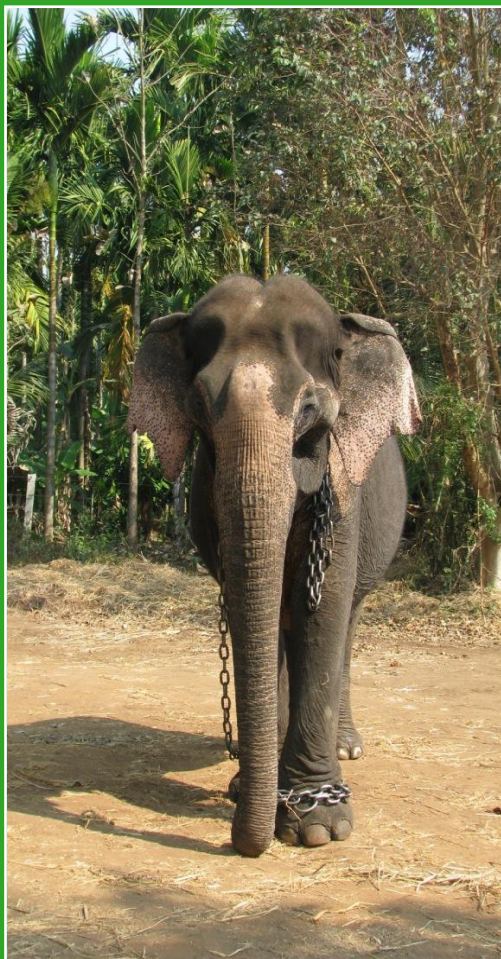


Captive Elephants in Sakrebyle Forest Camp, Karnataka, southern India



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**Surendra Varma, Smita Bijjur, N.D. Sudarshan and
N. Basappa**

Elephants in Captivity: CUPA/ANCF - Occasional Report. 9



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Elephants in Captivity: CUPA/ANCF - Occasional Report. 9

1: Research Scientist, Asian Nature Conservation Foundation, Innovation Centre, Indian Institute of Science, Bangalore - 560 012, Karnataka,
2a: Deputy Conservator of Forest, **2b:** Assistant Conservator of Forest,
2c: Veterinary Sergeant Shimoga Wildlife division, Shimoga.

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Compassion Unlimited Plus Action (CUPA),

Veterinary College Campus, Hebbal,

Bangalore 560 024

cupablr@gmail.com

Or

Publications officer,

Asian Nature Conservation Foundation (ANCF)

Innovation Centre, Indian Institute of Science,

Bangalore 560 012

Email: publications@asiannature.org

Or

Secretary

Malnad Area Development Board (MADB)

Shimoga

Department of Planning and Statistics

Government of Karnataka

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Preface

The logging operations of the past were one of the main sources of Asian elephants in captivity. Primarily, to transport logs from the deep, dense and difficult forest terrains, elephant power was immensely needed. This led to the capture of elephants from the wild, training them in designated locations and carrying out logging operations. When a ban of logging was initiated, keeping elephants for commercial interest shifted to direct or indirect conservation interests. The camps also became one of the sources of elephants for other management regimes, like zoos, temples, circuses and other private ownership.

Elephants have gone through a remarkable transformation from the wild to semi wild conditions and to environments, which are very alien to them. However, there were no scientific investigations, to assess the deviations in welfare of elephants which have gone through the changes enforced on their life and living conditions.

An all India captive elephant and mahout study gave scope for investigating elephants from different management regimes, and specific documents were also developed for specific forest camps. Sakrebyl Forest Camp, located 14 km from Shimoga, in Karnataka is one of the oldest elephant camps in India. This study was aimed to develop a document that would provide some details of the elephant camp, using the welfare parameters identified and rating logic developed and reviewed by experts. An attempt has been made to assess the welfare of the elephants objectively.

This document has two specific sections, section one is dedicated to provide some insights on the camp, its origin and routine and also is developed to assess the welfare status of elephants kept in the camp. Section two has profiles for each elephant, with photographs of them, graphs showing their body measurements and the details of keepers associated with each elephant. The profile starts from adult males, followed by adult females and young ones.

We assume, this document may provide some basic details and welfare status of captive elephants in one of the oldest elephant camps of India. We also hope this study and the resultant document would become a reference for more detailed investigation of the elephants kept here or elsewhere in other nature camps.

Acknowledgements

The interest of creating this specific document for elephants and their mahouts in Sakerbyl Camp was initiated by the amount of knowledge and experience available from different sources. The survey was done with financial assistance from the State Forest Department (Wildlife) and the World Society for Protection of Animals (WSPA), UK.

Explicit appreciations are due to the Chief Wildlife Wardens of the Karnataka State for their dedicated concern and support in improving the value of the management and welfare of elephants and their handlers through the detailed examination.

Special thanks are also due to Harish Bhat, Shama Karkal, Vydehi Kadur, Daniel Sukumar Savitha Nagabhushan, Deepika Prasad, Gauis Willson and Karthik, who provided critical data and information of the animal. Sanobar, Pauline and Santosh provided their assistance in data entry. Forest Department staff and volunteers accompanied and provided valuable support in the field and our thanks are due to all of them. Sreenivasa Rao provided editorial support.

Dr. N. R Gangadharappa, Karnataka State JFPM Coordinator, Mr. Lingaraju, IFS, Deputy Conservator of Forest, Bhadravathi Forest Division, Mr. Venkestesan, IFS, Deputy Conservator of Forest, Shimoga forest Division, A. Bharathappa, Assistant Conservator Forests, Shimoga Wildlife Circle, Mr. Mukundiah, Range Forest Officer, Sakrebyl Wildlife Range, Abdul Rahim Jamedaar, Mujib Khan and other elephant keepers of Sakrebyl camp for their support, interest and knowledge of elephants and the camp. Malatesh Kunabev, CID inspector Forest Cell, who with his excellent language skills helped in translating a document on the Sakrebyl forest camp in Kannada.

Sujata, S.R provided support in data processing, Dr. Shiela Rao, Suparna Ganguly of Compassion Unlimited Plus Action (CUPA) provided critical inputs. Nirupa Rao provided editorial support.

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Section 1: Captive Elephants in Sakrebyl Forest Camp

Executive Summary

Sakrebyl (or Sakrebayalu) forest camp is situated in the Shimoga district and is home to 16 captive elephants.

Through this study, population, management and welfare status of captive elephants kept in the camp was assessed, in addition to an evaluation of the professional experience and socio-economic status of elephant handlers. The results are based on several welfare parameters, which included physical/ social/ physiological features along with the availability of veterinary care and facilities available to manage the elephants.

The landscape elements around the camp were also assessed in order to obtain the details of the physical environment found around the animals.

Welfare of captive elephants and their handlers (mahouts/cawadi) was assessed based on the welfare rating scale evolved and reviewed by a team of experts. The ratings suggested by the experts for a given parameter is called Expert Rating (E-R) and this rating was compared with the Mean Rating (M-R), which was obtained by the data collected in the field for a given parameter for each animal.

As landscape elements around the camp were considered, the camp provides a suitable physical environment, this is evident from the occurrence of forest area and river which occupied 60% of the total area within a distance of 500m around the camp.

The camp maintains 16 elephants; mean age was 36.9 yrs. ranging from 2 to 82 yrs for females and 16- 35 yrs for males. In this camp, 50% of the elephants are captured ones, while 31% are captive born, rescued elephants (confiscated from other institutions/ organizations) are all males, ranging in age from 20-35y.

The number of mahouts/ cawadis changed per elephant ranged from 0 – 8. M-R was 3.3 showing a deviation of 59% from E-R.

The camp elephants were maintained within a reserved forest and the forest provided natural conditions of flooring and shade. M-R was 8.0 showing no deviation from E-R.

The elephants had access to river water which was between 0.5 - 1.0km from the camp and the camp elephants were bathed between once to twice a day for duration of 1-2h. Bathing materials (scrub) used were stone, *Pandanus* (Screw pine) fruit and brush. M-R for the water related parameter is 5.3 showing a deviation of 25% from E-R.

All the observed elephants, except one male adult, were allowed to interact, number of individuals varied from 2 -14 and the group comprised of elephants of various ages of both sexes. M-R was 6.9 indicating a deviation of 13% from E-R.

All the elephants were allowed to forage in the forest and provided stall feed which consisted of Rice (*Oryza sativa*), Salt, Coconut (*Cocos nucifera*), Jaggery (sweet derived from sugarcane *Saccharum* sp.), Paddy (*Oryza sativa*) straw.

Among the adult elephants, all except an 82 yr old female Indri (Indira), were said to come into oestrus. Among adult males, all except Manikantan (16yrs) were said to exhibit musth, calves born (till date) to females ranged from 3 – 8; for males, calves sired ranged from 2- 4 and the source of mating for females was both captive and wild males. High rating has been assigned to environments that replicate near natural conditions. For the camp M-R for reproductive status was 6.6 showing a deviation of only 17% from E-R.

With reference to the health status of the animals, a female (73 yrs) had cataract in both eyes and was partially blind, a male (54yrs) had a wound on the trunk, another male (16yrs) had old *Ankush* marks, and a female (58 yrs) had an injury on the hind leg. M-R was 5.7 implying a deviation of 19% from E-R.

Mean age of handlers was 42 yrs with the age ranging from 25- 56 yrs. Each elephant has one mahout and one cawadi to take care of it except for two females which had only cawadi. Mean experience in this profession for each handler was 26.4yrs, ranging from 0.05 to 60 yrs, Mean number of years of experience with a specific camp elephant for each handler is 15.8 yrs. ranging from 0.024 – 52.6yrs.

All the handlers are either Muslim or Jenu Kuruba: known for their traditional knowledge in handling elephants. Most handlers were either uneducated or had studied upto the 4th standard, Mean salary was Rs. 80,250/- (ranging from Rs.43, 200 – 1, 44,000/- Indian

rupees, US\$= 47). M-R for the handlers' family background, education status, income generated from this employment, insurance availability, etc is 5.0 implying a deviation of 28% from E-R.

Regular free health camps for the handlers are conducted by a local physician.

If the individual rating for each of the elephants across all observed sub-parameters are considered together to provide an overall rating, the overall M-R for captive elephants kept in Sakrebyl camp is 6.4 indicating a deviation of 20% from E-R.

With the landscape elements around, the practice of allowing the elephants to range free to forage within the forest is a step in the right direction for the animals. Group size of the elephants in the camp comprised of individuals of different age/sex class providing for a near natural social environment.

Reccomendations

1. This camp was known for its successful breeding of elephants in captivity, with the new and young elephants being sold to different institutions. The present population, however, is skewed with more number of males or adult females. Except for one female, others are above reproductive age. This implies mortality or transfer of elephants across locations. The vision of the camp is to continue to allow for reproduction of its captive population. This would enforce the following:
 - a. Transfer of elephants, viable females/ males, across locations, indiscriminately needs to be stopped. In this context, it is worth noting that three wild male elephants have been reported to visit the camp environs since the past 1.5yrs. It is presumed that these elephants are primarily coming to mate with the female elephants as no human-elephant conflict situations have been reported from the villages surrounding the camp.
 - b. In order to maintain satisfactory welfare of its captive population, the social unit of the elephants should not be disturbed
 - c. The ability of the camp to care for an increased population of captive elephants needs to be considered while allowing for successful reproduction of its elephants.
 - d. Males that come to musth need to be handled without compromising their biological needs. Elephants such as Ranga/ Rajendra are reported to come to musth frequently. Elephant Ganesha is not approachable or manageable, including when it is in musth. Integration into the wild, of such elephants, could be an option.
2. Accommodation (quarters) need to be established for the handlers
3. The wealth of knowledge regarding training and handling of wild/ captive elephants in possession with the handlers in this camp needs to be shared across all camps maintained by the department. This can be done by conducting interaction programs across institutions wherein handlers can impart their knowledge to new entrants into this profession.

4. Including the current veterinary doctor, the elephants were being cared for by a succession of three doctors over a period of 18 yrs. An exclusive veterinary unit, however, needs to be set up aimed at implementing preventive measures along with providing necessary veterinary care in times of ill-health/injury.
5. The camp has the potential of becoming an eco-tourism spot for creating awareness among the visitors about elephant biology, conservation and management

Introduction

The Sakrebyl (Sakrebayalu) forest camp, located along the Shimoga-Thirthahalli road, around 14km from Shimoga, was established during pre-independence days. The elephants were then used for timber hauling work, with the camp being famous for its ability to capture and train wild elephants. The ability to train elephants by people with a long-established tradition of handling elephants is characteristic of this camp, elephants played a critical role in removing timber from deep and difficult forest terrain. Before 1985, at least for 8 months, elephants were used for logging and transporting timber. Old records suggest that in 1969, more than 48 elephants were part of the camp and the number has gone down currently to 16. The camp is located close to the Tunga reservoir, making it an ideal holiday spot for people to visit. Local people, especially, school children/ college students visit the camp; this can be an ideal target group for providing education on elephants and wildlife.

Objective

Elephants and their handlers (mahouts/ cawadis) in Sakrebyl FC were observed and data collected to:

- Assess their welfare status through a set of physical/ social/ physiological features along with the availability of veterinary care and facilities.
- Assess the professional experience and socio-economic status of elephant handlers.

Method

Welfare has been assessed considering the physical environment, social and behavioural features along with availability and access to veterinary personnel and facilities. Data was collected through observation of animal/s and interview of personnel/management, representing various aspects of the elephant's life in captivity. The data was grouped into different categories (parameters) based on its identity in terms of physical/social/ managerial/ physiological relevance to the animal.

The rating method

The rating scale from zero (unsuitable conditions) to ten (suitable conditions) was used to assess the welfare status of captive elephants and their handlers. Experts (both wild and captive elephant specialists, wildlife veterinary experts, managers from protected areas, those having both wild and captive elephants and other

wildlife, members of welfare organisations and elephant handlers) were invited to assess the welfare based on welfare parameters and their significance through an exclusive workshop conducted on the subject (Varma, 2008; Varma, et al., 2008; Varma and Prasad, 2008). Experts rated a total of 114 welfare parameters covering major aspects of captivity

- The experts, based on their concept of the importance of a particular parameter to an elephant, developed rating for each parameter. For example mean expert rating of 8.0 (SE= 0.5, N=29) for a parameter ‘floor’ and 9.0 (SE=0.4, N=31) was arrived for ‘source of water’ from the ratings suggested by each expert.
- A mean rating for each parameter, across all the participating experts, has been used as the Experts’ Rating (E-R) which represents the importance attached to a parameter.
- For example, if an elephant is exposed only to natural flooring, the animal receives a rating of 8 and for entirely unnatural flooring the value is 0; if an animal is exposed to both natural and unnatural flooring, the value is 4 (as $8+0/2=8/2=4$). If an elephant is exposed to a natural water source, such as a river, it receives a value of 9; if the source of water is large lakes or reservoirs, it gets 4.5. A value of 3.5 is assigned for small water bodies like tanks and ponds. Tap water (running) gets 2.5 and if only buckets, pots, and tankers are in use, then the allocated value is 0.5.
- Elephants were visited on the ground; data for each parameter was collected by direct observations or with the interviews of people associated the animal. Mean Rating (M-R) was calculated for a given parameter, along with its sub-parameter. Thus the Mean Rating (M-R) denotes welfare status of existing conditions on the ground for the particular parameter.
- In this investigation, variables which represent a common feature of the captive condition have been grouped to form a parameter. For example, the variables shelter type, shelter size, floor type in the shelter; all represent different aspects of the physical space provided to the elephant. Hence, they are grouped together to form the parameter “Shelter” and each constituent variable is a sub-parameter. In this investigation, the E-R for a parameter (say, shelter) represents the mean of E-Rs across all related sub-parameters. M-R is also based on similar lines.

