat. Hst. Bull. Siam.Soc 29
Sukumar, R (1986) : The Elephant populations of India- Strategies for Conservation, Proc. Indian Acad. Sci. (Anin . Sci./Plant Sci.) Suppl.
Sukumar, R (1989): The Asian Elephant: Ecology and Management , Cambridge University Press, Cambridge
Sukumar, R (1991) The Management of large mammals in relation to male strategies and conflict with people, Biol. Conservation, 55- 93-102
Sukumar, R (1993) Minimum Viable Populations for Asian Elephant Conservation in A Week with Elephants, Proceedings of the International Seminar on Asian Elephants, B.N.H.S, Bombay and Oxford University Press, New Delhi.
Sukumar, R (1994) Elephant Days and Nights, Oxford University Press, New Delhi
Sukumar, R & Santiapillai. C (1996) *Elephas maximus: Status and Distribution in the Proboscideae: Evolution Palaecology of Elephants and their Relatives*, Eds Shoshani J and Tassy P, OUP
Talwar,R (in litt 1995) Seizure of a large quantity of illegal ivory in Varanasi, letter to the press, unpublished
Tayeng, J (1981) Census of India 1981,. Series-14-Meghalaya, Paper I of 1981. Supplement provisional population totals, Directorate of Census Operations, Ri Khasi Press, Shillong
Tennent, J.E (1867) The wild Elephant and The method of Capturing it and Taming it in Ceylon, London
Tsarong, T.J (1986): Handbook of Traditional Tibetan drugs, Tibetan Medical Publications, New Delhi
Venevonghpet (1995) Status of Elephant in Laos, in A Week with Elephants, Proceedings of the International Seminar on Asian Elephants, B.N.H.S
Vinod, T.R (1994) Food and Feeding Habits of Asiatic Elephant (*Elephas Maximus*). A case Study of Idukki Wildlife Sanctuary, Msc Dissertation, Thrissur University
Wells, S.M & Burton .J.A.(1979) The International Ivory Trade, Animal Regulation Studies, 2(1979), Amsterdam
Williams, A.C. & Johnsingh, A.J.T (1996) Elephant-Human Conflict on Community Lands in North-East India, Unpublished report



A GOD IN DISTRESS

WPSI

APPENDICES

Appendix I

STATEMENT OF MANTHY BABY ALIAS SEBASTIAN OF IDUKKI ZILA, A POACHER FROM KERALA



(Not Verbatim. As taken down from the Malayalam original by the first author. Italics not in original)

I, Manthy Baby alias Sebastian s/o Joseph, aged about 46 years residing in 6th mile area of Chakkavallam village, Udumbakhola taluk, Idukki zila testify that:
I have been poaching for the last ten years (the case is dated 6.1.1996 and therefore period in reference can be taken as 1985-95) in the Thekkady area for bison, nilgiri langur, pig, sambar, elephant, porcupine, sloth bear etc. In my estimate, I would have poached 17 bison, 300 nilgiri langur, 60 sambar and about 13 elephants in this period. All the elephants have been shot in the last four years or so and have all been tuskers. They used to yield between 2 1/2 to 10 kilos of ivory per pair of tusks.. In Tamil Nadu, tusks and hair from the tail of the elephant are both in demand. Ivory fetches between Rs 4000-5000 per kilo. I used to get only Rs 2000 per kilo from Pullimukkil Gopalan. The last shooting of an elephant was in 1993. In September 1993, in fact, from the 2nd Mile area. The tusks were bought by Ravi. Ravi has curly hair, is black, around 50ish, comes sometimes in a tourist taxi. Leaves at night to Trivandrum where he has a shop. He has 6 sets (pairs) of tusks to sell now. In the September '93 incident, Pandian, Muthukan (Murugan?), Easwaran all from Kallashampetta(?) and Ayyappan and Shekaran from Gudalur came with me. I was the shooter, I used a 12 bore gun.

