

Captive Elephants of Maharashtra



An Investigation into the Population Status,
Management and Welfare Significance

Surendra Varma, S.R. Sujata and Nilesh Bhanage

Elephants in Captivity- CUPA/ANCF Technical Report No 8



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Preface

Maharashtra has reported a few incidents of wild elephants straying into the state. Otherwise, this state has not reported occurrence of wild elephants. The state, however, is home to a sizeable number of captive elephants brought into the state from other parts of the country. There has been only one incidence of captive birth in this state, to an elephant in the zoo. Occurrence of captive conditions unsuitable to elephants affects its physical, physiological and psychological well-being. Some reasons for the presence of captive elephants in this state are its use as a religious symbol and for religious purpose in temples, as a performing animal in circuses, for seeking donations from public by begging and as an exhibit for display in zoos.

Zoo/ Circus/ Begging elephants target urban centers such as cities for resource generation through use of elephants as an animal capable of attracting people. Cities are created for human needs and elephants are maintained in such places. These animals have to sacrifice many of their natural environments to lead an existence in urban settings featuring concrete floors, confined space, absence of water-bodies and/or companions. Temples may not harbor elephants to generate revenue, but this does not guarantee their maintenance in appropriate environment.

When elephants are kept in unnatural human-controlled environment, it is important to know the sacrifice the elephants are made to undergo for cultural/ commercial/ religious interest of humans. It is important to know where they live, what they eat/ drink/ whether they rest/ walk/ interact, their reproductive status, health and veterinary care provided. In addition, handlers (mahouts/ cawadis) form an integral part of their life. Hence, the socio-economic status and professional experience of handlers is also interwoven with the lives of the elephants.

The existence of unsuitable environments for captive elephants and its consequence on their welfare entails assessing the deviations in these conditions from those the elephant experiences in the wild. To do this, experts gathered in Bangalore, Karnataka, to review the parameters of welfare significance and develop a rating scale. The rating scale was from 0 (representing bad conditions) to 10 (representing satisfactory conditions). Field biologists traveled to institutions with captive elephants, collected relevant data on these parameters. The parameters were then rated for their suitability to elephants and averaged across elephants in that institution. This mean rating (M-R) was then compared with the experts' rating (E-R) to indicate the extent of deviation.

There has been no comprehensive study conducted on different management regimes. This document takes credit for being the first to do so. This report has five sections, section one deal with overall population status, management and welfare of captive elephants in Maharashtra. The first chapter along with the executive summary also provides recommendations for the state. Section two describes welfare status of temple elephants exclusively. Section three describes welfare status of Travel-Begging elephants exclusively. Section four dedicated to understand the welfare status of Circus exclusively and section five describes welfare status of Zoo exclusively.

The data was processed using two approaches; the rating scale developed by the experts based on their concept of the importance of a particular parameter to an elephant, was used in section one and in some sections the welfare features or parameters have been rated on a zero to ten scale with zero representing the worst possible situation and ten implying a satisfactory state, closer to what an animal experiences in the wild. This can be further divided into the 0 to 2.4 reflecting, bad welfare conditions, 2.5 to 4.9 for poor, 5.0 to 7.4 as moderate and the values 7.5 to 10 satisfactory conditions.

Each section has a detailed report on the population status, management and welfare conditions, in addition to Executive Summary. The detailed report is presented in the following sequence: introduction, objective, methodology, results, discussion and references. Depending on the needs and interests of the readers, either the executive summary or the detailed report can be referred. The study shows overlap in the welfare status across regimes with Travel-Begging elephants showing very low ratings. Low welfare status of elephants maybe caused by ignorance of basic needs of elephants by the owner/ management coupled with the owners' interest of keeping elephants for cultural/ religious or economic benefit. The sequence of presenting each regime/ institution is independent of its welfare ratings as they show overlap in their ratings. The knowledge provided in this document may help in correcting the errors by making positive changes in captive conditions for elephants.

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The team members Ms. Anuradha Ramaswamy, Mr. Shivprasad Phadke, Ms. Sonali Bagde of the Plant and Animal Welfare Society (PAWS), based in Dombivli. We also thank Mr. Anil Kataria of Ahmednagar SPCA for assisting while studying Rambo Circus in Ahmednagar.

Section 1: Captive Elephants of Maharashtra

Executive Summary

The state of Maharashtra is home to a number of elephants kept in captivity for a range of reasons: as a performance animal in circuses/ by private owners, as a religious symbol in temples, as an animal maintained for public display in zoos. This report deals with the assessment of captive conditions for elephants and the professional status and socio-economic profile of elephant handlers across different keeping systems

Data was collected through observations/ interview of relevant personnel. A team of experts, from wildlife biologists to welfare activists, rated different parameters of importance to the welfare of captive elephants. This rating was then used to assess the welfare status of elephants and mahouts/ cawadis.

A total of 34 elephants were observed and data collected. The number of females was more than that of males in all keeping systems except Temples, with four of the five temples maintaining male elephants. Female age, across all keeping systems, ranged from 8–46 years, males from 5–70 years.

Only one zoo elephant was captive born, with most being transferred across facilities/ gifted and one caught from the wild all circus, temple and traveling/begging elephants had been purchased from various sources, a deviation of 75% for circus, temple and traveling/begging elephants, deviation of 68% for zoo elephants.

Zoo elephants were said to be maintained for public display in providing education, awareness for conservation, all circus elephants were used for public performance, all temple elephants were kept for their religious significance and for performing temple duties and TrvBeg elephants were employed for begging and other capital generating activities. Differences, expressed as percentage deviation from E-R, were 100% deviation for circus, Temple and TrvBeg elephants and 93% difference for Zoo elephants.

A tent with earthen flooring formed the shelter for all circus elephants, within which they were tied for duration of 20-23 hours, four zoo elephants had access to a combination of concrete/ earthen floor, and the rest were kept on concrete floors. Shade (through concrete structures/ trees) was available for all except one elephant. Temple elephants were kept in shelters of concrete sheds (aluminum tent for one elephant) with stone or concrete floors. Only one elephant had earthen floor. A mean area of 448 ft² was available for the tied elephants. No shelter facility was available for TrvBeg elephants

All circus elephants had access to tap water, which was provided for varying number of times. Zoo elephants accessed pond/ tap water or through water tankers. Temple elephants used sources such as river/ lake/ tap water. TrvBeg elephants were given tap water, depending on availability; bathing place depended on the location of the elephant and availability of water. Maximum deviation was noticed for TrvBeg elephants (70%), comparable differences were seen for zoo and temple elephants (55% and 58% respectively) and a deviation of 44% was noticed for circus elephants.

Except for a few circus elephants, all were allowed to interact with group size varying from 2-4 individuals. However, this interaction was circumscribed due to the practice of chaining all the animals. Interaction was allowed for zoo elephants with group size being 1-2 individuals and for varying duration, Temple elephants were allowed interaction subject to availability of other elephants during special occasions such as festivals, and except for one, TrvBeg elephants were allowed interaction with limited number of individuals (two) and at night.

Circus elephants performed on most days of the week throughout the year in places where the circus was located, zoo elephants were not made to work, temple elephants performed temple duties, participated in festivals, some were hired wedding functions/ to take part in movies. All TrvBeg elephants walked and begged throughout the day. Some were hired to take part in festivals/ temples/ wedding functions/ filming movies. Providing joy rides was also undertaken throughout the day. Zoo elephants showed 100% concurrence with E-R, circus elephants showed a deviation of 100% and temple (57%) and TrvBeg (69%) showed comparable differences.

All elephants, circus, zoo, temple and TrvBeg were provided stall feed only in the shelter itself, throughout the day with hygiene said to be good in most places. 4-7 types of food was provided, TrvBeg elephants, depending on the food provided while begging, feeding place depended on availability of food and only in one zoo ration charts was used. Comparable deviation was observed for Circus (91%), Temple (88%) and TrvBeg (97%) elephants and a difference of 58% was noticed for Zoo elephants

None of the circus elephants, except for a single adult female, was provided opportunity to breed, despite presence of individuals of opposite sex in one circus. Male during musth (one in number) was isolated. Of the three adult females in different zoos, only two were allowed to mate with a calf being born to only one female. Oestrus cycles and musth was said to occur for temple elephants, none of them had been exposed to individuals of opposite sex, and males in musth were isolated and chained. All the female TrvBeg elephants had been exposed to male elephants, but had resulted in unsuccessful mating; the male elephant had not been exposed to females

Most circus elephants had access to a veterinary doctor, with only one having experience in treating elephants, all zoo elephants were visited by veterinary doctors, and clinic facility was available most, and records were maintained. Only two of the observed temples had access to a doctor with only one having experience in treating elephants. Except for one elephant, veterinary doctor's service was not available for any of the TrvBEg animals, none of the elephants had access to clinic facilities and records were not maintained

As per as the experience of handling elephants, zoo and Temple handlers showed comparable deviations of 51% and 54% respectively from the expert ratings, circus and TrvBeg handlers showed comparable difference of 35% and 37% respectively. With reference to the salary and other facilities provided, Maximum difference was observed for TrvBeg handlers (92%), circus handlers indicated a difference of 62%,

and a comparable deviations were noticed for zoo and temple handlers (28% and 27% respectively)

Comparison of overall Mean Ratings with Expert Ratings for all regimes show, a maximum deviation for TrvBeg elephants (72%), for circus the difference was 57%, temple elephants indicated a difference of 64% and a deviation of 44% was seen for zoo elephants

Recommendations

Circus/ Temple/ TrvBeg elephants

- Provision of a more natural environment in terms of physical living conditions
- Work performed needs to be oriented toward elephant's natural behaviour, lesser duration of work specifically for TrvBeg elephants, provision of shade/ water/ food/rest while working, maintenance of howdah, other equipment, borne by the elephant
- Feeding opportunities to be provided by allowing free-ranging in areas with diverse vegetation
- Group structure needs to be maintained without restraining the animals
- Musth handling, specially for temple elephants, needs to be altered by looking at options such as provision of space to roam free in enclosed area, availability of elephants of opposite sex
- Veterinary care needs to be improved, records have to be maintained

Zoo

- Limiting elephant care to work-hours (daytime, when the zoo is open to the public) needs to be avoided, elephants can be left free within the enclosure through the day (24h) with the option to access covered shelters left to the elephants
- Provision of enrichment to keep the elephants occupied: providing browse/ graze at staggered intervals, including at night, foraging opportunity in the enclosure.

All observed keeping systems

- Provision of natural flooring (earthen/ mud) in enclosures
- Provision of water-bodies for the elephant to immerse itself while bathing, opportunity to engage in species-typical activities
- Provision of free ranging opportunity in suitable habitat, greatly reduce duration of chaining, cease usage of spiked chains
- Maintenance of records: age/ weight/ health/ feeding regime/ clinical history/ records related to source of the animal

Introduction

The state of Maharashtra is home to a number of elephants kept in captivity for a range of reasons: as a performance animal in circuses/ by private owners, as a religious symbol in temples, as an animal maintained for public display in zoos. Maintenance of elephants in each of these ownership categories may involve provision of diverse facilities which may not be interest of the elephant/s.

Objective

The occurrence of captive conditions unsuitable to the life of an animal affects its well-being, both physical and psychological. Conversely, appropriate captive environments may provide relatively better facilities affecting the animal in a positive way. Elephant handlers are an integral part of a captive elephant's life. Hence, the handlers' welfare status needs to be considered.

This report deals with:

- Assessment of captive conditions for elephants across different keeping systems
- Assessment of the professional status and socio-economic profile of elephant handlers

Method

Conditions experienced by wild elephants, ecological/ social, can be used a reference point for comparing with those existing in captivity (Bradshaw, in press) especially in the context of the elephant not having been domesticated (Kurt and Garai, 2007) despite its long association, in captivity, with people. It is this difference from wild conditions which has been used as a scale to rate the welfare of captive elephants. The greater the deviation from wild conditions, the lower is the elephants' welfare status. A number of features of captivity: the physical space and attendant factors such as food/ water, social features, reproductive functioning, were considered. In addition, veterinary facility and infrastructure availability was assessed. Data was collected through observations/ interview of relevant personnel. Related data such as shelter type/ size/ floor type were grouped together to form a parameter with each individual constituent data termed as a sub-parameter. A team of experts, from wildlife biologists to welfare activists, rated different parameters of importance to the welfare of captive elephants (Varma and Prasad, 2008). This rating was then used to assess the welfare status of elephants and mahouts/ cawadis.

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, managers responsible for both wild and captive elephants and other wildlife, personnel from 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 was 8.0 (SE= 0.5, N=29) for a parameter 'floor' and 9.0 (SE=0.4, N=31) for 'source of water' was arrived at 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 i.e., for a parameter with 8.0 as the maximum value, only 2.0 (20%) deviation and parameter with maximum value 9.0 only 1.0 or 10% from the prescribed norm is considered acceptable.
- 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 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. This rating is then averaged across all individual in that institution to get a Mean Rating (M-R) for that feature. Thus M-R represents the actual situation existing for the elephant/s.
- Therefore, using the maxima given by experts as a base, a rating scale starting from zero to the particular maximum value for that parameter has been used and the data for each animal was collected, in a given regime (for example, forest camp or temple).
- In this investigation, variables which represent a common feature of the captive condition have been grouped to form a parameter. The variables have been termed sub-parameters. 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. The Mean Rating (M-R) for a parameter is the mean of M-Rs across related sub-parameters and denotes welfare status of existing conditions on the ground for the particular parameter.
- The number of such related parameters (sub-parameters) varies for each regime.
- 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 the maxima provided by experts (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.
- N* refers to number of sub-parameters observed. N refers to number of individuals.

