Captive Elephants in Chandigarh

An Investigation into the Population and Welfare Status of Captive Elephants in Chandigarh

Surendra Varma, S.R.Sujata, and
Suparna Ganguly

An Investigation into the Population and Welfare Status of Captive Elephants in Chandigarh

Surendra Varma[1], S.R.Sujata[2a], and Suparna Ganguly[2b]

1: Research Scientist, Asian Nature Conservation Foundation, Innovation Centre, Indian Institute of Science, Bangalore - 560 012, Karnataka; 2a: Researcher, 2b: Honorary President, Compassion Unlimited Plus Action (CUPA), Veterinary College Campus, Hebbal, Bangalore 560 024, & Wildlife Rescue & Rehabilitation Centre (WRRC), Bannerghatta Biological Park, Bangalore – 560083, Karnataka

Suggested Citation: Varma, S., Sujata, S.R, and S. Ganguly 2010. Captive Elephants in Chandigarh,: An Investigation into the Population and Welfare Status of Captive elephants in Chandigarh. Elephants in Captivity - CUPA/ANCF Occasional Report 15. Compassion Unlimited Plus Action (CUPA) and Asian Nature Conservation Foundation (ANCF), Bangalore, India

To order a copy of this book; please write to

Contents

Preface

The distribution of wild elephants spanned a vast area from Iran to China several thousand years ago. The population is now restricted to fragmented pockets across the Indian region, with Chandigarh not figuring in the regions known for occurrence of wild elephants. It is, however, home to captive elephants maintained under human supervision either in the form of government controlled zoological gardens (Chattbir Zoo, Chandigarh) or a transient population of "available-on-hire" individuals from neighboring regions. The investigation of the status of elephant population "available on hire" is difficult and our investigation was restricted to the elephants within the government facilities.

A nation-wide survey was conducted to study the welfare status of captive elephants maintained by various management regimes such as forest camps, temples, private owners, zoos and circuses. The study revealed that captivity and elephants are not compatible, as the elephants' welfare is always compromised due to the captive conditions imposed. Among the different regimes keeping elephants, those owned and run by the government are forest camps and zoos. The study also showed that the forest camps were regimes providing relatively better welfare conditions for the elephants among all the regimes surveyed. In many Zoos, even owned by the government, their conditions in terms of elephant welfare may not be satisfactory.

Perceived diminished welfare conditions of elephants in captivity underscores the need for welfare assessment. This investigation on assessing welfare status of elephants in Chandigarh has two fold values; it becomes first ever documented knowledge of captive elephants in Chandigarh, and it may also help in identifying welfare status of elephants from a zoo.

Acknowledgement

Executive Summary

Elephants in the wild occur across a range of habitats; their presence in captivity outside their naturally occurring range may not mean absence of suitable features or poor welfare. Captivity, however, necessitates review of suitability of conditions, as a captive environment implies direct human influence in various aspects of elephant life. Chandigarh is home to several captive elephants maintained by the state run zoological garden.

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. A team of experts rated different parameters of importance to the welfare of captive elephants and this rating was then used to assess the welfare status of elephants and mahouts/cawadis. Here expert rating (E-R) and Mean Rating (M-R) obtained based on the ground investigation was compared to the welfare status of the elephants

The zoo has 6 (2 males and 4 females) elephants, the age class ranged from 3 to 62 years, and with a mean age of 38 (SE= 10). The female ages ranged from 28 to 60, mean age being 41 (SE=9.2).

Of the six individuals, three were wild caught, two were rescued and one elephant was captive born. M-R was 2.0 (SE= 1.1, N=6) showing a deviation of 67% from E-R.

The elephants' shelter has metallic roof, there are no shades or trees in the enclosure and the flooring is of concrete in the shelter area. M-R for shelter related parameters was 2.3 implying a deviation of 71% from E-R.

Although the zoo bordering the river (Figure 6a) and a forested area on the outer bank has been left with its original wooded cover, a stagnant pond with stated capacity of 10, 35,000 lt. for bathing and separate water tank for drinking was observed. The bath water is changed once in a week.

The group comprised of adult females, a juvenile male and a single adult male, with opportunity for interaction. M-R for interaction opportunity was 9.0 showing no deviation from E-R.

