GAJAH

Newsletter of the Asian Elephant Specialist Group

(03)



NUMBER 9 **AUTUMN 1992**

INTERNATIONAL UNION
FOR CONSERVATION OF NATURE
AND NATURAL RESOURCES
SPECIES SURVIVAL COMMISSION

WWF World Wide Fund
For Nature

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Newsletter of the Asian Elephant Specialist Group
Number 9 **Autumn 1992**

WWF World Wide Fund For Nature

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The Asian Elephant Specialist Group Newsletter is published with the following aims:-

- to highlight the plight of the Asian Elephant
- to promote the conservation of the Asian Elephant
- to provide a forum for communication amongst all the members

Newsworthy articles are invited for consideration for publication and should be sent to Dr Charles Santiapillai at 110 Wattarantenne Road, Kandy, Sri Lanka. All articles may be reprinted. Reprinted articles should give credit to the Newsletter. The editors would appreciate receiving a copy of any article so used. The opinions expressed by the authors do not necessarily reflect the policies of either WWF or IUCN.

Cover : A domesticated Sumatran bull elephant in harness being used to haul timber in Indonesia (Photo: Widodo Sukohadi Ramono).

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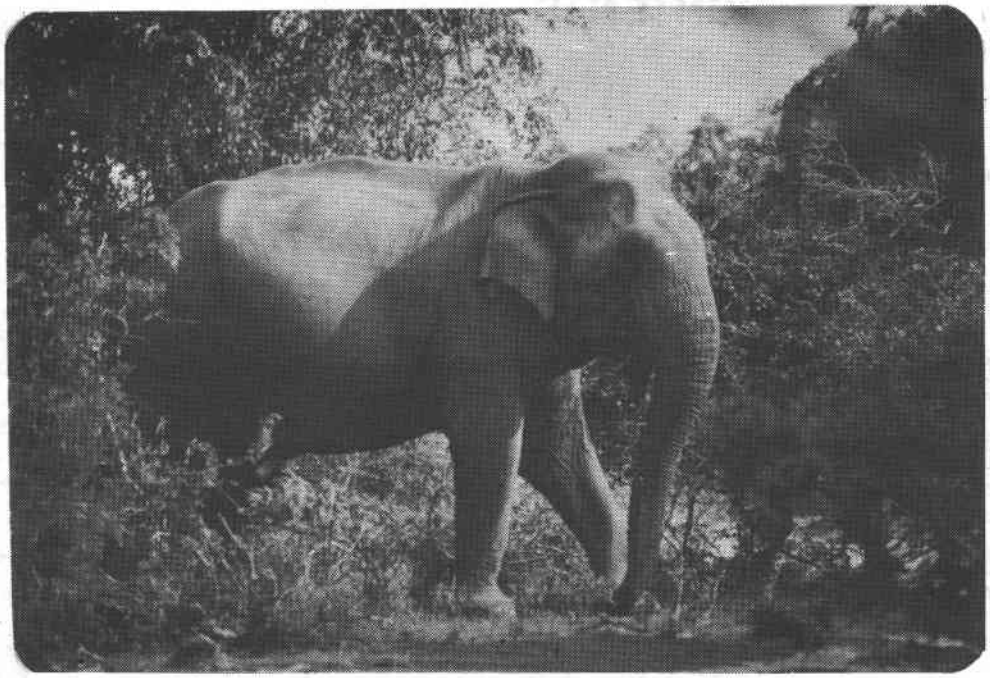
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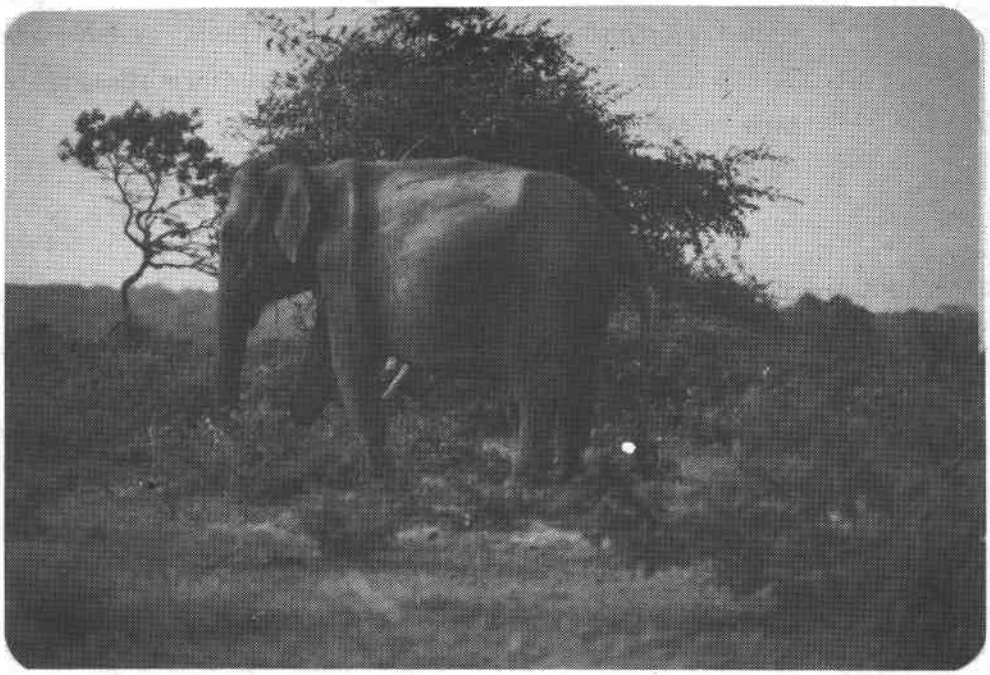
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COMMENT

by Lyn de Alwis & Charles Santiapillai

The Asian Elephant Specialist Group held its fourth meeting at the BIOTROP Institute in Bogor, West Java, Indonesia on 20-22 May 1992 mainly to formulate field projects that would ensure the long-term survival of the elephant throughout its range in Asia. This is easier said than done. Conservation of elephants in Asia will require much more than mere formulation of projects and a lavish display of lip service. The causes for the decline in the species' range and number lie in the demography of the human populations that share the land with it. While the African elephant is undoubtedly being threatened by poaching for its ivory, the Asian elephant on the other hand, faces a much more serious and intractable threat of habitat loss than simple poaching. This is not to imply that poaching is not a serious issue in Asia. It is indeed a matter of extreme importance and significance in small, isolated elephant populations characterised by skewed sex-ratios and inhabiting patches of forest habitats that are surrounded by human settlements and or agricultural landscape. Despite the ban on ivory, elephants are still being killed for their tusks in Africa and Asia.

The Asian elephant is a wide ranging species and as such it is no respecter of national boundaries. Across the dotted lines on the map, the elephants may move from one country to another in search of food and mates and in the process, come into conflict with man. International agreement is often the best way to resolve problems concerning deforestation, conversion of habitat to agriculture, establishment and maintenance of trans-frontier reserves, elephant corridors etc. Some of these issues transcend national borders. Neighbouring countries may share part of the seasonal ranges of elephants and so without their mutual support, such crucial elephant habitats can never be protected. A classic example is the vast stretch of forest extending from Bhutan eastwards to Assam in India. Protection and maintenance of such a vast area of continuous forest would ensure the survival of a significant proportion of India's elephant population.

However, protection and maintenance of such crucial elephant habitats will need much more than a prayer and a proposal. What is needed is not only the political will and courage to set aside such areas for elephant conservation but also the necessary financial and trained manpower resources to implement sensible, viable and long-lasting conservation programmes. Already many poor countries are spending substantial sums of money on nature conservation in Asia. The proportion of government spending and national wealth devoted to conservation is indeed surprisingly high in some poorer countries like Sri Lanka (% of Government spending in Sri Lanka is 0.03; in Indonesia, 0.04; in Malaysia; 0.05; compared to USA's 0.16% in 1988; while the corresponding % of GDP for Sri Lanka is 0.01; Indonesia 0.01; and Malaysia 0.01; while that in USA amounts to 0.04%).

Asian elephant conservation needs money badly. The species is a global rarity and therefore the responsibility for its long-term survival rests not only on the Governments and Conservation Organizations in the range states but more importantly from the wealthy nations in the west who have the power and the purse to provide tangible assistance to elephant conservation. African elephant continues to receive millions of dollars from the west. During the CITES Meeting held in February 1992 in Japan, the British Government pledged a million dollars to deal with ivory poaching. More recently, the Belgian chocolate company, Cote d'Or whose product features an African elephant provided another million US dollars to help protect the species in Africa. But such generosity has not reached the Asian elephant!

It is time therefore that the AESG launches a massive global campaign to raise not only funds but more importantly the awareness of the ordinary man on the street to the plight of the elephants in Asia. Such a campaign needs the support of the international media such as the Press, Radio and TV to spread the message across the world. Here both the message and the media are important. The AESG Newsletter alone cannot do the job on a scale that would really make the world take notice of the serious situation of the Asian elephant. We need the Advertising Giants and the power of the press to highlight the plight of the elephant.

Almost all the elephant populations occur in very poor countries in Asia. If such poor countries are to act as custodians of the elephant and thus protect its habitat and contribute financially to its conservation, then they have to make some economic gain from elephants. One way is through eco-tourism and the use of elephants in forestry operations. These will only bring in very limited revenues. Against this must be viewed the serious threat that would come from the human population itself in Asia. Asia will witness some of the fastest growth in human population in the decades to come. Although such growth will occur mainly in cities and urban areas in Asia, they will have an enormous impact on the wilderness areas through the increasing demand to feed such burgeoning human populations. The need to grow enough food to feed the masses will encourage the conversion of more and more forests for agriculture. Here in lies the danger to the conservation of biodiversity in general and that of the elephant in particular.

If African elephant is to survive in the future, the 33 countries in Africa need a budget of 480 million US dollars over the next five years. But in the case of the

(continued on Page 4)

Feature Articles

RECOMMENDATIONS FOR IMPROVING THE MANAGEMENT OF CAPTIVE ELEPHANTS IN WAY KAMBAS NATIONAL PARK LAMPUNG, SUMATRA, INDONESIA

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INTRODUCTION:

The Directorate of Forest Protection and Nature Conservation (PHPA) of Indonesia has achieved considerable success in their efforts to capture crop raiding elephants in various parts of Sumatra and train them.

For this purpose, they have established an 'Elephant Training Centre' at the Way Kambas National Park (Fig. 1) in Lampung Province, where with the assistance of the mahouts from Thailand, a number of young Indonesians have been trained in the art of domesticating and training of elephants in captivity (Santiapillai, 1990).

Dr. Charles Santiapillai, Senior Scientific officer of WWF Asia Programme, at Bogor, Indonesia, suggested that I should visit this Centre and make recommendations for improving the management of elephants. The WWF Indonesia Programme, proposed a project for this purpose and invited me to undertake a visit to the Elephant Training Centre, at Way Kambas National Park with the following objectives:

a) To critically assess the current management of elephants in captivity and recommend appropriate improvements;

b) To train PHPA staff in the management of elephants, with special emphasis on provision of a balanced diet and adequate veterinary care;

(from: page 3)

Asian elephant, the 13 countries concerned do not have even half a million dollars provided by the West to implement conservation programmes! The WWF International plans to spend over 4 million US dollars in Africa this year alone on elephant-related projects. But sadly, WWF has not extended its philanthropy to the Asian elephant. If such concerned conservation organizations as WWF and IUCN are ineffective or impotent in raising sufficient funds to conserve the Asian elephant, we shudder to think what hope is there for other less charismatic animals in the wild?

c) To initiate a programme to breed elephants in captivity; and

d) To train the PHPA staff to maintain proper records for each elephant and monitor its performance.

I visited Indonesia and stayed at the Way Kambas National Park from 18 September 1991 to 12 October 1991 (25 days) and observed the prevailing management practices, health of the elephants, the training procedures and general practices.

ADMINISTRATIVE SET UP :

The Way Kambas National Park is under the Directorate of Forest Protection and Nature Conservation (PHPA) of Indonesia. Pak Kurnia Rauf was the Administrative Head of the Park, Pak Tonni Ramadhani, the Officer In-charge of the Elephant establishment and Dr. (Mrs) Anjar Buddi Susilowati was the Veterinary Surgeon in-charge of veterinary care of the elephants. Four mahouts from Thailand were engaged for organising the capture and training of the elephants. Local Indonesians were employed as mahouts (Pawang).

Elephant capturing was undertaken from 1986 onwards, concentrating mainly on pocketed herds of elephants, which were crop raiding and causing serious problems. During my visit, fifteen elephants were captured in the sugarcane belt of Karang Mulya (a transmigrant settlement) in the Sungkai Selatan District of Lampung Utara, near Kotaboomi in Sumatra.

The elephants were captured by the drug immobilisation technique (using Xylazine as the drug for darting) within a period of five days from 27 September to 1 October. I was present during the transport of these animals from the site of capture to the Elephant Training Centre at Way Kambas National Park, - a distance of 165 kms.

The elephants were transported in two batches, by trucks. The first batch of 8 elephants were transported on 1 October and the remaining 7 elephants were transported on 4 October. During the transportation, involving

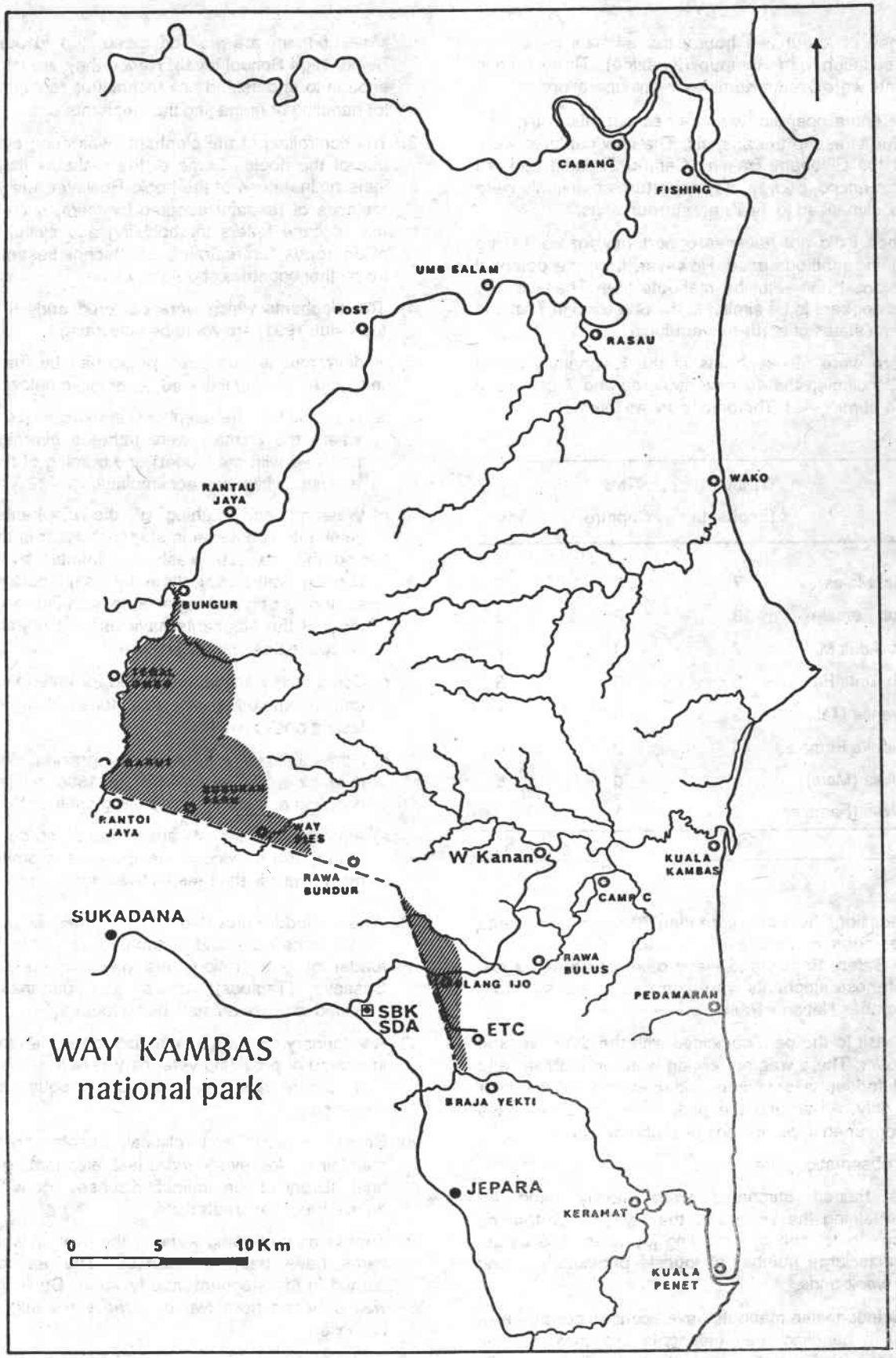


Fig. 1. *Way Kambas National Park, Sumatra*

a journey of about five hours, the animals were kept under sedation with Rompun (Xylazine). Three trained elephants were used a Kumkies in this operation.

The entire operation was carried out efficiently, with no undue stress to the animals. The new captures were kept at the Elephant Training Centre. Training had not yet commenced, prior to may departure as animals were being acclimatised to their new surroundings.

Hence I did not have an opportunity for witnessing the training methods used. However, from the personal discussions I had with the mahouts from Thailand, the method appears to be similar to the one used in Thailand and some states of north-eastern India.

There were 59 elephants at the Elephant Training Centre, including the 15 new captures and 7 calves, at the time of may visit. The details are as follows:

	Trained Elephants	New Capture	Total
1) Adult Males	7	0	7
2) Adult Females	13	6	19
3) Sub Adult Males	7	0	7
4) Sub Adult Females	3	3	6
5) Juvenile Male	3	3	6
6) Juvenile Female	4	2	6
7) Calves (Male)	5	0	5
8) Calves (Female)	2	1	3
	44	15	59

In addition, there are more than 70 captive elephants in other parts of Indonesia, in places such as Aceh, Taman Safari, Bogor, and many other parks and zoos. Most of these elephants were acquired by transfer from Way Kambas National Park.

My visit to the park coincided with the driest season in the park. There was no flowing water in the river and natural fodder was scarce and confined to the river edges only. All around the park extensive areas have been converted to plantations of *Dalbergia* Sp.

My observations are:

1) The trained elephants were mostly used for entertaining the visitors to the park, by performing circus feats, and by providing joy rides. The centre attracts large number of tourists particularly during the week-ends.

2) The Indonesian mahouts have acquired considerable skill in handling their elephants and making them perform circus feats, and ride their elephants with dexterity. They have become efficient in their work. Most of them are well educated, (up to Junior or Senior High School level). Hence they are intelligent enough to understand any techniques recommended for handling or managing the elephants.

3) The controlling of the elephants was done by liberal use of the hook. Some of the mahouts indulge in indiscriminate use of the hook. However, the various methods of restraint adopted by them, such as the use of cane fetters for hobbling and skilful use of nylon ropes for restraint, are techniques mahouts from other countries should examine.

4) The elephants which were captured early this year (Jan.-Jul. 1991) are yet to be fully trained.

