

**REPORT ON THE STUDY OF THE BEHAVIOR OF JUVENILE  
ELEPHANTS RELEASED FROM THE ELEPHANT TRANSIT HOME TO  
THE UDA WALAWE NATIONAL PARK**

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ABSTRACT

The behavior of several elephant calves released from the Elephant Transit Home was observed. Of the nine elephants that were released from the transit home, seven were observed to have joined wild herds, but two have not been found. These two, a male and female are believed to be missing or dead. Although the other seven elephants have joined wild herds, behavioral observations suggest that they have not been completely assimilated into the wild host herds. The observations also suggest that the human-elephant interactions and feeding regime while at the transit home may be influencing the behavior of the calves after they are released.

INTRODUCTION

It has been estimated that only about 2500-3000 wild elephants now remain in Sri Lanka, down from a population estimated at over 20,000 at the beginning of the 19<sup>th</sup> century (McKay 1973). Habitat loss to the rapidly expanding human population, large development projects, and other human activities such as the ongoing conflict have threatened the existence of this large herbivorous mammal needing about 100-150kg of food and 100-125 liters of water per day. With the shortage of food in their jungle habitats, the elephants have started to raid crops, home gardens, and even granaries and houses to fulfill their dietary needs. The result has been a severe escalation of the human-elephant conflict, with loss of elephant and human lives—although careful and thoughtful land-use planning can eliminate the bulk of these conflicts which are actually the result of ad hoc development plans. Elephants are commonly shot and killed by farmers retaliating against crop raids, and as is usual in conflicts, the juveniles suffer; elephant calves, orphaned by the death of their mothers, are being rescued by the wildlife officials with increased frequency.

The Department of Wildlife Conservation therefore, established a facility called the Elephant Transit Home in 1995. Located near the Uda Walawe National Park, the Elephant Transit Home keeps the rescued orphaned baby elephants in a near wild situation until properly structured (age, sex) social groups are formed by these animals. When ready, these calves are then released into the wild, with the hope that they will join wild herds.

The Elephant Transit Home is in the western part of the Uda Walawe reservoir. The facility consists of grassland, scrub/grassland mosaic and abandoned chena lands in different serial stages of succession, and the land runs down to the water. The baby elephants are kept in a roofed enclosure for the night and during the cooler times of the day are released to roam freely in the open areas of the reservoir bed.

When new calves are brought into the transit home, they are examined and treated (if necessary) by a veterinarian. The animals are fed regularly with a milk

formula that has been developed at the Pinnawela Elephant Orphanage where over 50 orphaned baby elephants have been brought in and looked after from the 1970s. Over 12 baby elephants have been born at Pinnawela.

As envisaged the young animals, brought together through adversity, bond together in small units spending most of their time in play. Play (fighting, wrestling, pushing etc.) is an essential ingredient for bonding. This sort of bonding is essential if these animals are to have a sense of security once they are released to the wild.

Since its inception 83 elephant calves have been brought to the Elephant Transit Home. Thirty-nine died subsequently due to serious illnesses and disabilities. Some have been gifted to temples, others to public institutions and to the Pinnawela Elephant Orphanage managed by the Zoological Gardens. The objective of the transit home was achieved, when nine calves were released into the wild; a batch of four in March 1998, and another batch of five elephants in June 2000. Three elephants from each batch were radio collared, with the objective of monitoring their behavior and whether and how they become assimilated into wild herds.

The objective of this was to study the behavior of the juvenile elephants released and the relationships that they formed with the wild herds that they joined. The study also tried to determine the social organization, habitat use and movement patterns of the juveniles released.

### **Background**

Two batches of elephants that were released to the natural habitat in Uda Walawe National Park (UWNP) in 1998 and 2000 were considered in this study. The details at the time of release are given in Table 1.



**Figure 1**

**Table 1. Batch 1, Released on March 21, 1998 (three males and one female)**

Name	M/F	Age	Height	Collared	Freq. Code
Gamini	M(tusker)	4.5 yrs	5' 1"	Yes	12
Panduka	M	5 yrs	4' 6"	Yes	14
Anusha	F	4.5 yrs	4' 10"	Yes	16
Anuradha	M	N/A	N/A	No	

**Batch 2, Released July 1, 2000 (one male and four females)**

Name	M/F	Age	Height	Collared	Freq. Code
Sandamali	F	5 yrs	5'	Yes	9
Komali	F	5 yrs.	4' 6"	Yes	5
Isuru	M	5.5 yrs	4' 11"	Yes	8
Mattali	F	N/A	N/A	No	-
Emelyn	F	N/A	N/A	No	-

The tusker Gamini (FC12) from the first batch and the female Komali (FC5) from the second batch were not considered in this study due to the malfunctioning of their radio collars. The other collared elephants (FC14, FC16, FC9, and FC8) were tracked and their behavior studied in June & July 2001, as the first period of this study. The observations made during this first period are presented here.