The elephants were exposed to individuals of opposite sex; the adult male had sired an offspring. M-R for reproductive status was 5.6 (SE= 2.4, N*= 3) implying a deviation of 20% from E-R.

Foraging in vegetated areas was limited to the grass growing within the enclosure (figures 10 and 11). Stall feed was provided. The stated food is rotis (wheat flour bread), black grams, banana and green fodder and weekly gur (sugarcane molasses). M-R for food provisioning type was 9.0 implying no deviation from E-R. M-R for number of food items provided was 2.5 indicating a deviation of 72% from E-R.

Foot problems were noticed in the form of cracked soles and overgrown nails M-R was 3.3 showing a deviation of 59% from E-R

Considering all the sub-parameters together, the overall rating for the elephants in the zoo was 4.0 indicating a deviation of 50% from E-R.

The Zoo management voiced that the elephants were an attraction for the many children and visitors. They also felt that being used to a particular diet, especially in the case of the older two elephants; they may not be able to adjust to the rigors of a forest camp and would need more intensive management, since they had been conditioned to the same for many years.

The needs of the elephant, in spite of the presence of veterinarians and experienced forest officers, seemed to be unknown to the management.

<div align="center">**Recommendations**</div>

Change in management system
Considering the ban of keeping elephants in zoo, if the zoo management in Chattbir Zoo is desirous of keeping the elephants, it can be permitted only through adopting elephant sanctuary or care centre model. If they have to get into the model of an elephant sanctuary or an elephant park, they need to substantially alter the current captive elephant management style, keeping in mind the space and accessibility to a natural free flowing water source already available.

Enclosure and Space
The elephant enclosure should be increased to incorporate all the surrounding spaces, which have wooded cover and tree shade. The elephants should be taken twice a day to bathe in the nearby river. If displayed for the zoo audience, it should be in a "safari" model, with the elephants free to move, bathe, walk, indulge in dust bath or mud wallows, interact with each other in the shade of trees and within the forest cover around. After the evening bath in the river, the elephants should be left into the forest to graze.

Caution to avoid surplus birth
The lacuna in the current housing and environment will be naturally rectified with this change in management mode. It is also cautioned and recommended that the female elephants be administered contraception to avoid the birth of surplus animals, unless the future of such elephants in a good welfare system can be assured.

Management of rescue/care center in the existing framework
It is strongly recommended that Chatbir Zoo enters into a MOU with a reputed NGO for managing, creating and overseeing the change over from zoo captivity to an elephant sanctuary or nature park model in public-private participation. This would bring in more resources of skill and technical knowledge and the transition can be made easily, with shared team responsibility.

The effort can be jointly supported by CZA, Project Elephant Directorate and external sources. The proposed Elephant Nature Park at Chatbir should become the care center model for all North Indian zoos that do not have the potential of the latter, for improving the scope and scale of welfare measures for their own and other zoo elephants.

The Committee strongly recommends that the zoo elephants be now housed and managed in an elephant sanctuary or Nature Park, with its own distinct identity, separate entrance and separate routine, woven around the needs of the animals and not the needs of the visitors and public.

Introduction

Chattbir Zoo, Chandigarh, MC Zoological Park, Chattbir is spread over an area of 202 hectares or 505 acres of protected forest, once the hunting reserve of the Maharajah of Patiala. It is located on the River Gagghar, which runs on the boundary of the Park. The actual zoo occupies about 12ha (30 acres) of this zone. The rest, bordering the river and a forested area on the outer bank has been left with its original wooded cover.

Method

A nation-wide survey (Varma and Prasad, 2008) was conducted to study the welfare status of captive elephants maintained by various management regimes such as forest camps, temples, private owners, zoos and circuses. The study revealed that captivity and elephants are not compatible as the elephants' welfare is always compromised due to the captive conditions imposed.

Welfare status of the elephant kept at Chatbir Zoo 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.

Results
Population Status
The zoo had 6 (2 males and 4 females) elephants, the age class ranged from 3 to 62 years, and with a mean age of 38 (SE= 10). The female ages ranged from 28 to 60, mean age being 41 (SE=9.2).

The oldest elephants were:
1. Rajkali, female, 60 years old, seized in 1999 from a wandering "mahant".
2. Rajmangal, male, 62 years old, seized in 1998 from a "sadhu".
   Both have lived 11 and 12 years, respectively in the zoo.