5) A daily routine has been prescribed by the officer in charge, is being followed, as detailed below:

   a) Cleaning of the elephant standings (i.e. place where the animals were tethered overnight and provided with cut fodder) and burning of the dung and litter which had accumulated.

   b) Watering and bathing of the elephants. The elephants submerge in stagnant water in the river and the mahouts wash the animals by merely pouring water over them by using buckets. No scrubbing or grooming is done, with the result, that most of the elephants have heavy infestations of ectoparasites, particularly lice.

   c) Some of the animals are used for entertaining the tourists, and others are taken for a training session lasting one to two hours.

   d) Other animals are let out for grazing along the river side, till about 1400 to 1500 hours, after hobbling and attaching a trailing chain to the legs.

   e) After this the animals are tethered and cut fodder in the form of coconut palm leaves is provided to the animals in their respective tethering places.

6) The cut fodder provided to the animals, is brought in trucks, once daily and distributed. No other form of fodder or grain rations are given to the animals. Cassava (Tapioca) tubers and bananas were provided to those animals being trained.

7) A veterinary surgeon is attached to the Centre and is in charge of providing veterinary care to the animals. The Centre also has a poorly equipped field dispensary.

8) Record sheets and clinical sheets are being maintained for every individual elephant, giving a brief history of the animal, diseases for which the animal has been treated etc.

9) There was no flowing water in the river, in which two dams have been constructed. The animals are bathed in the stagnant muddy water. Drinking water was provided from two or three wells dug for the purpose.

10) During may stay in the park, I trained the staff to record the body measurements of the animals such

as the height, girth and length of the body etc. Measurements were recorded for 35 elephants. The newly captured elephants and seven calves were not brought for recording measurements.

11) The elephants are not used for hauling timber and only a few of them were being trained for this puspose.

12) Considering the number of elephants kept in the Centre, the number of mahouts available is not adequate, and some of the mahouts handle more than one elephant.

13) The four mahouts from Thailand assist in the training of the Indonesian mahouts and their elephants.

14) Many of the adult elephants, both bulls and cow elephants are being used as Kumkies for escorting newly captured animals, which is a desirable practice.

15) Importantly, dogs and cattle were not seen within the park area.

RECOMMENDATIONS

Based on my observations, the following recommendations are made for improving the management of elephants in the Centre.

I. TRAINING :

I did not actually witness the breaking and training of newly captured elephants; however, from personal inquiries, I learnt that it is similar to the method followed in Thailand, as the mahouts engaged for imparting training are from Thailand.

There are about 14 elephants which were captured during early 1990-91 (from Jan. to July.). I found that most of them still need more intensive training. Many of them appear unsettled and nervous. The mahouts resort to harsh methods, while training these animals, which is not desirable. A nervous or timid animal is unreliable and may cause accidents. From my experience of training of new captures in the states of Tamil Nadu and Kerala, in South India, where the Kraal method of training is adopted, the animals were trained using much gentler methods, and they also settle down for training much faster. Even the largest animal can be made to obey at least 20 to 25 words of command before they are taken out of the Kraal, a period of about 2 months. The hook is never used while training, and only a stick is used for controlling the animal. In this way the mahout stays close to the animal.

Hence, I recommend some of the senior mahouts and the officers in-charge of the Elephant Training Centre, be sent to a training establishment using the Kraal method, so that they will be convinced of the greater efficiency of this gentler method of training. This should stop the traumatic experience which the elephants undergo due to the current method of training.

Even on well trained elephants, hooks are used by most of the mahouts at the Centre. This is not necessary. The mahouts should gradually be weaned from the practice of using hooks and instead learn to control their wards by using sticks only. I was happy to see some of them have already replaced the use of hooks with sticks while handling their wards.

Hence I am confident that the other mahouts can also be persuaded to practice using the gentler method of controlling the elephants and avoid using hooks at least on already trained elephants and for training the juveniles.

Elephants which are over 2 metres in height may be trained for hauling timber. The use of elephant power in forestry production areas will be more economical than mechanisation and cause little damage to the undergrowth in the forests.

Training of calves:

There are 7 calves, three are without their mothers. It is easy to train calves with gentler methods. In my experience, weaning the calves from their mothers, at one year of age, and training them is easier than training the older calves which tend to be more aggressive. Captive born calves have no fear for man, and unless they are weaned and trained early, they may become a problem at a later stage. Early weaning has not been observed to affect their rate of growth, provided they are managed properly and given a balanced diet.

II. MANAGEMENT

1) Mahouts :

The number of mahouts employed is far less than the number of elephants kept in the Centre. As more and more elephants are captured and brought to the Centre for training, the problem will become more acute. In India and many Asian countries all elephants over 2 metres in height have two attendants each, i.e. one mahout and one assistant, commonly known as the grass cutter. It is easy to manage larger animals with two people, as the assistant shares the work load, such as bathing and cleaning the stalls. This system enables better management of the animal.

The assistant can be a novice, and by experience, can learn to handle the elephant and assist the mahout in the day to day management of the animal. Selection of a mahout should be from among the assistants who have become capable of handling the elephants independently.

In a park like Way Kambas, which attracts many tourists, accidents may happen if an elephant suddenly goes out of control. In such cases the presence of an assistant to the mahout will help in controlling the animal.

2) Bath :

My stay in the park concided with the driest spell of the season. There was no flow of water in the river near

the Elephant Training Centre. Two dams have been constructed across the river in which stagnant, muddy water has collected. These were used for bathing the animals. Drinking water has provided from 2-3 wells dug for this purpose.

However, the current practice of giving bath to the animal by merely pouring water over them, without scrubbing, is not enough. It is desirable that more attention is paid to this important work. The elephants must be made to lie down in the water in a lateral position, and scrubbed vigorously to remove dirt from the folds of the skin. Special attention should be given to scrubbing around the base of the tusks/tushes, behind the ears, axilla, abdomen, base of tail etc., areas which are likely to harbour ectoparasites and egg packets of oestrid flies.

The use of coconut husk for scrubbing is found helpful. Every part of the body must be scrubbed and washed, desirable in flowing water. Good scrubbing improves the health of the skin, by increasing cutaneous circulation and keeping it free of ectoparasite and fungal infections. At least once a day, 75-90 minutes needs to be spent on this important job.

After bathing, fly repellent oil should be applied around the base of tusks/tushes and around the nails, to prevent infestation by oestrid larvae. This practice in particularly beneficial for those elephants maintained in forest areas.

3) Feeding :

Elephants, like any other animal, need a balanced diet, particularly working animals, as they expend a great deal of energy.

A free ranging elephant spends about 15-18 hours a day grazing. Being a bulk feeder, the animal consumes at least 5% of its body weight as green fodder. A working elephant has less time for grazing. An animal still growing needs adequate protein. In Way Kambas, the captive elephants spend only about 6-7 hours grazing during the day, and are restricted to the river banks only. Later in the evening, they are tethered and given cut fodder in the form of coconut palm, for the night.

Apart from the monotony of eating monoculture fodder like coconut palm, the elephants do not get any grain rations, so their nutrition is inadequate. It is essential to include grain rations in their food. These should be given in cooked form as it improves digestion and palatability. Cereals like rice, wheat, finger millet, maize or any other millet, will help meet the elephant's energy needs as they are rich in carbohydrates. To meet the protein needs and to give a balanced diet, protein rich legumes such as greengram (Kacang hijou), horsegram or any other variety of kacang can be included in the diet.

On a dry matter basis, the grain ration requirement is about 0.5% of the body weight. Thus the daily requirements of elephants of various age groups are as follows:

Animal Height (cm.)	Grain ration quantity (kg.)	Salt (gm.)	Mineral mixture (gm.)
250	15	150	100
210-250	12	150	100
180-210	8	100	75
150-180	6	75	60
120-150	4	50	50

Two-thirds of the grain ration should consist of cereal grains and one-third in the form of kacang. Additions of salt and mineral mixture with the diet will be beneficial.

The animals must be trained to accept food placed directly in their mouth, and the mahouts instructed to give it this way. This will greatly increase the contact between elephant and mahout. It also facilitates easy administration of oral medication such as de-working powder or antibiotics as they can be combined with the cooked food.

It will be advantageous to allow the elephants to graze at night, with adequate precautions. This will improve the contact between the animals and thereby the increase the prospects of reproduction.

If practical difficulties prevent allowing the elephants to graze at night, raising fodder crops such as Napier grass, Guinea grass, hybrid varieties of grasses, and legumes as Alfa alfa etc., will be helpful in meeting the needs of the elephants. A mixed diet of fodder is preferred to a monoculture diet.

4) Work :

Apart from entertaining visitors to the Centre, the captive elephants do not perform any other work. In several parts of Indonesia large quantities of timber are being extracted from forestry production areas. Areas are allotted to private logging companies who use mechanical contraptions for hauling timber.

As more and more elephants are captured every year, a substantial amount of elephant power will be available which should be gainfully employed for timber hauling work. Otherwise, it will become uneconomical to maintain elephants with insufficient work. With the global oil crisis, and high cost of mechanisation, the use of readily available elephant power will prove much more economical than mechanisation. In addition, the elephants involved in timber hauling do not damage or churn up the forest. Hence, it is necessary to train the adult and sub-adult captive elephants for dragging timber.

A well managed elephant can be used for timber hauling for a period of 30 to 40 years, according to the experience of countries such as India, Myanmar, and several other South East Asian countries, where more

than 10,000 elephants are used for timber extraction work.

Additional use of the elephants could be made by offering a much wider range of nature oriented tours of the park which have proven to be very popular in other countries.

5) Camp site :

The present Elephant Training Centre at Way Kambas may not be able to support a large number of captive elephants, throughout the year, as the fodder available around the site is confined to the river side and some tall grass areas around the plantations.

Continuous use by captive elephants may deplete the fodder resources, and also become a reservoir for many gastro-intestinal and ectoparasites.

Hence to facilitate regeneration of fodder around the Centre and also to prevent recycling of parasites, it is necessary to shift the elephants to an alternate site at least for three months of every year, particularly during the drier seasons. The selected site should have running water as well as adequate fodder facilities. This will enable long term use of the Centre at Way Kambas.

6) Joy Ride Facilities :

Visiting tourists are taken to elephant back rides around the Park. This is very popular. No riding kits are used and instead, the tourists are allowed to ride bare back, which is not only uncomfortable but also unsafe. Many types of elephant riding kits are in use in other countries. The designs of such kits can be obtained, and produced locally from available material. Provision of such kits will ensure comfort and safety to the people using them.

7) Disposal of Litter and Dung :

The accumulated dung and litter around the tethering area, are heaped in the same place and burnt. This is a wasteful method. Instead, this material should be carted away to a suitable place for composting. Such decayed material can be profitably used as a farm yard manure, either in raising plantation crops, or for agriculture. Provision of a tractor with a trailer will be helpful for this purpose. This tractor can be made use of for other purposes such as transporting fodder, calves, etc.

8) Veterinary care :

The veterinary dispensary needs to be suitably equipped with adequate medicines and surgical stores. The veterinary surgeon is responsible for the health of the elephants and should also be involved in their management, since proper management will also help in keeping the elephants healthy and prevent the occurrence of many diseases. Hence specific duties must be assigned to the veterinary surgeon such as :

1. Treatment of sick elephants,
2. Detection of outbreaks of communicable diseases and use of preventive vaccinations,
3. Maintenance of camp hygiene,
4. Prescription of diet for the elephants,
5. Fixing of work loads,
6. Recording of Biometrical Data,
7. Post-mortem examination of dead captive or wild elephants and other forms of wildlife.

Considering the occurrence of various types of gastro-intestinal parasites, a de-worming schedule must be planned for the elephants. Similarly, preventive vaccinations against serious diseases like Anthrax and Pasturellosis must be undertaken at regular intervals.

The veterinary surgeon should be sent for training periodically to improve her knowledge in the latest techniques adopted in other countries. Initially the veterinarian should visit various elephant establishments in India, and other countries, where elephants are well managed, so as to gain first hand knowledge about proper elephant management.

BREEDING

Breeding of the elephants in the Park is not difficult. The Park has seven bulls and 19 cow elephants - an ideal sex ratio for captive breeding. Two cow elephants; "Umrih" dan "Karsih" are pregnant-sired by "Tong Byi" - a makhna acquired from Thailand. One of the newly captured cow elephants was observed to have mated with "Sengtong" - a young tusker on 7 October 1991.

The elephants in the camp are maintained as a group in their natural environment and let out for grazing. The mature bulls have access to the female elephants in the group, and matings have been observed to take place.

If the animals are let out for grazing during nights also, the cow elephants stand a better chance of mating with the wild elephants which are frequently observed near the Centre at night.

A stud book should be maintained and details of matings, the identity of the sire, the gestation period, the sex and name of the calf etc. should be recorded. An experienced mahout will be able to detect whether mating has occurred.

Care of pregnant elephants will help ensure a healthy calf. Once the signs of pregnancy are noticed, the pregnant elephant should not work and should be given complete rest. She must never be used as a Kumki or for riding. Transportation in a truck should be avoided. A supplementary diet containing coconuts, minerals and vitamins will help in the development of a healthy calf, as well as the provision of an adequate milk supply for the new born calf.

Calf mortalitiy can be avoided with adequate care of both mother elephant and the calf. The calf should have sufficient mother's milk for its normal growth. Over working of the mother will affect the growth of the calf, as it is dependent on its mothers's milk for the first six months, even though it is capable of browsing by the third month. The calf's growth rate should be at least 2 cms per month. Once the calf reaches the age of six

months, it can be given suitable concentrate rations and de-wormed at regular intervals. If the calf has shown a normal rate of growth, it can be weaned from its mother when twelve months old. Timely weaning will reduce the strain on the mother and make her fit for work again. The weaned calf is capable of leading an independent life and it will continue to be among its own clan.

MAINTENANCE OF RECORDS

I. SERVICE REGISTER :

A service register for each elephant may be opened from the day of its acquisition, either by capture, birth or transfer, and should be posted with all relevant details. The Register can be kept in a well bound pocketbook (20 cm x 10 cm), having a minimum of 200 pages so that it can be used for over a period of nearly 30-40 years.

The details to be noted are as follows:

1. Index

- 1 page

2. Origin:
   a) How acquired - capture/birth/purchase
   b) Date of capture or birth
   c) Place of capture or birth
   d) Age at the time of capture
   e) Height at the time of capture
   f) Indentification particulars - sex, number of nails, conformation of ears, tail, colour of eyes, scars or blemishes, and shape of the back etc.

-2 pages

3. Training particulars:
   a) Date of commencement of training
   b) Date of completion of training
   c) Particulars of training given

- 2-3 pages

4. Mahout and Attendants
   a) Name
   b) Pay particulars

- 5 pages

5. Temperament of the Animal:

(Recording of observation about temperament should be done only after the animal has been well trained)

Disposition of the animal - calm/predictable/aggressive/ unreliable, obedient to mahout, and other details

- 5-10 pages

6. Age, Height and Girth particulars :

To be recorded at least once a year for adult elephants. For calves, measurements at frequent intervals (monthly/quarterly) will be of immense help in observing the growth rate. This should be outlined as follows:

Date of Record	Age	Height	Girth	Circumference of front foot	Weight	Signature of the person recording

- 10 pages

7. Condition and Health:

This should be periodically recorded by a competent authority, such as the veterinarian or officer in charge of administration, to certify as to the general condition of the animal.

- 10 pages

8. Prophylactics & Nature of Vaccinations:

The date and de-worming schedule should be recorded by the veterinarian as and when done. (the drug used may be recorded).

9. Diseases: (particularly sickness) - outlined under the following collumns
   a. Date noticed
   b. Diagnosis
   c. Date of recovery

- 20-25 pages

10. Diet:
   a. Quantity of fodder prescribed
   b. Quantity of grain rations, with details
   c. Name of the authority prescribing the diet

- 15-20 pages

11. Working Capacity:

Nature of work prescribed, and if used of timber hauling - the quantity, (m^3), or load prescribed per trip, hours of work etc.

- 10 pages

12. Work performed:

This should be recorded quarterly. If timber is hauled - the quantity of timber dragged, no. of days worked, no. of days rest, and other details recorded.

- 20-25 pages

13. Cost of Maintenance:

This should be recorded at least quarterly and include cost of feed, pay of mahout, and other expenses incurred for the animal.

- 15-20 pages

14. Breeding particulars:

A) If the animal is a bull, the following details should be recorded

- Name and age of the elephant mated
- Dates of mating (dates on which mating took place)
- Whether he was in Musth or normal
- Result of the mating - details of the calf born
- Date of subsequent matings, if any

B) If the animal is a cow, the following details should be recorded

- Name of the bull (if wild, indicate whether it was wild elephant)
- Dates of mating (if observed)
- Details of mating behaviour, frequency/etc.
- Date of calving
- Sex and birth, weight and height of the calf
- Gestation period
- Calving interval (No. of days between two successive calving)

- 10-15 pages

15. Musth particulars:

To be recorded for the Bulls

1) Date of onset of Musth
2) Duration of Musth (days)
3) Date of waning of the Musth
4) Age at the time of Musth
5) General disposition during Musth

- 10 pages

16. Transfers:

If the animal is temporarily transferred, the details may be noted. If permanently transferred, the service register should also be transferred to the new station for continuing recordings.

- 10 pages

17. Inspection Remarks : by PHPA officials

- 10 pages

18. Inspection Remarks : by Veterinarian

- 10 pages

19. Annual Valuation:

The value of the animal may be revised annually by a competent authority.

- 10 pages

20. If the animal dies, the cause of death, post-mortem findings, method of disposal of carcass, tusk measurements and weight should be recorded. If disposed of by sale, the price obtrained may be recorded, the Register closed and kept as a permanent record for safe keeping.

The details in the service register are valuable data regarding the animal and will help researchers and others determine the performance of the animal.

II. LIVE STOCK REGISTER :

This would be a useful addition for the Centre, and the following facts can be recorded annually in the Register:

1) Sl. No.
2) Date of Acquisition
3) How acquired (Capture/birth)
4) Name of the animal and sex
5) Annual valuation
6) Annual age, weight, girth particulars
7) Diet prescribed
8) Work load
9) Cost of maintenance
10) Remarks (if disposed - nature of disposal)

The register may by posted and revised annually.

III. CLINICAL SHEETS :

Clinical sheets for each animal should be maintained by a veterinarian in-charge and filed in separate files, one for each animal. The following facts should be kept:

Name of animal : -
Sex : -
Age : -
Date of acquisition : -
Mahout : -

Date of Admission	Anamnesis	Symptoms (Clinical Symptoms)	Diagnosis	Treatment Given	Result Remarks

GENERAL

A) The Asian elephant is considered an endangered species mainly because of the threat to its habitat. This is true in Indonesia where the elephants are found mainly in Sumatra and Kalimantan.

Due to the settling of a large population of transmigrants from Java and other islands amidst the elephant habitats in South Sumatra, particularly in the Lampung province, the elephant habitat has become fragmented. Crop raiding by elephants has become a common feature. Due to this isolated existence, these herds of elephants will die out. Hence the PHPA authorities have undertaken the commendable job of capturing such herds and maintaining them in captivity.