In the last year or so Our gang has also killed 5-6 tigers. The striped variety ,not the spotted one. We do not do much of this as ivory is more lucrative here. But in the last few years we have been getting orders for tiger skins as well. We have been supplying them to Bombay buyers - Mr. Swamy in Colaba is our contact person. I am told these go to Dubai from there. We shoot tigers and do not poison them in Kerala. On 26th April last year (1995) also we went hunting. Then Jose, Soman Joy and Kunchettan were with me. We got only bison and no elephants. We get Rs 100 per kilo for bison meat. Gopalan gets ivory from Varashanad, Churaliyar, Vellimalai and also from Gudalur in Tamil nadu. Gopalan is also known as Chellarkovil Gopalakrishnan. He has 10 sets of gunmen. 5 are in Gudalur (normally around an illicit liquor shop), the other 5 are in Varushanad. His three prime shooters are Kunjukutty, Maatthukutty(Pambady) and Jose. Gopalan also deals in sandal. In October he got one pair of tusks weighing 9 kilos from Varushanad. Tamil Nadu people call tusks Choorutte or cigarettes as a code word . Poachers shoot between the ear and the temple. The trunk is then cut and the tusks hacked. Appannan, Jose and Babu (alias Pappachan) are also involved in the poachings. Between 1988-93, 13 tuskers have been shot. September 1993, 9 kilos were given by me to Gopalan and Rs 17000 given by him. If I remember correctly, the tuskers shot were from the following localities: Poovarashu-3, Meghamalai-4, Karikulam-2, Palkanchimala-3.

One day the Tamil Nadu poachers killed 5 females for the tushes and hair. They get Rs 30 per hair if taken to Madurai,. They can make about Rs 500 at least per assignment. Poachers get about Rs 750 per kilo and Rs 1000 per 1 1/2 kilos for tushes.



Appendix II

STATEMENT OF GOPALAN , A DEALER FROM KERALA

(Not verbatim. As taken down from the original Malayalam by the first author)

From 1989-93 I have purchased 13 pairs of tusks from Manthy Baby alongwith 5 pairs of tushes. I give Rs 2000 for the tusks (per kilo) and Rs 500 per kilo for the tushes. I clean and send the tusks to Trivandrum. Either my wife or I sell the tusks personally. Ravi (in Trivandrum) gives Rs 2250(too low) per kilo. Varashanad people gave me one pair (3 1/2 kilos), Kullashampetti Easwaran gave me 3 pairs (14 kilos) and Muthu who brings tusks from Varushanad to Gudalur gave me 17 1/2 kilos in 1995.

I met Ravi in Trivandrum Medical College when I went for treatment. He asked me if I can get him ivory. I thought of Manthy baby and said yes. 2 years back I traded in 26 tushes all ranging between 1 1/2 to 3 kilos. I personally do not trade in skins of tigers and leopards but these have been shot from the forests here and sent to Bombay. The following poachers are involved in tiger and elephant poaching. In case of skins they are first sent to Pollachi, Coimbatore or Mysore for tanning or semi-treatment. They are then either directly sent to Gulf via Mangalore or Calicut or otherwise taken through Bombay.

Appendix III

Transcript of conversation with A. Prasad, former ivory trader, Trichur, Kerala 22.5.1996

Interviewer (I): Hello, it is nice to meet you again

Prasad (P): It's good to see you too, when did you come in to Kerala

I: Last week. How's the business?

P: Good. How's your research coming along? (Doesn't wait for an answer, calls for refreshments.)

I: What news of your friends (ivory traders)?

P: (Laughs) Well ... you know I'm out of all that ... Those forestwallas ... all crooks, the lot of them, that DFO also -- all debtors to the traders. They're getting nothing out of me ... (Goes into a long diatribe against Kerala Forest Department.)

Contact (C): You know what they did to him, don't you?

I: What?

C: He used to give them (Kerala forest officials) information, see. Then under pressure from the top because they hadn't made any arrests, they put him in jail, for two years he was ...

P: Atleast one good thing came of what the bastards did, I appeared in India Today.

C: But you know our friend isn't from the Department.

P: Yes, Yes ...

I: What are the traders doing these days?

P: Bad days actually. The carvers are doing badly because there's no demand in India now.

Everything has to go out if the traders are to survive.

I: There's less ivory in the market?

P: No, no that there is, but Kerala was such a major centre for carving, you know.

I: What about Jaipur and Varanasi?