The other four elephants were:
3. Parvati, female, 45 years, wild caught in Assam in 1977. Living in zoo- 33 years.
4. Hema, female, 29 years, wild caught in Assam in 1995. Living in zoo - 15 years.
5. Maya, female, 28 years, wild caught in Assam in 1995. Living in zoo -15 years.
6. Rajveer, male, 3 years old and born in the zoo in 2007.

Source
Of the six individuals, three were wild caught, two were rescued and one elephant was captive born. The change in living conditions experienced by wild caught individuals will be more than those experienced by captive born elephants. M-R was 2.0 (SE= 1.1, N=6) showing a deviation of 67% from E-R.

Enclosure (shelter size)
The elephants' enclosure occupies about 1.25ha. This represents only 0.61% of the total area available to the zoo (Figure 1).

Figure 1: Elephant enclosure, note absence of trees within

Keeping in mind that elephants are long-ranging species and in prime elephant habitat (Sukumar, 1989) wild elephant densities are estimated to be two elephants/ km^2 (Varman et. al., 1995) and this may translate into 125 acres/animal.

When in captivity, an elephant should be housed in an enclosure that provides at least 1% of the space that it would need in the wild, within which natural forest conditions exist in the context of land availability and resource allocation in captive situations. Therefore, the proper housing size could be 1.25 acres (1 acre = 4047 m2).

However, for more than one elephant, space is not divided but shared. Hence, the minimum area needed for the group size should also be considered. If adult males are present, the shelter size should be much larger. Ideally, a shelter should function to guard against sun/rain whereas an enclosure should refer to the whole area.

Shelter type
The elephants' shelter has metallic roof, which would tend to capture heat in the daytime and release heat in the night time (figures 2 and 3).

A variation of shade types (including both natural and artificial shade types) is considered ideal for a group of elephants to avoid monopoly of the shade area by one dominant animal. Shade type should be such that there should be free flow of air in and out of the shade area. Tin or asbestos does not allow hot air to move out and they radiate more heat even during cool hours. We strongly advise against the usage of asbestos because of its toxicity.

Figure 2: Metallic roof of shelter   Figure 3: Concrete flooring

Shade availability
There are no shades or trees in the enclosure.

Captive elephants need to be provided with some sort of shade to reduce their exposure to the harsh sun (Kurt and Garai, 2007). It should also be noted that since elephants in the wild choose when to utilise shade, captive elephants should also have the right to decide as to when they need shade and should not be forced to unnecessarily stay under their tin roof shelter. It is recommended that elephants should be provided with shade in the enclosure and not just be confined to the shelter. They should have access to full and partial shade during the day, best provided by thatch structures or trees.

Flooring
The flooring is of concrete in the shelter area.

It is recommended that substrates such as earthen floor that surrogate an elephant's natural living conditions should be used. Hard substrates result in foot problems (Benz, 2005). If for some reason earthen floors cannot be provided, then cement floors are practical if the animal is only restrained on it for short periods of time. For bulls in musth, wood in kraals is considered ideal. Due to the extreme summer and winter conditions, the elephants are forced to be inside the shelter area, which is not appropriate for long term usage.

M-R was 2.3 (SE= 1.1, N*= 4) implying a deviation of 71% from E-R. Figures 4 and 5 provide ratings and percent deviation from E-R, respectively, for each of the sub-parameters.
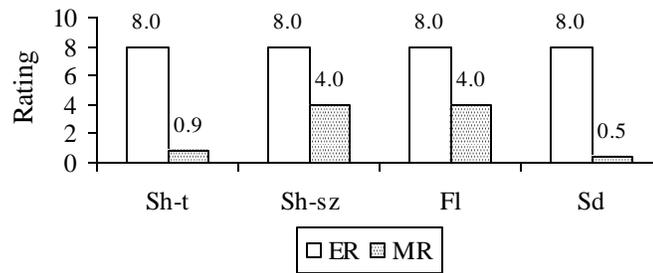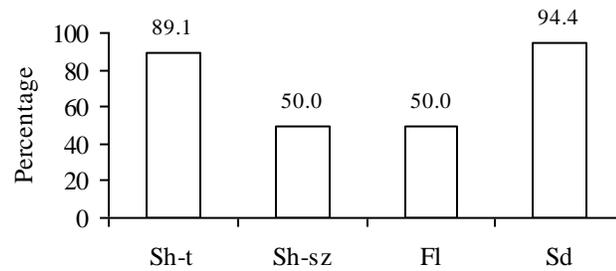
9

Figure 4: Comparison of E-R and M-R for shelter

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

Figure 5: Percent deviation from E-R for shelter

Water availability

Although the zoo bordering the river (Figure 6a) and a forested area on the outer bank has been left with its original wooded cover, a stagnant pond with stated capacity of 10, 35,000 l for bathing and separate water tank for drinking has been provided. The bath water is changed once in a week.