But this cannot be a permanent solution. Alternate methods of saving these doomed herds should be explored, such as:

a) Maintaining the quality of the habitat and creating viable corridors between the pockets.

b) Isolated populations which have no future, should be translocated to suitable areas.

c) Protection of crops from marauding elephants, using effective elephant proof barriers, such as electric fencing, and provision of proper maintenance for the barriers.

d) Educating the people around the belt areas to raise crops such as sunflower, peanuts, sesame seeds which will not attract elephants.

e) Introduction of a crop insurance scheme, as well as provision for payment of compensation for loss of life. This will pave the way for building up the confidence of the people living around elephant areas, and there by preventing them from resorting to extreme measures.

B) Fire Protection: During my visit, the forests around Way Kambas were subjected to severe fires. Large patches of grasslands were burnt. Reports from other areas in the country revealed the occurrence of forest fires on large scale.

Effective fire protection methods such as maintaining fire lines in and around the forests, and fire tracing these lines as needed together with other similar measures are necessary to save the valuable forests.

Training of the forest staff in the latest techniques of fire control and fire management is an immediate necessity. Provision of adequate funds for fire protection work should be given priority.

C) Training of Elephant Managers: My presence in Way Kambas for a period of 25 days could have in a limited way helped in improving some of the management practices. As a follow up action, the person involved in the management of elephants, the decision makers and some of the mahouts should be sent to various elephant camps in other countries such as India for a few days at a time to help them become familiar with sound management practices which can be adopted easily here. The Mudumalai Wildlife Sanctuary in Tamilnadu and other areas in the neighboring states of Kerala and Karnataka have a reputation for maintaining elephants using particularly sound management practices. A visit to these areas, will convince these people of the efficiency of such methods. This is particularly essential since the art of elephant management in Indonesia is of recent origin and needs to be improved.

D) Use of Elephant Power: The PHPA has built up a seizable population of trained elephants. Their number is bound to increase if the present policy of capturing pocketed herds of elephants and training them continues. Unless these elephants are put to proper use, it will prove to be uneconomical to maintain such as large number of elephants in captivity. These animals must be trained for hauling timber, and utilised in the production forestry areas. Effective use of elephant power in such operations will prove to be more economical than mechanisation.

The AESG and the Government of India are keen to enforce the condition that wherever captive elephants are available, mechanisation should be avoided in timber operations and elephants utilised for the purpose of timber hauling. A similar policy decision on the part of the Indonesian Government will go a long way in conserving this noble animal.

ACKNOWLEDGEMENTS

I wish to thank Dr. Russell Betts of WWF Indonesia Programme for having provided me funds for undertaking this study, and Dr. Kathy MacKinnon, Scientific Advisor for her kind help and advice.

I do not have adequate words to express my gratitude to Dr. Charles Santiapillai, Senior Scientific Officer to WWF, Asia Programme, who was responsible for arranging my visit to Indonesia. He had taken a great deal of care in looking after every detail so as to make my stay comfortable.

I can never forget Mrs. Anoma Santiapillai, who played host to me, and took care of my travel arrangements and saw to my various needs. But for her help, I would have been in great difficulty. I wish to express my gratitude for all the help rendered by Mrs. Santiapillai.

At Way Kambas, Pak Kurnia Rauf, the Administrator of the Park, with his cheerful disposition and willing help, not only made my stay meaningful, but also was a source of encouragement. He looked after my welfare during my stay in the Park, and helped me carry out my work smoothly. I wish to express my sincere thanks for his love and affection.

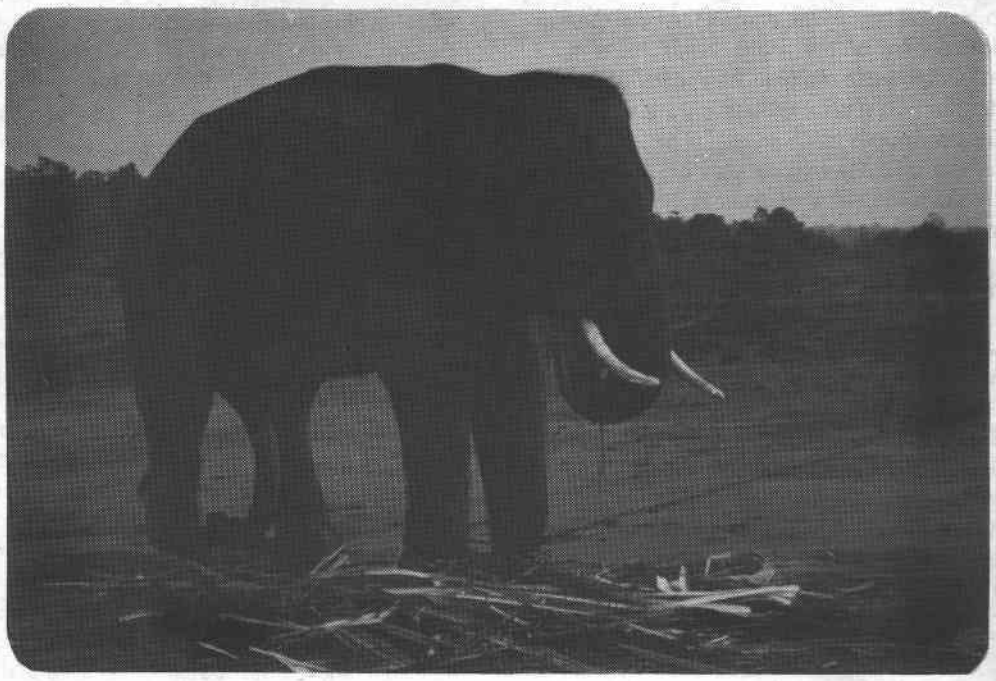
Pak Tonni Ramadhani who was in-charge of the Elephant establishment and Dr. Anjar Buddi Susilowati, the Veterinarian of the Park by their constant association with my work, helped me in carrying out my work effectively. I thank them for their kind co- operation,

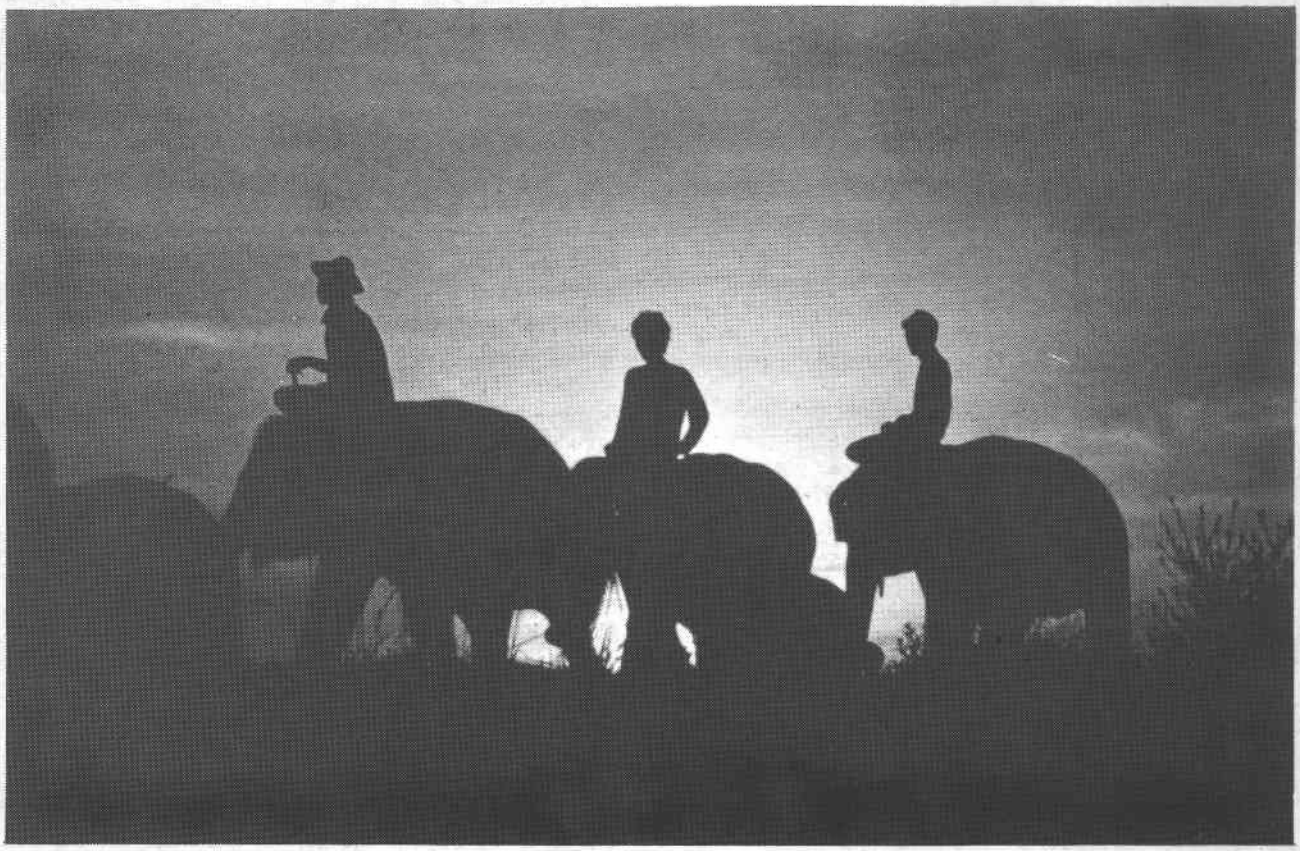
Mr. Sukatmoko, a volunteer working in the Park, helped me by acting as my interpreter. But for his help, I would not have been able to communicate with the mahouts and others. I wish to express my appreciation for his help.

The local mahouts by their cheerful disposition and willingness to learn, made my work easy.

I wish to thank the Director General, PHPA, Indonesia and other officials of PHPA for readily agreeing to this programme and providing all facilities for my work.

I thank Mr. J.C. Daniel, the Principal Investigator of the BNHS, Elephant Project, and the Bombay Natural History Society, with whom I am working, for readily agreeing to spare my services for this work.





TRADE IN ELEPHANT AND IVORY : SONEPUR (INDIA), 1991

by
D.K. Lahiri - Choudhury
Calcutta, India

Sonepur in North Bihar, India, across the river Ganga from Patna, the capital of the state, holds an annual animal fair in October/November (the date is fixed according to the lunar month and falls on the full moon day in the Indian month of Kartick). This year the fifteen-day fair was officially inaugurated on the 21st of November with a ceremonial worship in the local temple, erected to mark the mythological fight between an elephant and a crocodile which was supposed to have lasted for a millennium. The history of the *mela* or fair goes back a very long time - nobody knows exactly when it began except that it is very, very old. This writer even in 1976 saw more than 600 elephants being paraded for sale there. Complete stoppage of capture of elephants in India since 1982 has had a drastic effect on the number of elephants in this *mela*, and this trade is likely to die out in course of time if the present drift continues, and with it will die more than a millennium-old tradition. There were c.380 animals up for sale in 1983; 350 in 1984; 225 in 1985; 215+ in 1986; and c.225 in 1987. This year only 90 elephants had been put up for sale. The break up is as follows:

Male		Female	Total
Makna	Tusker		
6	48	36	90

The tallest elephant in the *mela*, a tusker, was about 9'9" (298 cm.) high, according to official estimate, and the smallest was 6'2" (188 cm.). It is to be noted that there were no calves at Sonepur and only one sub-adult animal [below 7' (213 cm.) in height]. More than 50 per cent of the animals were decrepit creatures with some physical defect or the other, such as a chronic sore back, cracked sole, or corneal opacity; and, therefore, with few or no takers. As is evident from the height classification, no fresh elephants are coming to the *mela* - the source has dried up and the pool is shrinking every year.

Apart from elephant, the fair this year had horses and ponies 2384, camels 4, pedigree cows 4359, country- bred cows 672, and bullocks 42,005.

In the course of the *mela* some dealers picked up quite a few tuskers and female elephants, but there was no institutional buying, i.e. no government agency other than the West Bengal state Forest Department was in the market for purchase. West Bengal Forest Department paid around Rs.1,00,000 for each of the three prime female elephants they purchased, aged about 15 years each. Strangely, inflation does not seem to have effected the price of elephants; for even in 1987 West Bengal State Forest Department paid between Rs.90,000 and Rs.1,00,000 for each of the three elephant they had purchased. The asking price for the finest tusker in the *mela* was Rs.1,70,000, and the second best one with magnificent tusk was sold for Rs.1,40,000.

The Forest Department of Bihar has been running a camp office on the *mela* ground for the last 10 years - the first such office was set up in 1982. The attempt is to regularise the ownership and trade in elephant by an insistence that the private owners of elephants obtain legal procurement certificates (LPC) from the Forest Department before completing the sale or transfer. But a tradition of private ownership of elephants going back thousands of years, cannot be changed overnight, and even now the majority of the owners did not have LPCs. On November 1, 1991 the amended Wildlife (Protection) Act, 1972 of India came into force which removed an anomaly from the original Act as amended in 1977. In the first version of the Act elephant had been put in Schedule II, Part I and in the 'definition' (Chapter I, Selection 2) domesticated elephants were put in the category of 'cattle'. While in 1977 the elephant was upgraded to Schedule I to fall in line with Appendix I of CITES where the Asian elephants had been recently put, the 'definition' part was left unchanged. Thus, though the elephants were taken from the wild and domesticated, it could be claimed that once domesticated they did not come within the purview of the Act because they were cattle. A recent court judgement in Bihar had upheld this contention. However, the 1991 amendment has removed the anomaly and the whole category of cattle has been removed from the 'definition' part and replaced by 'livestock' where the mention of the elephant has been omitted. Thus, elephant now in law, whether wild or domesticated, will come unambiguously within the purview of Wildlife (Protection) Act. Hence, the LPCs for owners are now legally obligatory.

It was whispered in the *mela* ground that one mischievous buyer from outside the state, from western Uttar Pradesh in fact, was picking up old and big tuskers solely for the purpose of ivory, i.e. he would remove the elephants and then destroy them and obtain the ivory to sell it illicitly. The fellow was spurned by most traders in the *mela* and was called 'the butcher' in private. This is a police matter and the authorities are likely to take up the issue in due course when their attention is drawn to this heinous practice which has escaped notice so far as the incidents take place in private grounds outside the *mela* and in areas beyond the control of the Forest Depart-

ment. In fact, the international border with Nepal is not very far from where the *mela* is held, and it is more or less an open border. It seems possible that this ivory is smuggled out of the country along this route and eventually finds its way to the international market, particularly in south-east Asia and beyond. Sawn ivory has always been sold at Sonepur. Owners of tuskers recover some of their cost by selling off the sawn tips of the tusks of their animals when the 'show' is no longer necessary to enhance the price of the animal. One ivory dealer with an advertised presence was selling ivory and it was reported that the asking price was between Indian rupees 3,500 and 5,000 per kilogram. Another party informed one of us when approached incognito that he had a stock of 80 kilograms of ivory to offer to a likely buyer.

Is Sonepur *mela* an anachronism which has to wither away? This writer feels that the traders at Sonepur - most of them local small landowners keeping an elephant or two as symbol of social status during the year and making some profit in the following *mela*, if possible and buying a new one with the proceeds have a positive role to play. They take in small animals and bring them back as grown ups. The cost of maintaining young elephants in government stables is high - around Rs.1,500/- per month, whereas these people can do it practically free, feeding the animals with their farm produce and taking a personal care of the animals which is so sadly lacking in most (but not all) government establishments. This positive side of the much maligned traders at Sonepur needs to be clearly stated.

So much for elephant and ivory trade in Sonepur, 1991.

(For Sonepur mela, see D.K. Lahiri-Choudhury, 'The Indian Elephant in a Changing World', in *Contemporary Indian Tradition*, ed. Carla M. Borden, Washington and London: Smithsonian Institution Press, 1989).

(Note: 1 US$ = c.25 Indian rupees in November, 1991).

IS TRANSLOCATION A MANAGEMENT TOOL?

by : Mohd. Khan bin Momin Khan, Tajudin Abdullah Mustafa Abdul Rahman and B. Mohd. Nor.

PHILOSOPHY, PRINCIPLES AND CONCEPT OF MANAGEMENT

Man-nature interactions started when our food-gathering ancestors *(Homo erectus)* learned to hunt first by using their bare hands to improvise lethal and efficient weapons. Man also observed wildlife to acquire special skills and knowlegde to become a more effective hunter. At the same time our ancestors invented axe and saw to cut the pine and oak forest and make room for their settlements. The food-gathering society subsequently turned into prime consumers and commersialisation took place to support the human populations who were involved in other avocations.

As the *Homo sapiens* population experienced rapid growth and dispersed widely throughout the hemisphere, more resources were utilized by man and wildlife populations were gradually displaced from their natural habitats. Later man became highly mechanised; chain saws to cut the forest, tractors to till the farm and guns to kill the wildlife. Consequently, resources became scarce and wildlife species experienced massive extinction or rendered threatened or endangered.

Since 1600, a total of 194 species of mammals, birds, reptiles and amphibians were extinct and 617 more species are threatened with extinction (Nilson 1983). In such a situation, the purist might take a *laisse-faire* attitude - if the resource is available and the species is destined to be extinct then let nature takes it's course. A strict naturalist, conservationist or environmentalist might take a near-religious approach - if it is good for the wildlife then the whole resources become untouchable. The sport hunter argues that the wildlife must be able to propagate in its natural habitats and the surplus need to be harvested. On the other hand, illegal hunters and poachers are attracted to the wildlife for the high value of the meat, horn or ivory. While commercial exploiter would argue that all resources must be able to serve the market economy to the maximum level without any regard to its future implications. Conversely, a utilitarian might look into the non-consumptive use of wildlife resources such as wildlife use in the tourism industry. Political leaders would exploit natural resources for self benefit or for his/her constituents. However, to a scientist or conservation biologist, resources can be put into productive use or extinction of species could be avoided or delayed by using our scientific knowledge, skill and experience to restore the species to recovery.

Whether we should interfere or not with the natural or unnatural ecological processes is rather a question of morality and ethics. It can either be taken as political, emotional or *practical solutions to real problems*. As a more successful and civilised species in the animal kingdom, are we duty-bound to help other species to coexist and utilise the same resources on this planet? Or do we need the wildlife and the wilderness they live in to be utilized wisely for our well being? It is more ethical to cull and eat wildlife than to kill and eat domestic animals?

If the animals have ancestral rights then why don't the human population be relocated to accommodate the wildlife population utilise the resources.

However, neither the resources nor the wildlife could decide what is good or bad for them. And can the 5 billion human population reach a singular solution on what is good for the resources and the wildlife? Most of the time we find that the decisions made by environmentalists and strict naturalists tend to be out of touch with reality, politics or incompatible with the sovereign rights of a nation and its local culture. Since we live in the real world, we must be pragmatic; sustainable resources development and wildlife existence are both needed by man. According to the founder of modern wildlife management, Aldo Leopold, "There are some who can live without wild things and some who cannot". Therefore, we must compromise on a practical solution to benefit everyone.

From the time the Mongol ruler of Kublai Khan (1216-1294) who was the first known "conservationist" to provide food for migratory birds, men have developed and refined the knowledge and techniques as management tools to enable us to interfere in the processes of the natural communities. Wildlife management involved the science and art, aimed at achieving sound human goals for wildlife resources by working with wildlife populations, habitats and people (Leopold 1933, Giles 1969, Teague and Decker 1979).