Result

Four types of owners were categorized based on details of captive conditions provided: Circus, Zoo, Temple and Travel-Begging (TrvBeg) elephants. A total of 34 elephants were observed (Figure 1a) and data collected. The number of females was more than that of males (Figure 1b) in all keeping systems except Temples, with four of the five temples maintaining male elephants. Female age, across all keeping systems, ranged from 8 – 46 years, males from 5 – 70 years.

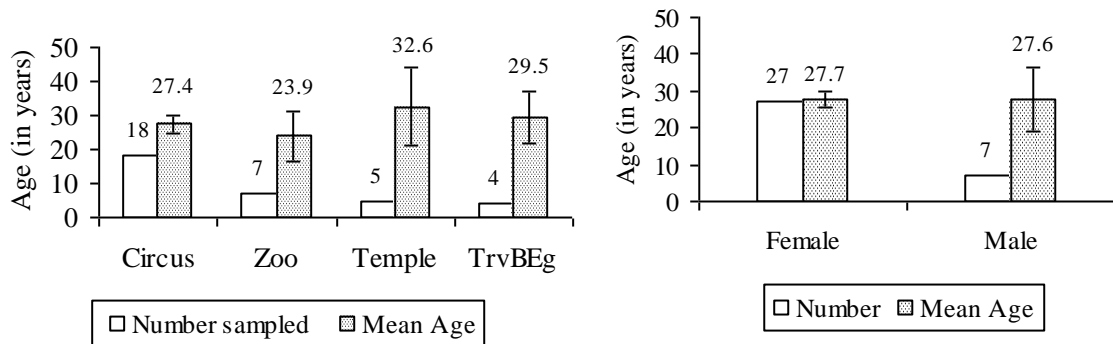


Figure 1a: Age distribution across all regimes across all regimes

Figure 1b: Age-sex distribution

Source of elephants

- All circus elephants had been purchased from various sources
- Only one zoo elephant was captive born, with most (N = 5) being transferred across facilities/ gifted and one caught from the wild
- All temple and TrvBEg elephants had been purchased from various sources

Elephants caught from the wild may undergo greater stress in captivity than ones which are captive born. Frequent transfers across managements could also be a source of stress due to breakage of established social relationships/ introduction into unknown herds (Clubb and Mason, 2002). This parameter looks at the source of elephants across all regimes. Comparison of the Mean Rating (M-R) with the Experts' Rating (E-R) showed A deviation of 75% for Circus (Figure 2), Temple and TrvBEg elephants and a deviation of 68% for zoo elephants was observed.

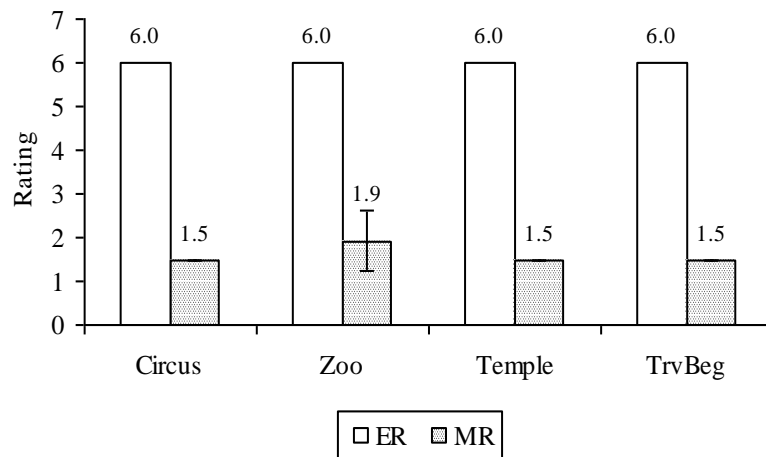


Figure 2: Comparison of rating for source of elephants

Purpose of keeping

- All circus elephants were used for public performance
- Zoo elephants were said to be maintained of public display in providing education/ awareness for conservation
- All temple elephants were kept for their religious significance and for performing temple duties
- TrvBeg elephants were employed for begging and other capital generating activities

Maintenance of elephants in captivity can be cost intensive (Lair, 1997) with potential negative consequences on the welfare and future of elephants used for work or for commercial gain. Differences, expressed as percentage deviation from E-R, were 100% deviation for circus, Temple and TrvBeg elephants and 93% difference for Zoo elephants (Figure 3).

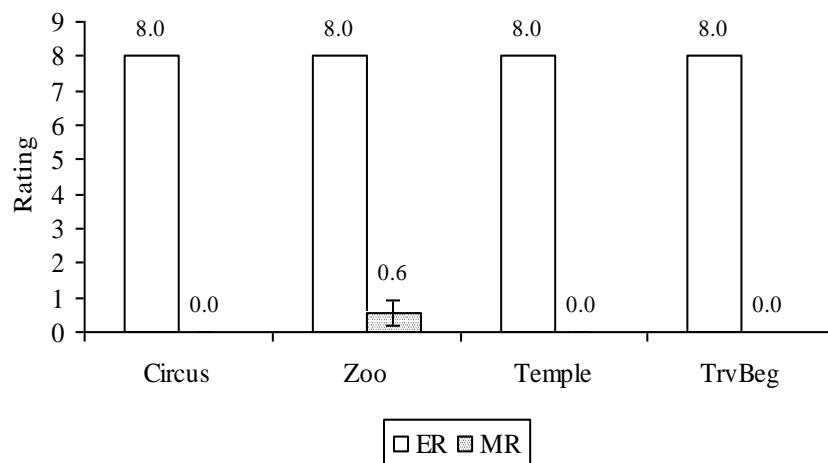


Figure 3: Comparison of rating for purpose of keeping

Mahout change

Clubb and Mason (2002) cite authors mentioning the association between change in mahouts and altered elephant behaviour. Frequent change in handlers entails periods of learning between mahout/cawadi and elephant, a process that can be stressful to both.

- Circus elephants had experienced 4-6 changes of mahout/cawadi
- Number of changes for zoo elephants ranged from 0 to 7
- TrvBeg elephants had experienced 6-12 changes in their handlers

Deviation from E-R for each regime was:

- Circus and Zoo elephants showed comparable differences of 78% and 66% respectively
- TrvBeg elephants showed 100% difference (Figure 4)

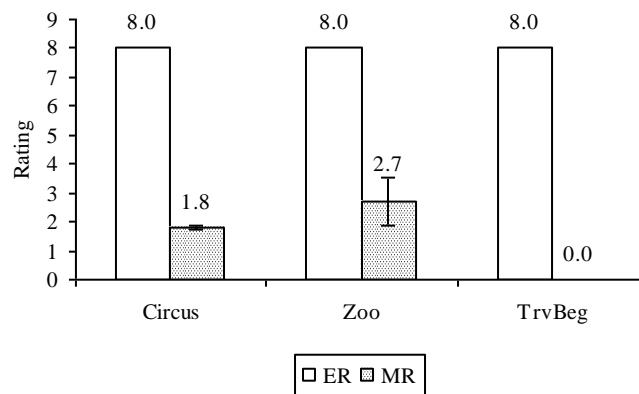


Figure 4: Comparison of rating for mahout change

Shelter

Confinement or restricted availability of space is a feature of captivity, a feature made all the more important considering the long distances traveled (Sukumar, 2003) by wild elephants. In addition the physical space provided may consist of elements not suited to elephant anatomy such as hard floors/ improper ventilation/ poor hygiene maintenance.

- A tent with earthen flooring formed the shelter for all circus elephants (Figure 5a), within which they were tied for a duration of 20-23 hours
- Four zoo elephants had access to a combination of concrete (Figure 5b) /earthen floor, the rest were kept on concrete floors. Shade (through concrete structures/ trees) was available for all except one elephant
- Temple elephants were kept in shelters of concrete (Figure 5c) sheds (aluminum tent for one elephant) with stone or concrete floors. Only one elephant had earthen floor. A mean area of 448 ft² was available for the tied elephants



a



b



c

Figure 5a b and c: Shelter type provided by different regimes

- No shelter facility was available for TrvBeg elephants
- Both in open or closed shelter, the hygiene was bad (Figure 6a and b)



a



b

Figure 6a and b: Shelter hygiene for both open and closed

Difference from E-R, expressed as percentage, was:

- Equal deviation of 49% was noticed for Circus and Zoo elephants
- Comparable difference of 64% and 58% was indicated for Temple and TrvBeg elephants (Figure 7)

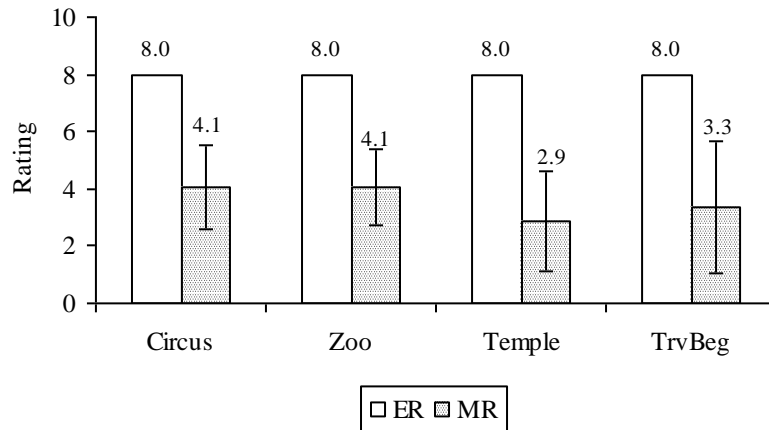


Figure 7: Comparison of rating for shelter

Water

Wild elephants have been reported to drink/ bathe at least once a day (Shoshani and Eisenberg, 1982). Dust-bathing/ wallowing, using rubbing posts are considered important in maintaining skin condition (Kurt and Garai, 2007). Such activities also involve socializing with other herd members. High rating has been assigned for facilities such as availability of rivers and free-ranging opportunity with access to these sources.

- All circus elephants had access to tap water and given in buckets (Figure 8), which was provided for varying number of times. Bathing was done, using scrubbers such as coconut husk, near the tent itself or outside. Water was not tested for its quality
- Zoo elephants accessed pond/ tap water or through water tankers. Elephants were bathed using stone/ brush; water quality tests were not done
- Temple elephants used sources such as river/ lake/ tap water, bathing being done using materials such as soap/ stone/ brush. Water quality tests were done in most places
- TrvBeg elephants were given tap water, depending on availability, bathing place depended on the location of the elephant and availability of water



Figure 8: Source of drinking water

Differences from E-R were as follows:

- Maximum deviation was noticed for TrvBeg elephants (70%)
- Comparable differences were seen for zoo and temple elephants (55% and 58% respectively)
- A deviation of 44% was noticed for circus elephants (Figure 9)

It should be noted that E-R for Circus and TrvBeg elephants was 7.0, and 8.0 for Zoo and temple elephants.

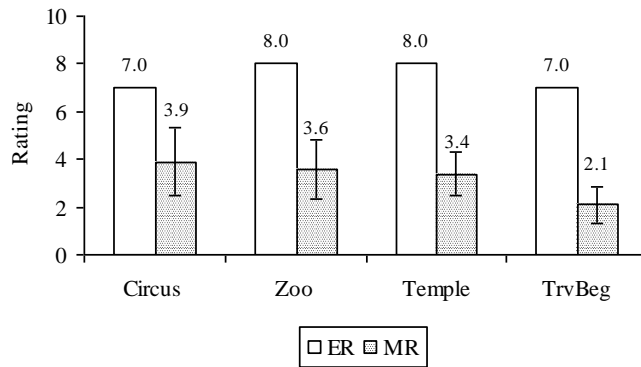


Figure 9: Comparison of rating for water

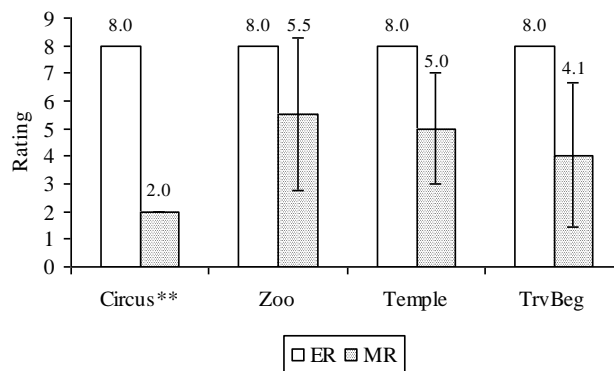
Rest and sleep

- Shelter provided by the tent was also the resting and sleeping place for all circus elephants
- The enclosure/ shelter formed the resting/ sleeping place for zoo elephants
- Temple elephants also used their shelter as resting/ sleeping place
- Resting and sleeping place was random for TrvBeg elephants, with no access to shade.

Opportunity to rest/ sleep in suitable places and for durations need to be decided by the elephants themselves. These activities assume even more importance when working elephants are considered where restrictions are imposed, by people, on the elephants.