P: Jaipur, yes, in the north Jaipur is big. But Varanasi -- no, there we send left-overs from here, scrap, and they make little beads and such, that's all. Kerala was a very major centre. Carving was a full-scale industry for us ... I employed three types of carvers to work on each piece at different stages -- one to carve the rough block, one for the details and one man just to do the face, that's very important, the face. Then there were the painters and polishers. But that's all



A GOD IN DISTRESS

WPSI

changed now. The craftsmen have switched to rosewood and sandalwood and many have no work.

I: Did the Ivory go out even earlier?

P: Of course it did. we used to get African ivory and Indian Ivory also went to the Middle East. Import-export , we called it (laughs). It used to go to Hong Kong and Macao but then Macao wasn't used anymore.

I: So now less ivory goes out.

P: Said who? Our elder brothers (Malayalee traders) in Dubai will make sure things go on as always.

C: Yes, but trade must have decreased.

P: On the contrary. There's no ivory coming in. All that is here goes out, to Dubai, so things are better that way. And now everything will increase anyway.

I: Why?

P: The meeting will change things.

I: What, the forest department's holding a meeting?

P: No, no, the international CITES. They tried last time but they didn't get the vote. They will this time. Ivory trade will open and everybody's going to be happy.

I: What does ivory sell for now?

P: It's become double since the olden days. About 6,000.

I: I heard it's gone up to eight.

P: No, not here, may be elsewhere. Here it is six, may be seven.

I: You can go back to your business now.

P: No, no, I'm married now and the family is rich enough. There are those who are doing it but I'm out of it. Those people are busy buying ivory now, they'll sell when the market is up.

I: So who are the people in it now?

P: Names ... It's been so long since I was into all that. I don't remember now.

I: You must remember someone ...

P: No ... the main buyer was in Bombay, but I forget his name, it's been so long. (Changes topic) You know ivory comes from the domestic elephants also. Ask the templewallas -- they cut every year, where does all that ivory go? (Gives names of people in some temples.)

I: How can I ask the templewallas?

P: If you can't then ask the veterinarians, they're there when the tusks are cut. Try finding out ... no one knows what happens to all that ivory, not even the gods inside those temples (laughs).

Appendix IV

Translation of Malayalam article in Malayalam Manorama by Thomas Dominic on 9th June 1996 titled

" Unremitting gunshots- an elephant poacher's revelations"

"The statistics given by the forest department are all false. If you go by their statistics the total number of elephants in the forest will be equal to the number of elephants killed by poachers every year."said poacher Baby (name concealed for security reasons) sitting on a rock in Arikapara. Arikapara is in Pariyaram range, 12 kilometres into the forest from Randu Kayye of Trichur district. Elephant Baby (as he is known) does not recall the number of elephants that he has shot. He must have shot and taken the tusks of atleast 50-60 elephants, perhaps a 100.The elephant poachers are not interested in such statistics.

"How many lakhs have you made from elephant poaching?" All the money has been made by the brokers. All that I have earned are a number of cases against me. I have to borrow Rs100 needed for the lawyer's fees every time.



A GOD IN DISTRESS

WPSI

"You may be having some concealed income in banks which will come of use after the cases are over." I swear on my wife and my dear children, honestly, I dont have even 10 paise. By my poaching the people who have made money are the brokers walking with diaries under their arms of Randu Kayye (Trichur district, near Vellikulangara and the base camp next to the forest of many elephant poachers and ganja farmers) When we are in the forest we do not know the rates for tusks. it is for the tusks which I sold a little while ago that I got the maximum price. Rs 1750 per kilo. This is what I got after bargaining upwards from Rs 800. Two tusks weighed 34 kilos. We had eight people in our gang. The broker got Rs4000 per kilo, we learnt later. The current rate of tusks are Rs 6000-7000 per kilo.

" On an average how much would elephant tusks weigh?" We have got tusks from 5-10 kilos to 55 kilos for a pair. The 10 kilo one's are for the smaller tuskers.

"How many small tuskers have you killed?" I kill small tuskers when I get them.

" How many years have you poached elephants" 15 years.

" How difficult is it to get an elephant?" What a question. Sometimes I may not get any. If I am lucky I may get in a few days. We are normally a gang of 5-8 people. With food and other equipment, for a number of days,we climb the mountain. When this runs out we come back to the villages and buy more.