Figure 6a: A river bordering zoo

Natural river water is the best source of drinking water as it provides a perennial flow of water that is relatively free from contamination, is not limited to one specific spot and can thus allow the elephant to roam and move freely throughout the area. If available, ad lib supply of clean water can be given. Quality of water is very important.

10

Bathing place
The existing pond water is used for bathing 6 elephants for 7 days. The level of dung contamination is high.

In addition to cleanliness by removal of dead cells or parasites, and cooling the body, the bathing place should allow for enrichment of social bonds and physical exercise. The bathing place should be large and deep enough for the elephant to lie over and be completely submerged (Olson, 2004). It is also important for the bathing place to be free from contamination. In case of standing water it should be ensured that the elephant is allowed to drink water before being taken for its bath and also ensure that dung is not present in the water. These factors cannot be implemented in the present scenario.

Rating for water provided for the elephants included all of the above sub-parameters. M-R was 2.3 (SE= 1.1, N*= 4) implying a deviation of 71% from E-R. Figures 6b and 7 provide ratings and percent deviation from E-R, respectively, for each of the sub-parameters.
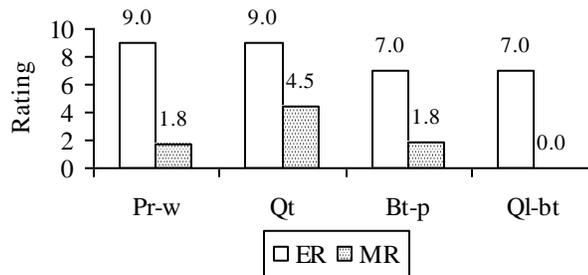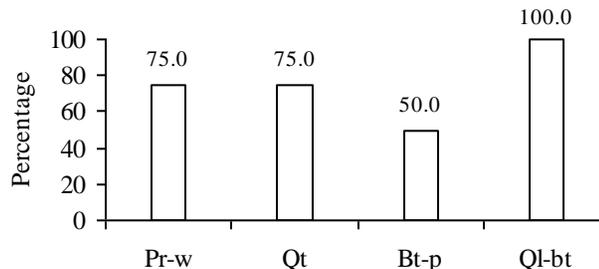
Figure 6: Comparison of E-R and M-R for water

Figure 7: Percent deviation from E-R for water

Pr-w: Availability of perennial source of running water   Qt: Quantity of water available
Bt-p: Bathing place   Ql-bt: Quality of bathing water

Walking
It was reported that the elephants walk once a day in a given area of the zoo. This is clearly insufficient. The foot conditions needed attention and trimming of overgrown nails and cuticles.

Absence of physical exercise (walking) on a variety of substrates may lead to foot injuries and diseases. Walking keeps the muscles and joints in healthy condition, prevents obesity and improves circulation. Hatt and Claus (2006) cite reports of obesity being linked to foot and joint problems.

11

Benz (2005) cites the importance of exercise which otherwise leads to overgrowth of the soles of the feet and causes other foot problems.

M-R for opportunity to walk was 9.0 (SE= 0.0) showing no deviation from E-R.

Duration in free-range environment
Though the elephants, when observed had no chains, except for the male kept separately, the animals enclosure is not sufficient to allow for adequate grazing or foraging. A free-range environment signifies that the animal is not chained to one place and is allowed to roam/walk and move about freely. Roaming can be with or without chains. However, it is important to note that an elephant should be allowed to roam for a fixed number of hours as there must be time allotted to subject the elephant to regular health checks, and also provide sufficient time to manage and train it for veterinary care. M-R for walk duration was 1.0 (SE= 0.0) indicating a deviation of 88% from E-R.