Deviation of M-R, from E-R, expressed as percentage was as follows:

- Maximum difference was seen in circus elephants (75%)
- TrvBeg elephants showed a difference of 49%
- A deviation of 38% was noticed for Temple and 31% for Zoo elephants (Figure 10)



** : Rating based on one sub-parameter only

Figure 10: Comparison of rating for water

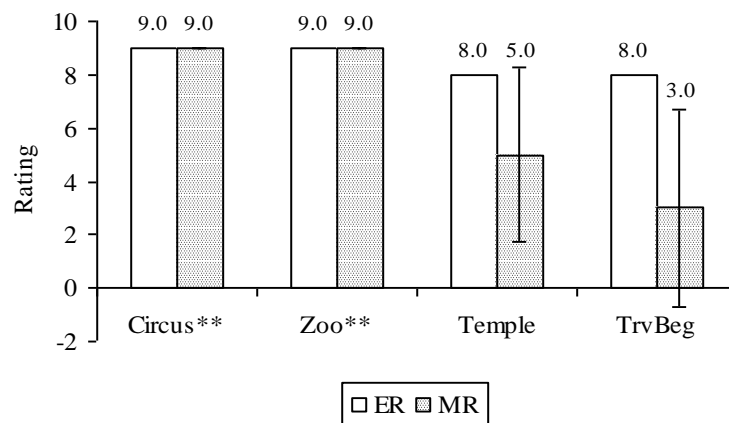
Opportunity to walk

- Circus elephants were walked around the tent in the morning/ evening or at unscheduled times of the day.
- All zoo elephants were allowed to walk in the day
- Temple and TrvBeg elephants were walked on roads

Elephants in the wild are active for most parts of a day, foraging and traveling across varied habitat (Sukumar, 2003; Poole and Granli, in press). Absence of such activity in confined spaces of captivity may have an effect on the physical/ psychological well-being of the elephant. Hence this parameter looks at the activity of walking on suitable substrates considering the duration/ distance covered and time of day for this activity.

Difference between M-R and E-R was:

- Maximum difference was noticed for TrvBeg elephants (63%)
- Temple elephants showed a difference of 38% (Figure 11)
- No difference was seen for Circus/ Zoo elephant (rating was however, based on one sub-parameter only)



** : Rating based on one sub-parameter only

Figure 11: Comparison of rating for walk

Social interaction

Long-lasting relationships across generations (Sukumar, 2003), knowledge of one's relationship with more than one individual in the herd, long period of dependence of young males on their natal herds (Poole and Moss, 2008) are all characteristics of elephant society implying its integral nature to the survival and well-being of the animal.

Opportunity to interact, age-sex of individuals in the group, duration allowed for such interaction and distance between individuals were aspects considered for this parameter.

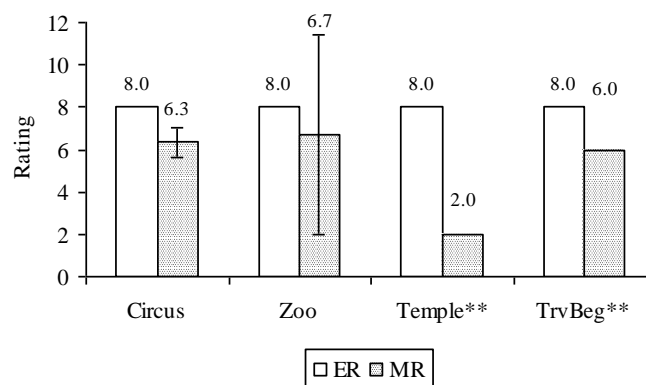


Figure 12a and b: Interactions among the elephants kept in open (a) and closed enclosures (b)

- Except for a few circus elephants, all were allowed to interact (Figure 12a and b) with group size varying from 2-4 individuals. However, this interaction was circumscribed due to the practice of chaining all the animals
- Interaction was allowed for zoo elephants with group size being 1-2 individuals and for varying duration
- Temple elephants were allowed interaction subject to availability of other elephants during special occasions such as festivals
- Except for one, TrvBeg elephants were allowed interaction with limited number of individuals (two) and at night.

Difference of M-R from E-R was:

- Maximum deviation was observed for temple elephants (75%), rating was however based on single sub-parameter
- Likewise, based on rating for single sub-parameter, difference was 25% for TrvBeg elephants
- Comparable differences were noticed for Circus (21%) and Zoo (17%) elephants (Figure 13)



** : Rating based on one sub-parameter only

Figure 13: Comparison of rating for social interaction

Chaining

- Most circus elephants were chained in more than one region, with some being restrained by spiked chains. None were allowed to range-free at night during non-working hours
- All zoo elephants were chained (Figure 14a), spiked chain or chaining of more than one region of the body was practiced for most of the elephants
- All temple elephants were restrained using chins (Figure 14b) /some of with spike chains/ by being tied in more than one region of the body, none were allowed to range free at night
- TrvBeg elephant were all chained when not working, spiked chain being observed for most of them

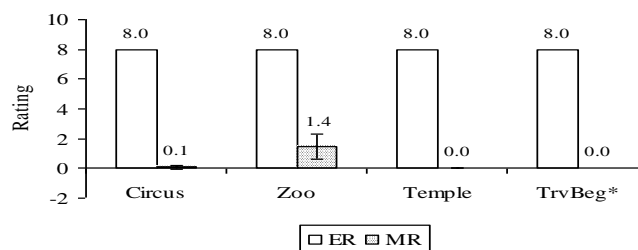


Figure 14a and b: Chaining of elephants in two different regimes, note concert floor, chained for most of the day

Restriction of free movement through the practice of chaining can have adverse effects on the elephant with increased incidence of stereotypy observed among chained elephants (Gruber et al., 2000), occurrence of chain related skin injuries (Kurt and Garai, 2007).

Deviation from E-R was as follows:

- Temple and TrvBeg elephants showed 100% deviation, however, rating for TrvBeg elephants was based on two sub-parameters only
- Deviation for circus elephants was 99%
- A deviation of 82% was observed for zoo elephants (Figure 15)



*: Rating based on two sub-parameters only

Figure 15: Comparison of rating for chaining

Observed behaviour

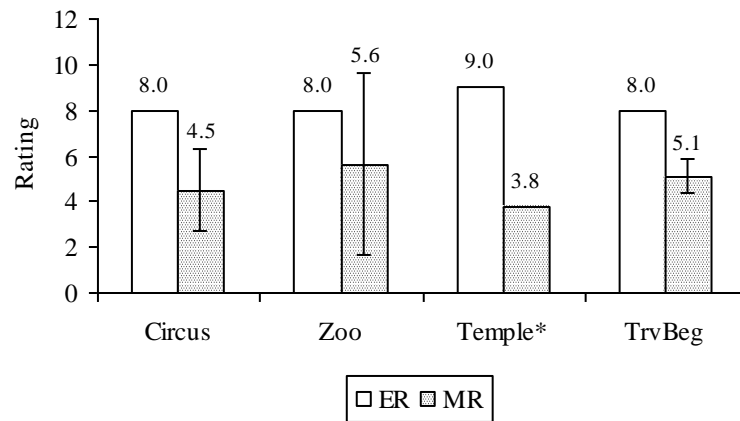
- Most circus elephants were described as quiet with two elephants said to be aggressive, all the observed elephants were said to exhibit stereotypy
- Except for one, Zoo elephants were described as quiet. The one elephant was said to be nervous/ aggressive. Most also exhibited stereotypy
- Temple elephants were described as quiet but undependable, with aggression exhibited by one elephant.
- TrvBeg elephants were mostly quiet with one elephant said to be nervous/agitated and two, of the four observed, exhibiting stereotypy.

The temperament of an elephant provides information on the ease of handling the animal as well as its sense of ease in prevailing conditions (to a certain extent). The

occurrence of abnormal behaviours such as stereotypy/ aggression has been noticed in captivity (Bradshaw, in press).

Deviations from E-R were:

- Maximum difference was seen in Temple elephants (58%) followed by Circus (44%)
- TrvBeg elephants showed a deviation of 36%
- A difference of 30% was observed for zoo elephants (Figure 16)



*: Rating based on two sub-parameters only

Figure 16: Comparison of rating for observed behaviour

Work type

- Circus elephants performed (Figure 17a) on most days of the week throughout the year in places where the circus was located
- Zoo elephants were not made to work
- Temple elephants performed temple duties, participated in festivals, some were hired wedding functions/ to take part in movies. No rest/ shade was available for most elephants, food was provided while working
- All TrvBeg elephants walked and begged (Figure 17b) throughout the day. Some were hired to take part in festivals/ temples/ wedding functions/ filming movies. Providing joy rides was also undertaken throughout the day.



Figure 17a: Circus elephant decorated before the performance

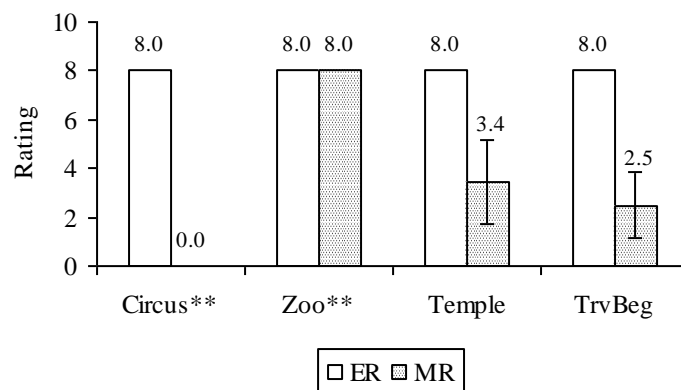


Figure 17b: Begging elephant, trained to be beg money from public

The nature of work, place of work, and restrictions imposed on working elephants in their ability to choose when to rest/work are crucial in maintaining the animal's health and well-being. High rating has been assigned to work that is similar to the animal's behaviour in the wild, in natural forest conditions.

Deviation of M-R from E-R was:

- Zoo elephants showed 100% concurrence with E-R
- Circus elephants showed a deviation of 100% (rating was based on one sub-parameter only)
- Temple (57%) and TrvBeg (69%) showed comparable differences (Figure 18)



** : Rating based on one sub-parameter only

Figure 18: Comparison of rating for work

Food and feeding

- All circus elephants were provided stall feed only in the shelter itself, throughout the day with hygiene said to be good in most places. 4-7 types of food was provided, ration charts were not used
- Stall feed only was provided for all zoo elephants within their enclosure/shelter, hygiene was said to be good. 4-5 types of food was given, a few zoos practiced usage of ration charts

- Temple elephants were given only stall feed (at least 4 types) in their shelter, ration charts were not used
- TrvBeg elephants were also given only stall feed with most also depending on the food provided while begging, feeding place depended on availability of food, no ration chart was used.

Wild elephants have been observed to feed on numerous types of plants (McKay, 1973), the range maybe difficult to duplicate by stall feeding. Also elephants make use of different parts of their body as they forage (Kurt and Garai, 2007) — activity which maybe limited/ lead to overuse of certain parts only when they are provided stall feed. In captivity, hygiene of the feeding place needs to be maintained and hence, has been considered. Ration chart maintenance is important in terms of management of health of the animal.

Difference from E-R was:

- Comparable deviation was observed for Circus (91%), Temple (88%) and TrvBeg (97%) elephants
- A difference of 58% was noticed for Zoo elephants (Figure 19)

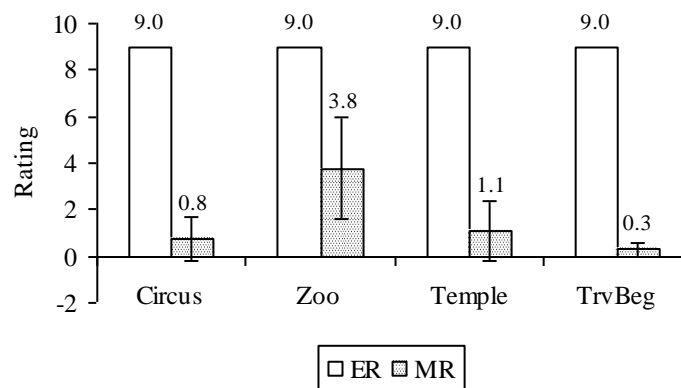


Figure 19: Comparison of rating for food and feeding

Reproductive status

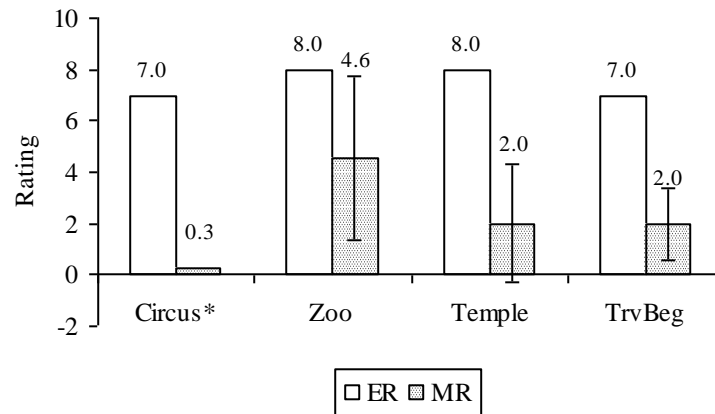
- None of the circus elephants, except for a single adult female, was provided opportunity to breed, despite presence of individuals of opposite sex in one circus. Male during musth (one in number) was isolated
- Of the three adult females in different zoos, only two were allowed to mate with a calf being born to only one female. The single male was said to be aggressive during musth and kept separately
- Oestrus cycles and musth was said to occur for temple elephants, none of them had been exposed to individuals of opposite sex, males in musth were isolated and chained
- All the female TrvBeg elephants had been exposed to male elephants, but had resulted in unsuccessful mating; the male elephant had not been exposed to females.