" Apart from the elephant which other animals have you set your sights on?" The dried meat of wild bison will fetch Rs 80 per kilo. If it is a large bison we will get 150-200-210 kilos of dried meat. If it is a cow bison, the weight will be much lesser after drying. For the bison for every 2 1/2 kg of fresh meat we get 1 kilo of dried meat.

"How do you dry the meat?" After salting, we thread the meat and string it over a fire. Even,for a large bison we need only 3 kilos of salt.

" How do you poach elephants?" I paid Rs 1500 for my first gun that I got made. Now it would be Rs3000-4000. I got my gun made by the blacksmith in Vellikulangara. He has gone to the Middle East now.

" How do you shoot the elephant?" Let me say it in my own way. When you go poaching elephants you have to against the wind, otherwise the elephant will get the smell. Let us say that you are going to the forest now. If the elephant gets the smell, you will not have to fire your gun. If the wind is not strong enough, then you have to wet your finger to detect the direction of the wind. The side fro which the wind is blowing will feel colder. Otherwise by lighting a match or by holding up a thread.

" Has the elephant ever got your smell?" Oh yes. It was a bit of an exaggeration when I had said that you do not need to shoot if the elephant gets your smell. If I am sure that he will charge, I will kill it. Once a lone bull charged me and made me run. After running for some time, I hid behind the scrub and the elephant did not see me. After searching for some time it went back. Lone elephants are stubborn and brave.

You can shoot from on top of a tree, on top of a rock or from the ground. In an elephant group there will be many tuskers. Out of that we look for the elephant with the biggest tusks. After we have identified it, we have to follow the herd for 2-3 days to get an opportune moment. When they are foraging they get seperated. If you have the courage you can shoot even if the elephant is within the herd.



A GOD IN DISTRESS

WPSI

Even after getting shot the elephant will get up and run. If the aim is accurate, the elephant will fall down silently and die within a minute. If the shooting is not accurate, the elephant will cry out. The herd will leave the wounded elephant only after trying several times to get him up.

We can shoot from 25-30 feet away. It is normally a single-barrel gun. There is a chance for only one shot. We fill 10-12 fingers of gun powder for an elephant. For other game 2-3 fingers is more than enough. If the elephant is shot behind the ear or on the temple(chennai) the elephant is sure to fall. The shot must enter the brain. The target area is only about the size of a pappadam. We examine 2 or 3 angles and select the best. Although the target may be the same from many angles, there may be difference in accuracy from different angles. Once you have decided the best angle we shoot. Everything will be over in minutes. We cannot see the shot entering the elephant. We only see the elephant fallen down after the shooting. Sometimes the elephant jumps when it is shot. It is not really jumping but it is being thrown by the force of the shot. Sometimes after the shooting, we see the elephant jumping. The slug enters by piercing and splattering the flesh, but if it does not enter the brain, it is ineffective. I have got elephants with three or four shots in the brain. If the elephant escapes the wounds in the head do not get septic. They heal on their own.

"What is the maximum time that you have spent in the forest?" When there was steady poaching, even if I go home in between, I return to the forest immediately. It is difficult to see the tears of the family. Also, I cannot stay at home because of the fear of the forest officials. I have spent upto a maximum of six months in the forest in one stretch.

"Was there no understanding with the forest officials?" It is with the brokers that the forest officials have understanding.

"Do you know where the tusks are sold?" We are not allowed to have direct contact but in Trichur, Western Fort, there is a centre. There are markets in Trivandrum and Calicut. The Trivandrum market is big. After 15 years I have stopped poaching now. My parents are old and ill. My elder brother is not well. When my mother told me with tears in her eyes, I decided to stop everything.

"Why did you start poaching?" My environment is that. Most of my friends are those who take up a bundle and enter the forest. I was interested in the job of a mechanic. There was no one to join me for that. When you go into the forest you have to carry loads. There were people interested in letting me join for that. In my younger days, I went for the fun of it, later for earning a living.

"Do you feel that what you did was wrong?" I did it because I had no other way. Whenever I return, I hear that my family has been troubled by the forest officials. If they have the ability, why don't they get into the forest and catch me? Every time I enter the forest with redoubled enthusiasm. Even when I don't get anything, I have shot female elephants (because of the trouble caused to the family). Once I have shot an elephant near the forest range office so that the officers will be suspended. Vazhachal, Pariyaram, Malakkapara, Idukki etc are the places we have poached elephants in. We have shot elephants in Veerappan's Satyamangalam forests as well.