#### **Fauna and flora of the uda walawe national park**

The Uda Walawe National Park is situated in southern Sri Lanka and falls partially within the intermediate dry zone. (Figure 1)

A large number of species inhabit the park; among them the large mammals take a prominent place. The Asian elephant (*Elephas maximus*) is the

most important animal in the park, which has an estimated permanent population of between 350 to 400 elephants (Jayewardene 1994.) Hulankapolla, Goonawiddagala and Tibiriyamankada are the favorite habitat that these populations frequent during the dry season.

Some of the other prominent mammals include the spotted deer (*Cervus axis*), sambar (*Cervus unicolor*), leopard (*Panthera pardus*), black-naped hare (*Lepus nigricollis*), grey langur (*Presbytis senex*), toque monkeys, wild pigs (*Sus scrofa*), and water buffalo. The park also supports a large and important bird fauna, among which are the Malabar pied hornbill, the Ceylon gray hornbill, peacocks, jungle fowl, red faced malkoha, to name but a few.

The reserve has a wide range of vegetation types ranging from scrub jungle to open grassland (Guinea B grass) with some scattered and small dense pockets of jungle. The habitat is ideally suited for elephants.

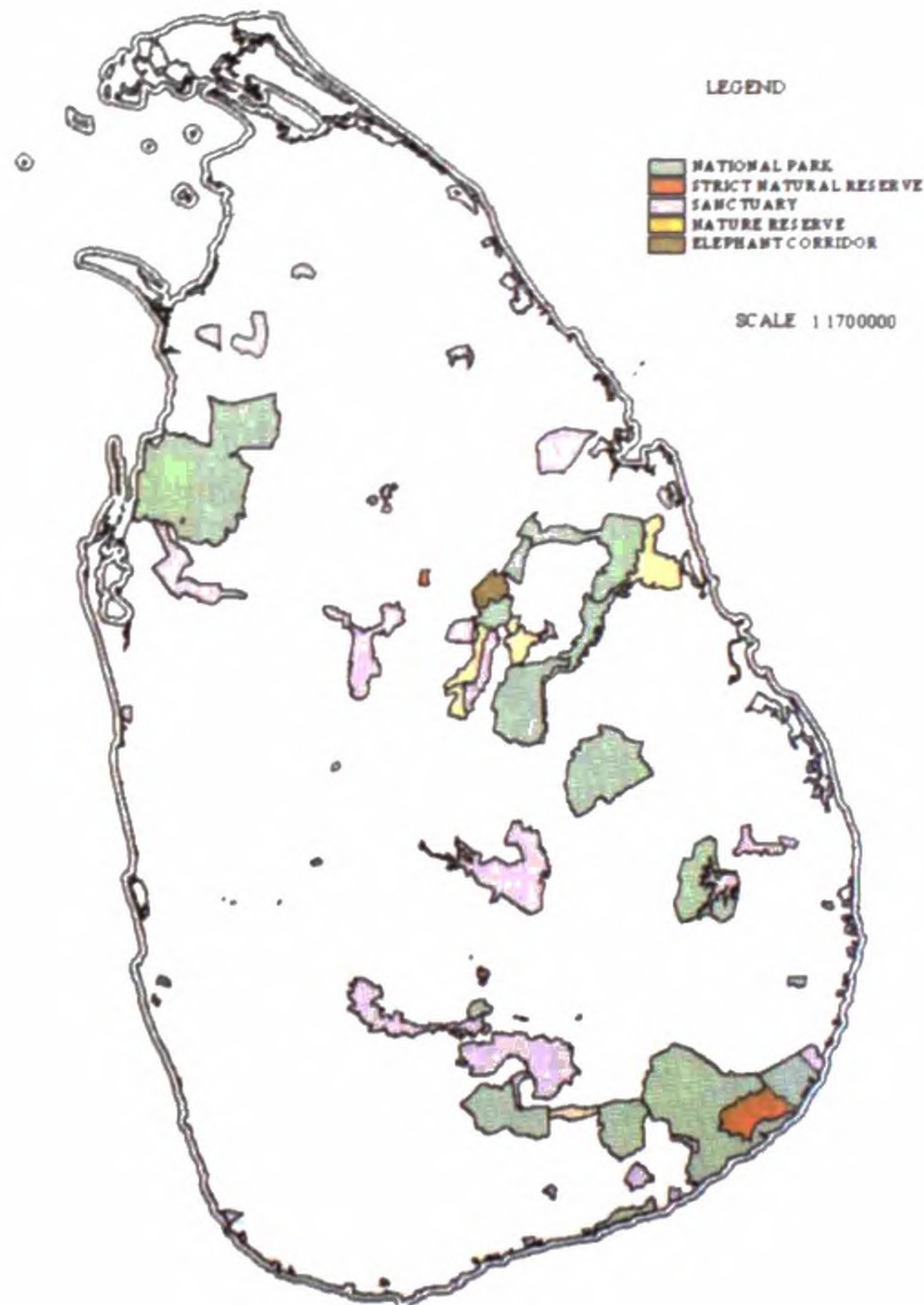


Figure 2. Protected areas under the Department of Wildlife Conservation

## METHODS

Radio telemetry was used to track elephant movements in order to determine the ranging patterns, habitat use, social organization and post-dispersal activities of the juvenile elephants. The study tracked the four animals, which were radio collared at the time of release. Namely, Panduka (FC14, male), Anusha (FC16, female), Sadamalee (FC09, female) and Isuru (FC08, male).

All animals were located and observed for five days each week and their ranging pattern and positions including positions in relation to the nucleus herd and other animals were recorded. The positions were overlaid on a base map giving land use, topographical features, protected areas and infrastructure (roads, settlements etc).

Unfortunately, the initial—and most important stage of the reintroduction—was not closely monitored. By the time this study got underway, the elephants had already joined wild herds, and the radio-collars were either becoming too tight or the batteries on the collars were close to becoming non-functional. Thus, the collars had to be removed soon after this monitoring began.