Normal reproductive functioning has been observed among individuals in good physical health (Kurt and Garai, 2007), abnormal reproductive activity maybe

associated with chronic stress, harsh handling (Clubb and Mason, 2002) or simply absence of individuals of opposite sex.

Deviation from E-R was as follows:

- Comparable difference was observed for Temple (75%) and TrvBeg (71%)
- Circus elephants indicated a deviation of 96% (rating based on two sub-parameters only)
- A deviation of 43% was observed for Zoo elephants (Figure 20)



*: Rating based on two sub-parameters only

Figure 20: Comparison of rating for reproductive status

Health status and veterinary routine

- Due to the unnatural surrounding and daily routine, most of the elephants kept in the state have one or more health problems and injuries (Figure 21a,b, c and d) due to the environment provide to them.
- All circus elephants had experienced regularly or frequently stomach related problems with seven of the 18 elephants said to be having foot problems. Most elephants were dewormed and immunized with oiling being practiced for all animals. Body measurement were taken for any, sample tests of blood/ dung/ urine was not done for most elephants

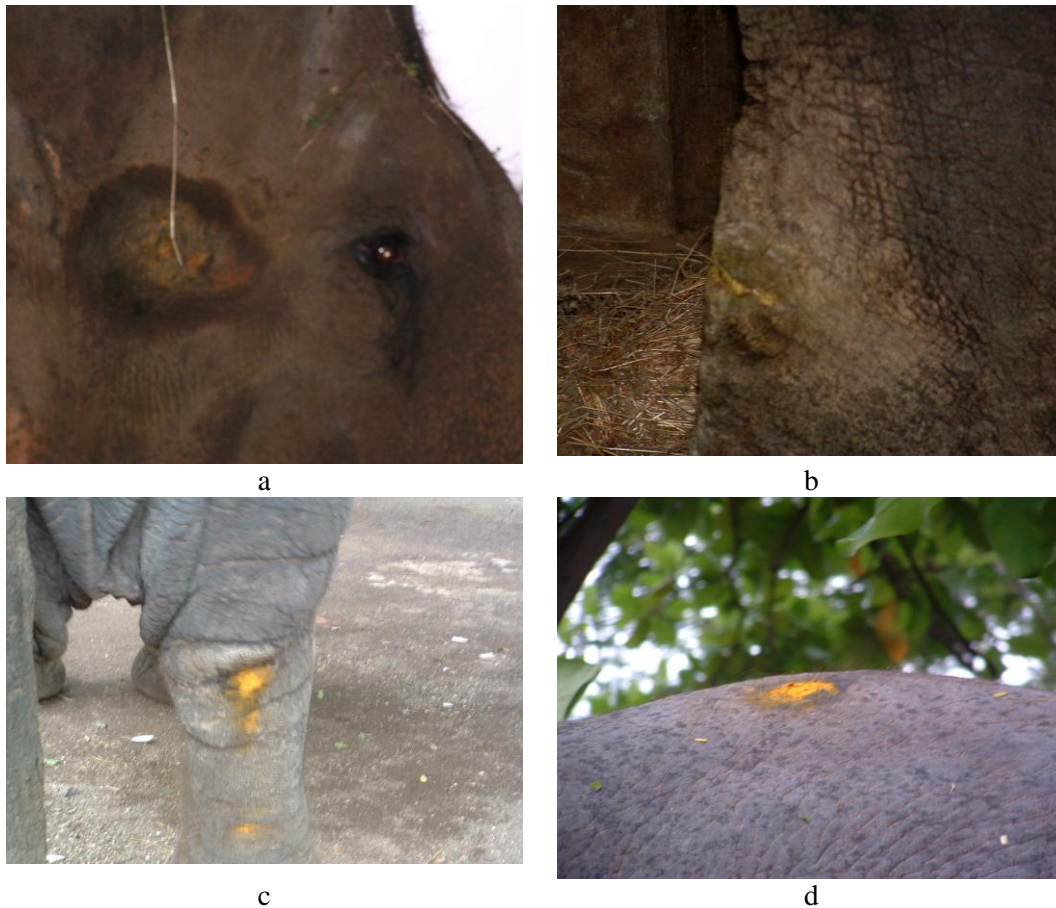


Figure 21a, b, c and d: Injuries reported in different parts of body of elephant kept under different regimes

- Stomach problems was said to occur frequently for all zoo elephants with three animals experiencing foot problems. Leg problems were observed in most of the elephants, none had been immunized. Deworming and oiling was done for most, sample tests and record maintenance was not common. A previous report on the health of zoo elephants (Cheeran, 2004) dealt with four elephants (three adult females and a 14 yrs old male) in Mumbai Zoo. When the earlier report was compared with the present health status, foot problems (nail cracks) continued to recur among the animal.
- Only two temple elephants (N= 5) had been dewormed, none had been immunized with oiling being done for a few, sample tests were not done for most and body measurement were not taken for any for which data was available
- Stomach problems of frequent occurrence were observed for TrvBeg elephants, deworming/ vaccination/ sample tests/ body measurements was not practiced for any.

Poor health may lead to reduced welfare when the elephant becomes unable to perform its activities normally/ experiences pain/ distress. Captive conditions necessitate availability of veterinary care and practice of basic routines in maintaining health.

Percentage deviation from E-R was:

- Maximum deviation was noticed for TrvBeg elephants (79%)
- Comparable difference was seen for Circus (54%) and Zoo (56%) elephants
- A difference of 62% was noticed for Temple elephants (Figure 22)

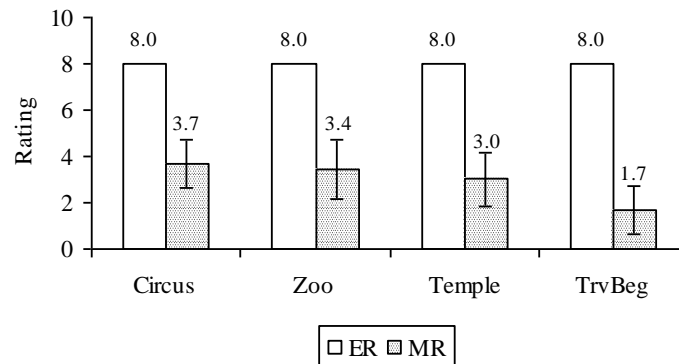


Figure 22: Comparison of rating for health status and veterinary routine

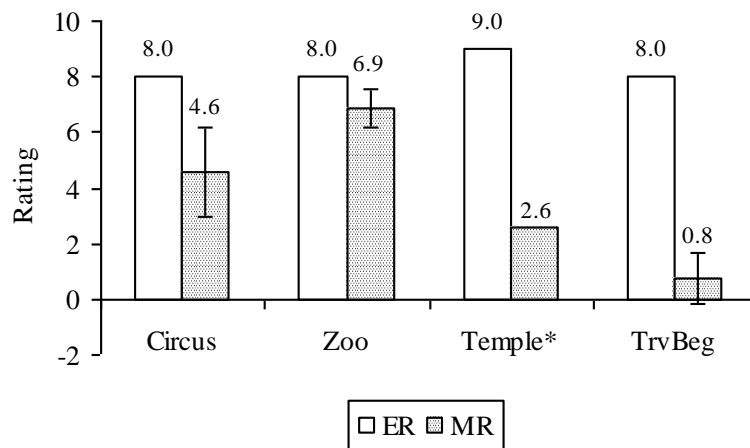
Veterinary personnel and infrastructure

- Most circus elephants had access to a veterinary doctor, with only one having experience in treating elephants, veterinary assistant was not available, records were maintained
- All zoo elephants were visited by veterinary doctors, veterinary assistant and clinic facility was available for most, and records were maintained
- Only two of the observed (N= 5) temples had access to a doctor with only one having experience in treating elephants, veterinary assistants were not available; except for one temple, all others were not maintaining records (service/ clinical/ others). Clinical records were maintained by the temple.
- Except for one elephant, veterinary doctor's service was not available for any of the TrvBEg animals, none of the elephants had access to clinic facilities and records were not maintained.

Availability of veterinary doctors/ assistants, with experience in treating elephants, along with relevant infrastructure is integral to maintaining health of captive elephants. In addition record keeping forms an equally important aspect, as its absence implies lack of interest and gives room for potential improper treatment.

Difference from E-R:

- Maximum deviation was noticed for TrvBeg elephants (91%)
- Temples indicated a difference of 69% (based on rating of two sub-parameters only)
- A deviation of 40% was seen for Circus elephants
- Zoos showed a difference of 11% (Figure 23)



*: Rating based on two sub-parameters only

Figure 23: Comparison of rating for veterinary personnel and infrastructure

Welfare status of handlers (mahouts/ cawadis)

Elephant handlers are an integral part of a captive situation. Their welfare status, i.e., their socio-economic profile, may be associated with better management of elephants. Professional experience of handlers has a direct association with the welfare of elephants cared by them.

Professional experience

- Age and experience of handlers dealing with elephants (Figure 24a,b,c, and d) varied across the regimes

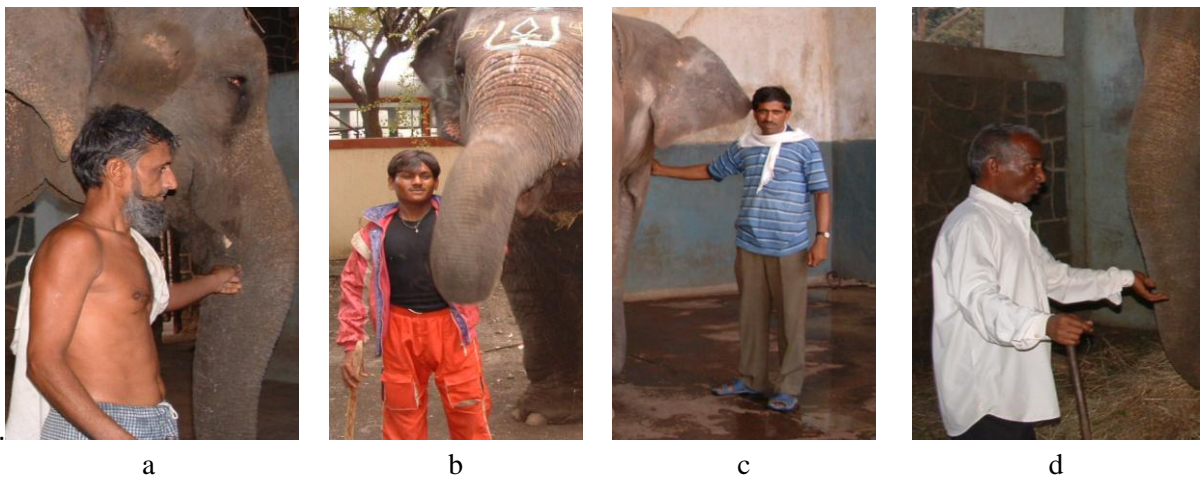


Figure 24 a, b, c, and d: Profile of handlers engaged by different management system

- Experience in this profession for Circus handlers ranged from 7-30y with experience with a specific elephant being 0.5-30y. Most joined this

profession without any interest/ previous family history, all of them used stick pike/ wooden pike to control his elephant

- For zoo handlers, experience in this profession ranged from 3-35y, with experience of handling a specific elephants ranging from 3-20y. Most had joined from sense of interest. Knowledge of commands was said to be good with everyone using tools (Ankush, stick pike, metal stick) to control his elephant
- Temple handlers experience in this profession ranged from 3-50y, experience with a specific elephant ranged from 4-40y. Most opted for this profession as it was a family occupation. All of them used tools— ankush, stick pike.
- Handlers of TrvBeg elephants experience in this profession and with a specific elephant ranged from 6-20y. Of the three, two handlers had opted out of interest for this profession. Their knowledge of commands was good and all used tools— Ankush, stick pike

Greater experience in this profession, in terms of years spent as a mahout/ cawadi or with a specific elephant implies knowledge of handling elephants. In addition, a person choosing to become a handler from a sense of interest may perform his duties with greater care. Mahouts/ cawadis with good knowledge of commands can also help in managing/ interacting better with their elephants. These factors were rated for this parameter.

Difference from E-R for this parameter was as follows:

- Zoo and Temple handlers showed comparable deviations of 51% and 54% respectively
- Circus and TrvBeg handlers showed comparable difference of 35% and 37% respectively (Figure 25).