"So, you don't think that what you did was all that bad?" Has anybody prospered by killing off dumb animals? To my knowledge, no. Even if I try to be good, there is no way. Even what others did are put on my head. Even what I have not done are put care of me. It is easy to trap a straightforward man. They will frame all cases on me. I doubt whether they will allow me to live (peacefully). Sometimes I feel that I should not live as a burden like this. Still, I will try. How many dumb animals have I killed. And their curses. You must have heard of the hunter who hangs onto the tail of a wild elephant and frightens it into running. Another, cuts off the trunk of the elephant



shot by somebody else and also climb on top of the elephant and dance. These are stories. The poachers are most afraid of the elephants.

Even when I lie on the rocks with fire, the thoughts are on the elephant. Hanging on tails, indeed (he laughs) . If an elephant is stubborn, it will come disregarding even the fire. I used to climb onto a dead elephant after I shot it to see all around.

"In your knowledge how many poacher's are there?" There must be 15 people. All of them know how to shoot.

This is an interview with a elephant poacher who has made the forest tremble for a decade and a half. The main condition for this interview was anonymity.

Appendix V

EXCERPTS FROM A JUDGEMENT IN THE HIGH COURT OF DELHI

CIVIL WRIT PETITION NO. 1016 OF 1992

WITH CWP NOS. 1272/92, 1749/92, 1303/92 & 1964/93

DATE OF DECISION: MARCH 20, 1997.

M/s IVORY TRADERS VERSUS MANUFACTURERS ASSOCIATION AND OTHERS

UNION OF INDIA AND OTHERS

INTRODUCTION : These ten excerpts are from a landmark judgement given by the High Court of Delhi in favour of the Government of India (backed by NGOs and the conservation lobby) and against the ivory traders and manufacturers. The excerpts are from a 83 page judgement and give a hint of the spirit of the judgement as well as the official position of the Government of India and a number of prominent NGO and conservationists in the country.

1. On March 3, 1973, a significant International Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) took place. The Convention resulted in an agreement between the member States, which was initially ratified by 10 countries and came into operation on July 1, 1975. As the Asian elephant was a highly endangered species, it was placed in Appendix-I of the CITES. Appendix-I includes all species threatened with extinction or which are or may be affected by trade. Trade in specimens of these species are subject to strict regulation in order not to endanger further the survival of these species and must be authorised in exceptional circumstances only. However, the African elephant was given place in Appendix-III which, unlike Appendix-I animals, did not enjoy immunity from being hunted and killed. The net effect of this was that while the hunting of the Asian elephant was banned and international trade in Asian ivory was virtually prohibited, the African elephant could still be hunted. India signed the convention in July 1974 and deposited the instrument of ratification on July 20, 1976. India became a party to the convention from October 18, 1976. A major development took place when the Parliament in order to amend the Wild Life (Protection) Act, 1972, enacted on May 23, 1986 the Wild Life (Protection) Amendment Act, 1986 (Act No. 28 of 1986) whereby several changes were effected in the Principal Act including insertion of Chapter VA. On October 24, 1986, keeping in view the depletion of elephant population and in accordance with CITES, the Central