- E-R and M-R for each of the regimes represent the average across related parameters observed for the regime. For instance, E-R / M-R for a parameter “shelter” represents the average of related parameters (termed sub-parameters) such as type, flooring, size, and shade availability.
- Results have been presented comparing E-R and M-R as a means of comparing the extent of deviation present in the parameters observed. The difference between E-R and M-R (expressed as percentage) indicates deviations from the prescribed norm.
- For handlers, the difference between expert rating (E-R) and existing status (M-R) have been used to indicate the professional/ socio-economic status of value to the handler and his elephant.

Result

Camp routine

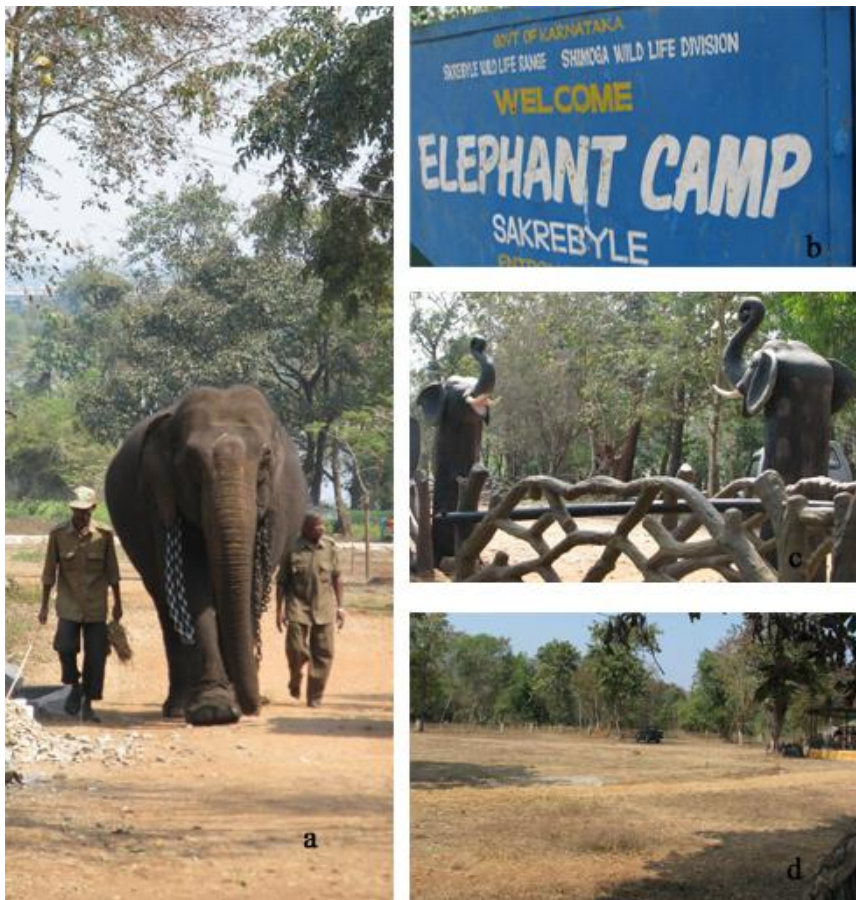
The FC has a dedicated space exclusively for elephants, with an animal stand separate from visitors and close to the water-body. The camp elephants are left to range free in the adjacent forest overnight. In the morning, around 8a.m., the mahouts/ cawadis go to the forest and bring their elephants back.

The animals are bathed in the reservoir for 1h, scrubbed using a brush. Following this, the elephants are given stall-feed consisting of paddy (*Oryza sativa*), paddy straw, rice grains, coconuts (*Cocos nucifera*), salt and jaggery (sweet derived from sugarcane *Sacharum* sp.). After stall-feed, oil (Castor oil) is applied on their body, more specifically on the head, feet and massaged thoroughly, later, the elephants are again taken to the reservoir to drink water and then let into the forest in 4-5 groups in different locations for grazing.

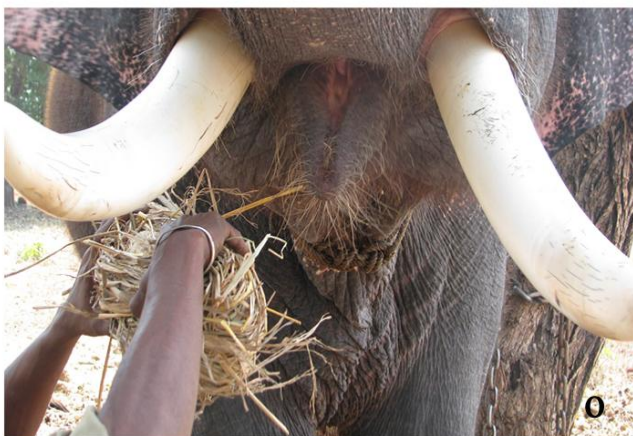
In the afternoon, around 4p.m., the handlers look for their elephants in the forest; if found, make them drink water at an available water-source (if any) and then return to the camp. This approach helps the handlers locate their elephants easily the following day. In order to locate their elephants, drag chains are used on the elephants as they leave a trail for the handlers to follow. Some elephants, however, are hobbled by their fore-feet; a practice resorted to for human expediency.

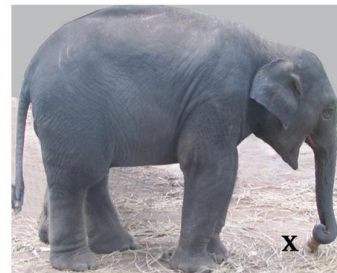
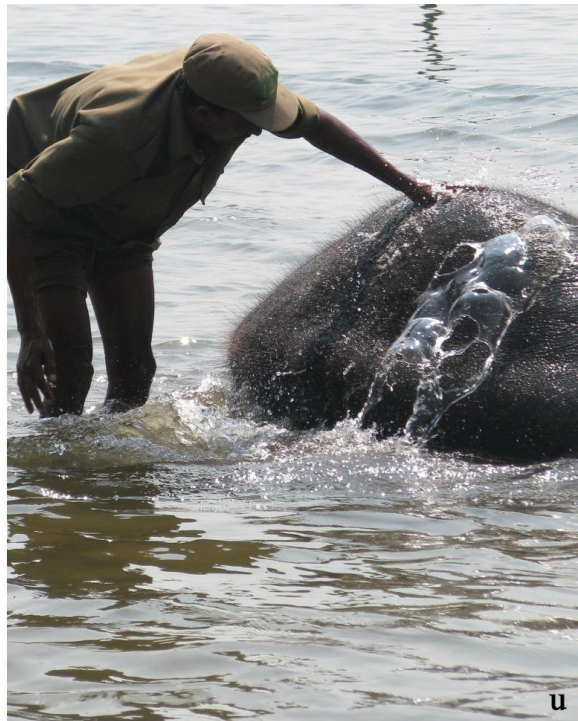
The administration of elephants involves, one Range Forest Officer (R.F.O), one forester, two *jamedaaars*, about 25 *mahouts/ cawadis* (elephant handlers), primarily from the Muslim community, and there are about 5 tribals belonging to the *jenu kurumba* who also work as elephant handlers. A doctor from Shimoga visits the camp periodically and performs free health check-up of the handlers' and their family.

Children of handlers go to school located within the camp, upto the 5th standard. For remaining classes, they have to travel 5km to Gajanur to study upto S.S.L.C. Pre-University education and higher studies has to be done in Shimoga. Some of these children have grown up to become lecturers, engineers, mechanics, etc.











Figures: 1a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s,t,u, v, w, x,y, z, aa & ab: Facilities and camp routine; a; Name board, b, a female elephant coming after free grazing, c, camp entrance, d, site, e,f, g; elephant stands, h and I': visitors to the camps, j; facility for visitors sit and watch elephants, l, m, n,o: type of food provided, p and q: store room and ticket counters with elephant designs, r: source of water, s: oiling elephant, t; elephant drinking water, u: elephant being bathed, v,w and x: adult female, male and calf of the camp, y: elephants going for free ranging, z, aa: officers in charge interacting with mahouts.

Landscape elements around the camps

The camp and its surrounding areas have landscape elements such as forests, river, agricultural lands, road and barren lands (Figure 2a and b). The advantage of Sakrebyl forest camp in providing a suitable physical environment was evident from the occurrence of forest area and river (Figure 2b) which occupied 60% of the total area within a distance of 500m. The forest acts as a free grazing location, provides natural floor, shade and exercise based food. The forest also has dedicated water resources, in the form of natural waterholes, streams, *nallah* and other forms. This forest is also home to wild elephants, though not permanent to this landscape, who visit regularly and act as

one of the sources of breeding males for the camp elephants. Water resource is the Thanga reservoir, which is a part of the forest landscape providing water for the elephants for drinking, bathing, cleaning and for other activities.

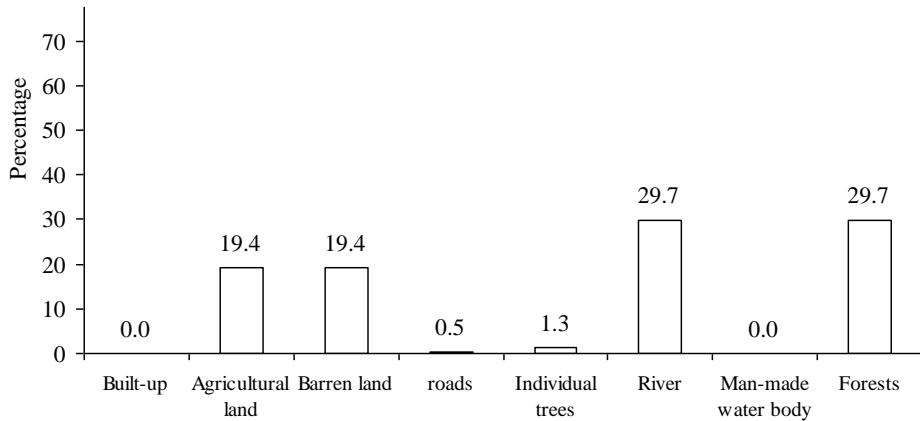


Figure 2a: Percentage of landscape elements around the Sakrebyle Elephant Camp

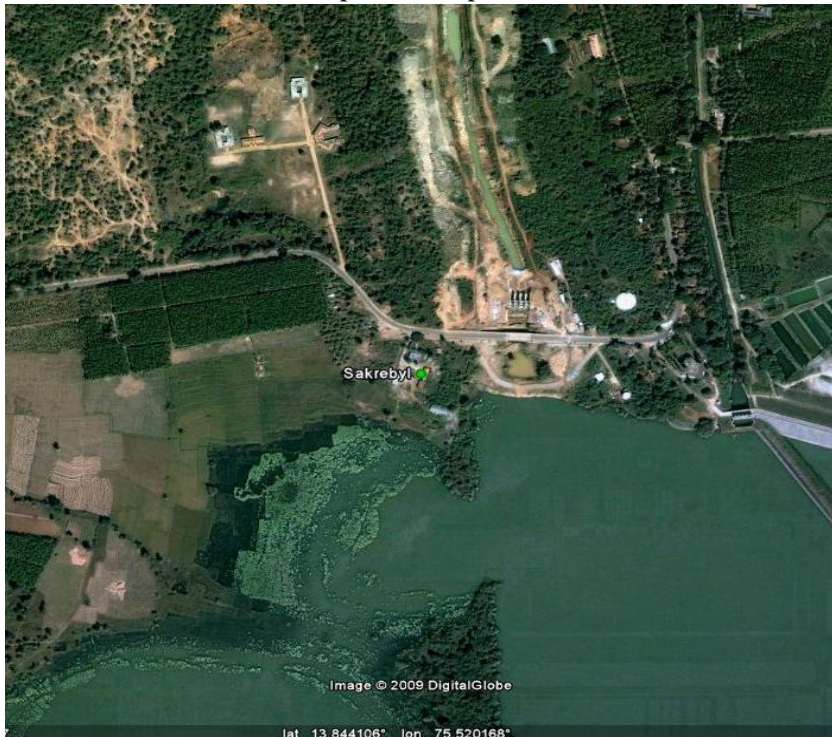


Figure2b:
Landscape elements around the sakrebyle elephant camp

Population Status

Sakrebyl FC maintained 16 elephants, mean age was 36.9y (SE= 7.3, N= 16) ranging from 2- 82y for females and 16- 35y for males (Table 1). About 37% of animals are above 50 years, overall sex ratio is biased towards females (male to female sex ratio 1:1.25), among females about 60% of them are above 50 years and only one animal is a reproductive female. All the males in the camp are adult.

Table 1: Details of elephants kept in the Sakrebyl Forest Camp

| Name of elephant | Age (yrs) | Sex | Source |
|------------------|-----------|--------|-----------------|
| Aale | 2 | Female | Captive born |
| Amurtha | 4 | Female | Captive born |
| Pragurithi | 4 | Female | Captive born |
| Nethravathi | 10 | Female | Captive born |
| Ganga | 49 | Female | Captured |
| Geetha | 58 | Female | Captured |
| Kapila | 63 | Female | Captured |
| Subathra | 63 | Female | Captured |
| Kaveri | 73 | Female | Captured |
| Indri (Indra) | 82 | Female | Captured |
| Ranga | 19 | Male | Captive born |
| Manikantan | 20 | Male | Confiscated |
| Sagar | 25 | Male | Captured |
| Rajendra | 26 | Male | Confiscated |
| Ganesha | 35 | Male | Taken as a calf |
| New tusker | 54 | Male | Captured |

The age class distribution for different sexes is given in the figure 3

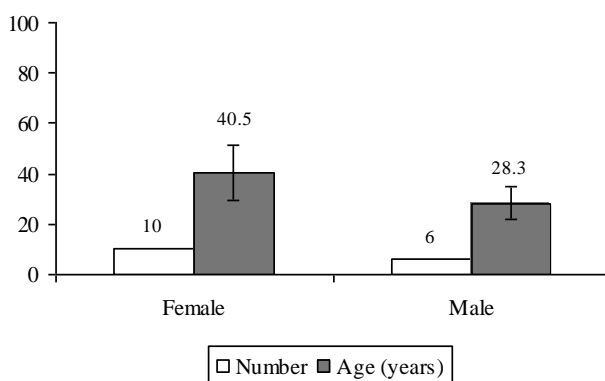


Figure 3: Age-sex distribution of Sakrebyl FC elephants

Source of elephant

Elephants captured from the wild as opposed to those born in captivity undergo greater stress due to the changed living conditions and occurrence of human influence on all aspects of their lives. Rating was designed to indicate this feature.