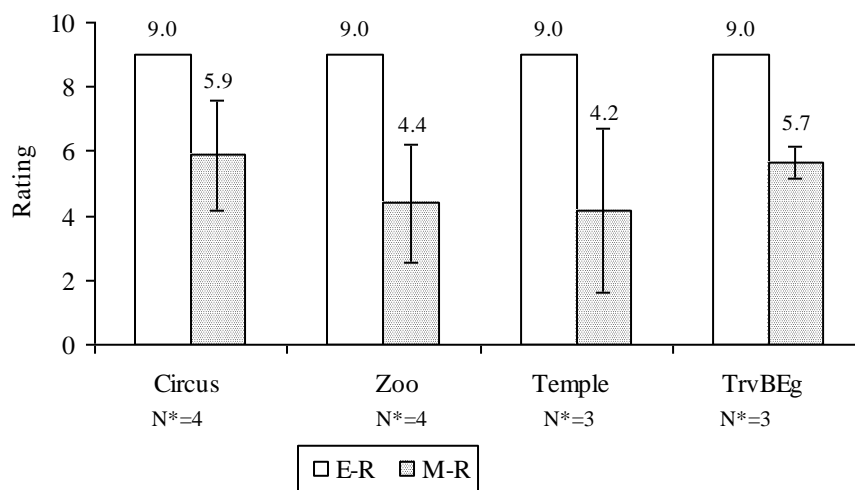


Figure 25: Comparison of rating for professional experience

Socio-economic status

- Most circus handlers were not educated, were paid a salary of Rs. 2500 – 3500/ month, supported a family with 1-7 children, most were not covered by any insurance scheme, had a previous record of working with 20 -30 elephants
- All zoo handlers were educated, earning a salary of Rs.5000-9500/- per month, supporting a family of 2-6 children, all had insurance cover
- All Temple handlers were educated, earned Rs.1000-5000/ month, supported a family with 2-4 children, most had insurance cover, all abstained from consuming alcohol
- None of the TrvBeg handlers was educated, earned Rs. 3000-8000/ month, and had no insurance cover.

Relevant features such as salary drawn, number of children, education level, insurance availability etc., were considered.

Deviation from E-R was as follows:

- Maximum difference was observed for TrvBeg handlers (92%) which was however, based on fewer sub-parameters
- Circus handlers indicated a difference of 62% (with a lower E-R)
- Comparable deviations (Figure 26) were noticed for Zoo and temple handlers (28% and 27% respectively)

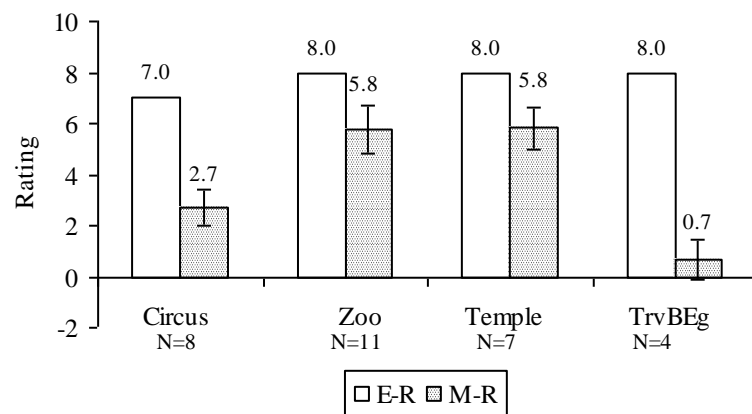


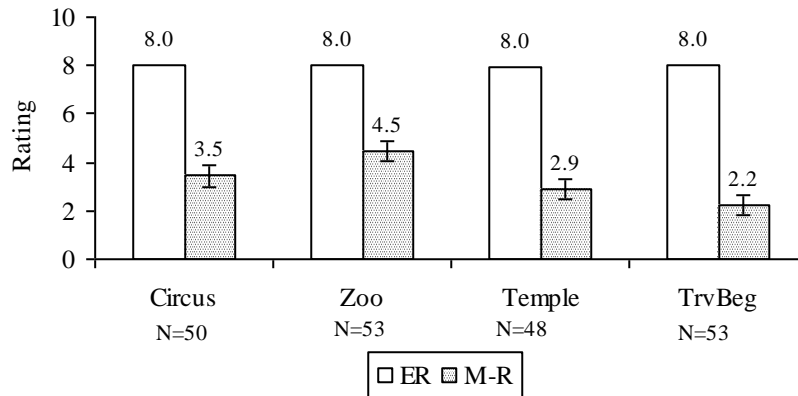
Figure 26: Comparison of rating for socio-economic status

Overall rating patterns for elephants

Elephants experience captivity as a set on interrelated features. Hence, each individual rating for each sub-parameter for that institution was considered together to provide an overall Mean Rating (M-R).

Deviation from E-R, expressed as percentage, was as follows:

- Maximum deviation was observed for TrvBeg elephants (72%)
- Difference was noticed for Circus (57%) elephants
- Temple elephants indicated a difference of 64%
- A deviation of 44% was seen for zoo elephants (Figure 27)



N: refers to total number of sub-parameters observed

Figure 27: Comparison of overall M-R with E-R across all regimes

Discussion

Moss and Lee (in press) suggest maintaining elephants in captivity by keeping the animal's needs in mind. These needs can be based on the knowledge gained from studies of wild elephant behaviour.

This report assesses the welfare of captive elephants across regimes by rating parameters based on the differences observed between wild and captive animals. The greater the difference, the lesser is the rating (M-R).

The ratings above seem to suggest Zoo elephants to be in a better welfare status than the other institutions/ keeping systems. However, closer examination reveals occurrence of variation within each of the parameters observed. For most parameters, there was overlap of standard error (SE) values among all the institutions/ regimes observed. Of the fifteen parameters observed, SE values greater than one ($SE > 1.0$) were observed for 11 parameters (72%) for circus elephants, eight (61%) for Zoo elephants (total thirteen parameters), seven (47%) for Temple and five (33%) for TrvBeg elephants. This indicates occurrence of non-uniformity in the facilities provided and in the intrinsic nature of the animal.

The parameters where SE values indicated overlap of rating across institutions were (institutions in parenthesis indicate their M-R was based on more than two sub-parameters while M-R for those excluded was based on one/two sub-parameter/s only):

- Source of elephants
- Purpose of keeping
- Shelter
- Water
- Rest and sleep
- Opportunity to walk (Temple and TrvBeg elephants only)
- Social interaction (Circus and Zoo elephants only)
- Observed behaviour (Circus, Zoo and TrvBeg elephants only)
- Work Type (Temple and TrvBeg elephants only)
- Food and feeding
- Reproductive status (Zoo, Temple and TrvBEg elephants)
- Health status and veterinary routine

All the above features showed variation (both positive and negative) implying overlapping standards in the facilities provided. This overlap was also observed for the parameters intrinsic to elephants: behaviour and reproductive functioning.

Professional experience of mahout/cawadi varied across all regimes observed, SE >1.0 for all except TrvBeg handlers. This implies non-uniformity in the parameters relating to handling elephants within each regime. TrvBeg handlers seemed to fare poorly when socio-economic status was considered, with availability of information this may change. Poor socio-economic status as indicated by low M-R (greater deviation from E-R) was observed for circus handlers. This assumes importance when seen from the perspective of percentage deviation (62%) which was more than that of zoo or temple handlers, despite a lower E-R for circus.

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Section 2: Captive Elephants in Zoos

Executive Summary

This study investigates the welfare status of the captive situation of elephants and their handlers in three zoos in the districts of Thane, Mumbai and Byculla in Maharashtra.

Data was collected through observation and interview of personnel/ management. Each of parameter investigated has been rated on a zero to ten scale with zero representing the worst possible situation and ten implying a satisfactory state, closer to what an animal experiences in the wild.

Ratings were graded in the following manner:

- 0 – 2.4: Bad welfare conditions
- 2.5 – 4.9: poor
- 5.0 – 7.4: moderate
- 7.5 – 10.0: satisfactory

Seven elephants, six females and one male, belonging to three zoos were observed. The zoos were in Poona, Mumbai and Aurangabad. Mean age of the animals was 23.9 yrs with females ranging from 8 – 46 years. The single male was aged 18 yrs. Of seven elephants five were transferred from other institutions, one had been captured and one was captive born. Ratings for source of animal was 3.2

The elephants are kept for commercial use. Rating for purpose of keeping was 0.71 with only two animals, belonging to the Poona zoo, said to be kept in natural physical environment.

Mean number of mahouts changed was 3.0; mean rating was 3.4 with 60 % of the animals having at least two mahout changes. Frequent changes in mahout/ handler entail adjustments with a new handler and breakage of the bond with the previous handler. This may be a source of stress to the animal.

All the elephants had access to cement enclosed shelters, size was 625 sq.ft for Mumbai zoos; Poona zoo enclosure size was 8 acres, four elephants had a mix of concrete and earthen flooring, three elephants had only concrete floor. Mean ratings for this parameter was 3.7 with 61 % of all the values getting a rating less than five.

Mumbai and Aurangabad zoo used tap water for drinking/ bathing the animals, Poona zoo had access to water tankers from the local Municipality and Pond was available at Aurangabad zoo. Mean rating for water related parameters was 4.7 indicating occurrence of poor conditions for water availability.

All the elephants had opportunity to interact, mean number of individual was 1.2 and duration among individuals for interaction was 15.2 h. Mean rating was 8.3.

Only elephants from Poona zoo were allowed to range free with two front legs shackled, all the elephants were chained at the leg, four with spiked chains and mean chaining duration was 13.5 h. Mean rating was 1.8 with 85 % of the values getting a score less than three, implying occurrence of bad chaining conditions.

All the observed elephants were not used for performing work. Hence, rating was 10.0

One female elephant is exposed to a male traveling & begging elephant did not breed, one female is not cycling/ bred, one female has given birth. Mean rating was 5.8 with values occurring in two extremes: zero or ten.

All the elephants were said to experience stomach pain frequently, foot injury (toe nail cracks/ lameness) was seen in three animals, one female has eye injury and blood/urine/dung testing was done for three of the elephants. Mean rating was 4.7 with 55 % of all the rating getting a score less than three

All the elephants had access to a veterinary doctor, with mean elephant experience of 10.7 yrs, visits of the doctors were daily or weekly and all the zoos had access to a clinic. Mean rating was 8.9 indicating satisfactory conditions.

There were six handlers for the seven elephants observed. Ratio of elephant to mahout varied from 1:1 to 2:1. Mean age of mahout was 46 yrs. overall mean rating for the mahout was 7.0 implying moderate conditions of welfare.

The overall mean rating, across all parameters for welfare status of zoo elephants, was 5.7 with 43 % values getting a rating less than five. There was variation in the conditions available to the elephants among the zoos. Thus, 45 % of the sub-parameters showed different rating among zoos, while the rest indicated uniformity in captive conditions.

Introduction

Elephants in zoos are said to be maintained for various reasons: to create awareness about the animal, for conservation purpose, as a center to artificially breed and strengthen the gene pool of a species. Whatever maybe the purported objective, the species specific needs of the captive animal have to be met for the animal to maintain its overall welfare.

Objective

- To study the captive situation of elephants in three zoos in the districts of Thane, Mumbai and Byculla in the state of Maharashtra for the welfare status of the animals.
- To study the welfare of the mahout/ cawadi
- To provide a measure of the welfare status by grading different features of the captive condition and of the animals/ handlers.

Method

The basis for measuring welfare has been to look at the deviations, in captivity, experienced by an elephant as opposed to that experienced in the wild state. This approach looks at the biology of the elephant and its natural history as a way of determining the differences in experiences and consequently welfare (Stroud, in press). Captive conditions of the elephant has been assessed using several aspects such as its housing, food provided, opportunity for exercise/ social interaction, reproductive and health status, occurrence of stereotypy, etc. Data was collected through observation and interview of personnel/ management. Each of these features or sub-parameters has been rated on a zero to ten scale with zero representing the worst possible situation and ten implying a satisfactory state, closer to what an animal experiences in the wild.

Ratings were graded in the following manner:

- 0 – 2.4: Bad welfare conditions
- 2.5 – 4.9: poor
- 5.0 – 7.4: moderate
- 7.5 – 10.0: satisfactory

Some sub-parameters such as availability of veterinary doctors, frequency of visits by the doctor, etc, the ideal condition represents ease of access and prevalence of features conducive to maintaining elephant health. Sub-parameters representing a particular feature such as shelter or water have been grouped together to form a parameter. Rating for a parameter is the mean across the sub-parameters. Graphs representing percentage occurrences of rating from zero to ten for each sub-parameter have been included. Graphs depicting rating for sub-parameters have been given. The welfare status of mahouts/ handlers has been assessed by looking at socio-economic parameters. Along with this, the handler's experience with elephants and attitude towards them has been included. Rating scale for handlers is the same as for elephants.

Result

Population status

Seven elephants, six females and one male, belonging to three zoos were observed and data collected on various aspects of their captive condition. The zoos were in Poona, Mumbai and Aurangabad. Ratings presented are across individual zoos. Mean

age of the animals was 23.9 yrs (SE = 6.1, N = 7) with females ranging from 8 – 46 years. The single male was aged 18 yrs.

Source of elephant

- Of seven elephants five were transferred from other institutions: three from Orissa and Assam state zoo and two from circuses. One, Saraswati, 40yrs., had been captured and one, Laxmi, 11 yrs., was captive born.
- Age at transfer ranged from 4 – 15 years.
- Mean duration of stay within Maharashtra was 9.6 yrs. (SE =3.3, N = 5).

Elephant society, especially of females, represents a network of relationships across a number of individuals which are stable across time and space (Sukumar, 2003). With this background, the shifting of elephants across zoos or institutions implies breakage of social bonds and / or introduction of unknown animals into an established group, leading to stress among the animals. Hence, a low rating indicates that the animal has been shifted across facilities. Rating was 3.2 (SE = 1.2, N = 7) with only one elephant reported to have been born in captivity and remaining within the same institution.