A GOD IN DISTRESS

WPSI

Government intervened under section 61(1) of the Principal Act and transferred the Indian elephant to Schedule-I and listed the same at Entry 12B thereof. This was a major step towards protecting Indian elephant as Schedule 'I' animals enjoy complete immunity from being hunted. The 'elephant' having been put in Schedule 'I' of the Act, the prohibition to kill the same came into force with immediate effect. As a result of this, trade and commerce in Indian Elephants was totally banned. This step was not challenged by the petitioners. It may be pointed out that import of ivory was not banned but was allowed subject to requirement of licence under section 44 of the Principal Act as amended by Act No. 28 of 1986. The African elephant like its Indian counterpart was also endangered and threatened by man and in order to save the specie, in October 1989 at the Lusanne CITES Meet, the African elephant was ungraded and included in Appendix 'I' of the CITES and after three months of its inclusion w.e.f. January 18, 1990 international trade in ivory was required to be banned. Almost all countries which are parties to the convention have given effect to it. The result of this was that virtually all International trade in ivory was prohibited with effect from the aforesaid date. In this country in order to bring the Principal Act 44 of 1991 inserted sub-clause (1a) to section 49B(1)(a) of the Principal Act as a result whereof the trade in "imported ivory" and articles made therefrom were completely prohibited from the "specified date". It may be noted that legislature has used the words ivory imported into India and not African ivory, thus enlarging the area of operation of the Act. Now as to the meaning of the words "specified date", the Amendment Act through the insertion of sub-clause (iii) in clause (c) of section 49A has provided that the specified date in relation to ivory imported into India or an article made therefrom is the date six months from the commencement of the Wild Life (Protection) Act, 1991. That means, as per the above said provisions, dealers in imported ivory or articles made therefrom or manufacturers of such articles were required to liquidate their stocks and stop all activities relating thereto within six months of the commencement of the Wild Life (Protection) Act, 1991, i.e., April 2, 1992 (date of commencement of the Act being October 2, 1991 + six months therefrom). The Union of India in its reply dated April 30, 1992 and additional affidavit dated September 12, 1995, has maintained that despite the ban on the killing of the Indian elephant its poaching continues and the traders are actually dealing in ivory entracted from Indian 'elephant' under the garb and facade of imported ivory resulting in the depletion of its population. Therefore, in order to stop the killings of Indian elephants, it was necessary to ban all trade in imported ivory.

2. The Central Government has pointed out in its counter-affidavit dated April 30, 1992 that there was serious problem to protect the Indian elephnat as long as the traders were allowed to deal with ivory imported from abroad. It is further pointed out that there is no readymade and easy method of distinction between imported ivory and Indian ivory. It is also pointed out that in the circumstances it was necessary to strike at the root cause of poaching and remove the incentive to kill elephants by banning ivory trade altogether.

The Minister of State of Environment and Forests while moving the amendment bill in the Lok Sabha adverted to the fact that the population of Indian elephants, particularly in South India, was under serious threat by ivory poachers. Although the trade in Indian ivory was banned in 1986, the trade in imported ivory was giving an opportunity to unscrupulous ivory traders to legalise poached ivory in the name of imported ivory. With this point in view, the trade in African ivory was proposed to be banned after giving due opportunity to ivory traders to dispose of their existing stocks. He also referred to the growing menace of poaching wild animals which had acquired serious dimensions because of exponential rise in the price of the wild animals and their products.

3. It also needs to be driven home that the beauty of ivory and things created therefrom should not be the reason for the destruction of its source. The elephant with the tusker stands out any day to ivory curios adorning the mantel pieces of a few who can afford to buy them at fabulous prices unmindful of the virtual disappearance of a remarkable animal. This is a very heavy price



to pay for satiating the aesthetic sense of a few persons. Trade and business at the cost of disrupting life forms and linkages necessary for the preservation of bio-diversity and ecology cannot be permitted even once. We, therefore, reject the submission of the learned counsel for the petitioners that there was no proximity between the elephants in the remote forests of India and the sales of imported ivory or articles made therefrom in the show rooms of the petitioners in the city. We also reject the submission that the functionaries of the Wild Life Department of the States could prevent illegal hunting of elephants and there was no good reason to ban the sale of imported ivory and articles made therefrom. The Parliament understanding the vastness of the problem and considering that it will be any difficult to prevent poaching of the Indian elephant, already on the verge of extinction, and the sale of Indian ivory under the guise of imported ivory without imposing the ban on trade in imported ivory cannot be faulted as the degree of harm in allowing the petitioners to continue with the ivory trade would have been much greater to the community as compared to the degree of harm to the individual interests of the petitioners by prohibiting the ivory trade. In the former case the petitioners would have benefited at the cost of the Society. Trade and property rights must yield to the collective good of the people.

