

ELEPHANT TRANSLOCATION: THE MALAYSIAN APPROACH

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INTRODUCTION

In Malaysia, the conflict between man and the elephant is primarily due to the rapid development in agriculture and infrastructure. Each year thousands of hectares of prime elephant habitat are being taken up by oil palm and rubber plantations and other forms of infrastructural development such as building of dams and highways. Soon after independence, the clearing of forests for development was done in isolated patches. This created a mosaic of forest islands. Despite the more systematic clearing of land since then, there has resulted a phenomenon called '*pocketed elephant herds*', trapped in the tiny islands of isolated forests which are usually the hilly or swampy leftovers of development. These areas are generally not conducive to long term elephant viability.

The conflict between man and the beast arises mainly because they both require the same land for existence. Limited home range, low food density and unfavourable habitat conditions force the elephants to encroach onto the surrounding agricultural areas. There are no corridors along which the elephants can retreat into larger, permanent forest reserves. There are heavy economic losses running into millions of dollars annually, resulting from elephant depredation. There is a corresponding increase in human population and the conflicts between man and elephant. Development is for the economic stability of a country like Malaysia. There is, therefore, a heavy price developing countries must pay for progress: the depletion of wildlife habitat.

The mitigation of the conflict must be a national concern. The solution seems to lie in the translocation of the trapped elephant herds to larger and safer permanent forests and the proper management of development by the authorities in the future. Therefore this paper will only discuss translocation as a means to managing elephant populations in the wild.

In peninsular Malaysia, all the elephant problems are handled by a specially set up Elephant Management Unit of the Department of Wildlife and National Parks. This Unit was established in 1974 in the light of increasing elephant problems associated with the increased rate of development. This Unit has been specially trained in the techniques of catching and translocating wild elephants. Over the years this Unit has evolved into

a highly specialized one with improved and perfected methods to ensure safe and successful elephant translocation.

In pre - capture preparation, a study of the elephant herds in the country is done and the status of the problematic herds is determined. These problematic herds are further divided into three broad categories, (1) pocketed herds, (2) peripheral herds adjacent to large permanent forest, and (3) inland herds within large permanent forests. Each category is approached differently. Translocation is carried out as the best solution for pocketed herds. Electric fencing is used effectively for the second category of peripheral herds. The third category requires no immediate attention as it does not often come into contact with man.

Translocation is a very complex procedure which requires careful planning and consideration. Reconnaissance of the pocketed area from which translocation is to be carried out is done. The herd size, sex ratio, etc. are determined. A few suitable release areas are also determined. An Elephant Trust Fund (ETF) is set up, normally funded by the Department of Wildlife and National Parks, the relevant state Government and agricultural estate facing problems from that particular herd.

THE TRANSLOCATION TECHNIQUE

Materials and Methods

Before commencing work, the capture team must first conduct a field survey to familiarize itself with the forest, know the number of animals involved and ranging pattern of the herds in the area. The capture team comprises 15 personnel: the team leader, who is responsible for the running of the whole capture operation; a veterinarian for administering the drugs used and post capture care; two well trained trackers; two backup rifle men armed with .458 rifles; and nine rangers in shackling (using high tensile steel chains) techniques. These rangers are also responsible for the captured animals. The trackers begin tracking at about 0730 hrs. They look out for fresh elephant tracks or damaged crops before tracking the animals. The team is likely to encounter the elephants at about 1000 or 1100 hrs. This is when the elephants slow down and rest as the day becomes hot.

The dosage of *immobilon* used is based on the diameter of the front foot print of the elephant to be tranquillized. This is because it is difficult to estimate the body weight of the elephant due to poor visibility in the dense forest. Previous use of a combination of *etorphine hydrochloride* and *acepromazine maleate* in Asian elephants never exceeded 3.5 ml. Present studies indicate that a dose of 9.8 - 11.0 mg. of *etorphine hydrochloride* and 40 - 45 mg. of *acepromazine maleate* can be used safely for the free ranging adult elephants.