### History of the elephants released

The nine juveniles released in two batches in March 1998 and June 2000 respectively as mentioned previously consisted of four males including a tusker and five females. Of these, three males (including the tusker) and three females have radio collars (Table 1).

#### ◦ **Gamini (FC12):**

Gamini was a tusker, about four and half years old and 5'1" tall at the time of release. The tusks were about 10 inches long. He was solitary since the release, and according to the observations made by the DWLC field officers he had not joined a herd and roams in a relatively large area.

In October 1998 Gamini was found by a fisherman, stuck in mud in the area where the Walawe River joins the reservoir. After being informed, the wild life officers rescued the tusker. There are reports that this elephant has been sighted in the Diyavinna area, which is beyond the NE boundary of the park.

There have been no signs of this tusker over the last 12 months and no radio signal from the collar has been detected. It is doubtful whether the animal is now alive.

#### ◦ **Panduka (FC14):**

Panduka, another male was released in March 1998 and was 5 years old and 4'6" tall. After few days of his release Panduka was found with a herd of about 27 elephants. It was observed that Panduka is being treated as a juvenile of that herd. This herd travels in thick, tall shrub areas and Guinea B grass areas.

The collar was removed on the 15/07/2001 in Hulankapolla area as it was tightening round the neck of the elephant with the growth of the animal. If left longer it would have choked the animal.

- **Anusha (FC16):**

Anusha, a four and half years old and 4'10" tall female, was released in March 1998. After few days of release she also joined a herd of about 7-9 elephants living in Mau Ara area. This herd has a few mature male elephants. This herd normally lives in areas with shrub and areas with tall trees.

Her collar was removed on the 18/07/2001 in Mau Ara area as it was tightening round the neck with the growth of the animal.

- **Sandamali (FC09) and Isuru (FC08):**

Sandamali, a female, and Isuru, a male were released in July 2000. Sandamali was about 5 years old and 5' tall while Isuru was about 5.5 years old and 4'11" tall. They joined to two separate herds. Sandamali joined to a herd of about 22 elephants and Isuru joined to a herd of about 26 elephants.

The two herds live close to each other merge frequently to form a greater herd.