The management efforts usually aim at increasing, stabilizing or decreasing of the wildlife populations. It is also generally known that any viable population is a result of adequate quantity and quality of food, cover, water and special requirements of the species. These principles and concepts of wildlife management are vital factors in determining our decisions to implement certain tools to optimise the resource utilization for the benefit of the mankind and animal species.

WHAT IS TRANSLOCATION?

According to IUCN (1987), translocation is the reintroduction, restocking and the introduction of the non-native species. Reintroduction is the intentional movement of an organism into a part of its native range from which it has disappeared or extirpated in historic times as a result of human activities. Restocking is the practice of releasing an organism into a part of its historic range where small numbers of the same species still exist.

Thus tranclocation can occur between wild- to-wild and captivity to wild. Wild animals held captive in the zoos or farm can be a half-way-house for any reintroduction or restocking programmes.

WHY TRANSLOCATE?

Animals are translocated from one area to another for the purpose of saving the population from habitat destruction or its persecution to the brink of extinction, captive propagation, reestablish extirpated populations, augment existing populations, reestablish new population, domestication, economics, as biological control or accidental in nature.

Translocation can contribute to the preservation of the wildlife. Some large mammals have been translocated from the native land and raised in foreign habitats. Pere David's deer, Przewalski's horse and Arabian oryx are classical examples where the wild animals are almost certain to become extinct in their natural ranges. The Arabian oryx raised in Phoenix Zoo and San Diego Zoo were reintroduced into its former range in Oman, Jordan and the rest of Middle East.

The Timor, deer *(Cervus timorensis)* that was translocated to and domesticated in Mauritius has become an important economic resource for the country. The farm-raised Timor deer has been reexported to other countries including Malaysia.

The elephants in Malaysia which were driven from their natural ranges had caused over M$300 million on crop damages since 1969. Before the solution could be remedied, culling seemed the best alternative for short-term management. Soon after translocation techniques were developed which are unique to Malaysia. The translocation of these wild elephants to other habitats helped to solve their depredations on agricultural crops.

TRANSLOCATION AS A MANAGEMENT TOOL

There are more than 416 attempted translocation programmes involving a wide variety of mammals, birds, reptiles and amphibia (Foster-Turley 1990). It is therefore a tool in the wildlife management used widely throughout the world. The success of the populations after translocation is not immediately known. However, according to Tudge (1992) success is rather erratic, with a mere 15 percent in the United States for the birds. The larger mammals can expect a higher degree of successful translocation.

Introduction of alien species has become a major cause of extinction among native species. Nile perch has displaced the native fish in Lake Victoria in Africa and rainbow trout is wiping out native brown trout in British rivers. Rabbits that were introduced into Australia have caused severe damage and are competing with the other wild and domestic animals. The American red-eared slider has invaded the Malaysian rivers and is competing with the local turtle species. The translocation of such species is not desirable at all and it has an economic disadvantage to the receiving countries.

In general, there are five major considerations before embarking on a successful translocation programme (Foster-Turley *et al* 1990, Griffith *et al* 1990);

i. suitable habitat of the release site
ii. release of large number of animals
iii. use of wild-caught rather than captive individuals
iv. adequate and available resources (funding, manpower, technology and time)

v. status of the animal (endangered, threatened and vulnerable)

THE MALAYSIAN EXPERIENCE

I. Elephant *(Elephas maximus)*:

In the face of rapid rural development, wildlife lost a lot of the prime habitats to agricultural plantation. Initially, wild elephants that strayed into the agricultural plantation were driven back into the forest by frightening them using flares and gun shots. After a while these animals got used to the sound and flares and elephant drive was rendered ineffective (Monroe and England 1978). Finally, hundreds of those wild elephants had to be culled and their population were reduced to about 500 individuals. In the mean time, other techniques were developed by DWNP including chemical repellants, trenches, barriers and electric fencing. Electric fencing is found to be effective to control elephants from raiding agricultural crops. However, since the estimated cost is M$1,311 per kilometer (Monroe and England 1978), it may not be economical in areas bordering large tracts of elephant habitats or where the agricultural areas involved belong to smallholders who have limited source of funding.

At the same time, in early 1970s, the DWNP was able to combine the Assamese method of elephant handling and chemical immobilisation to restrain and relocate wild elephants. The new technique was successful in solving the elephant problem in the Jengka FELDA area in the state of Pahang.

In March 1984, a herd of 9 elephants was trapped on an island at Kenyir Dam. The herd which comprised subadult and adult elephants, was translocated to Sungai Buai. Between 1989 and 1991, 38 wild elephants were translocated to Sungai Chenana, which is located about 6 km from the first release site (Hassan Kassim 1992). From the subsequent monitoring work about 75% of the total released elephants were detected and the remaining might have migrated elsewhere (Hassan Kassim 1992).

Between 1990 and 1991, a total of four adult male wild elephants went across a narrow strait from southern part of Johore and landed on Pulau Tekong and Pulau Ubin is Singapore (Abdul Samad 1990, Mohd-Tajuddin *et al* 1992). The animals were captured and translocated to Endau-Rompin State Park in Johore, Malaysia.

Since then about 260 elephants were translocated to Endau-Rompin, Temenggor Dam, Kenyir Dam and Taman Negara. At an estimated average translocation cost of M$15,000 per head, the DWNP had spent almost M$4 million. The costs are partly absorbed by the Federal Government and the plantations where the elephants are causing a lot of problems.

The fact that there is not a report of any carcass found in the release sites is an indication that the translocated animals have survived. Operational mortalities prior to translocation are mainly due to poor body conditions and accidents (eg. animals fell on their trunks).

As a result of protection and translocation of the wild elephant its population now has increased and is estimated to be about 1200 individuals.

II. Sambar deer

In Sungkai Deer Farm a herd of 10 animals escaped in 1986. Due to this accidental release, the deer population had increased and is now causing damage to the young rubber saplings in the nearby plantation.

In Taman Negara, a few pairs of deer were released at Kuala Tahan. Today the sambar deer population around Kuala Tahan is estimated to be about 14 individuals.

MANAGEMENT CONSIDERATIONS

The effectiveness of the translocation as a management tool is based entirely on the continued survival of the populations in the new habitats. Whether translocation is a viable solution or not to wildlife problems depends on the wildland protection. In some cases, translocation programme is thwarted by on-going habitat destruction and maladaptation of the species to the new environment. In certain instance, the cost of the whole exercise of tranclocation might be prohibitive for a poor country and financial help is often sought from a third party interested in nature conservation.

In the long-term, a holistic approach must be taken to ensure that the management decision is viable - translocation should be complemented by habitat preservation/conservation and long-term monitoring to determine the survivability of the population.

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ASIAN ELEPHANT: NATURE'S FOUR - WHEEL DRIVE VEHICLE

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Bogor, Indonesia

The elephant is the largest terrestrial mammal in Asia. Prior to the large scale modification of its habitat by man, the range of Asian elephant extended from the Euphrates-Tigris river systems in the west through Asia south of Himalayas to Indo-China and most of southern China in the east. Today, the Asian elephant occurs in Bangladesh, Bhutan, Burma (Myanmar), Cambodia, China, India, Indonesia (Kalimantan and Sumatra), Laos, Malaysia (Peninsular Malaysia and Sabah), Nepal, Sri Lanka, Thailand and Vietnam. At the turn of the century, it was estimated that there were more than 100,000 elephants in Asia. But today it is doubtful if the wild populations in all the thirteen countries of the species range would add up to 55,000 animals. Although the elephant's present range still extends from the Indian sub-continent in the west to the rim of the Indo-Chinese peninsula, yet the total wild habitat available for it in Asia amounts to only about 500,000 km2 (or about the size of Thailand), which is declining at an average rate of 4,000 km2 per annum. It is therefore one of the most seriously endangered species of large mammals in the world. Indiscriminate hunting and forest clearance are the principal causes for the decline in number of elephants in Asia.

Prior to about 1900, when agricultural settlement in Sumatra first led to a substantial degree of deforestation, most of the island was covered in primary forest. Presumably up to that time, the elephant was more or less continuously distributed throughout the whole area. The island of Sumatra must have had a subs-

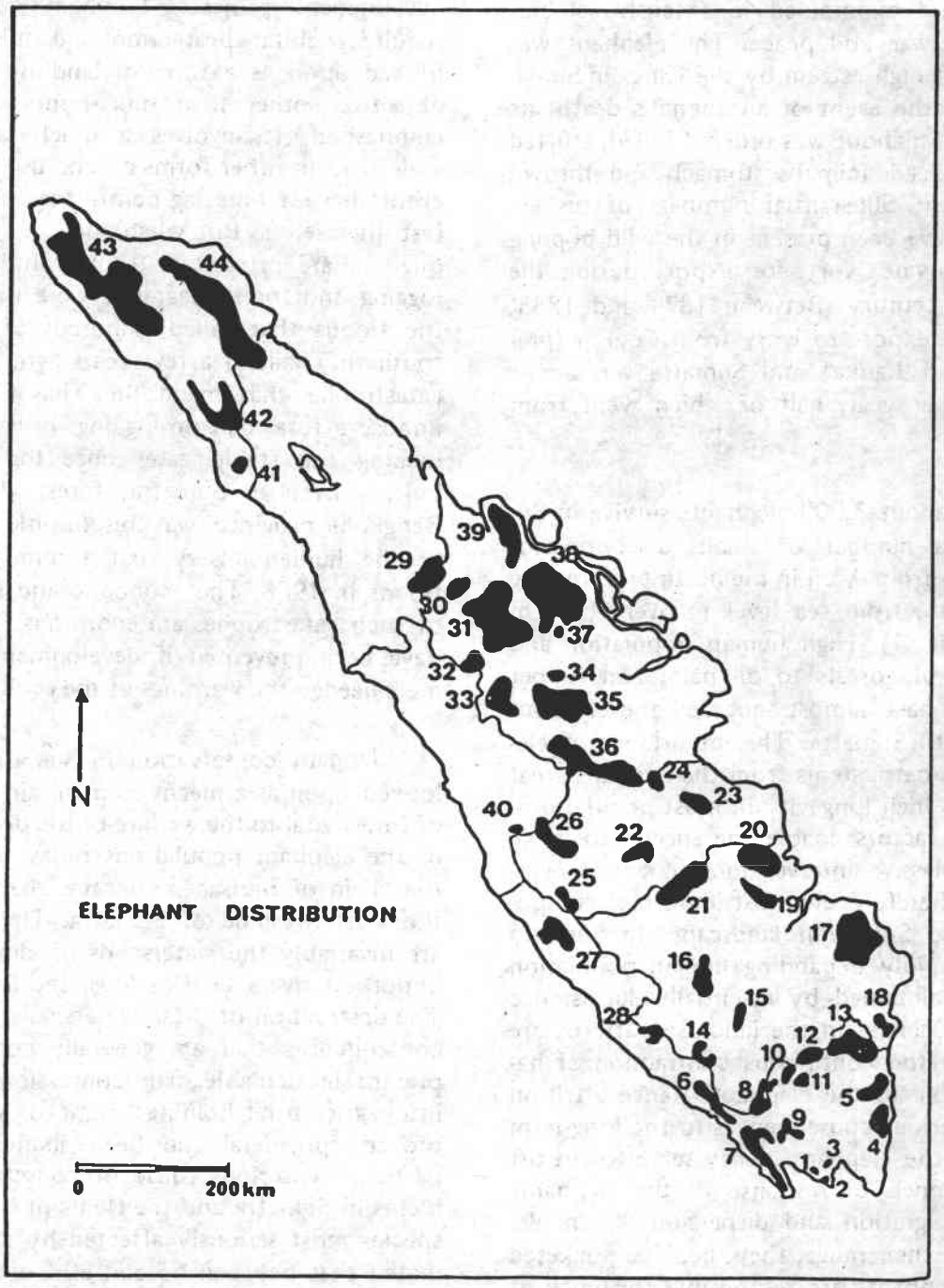


Fig. 1 The distribution of forty-four known populations of elephants in Sumatra.

tantial population of elephants to enable the Acehnese Kings to have them captured in large numbers and trained with the help of Indian mahouts and maintained in extensive stables for use in war and peace. The elephant was held in such high esteem by the Kings in Sumatra that in the event of an animal's death, its unfortunate mahout was ordered killed, stuffed inside the dead animal's stomach and thrown into the sea! Substantial numbers of tuskers too must have been present in the wild population to provide ivory for export during the early 19th century. Between 1879 and 1883, the average export to ivory from Ceylon (present day Sri Lanka) and Sumatra was about 2,000 kg per year, half of which went from Sumatra.

Today about 3,000 elephants survive in Sumatra in a number of small, discontinuous populations from Aceh in the north to Lampung in the south, from sea level to over 1,750 m altitude (Fig. 1). High human population and conversion of forests to oil palm and rubber plantations have almost squeezed the elephant out of North Sumatra. The importance of elephant in Sumatra stems from the animal's great size and its high longevity in most populations. These two factors enable the species to make relatively massive interventions in any ecosystem. It is therefore the most important component of the Sumatran landscape. In Sumatra today, a rapidly expanding human population is being maintained by essentially subsistence economy. Changes in the land-use patterns are resulting in the continuous contraction of habitat available to the elephant. Range attrition can have serious consequences to the long-term survival of the elephants. They serve to cut off certain channels of response of the elephants such as emigration and dispersion. When elephants lose their range, they die. The pocketed herds of elephants are responsible for much of the crop depredations and human-elephant conflicts in Sumatra.

Against this background, elephant conservation is coming under increasing pressure from development agencies and planners to make it justifiable on economic grounds. The World Bank which provides huge loans to assist economic development is ambivalent about elephants and their inherent power to destroy their development projects. Elephant conservation requires habitat protection and this must be looked upon as a form of land-use where the objectives other than short-term benefits are emphasised. It involves a much larger timescale than in other forms of land-use. Ecological events have a time lag before they could manifest themselves. But when they do, the consequences are often catastrophic. Indiscriminate logging and forest clearance were the cause of the floods that killed hundreds of people in southern Thailand a few years ago. It was this catastrophe that made the Thai Government impose a total ban on logging. It was a case of locking the stable gates once the horse has bolted. Even in Sumatra, forest clearance in Bengkulu province was responsible for much of the human misery that accompanied flash floods in 1988. The economic and social costs of such catastrophes are enormous. They could have been prevented if development programmers heeded the warnings of the ecologists.

Elephant conservation in Sumatra must be looked upon as a means to maintain large areas of forest vital to the welfare of the people. Many of the elephant populations today occur along the chain of Barisan mountains that run along the western spine of Sumatra. These habitats are invariably the watersheds of almost all the important rivers such as Musi and Batang Hari. The destruction of these watersheds would have consequences that are generally considered at present incalculable. The conversion of forsest into agricultural holdings, some of which have proved ephemeral and been abandoned, is a particularly serious cause of conservation problems in Sumatra and the elephant is among the species most seriously affected by it. It is estimated that between 65 and 80% of the species rich lowland forests of Sumatra have already been lost (Fig. 2).

The mountain areas which are the watersheds of the rivers, to date have been less seriously affected, but even here the disruption of continuous cover is already substantial in some cases,

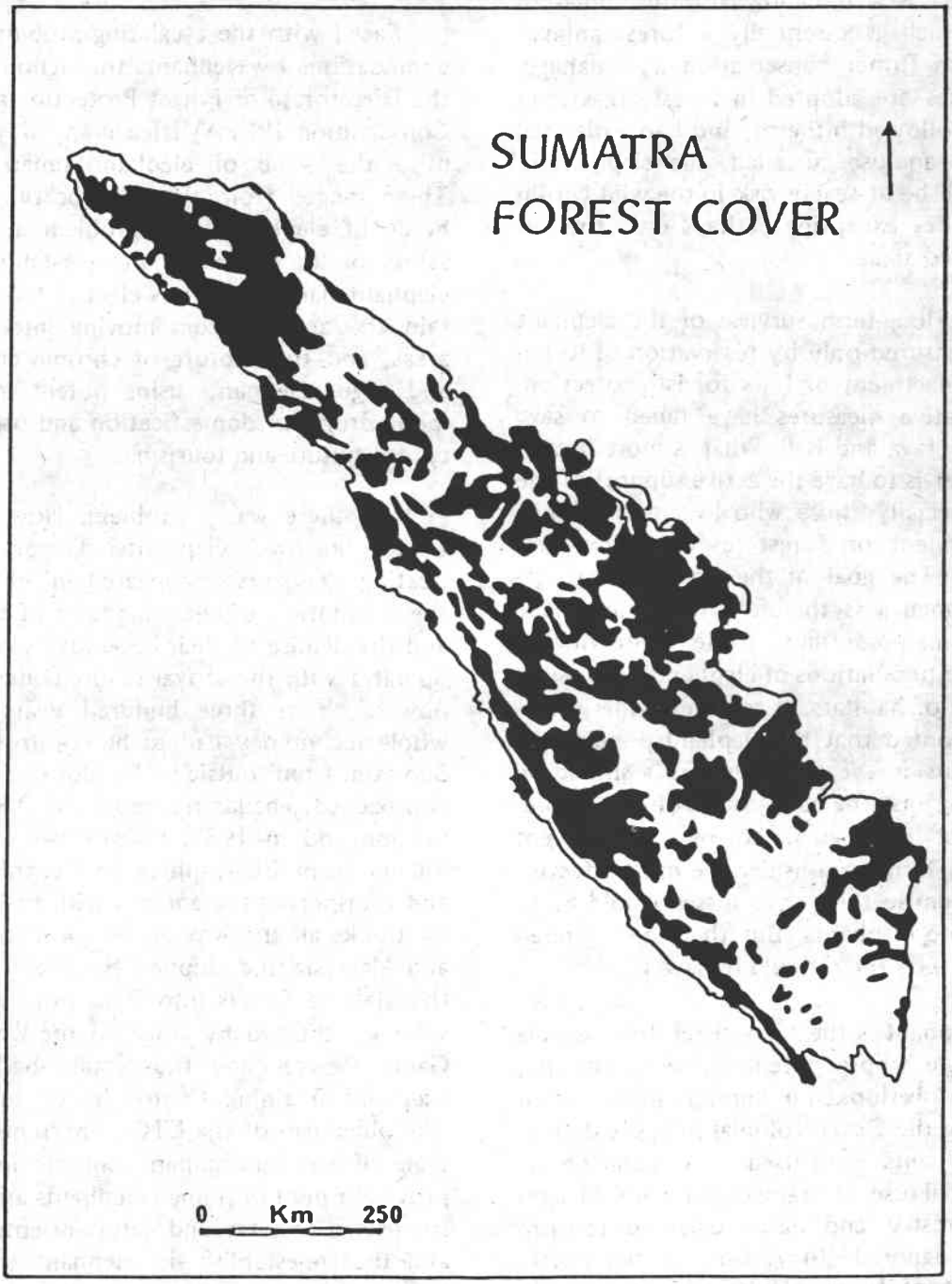


Fig. 2 The extent of forest cover in Sumatra.

and perhaps 15% of their total area may tentatively be estimated as already removed on the scanty information available. The altitude range of the mountains in Sumatra is such that most of their area is rich habitat for the Sumatran elephant which is essentially a forest animal. Unless much firmer conservation and management policies are adopted in forest areas than have been followed hitherto, and badly planned changes of land-use curtailed, the elephant in Sumatra will be at severe risk in the wild within a few decades excepting perhaps only the largest protected areas.