- In this camp, 50% of the elephants were reported to have been captured with 31% said to be captive born. Captured elephants comprised both males and females, age ranging from 16-82yrs, most elephants having been captured between 1968-1972, with a male being captured in 1998.
- Captive born elephants included one male and four females, their age ranging from 2-19yrs with year of birth ranging from 1986 – 2008.
- Rescued elephants (confiscated from other institutions/organizations) were all males, ranging in age from 20-35yrs.
- Eight elephants (male and female) were no longer in this camp either due to being shifted to other places or as a consequence of mortality.

M-R was 2.4 (SE= 0.7, N= 15) showing a deviation of 59% from E-R for this parameter.

Change of mahouts

The relationship of trust between mahout/ cawadi and his elephant can be broken when handlers are changed. The elephant may have to undergo further training and stress with a new handler (Nayar, 1998). The number of mahouts/ cawadis changed per elephant ranged from 0 – 8. M-R was 3.3 (SE= 0.7, N= 16) showing a deviation of 59% from E-R.

Shelter

- The camp elephants were maintained within a reserved forest
- The forest provided natural conditions of flooring and shade
 - The camp site has natural floor (figure 4a), shade (figure 4b) provided by the existing trees around the camp

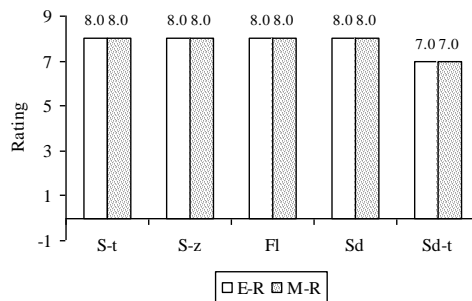
The home range of wild elephants stretches across kilometers, the animals traversing varied habitat in search of food/companions. Rating was designed to reflect this environment, with poor



rating indicating poor shelter conditions such as limited space, unsuitable flooring or poor shade availability. M-R was 8.0. (SE= 0.0, N= 5) showing no deviation from E-R. Figure 3 shows rating for sub-parameters related to shelter.



4a and b: natural floor(a) and shade through trees around the



S-t: Shelter type, S-sz: Shelter size, Fl: Flooring, Sd: Shade availability, Sd-t: Shade type

Figure 5: Comparison of rating for shelter sub-parameters

Water and related features

- The elephants had access to river water which was between 0.5 - 1.0km from camp
- This water was used for drinking, by the elephants, between once to twice a day.



6a, b, c and d: source of water;

- The elephants were said to consume between 20- 70l of water/day
- The camp elephants were bathed between once to twice a day for duration of 1-2hrs.
- Bathing materials (scrub) used were stone, *Pandanus* (Screw



Figure: 6e and f. elephants submerged in the water for bathing :
pine) fruit and brush

Water usage for drinking and bathing is considered integral to captive elephant welfare (BIAZA, 2006). Availability and access to flowing water with provision for performance of species-typical activities was

rated. M-R was 5.3 (SE= 1.3, N*=6) showing a deviation of 25% from E-R. Figures 7a and b indicate rating for water sub-parameters and the deviation from E-R for each of these sub-parameters respectively.

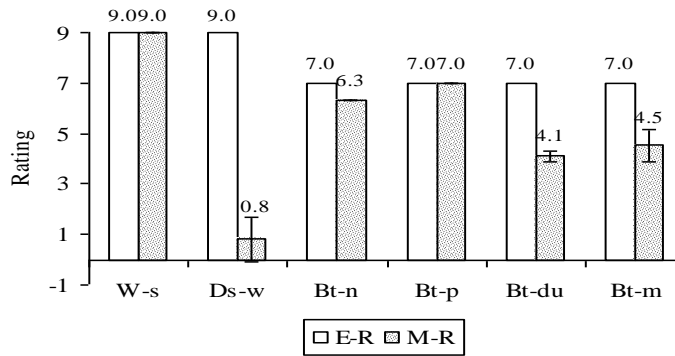


Figure7a: Comparison of rating for water sub-parameters

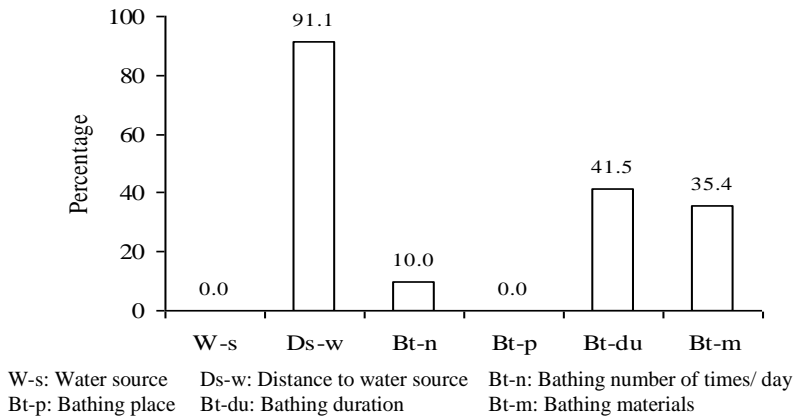
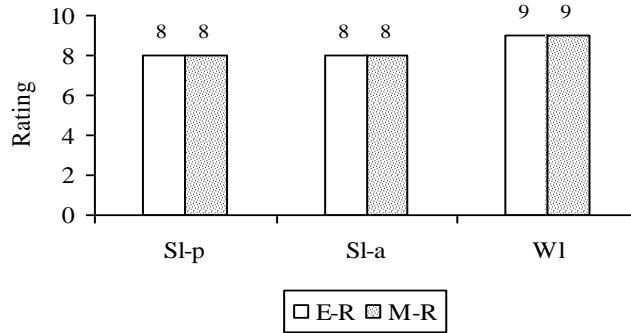


Figure 7b: Percentage deviation from E-R for water sub-parameters

Opportunity for sleep and walk

- The elephants were said to be allowed range-free in the forest
- The animals slept in the natural conditions of the forest

Opportunity to perform unrestricted activity related to sleep and walk was rated. M-R was 8.0 (SE= 0.0, N= 3) showing no deviation from E-R (Figure 8).



SI-p: Sleeping place

SI-a: Sleeping area

W1: Opportunity for walk

Figure 8: Comparison of rating for sleep and walk sub-parameters

Social Interaction

- All the observed elephants, except one male adult, were allowed to interact (Figure 8a,b and c)
- Number of individuals varied from 2 -14
- The group comprised of elephants of various ages of both sexes



Figure 8a,b and c: Examples of the types of social interactions possible in the camp

Complex and lasting social relationships have been reported among wild elephants (Poole and Moss, 2008; Sukumar, 2003). Breakage of social bonds may result in abnormal behaviour (Bradshaw, 2009). Ratings reflect opportunity for expression of species-typical behaviours in the social context. M-R was 6.9 (SE= 0.4, N=4) indicating a deviation of 13% from E-R (Figure 9a and b).

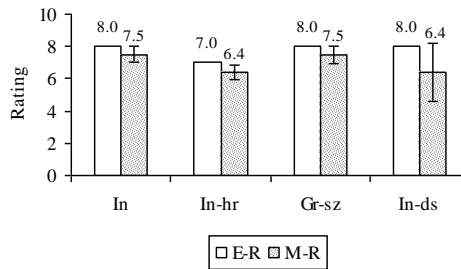
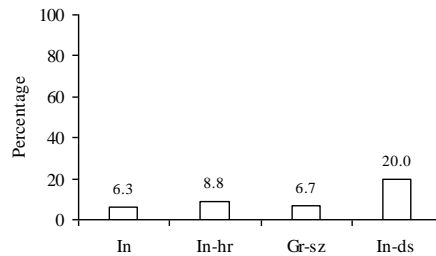


Figure9a:Comparison of rating for social interaction sub-parameters



In: Opportunity for interaction

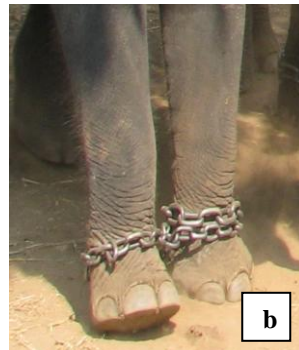
In-hr: Interaction hours Gr-sz: Group size

In-ds: Interaction distance

Figure 9b: Percentage deviation from E-R for social interaction sub-parameters

Chaining

- All the observed elephants were allowed to range free in the forest, with drag chain (Figure 10a and c) and hobbles (Figure 10b) , drag chain length was 150m

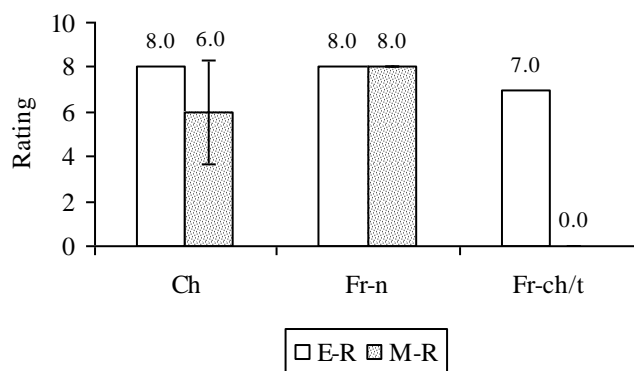


- The drag chain helps mahouts to locate the animal in the forest



The practice of chaining captive elephants in order to manage them is widespread. This practice may be in the form of chaining the

elephant to a fixed place or fixing chains on the elephants and allowing it to range-free. Features related to chaining such as provision to range-free/ region of chaining/ chain type while ranging free was rated. M-R was 4.7 (SE= 2.9, N= 3) implying a deviation of 42% from E-R (Figure 11a and 11b).

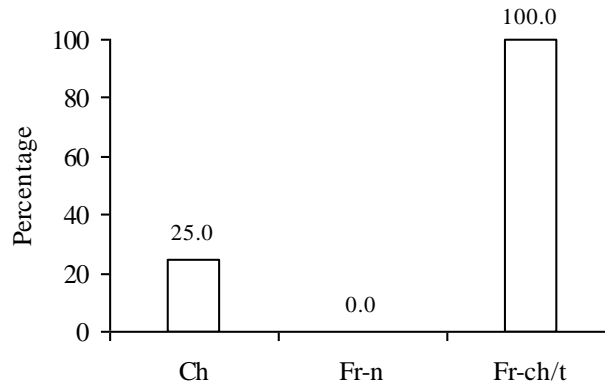


Ch: Chaining status

Fr-n: Free-ranging at night

Fr-Ch/t: Region of chaining

Figure 11a: Comparison of rating for chaining sub-parameters



Ch: Chaining status

Ch-r: Region of chaining

Fr-n: Free-ranging at night

Figure 11b: Percentage deviation from E-R for chaining sub-parameters

Observed behaviour

- All the elephants except one were described as calm with no incidents of aggression towards people; one adult male was described as nervous and had injured three people.
- Two male elephants were said to exhibit stereotypic behavior (Figure 12a and b) and these elephants were owned by temples, prior to their arrival in the camp and even after getting a more natural environment and scope for exhibiting natural behavior, this behavior gets influenced in the daily routine of these elephants.

Different temperament of each elephant makes management of the animal a challenging task. In addition occurrence of stereotypic behaviours may imply poor welfare conditions. M-R was 6.0 (SE= 1.2, N= 4) showing a deviation of 25% from E-R (Figures 13a and b).



Figures 12 a and b: Examples of stereotypic behaviours; head bobbing and moving trunk

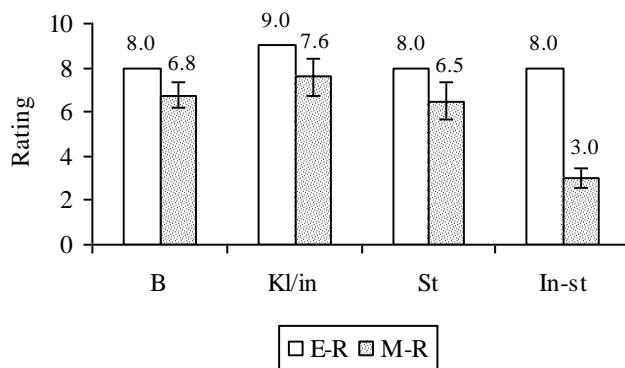
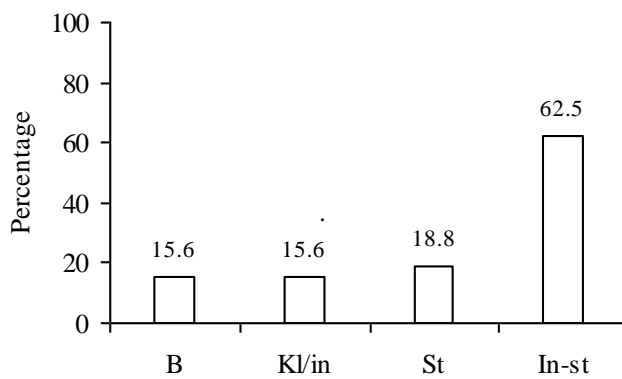


Figure 13a: Comparison of rating for behaviour sub-parameters



B: Observed behaviour
killing

Agg: Aggression towards people
St: Stereotypic behaviour

In/kl: Incidents of injury/
killing

Figure 13b: Percentage deviation from E-R for behaviour sub-parameters

Food



Figure 14a: Elephants leaving out of the camp site



Figure 14b: source of Stall fed, elephant grass grown exclusively at the camp site as one source of food

- All the elephants were allowed to forage in the forest (Figure 14a)
 - They were also exposed to stall feed (Figure 14b), which consisted of raw rice(*Oryza sativa*), mixed and tied together (Figures: 14c, e, f and g), salt, Coconut (*Cocos nucifera*), Jaggery (sweet derived from sugarcane *Saccharum* sp.), Paddy (*Oryza sativa*) straw

Wild elephants have been observed to feed on a number of species of plants (Mckay, 1973). Captivity may not provide the same opportunity for the elephants to forage. Hence, opportunity to forage, provision of supplementary food through stall feed and maintenance of ration charts as a management tool was rated (Figures 15a and b), except for the number of items (of food), deviation from the expert rating was nil for all the sub-parameters considered. However it's assumed that the variety of food consumed by elephants while they are in the free ranging state may compensate the micro nutrient they derive from the different types of forest food they consume.