- **Komali (FC05):**

Komali, a female, was released in July 2000 and was about 5 years old and 4'6" tall. Few days after release the radio signals from the collar stopped and she could not be located. Since then there has been no sign of her in the park. She is also believed to be dead.

- **Anuradha, Manel, and Emalin**

Anuradha, a male, and the two other females were not radio-collared when released. It was observed that they have joined the two herds, which Sandamali (FC09) and Isuru (FC08) have joined.

### **Ranging patterns**

Observations of the radio-collared animals are given in the following tables.

Table 2 - FC08 Isuru

Table 3 - FC09 Sadamali

Table 4 - FC14 Panduka

Table 5 - FC16 Anusha

A map of the home ranges of the four elephants mentioned above elephants during the two-month period June/July 2001, is given in Figure 2.



Figure 3



Figure 4



Figure 5

# UDAWALAWE NATIONAL PARK

Freq code # 08, 09 and 14 hard rangers wholly inside PA's making use of mainly Thimbrigasmankada, Gooनाविदागला and Hulankapollia.

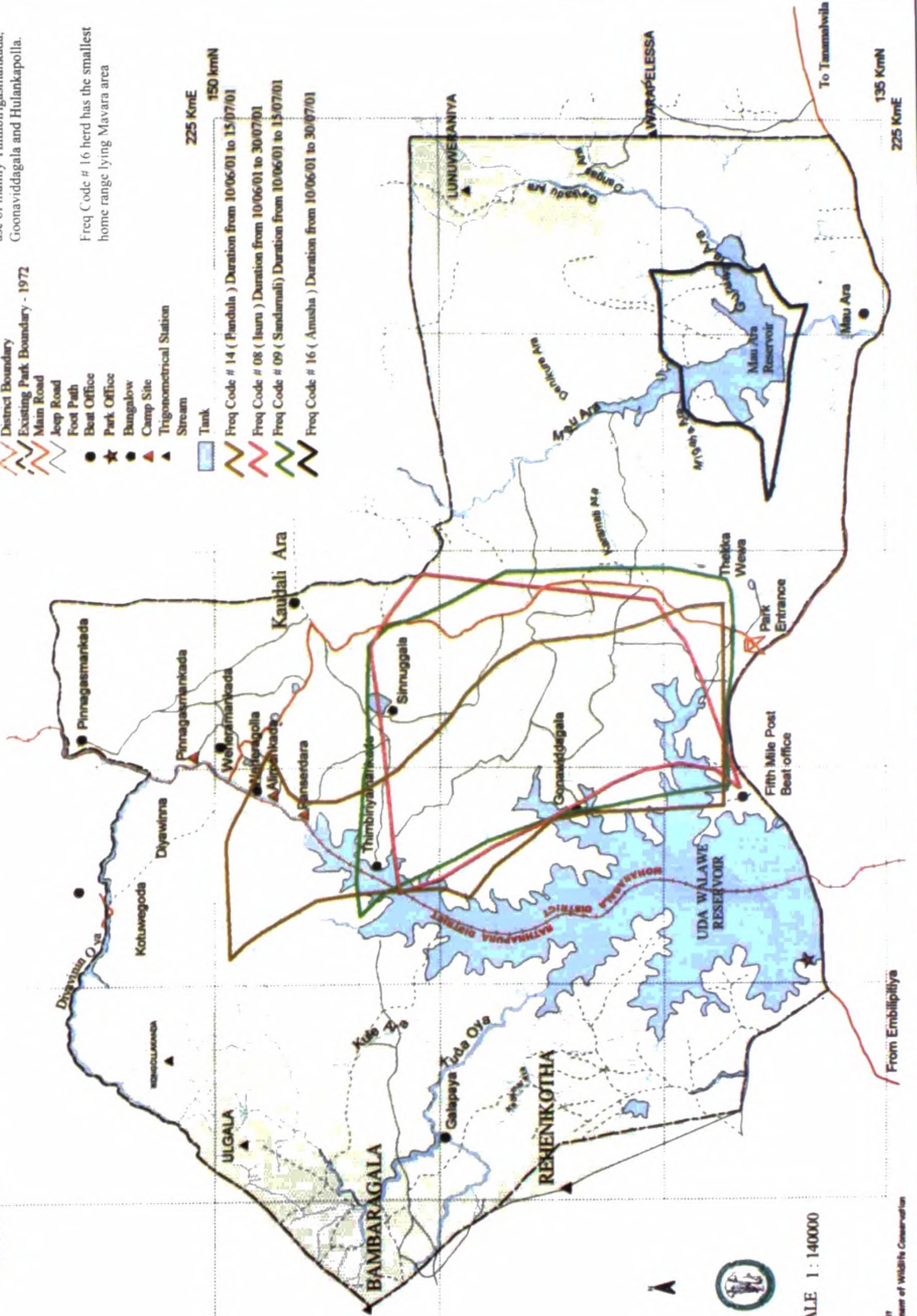
Freq Code # 16 herd has the smallest home range lying Mavara area