4. Whether trade in ivory is pernicious and not covered by Article 19(1)(g) of the Constitution:

The trade in ivory ! is dangerous, subversive and pernicious as it has the potential to deplete the elephant population and to ultimately extinguish the same. It is well settled that trade which is pernicious can be totally banned without attracting Article 19(1)(g) of the Constitution. There is a string of authority for the proposition that no citizen has any fundamental right guaranteed under Article 19(1)(g) of the Constitution to carry on trade in any noxious and dangerous goods like intoxicating drugs or intoxicating liquors. Trade and business in intoxicating drugs or liquors is only one of the noxious types of enterprises. This category does not close with drugs & intoxicating liquors. What was not considered harmful at an earlier point of time, may be discovered to be so later. Time has a way of changing norms. Several other activities being equally pernicious fall in this category too :-

1. Gambling,
2. Prostitution,
3. Dealing in counterfeit coins or currency notes, etc.

Activities having a beneful effect on the ecology, human and animal life etc. occupy a central position in the above category.

5. Trading in animals close to being wiped out of existence and articles made from their bones, skins or other parts of their bodies, is a situation akin to dealing in any other noxious or pernicious trade, e.g., intoxicating drugs. While the Parliament can impose a ban on trading in endangered species of articles derived from them in furtherance of Art 48A, it can prohibit trade in intoxicating drugs and liquors in compliance with the mandate of Article 47. Courts have recognised that trade or business in intoxicating drug and liquor is not a fundamental right as it is dangerous and noxious. Similarly on parity of reasoning business in animal species on the verge of extinction being dangerous and pernicious is, therefore, not covered by Article 19(1)(g).

6. Such a pernicious activity cannot be taken to be as business or trade in the sense in which it is used in Article 19(1)(g) of the Constitution.

7. The destruction or depletion of the other form of life would create ecological imbalances endangering human life. No one can be given the privilege to endanger human life as that would violate Article 21 of the Constitution. Basically, it is extremely essential for the survival of man co-exist with nature and to preserve and protect wild life.



As already seen , the directive principles of State policy are based upon moral principles and considerations. The protection of wild life has seeds in the history of time, and in the history of moral and ethical principles evolved by every society through various ages. A society which does not have ethical and moral values and fails to live in harmony with nature whithers and perishes. The sooner this truth is realised the better it would be for the welfare of the people. It has come to us through countries to show compassion towards animals and birds as all are considered to have come from the same source.

8. Having regard to the above discussion we hold that:-

- (1) no citizen has a fundamental right to trade in ivory or ivory articles, whether indigenous or imported;
- (2) assuming trade in ivory to be a fundamental right granted under Article 19(1)(g), the prohibition imposed thereon by the impugned Act is in public interest and in consonance with the moral claims embodied in Article 48A of the Constitution; and
- (3) the ban on trade in importing ivory and articles made therefrom is not violative of Article 14 of the Constitution and does not suffer from any of the maladies, namely, unreasonableness, unfairness and arbitrariness.

9. Having regard to the above decisions it is not necessary for the State to pay compensation to the petitioners for extinguishment of title of the petitioners in imported ivory or articles made therefrom. Since the State is not under any obligation to buy the stocks of the petitioners in acceptance of the one time sale proposition propounded by the petitioners, we cannot direct the State to either buy the same or pay compensation for it.

10. India actually banned the trade in Indian ivory in 1986. The traders should have disposed of their stocks of Indian ivory from 1975 to 1986. As regards the African elephant it was proposed on October 18, 1989 to be included in Appendix-I of the CITES and was so included on January 18, 1990. Ivory traders were allowed to carry on domestic trade in imported ivory till the expiry of six months from the coming into force of the Amendment Act of 1991. Furthermore, as result of interim stay granted by this Court the petitioners could dispose of their stocks by July 7, 1992. From the above it is clear that ivory traders were under a notice of the intending ban since 1989 and had sufficient time to dispose of their stocks of ivory in the domestic market. Though the statute gave six months time to the petitioners to liquidate the stocks from the specified date, the petitioners acutally being under the protection of the Court's order could trade upto 7th July, 1997. It is significant to note that the Parliament has merely made the possession of imported ivory and articles made therefrom after the specified date an offence. The petitioners are not being subjected to a penal law on account of their having imported ivory during the period when there was no ban in existence.