Figures 14c, d, e, f, g and h: sources of stall fed; paddy straw with raw rice (c, d, e and f) and coconut (g)

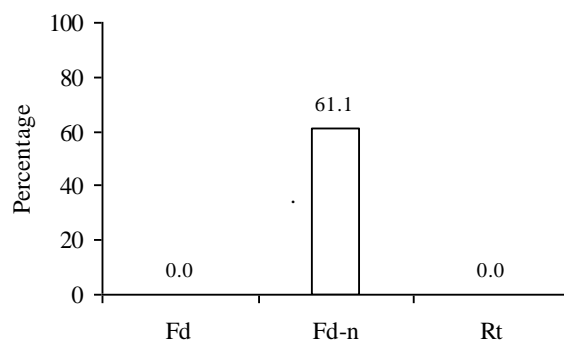
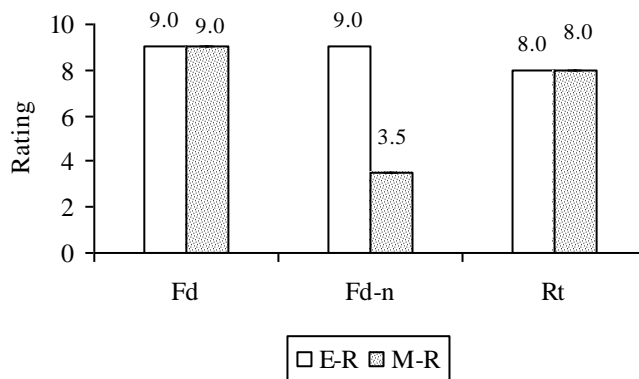


Figure 15a: Comparison of rating for food sub-parameters



Fd: Food provisioning type Hy: Hygiene maintenance Fd-n: Number of food items
M-x: Provision of mineral mix Rt: Usage of ration chart For: Foraging duration

Figure 15b: Percentage deviation from E-R for food sub-parameters

Work



Figure 16: Elephant decorated for attending a public function

None of the elephants were reported to be made to work, however at times elephants are exposed to public functions or processes, primarily organized by the State government, and while attending such programmes, elephants are decorated (Figure 16). M-R for work type was 8.0 (SE= 0.0., N= 16) showing 100% concurrence with E-R.

Reproductive status

- Among the adult female elephants, all except an 82yr old Indri (Indira), were said to come into oestrus.
- Among adult males, all except Manikantan (16yrs) were said to exhibit musth.
- Calves born (Figure 17a and b) to females ranged from 3 – 8 (till 2009); for males calves, sired ranged from 2- 4

-
-



Figure 17a and b: signals of reproductive fitness of the females in the camp; suckling calf (a) swollen breast of mother (b)

- Source of mating for females was reported to be both captive and wild males

Normal reproductive functioning such as the occurrence of mating, calf birth, etc., is reported to involve learning process in a social context (Lee and Moss, 2009). In captivity while opportunities to breed may occur, successful reproduction may not occur. High rating has been assigned to environments that replicate near natural conditions. M-R was 6.6 (SE= 1.0, N= 4) showing a deviation of 17% from E-R (Figures 18a and b).

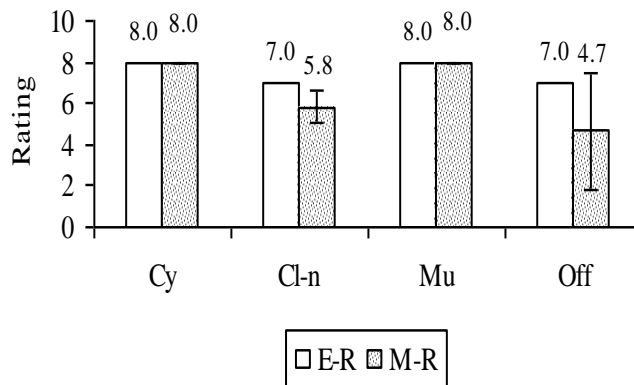
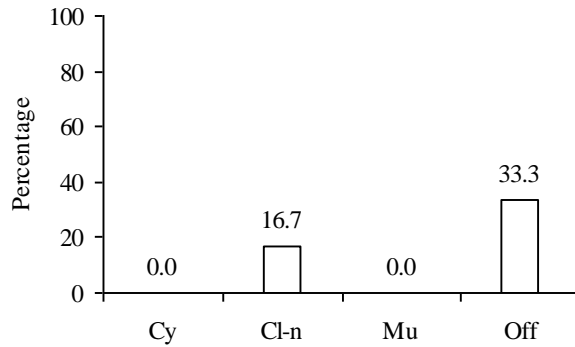


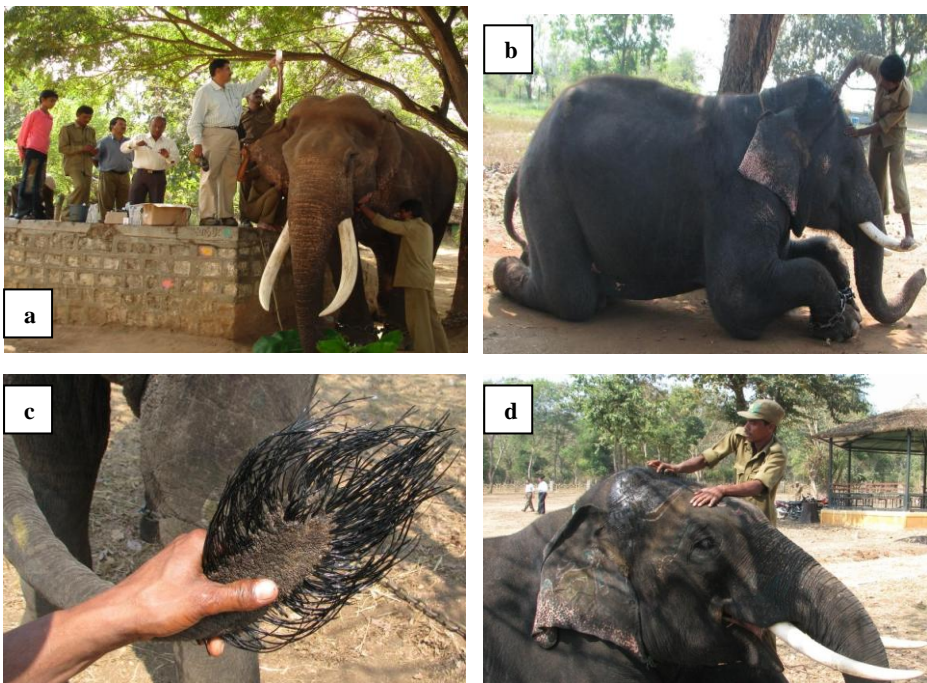
Figure 18a: Comparison of rating for reproductive status sub-parameters



Cy: Occurrence of oestrus cycles Cl-n: Number of calves born Mu: Musth occurrence
Off: Offspring sired

Figure 18b: Percentage deviation from E-R for reproductive status sub-parameters

Health and veterinary routine



Figures 19a: Routine check of treatment when needed was visible, 19 b, c and d: Application of castor oil in head (a and b) tail regions of elephants

- A female (73yrs) had cataracts in both eyes and was partially blind, a male (54yrs) had a wound on the trunk, another male

(16yrs) had old Ankush marks, a female (58yrs) had an injury on the hind leg.

- All elephants were said to be dewormed regularly by a veterinary doctor (Figures 19a).
- Immunization/ testing of dung/ urine/ blood samples was not done for some of the elephants.
 - Oiling was done for all the elephants using Castor (*Ricinus communis*) oil/ Neem (*Azadiracta indica*) oil (Figures 19b, c and d)

Poor health may add to the stress of a captive elephant. Rating has designed to reflect the health status as well as routine veterinary practices followed. M-R was 5.7 (SE= 1.2, N = 7) implying a deviation of 19% from E-R (Figures 20a and b).

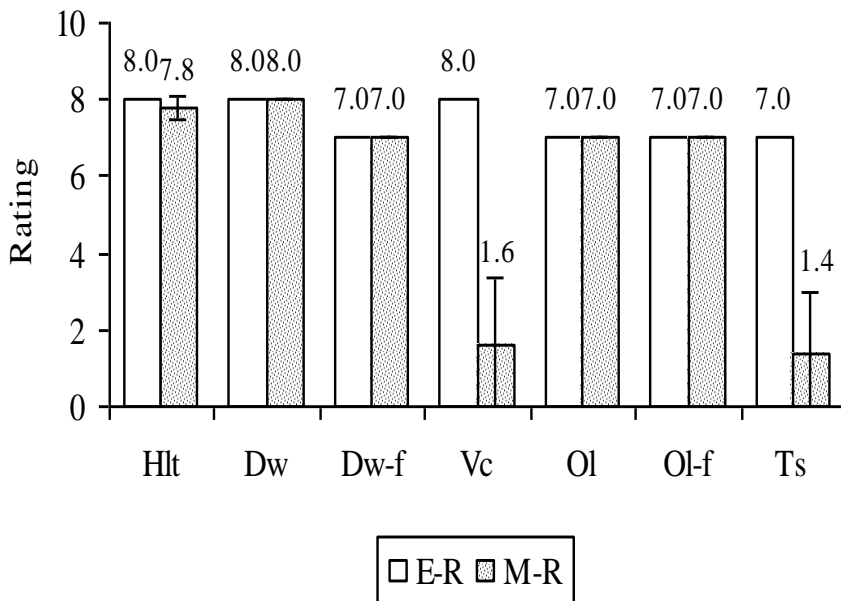
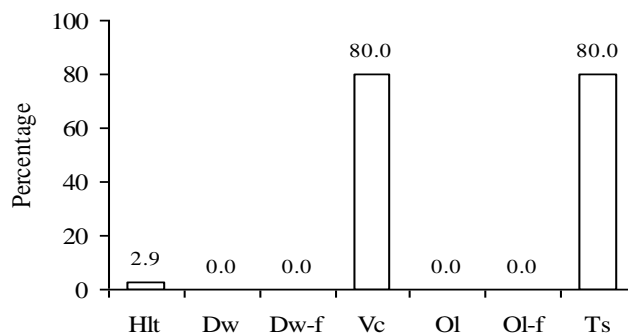


Figure 20a: Comparison of rating for health and veterinary routine sub-parameters



Ds/In: Occurrence of disease/ injury * Dw: Deworming status
 Dw-f: frequency of deworming Vc: Vaccination status
 Ol: Oiling status Ol-f: frequency of oiling
 Ts: blood/ dung / urine sample tests Ts-f: frequency of tests
 Bd: Body measurements taken Bd-f: Frequency of body measurements

*based on two elephants only

Figure 20b: Percentage deviation from E-R for health and veterinary routine sub-parameters

Veterinary personnel and infrastructure

Health maintenance includes presence of veterinary personnel and infrastructure.

- Veterinary doctor, currently associated with the camp has about 1 year of experience in treating elephants.
- Frequency of visits weekly twice.
- Service records and other records (Figure 21) were maintained.

| ELEPHANT PROFILE | |
|-------------------------------|---|
| 1. NAME OF THE ELEPHANT | MAYURA |
| 2. DATE OF CAPTURE | 07.12.1999 |
| 3. PLACE OF CAPTURE | ARABKERE HARBAN DISTRICT |
| 4. AGE AT THE TIME OF CAPTURE | 12 YEARS |
| 5. METHOD OF CAPTURE | TRANQUILIZATION METHOD |
| 6. PERIOD OF TRANSLOCATION | 1999 TO 2005 |
| 7. NAME OF THE TRANSLOCATION | HARBAN |
| 8. HEIGHT OF THE ELEPHANT | 2375 CM AS ON APRIL 2005 |
| 9. WEIGHT OF THE ELEPHANT | 2.20 TONS |
| 10. TEMPERAMENT | GOOD TEMPERAMENT |
| 11. SEX | MALE |
| 12. TRUNK OF THE ELEPHANT | TRUNK 87 CM, TAIL 87 CM, EAR 28 CM, EAR 28 CM, EAR 28 CM, EAR 28 CM |
| 13. IDENTIFICATION IF ANY | IDENTIFIED BY THE RANGE OFFICER |
| 14. POSTING OF ELEPHANT | POSTED TO THE RANGE OFFICER |
| 15. DATE OF MAINTENANCE | 08.12.2005 |
| 16. FORM POST BIRTH | 1.10 M, 1.12 M |

Figure 21: Records on elephants details maintained for each

Mean rating related to this parameter varied from 5 to 9 and the rating and the deviations from the expert ratings are give in the figures 22 a and b.

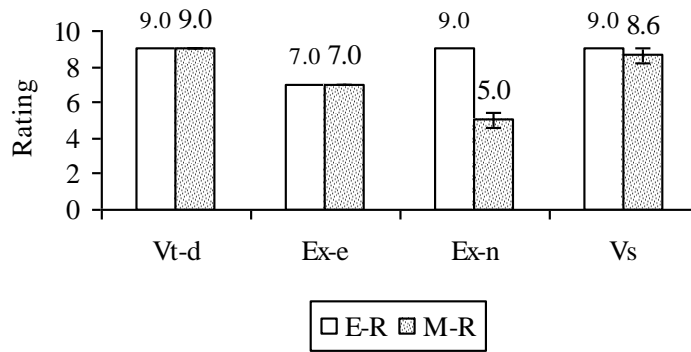


Figure 22a: Comparison of rating for veterinary personnel and infrastructure sub-parameters

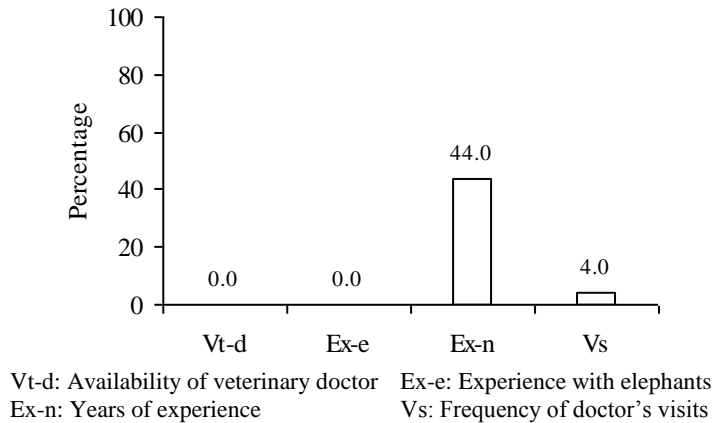


Figure 22b: Percentage deviation from E-R for veterinary personnel and infrastructure sub-parameters

Overall ratings

Individual rating for each of the elephants across all observed sub-parameters was considered together to provide an overall rating. Overall M-R was 6.4 (SE= 0.11, N=692) indicating a deviation of 20% from E-R (Figures 23).

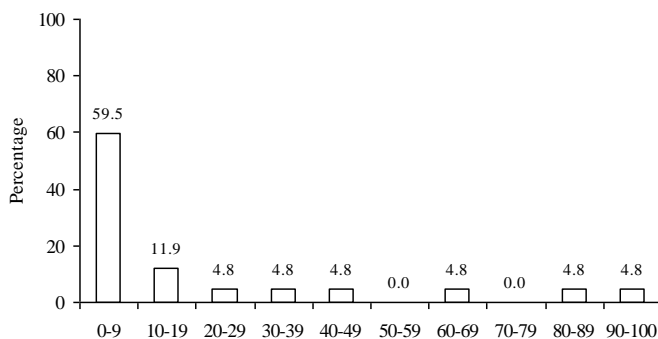


Figure 23: Distribution of percentage deviation (from E-R) values for Sakrebyle elephants

Professional experience and socio-economic status of mahouts/ cawadis

Handlers (mahouts/ cawadis) form a core part of captive elephant management in areas where contact between the animal and handler is not restricted. Hence, their experience and socio-economic status has to be given importance. Mean age of the handlers was 42 yrs (SE= 1.6, N= 24) with age ranging from 25- 56y. Each elephant had one mahout and one cawadi to take care of it except for two females which had only cawadi.