A major problem with tranquillization of free ranging elephants is mortality associated

with abnormal posture during induction. This problem is further complicated when the animal is under-dosed and subsequently allowed to travel a longer distance before being immobilized. In this instance the capture team will take a longer time to locate the immobilized animal. As a result the animal could be dead from suffocation or respiratory failure. In Malaysia a higher dose is administered in order to shorten the induction period. The drugs are prepared into the darts as soon as there is a good indication of the animals' presence within 100 - 300 metres. Noise from breaking of branches, ear flapping and squeaking calls are some of the clues indicative of the proximity of the elephants.

It is very essential that the elephants must not be alerted so that darter would be able to get close, within a shooting distance of about 30 metres. The darter must ensure a clear flight path for the dart. All elephants are immobilized using a long range *Palmer Cap Chur* rifle and a 5 ml. capacity aluminium syringe - barrel with a 7.5 cm. collared needle. (Palmer Chemical and Equipment Co., Inc., U.S.A.)

After the elephant has been darted, it would normally run for a short distance before succumbing to the effects of the drugs. If disturbed at this stage, the elephant would run even further. This would make it all the more difficult for the capture team to locate the immobilized animal. It would thus be absolutely imperative for the capture team to wait at least five minutes before approaching the darted animal. This is a crucial period as the unfavourable field conditions could easily result in the death of the animal. The drugged animal may fall into a swamp, ravine or just remain in a position of sternal recumbency causing death within 30 minutes. It is necessary for the team to locate the drugged animal within this period of time. Should the animal be found in an unfavourable position, it would be revived immediately and efforts to capture the animal at this juncture should be abandoned.

After the animal has been located, the respiration and rectal temperatures are regularly monitored at 15 minute interval. A conventional mercury glass thermometer is placed against the rectal mucosa for about one minute. The pulse rate is taken by palpating the ear vein conspicuously seen beneath the skin of the under-ear. Respiration rate is determined by placing the hand against the nostril and observing the chest movement.

A blood sample is collected in a vacuum tube from the marginal ear vein. It is also at this time that body measurements are taken for record purpose. The animal is tattooed on the inner-lower lip or on the upper ear as an identification to enable systematic monitoring after translocation. A few selected elephants in a herd are fitted with radio transmitter collars for follow up studies. A separate unit, the Elephant Research Unit (ERU), handles all research work on the released animals.

The animal is restrained using the shackling technique: the double front leg shackle; the single front leg shackle; or the double front and hind leg shackle. The choice of the shackling technique depends on the terrain and situation in each case. Restraining an animal can take up to 30 minutes. The animal is then anchored to a big tree using a 6 metre

chain. It is advisable to revive the animal as soon as possible after the animal has been restrained. This would reduce the possibility of any danger to the animal from over exposure to the drug used. *Revivon (Diprenorphine hydrochloride)* is used to revive the immobilized animal. In normal circumstances, the animal takes about 5 minutes to recover and get back on its feet. The animal will continue to hobble around, still shackled and anchored, until the animal is ready to be transported out. The captured animal is fed with banana stems soaked in water.

Transportation

A path of about 5 metre-wide is cleared to make the captured animal accessible to the transportation lorry. A loading bay is constructed by cutting into a hillock. A ten-wheeler truck is used to transport the captured elephant. Two trained working elephants are used to guide the captured elephant to the loading bay. *Rompun (Xylazine)* is used to sedate the elephant during transportation. It may be necessary to administer a second dose of *Rompun* before the animal reaches its destination because the release area might be a considerable distance away (about 300 - 400 km). *Yohimbine hydrochloride* is used effectively as a stimulant if it is required to revive the animal during transportation.

The animal is usually transported to the release area after 1700 hrs, to avoid heavy traffic and heat. The destination is reached by day break the next day. The animal is usually released on the other side of a water body, be it a river or a dam found within the proximity of a National Park or a large permanent forest reserve. A raft is normally used to transport the elephant across the water.

There are at present 6 release sites in use for translocation purpose in Peninsular Malaysia: at Taman Negara (Pahang), at Taman Negara (Trengganu), Ulu Belum permanent forest reserve, and at Endau - Rompin National Park (Johor).