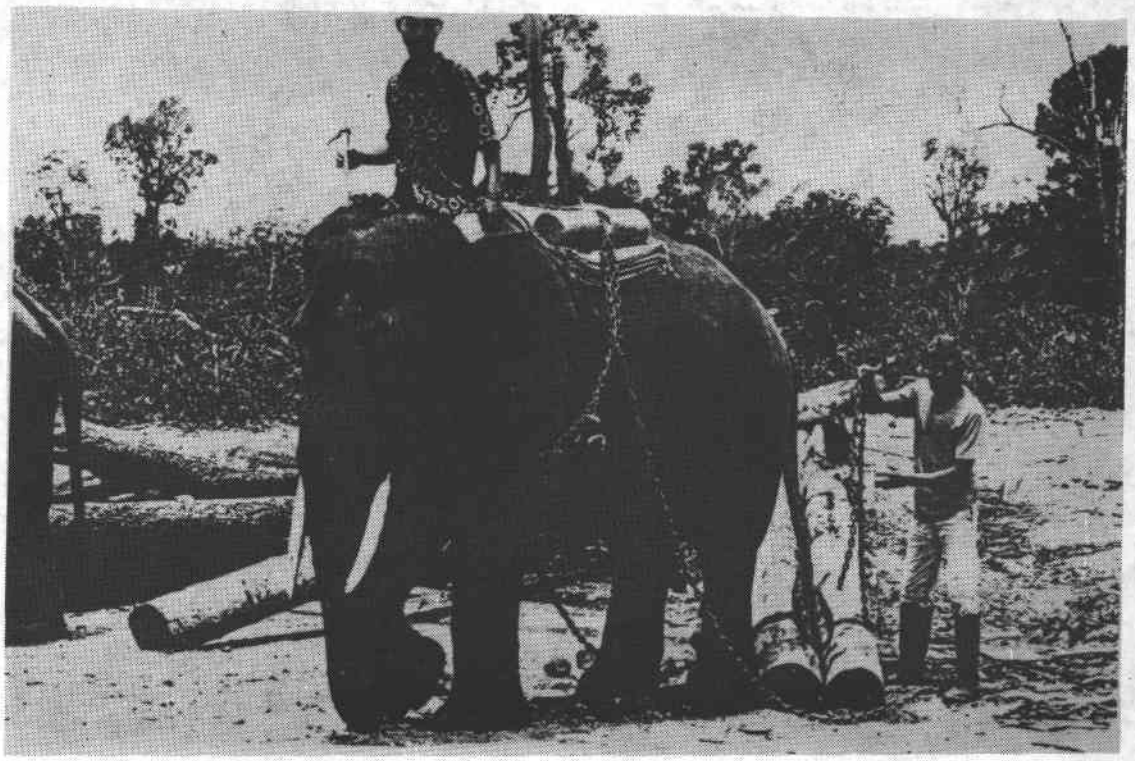
But the long-term survival of the elephant cannot be ensured only by reservation of its habitat and enactment of laws for ist protection. Such legislative measures have failed to save the tiger in Java and Bali. What is more important however is to have the active support of the people, especially those who live in the fringe areas dependent on forest resources for their subsistence. The goal of the elephant management in Sumatra is therefore to minimise the elephant-human conflicts, while conserving as many viable populations of elephants as possible in a variety of habitats. It requires some justification to conted that the elephant populations that live outside the protected areas should be conserved against the background of crop-depredations that have escalated over the recent years. Many farmers consider the most effective way to minimise their crop losses would be to eliminate the elephants. But there are compelling reasons why they should be saved.

The elephant is the four-wheel drive vehicle of the jungle whose potential use to man has been largely overlooked in Sumatra in the recent past. During the Dutch colonial rule, the domesticated elephants were used in war and peace. The potential use of trained elephants in agriculture, forestry and nature-oriented tourism cannot be ignored. In Assam, in the north-eastern part of India, elephants were used in agriculture to plough land and pound the rice. In Thailand and Nepal, trained elephants have been used successfully in nature-oriented tourism generating much needed revenue for the local people. But more importantly, throughout Asia, the elephants have been the backbone of the timber industry. This is nowhere more signigicant than in Burma where today about 5,000 trained elephants are employed in the teak forests.

Faced with the escalating problems of crop depredations by elephants throughout Sumatra, the Directorate of Forest Protection and Nature Conservation (PHPA) tried many ways to minimise the scale of elephant-human conflicts. These ranged from the translocation of entire herds of elephant from problem areas to the safety of the protected areas, establishment of elephant barriers such as electric fences to contain the animals from moving into cultivated areas, and the capture of chronic crop raiders and rogue elephants using potent morphiomimetic drugs for domestication and use in forestry, agriculture and tourism.

But there was a problem. How to domesticated the rogue elaphants? The art of domesticating elephants disappeared in Sumatra with the dissolution of the Kingdoms of the Sultans and the demise of their hegemony over much of Sumatra with the arrival of the Dutch colonial powers about three hundred years ago. The whole technology had to be re-introduced into Sumatra from outside. To do so, the PHPA approached Thailand through its ASEAN connection and in 1987, bought two trained elephants from Chaiyaphum in Central Thailand and transported the animals with their mahouts by trucks all the way across southern Thailand and Malaysia and shipped them by boat across the Malacca Straits into Riau from where they were transported by truck to the Way Kambas Game Reserve and thus established the first Elephant Training Centre (ETC) in Sumatra. The objectives of the ETC were to minimise the scale of elephant-human conflicts in Sumatra, provide a pool of trained elephants and mahouts for use in forestry and nature-oriented tourism and thus re-establish the elephant as a part of Sumatra's myths, history and cultural heritage.

We were particularly careful to emphasize the use of trained elephants not in all forestry operations but only in the extraction of timber from the production forests that have been legally set aside and in the mono-culture planta-



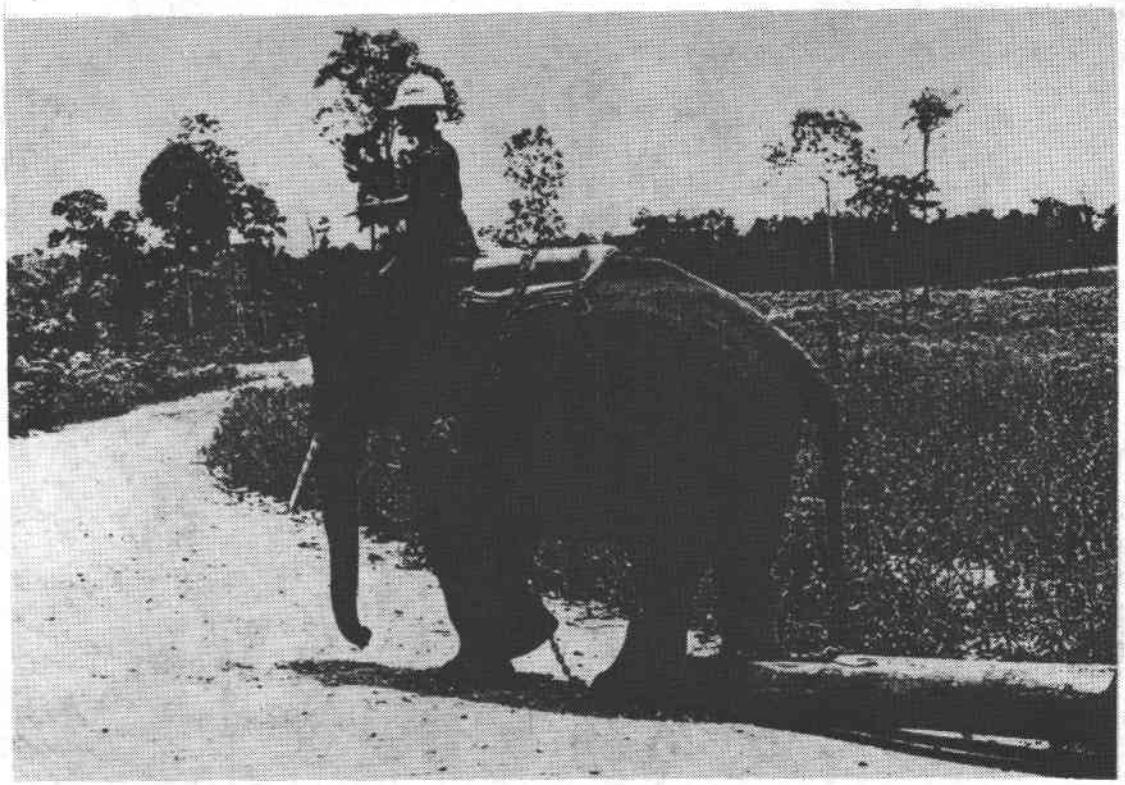
tions of teak, pine or eucalyptus. Teak is particularly suited to grow between altitudes of 2,000 and 3,000 m along steep hills. In such areas, there is no man-made machine that is superior to the trained elephants in hauling timber. According to Lt-Col. J H. Williams (the author of the well-known book "ELEPHANT BILL"), trained elephants can haul a log "twenty-nine feet long and six or seven feet in girth – that is say, over 100 cubic feet of timber, or four tons dead weight."

There was considerable reluctance on the part of the logging companies in Sumatra to consider the use of trained elephants in forestry operations. This is largely due to the economics of logging operations which aim to maximise the extraction of timber within the minimum time period. But at last, the PHPA seems to have successfully demonstrated the potential benefit of the trained elephants to the logging companies in Sumatra. Already one timber company (P.T. Great Andalas Timber) in Lampung province has incorporated two trained elephants in its logging operations (see cover photo). This is a remarkable achievement for the PHPA and marks a turning point in the history of the ETC in Sumatra.

The economical and environmental advantages of using the trained elephants in forestry operations are many. A fully trained elephant is an investment for a lifetime.

1. It costs only about US$ 6,000 to US$ 10,000 to purchase a timber elephant of age 20 years in Thailand. Such an elephant has a working life of 30 years. Compare this with the cost of a crawler tractor which costs about US$ 100,000 to 140,000 a piece, and has a working life of 6 years.

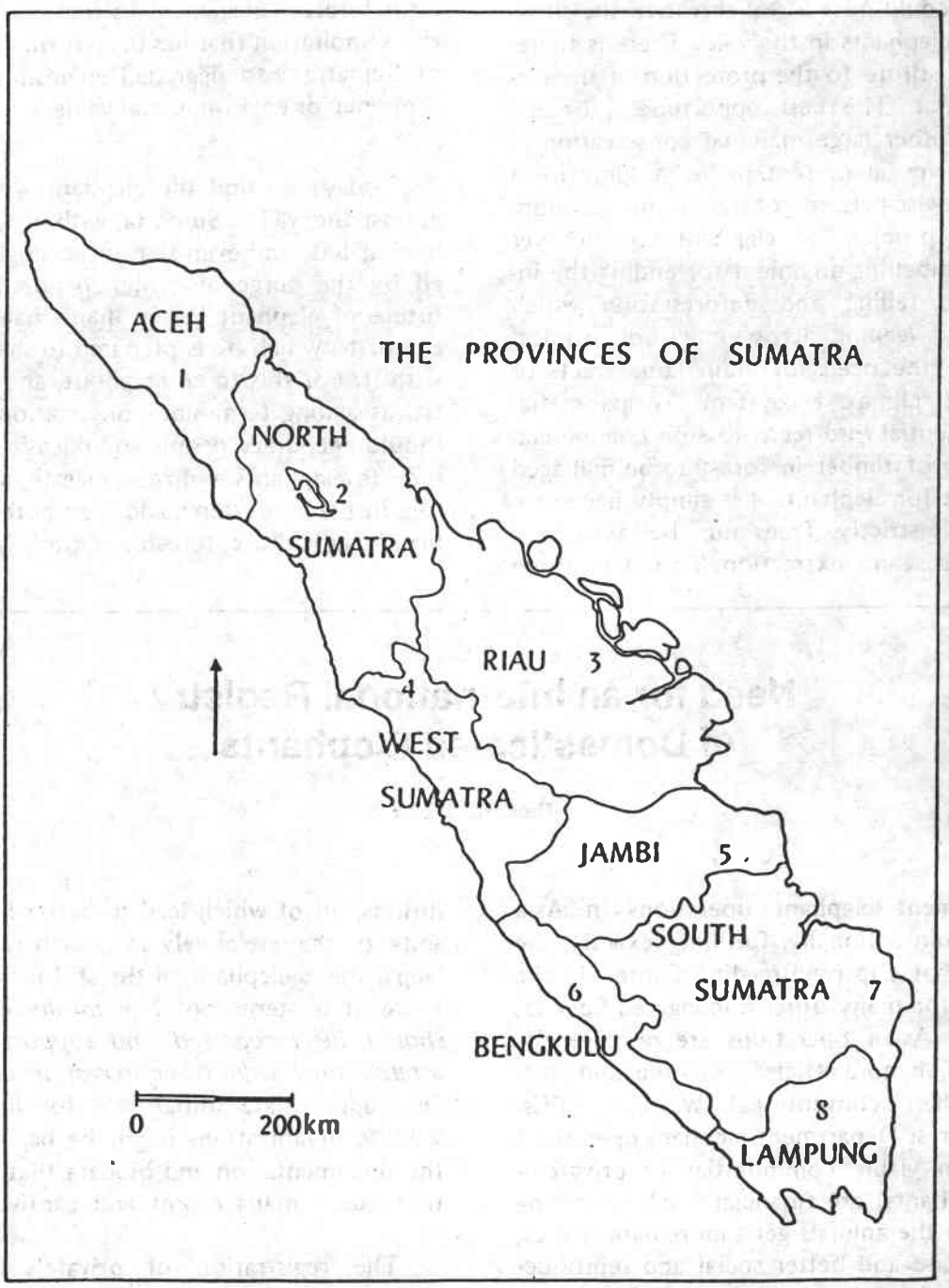
2. The trained elephants are "environment-friendly" and "user-friendly". There is no need to cut expensive logging roads that are essential for the use of heavy machinery. The establishment of logging roads not only destroys much of the forest but more seriously provides the access to many wild settlers and poachers to the interior. The agent of much of the forest destruction is shifting cultivation and so, these access



roads provide avenues for the spread of slash and burn agriculture throughout Sumatra.

3. The trained elephants can ascend steep hills and mountains where no machinery can go. But herein lies the hidden danger of misuse of trained elephants by unscrupulous logging companies in extracting timber from upper reaches of the forests and thus destroying the crucial watersheds. This is the principal reason why we advocate strongly for use in production forests and in mono-culture plantations of teak, pine and eucaplyptus.
4. Trained elephants in theory can work throughout the year under any weather conditions, unlike the heavy machinery. Bull elephants however have a period of "musth" during which time they tend to be aggressive and so are not put to work. But the non-pregnant females can work throughout the year. In the freshwater swamp forests of Sumatra, elephants provide the best and the most cost-effective means of timber extraction.
5. Unlike the machinery, the elephants do not rust, corrode or pollute the environment. They do not depend on expensive spare parts and their dung acts both as a fertilizer as well as an agent of seed dispersal in the forest. Gasoline is a non-renewable resource of limited quantity. As such it will become increasingly expensive in the years to come. Spare parts too will become expensive as labour costs mount. In the end, the trained elephants will become far superior to the machinery.
6. Throughout Asia, the staple food of elephants consists of grass and bamboo, which are found in the undergrowth of the forests. Elephants while feeding in the forest will thin this undergrowth in such a way to enhance the germination and growth of many forest tree seeds.
7. The use of elephants in extraction of timber will greatly reduce the environmental damage caused by heavy machinery and thus prevent excessive soil erosion and soil compaction.

The price paid for using elephants in forestry is that the rate of extraction of timber will be slow and so it may not be economical to the logging companies. But it can be selective and so on ecological terms would be sustainable.


THE PROVINCES OF SUMATRA
ACEH
1
NORTH
2
SUMATRA
RIAU
3
4
WEST
SUMATRA
JAMBI
5
SOUTH
SUMATRA
7
6
BENGKULU
8
LAMPUNG
0
200km

In the final analysis, the human-elephant conflicts cannot be resolved by capturing chronic crop raiders alone. This is only a short-term measure with limited objectives. If carried to an extrene, it could pose a real threat to the survival of the elephants in the wild. There is therefore no substitute to the protection of the elephant habitat. The best opportunity for elephant and other large mammal conservation in Sumatra seems at present to lie in some form of multiple-use-pattern of rangeland development. The problem of elephant provides yet another compelling argument for ending the indiscriminate felling and deforestation which have been sweeping across much of tropical Asia. While the need to retain large tracts of undisturbed climax ecosystems is axiomatic, it is not essential *ipso facto* to stop commercial exploitation of timber in forest to be managed as a habitat for elephant: it is simply necessary to control it strictly. Trees must be taken on a selective basis and extraction limited to those exceeding 50 cm at breast height, leaving the remainder to provide open canopy until saplings grow up to replace trees removed. Such a policy is in any case required to provide sound long-term forest management to replace the destructive expoitation that has been turning large areas of Sumatra into degraded environments of no economic or environmental value.

Today, we find the elephant with his back against the wall in Sumatra, with little remaining habitat left, and even that increasingly threatened by the burgeoning human population. The future of elephant lies in man's hands and the extent to which he is prepared to share the land with it. For this to come about, and it is essential as a long term aim, conservation education should encourage people to take a balanced attitude to elephants and recognize their ecological role in the ecosystems and their potential use to man in agriculture, forestry and tourism.

Need for an International Registry of Domesticated Elephants

Richard C. Lair

Government elephant operations in Asia are now unintentionally fulfilling exactly the same role that Captive Breeding Centers in the West serve for many other Endangered Species, though the Asian operations are or have the potential to be more efficient, flexible, and cost-effective than conventional Western CBCs. Existing Forest Department elephant operations (and certain viable communities of privately-owned elephants) are financially self-sustaining CBCs where the animals get a more natural diet, better exercise and better social and reproductive opportunities than in Western CBCs or zoos. Marshall, who worked for years in the forests of Thailand, wrote. "It is axiomatic that the nearer a captive animal's living conditions can approximate to those of its wild cousin the fitter it will be . . . " and the well managed government elephant operation certainly fulfills these conditions, all of which lead to better breeding. In spite of their relatively low birth rates, Forest Department elephant births still far outnumber those in Western zoo. *This invaluable function should be recognized and supported by the international wildlife conservation community.* One appropriate initial role for international wildlife organizations might be begin to gather the documentation and biodata that is essential to modern management and captive breeding.

The registration of privately-owned elephants will be a very slow and complicated business requiring new legislation, licensing, massive funding, unprecedented inter-agency efforts and tens of thousands of man-hours in the field. A centralized registry for government elephants, on the other hand should be very easy and economical: it could almost be done by

mail. If all Forest Departments cooperated fully, it should be possible for every government-owned forestry elephant in Southeast Asia to be registered in a central, computerized databank within a year or two. A program to conduct basic analysis of population dynamics should be included from the very earliest stages.