Opportunity for social interaction
The group comprised of adult females, a juvenile male and a single adult male, with opportunity for interaction. M-R for interaction opportunity was 9.0 (SE= 0.0) showing no deviation from E-R. M-R for group size was 7.0 (SE= 0.0) indicating a deviation of 13% from E-R.

Reproductive status
The elephants were exposed to individuals of opposite sex; the adult male had sired an offspring. Rating for reproductive status of the elephants included all of the above sub-parameters. M-R was 5.6 (SE= 2.4, N*= 3) implying a deviation of 20% from E-R. Figures 8 and 9 provide ratings and percent deviation from E-R, respectively, for each of the sub-parameters.
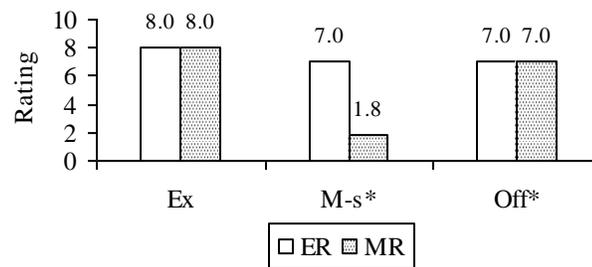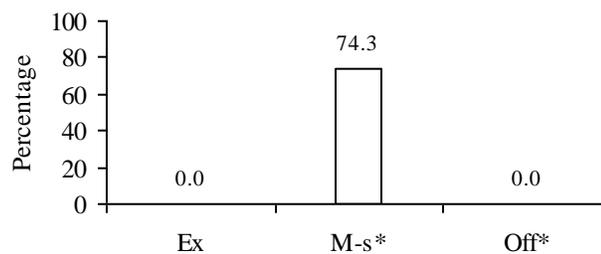

Figure 8: Comparison of E-R and M-R for reproductive status

Ex: Exposure to individuals of opposite sex   M-S: Male source   Off: Offspring sired
*: Rating based on single individual

Figure 9: Percent deviation from E-R for reproductive status

Food

Foraging in vegetated areas was limited to the grass growing within the enclosure (Figures 10 and 11). Stall feed was provided.

Figure 10: Adult female trying to reach across moat for forage

Figure 11: calf pulling at branch on other side of enclosure

Wild elephants are reported to feed on more than 75 species of plant foods (Shoshani and Eisenberg, 1982) and perform a number of manipulations with their trunk, legs/ tusks prior to eating (Kurt and Garai, 2007). Food provided for elephants should take care of nutrition, opportunity for exercise (during food preparation such as bending, pulling, breaking, etc.) and expression of natural behaviour that are seen while foraging and feeding. M-R for food provisioning type was 9.0 (SE= 0.0) implying no deviation from E-R.

Type of food (Number of items)

The stated food is rotis (wheat flour bread), black grams, banana and green fodder and weekly gur (sugarcane molasses). This, though sufficient in quantity does not provide the diversity or variation which an elephant needs. It is limited in variety and scope. This is detrimental to an elephant's health and well being.

Stall feed may not be able to replicate the wide diversity of food that elephants come across while foraging in the wild. Only stall feeding compromises the required diet of the animal as opposed to a free ranging animal. Additional supplements apart from forest food (derived from free ranging) are recommended. In theory, a well-kept captive elephant should be healthier than a wild one, because a caring owner would always ensure the elephant has the right nutritional supplements throughout the year which might not be available naturally. However, this is not always possible.

M-R for number of food items provided was 2.5 (SE= 0.0) indicating a deviation of 72% from E-R.

Health status

Foot problems were noticed in the form of cracked soles and overgrown nails (figure 12).
Olson et al., (1998) mention inadequate exercise among captive elephants as a reason for infections of the pad and overgrown nails.

M-R was 3.3 (SE= 0.0) showing a deviation of 59% from E-R.