Professional experience

- Mean experience (number of years) in this profession for each handler (Figures 24 a, b, c, d and e) was 26.4y (SE= 3.7, N= 24), ranging from 0.05 – 60y
- Mean number of years of experience with a specific camp elephant for each handler was 15.8y (SE= 3.3, N= 24) ranging from 0.024 – 52.6y
- Training for this profession was through traditional knowledge

Experience in this profession as well as with specific elephants is an important factor which may ensure good care is provided for the elephant and accidents involving human-elephant interaction are avoided. M-R was 5.1 (SE= 0.7, N= 3) showing a deviation of 43% from E-R (Figures 25a and b).



Figures 24a, b, c, d and e: Profiles and work responsibilities of mahouts in Sakrebyl camp

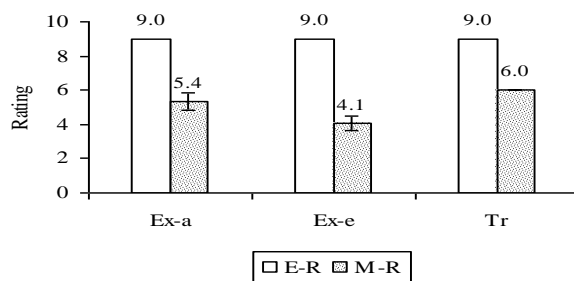
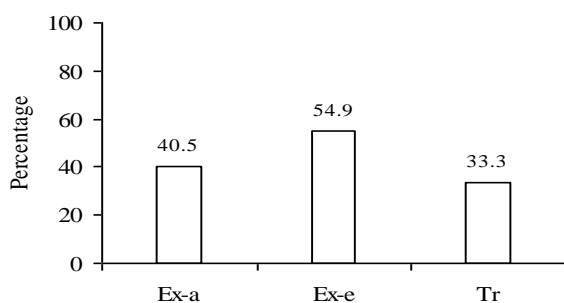


Figure 25a: Comparison of rating for handlers' professional experience sub-parameters



Ex-a: Experience (as % of his age) Ex-e: Experience (as % of elephant age) Tr: Training status

Figure 25b: Percentage deviation from E-R for handlers' professional experience sub-parameters

Socio-economic status

- All the handlers are either Muslim or Jenu Kuruba who are known for their traditional knowledge in handling elephants.
- Most handlers were either uneducated or had studied upto the 4th standard.
- Mean salary was Rs. 80,250/- (ranging from Rs.43,200 – 1,44,000/-).
- All handlers were married with children ranging from 1-5.
- All handlers used tools to control their elephants, tool type was *ankush*/ stick.

Handlers' family background, education status, income generated from this employment, insurance availability, etc., were considered. M-R was 5.0 (SE= 0.9, N= 7) implying a deviation of 28% from E-R (Figures 26a and b).

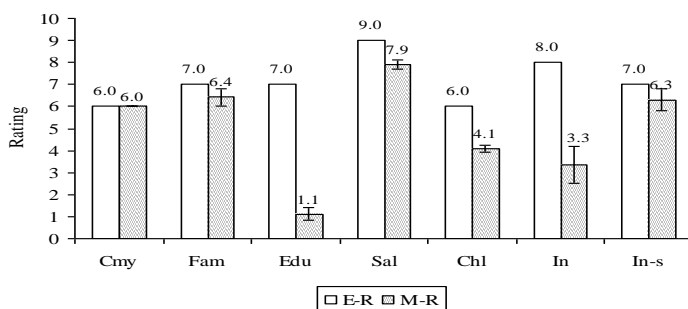
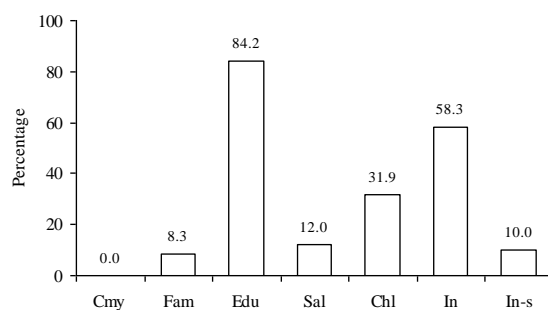


Figure 26a: Comparison of rating for handlers' socio-economic status sub-parameters



Cmy: Community Fam: Family occupation Edu: Education status Sal: Salary drawn
 Chl: Number of children In: Insurance availability In-s: Insurance source

Figure 26b: Percentage deviation from E-R for handlers' socio-economic status sub-parameters

It's important to mention the social service done by a local physician who conducts regular free health camps for the elephant handlers who are associated with the elephant camp.

Discussion

Providing an environment, physical and biological, that creates/ enables performance of species-typical activities for captive elephants may alleviate poor welfare conditions seen in some confined and unnatural situations. With the landscape elements around, the practice of allowing the elephants to range free to forage within the forest is a step in the right direction for the animals. Group size of the elephants in the camp comprised of individuals of different age/ sex class providing for a near natural social environment. This was, however, offset by the variation observed regarding interaction, with one male not allowed any interaction. Also, all the elephants were restricted in their movements by the use of cuff and drag chains.

Of the six males in the camp, four were described as aggressive/ nervous. Of these four, two exhibited signs of stereotypy. One male, described as calm, also exhibited stereotypic behaviour. All the females were said to be calm and manageable. Reproductive status of the adult elephants was near normal with only one male not exhibiting musth. Veterinary care was available for all elephants. The practice of immunization and testing of dung/ urine / blood samples of these animals was not followed. All the handlers came from a background of interacting with elephants. Hence, their experience

was through traditional knowledge. Each elephant had undergone a mean change of three mahouts/ cawadis. There was a difference in the salary paid to the mahouts and cawadis. All mahouts were permanently employed with most covered by insurance.


Reference

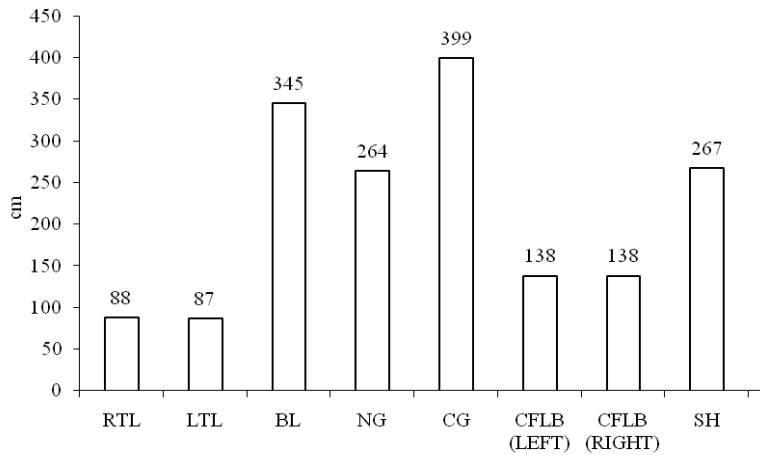
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Section 2: Profiles of the Elephants


| Name of elephant | New Tusker |
|---|---|
|  | |
| Age (yrs) Sex Makhna/Tusker Tusk Type Current Location State Source & Date Location of Capture Age at Capture Reason for Capture Type of shelter Type of flooring Source of water Interaction with elephants/Number Hours/day Personality People killed/injured Stereotypic behaviour Type of work Hours / day Source of food Type Status of musth Permanent injury/handicap Disease reported Veterinary doctor availability Number of mahouts changed | 54 Male Tusker Little bit broken Sakrebyl Forest Camp Karnataka Captured (1972) Not known 24 yrs Required for Forest Dep work Open, natural Earthen River No NA Nervous, sometimes disobedient and rough Yes Swaying of body None NA Free ranging & stall fed Forest vegetation, raw rice, jaggery, salt, coconut, paddy and straw Reported Tip of tail is cut, wound on trunk No Yes 2 |

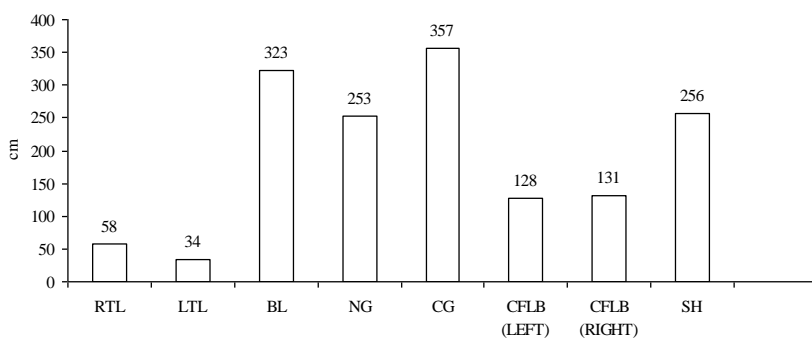


KEY

RTL: Right Tusk/Tush Length, **LTL:** Left Tusk/Tush Length, **BL:** Body Length,
NG: Neck Girth, **CG:** Chest Girth, **SH:** Shoulder Height,
CFLB (left): Circumference of left foreleg base,
CFLB (right): Circumference of right foreleg base

| | Mahout | Cawadi |
|--|---------------|----------------------|
| Name | Jaleel Ahmed | Basavaraj |
| Age (yrs) | 48 | 40 |
| Total experience as a mahout (in relation to his age) | 42% | 40% |
| Total experience with this elephant (in relation to elephant's age) | 37% | 13% |
| Community | Muslim | Tribal (Jenu Kuruba) |
| Source of training | Experience | Experience |
| Family occupation | Mahout | Mahout |
| Education | 4th standard | 2nd standard |
| Salary/yr (INR) | 84,000 | - |
| Job status | Permanent | Permanent |
| Marital status | Married | Married |
| Number of Children | 2 | 4 |
| Usage of tools | Yes | Yes |
| Type | Ankush, Stick | Ankush, stick |
| Health status | Good | Good |
| Insurance | yes | - |
| Source | KGID | - |
| Will his children join this profession? | yes | Not known |

| Name of elephant | Ganesha |
|--|--|
|  | |
| Age (Yrs) Sex Current Location State Makhna/Tusker Tusk Type Source & Date Location of Source Age/height when sourced Reason for Source Type of shelter Type of flooring Source of water Interaction with elephants/Number Hours/day Personality People killed/injured Stereotypic behaviour Type of work Hours / day Source of food Type Status of musth Permanent injury/handicap Disease reported Veterinary doctor availability Changes of mahout | 35 Male Sakrebyl Forest Camp (transferred from BBP) Karnataka Tusker Tusk tip cut, Right tusk slightly raised Taken as a calf Bannerghatta Forest 23 yrs Attacking people Open Earthen River Yes/14 24h Rough, sometimes disobedient 4 Killed, 2 injured Yes, trunk resting on tusk None NA Free ranging & stall fed Forest vegetation, raw rice, jaggery, salt, coconut, paddy and straw Reported No No Yes 3 |



KEY


RTL: Right Tusk/Tush Length, **LTL:** Left Tusk/Tush Length, **BL:** Body Length,

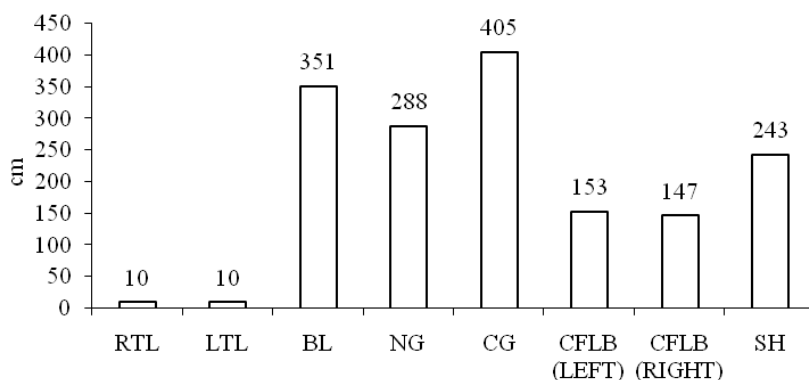
NG: Neck Girth, **CG:** Chest Girth, **SH:** Shoulder Height,

CFLB (left): Circumference of left foreleg base,

CFLB (right): Circumference of right foreleg base

| | Mahout | Cawadi |
|--|----------------------|----------------------|
| Name | Rafeeb | Kosh Khan |
| Age(Yrs) | 45 | 25 |
| Total experience as a mahout (in relation to his age) % | 56% | 32% |
| Total experience with this elephant (in relation to elephant's age) % | 1% | 11% |
| Community | Muslim | Muslim |
| Formal Training | No (Hereditary) | No (Hereditary) |
| Family occupation | Mahout | Mahout |
| Education | No | 6 |
| Salary/yr | 120,000 | - |
| Job status | Permanent | Permanent |
| Marital status | Married | Not married |
| Number of Children | 4 | NA |
| Usage of tools | Yes | Yes |
| Type | Wooden ankush, Stick | Wooden ankush, Stick |
| Health status | Good | Good |
| Insurance | Yes | - |
| Source | KGID | - |
| Will his children join this profession ? | Yes | NA |

| Name of elephant | Rajendra |
|--|--|
|  | |
| Age (yrs) | 26 |
| Sex | Male |
| Makhna/Tusker | Tusker |
| Tusk Type | Full |
| Current Location | Sakrebyl Forest Camp |
| State | Karnataka |
| Source & Date | Confiscated |
| Location of Source | Kollur Mutt |
| Age & Height when sourced | 7 yrs |
| Reason | Abuse |
| Type of shelter | Open, natural |
| Type of flooring | Earthen |
| Source of water | Not known |
| Interaction with elephants/Number | Yes/2 |
| Hours/day | 24 h |
| Personality | Aggressive |
| People killed/injured | None |
| Stereotypic behaviour | No |
| Type of work | None |
| Hours / day | NA |
| Source of food | Free ranging & stall fed Forest vegetation, raw rice, jaggery, salt, coconut, paddy and straw |
| Type | Reported |
| Status of musth | No |
| Permanent injury/handicap | No |
| Disease reported | No |
| Veterinary doctor availability | Yes |
| Number of mahouts changed | 1 |



KEY


RTL: Right Tusk/Tush Length, **LTL:** Left Tusk/Tush Length, **BL:** Body Length,

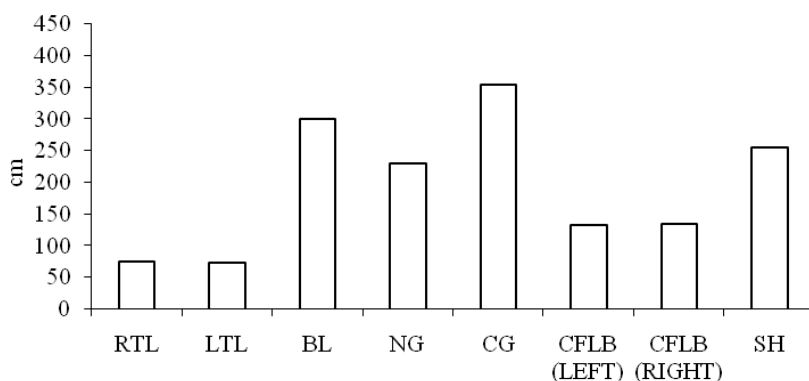
NG: Neck Girth, **CG:** Chest Girth, **SH:** Shoulder Height,