Standard forms

Gathering the basic data needed for an accurate census and for basic population analysis of discrete populations would consist of providing sets of simple, pre-numbered questionnaire forms, one form for each elephant. Such blank forms would include a pre-assigned number as well as spaces for name, location, sex, date of birth or approximate age at capture, place of birth or capture, name of parents (if possible), births (for cows including new forms for calves), death, sale, 'gone astray', etc. (Caughley [1980] provides a list of basic data required for a full analysis of domesticated elephant population dynamics). Biodata (such as height, weight and other biological parameters, including veterinary treatment) would be possible but optional. (Registration forms should be designed by a committee of managers and scientists so as to elicit all essential information in the easiest, most user friendly way. This form must be very well thought out: both the information it elicits and the programming for analyzing that information should be definitive since they will be used into the for eseeable future.

Registering the whole government-owned population in Southeast Asia might sound a daunting task but it is not. The government elephants in the region number only some 3,000, the vast majority of them in Burma. These elephants are government property to be accounted for and thus existing standards of documentation are almost universally excellent. (So excellent in fact that in some cases it might even be possible to backtrack through departmental registers and expand the data base to include deceased animals so far back as there is full and accurate documentation for every elephant in a closed management unit). Managers normally possess all needed data in ledgers right at their fingertips. Since (beyond writing the name of the locale and the name of the elephant) data entry will consist of checking boxes or writing numbers, filling out the master forms should take no more than a few minutes altogether. The manager of 50 elephants would require only two or three hours per animal: regular updates for births, deaths, transfers, etc., would take very little time indeed. (Initial entry from completed individual forms into the computer would take no more than two weeks or so.

Beyond its value as a regularly updated census, such a form would instantly yield very useful data on population dynamics, the scientific value of this data would constantly increase with annual or biannual updates. This information could be used to continuously monitor individual elephant establishment and to provide local managers with a long-term perspective of what is happening to their elephants. Some central organization in each country should have a computer with all relevant information. Long term captive breeding could begin with an adequate statistical and documentary base, both locally and regionally. Thus a tremendous amount of good could come from a very small amount of money. Beyond designing, distributing and printing a simple form, there would be few costs beyond postage and tabulation of the data.

Beyond being useful to international experts, the fruit of such forms would also be very useful to local managers. Discrete elephant groups could be analyzed (using standard techniques) and a prognosis given to manager's on the groups 'health' (dangerously high median age, sexual imbalance, etc.)

Such a hypothetical registration and biodata program inevitably calls to mind the International Species Inventory System (ISIS), a computerized 'stud book' initiated in 1973 by over 150 zoos primarilly to monitor and subsequently advise on captive breeding of wild animals, most of which are — like the Asian elephant — Endangered Species. Certainly any results of an Asian program should be sent to ISIS, and perhaps ISIS would be in a position to advise or assist. There is very good reason to register

the Asian elephants kept in Western zoos and other institutions.

Supplementary standard research forms

The essential data for individual animals could be expanded by the use of supplementary forms (or optional pages in longer basic forms) to include very detailed data on key areas of elephant use and welfare, especially work performance and veterinary histories. Comparative studies would be greatly facilitated. Physiological studies (blood analysis, genotyping, etc.) are another possible research focus which could use standard forms.

Management Unit forms

Virtually all government elephants work in good-sized but isolated groups. There is a regular but low inward osmosis consisting of captures, wild orphans and rare purchases or trades, there is very little outward flow beyond a few gifts and even fewer escapees. Individual registration forms would thus in aggregate describe closed-system elephant groups. A supplementary form or questionnaire could elicit information on management conditions of such groups (the nature and extent of the surrounding forest, forage, work hours, man hours in supervision, etc.) in order to provide background useful for analysis.

Registration of privately-owned elephants

The ultimate goal of any Asian registration and biodata gathering effort would obviously be to extend coverage to as many of the 12,000 privately-owned elephants as possible. Certain populations, such as the 3,000 private elephants in Burma working under government contract, Sri Lanka's easily studied elephants and Vietnam's single, localized population come to mind as likely goals. Other sizeable populations must probably wait for governments to introduce legal protection and licensing for private elephants before effective international registration is possible. Perhaps in some places government departments or NGOs could stimulate owners to register voluntarily.

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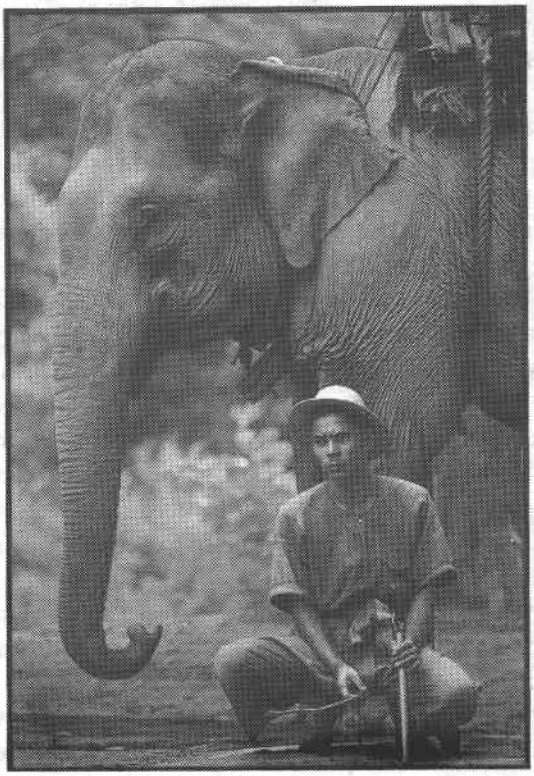


Fig: A Thai mahout and his elephant in Chiangmai (Photo: Jatuporn Rutnin).

SHORT COMMUNICATIONS

MANAGEMENT OF ELEPHANTS IN CAPTIVITY IN SRI LANKA

by
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The elephant has always been an integral part of Sri Lankan culture, religion and even politics. To the Buddhists it is the only animal that is given the honour of carrying the sacred tooth of Lord Buddha during the annual Esala Perehara in Kandy. The recent death of Raja the Maligawa tusker was much mourned by Buddhists all over the island. It is also sad that Raja had no issue to carry on his noble task!

The number of elephants in the wild is decreasing as development programmes convert elephant habitat for other uses. In the past, the number of domestic elephants was augmented from captures in the wild. Given the relatively small number in the wild, there is a general concern towards the maintenance and viability of those in captivity. With this in mind, a project has been proposed to enhance the long-term survival prospect of the elephants in captivity in Sri Lanka.

About two decades ago, the number of elephants in captivity was estimated to be about 500. Today, it is more likely to be about 300. In the wild, slaugther of elephant continues. In 1987, between 40-50 elephants were shot and 12 calves that were found abandoned were brought to the zoo.

The first objective of the project is to determine exactly how many elephants there are in captivity in Sri Lanka today, where they are located, and to obtain data concerning their sex ratio, age, class structure, height/weight statistics etc. These data could then be stored in central data bank for use in captive breeding programmes. This would be followed by captive breeding programme, separate from that in Pinnawala and concerning the elephants that are in private ownership.

A sound programme to breed elephants in captivity is needed in view of the decline in number of elephants in the wild. Elephant is no doubt a slow breeder but even the addition of one animal in captivity through a breeding programme could be of enormous benefit. It is also financially worthwhile as a calf can be sold for about 2 lakhs of rupees! Captive bred animals can be used in timber extraction and timber hauling as is the case in Burma and Thailand.

A well designed breeding project, located in Kandy along the banks of the Mahaweli river could be another attraction for tourists. It can function as a centre where foreign and local researchers could come and learn how animals are trained and bred. A similar centre exists in Mudumalai in South India. Techniques such as artificial insemination practised in Western Zoos can be applied in the breeding programme.

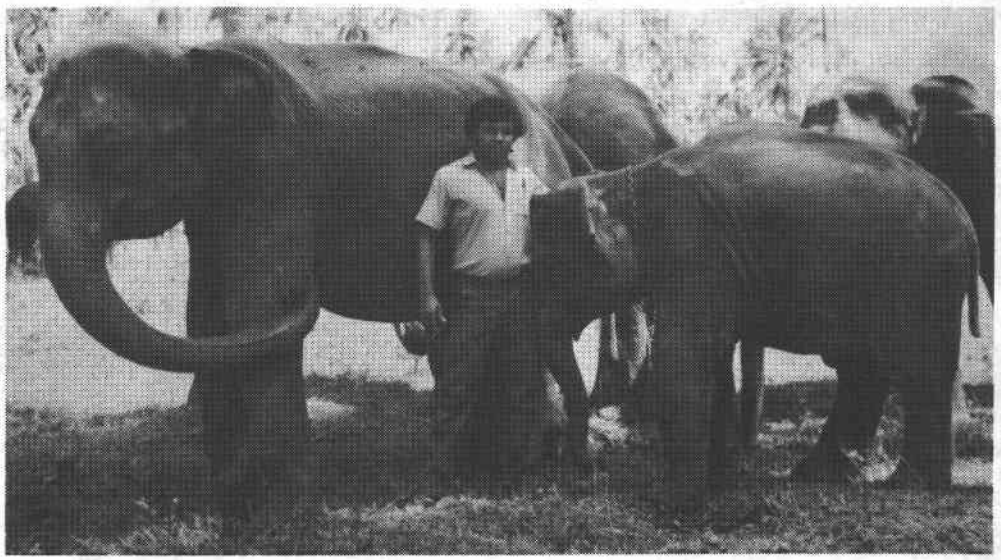


Fig. 6.1: The curator, Mr. W.M. Ranbanda in Pinnawala Elephant Orphanage, Sri Lanka with some of the elephants. (Photo: W.M. Ranbanda)

A short report on the status of the elephants in Burma (based on a visit to Burma in January 1992)

by
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About 5,000 domestic elephants are know to occur in Burma (= Myanmar) of which 2,955 animals are owned by the Myanma Timber Enetreprise (MTE), while the balance remain under private owenership. The composition of the animals owned by MTE is as follows:

Class	Males	Females	Total
(19–60 yr old)	582	967	1549
(5–18 yr old)	473	539	1012
Calves at heel (with mother)	177	217	394
Total	1232	1723	2955

During the last five years, a total of 180 animals were captured by MTE using chemical immobilization with a tranquilizer (Capchur) gun. This gives the capture rate of 36 animals per year in the 6 to 12 year age-class. Overall, the total number of animals captured using all the methods including the stocakade-method is estimated to be about 100 a year, Only the young animals are kept while the others are released back into the forest.

Elephants are used in timber camps until the age of 60 years at which time they are pensioned off. The elephants in captivity are also known to breed with wild animals (especially wild bulls mate with domestic cows) but no one has ever witnessed such a mating. Every year about 110 calves are born in captivity with a sex-ratio of 40 males to 60 females. The mortality as a result of diseases as well as accidents is about 100 animals per year.

The size of the wild population is not known with certainty, especially in areas that are politically volatile and therefore insecure. However, the total population must be well over 3,000 animals.

The captive population is not reduced by increased use of machines in timber extraction since elephant is still being used to extract timber selectively in many areas. This appears to be the most suitable method of logging in Burma.

The number of wild elephants captured appears to be sustainable, and so is not likely to affect the wild population. However, there might be some poaching activities which if not brought under control, could pose a threat in some areas. In the market in Rangoon, ivory artifacts are on sale and these are usually bought by unvary tourists (including the Dutch). But the export of ivory articles out of Burma is prohibited and so, if they are discovered on tourists, they are confiscated.

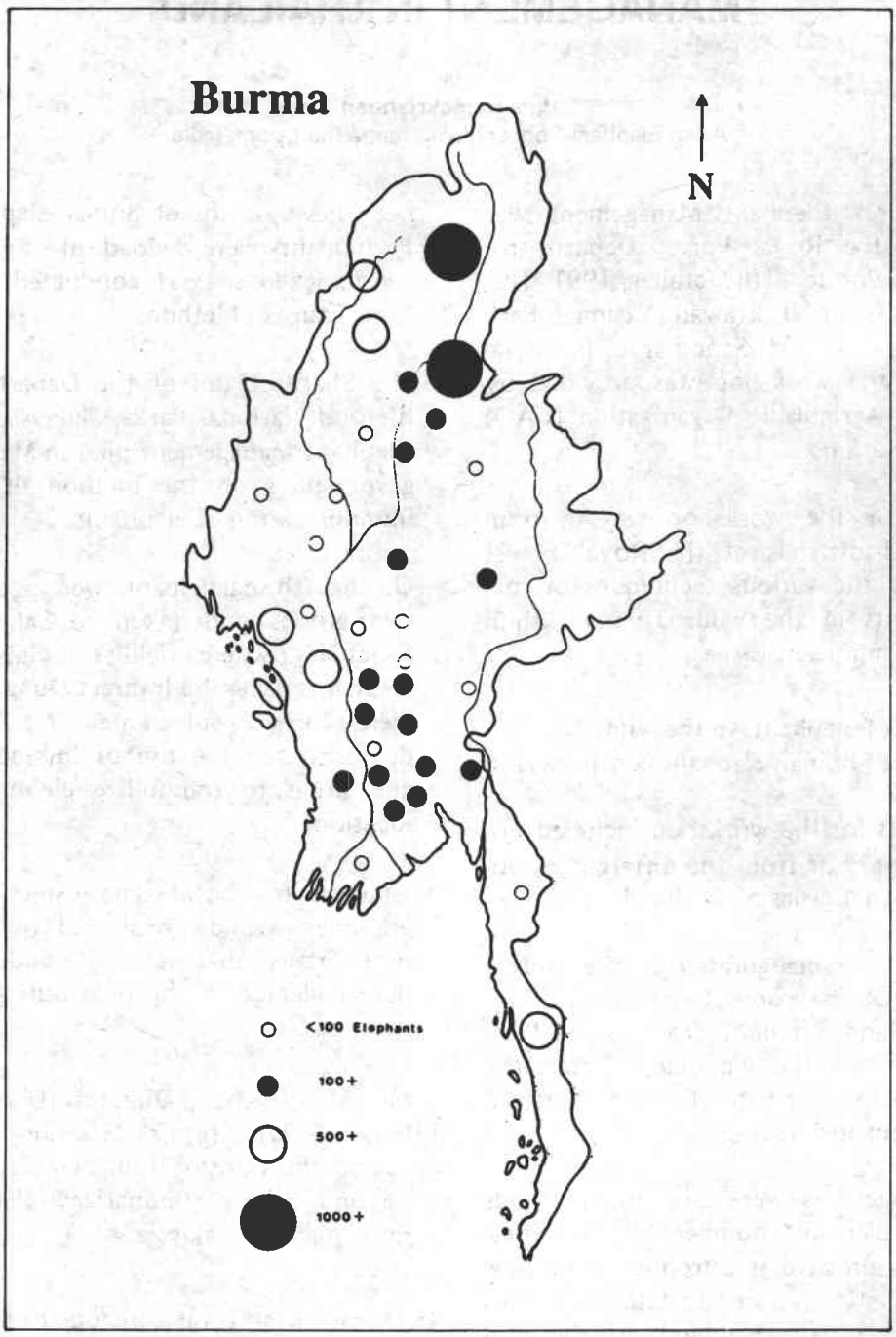


Fig. 1. Approximate distribution and relative abundance of wild elephants in Burma. Redrawn from UNDP/FAO (1983). The symbols represent maximum estimates and are based on the questionnaire survey carried out by the Divisional Forest Officers in 1960/61 and 1980/81.

A REPORT ON THE WORKSHOP ON ELEPHANT MANAGEMENT IN THAILAND

by
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Asian Elephant Conservation Centre Bangalore, India

A Workshop on Elephant Management was conducted by the Royal Forest Department, Thailand, from 2nd to 11th October, 1991. This Workshop was held at Erawan National Park and Salakphra Wildlife Sanctuary. Financial assistance for the workshop was provided by the Food and Agriculture Organization (FAO) of the United Nations.

The purpose of the workshop was to train researchers and officials of the Royal Forest Department in the various techniques of managing elephants in the wild. The workshop addressed two important issues:

1. Estimation of elephants in the wild,
2. Resolution of human-elephant conflicts.

The participants for the workshop included Forest Department staff from the different National Parks and Sanctuaries of Thailand.

The workshop was inaugurated on the 2nd of October at the Royal Forest Department, Bangkok. Dr. Schwann Thunnhikorn was the Principal Organizer for the workshop. Later, the participants were taken to Erawan National Park in Kanchanaburi district.

On the 3rd, lectures were given on methods of estimating elephant number and densities. Ms Shantini Dason gave an introduction on how to plan a census operation and later went into the details of censusing elephants by the indirect count method of surveying dung. Ms Uma Ramakrishnan spoke on the various census methods and then explained censusing elephants by the Direct Line Transect Method.

Field exercises were conducted on the 5th. The participants were taken to the adjoining Salakphra Wildlife Sanctuary which has recently been having a lot of human-elephant conflicts. Participants were divided into five groups and a census exercise was conducted on the Direct Line Transect Method.

Mr. Shariff Daim of the Department of Wildlife and National Parks, Malaysia, discussed the Elephant Management plan in Malaysia. He then gave details on the method of drug induced immobilization of elephants.

On the 7th, participants were again divided into five groups and taken to Salakphra Wildlife Sanctuary where field exercises in censusing elephants using the Indirect Dung Count Method were carried out. Later, Mr. Shariff Daim demonstrated the use of immobilization darts and drugs to tranquilize elephants for translocation.

Analysis of census data using computer programmes was demonstrated on the 8th. The participants then entered and analysed the data collected in the field during the two field exercises.

Mr. Mohd Khan, Director (Dept. of National Parks & Wildlife Conservation) Malaysia, discussed the translocation of elephants in Malaysia and briefly summarized elephant management plans in Malaysia.

The workshop was concluded on the 10th. The conclusions proposed at the workshop were as follows:

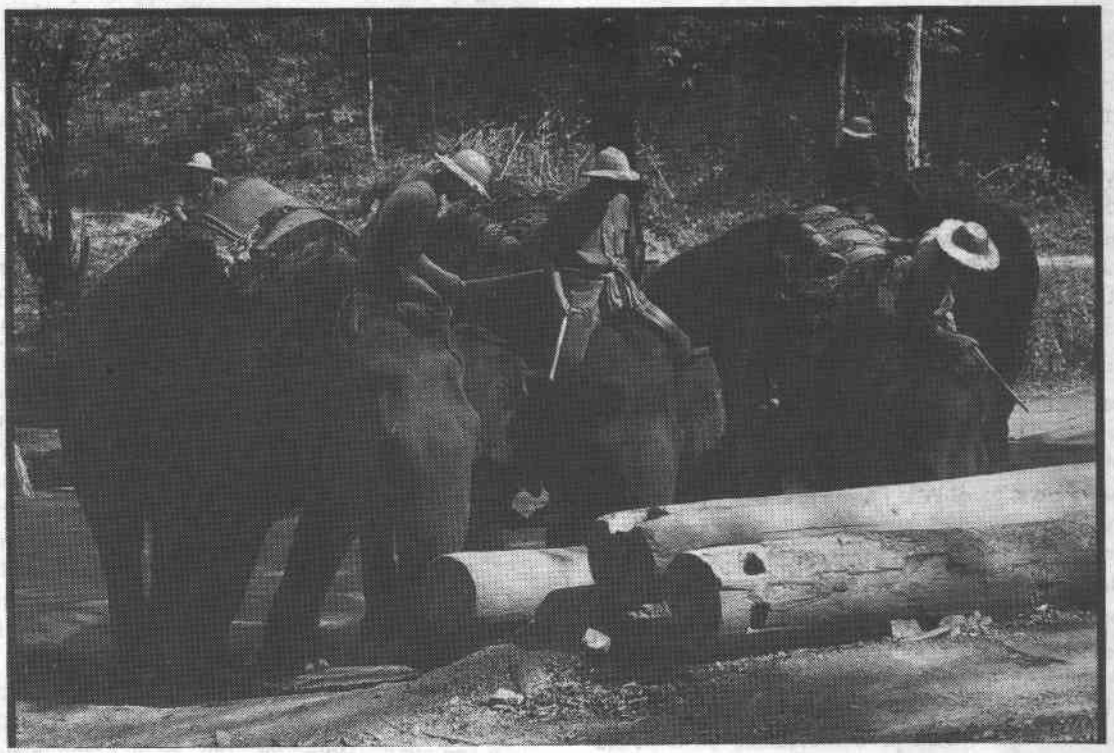
1. There would be a strict protection of the elephant's habitat for its long term survival.