Figure 12: Note cracks on pad and base of toe

Overall Rating
Considering all the sub-parameters together, the overall rating for the elephants in the zoo was 4.0 (SE= 0.9, N*= 19) indicating a deviation of 50% from E-R. This implies, on average, any of the observed parameters would deviate to the extent of 50% from the norms prescribed by experts. Figure 7 gives the distribution of percent deviation from E-R for all the observed sub-parameters/ parameters. 68% of the observed features showed a deviation of 50% or more from E-R.
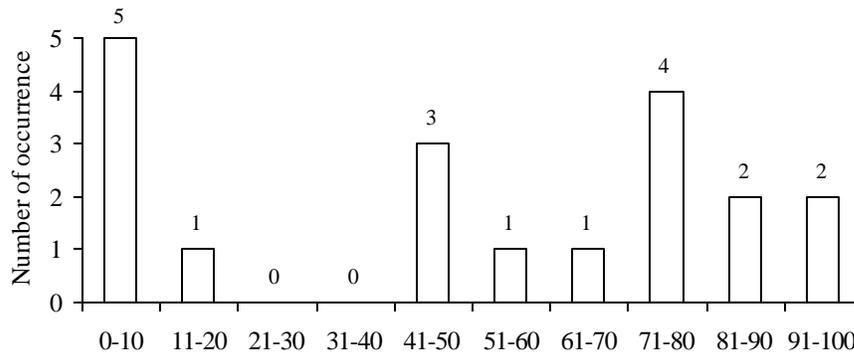

Figure 6: Distribution of percent deviation from E-R for observed parameters

Discussions
The zoo environment provided fragmented opportunities for expression of species-specific behaviors as the elephants were confined to limited space and a physical environment devoid of forage. Provision of sufficient space to explore, presence of diverse vegetation and unfettered existence would help the group of six elephants to express a degree of species-specific behaviours? and provide a physical/psychological environment that would nurture health and well-being. The presence of a river nearby would ensure availability of running water to bathe/consume. The natural behaviours expressed by elephants would also help in providing necessary and appropriate knowledge about elephants' needs and the need to protect such habitats.

14

Reference

1. Benz, A. (2005). The elephant's hoof: Macroscopic and microscopic morphology of defined locations under consideration of pathological changes. Dissertation, Druck: RoNexus Services AG, Basel.
2. Hatt, J.M., and Clauss, M. (2006). Feeding Asian and African elephants *Elephas maximus* and *Loxodonta africana* in captivity. International Zoo Yearbook, 40(1), 88–95 (http:// www.zora.uzh.ch).
3. Kurt, F., and Garai, M. (2007). The Asian elephant in captivity—A field study. Cambridge University press, New Delhi.
4. Olson, D. (Ed.) (2004). Elephant husbandry resource guide. American Zoo and Aquarium Association (AZA), Elephant manager association and International elephant foundation. Lawrence: Allen Press.
5. Olson, D., Keele, M. and Tuttle, D. (1998) Husbandry and management, In: Medical management of the elephant, (Mikota, S., Sargent, E.L. and Ranglack, G.S., eds.,) Indira publishing house,USA.
6. Shoshani, J., and Eisenberg, J.F. (1982). Elephas maximus. Mammalian species 182, 1-8. The American Society of Mammalogists
7. Sukumar, R. (1989). Ecology of the Asian elephant in southern India I. Movement and habitat utilization patterns. Journal of Tropical Ecology, 5, 1–18.
8. Sukumar, R. (2006). A brief review of the status, distribution and biology of wild Asian elephants *Elephas maximas*. International Zoo Yearbook **40**: 1-8.
9. Varman, K.S., Ramakrishnan, U., and Sukumar, R. (1995). Direct and indirect methods of censusing elephants in forests: a comparison from Mudumalai Sanctuary. In: A week with elephants. Eds. J.C. Daniel and H. Datye, Bombay Natural History Society, Bombay and Oxford University Press, New Delhi. Pp. 331-339.
10. Varma, S. 2008. Identifying and defining welfare parameters for captive elephants and their mahouts in India, In: Welfare and management of elephants in Captivity: Proceedings of a Workshop on Welfare Parameters and their Significance for Captive Elephants and their Mahouts in India. (S. Varma and D. Prasad, eds.), pp. 7-16. Ministry of Environment and Forests (MoEF), Government of India, Compassion Unlimited Plus Action (CUPA) and Asian Nature Conservation Foundation (ANCF), Bangalore, India.
11. Varma, S. and Prasad, D. (2008) Welfare and management of elephants in captivity—insights and recommendations, In: Welfare and management of elephants in Captivity: Proceedings of a Workshop on Welfare Parameters and their Significance for Captive Elephants and their Mahouts in India. (S. Varma and D. Prasad, eds.), pp. 54-64. Ministry of Environment and Forests (MoEF), Government of India, Compassion Unlimited Plus Action (CUPA) and Asian Nature Conservation Foundation (ANCF), Bangalore, India.
12. Varma, S., Sujatha S.R., van de Brand, J., Ganguly, S. and Shiela R., (2008) Draft concept note on welfare parameters and their significance for captive elephants and their mahouts in India, In: Welfare and management of elephants in Captivity: Proceedings of a Workshop on Welfare Parameters and their Significance for Captive Elephants and their Mahouts in India. (S. Varma and D. Prasad, eds.), pp. 17-53. Ministry of Environment and Forests (MoEF), Government of India, Compassion Unlimited Plus Action (CUPA) and Asian Nature Conservation Foundation (ANCF), Bangalore, India.