Purpose of keeping

Low rating implies that the animals are being kept in an un-natural physical environment for commercial use. Rating was 0.71 (SE = 0.5, N = 7) with only two animals, belonging to the Poona zoo, said to be kept in natural physical environment.

Mahout changes

- Mean number of mahouts changed was 3.0 (SE= 1.3, N=5).

Frequent changes in mahout/ handler entail adjustments with a new handler and breakage of the bond with the previous handler. This may be a source of stress to the animal. Mean rating was 3.4 (SE = 1.0, N = 5) with 60 % of the animals having at least two mahout changes.

Shelter

- All the elephants had access to cement enclosed shelters.
- Size varied from 200 ft. to 625 sq.ft within this space for Mumbai and Aurangabad zoos; Poona zoo enclosure size was 8 acres
- Poona zoo had a closed type shelter: 16'X20'X30'
- Four elephants (of two zoos) had a mix of concrete and earthen flooring
- Three elephants (Mumbai zoo) had only concrete floor
- The elephants were kept for a mean duration of 18.1 hrs (2.1, N =7) within the shelter. Outside their shelter, they were kept for a mean duration of 8.4 hrs (SE = 1.3, N = 7).
- The shelter was cleaned an average number of 1.9 times (SE = 0.2, N = 7) using broom, stone, disinfectant.
- None of the zoos reported seasonal variation in temperature

The housing conditions were rated across several sub-parameters. Mean ratings for this parameter was 3.7 (SE = 1.7, N = 5) with 61 % of all the getting a rating less than five (Figure 1).

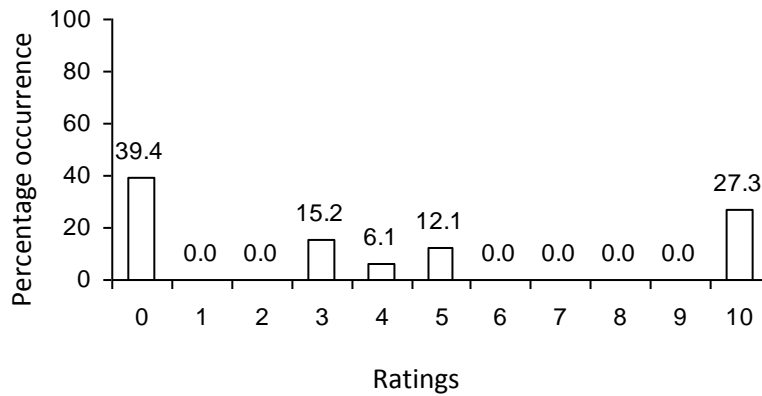


Figure 1: Percentage occurrence of ratings for shelter

Based on the provision to range free in a natural environment, ratings have been assigned. Low rating show occurrence of structurally enclosed space with restricted movement. Rating was 2.9 (SE = 0.28, N = 7) with only two elephants getting a rating more than three. Hard substrates cause several foot related problems among captive animals (Rajankutty, 2004). Rating was 2.9 (SE = 1.0, N = 7) with all the animals getting a rating less than six as all the elephants were exposed to hard floors during some part of a day. Shelters with a regular cleaning routine were given high ratings (Figure 2). Rating was 10.0 (SE =0.0, N =7).

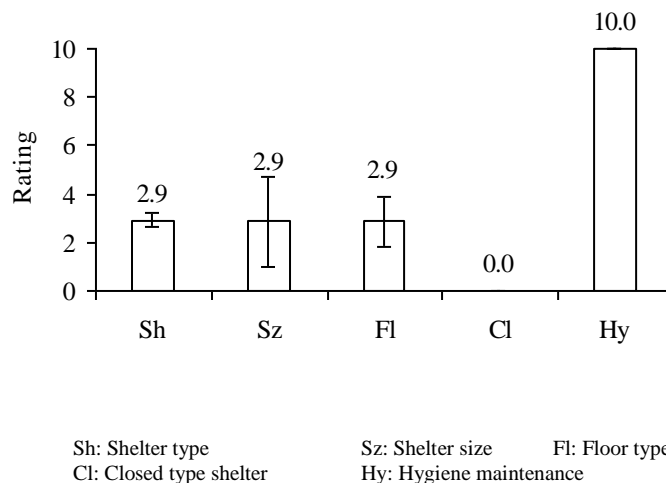


Figure 2: Ratings for shelter related parameters

Water

- Mumbai and Aurangabad zoo used tap water for drinking/ bathing the animals
- Poona zoo had access to water tankers from the local Municipality
- Pond was available at Aurangabad zoo
- The animals were said to drink 5 times/ day (SE = 1.1, N =7).
- Water quality test were not done for any of the zoos
- Duration of bath was 1.7 hrs (SE = 0.2, N = 7), materials used as scrub were stone or brush

Availability of running water, ease of accessibility, testing for water quality are a few sub-parameters considered for rating water. Mean rating was 4.7 (SE = 1.5, N= 6) indicating occurrence of poor conditions for water availability (Figure 3).

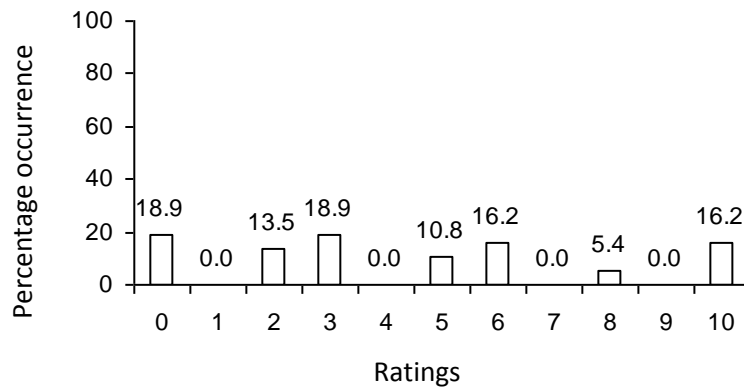
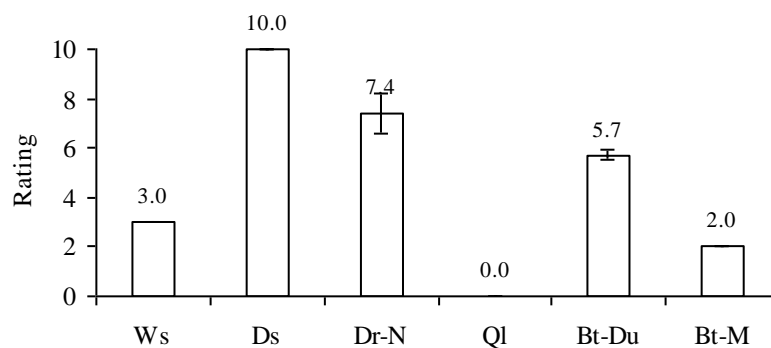


Figure 3: Percentage occurrence of rating for water

Running water sources may not be as contaminated as stagnant water. Hence, this has been considered as a sub-parameter for rating. Rating was 3.0 (SE = 0.0, N =7) indicating use of tap water which is a source of running water but is not accessible to the animal when it needs to drink/ bathe. Shoshani and Eisenberg (1982) mention that elephants drink water at least once a day. Adult elephants are said to drink at least 150 l./ day. Rating for this sub-parameter was assigned depending on whether the animal was ranging free or not. Rating was 7.4 (SE = 0.81, N = 7) indicating that the elephants were drinking water as needed. Bathing elephants for too short/ too long a period maybe counterproductive. This sub-parameter (Figure 4) was graded considering the amount of time the elephant has to range free in a day, before it is brought in by the mahouts for bathing. Rating was 5.7 (SE = 0.2, N = 7) with all the elephants getting a rating between 5.0 and 6.0, considered to represent moderate conditions of suitability to the animal.



Ws: Availability of perennial source of running water
 Ds: Distance to water source
 Dr-N: Number of times drinking water
 Ql: Tests for water quality
 Bt-Du: Bath duration
 Bt-M: Bathing materials

Figure 4: Ratings for water sub-parameter

Rest and sleep

- All the animals were allowed to rest, with access to shade
- The animals were said to sleep for a mean of 3.6 hrs (SE = 1.0, N = 7)

Captive environments should provide for the elephant to rest/ sleep. Kurt and Garai (2007) state that wild elephants rest and/ or sleep during different parts of a day. Rating was 7.3 (SE = 1.3, N = 6) implying moderate conditions for this parameter, with 41 % of all the ratings getting a score less than six (Figure 5).

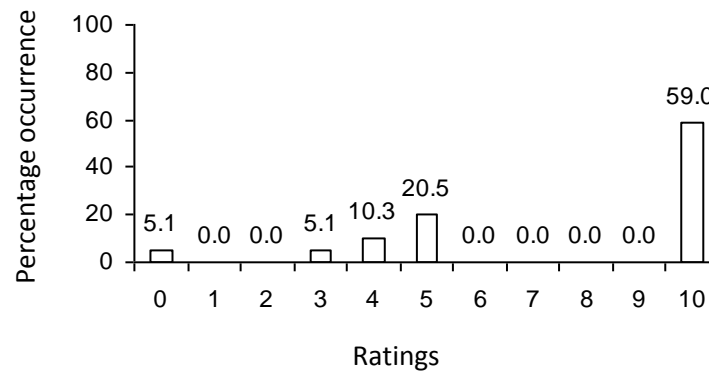


Figure 5: Percentage occurrence of ratings for rest and sleep

All the observed elephants were allowed to rest as they were not made to perform any work. Rating was 10.0 (SE =0.0, N =7). Provision of shade during rest periods was rated. Rating was 10.0 (SE =0.0, N =7) showing that all the animals had access to shade. Excess or little sleep is considered to be indicative of deviation from the normal duration of 3 -4 hours observed among adult animals. Rating was 4.3 (SE = 0.36, N =7) implying poor conditions (Figure 6)

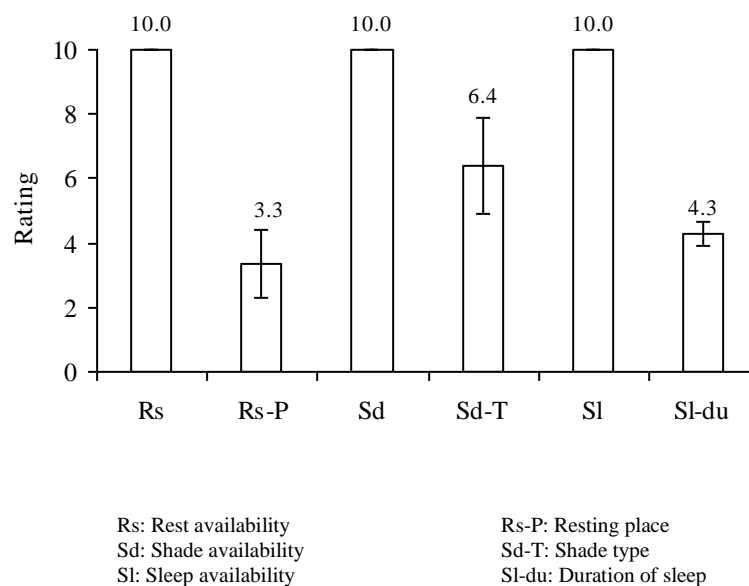


Figure 6: Ratings for rest & sleep sub-parameters

Opportunity to walk

- The animals were allowed to walk during daytime
- Mean distance covered was 2.3 km (SE = 0.7, N =3), mean duration was 2 hrs (SE =0.0, N =4)

Restricting elephants within a confined space or tethering with chains limits the ability to walk and hence exercise. Rating was 10.0 (SE =0.0, N =7) showing that all the observed animals were allowed to walk.

Opportunity for social interaction

- All the elephants had opportunity to interact
- Mean number of individual was 1.2 (SE =0.2, N = 5) and duration was 15.2 hrs (SE = 3.7, N =5)

Female elephants and young males are part of a social network of animals (Vidya and Sukumar, 2005). This parameter was rated considering the opportunity for interaction, group size and distance between animals. Mean rating was 8.3 (SE = 1.7, N= 3) indicating occurrence of interaction among the animals (Figure 7).

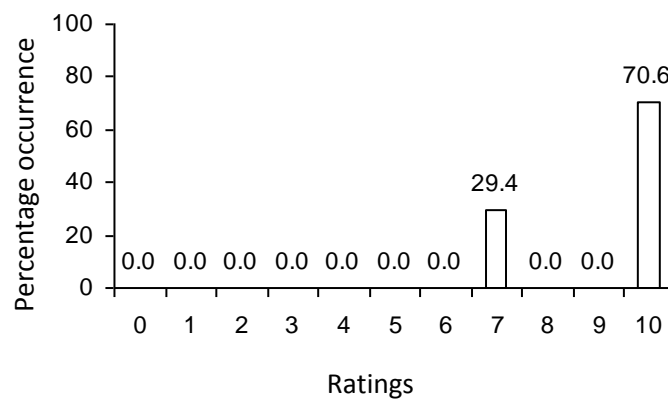


Figure 7: Percentage occurrence of ratings for social interaction

Group size that was similar to the average size observed among wild animals was given high rating. Rating was 5.0 (SE = 0.0, N =5) with a mean size of 1.2 individuals in a group. The presence of animals close to each other to enable touching and feeling another animal was given higher rating (Figure 8). Rating was 10.0 (SE = 0.0, N =5).