2. A census would be carried out throughout Thailand using appropriate methods so as

to get relatively accurate estimates of elephant numbers.

3. Set up a team of experts to translocate elephants in areas where there is a lot of man-elephant conflicts.
4. Establish elephant corridors to connect elephant habitats.

The participants returned to Bangkok on the 11th.



Thai mahouts demonstrating the use of trained elephants in hauling timber in Chiangmai. (Photo: Jatuporn Rutnin).

Saving the Asian Elephant

Pak Abdul Bari
Director of Nature Conservation
Directorate of Forest Protection & Nature Conservation
Jl. Ir. H. Juanda 15 Bogor, Indonesia
(Presented at the AESG Meeting on 20 May 1992)

International concern has been largely focussed on the plight of the African elephant but the status of the Asian elephant by contrast is very serious indeed given that only about 55,000 animals are found in the wild throughout Asia. In addition, there may be another 16,000 animals in captivity. What must be done to save the species from becoming extinct? This is the question the IUCN/SSC Asian Elephant Specialist Group Members gathered here will be discussing at this meeting. But the solution is not easy.

If poachers were the only threat, then the elephants might be safe. The ban on the trade in ivory achieved at the meeting of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in Lausanne in 1989 and subsequently re-emphasized more recently at the CITES meeting in March 1992 in Kyoto, Japan is indeed a great achievement. But as far as the Asian elephant is concerned, the species was put in the Appendix I long before the African elephant was included but nevertheless its numbers have continued to decline throughout its range in Asia with the possible exception in India where a combination of sensible planning, sound programmes and active support of the government and people at large has been responsible for an actual increase in the number of elephants in the wild. But in all the other countries in Asia, from Nepal in the west to Indo-china in the east, the elephants in the wild have declined both in range and number.

Unlike the African elephant where both males and females carry tusks and hence are potential targets of the ivory poachers, here in Asia, only the males and that too a certain proportion of them in the population carry tusks. In Asia, poaching is not the major threat to the decline in number of the elephants: poverty and the demographic pressure for land are an even more intractable threat. Asian elephant conservation must be seen against this background.

For the western tourist on safari, the nobleness of the elephant - the largest and most impressive terrestrial mammal - is all too apparent. But for rural people who live in the vicinity of elephant reserves, the elephant is frequently looked upon as a pest; destroying crops, pushing down houses, trampling trees and at times even children. It is easy enough for armchair campaigners in the west to insist on protection but with Asia's human population which is already too high in some countries and showing every sign of growing in the coming decades, there is not going to be enough space for the elephant.

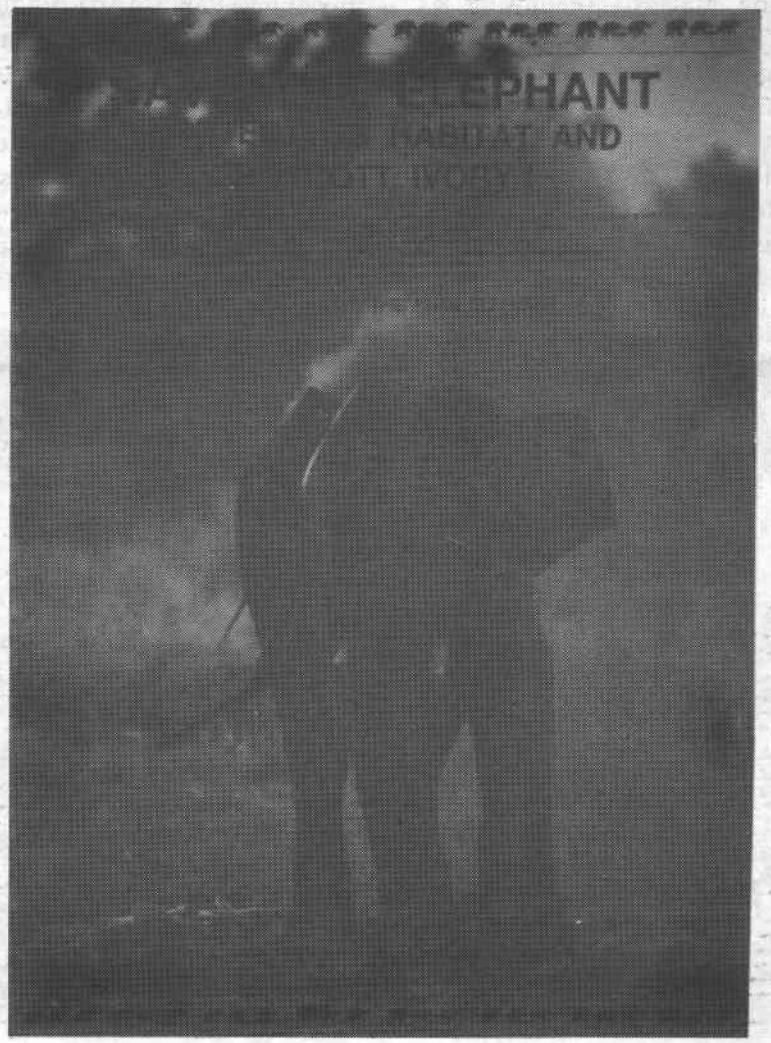
The key to protection is to ensure local people receive some economic benefit from the animal. One way of doing this is through eco-tourism - another buzz word these days together with biodiversity!. But such schemes can only become meaningful and relevant in elephant conservation programmes provided that a part - a large part in fact - of the revenues goes to the poor people in the local communities surrounding elephant reserves and other protected areas. In addition, action must be taken to improve the incentives for the local communities to participate in the conservation of wildlife resources. The old fashioned way of keeping local communities out of conservation areas through force will not work anymore. Protection of elephant populations, their habitats and migration routes may mean that local communities lose their access to traditional land use and resouces. Such communities must be compensated for these losses by receiving some of the gains from conservation. Moreover, the local communities must participate fully in decisions affecting land and resources. Unless such imaginative actions are adopted throughout Asia, elephant conservation may not succeed in the long run. Integration of rural development with elephant conservation must be a high priority in our efforts given the current increase in human population in Asia and the consequent pressures imposed on the land and its limited resources.

Listing a species in Appendix I of CITES alone offers no guarantee to ensure its long term survival in the field. Legal provisons alone have failed to save the tiger in Java and Bali. Without imaginative action backed by strong political will and an unprecedented level of international co-operation, financial assistance and technical expertise, the Asian elephant like the Black rhino and the Blue Whale will be on the fast track to extinction. The key to the survival of the Asian elephant is the protection of its habitat. The future welfare of many elephant populations throughout their range will depend on the measures that we adopt today to safeguard our forests. More than half of Asia's elephant populations live under the protective umbrella of these forests. Therefore the best way to maintain these populations is to keep as much as possible of their forest habitat intact. Such a

move would benefit not only the elephant but thousands of other species of plants and animals that inhabit the elephant habitats.

Finally, the international conservation community must realise that the elephant together with Asia's unique stock of other large mammals represent a priceless part of the world's natural heritage. It is therefore not reasonable to expect economically poor Asian countries to undertake such a sweeping conservation programme without substantial assistance from outside: from the more affluent west. The African elephant continues to draw massive financial assistance from the west. At the last CITES meeting, the UK Government pledged one million US dollars for the African elephant conservation. But so far, the such international philanthrophy appears not to have noticed the more precarious status of the 55,000 Asian elephants in the wild!

Elephant conservation in Asia will not succeed without a massive effort not only by the range states but also by the economically more powerful international conservation agencies such as IUCN and WWF and other NGOs to highlight the plight of the species. In addition to lip service and pledges of help, the programme will also need substantial sums of money (about 10 million US dollars) over the next ten years. Problems in achieving conservation success in the past in Asia may be attributed to under valuing the cost of accomplishing the desired goal. The future of the Asian elephant must be a matter of extreme importance not only to the range states but must also become the responsibility of all nations as it is a part of the world's natural heritage and therefore the concern of all mankind. Man as the most dominant species on this planet has been responsible for the extinction of many species and so unless we are prepared to learn from the messages of the past, our future viability as a species might be no more hopeful in the long term than it is for the elephants.

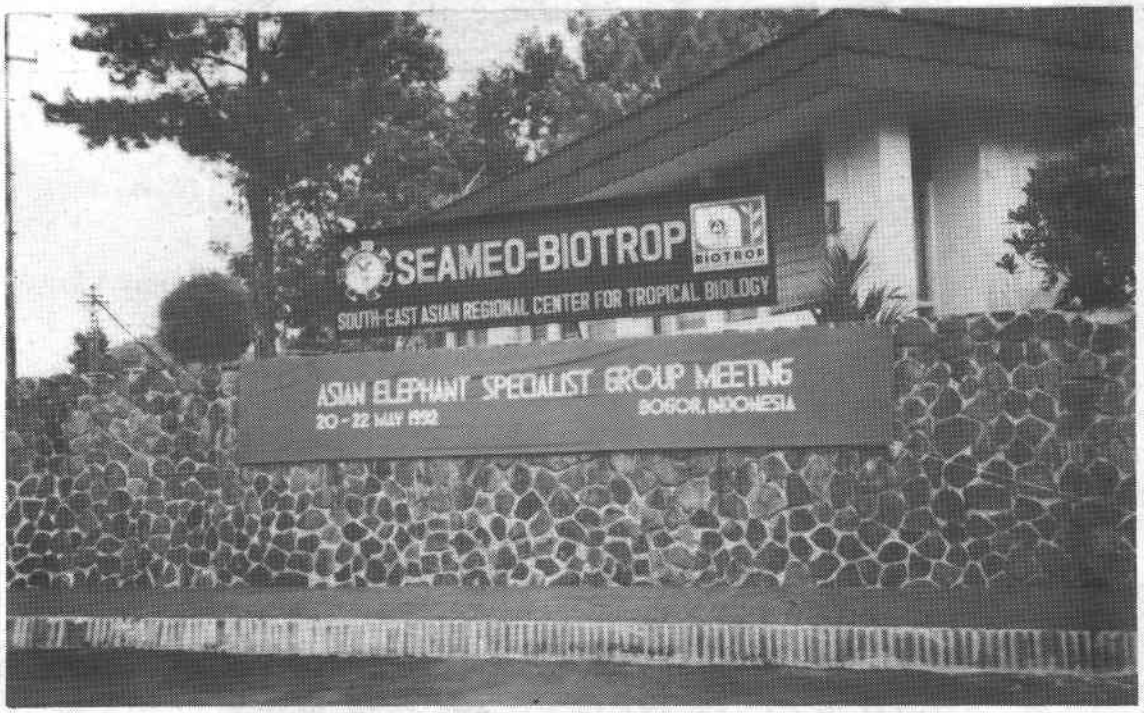


IUCN/SSC Asian Elephant Specialist Group Meeting 20-22 May 1992, Bogor, Indonesia

a summary compiled by
R. Sukumar & Charles Santiapillai

The fourth meeting of the IUCN/SSC Asian Elephant Specialist Group was held at the SEAMEO-BIOTROP in Bogor, Indonesia from 20th to 22nd May 1992. The Chief Guest at the meeting was the Director-General of the Directorate of Forest Protection and Nature Conservation (PHPA) in Indonesia, Pak Sutisna Wartaputra and was attended by 40 participants (which included field workers, representatives from government organizations and zoos) from Bangladesh, Cambodia, China, England, Holland, India, Indonesia, Laos, Malaysia (Peninsula & Sabah), Singapore, Sri Lanka, Switzerland, Thailand, USA and Vietnam. The main objective of the meeting was to formulate country projects in order to implement the Asian Elephant Action Plan. In addition, it also provided the necessary forum to test the feasibility of using the Asian Elephant as the prototype for SSC's forthcoming Heritage Species Programme.

Pak Sutisna, in his keynote address referred to the serious plight of the Asian elephant given its small number and discontinuous range. In contrast to the African elephant which is estimated to be about 600,000 ranging over an area of 7.5 million km2, the Asian elephant numbers only about 55,000 and is confined to a total area of 500,000 km2. Pak Sutisna urged IUCN and WWF to join hands in enhancing the long-term survival of the Asian elephant which is more endangered as a result of habitat loss than poaching. Pak Sutisna pointed out that millions of people in the Third World in Asia utilized a fraction of the world's resources but many of them in fact bear the brunt of poverty, famine, depredations, disease and death. They want a better life. Their countries in many instances are the custodians of endangered species including the elephant. On the one hand, as custodians of biodiversity, they are forced to assume res-



ponsibility for its protection. Yet at the same-time, many Asian countries are also saddled with the problems of feeding expanding human populations. According to the Chairman, Mr Lyn de Alwis, elephant conservation in Asia will not succeed without the support of the people, especially those who live along the periphery of the elephant reserves who bear the brunt of elephant depredations. Therefore resolving human-elephant conflicts was given a very high priority in the AESG's agenda.

In addition to presentation of country reports by AESG members, much time was given to the formulation of projects in a number of working groups. These include the following main topics:

(1) Establishing and managing elephant ranges in Asia,
(2) Developing census capability for long-term monitoring of elephant populations,
(3) Understanding long-term ecological processes in Asian elephants,
(4) Translocation and monitoring of problem elephants,
(5) Establishment of training schools for elephant handlers (mahouts),
(6) An economic evaluation of captive elephants in Asia,
(7) Education, awareness and publicity,
(8) Research on reproductive biology of captive elephants, and
(9) Updating the Asian elephant action plan.

Implementation of Asian Elephant Action Plan. Projects developed at the 4th AESG Meeting in Bogor Period: 1993 - 1994

A: ESTABLISHING AND MANAGING ELEPHANT RANGES IN ASIA

Every country should develop a network of protected areas which are linked by buffer zones of multiple use that are compatible with the demands of elephants and other wildlife to ensure the long-term survival of important elephant populations. Some of these reserves may be Trans Frontier Reserves (TFR). Within these Managed Elephant Reserves (MER), human activities such as low impact shifting cultivation, controlled livestock grazing, subsistence hunting and gathering, sustained yield forestry and extraction on non-timber products may be permitted in the buffer zone areas between of around the wholly protected core areas.

Under each project the following activities will be undertaken:—

1. Surveys will be carried out of priority MERs and elephant distribution, land-use, vegetation etc. will be mapped on 1: 50,000 or smaller scale, with the help of satellite imagery.

2. Stratify each MER into protected areas (existing or potential), buffer zones, corridors etc. so as to create a viable elephant range for the long-term survival of the species.

3. The AESG/AECC would open and maintain dialogue with the Governmental Organizations of the respective countries to establish and manage the MERs. AESG/AECC will also offer technical assistance to the Governments to manage these areas.

Projects:

1. *Lao PDR:* Identification of a Managed Elephant Range in South-eastern Laos.

2. *Vietnam:* Identification of a Managed Elephant Range in the region of Mom Ray or Yok Don reserves.

3. *Indonesia:* Identification of a Managed Elephant Range in the region of Gunung Leuser National Park in northern Sumatra.

4. *Indonesia:* Identification of a Managed Elephant Range in the region of Kerinci-Seblat National Park.

5. *Bhutan/India:* Establishment of a Managed Elephant Range in the Mangyal/Manas/Dungsun (Bhutan), and Manas/Buxa/Barnadi (India) region.

6. *Thailand:* The western Thailand complex (TY-HHK/Kaeng Krachan) has been identified as the most important area for elephant conservation in the country. TY-HHK core area has already been recognized as a World Heritage site. National Environment Board of Thailand has prepared a Management Plan for the whole area of Western Thailand to be implemented in phases. However, this plan currently does not focus on the Asian elephant but would in fact form an ideal basis for a comprehensively managed elephant range.

This project therefore proposes to undertake the following activities with a view to promoting the conservation of elephant in western Thailand:—

1. Prepare a basic map of the complex based on the available information to identify the necessary corridors between the protected areas within the complex and make recommendations to protect them.

2. Initiate a programme of basic surveys and simultaneous training of personnel in the methodology within this complex.

3. Carry out census of elephants in the area and studies of the elephant movement and habitat utilization.

4. Hold small-scale, in-situ workshops to train other wildlife personnel in elephant survey and management techniques.

5. Gather all information pertaining to elephant distribution, number, status etc within the west Thailand and other conservation areas and compile a data base.

(Tentative budget: US$ 50,000/— for 3 years)

Executants (Thailand): Schwann Thunnhikorn/Mattana Srikrajang/Belinda Stewart-Cox/Rongrarap

B: DEVELOPING CENSUS CAPABILITY FOR LONG-TERM MONITORING OF ELEPHANT POPULATIONS.

Objective information concerning the density and number of elephants in Asia is lacking for a number of range countries. This has been a serious drawback in assessing the viability of elephant populations throughout much of the species range in Asia in general and in the dense tropical rainforest habitats in particular. This project therefore proposes to impart training in census techniques to wildlife personnel in the range countries and also arrive at objective estimates of elephant densities and numbers in some of the important areas. It proposes to achieve this by using census methods that are already established or currently under development. Training workshops and demonstration censuses would be held in participating countries.

Priority countries for 1993–1994:

1. Vietnam
2. Lao PDR
3. Indonesia (Sumatra)
4. Sri Lanka
5. Malaysia (Peninsular)

Executants:

1. *Vietnam:* Le Vu Khoi/Do Tuoc/Nguyen Dang/Shanthini Dason.

2. *Lao PDR:* Bouaphanh Phanthavong/Vene Vongphet/Sangthong Southammakoth/Shantini Dason/Ajay Desai.

3. *Indonesia (Sumatra):* Widodo Ramono/Kurnia Rauf/Haerudin Sadjudin/Bintoro/Uma Ramakrishnan/Charles Santiapillai.

4. *Sri Lanka:* Sarath Kotagama/Lyn de Alwis/Sarath Dissanayake/de Silva/Eric Wickramanayake/R. Sukumar/J.A. Santosh/Charles Santiapillai.

5. *Malaysia (Peninsular):* Mohd. Khan/Shariff Daim/Tadjudin Abdulla/Surendra Varman/Ajay Desai.

C: UNDERSTANDING LONG-TERM ECOLOGICAL PROCESSES IN ASIAN ELEPHANTS.

In order to develop a sound conservation strategy for the long-term survival of the Asian elephant, it is vital that long-term studies of the key ecological processes must be undertaken in important representative habitats. These processes include demography, elephant-vegetation interaction, habitat utilization and ranging pattern and elephant-human conflicts. Systematic research must form the basis for improved management of elephant populations and their habitats throughout the range in Asia.