CFLB (left): Circumference of left foreleg base,

CFLB (right): Circumference of right foreleg base

| | Mahout | Cawadi |
|--|-------------------------|-------------------------|
| Name | Khader Basha | Basava |
| Age (yrs) | 45 | 35 |
| Total experience as a mahout (in relation to his age) | 33% | 17% |
| Total experience with this elephant (in relation to elephant's age) | 11% | 23% |
| Community | Muslim | Tribal (Jenu Kuruba) |
| Formal Training | No (but has experience) | No (but has experience) |
| Family occupation | Mahout | Coolie |
| Education | Illrd | No |
| Salary/yr (INR) | 1,14,000 | - |
| Job status | Permanent | Permanent |
| Marital status | Married | Married |
| Number of Children | 3 | 3 |
| Usage of tools | Yes | Yes |
| Type | Ankush, stick | Ankush, stick |
| Health status | Good | Good |
| Insurance | Yes | - |
| Source | Self | - |
| Will his children join this profession? | Not known | No |

| Name of elephant | Sagar |
|---|--|
|  | |
| Age (yrs) Sex Makhna/Tusker Tusk Type Current Location State Source & Date Location of Source Age & Height when sourced Reason Type of shelter Type of flooring Source of water Interaction with elephants/Number Hours/day Personality People killed/injured Stereotypic behaviour Type of work Hours / day Source of food Type Status of musth Permanent injury/handicap Disease reported Veterinary doctor availability Number of mahouts changed | 25 Male Tusker Full Sakrebyl Forest Camp Karnataka Captured, 1998 Not known 15 yrs Human-Elephant Conflict Open, natural Earthen Not known Yes/14 24 h Calm None No None NA Free ranging & Stall fed Forest vegetation, raw rice, jaggery, salt, coconut, paddy and straw Reported No No Yes 2 |



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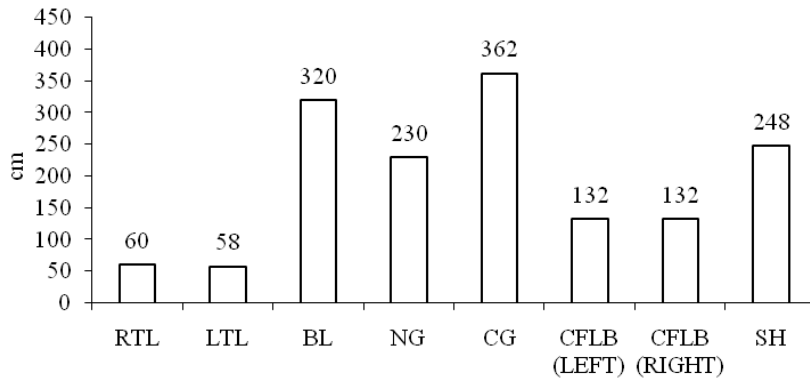
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CFLB (right): Circumference of right foreleg base

| | Mahout | Cawadi |
|--|-------------------------|-------------------------|
| Name | Babu | Shamsuddin |
| Age (yrs) | 52 | 40 |
| Total experience as a mahout (in relation to his age) % | 50% | 15% |
| Total experience with this elephant (in relation to elephant's age) % | 36% | 24% |
| Community | Muslim | Muslim |
| Formal Training | No (but has experience) | No (but has experience) |
| Family occupation | Mahout | Mahout |
| Education | No | No |
| Salary/yr (INR) | 1,08,000 | - |
| Job status | Permanent | Permanent |
| Marital status | Married | Married |
| Number of Children | 3 | 2 |
| Usage of tools | Yes | Yes |
| Type | Ankush, stick | Ankush.Stick |
| Health status | Good | Good |
| Insurance | Yes | - |
| Source | Self | - |
| Will his children join this profession? | No | Not known |

| Name of elephant | Manikantan |
|--|--|
|  | |
| Age (yrs) | 20 |
| Sex | Male |
| Makhna/Tusker | Tusker |
| Tusk Type | Full |
| Current Location | Sakrebyl Forest Camp |
| State | Karnataka |
| Source & Date | Confiscated, 2007 |
| Location of Source | Bangalore |
| Age & Height when sourced | 17 yrs |
| Reason | Abuse |
| Type of shelter | Open, natural |
| Type of flooring | Earthen |
| Source of water | Not known |
| Interaction with elephants/Number | Yes/ 14 |
| Hours/day | 24 h |
| Personality | Calm |
| People killed/injured | None |
| Stereotypic behaviour | Yes |
| Type of work | None |
| Hours / day | NA |
| Source of food | Free ranging & Stall fed Forest vegetation, raw rice, jaggery, salt, coconut, paddy and straw |
| Type | |
| Status of musth | No |
| Permanent injury/handicap | Old Ankush marks |
| Disease reported | No |
| Veterinary doctor availability | Yes |
| Number of mahouts changed | 2 |



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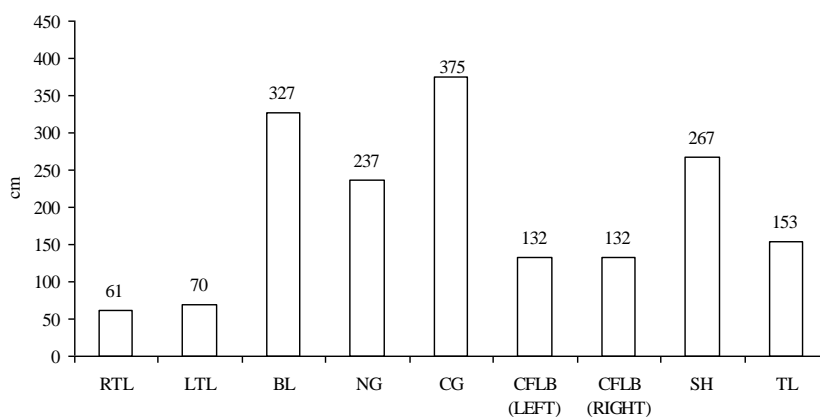
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CFLB (right): Circumference of right foreleg base

| | Mahout | Cawadi |
|--|-------------------------|-------------------------|
| Name | Habibullah | Dastagir |
| Age (yrs) | 48 | 35 |
| Total experience as a mahout (in relation to his age) % | 1% | 6% |
| Total experience with this elephant (in relation to elephant's age) % | 3% | 5% |
| Community | Muslim | Muslim |
| Formal Training | No (but has experience) | No (but has experience) |
| Family occupation | Mahout | Mahout |
| Education | None | 7th standard |
| Salary/yr (INR) | 96,000 | - |
| Job status | Permanent | Permanent |
| Marital status | Married | Married |
| Number of Children | 2 | 2 |
| Usage of tools | Yes | Yes |
| Type | Ankush, stick | Ankush.stick |
| Health status | Good | Good |
| Insurance | Yes | - |
| Source | Employer | - |
| Will his children join this profession? | Not known | Not known |

| Name of elephant | Ranga |
|--|--|
| Age (Yrs) | 19 |
| Sex | Male |
| Current Location | Sakrebyl Forest Camp |
| State | Karnataka |
| Makhna/Tusker | Tusker |
| Tusk Type | Broken |
| Source & Date | Captive born |
| Location of Source | Sakrebyl |
| Hight when sourced | Not known |
| Type of shelter | Open |
| Type of flooring | Earthen |
| Source of water | River |
| Interaction with elephants/Number | Yes/14 |
| Hours/day | 24h |
| Personality | Aggressive |
| People killed/injured | No (attacked people) |
| Stereotypic behaviour | No |
| Type of work | None |
| Hours / day | NA |
| Source of food | Free ranging & stall fed |
| Type | Forest vegetation, raw rice, jaggery, salt, coconut, paddy and straw |
| Status of musth | Reported |
| Permanent injury/handicap | No |
| Disease reported | No |
| Veterinary doctor availability | Yes |
| Changes of mahout | 3 |

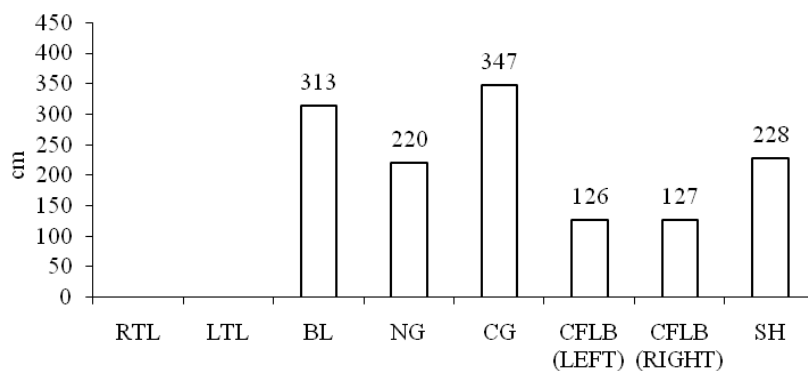


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CFLB (right): Circumference of right foreleg base

| | Mahout | Cawadi |
|--|----------------------|----------------------|
| Name | Dastakeer | Kallapa |
| Age(Yrs) | 45 | |
| Total experience as a mahout (in relation to his age) % | 44% | 25% |
| Total experience with this elephant (in relation to elephant's age) % | 16% | 52% |
| Community | Muslim | Tribal |
| Formal Training | No (Hereditary) | Experience |
| Family occupation | Mahout | Mahouth |
| Education | 2nd standard | 2nd standard |
| Salary/yr | 96,000 | 55,200 |
| Job status | Permanent | Permanent |
| Marital status | Married | Married |
| Number of Children | 2 | 3 |
| Usage of tools | Yes | Yes |
| Type | Wooden ankush, Stick | Wooden ankush, Stick |
| Health status | Good | Good |
| Insurance | Yes | - |
| Source | KGID | - |
| Will his children join this profession? | No | Not known |

| Name of elephant | Indri |
|--|--|
|  | |
| Age (yrs) | 82 |
| Sex | Female |
| Tush(visible/not visible) | Not visible |
| Current Location | Sakrebyl Forest Camp |
| State | Karnataka |
| Source & Date | Capture |
| Location of Capture | Coorg |
| Age/Height of Capture | 1968 |
| Reason for Capture | Forest department work |
| Type of shelter | Open,natural |
| Type of flooring | Earthen |
| Source of water | River |
| Interaction with elephants/Number | Yes/14 |
| Hours/day | 24 h |
| Personality | Calm |
| Number of people killed/injured | None |
| Stereotypic behaviour | No |
| Type of work | No work |
| Hours/day | NA |
| Source of food | Free ranging & Stall fed Forest vegetation, raw rice, jaggery, salt, coconut, paddy and straw |
| Type | |
| Occurrence of heat cycles | No |
| Calves born till date | 4 |
| Disease | No |
| Permanent injuries | No |
| Veterinary doctor availability | Yes |
| Number of mahouts changed | 7 |



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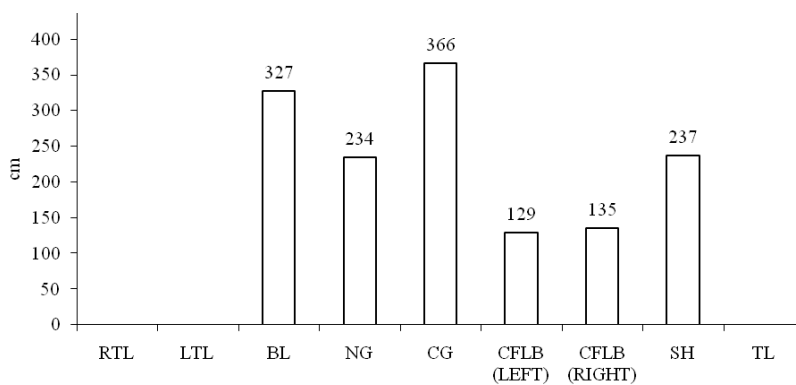
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CFLB (left): Circumference of left foreleg base,

CFLB (right): Circumference of right foreleg base

| | Mahout | Cawadi |
|--|-------------------------|-----------|
| Name | Mohamed Sajeer | Makbhul |
| Age (yrs) | 52 | 40 |
| Total experience as a mahout (in relation to his age) | 23% | 5% |
| Total experience with this elephant (in relation to elephant's age) | 1% | 2% |
| Community | Muslim | Muslim |
| Formal Training | No (but has experience) | No |
| Family occupation | Mahout | Mahout |
| Education | No | No |
| Salary/yr (INR) | 96,000 | - |
| Job status | Permanent | Permanent |
| Marital status | Married | Married |
| Number of Children | 4 | 5 |
| Usage of tools | Yes | Yes |
| Type | Stick | Stick |
| Health status | Good | Good |
| Insurance | Yes | - |
| Source | Govt. | - |
| Will his children join this profession? | Not known | Not known |

| Name of elephant | Kaveri |
|--|--|
|  | |
| Age (yrs) | 73 |
| Sex | Female |
| Tush (visible/not visible) | Visible(partial) |
| Current Location | Sakrebyl Forest Camp |
| State | Karnataka |
| Source & Date | Captured |
| Location of Source | Coorg |
| Age/Height when sourced | 35yrs |
| Reason for source | For FD work |
| Type of shelter | Open,natural |
| Type of flooring | earthen |
| Source of water | River |
| Interaction with elephants/Number | Yes/14 |
| Hours/day | 24 h |
| Personality | Calm, obeys |
| Number of people killed/injured | None |
| Stereotypic behaviour | No |
| Type of work | None |
| Hours/day | NA |
| Source of food | Free ranging & stall fed |
| Type | Forest vegetation, raw rice, jaggery, salt, coconut, paddy and straw |
| Occurrence of heat cycles | Cycling |
| Calves born till date | 7 |
| Disease | No |
| Permanent injuries | Ears torn, both eyes cataract and partially blind |
| Veterinary doctor availability | Yes |
| Number of mahouts changed | 2 |



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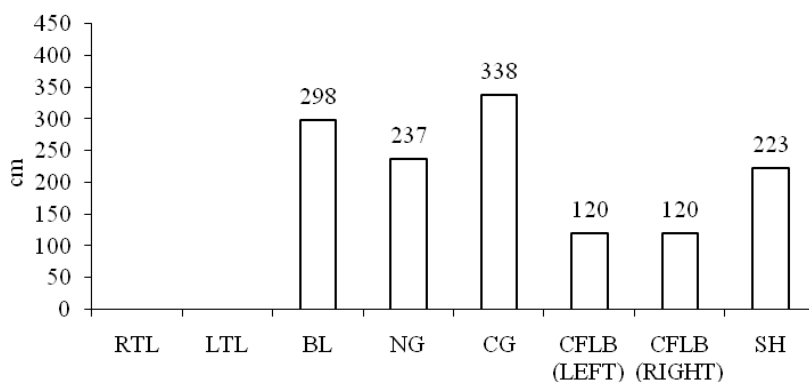
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CFLB (left): Circumference of left foreleg base,