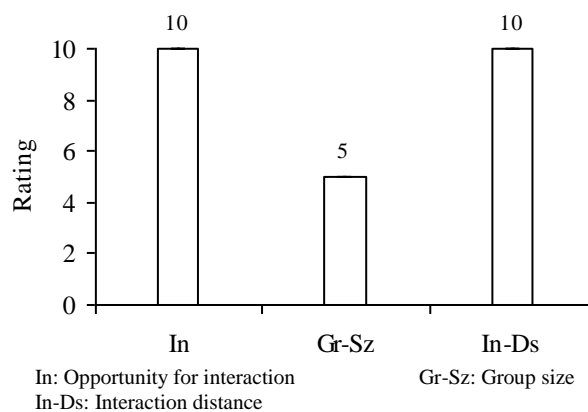


Figure 8: Rating for interaction related parameters

Chaining

- Only elephants from Poona zoo were allowed to range free with two front legs shackled
- All the elephants were chained (N = 7) at the leg, four with spiked chains
- Mean chaining duration was 13.5 hrs (SE = 1.8, N = 6)

Captive elephants are almost universally subjected to having chains, usually restricted in their ability to move. This parameter was rated considering the type and region of chaining, duration and whether the animals were allowed to range free. Mean rating was 1.8 (SE = 0.8, N = 4) with 85 % of the getting a score less than three (Figure 9), implying occurrence of bad chaining conditions.

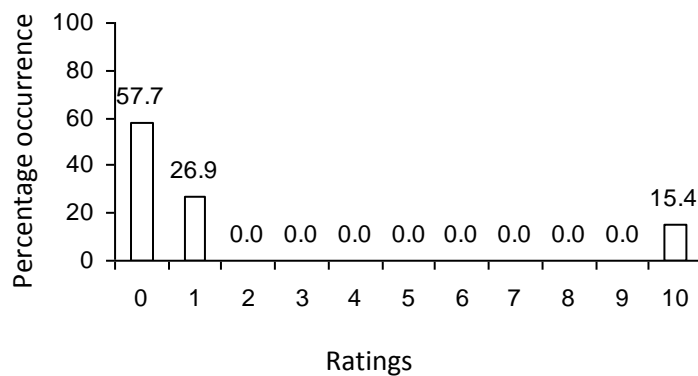


Figure 9: Percentage occurrence of ratings for chaining

Whether the elephants were allowed to range free or not was rated. Rating was 2.9 (SE = 1.8, N = 7) with 71 % of all the getting a rating of zero indicating absence of free ranging opportunity. Only two elephants, belonging to Poona zoo, were allowed to range free in the morning. All the observed elephants were chained during the night for a period of 8 – 12 hours. Ratings (Figure 10) was 0.0 (SE = 0.0, N = 6).

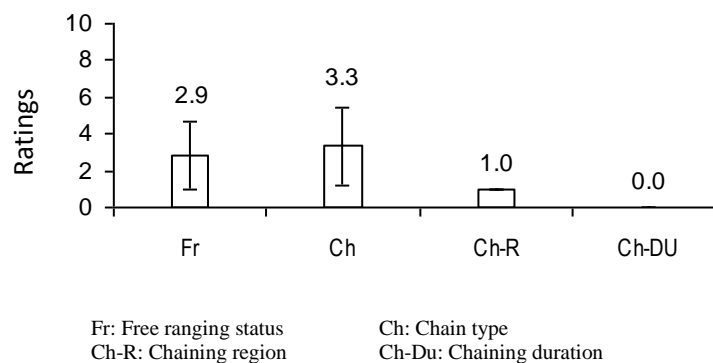


Figure 10: Ratings for chaining related parameters

Observed behaviour

- Six elephants were described as quiet, the male was said to be nervous and undependable
- Male elephant was reported to be aggressive during musth
- Four animals exhibited stereotypic behaviour

This parameter was rated considering the observed personality and occurrence of stereotypic/ aggressive behaviour. Mean rating was 6.7 (SE = 1.9, N = 3) with values occurring in the two extremes: zero and ten (Figure 11).

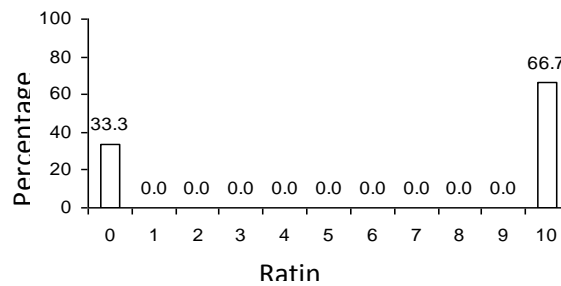


Figure 11: Percentage occurrence of ratings for behaviour

Elephants which were calm/ quiet were given high rating. Mean rating was 8.6 (SE = 1.4, N = 7) with six elephants getting a score of 10 and the male getting a rating of zero for nervous behaviour. Five of the seven elephants were said to exhibit stereotypy, mean ratings (Figure 12) was 2.9 (SE = 1.8, N = 7).

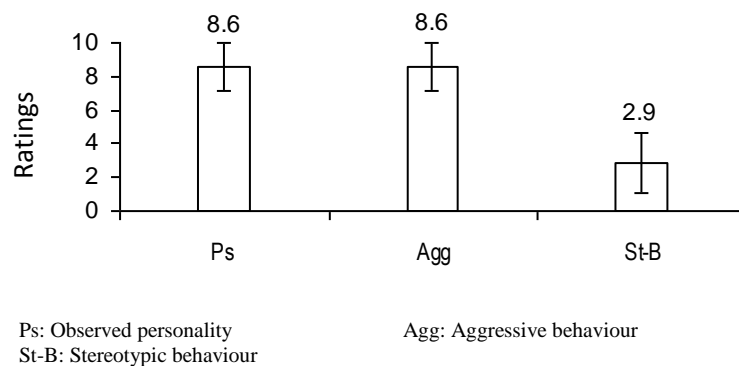


Figure 12: Ratings for behaviour related parameters

Work type

- The animals were given any kind of work

All the observed elephants were not used for performing work. Hence, rating was 10.0 (SE = 0.0, N =7).

Food provisioning

- All the elephants were given stall feed only
- Mean duration of feeding was 18 hrs (SE = 3.7, N =5).
- Food provided: Sugarcane (*Sacharum* sp.), Carrots, Green grass, Dry grass, Rice straw, Jaggery, rice, Kadba, Lucerne (*Sisyrinchium* sp.) grass, fruits, bread
- Two zoos (Mumbai and Aurangabad) provided mineral mixture
- Aurangabad zoo did not maintain ration chart

Captive elephants depend on their keepers for the amount and kind of food provided. Also, opportunity to range free for browse/ graze is limited. Such conditions are given

low rating. Overall mean rating was 4.6 (SE = 2.2, N = 4) implying occurrence of poor conditions (Figure 13).

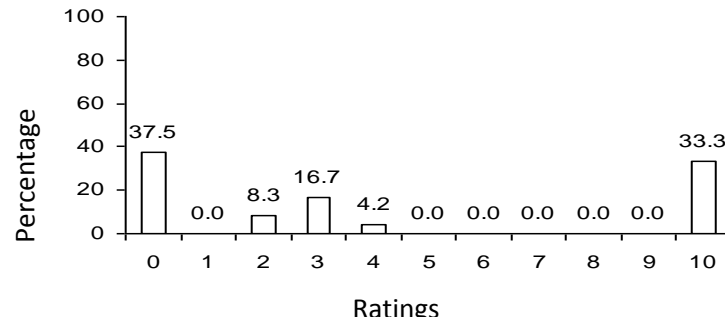


Figure 13: Percentage occurrence of ratings for food provisioning

High rating was given if the animals were allowed to range free and supplemented with stall feed. Mean rating was 0.0 (SE =0.0, N =7 showing absence of free range to browse/ graze. In the absence of an opportunity to range free, all food items have been given a lower rating. Mean rating was 2.6 (SE = 0.2, N =7). Mean rating was 6.0 (SE = 2.5, N = 5) with no reported usage for two animals (Figure 14).

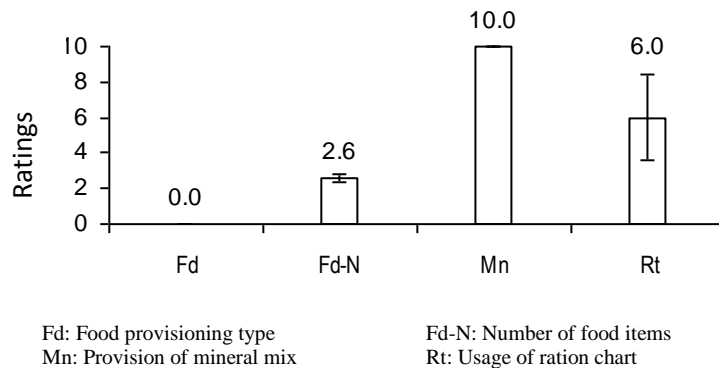


Figure 14: Ratings for food related parameters

Reproductive status

- Anarkali, female, 35 yrs., exposed to a male traveling & begging elephant, did not breed
- Laxmi, 46 yrs., not cycling/ bred earlier
- Saraswati, female 40 yrs., which was captured from the wild, gave birth to Laxmi. Source of male was captive elephant in forest camp. Laxmi, now 11 yrs., at the same zoo
- Male elephant, Rajkumar, said to exhibit musth

This parameter was rated taking into account such features as occurrence of musth, exposure to elephants of opposite sex, opportunity to breed. Mean rating was 5.8 (SE = 1.3, N = 3) with occurring in two extremes: zero or ten (Figure 15).

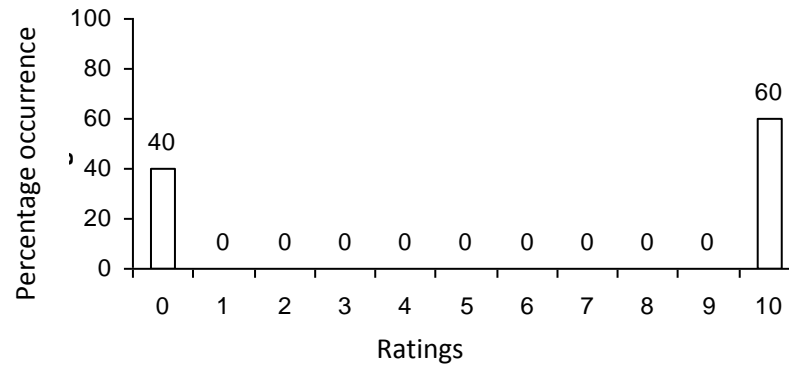


Figure 15: Percentage occurrence of ratings for reproductive status

The absence of normal reproductive activity in adult animals has been given low ratings. Mean rating was 7.5 (SE = 2.5, N = 4) with only one elephant, Lakshmi, (46 yrs., female) said to be reproductively inactive, among the observed elephants. Mean rating was 6.7 (SE = 3.3, N = 3) with one animal (Lakshmi, 46 yrs., female) not being exposed to males. Only one elephant, Saraswati (40 yrs., female) was said to have given birth to a calf. All the other observed elephants were given ratings of zero (Figure 16).

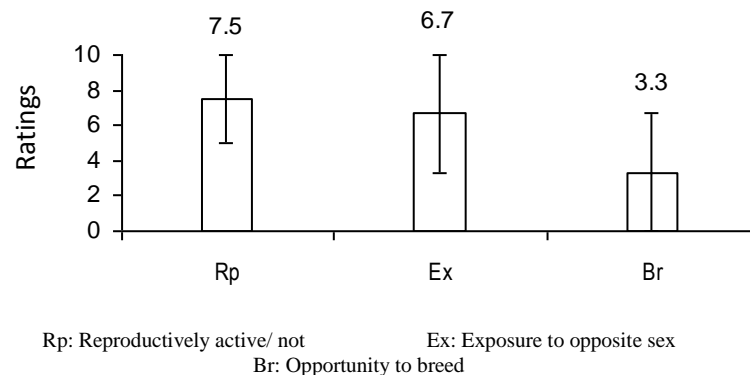


Figure 16: Ratings for reproductive status related parameters

Health status

- All the elephants were said to experience stomach pain frequently
- Foot injury (toe nail cracks/ lameness) was seen in three animals
- Anarkali was said to have an eye injury
- All the animals were dewormed with Albendazole, varying from once in three months to 2 -3 times a year
- None of the animals were vaccinated
- Oil was applied for four of the elephants
- Blood/ urine/dung testing was done for three of the elephants

Disease by itself can be a source of poor welfare and the occurrence of certain diseases as a consequence of captive conditions may also contribute to lowered welfare (Kaufman and Martin, in press). This parameter was rated using such features as: occurrence of disease/ injury, performance of routine veterinary practices such as

deworming/ vaccination, etc. Mean rating was 4.7 (SE =1.6, N = 7) with 55 % of all the rating getting a score less than three (Figure 17).