Appendix VI

Statement of a poacher from Orissa as given on 25.4.1997 after arrest by the forest department

The following is a statement obtained from Menju Khan arrested by Athgarh Forest Division in a case of elephant poaching after three elephants were killed within 10 days in Athgarh Forest Division and Athmalik Forest Division in April 1997:

The following statement is given by I, Sri Izabul Khan alias Menju Khan aged years of Pankhal village , Thana: Tigiria, Dist: Cuttack, son of Musaf Khan on this date I have given this statement regarding my different types of skin business. Buying skins from the rural areas I sell them to various businessmen of the cities. During the past four years to five years I have bought about 25 to 30 pairs of elephants tusks from different elephant poachers. I have sold these tusks to Sri Sona Ullah of Elliot Road, Calcutta. The tusks have been bought from the following poachers:



A GOD IN DISTRESS

WPSI

1) Satya Dehuri; 2) Shyam Nayak of Jemadeipur, Thana: Baramba;
2) 3) Sri Chandra Pradhan; 4) Sri Udei Prudhan both son of Pranabhandhu Prallu of Jemadeipur,
Thana; Baramba; 5) Udei Nayak of Kalamatia Thana Baramba,
3) 6) Satya Durai of Balikiari , Thana; Narasingpur; 7) Sri Upendra Patu alies of Pankhal, Thana:
Tigiria 9) Pabitra Jana, son of Mathura of Danamalipur , Tigiria. Last 24th day of March(Monday) I
, Safi quddin Khan, Gani Khan , of Pankal village, all three of us went by bus to Nakchi Chak
under Handapa P.S and we got down there .Waiting for us there was Sri Kunjabehari Dehuri of
Purushmala village of Handapa PS. All of us together with him went walking and reached the
village around 1.00 or 2.00 AM. After some time Kunja came to us with two polythene bag
In each polythene bag there were four pieces of tusks each of one foot length . After seeing the
tusks , Kunja wrapped both the polythene bags in one piece of gunny sack and handed it over to
me. After that all of us I , my village people and Kunja returned to Pankal village. I myself weighed
the eight pieces of tusks and found them to be of eighteen Kgs. weight. I paid Rs 54,000/- at at
the rate of Rs. 3,000 per/Kg for the entire stock to Gani Khan. Then Gani Khan , Safi quddin Khan
and Kanja distributed the money mutually amongst them. On 1.4.97 I went along with the eight
pieces of tusks to Calcutta and sold them to Sona Ullah for Rs. 70,000/- . After bringing this
70,000 I gave it to my colleagues as advance money for my skin business.

Last November , 1992 I had obtained conditional bail from the court of J.M.F.C ., Narsinghpur in
an elephant poaching case. One of the conditions was that I had to present myself before the
Range officer , Narsinghpur twice every week and honouring this condition I used to appear
personally before the Range officer, Narsinghpur every week . Last October , 1996 another
elephant case was filed against me in the court of the J.M.F.C. Narsinghpur. I have nothing more
to say and have related the facts out of my own free will. I have read this deposition and as
signing as correct. End.

ANNEXURES

Rates of conversion from Indian rupees to the US dollar

Year	Rs/US\$
1965	4.775
1970	7.558
1974	8.025
1975	8.382
1977	8.764
1978	8.190
1981	8.681
1982	9.485
1983	10.104
1984	11.348
1985	12.332
1986	12.597
1987	12.943
1988	13.899



A GOD IN DISTRESS

WPSI

1989	16.213
1990	17.492
1991	22.712
1993	31.250
1994	31.160
1995	32.400
1996	35.000

Sources : Statistical abstract US Bureau of Census, Washington DC; Midland Bank, UK

The effect of 1991 amendment of the Wildlife (Protection) Act is upheld by (this)/March 1997 judgement of the Hon. High Court of Delhi is that the state is required to take over the entire stock of imported ivory and carvings held in stock by erstwhile dealers without payment of compensation.

Since the ivory dealers had not challenged the 1986 amendment, the domestic trade in Asian (Indian) ivory had been extinguished at that time itself.

It is likely that ivory traders will challenge the Delhi High Court judgement in the Supreme Court of India. There is legal opinion, however, that because the Delhi High Court judgement is a 'speaking', well-reasons judgement, the Supreme Court may not admit the appeal. It is to be recalled that when the Hon. High Court of Delhi had withdrawn their stay order in 1992, an appeal by ivory traders to the Supreme Court had been rejected.