1. Assessing the impact of poaching on the demography and viability of elephant populations in Asia.

Poaching of male elephants for ivory in certain regions such as Southern India has resulted in highly skewed sex ratios (female-biased). The consequence of this for the fertility, demography and genetic viability of the population has to be investigated. This project will make a comparative study of demography in a Southern Indian elephant population having a skewed sex-ratio with another population in Sri Lanka, having a normal sex-ratio. The outcome of this project would also be of interest to researchers on African elephant populations which have been subject to poaching pressure.

Executants:

R. Sukumar/J.A. Santosh (India); Dissanayake/de Silva/Charles Santiapillai (Sri Lanka)

2. Monitoring of elephant populations in Sri Lanka.

It has been more than two decades since the first island wide assessment of the distribution and number of elephants was carried out by the Smithsonian Institution and the Department of Wildlife Conservation in Sri Lanka. In the meantime, Sri Lanka has undergone enormous changes as a result of development programmes. Therefore it is essential that a proper assessment of existing reserves and the current status and distribution of the elephant be carried out.

2.1. Ranging pattern of the elephants in Ruhuna National Park.

On going studies indicate that the elephant population in Block I of the Ruhuna National Park is moving out of its habitat in dry season. Given the lack of information on its precise dry-season range, it is proposed to monitor the movement of the elephant population both within and outside of Block I on a long-term basis.

Executants: Sarath Kotagama/Sarath Dissanayake/de Silva/Charles Santiapillai

2.2 An assessment of the status of the elephant in Uda Walawe National Park.

Uda Walawe supports a large elephant population. But to date, there has been no serious study carried out to assess the status of this population, its ecology and movement patterns. This study proposes to initiate a long-term monitoring programme to address these issues.

Executants: Sarath Kotagama/Park Warden/Sarath Dissanayake/de Silva/Charles Santiapillai.

2.3 Elephant movement in and around the Wasgamuwa National Park.

This project will address the movement of the elephant populations both within and outside the Wasgamuwa National Park in the Accelerated Mahaweli Development Area.

2.4 Distribution of elephants in Sri Lanka. A revised map of the distribution of the elephant in Sri Lanka will be prepared on the basis of the information so gathered in the surveys.

2.5 An ecological study of the elephant population in the Huay Kha Khaeng/Thung Yai wildlife sanctuaries in Thailand.

2.6 An ecological reconnaissance survey of the elephant population in the Tabin Nature Reserve in Sabah, Malaysia.

D: TRANSLOCATION & MONITORING OF PROBLEM ELEPHANTS

To set up a regional tranclocation and monitoring unit in the Indo-China region (Laos, Cambodia & Vietnam) to move problem elephants which do not constitute a viable population into secure protected areas. The elephants so moved will be monitored using radio-telemetry to assess how they adapt to their new habitat.

Executants: Shariff Daim/Johnsingh/A.B. Fernando/Krishnamurthy/Jacob Cheeran. (with local participation)

E: ESTABLISHMENT OF TRAINING SCHOOLS FOR ELEPHANT HANDLERS (Mahouts):

With the absorption of domesticated elephants into a number of new uses such as in eco-tourism, timber extraction in countries which hitherto did not possess trained elephants, captive breeding centres etc, the need for constantly increasing number of elephant trainers, handlers and even managers is apparent. The AESG is of the view that this increased influx is likely to lead to inexperienced elephant keepers being recruited for these purposes, leading both to poor elephant management and even mortality. In this process it is likely that traditional methods of elephant handling which laid so much emphasis on elephant and keeper understanding one another will be lost. The most suitable way in which these relationships can be both continued and passed on is to establish a school in which these knowledgeable persons can be employed and utilized. The AESG proposes to establish two schools: one in India (where the Government has already expressed a keen interest) and another in Thailand. The AESG also encourages the establishment of similar schools in countries such as Sri Lanka, Burma and Laos, where such traditional methods are still flourishing or should be revived.

F: AN ECONOMIC EVALUATION OF CAPTIVE ELEPHANTS IN ASIA.

Large numbers of captive elephants exist in countries such as India, Sri Lanka, Burma and Thailand. However in some of these countries such as India and Thailand, given the total ban on logging, maintenance of captive elephants is becoming an economic liability. Therefore there is a decreasing demand and incentive to holding elephants in captivity in timber camps. Although elephants in captivity in general have a poor reproductive performance, the timber camp elephants have been an exception. They have been an important (if not the only) source of supply of captive bred elephants to other institutions such as zoos, temples and private individuals. Therefore this project will address the importance of elephants bred in captivity in activities such as timber extraction in production forests, eco-tourism, etc. and will attempt a complete economic analysis of maintaining elephants in captivity in such timber camps in two countries: India and Thailand.

G: EDUCATION, AWARENESS AND PUBLICITY

The AESG recognizes the urgent need to launch educational, awareness and publicity programmes to enhance the long-term survival of the Asian elephant both in Asia where the elephant exists and in the developed countries which are potential sources for funding for conservation projects. This campaign will need the services of a team of professionals drawn from WWF and IUCN with support from countries where the elephant ranges.

H: RESEARCH ON REPRODUCTIVE BIOLOGY OF CAPTIVE ELEPHANTS

Timber camp elephants in parts of India and Burma seem to be the most productive of captive elephant populations. These camps could become ideal sites for research into the reproductive biology of elephants that would ultimately help in conservation plans for captive as well as wild elephant populations. Examples of such research include study of fertility cycles in female elephants, development of contraceptive implants for ultimate use in over abundant wild elephant populations, control of musth in bull elephants, genetic profiles of elephants to determine their subspecific status, quantifying genetic variation in elephant populations, nutritional requirement of elephants and health care of calves.

I: UPDATING THE ASIAN ELEPHANT ACTION PLAN

Since its compilation in 1987, much of the information contained in the IUCN/SSC Asian Elephant Action Plan has become out dated and should therefore be revised to make it more authoritative but also to facilitate its implementation. This will be carried out by three sub-committees (for South Asia, Indo-Malayan and Indo-China).

Opening Address by the Director General

Ir. Sutisna Wartaputra
of Directorate of Forest Protection & Nature Conservation at the IUCN/SSC Asian Elephant Specialist Group Meeting
20 May 1992, Bogor, Indonesia

Chairman, Distinguished participants,

It is a great pleasure to be here today and attend the IUCN/SSC Asian Elephant Specialist Group Meeting - the first to be held in Indonesia.

In the late 1980s, international concern about the future of the African elephant led to the eventual shut down of the trade in ivory and signified an important achievement for those involved in the conservation of this spectacular species. But what about the Asian elephant? How has it fared so far?

Let us pause here to look at the facts: There are over half a million elephants in Africa and they range over a total land area of 7.5 million square kilometres. Their main threat is poaching for the ivory. But against this consider the plight of the Asian elephant: there are only about 55, 000 elephants in the wild in Asia and these are distributed discontinuously in thirteen of the Asian countries from the Indian sub-continent in the west to Indo-China in the east.The entire Asian elephant population inhabits a total land area of 500,000 square kilometres or about the size of Thailand! The principal threat to the survival of the Asian elephant is not poaching but habitat loss, which is far more diffcult to control given the pattern of human population growth in Asia and the relative poverty of the people and their aspirations to a better life.

But the Asian elephant has received only scant publicity throughout the world and its fate is even more precarious than that of its African cousin. It is here that the IUCN/SSC Asian Elephant Specialist Group could play a decisive role in reversing the decline of the world's largest terrestrial land mammal. But this is not going to be easy as the problem is not simply that of protecting the species. Throughout their existence in Asia, people have had to protect themselves from wildlife. While conservationists try to protect the elephant, the people in some areas suffer elephant depredations. At times they are even killed by elephants. In Sumatra, for example, in less than a generation, the situation has reversed from one in which a small population of human beings existed in an enormous area of tropical rainforest with its teeming wildlife including elephants, to a situation where the human population now surrounds islands of conservation areas with their elephants and other wildlife. In many instances, herds of elephants have become pocketed in patches of habitat that are surrounded by an inhospitable landscape dominated by man. Such a situation is a recipe for disaster. This is the crux of the elephant-human conflicts in Asia in general and Indonesia in particular.

Therefore given such a reversal in the status of the elephants in Asia it is not surprising that the ideas of elephant conservation frequently come into conflict with the current preoccupation by development agencies to convert forest into agricultural holdings. Protected areas with elephants alone cannot ensure the long-term survival of the species if they are looked upon in isolation with the events outside their boundaries. Over large areas in Asia, there is no longer room for elephants to move about and adjust their densities to changes in their habitats. Furthermore, their ranges are being compressed year by year as a result of the demands of an ever burgeoning human population.

Elephants are often looked upon by people as agents of destruction. This gives them a bad image. In reality, the picture is different. They are more often agents of change whose presence in a forest provides the opportunities for the survival of thousands of other less charismatic species that are sympatric with the elephants. Examples from Africa have clearly indicated that elephants have been responsible for the cyclic changes of the thick bushland to a more open grassland habitat and back again to bushland. Such facts need to be publicised to create a better awareness among the people so that the climate of public opinion will enhance elephant conservation.

IUCN is closely linked with one of the most influential non-governmental organizations, the World Wide Fund for Nature (WWF). Together these two organizations have the means to help the economically poor but resource rich countries in Asia to implement strong conservation programmes that set an example to the Governments concerned and thus spur them to action along such sensible lines. Such programmes must take into consideration the legitimate aspirations of the poor people for a better quality of life or a greater share of the national economic cake. Millions of people in the third World utilize a fraction of the world's resources. They earn a pitiful fraction of the world's income. But they bear the brunt of poverty, famine, depredations, disease and death. They want a better life. They also inhabit areas that are rich in biodiversity. It would be wrong for us to deny the right of such people to improve their lifestyles. Their countries in many instances are the custodians of endangered species including the elephant.

Many Asian countries with elephant populations are facing a dilemma: on the one hand, as custodians of biodiversity and charismatic megafauna such as elephants, rhinoceros, tiger etc, they are forced to assume respondibility for their protection. Yet at the sametime, most of these countries faced with expanding human populations, collapsing economies and crippling foreign debts are in desperate need of new resources to bolster their ailing economies and maintain their human populations. What the people in such countries are asking is a fair compensation by the world community for the non-use of their natural resources. Can the west deliver it?

Elephant conservation in Asia will be ineffective without the support of the people, especially those who, live along the periphery of the elephant reserves bearing the brunt of elephant depredations. IUCN and WWF must change their emphasis from rhetoric to action in the field. We need to invest more on field-based conservation efforts which address the needs of the local communities if we are to achieve any long-term success in elephant conservation. Many conservation efforts need to be integrated with some form of human activity. Conservation is also very much an issue on education. Often policies are enacted without the benefit of sound, reliable data.

I very much hope that the Asian Elephant Specialist Group during the three days will devote much of its energies into identifying key projects throughout Asia that need to be implemented. Time is running out fast for many countries to set aside additional conservation areas. The day is rapidly approaching when much of the wild elephant populations in Asia will be confined in a patchwork of parks, reserves and sanctuaries. What are the prospects for the Asian elephant in such a situation where barriers exist for its natural dispersal and movement? I leave it to the better wisdom of you, the Asian elephant Specialists to reach a conclusion that is comforting to hear!

With the blessing of Allah the Great, I open the Asian Elephant Speciallist Group Meeting officially.

ASIAN ELEPHANT CONSERVATION CENTRE PROJECT PROGRESS REPORT

Project Number and Title : WWF Project 1777 – Asia,
Asian Elephant Conservation

Name and Address of the Executor :

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Consolidated Report : Ist April 1991 to 31st March 1992.

1. DATA BASE

Questionnaires were sent out to the Forest Departments of the fifteen states in India which have elephants. The purpose of the questionnaire was to compile existing information on the elephant numbers, age-sex composition, forest area, habitat type, etc. in each forest division. Not many responses have been received so far, and a second set of questionnaires is being sent.

Information that has been received so far has been computerised. The Program entry and retrieval of this information has been written in FOXBASE, and includes information such as political division, forest type, forest area, year of census operation, method of census operation, source of information and details on the elephant population in each forest division such as herd number, and age/sex composition of the population. The information on elephant populations can be accessed by forest type, forest division and population number.

This database is being extended to include data on the various Asian countries that support elephants. Information has been collected from available literature and maps for some of these. Maps of these areas are being digitized in AUTOCAD.

Surveys to check for elephant habitat contiguity and crucial corridors were carried out in many places in southern India. These include the Kodaikannal – Munnar area, Pettupparai Coffee Estates and the Nagarahole – Brahmagiri area.

Secondary data on the Uttar Pradesh, Bihar and Orissa elephant populations were collected from the Wildlife Institute of India, Dehra Dun, and from the Indian Institute of Public Administration, New Delhi.

A detailed survey of the elephant habitat in the state of Kerala was initiated with the help of Dr. P.S. Easa (of the Kerala Forest Research Institute and an AESG member). The purpose of the survey is to collect information on usage of habitat by elephants, and identify crucial areas of elephant habitat and corridors in the state.

Work on compûterizing a bibliography on Asian elephants continued. The data are currently being entered in PROCITE, a library software. This information can be provided on request and can be accessed by author, title, journal, year of publication or keywords. At present, over 1,500 records have been entered, and this information is continuosly being updated.

AECC also continued dialogue with the World Conservation Monitoring Centre in U.K. about the collaborative development of a full-fledged Geographical Information System (GIS) on Asian elephants and biodiversity. R. Sukumar had discussions with Harry Miles, Ron Miller and Mark Collins at the WCMC in Cambridge, U.K. in September, 1991. They agreed in principle to pursue the setting up of a GIS facility in Bangalore. Both AECC and WCMC began explorations for funding for the GIS.

2. TRAINING/WORKSHOPS

Dr. V. Krishnamurthy spent a month (Sep. 1991) in the Way Kambas Reserve in Sumatra at the invitation of the Indonesian Dept. of Nature Conservation to help them organize their captive elephant management programme. The trip was arranged by Charles Santiapillai and sponsored by AECC.

Mr. Abdullah-al-Zabed, student from Jahangir Nagar University, Bangladesh, was trained in different field techniques relating to elephant management in Mudumalai Wildlife Sanctuary and Bandipur National Park. He was later taught to use appropriate software for data analysis.

Shantini Dason and Uma Ramakrishnan attended a workshop on 'Elephant Management' conducted by the Royal Forest Department from 2nd to 11th October, 1991, at Erwan National Park and Salakapara Wildlife Sanctuary, Thailand. The purpose of the workshop was to train administrators and researchers of the Royal Forest Department, Thailand, in management of elephants in the wild and in captivity. They gave lectures and conducted field exercises in techniques of censusing elephants in the wild.

Shantini Dason held a training programme in Sabah for staff of the wildlife department on indirect techniques of censusing elephants in forests. The visit was funded by WWF–International and planned with the assistance of John Sale.

3. MEETINGS

Chairman Lyn de Alwis and Executive Officer Charles Santiapillai began preparations for the Asian Elephant Specialist Group meeting to be held at Bogor in May 1992.

R. Sukumar gave a number of talks to the zoo community in the U.K. and the U.S.A. In September 1991 he addressed the U.K. Zoo Directors meeting in London, the British Elephant Keepers' Association meeting at Windsor and a gave a public lecture at Chester. He spoke on the demography of captive elephants in relation to their management and stressed the need for a partnership between western zoos and Asian countries managing elephants in forest camps. He also gave an inaugural address at the American Elephant Managers' Association annual meeting at Syracuse in October 1991.

4. PROJECT ELEPHANT

A meeting of the Task Force for Project Elephant was held on May 8th and 9th, 1991, in New Delhi. The Secretary, Ministry of Environment and Forests chaired the meeting. This meeting was attended by AESG members J.C. Daniel, D.K. Lahiri-Choudhury, R. Sukumar, V. Krishnamurthy and Jacob Cheeran. This meeting finalized the overall approach to Project Elephant. The project was scheduled to be launched in late 1991.

5. PUBLICATIONS

The second technical report "Censusing Elephants in Forests — Proceedings of an International Workshop Southern India, 2–10 January, 1991" was published. The report incorporates lectures given by the faculty members at the workshop and a summary of recommendations.

A copy of the elephant bibliography is available on file. AECC can make a photocopy available at cost. As the bibliography lists over 2000 references we decined not to print it for the present as costs would be prohibitive.

A technical report on Population Viability Analysis of Asian Elephants is also under preparation and would be printed in the near future.

6. FUND RAISING

During his visit to Princeton University, R. Sukumar worked with the IUCN/SSC Chairman's office in Chicago to develop a proposal on Asian biodiversity focused on Asian elephant conservation. This proposal will be presented to the MacArthur Foundation based in Chicago as soon as it is finalized. In the meanwhile, we have had informal discussions with the foundation about the contents of the proposal.

Due to various reasons, R. Sukumar could not make use of his Princeton visit to organize the fund-raising events in the zoos. However, he had further discussions with Dale Tuttle (Jacksonville Zoo) and with other zoos about organizing these events. Tentatively, it was decided to hold these during May–June 1993.

NEWS FLASH

IMPORT, CARVING AND SALE OF AFRICAN IVORY BANNED

by
ASHOK KUMAR
Director, TRAFFIC-India

On May 22, 1992, the Delhi High Court Vacated a stay order obtained by a number of dealers in African Ivory. The Indian government had banned the import of ivory and sale of articles made from imported ivory with effect from April 2, 1992. The dealers had moved a writ petition in the Delhi High Court against the Government of India and had obtained a stay against the ban. There was widespread apprehension that the small stock of African Ivory with these dealers (CITES had banned imports of raw African ivory two years ago) was being used as a cover for carving illegally obtained Indian ivory. Many of these dealers had shown little or no sale of ivory carvings in their periodic returns, yet their business seemed none the worse for it. The sale of Asian elephant ivory and carvings is already banned. In a similar case earlier, traders in furs, skins and other wildlife products had obtained a stay order nearly five years ago, and have been carrying on their trade under protection of the stay. The intervention petition to the Delhi High Court of WWF INDIA has been admitted, and will be heard in July 1992.

Fearing a similar stay in the ivory case, WWF INDIA moved an intervention petition in the Delhi High Court. Mr Ram Panjwani - a senior advocate of the Supreme Court and the Delhi High Court - agreed to take up the WWF INDIA petition for a small fee. He had been a freedom fighter, and had also served as the Advocate General of India for many years. After a doggedly fought battle in court, Mr Panjwani and the government lawyer Mr Lokur defended the case tooth and nail. A two judge bench vacated the stay order with immediate effect. From May 23, 1992, under the ban no imported ivory or articles carved from it can be displayed in commercial establishments, or sold, or transferred. The dealers have been given 30 days to obtain certificates of ownership from wildlife authorities which will enable them to keep those articles currently in their possession as personal property.



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Note from the Editor:

With this issue, the Newsletter of the Asian Elephant Specialist Group takes on the new name, "GAJAH" which in Sanskrit means Elephant. Two important Indian treatises are tha Gajah Sastra and Artha Sastra. The ancient (6th to 5th century BC) Gajah Sastra in Sanskrit records details of elephant distribution and management in India. The elephant is also known in Indonesia as Gajah.

Charles Santiapillai

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