## LEGEND

- Grid
- District Boundary
- Existing Park Boundary - 1972
- Main Road
- Jeep Road
- Foot Path
- Beat Office
- Park Office
- Bungalow
- Camp Site
- Trigonometrical Station
- Stream
- Tank
- Freq Code # 14 ( Pandula ) Duration from 10/06/01 to 15/07/01
- Freq Code # 08 ( Isuru ) Duration from 10/06/01 to 30/07/01
- Freq Code # 09 ( Sandarnali) Duration from 10/06/01 to 15/07/01
- Freq Code # 16 ( Amusha ) Duration from 10/06/01 to 30/07/01

200 KmE

155 KmN



225 KmE

150 KmN

135 KmN

225 KmE



SCALE 1 : 140000

GIS Unit  
Department of Wildlife Conservation

## DISCUSSION

**Observations during, June/July 2001**

Of the nine juveniles released so far, apart from the male Gamini (tusker, radio collar code 12) and the female Komali (radio collar code 05,) the rest have been observed to have successfully assimilated into herds living in and around the Uda Walawe National Park.

It is possible that Gamini (4<sup>1/2</sup> years at release in 1998,) though a juvenile, may have faced antagonism from other juvenile/sub-adult males within herds due to the fact that it was a tusker, as evidenced by the fact that it was never spotted within the vicinity of a herd. In the early period, when it was spotted, it was always solitary. This antagonism may have encouraged it to move to areas outside the park where there are fewer elephant. In fact there are unverified reports that it has been spotted in places like Iththagala, Diyawinna, Panahaduwa, Madunagala etc., all outside the Park. These records need to be followed up. The fact that Gamini was originally from Wayamba, an area with a different ecology, and that it lived in the somewhat controlled environment of the transit home may have too been contributory factors affecting its post release behavior. With there being no rigorous monitoring plan along with the release in 1998, the information available about its early years is scant, and unfortunate.

Panduka (5 years at release in 1998,) Sandamali (5 years at release in 2000,) Isuru (5<sup>1/2</sup> years at release in 2000) and Anusha (4<sup>1/2</sup> years at release in 1998) each joined separate herds within a few days of release. It is observed that these four prefer to associate with the adults in the respective herds and stay with the nucleus of the herd, rather than move with their peer-age group animals. This is possibly due to their association with man previously. It appears that they are more agitated and fearful of the presence of humans than their wild counterparts. Their food intake pattern too appears to be somewhat different to peer age juveniles within the same herd. On average they show a greater lethargy than the juveniles that were in the herd do. These preliminary observations need to be studied in detail in a subsequent part of the project, since it is likely that the feeding patterns and methods during their time in the transit home may affect the way they forage under natural conditions.

Anuradha (released 1998,) Mattali (released 2000) and Emelyn (released 2000) have joined the same herds as Isuru and Sandamali and prefer to associate the animals released with them. They show the same behavior patterns as the released animals mentioned previously.

While it is clear that the wild herds easily assimilate the released juveniles, it is necessary to ascertain the reasons for their somewhat abnormal behavior. If this is due to the management and care pattern within the transit home needs to be investigated. Equally important is to have in place a rigorous long-term post release observation plan to get more complete information on the progress made by the released animals.

Panduka, Sandamali and Isuru are within herds with home ranges falling within the boundaries of Gonaviddagala, Thibiriyamankada and Hulankapolla, where the vegetation is mostly grassland composed of guinea B grass. There appears to be a uniform locomotion pattern. Future observations will show whether seasonal variations in home ranges do take place. Anusha is within a herd living around the Mau Ara tank where there is a mix of medium forest cover and shrub forest. The home range is significantly smaller than that of the other herds.