CFLB (right): Circumference of right foreleg base

| | Mahout | Cawadi Name |
|--|-------------------|-------------------------|
| Name | Abdul Rahman | Rizwan |
| Age (yrs) | 56 | 40 |
| Total experience as a mahout (in relation to his age) | 18% | 5% |
| Total experience with this elephant (in relation to elephant's age) | 14% | 1% |
| Community | Muslim | Muslim |
| Formal Training | None (Hereditary) | No (but has experience) |
| Family occupation | Mahout | Coolie |
| Education | None | None |
| Salary/yr (INR) | 1,44,000 | - |
| Job status | Permanent | Permanent |
| Marital status | Married | Married |
| Number of Children | 1 | 3 |
| Usage of tools | Yes | Yes |
| Type | Ankush, stick | Ankush, stick |
| Health status | Good | Good |
| Insurance | yes | - |
| Source | KGID | - |
| Will his children join this profession? | Yes | Not known |

| Name of elephant | Subratha |
|--|--|
|  | |
| Age (yrs) | 63 |
| Sex | Female |
| Tush (visible/not visible) | Visible |
| Current Location | Sakrebyl Forest Camp |
| State | Karnataka |
| Source & Date | Captured |
| Location of Capture | Coorg, Karnataka |
| Age at Capture | 42 |
| Reason for Capture | Required for Forest Dep work |
| Type of shelter | Open, natural |
| Type of flooring | Earthen |
| Source of water | River |
| Interaction with elephants/Number | Yes/14 |
| Hours/day | 24 h |
| Personality | Calm |
| People killed/injured | None |
| Stereotypic behaviour | No |
| Type of work | None |
| Hours / day | NA |
| Source of food | Free ranging & stall fed Forest vegetation, raw rice, jaggery, salt, coconut, paddy and straw |
| Type | |
| Occurance of heat cycles | Yes |
| Calves born till date | 3 |
| Permanent injury/handicap | No |
| Disease reported | No |
| Veterinary doctor availability | Yes |
| Number of mahouts changed | 4 |



KEY


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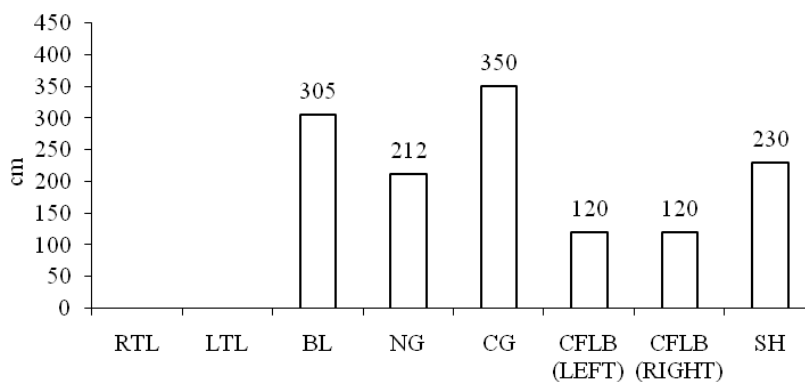
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CFLB (right): Circumference of right foreleg base

| | Mahout | Cawadi |
|--|---------------|---------------|
| Name | Kasim | Baiyas |
| Age (yrs) | 56 | 35 |
| Total experience as a mahout (in relation to his age) | 59% | 34% |
| Total experience with this elephant (in relation to elephant's age) | 16% | 5% |
| Community | Muslim | Muslim |
| Source of training | Experience | Experience |
| Family occupation | Coole | Mahout |
| Education | 3rd Standard | 6th standard |
| Salary/yr (INR) | 1,32,000 | - |
| Job status | Permanent | Permanent |
| Marital status | Married | Married |
| Number of Children | 4 | No |
| Usage of tools | Yes | Yes |
| Type | Ankush, stick | Ankush, stick |
| Health status | Good | Good |
| Insurance | Yes | - |
| Source | KIGD | - |
| Will his children join this profession? | Yes | NA |

| Name of elephant | Kapila |
|--|--|
|  | |
| Age (yrs) | 63 |
| Sex | Female |
| Tush(visible/not visible) | Visible |
| Current Location | Sakrebyle |
| State | Karnataka |
| Source & Date | Captured |
| Location of Capture | Coorg, Karnataka |
| Age at Capture | 24 yrs |
| Reason for Capture | Required for Forest Dep work |
| Type of shelter | Open, natural |
| Type of flooring | Earthen |
| Source of water | River |
| Interaction with elephants/Number | Yes/14 |
| Hours/day | 24 h |
| Personality | Calm |
| People killed/injured | None |
| Stereotypic behaviour | No |
| Type of work | None |
| Hours / day | NA |
| Source of food | Free ranging & stall fed Forest vegetation, raw rice, jaggery, salt, coconut, paddy and straw |
| Type | |
| Occurance of heat cycles | Yes |
| Calves born till date | 7 |
| Permanent injury/handicap | No |
| Disease reported | No |
| Veterinary doctor availability | Yes |
| Number of mahouts changed | 4 |



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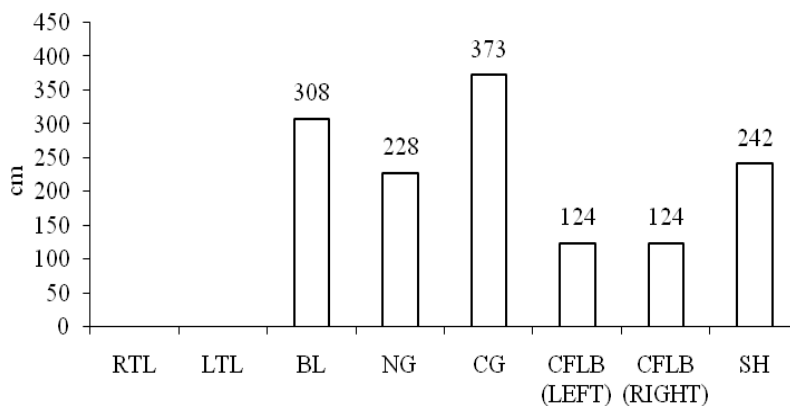
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CFLB (right): Circumference of right foreleg base

| | Mahout | Cawadi |
|--|---------------|---------------|
| Name | Monur Basha | Abdul Jafer |
| Age (yrs) | 45 | 30 |
| Total experience as a mahout (in relation to his age) | 44% | 40% |
| Total experience with this elephant (in relation to elephant's age) | 1% | 1% |
| Community | Muslim | Muslim |
| Source of training | Experience | Experience |
| Family occupation | Mahout | Mahout |
| Education | No | 7th Standard |
| Salary/yr (INR) | 1,15,200 | - |
| Job status | Permanent | Permanent |
| Marital status | Married | Married |
| Number of Children | 3 | 3 |
| Usage of tools | Yes | Yes |
| Type | Ankush, stick | Ankush, stick |
| Health status | Good | Good |
| Insurance | yes | - |
| Source | KGID | - |
| Will his children join this profession? | No | Not known |

| Name of elephant | Geetha |
|--|--|
|  | |
| Age (yrs) | 58 |
| Sex | Female |
| Tush(visible/not visible) | Not visible |
| Current Location | Sakrebyl Forest Camp |
| State | Karnataka |
| Source & Date | Captured (1968) |
| Location of Capture | Coorg |
| Age/Height of Capture | 18 yrs |
| Reason for Capture | Forest department work |
| Type of shelter | Open,natural |
| Type of flooring | Earthen |
| Source of water | River |
| Interaction with elephants/Number | Yes/14 |
| Hours/day | 24 h |
| Personality | Calm |
| Number of people killed/injured | None |
| Stereotypic behavior | No |
| Type of work | None |
| Hours/day | NA |
| Source of food | Free ranging & Stall fed Forest vegetation, raw rice, jaggery, salt, coconut, paddy and straw |
| Type | |
| Occurrence of heat cycles | Yes |
| Calves born till date | 8 |
| Disease | No |
| Permanent injuries | Yes/ near back leg |
| Veterinary doctor availability | Yes |
| Number of mahouts changed | 8 |



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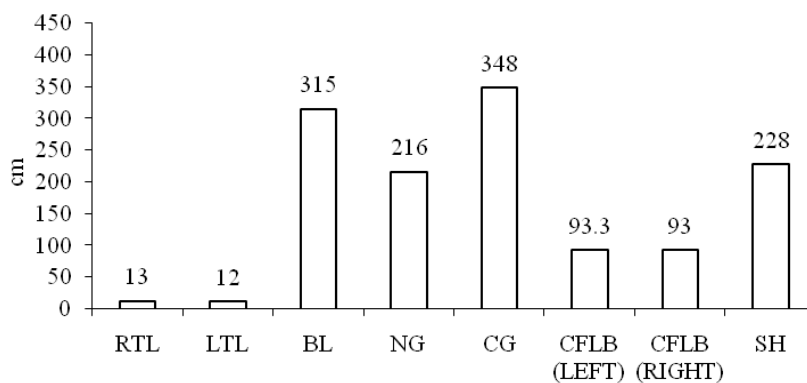
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CFLB (right): Circumference of right foreleg base

| | Mahout | Cawadi |
|--|-----------|-------------------------|
| Name | No Mahout | Sivappa |
| Age (yrs) | | 30 |
| Total experience as a mahout (in relation to his age) | | 7% |
| Total experience with this elephant (in relation to elephant's age) | | 3% |
| Community | | Jene Kurumba |
| Formal Training | | No (but has experience) |
| Family occupation | | Mahout |
| Education | | 7th standard |
| Salary/yr (INR) | | - |
| Job status | | Permanent |
| Marital status | | Yes |
| Number of Children | | 1 |
| Usage of tools | | Yes |
| Type | | Stick |
| Health status | | Good |
| Insurance | | - |
| Source | | - |
| Will his children join this profession? | | Not known |


| Name of elephant | Gange |
|--|--|
|  | |
| Age (yrs) | 49 |
| Sex | Female |
| Tush(visible/not visible) | Not visible |
| Current Location | Sakrebyl Forest Camp |
| State | Karnataka |
| Source & Date | Captured |
| Location of Source | Mysore |
| Age/Height when sourced | 13 yrs |
| Reason for source | Forest department work |
| Type of shelter | Natural |
| Type of flooring | Earthen |
| Source of water | River |
| Interaction with elephants/Number | Yes/14 |
| Hours/day | 24 h |
| Personality | Calm, obeys |
| Number of people killed/injured | None |
| Stereotypic behaviour | No |
| Type of work | None |
| Hours/day | NA |
| Source of food | Free ranging & Stall fed |
| Type | Forest vegetation, raw rice, jaggery, salt, coconut, paddy and straw |
| Occurrence of heat cycle | Cycling |
| Calves born till date | 5 |
| Disease | No |
| Permanent injuries | No |
| Veterinary doctor availability | Yes |
| Number of mahouts changed | 5 |

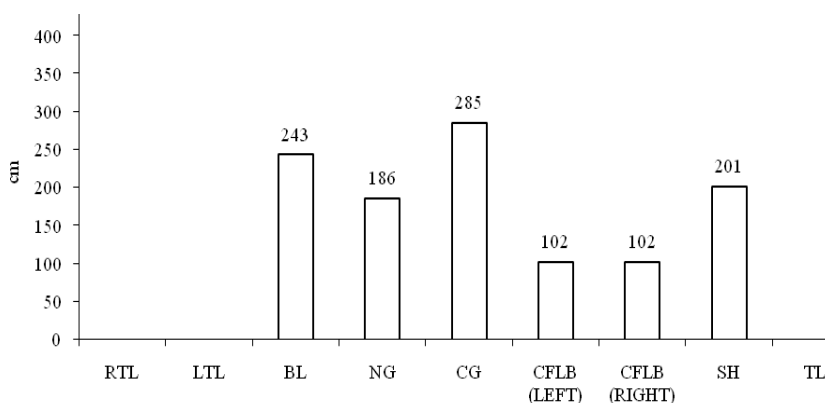


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| | Mahout | Cawadi Name |
|--|-------------------------|------------------------|
| Name | Mohamed Kabeer | Kallel |
| Age(yrs) | 55 | 36 |
| Total experience as a mahout (in relation to his age) | 60% | 33% |
| Total experience with this elephant (in relation to elephant's age) | 31% | 8% |
| Community | Muslim | Muslim |
| Formal Training | No (but has experience) | No (but has experince) |
| Family occupation | Mahout | Mahout |
| Education | No | IInd |
| Salary/yr (INR) | 1,44,000 | - |
| Job status | Permanent | Permanent |
| Marital status | Married | Married |
| Number of Children | 4 | 3 |
| Usage of tools | Yes | Yes |
| Type | Stick | Stick |
| Health status | Good | Good |
| Insurance | No | - |
| Source | NA | - |
| Will his children join this profession? | No | No |


| Name of elephant | Netravathi |
|--|--|
|  | |
| Age (yrs) | 10 |
| Sex | Female |
| Tush(visible/not visible) | Visible (full) |
| Current Location | Sakrebyl Forest Camp |
| State | Karnataka |
| Source & Date | Captive born, 1998 |
| Location of Source | Sakrebyle |
| Height when sourced | Not known |
| Type of shelter | Open,natural |
| Type of flooring | Earthen |
| Source of water | River |
| Interaction with elephants/Number | Yes/14 |
| Hours/day | 24 h |
| Personality | Calm |
| Number of people killed/injured | None |
| Stereotypic behaviour | No |
| Type of work | None |
| Hours/day | NA |
| Source of food | Free ranging & Stall fed |
| Type | Forest vegetation, raw rice, jaggery, salt, coconut, paddy and straw |
| Occurrence of heat cycles | Not known |
| Calves born till date | No |
| Disease | No |
| Permanent injuries | No |
| Veterinary doctor availability | Yes |
| Number of mahouts changed | 3 |

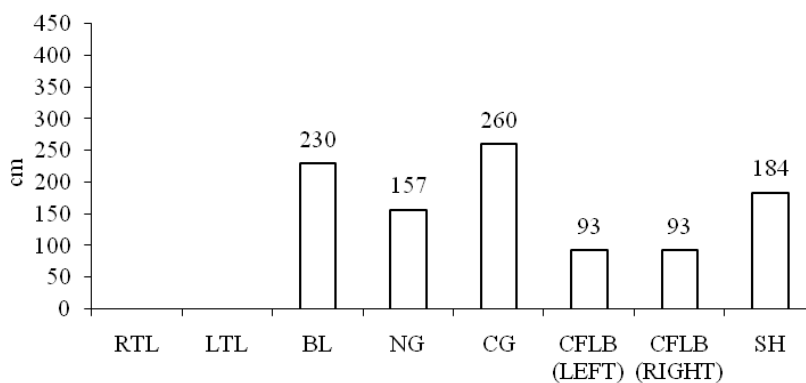


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CFLB (right): Circumference of right foreleg base

| | Mahout | Cawadi |
|--|-------------------------|-------------------------|
| Name | Shammi | Imtiaz |
| Age (yrs) | 40 | 40 |
| Total experience as a mahout (in relation to his age) | 30% | 38% |
| Total experience with this elephant (in relation to elephant's age) | 20% | 20% |
| Community | Muslim | Muslim |
| Formal Training | No (but has experience) | No (but has experience) |
| Family occupation | Mahout | Mahout |
| Education | 4th standard | Nil |
| Salary/yr (INR) | 84,000 | - |
| Job status | Permanent | Permanent |
| Marital status | Married | Married |
| Number of Children | 4 | 3 |
| Usage of tools | Yes | Yes |
| Type | Ankush, Stick | Ankush.Stick |
| Health status | Good | Good |
| Insurance | Yes | - |
| Source | Employer | - |
| Will his children join this profession? | Not known | No |

| Name of elephant | Pragruthi |
|--|--|
|  | |
| Age (yrs) | 4 |
| Sex | Female |
| Tush(visible/not visible) | Not visible |
| Current Location | Sakrebyl Forest Camp |
| State | Karnataka |
| Source & Date | Captive born |
| Location of the source | Sakrebyl |
| Age/Height at source | Not known |
| Type of shelter | Open,natural |
| Type of flooring | Earthen |
| Source of water | River |
| Interaction with elephants/Number | Yes/14 |
| Hours/day | 24 h |
| Personality | Playful |
| Number of people killed/injured | None |
| Stereotypic behaviour | No |
| Type of work | None |
| Hours/day | NA |
| Source of food | Free ranging & stall fed Forest vegetation, raw rice, jaggery, salt, coconut, paddy and straw |
| Type | |
| Occurrence of heat cycles | No |
| Calves born till date | No |
| Disease | No |
| Permanent injuries | No |
| Veterinary doctor availability | Yes |
| Number of mahouts changed | 2 |