DISCUSSION

Translocation is done as a last resort in management. This is because it means uprooting the elephant or entire herds of elephants from their traditional home range to one unfamiliar to them. Fortunately, there is negligible difference in the type of habitats found in the different areas in Malaysia. This facilitates better adaptation of the elephants to their new habitat. Continuing research reflects this success in translocating elephants in Malaysia.

The uniqueness of the elephant situation in Malaysia where most of the elephant herds have been left stranded in the remaining pocketed forests has left the Wildlife Department no choice but to translocate the animals. This seems to be the best alternative to culling. Electric fencing as a method of elephant control would not be effective nor economical as the forest pockets are too small to provide a home range to the trapped elephant herd (Khan *et al.*, 1992). These forests are isolated with great distances in between them. Furthermore, they do not have forest corridors along which these elephants can be

driven to larger permanent forests. The number of successfully translocated elephants stands at 285 animals since the establishment of the Unit in 1974. This figure includes elephants from 7 out of the 11 states in Peninsular Malaysia.

Since the inception of the translocation operations, about 109 agricultural schemes and villages have been freed from problems of elephant attack. The crop depredation has been estimated to be over 300 million Ringgit since 1969. The Department of Wildlife & National Parks and other relevant agencies have spent up to 4 million Ringgit to finance the various translocation operations that were carried out. In comparison the amount spent on elephant translocation is much less than the amount lost in crop depredations due to elephant attacks.

Through such successful translocations, one aspect of the elephant conservation has been achieved and the nation can surge forwards in its economic development. The success of translocation operations is also seen in the continuing financial support provided by the Federal Government for future elephant conservation and management programmes.

The Federal Government is aware of the tremendous damage that can be caused by elephants. There is increasing awareness of the damage to the environment associated with all the new development projects carried out by the public as well as the private sectors in the country.

Comparative studies have been done in Sri Lanka and Singapore, where translocation operations were carried out by the Malaysian Elephant Capture Unit, at the invitation of the respective governments (Daim *et al.*, 1991; Abdulla *et al.*, 1992). The nature of translocation was very similar to that adopted in Malaysia. There was no difference in the dosage of drugs used and the general elephant condition remained stable as has always been the case in Malaysia. The difference lay only in the means of tethering the animal in Sri Lanka. The easily available ropes were more widely used than the padded chains used in Malaysia and Singapore. However, this did not have any effect on the actual translocation work.

At the invitation of the Government of Vietnam funded by WWF International, a study was carried out on of the problem elephant herds in the provinces of Dong Nai, Bien Thuan and Baria Vung Tau (Daim, 1992). The situation in Vietnam was found to be similar to that in Malaysia. There are also several pocketed elephant herds which constantly trouble the villages and agricultural areas. There is also a lack of forest corridors linking the isolated forests to the larger permanent forests. Translocation seemed to be the best solution to their elephant problems. The only drawback was the need for substantial funds to finance the translocation programme. There is also the need to train Wildlife officers for this type of work.

In Malaysia there has been no known incidence of translocated elephant herds returning to their original habitats. This is based on the total absence of complaints from

the areas where the operations were carried out. There has also been no further damage caused by elephants in these areas.. The Malaysian technique is a combination of various experiences developed and adopted for the purpose of translocation. The Assamese technique of tethering and training the animal has been adopted as it has been proven effective. The Thai technique of the use of an elephant harness and chains for pulling logs is used in Malaysia to pull the captured elephants from the capture area to the loading bay. The use of chemicals to capture and transport of the animal is a modern practice that is widely used in Africa. The technique of using ropes to shackle the animal was changed to using padded chains. This proved to be more effective economically. Using chains is also safer when it comes to handling bigger and stronger animals. It is easier to buy chains as jute ropes are not easily obtained. Furthermore, making jute ropes takes too much time and man power.

There is no significant difference in the extent of injury to the captured animal when either ropes or padded chains are used. When chains are used for shackling the elephants, the time taken is only about 30 minutes compared to using ropes which takes about an hour to secure the animal. The time factor is vital when dealing with a fully sedated animal. This has greatly helped in reducing the mortality rate in translocating elephants. Even with the success we are experiencing at the present, we are constantly trying to learn and improve the method used for the safety of the elephants.

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