While it is very important to have a long-term comprehensive monitoring process, the preliminary data over the two months indicate that the released animals and their herds have sufficient food and water within the confines of their respective home ranges measured over the study period.

### **Observations during august to november 2001**

The relationship between the juveniles in the wild herd and the juveniles released in the park were observed in greater detail. The wild animals were seen to cohabit more closely and be active and playful in comparison to the newly introduced juveniles which in general tended to be more on their own with a noticeable lack of interaction with the former. The newly introduced juveniles were also seen hovering closer to the mature females in the herds, compared to the wild ones.

The mature females always take care of the juveniles. They help the juveniles to stand up when fallen, pull them back closer to the herd when they wander away and when in danger alert them and surround them. However, it was noticed that the mature females are a lot more indifferent to the introduced juveniles. In times of danger, the introduced juveniles were seen to be attempting to get closer to the herd nucleus, on their own, rather than at the prodding of the mature ones. Sometimes on such occasions, the wild juveniles were seen to be aggressive towards the introduced ones by fighting and chasing them off. However, "Sandamali" (FC9, female 6.5years old) was seen to be striking back when attacked as such. Though the adults normally do not interfere during such fights, they will intervene only if the situation gets out of hand.

During this period the drought ended and the park received the early rains from the northeast monsoon. The grasses began to grow and the water holes started filling up. The availability of food increased. As a result, the home ranges compared to the previous period of observation were shrinking. On rainy days, the herds tend to stay on higher ground, avoiding the waterlogged areas. No significant changes in feeding or behavior patterns were observed compared to the last period, except the fact that during heavy rain, the introduced juveniles sought shelter under trees and stopped feeding, unlike the wild animals which kept to their normal grazing pattern.

During the previous period of observation, "Sandamali" (FC09, female), "Isuru" (FC08, male), "Manel" & "Emalin" were in two separate herds. But during the current period they were observed to be grouping together and hovering near the respective herds but not within them. They did not get to the nucleus of the respective herds.

On 8<sup>th</sup> and 9<sup>th</sup> October, the four juveniles were seen entirely separated from the respective herds and traveling together. They were observed continuously during the daytime (10 hours) on both these days and were never seen to get near or join the respective herds. They were lead by “Sandamali” (FC9, female 6.5years old) and were confined to an area of about 80 Ha. On 10<sup>th</sup> October the group was observed to have rejoined their respective herds. It is possible that during this time the male “Isuru” (FC08, 7 years old) may have been trying to separate from the herd. Normally only the males leave the herd when they reach maturity, whereas it appears that in this instance it seemed as if the females too were trying to follow the male. This maybe due to their bonding during their period in the transit home. This behavior must be studied further. The question also arises whether the male juvenile was mature enough to leave the herd.

In conclusion, these observations show the importance of studying the pre and post dispersal behavior of both indigenous and introduced juveniles more methodically and thoroughly.

### **Recommendations**

This release of juvenile elephants represents a pioneer effort to reintroduce large mammals into the wild. Unfortunately, however, the study was not monitored from its inception, and an excellent chance for the Department of Wildlife Conservation to contribute to a global knowledge on conservation and management has gone a begging. It is strongly suggested that any further activities of the Elephant Transit Home be done in collaboration with credible scientists so that the animals, DWLC, and the scientific world can benefit. In this context, the following recommendations are made.

- Monitor the behavior of the released elephant calves from the very beginning. Animals should be observed throughout most of the day and all behavior patterns should be recorded in detail. Fulltime researchers with DWLC counterparts should be assigned for this purpose.
- Several animals should be radio-collared so that they can be located and identified. Animals without collars should be outfitted with false collars (fastened with coir rope so that the collars will drop off after about a year). This will allow these animals to be identified without ambiguity.
- Juvenile males should be radio-collared and monitored until, and for sometime after, they leave the host herd. Virtually nothing is known about the dispersal of juvenile males, after they leave the herds — how far they go, where they go to, etc. This information is of vital importance for managing targeted elephant populations in a world where not each and every elephant and elephant population can be conserved; a situation that the DWLC and all Sri Lankans will have to accept, given the intense conflict and competition for land between people and elephants.

REFERENCE

McKay, G.M. (1973) *The ecology and behavior of the Ceylon elephant in south-eastern Ceylon*,  
Smithsonian Contribution to Zoology No. 125