Project Team

Field investigator

Suparna Baksi Ganguly
Compassion Unlimited Plus Action (CUPA, Bangalore)

Research Team

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

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 Baksi-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

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.

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 foray.

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: All photographs: Brij Kishore Gupta
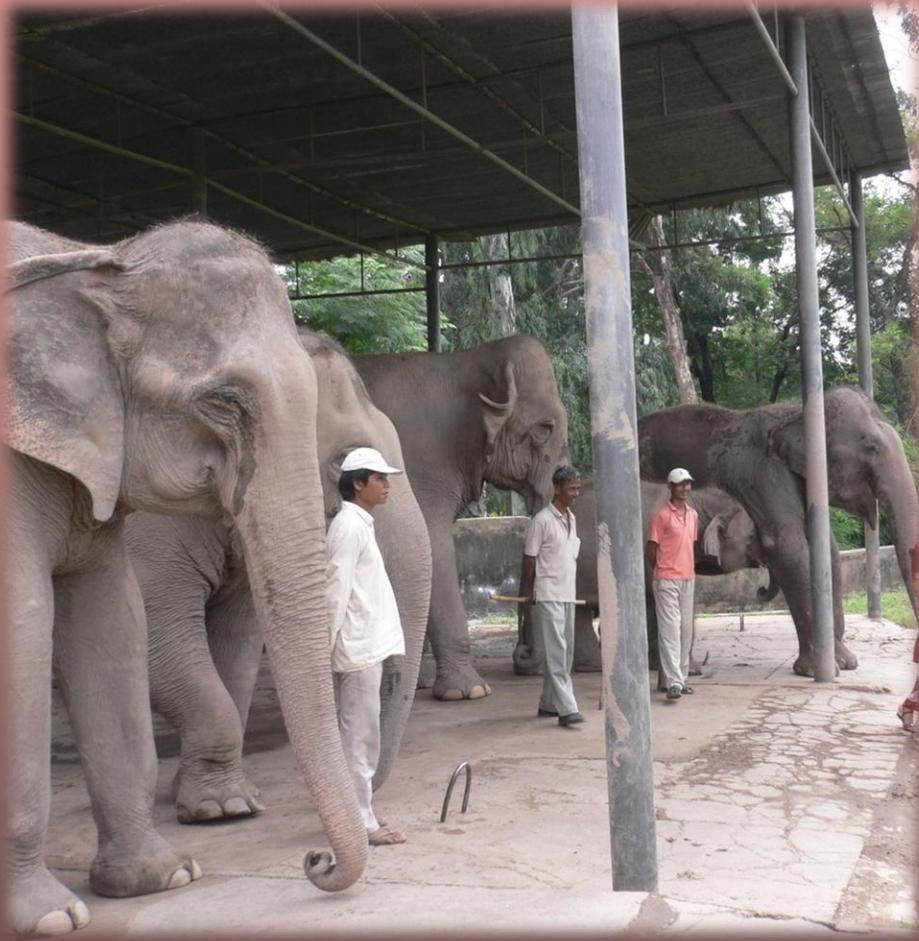
Chandigarh is not a region known for occurrence of wild elephants. It is, however, home to captive elephants maintained under human supervision in government managed zoological gardens or a transient population of individuals from neighboring regions. This investigation was restricted to the elephants within the government facilities as the transient section of privately owned elephants is not easily amenable for study. Chandigarh's zoo elephants were observed to assess the welfare status of the six elephants maintained by it.