KEY


RTL: Right Tusk/Tush Length, **LTL:** Left Tusk/Tush Length, **BL:** Body Length,

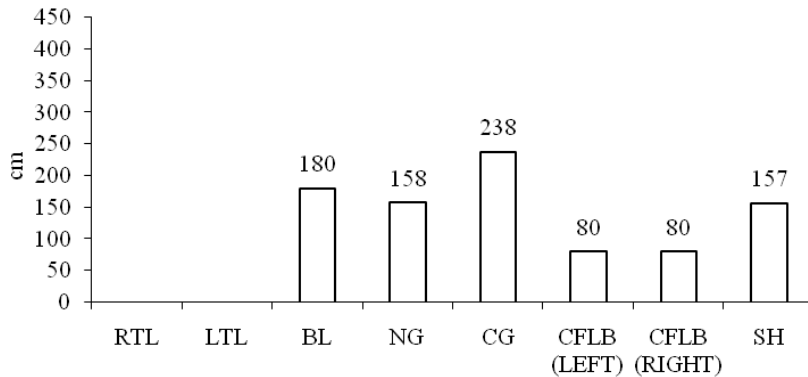
NG: Neck Girth, **CG:** Chest Girth, **SH:** Shoulder Height,

CFLB (left): Circumference of left foreleg base,

CFLB (right): Circumference of right foreleg base

| | Mahout | Cawadi |
|--|-----------|-------------------------|
| Mahout | No mahout | Inthiyas |
| Age (yrs) | | 43 |
| Total experience as a mahout (in relation to his age) | | 28% |
| Total experience with this elephant (in relation to elephant's age) | | 2% |
| Community | | Muslim |
| Formal Training | | No (but has experience) |
| Family occupation | | Mahout |
| Education | | 2nd Standard |
| Salary/yr (INR) | | 52,800 |
| Job status | | Permanent |
| Marital status | | Married |
| Number of Children | | 3 |
| Usage of tools | | Yes |
| Type | | Ankush, stick |
| Health status | | Good |
| Insurance | | - |
| Source | | - |
| Will his children join this profession? | | Not Known |

| Name of elephant | Amrutha |
|---|---|
|  | |
| Age (yrs) Sex Tush(visible/not visible) Current Location State Source & Date Location Age/Height at source Type of shelter Type of flooring Source of water Interaction with elephants/Number Hours/day Personality Number of people killed/injured Stereotypic behaviour Type of work Hours/day Source of food Type Occurrence of heat cycles Calves born till date Disease Permanent injuries Veterinary doctor availability Number of mahouts changed | 4 Female Visible (Full) Sakrebyl Forest Camp Karnataka Captive born Sakrebyl 89 cm Open,natural Earthen River Yes/14 24 h Calm None No No NA Free ranging & Stall fed Forest vegetation, raw rice, jaggery, salt, coconut, paddy and straw No No No No Yes Nil |



KEY

RTL: Right Tusk/Tush Length, **LTL:** Left Tusk/Tush Length, **BL:** Body Length,
NG: Neck Girth, **CG:** Chest Girth, **SH:** Shoulder Height,
CFLB (left): Circumference of left foreleg base,
CFLB (right): Circumference of right foreleg base

| | Mahout | Cawadi |
|--|-----------|-------------------------|
| Name | No Mahout | Mujeeb Khan |
| Age (yrs) | | 45 |
| Total experience as a mahout (in relation to his age) | | 44% |
| Total experience with this elephant (in relation to elephant's age) | | 50% |
| Community | | Muslim |
| Formal Training | | No (but has experience) |
| Family occupation | | Mahout |
| Education | | No |
| Salary/yr (INR) | | 43,200 |
| Job status | | Permanent |
| Marital status | | Married |
| Number of Children | | 3 |
| Usage of tools | | Yes |
| Type | | Stick |
| Health status | | Good |
| Insurance | | - |
| Source | | - |
| Will his children join this profession? | | Not known |

| Name of elephant | Ale |
|--|--|
|  | |
| Age (yrs) | 2 |
| Sex | Female |
| Tush(visible/not visible) | Not visible |
| Current Location | Sakrebyl Forest Camp |
| State | Karnataka |
| Source & Date | Captive born (2008) |
| Location of source | Sakrebyl |
| Height at source | Not known |
| Type of shelter | Open,natural |
| Type of flooring | Earthen |
| Source of water | River |
| Interaction with elephants/Number | Yes/14 |
| Hours/day | 24 h |
| Personality | Playful |
| Number of people killed/injured | None |
| Stereotypic behaviour | No |
| Type of work | None |
| Hours/day | NA |
| Source of food | Mother's milk, free ranging, and stall fed |
| Type | Forest vegetation, raw rice, jaggery, salt, coconut, paddy and straw |
| Occurrence of heat cycles | No |
| Calves born till date | NA |
| Disease | No |
| Permanent injuries | No |
| Veterinary doctor availability | Yes |
| Number of mahouts changed | Nil |

| | Mahout | Cawadi |
|---|---------------|---------------|
| Name Age (yrs) Total experience as a mahout (in relation to his age) Total experience with this elephant (in relation to elephant's age) Community Formal Training Family occupation Education Salary/yr (INR) Job status Marital status Number of Children Usage of tools Type Health status Insurance Source Will his children join this profession? | No mahout | No cawadi |

Appendix I: Abbreviations, Names of food plants/food used and Terms used

INR: Indian rupees (1US\$ = 50.6 rupees)

KGID: Karnataka Government Insurance Department

NA: Not applicable

Rice: Cereal grain of *Oryza sativa* cooked in boiling water

Coconut: *Cocos nucifera*

Salt: Sodium chloride

Straw/ Hay: dry stalks of cereal/ millet crops

Jaggary: raw concentrate of sugar cane juice

Number of calves born: none/ number mentioned (from officially known cases)

Age (of elephant) mentioned: Refers to date of birth/ accessed from official records/ from handler

Mahout: senior elephant handler/ trainer

Cawadi: assistant elephant handler/ trainer

Ankush: wooden shaft with tapered/ pointed metal hook at one end

Kurumba: refers to a community of people in South India

Project Team

Field investigator

Surendra Varma

Research Team

S. R. Sujata
Compassion Unlimited Plus Action (CUPA)

Roshan K Vijendravarma
Post Doctoral Researcher, Department of Ecology and Evolution,
University of Lausanne, 1015-Lausanne
Switzerland

Editor/s

Pooja Mitra
Compassion Unlimited Plus Action (CUPA),
Veterinary College Campus, Hebbal, Bangalore 560 024, &
Wildlife Rescue & Rehabilitation Centre (WRRC),
Bannerghatta Biological Park,
Bangalore – 560083

Design and layout

Ramesh Belagere
Club for Awareness and Nature Study
Kengeri satellite town, Bangalore-560060

Adviser

R. Sukumar
Centre for Ecological Sciences, Indian Institute of Science, Bangalore 560 012

Co-Investigators

Suparna Bakshi-Ganguly & Shiela Rao
CUPA,
Veterinary College Campus, Hebbal, Bangalore 560 024, &
Wildlife Rescue & Rehabilitation Centre (WRRC),
Bannerghatta Biological Park,
Bangalore – 560083

Principal Investigator

Surendra Varma
Asian Elephant Research & Conservation Centre (A Division of Asian Nature
Conservation Foundation (ANCF)), Innovation Centre, Indian Institute of Science,
Bangalore 560 012

Karnataka Forest Department (KFD) was born on 11.1.1864. The main aim of the department is to protect, conserve and promote sustainable development of the forests of the State and to promote tree based farming in support of soil and water conservation on agricultural lands. The department protects the forests and wildlife from various types of pressures and threats. The main protection activities include fire protection, boundary consolidation, prevention and removal of encroachment from the forest area, prevention of illicit cutting of timber and firewood, indiscriminate harvest of Non timber forest produce, prevention of poaching of wild animals etc. The Department undertakes regeneration, soil and moisture conservation works, canopy manipulation, weeding, climber cutting habitat improvement, wildlife management etc., The department aims at increasing the productivity of the forests to meet the growing demands of the people. The afforestation is done on degraded forest lands, community lands, C & D class lands, fore-shore areas and other institutional lands.

The Malnad Area Development Board (MADB) is one among the four area development boards constituted under the Department of Planning and Statistics, Government of Karnataka. The MADB comprises 13 Malnad districts with 65 constituencies and 61 talukas and is head quartered at Shimoga. The main activities of the board are to prepare the annual action plan for the over all development of the malnad region, Co-ordinate evaluation studies for some Government Programs and support few Research Studies.

Compassion Unlimited Plus Action (CUPA) is a non-profit public charitable trust registered in 1991 that works for the welfare of all animals. Since 1994, CUPA has worked in close collaboration with government departments and agencies on various projects. CUPA's mission is to protect animals from abuse and violence and do what may be required to alleviate their suffering at the hands of humans. CUPA does not differentiate among pet, stray or wild animals, since all of them may require assistance and relief from cruelty, neglect and harm. The organisation's objective has been to design services and facilities which are employed fully in the realisation of these goals.

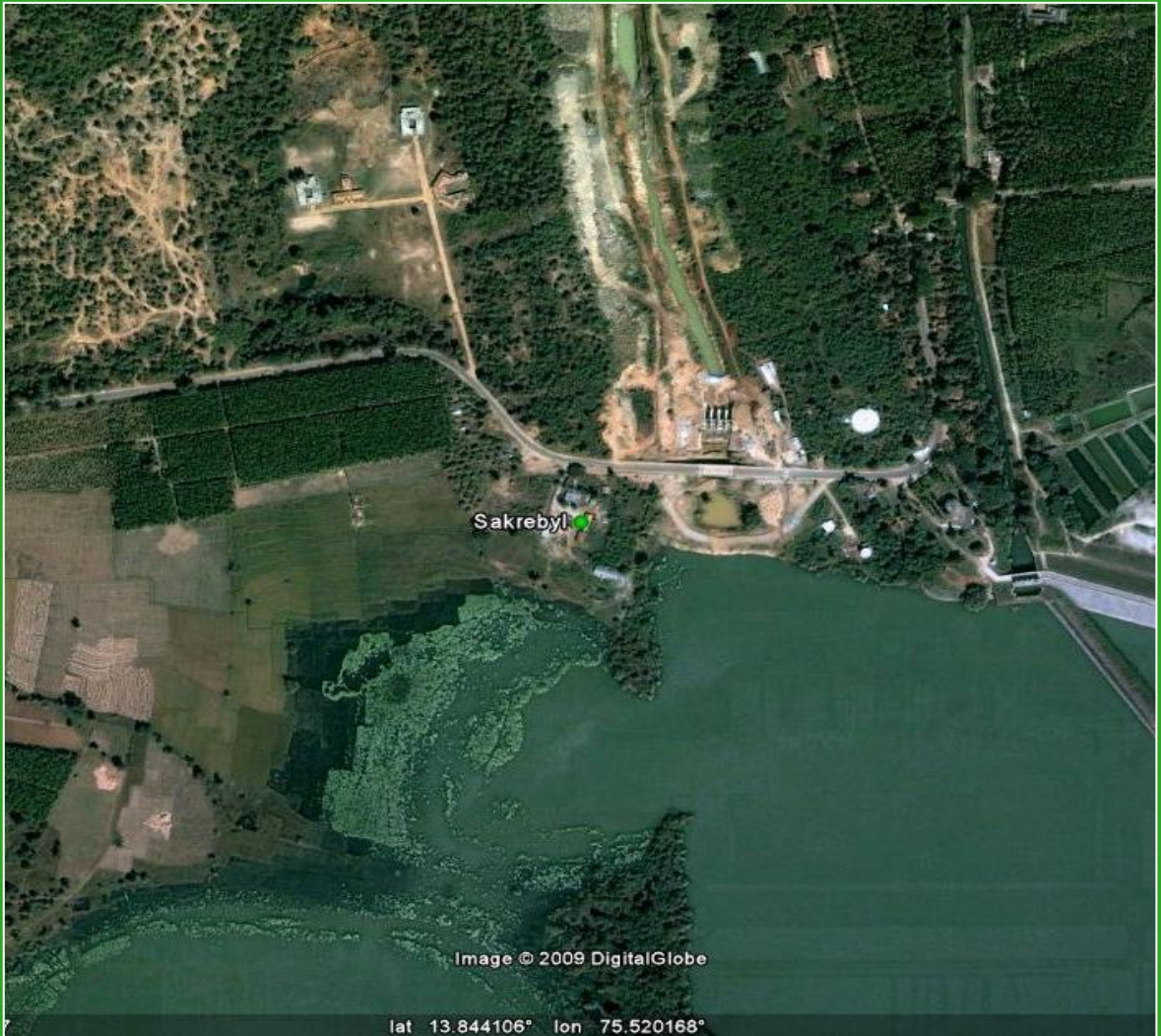
Wildlife Rescue and Rehabilitation Centre (WRRC) is a registered public charitable trust for the welfare of wild animals and

birds that often find themselves trapped in an urban environment. The Trust is a sister in concern of CUPA and both organisations complement each other in their services. WRRC was established as a separate Trust in 1999.

Asian Nature Conservation Foundation (ANCF) is a non-profit public charitable trust set up to meet the need for an informed decision-making framework to stem the rapidly declining natural landscape and biological diversity of India and other countries of tropical Asia. The Foundation undertakes activities independently and in coordination with governmental agencies, research institutions, conservation NGOs and individuals from India and abroad, in all matters relating to conservation of natural resources and biodiversity, endangered flora and fauna, wildlife habitats and environment including forests and wetlands. It participates and disseminates the information procured, knowledge and inferences in professional, academic and public fora.

World Society for Protection of Animals (WSPA) With consultative status at the United Nations and the Council of Europe, WSPA is the world's largest alliance of animal welfare societies, forming a network with 910 member organisations in 153 countries. WSPA brings together people and organisations throughout the world to challenge global animal welfare issues. It has 13 offices and thousands of supporters worldwide.

Photo Credits: Figure 19a: Karnataka Forest Department, Profile Ganesha: Mukundiah (RFO) and all other photographs: Surendra Varma



This investigation provides details of the population, management and welfare status of captive elephants kept in the Sakrebyl Forest Camp, Karnataka, southern India. Elephants kept in the camp were observed and their welfare status was assessed through a number of welfare parameters. This investigation also provides some insights on the socio-economic status of the handlers, who have been part and parcel of the welfare status of captive elephants.