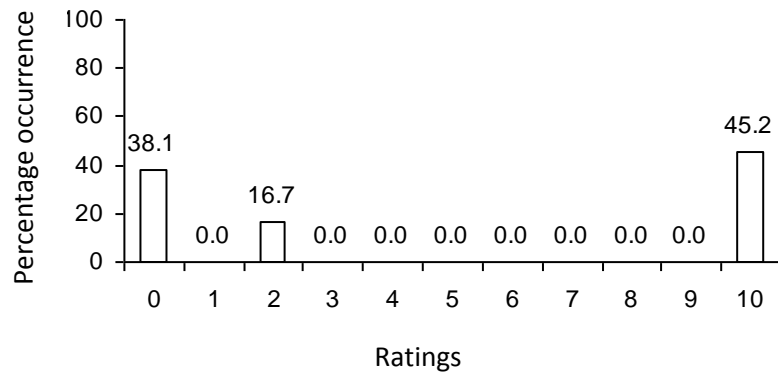


Figure 17: Percentage occurrence of ratings for health status

Disease/ injury was rated considering the extent of distress the disease/ injury caused in the animal by causing other diseases/ being painful for the animal. Mean rating was 2.0 (SE =0.0, N=7). The practice of deworming elephants was given high ratings. Mean rating was 10.0 (SE =0.0, N =7). Biochemical/ physical tests of samples when conducted are a valuable source of data regarding its health. Mean rating was 5.0 (SE = 2.2, N = 6) with such tests being done for three of the observed elephants.

Captive elephants are subject to the practice of oiling: as an insect repellent/ to maintain body temperature. Mean rating was 5.7 (SE = 2.0, N = 7) with oiling not done for three animals (Figure 18).

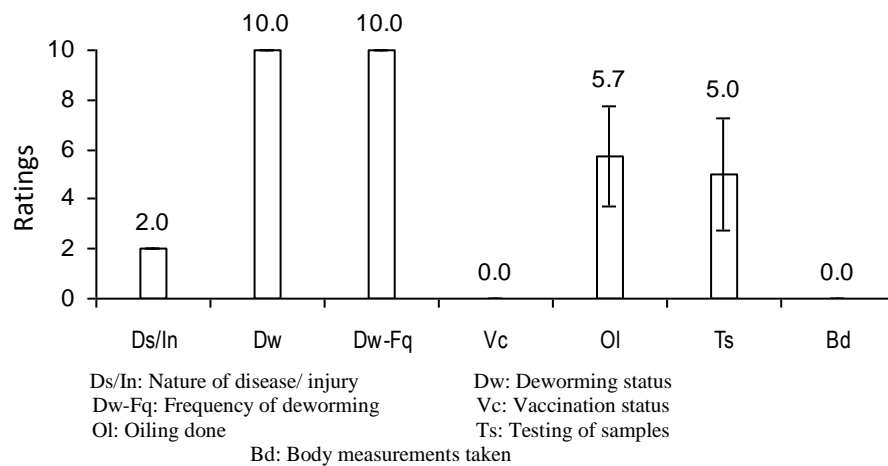


Figure 18: Ratings for health related parameters

- All the elephants had access to a veterinary doctor, with mean elephant experience of 10.7 yrs (SE = 4.9, N = 5)
- Visits were daily or weekly
- Veterinary assistant was available for two zoos
- All the zoos had access to a clinic

Accessibility to veterinary care includes availability of veterinary doctor with experience in treating elephants, with regular visits, availability of veterinary assistant, provision of clinic facilities and maintenance of records. Mean rating was 8.9 (SE = 0.7, N = 7) indicating satisfactory conditions (Figure 19).

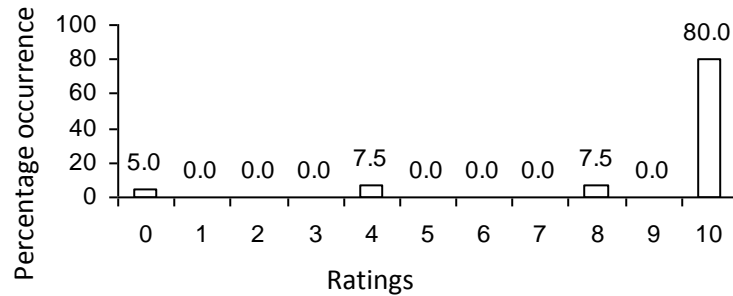


Figure 19: Percentage occurrence of ratings for veterinary care

All the zoos had access to a doctor, hence, rating was 10.0 (SE =0.0, N =7). Mean rating was 5.6 (SE= 0.97, N = 5) with only one doctor said to have more than twenty years experience. The observed zoos were said to maintain records, hence, rating (Figure 20) was 10.0 (SE =0.0, N =5).

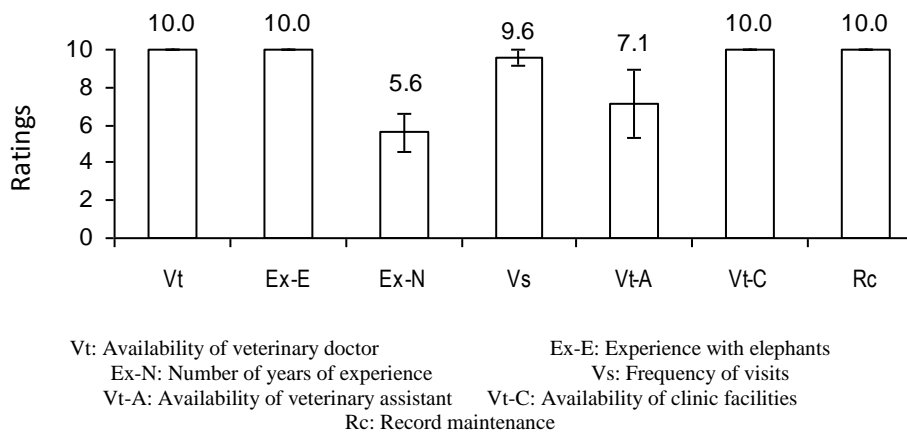


Figure 20: Rating for veterinary care related parameters

Funds

- Overall fund required per animal per year was Rs. 1,07,143/- (SE = 8299.3, N = 7)

Mahout welfare status

Welfare of the mahout has been considered as poor welfare conditions can be detrimental to the person's life and may be associated with poor handling/ apathy towards the animal. There were six handlers for the seven elephants observed. Ratio of elephant to mahout varied from 1:1 to 2:1 (Poona zoo). Mean age of mahout was 46 yrs (SE = 3.1, N = 6). Overall mean rating for the mahout was 7.0 (SE = 0.5, N=

71) implying moderate conditions of welfare. The welfare status was rated across 15 sub-parameters (Figure 21).

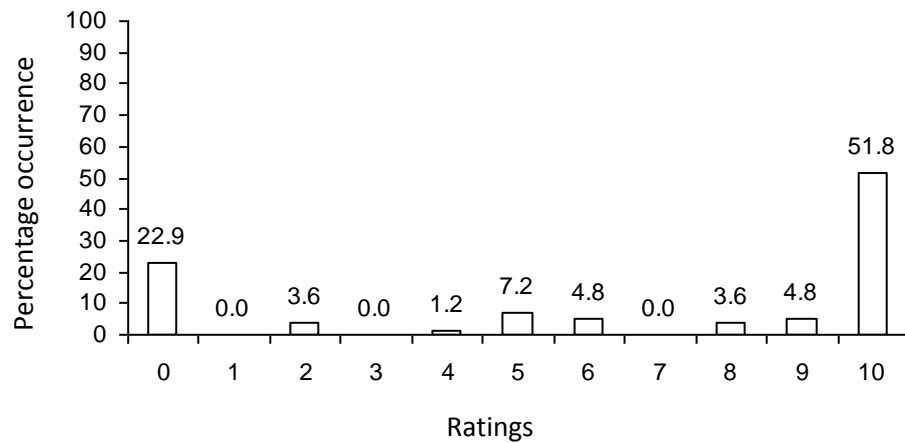


Figure 21: Percentage occurrence of ratings

Handlers with more than 50% experience were given high rating. Experience was calculated as percentage duration in the job expressed in terms of his own age. Mean rating was 5.4 (SE = 1.6, N = 6). Years of experience with a specific elephant was calculated in terms of the animal’s age. Mean rating was 8.4 (SE = 0.9, N = 5). Education is important to improve the handler’s own welfare as well as to follow any prescribed medications for the animal. Mean rating was 7.5 (SE = 0.9, N=4). All the handlers were permanent employees. Hence, rating was 10.0 (SE =0.0, N =5). Periodic health check-up is important in the context of transmission of diseases across species (Mikota, in press). Mean rating was 5.0 (SE = 2.9, N =4) with two of the four employees not having had any health check-up. Availability of insurance in case of injury/ death is essential. Mean rating (Figure 22) was 10.0 (SE = 0.0, N=4).

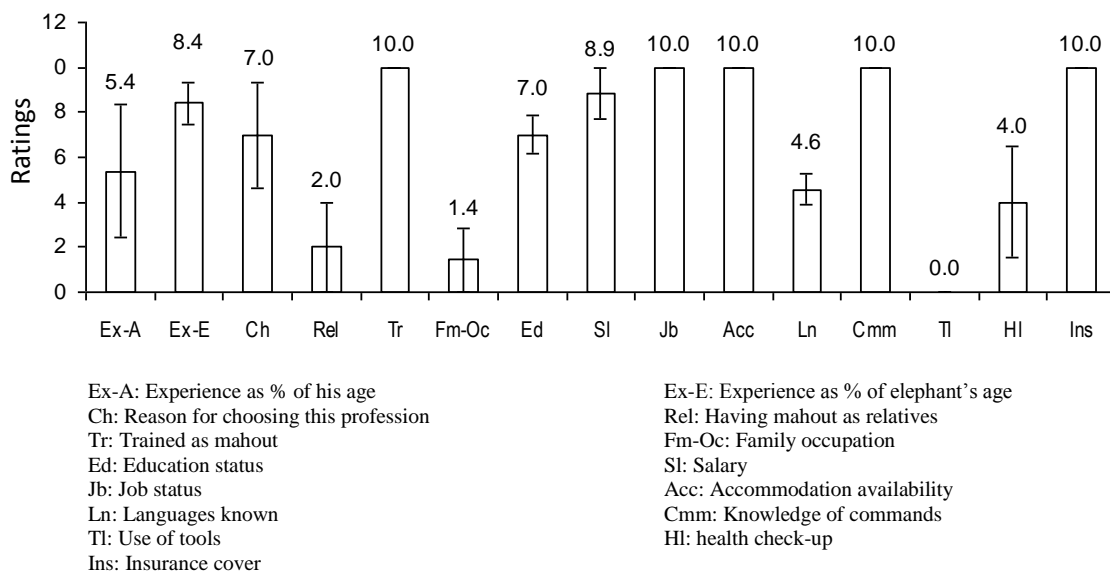


Figure 22: Ratings for mahout related parameters

Overall mean rating per elephant

The overall mean rating, considering each rating across all parameters, was 5.7 (SE = 0.24, N= 322) with 43 % getting a rating less than five (Figure 23). This implies occurrence of moderate welfare conditions. However, this rating includes derived from sub-parameters with only two possible scores: zero or ten. Such sub-parameters formed 42 % of all the parameters observed, contributing 28 % of ten scores to the total number of ratings. While the occurrence of such ten scores is indicative of satisfactory conditions, further details about such conditions could have provided greater insight into the actual situation. This was lacking, at times.

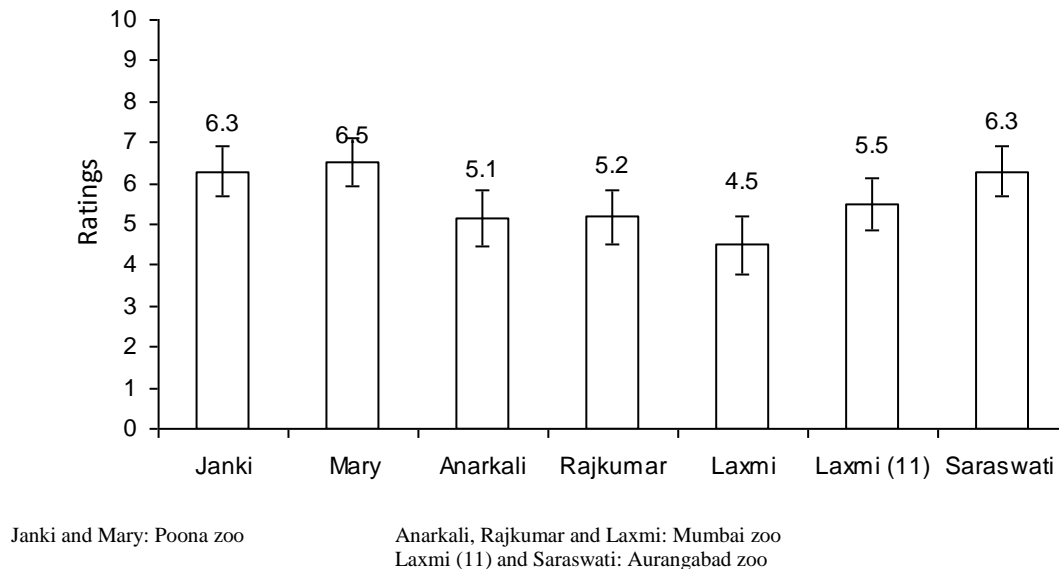


Figure 23: Overall mean rating per elephant

Discussion

There was variation in the conditions available to the elephants among the zoos. Thus, 45 % of the sub-parameters showed different rating among zoos, while the rest indicated uniformity in captive conditions. This variation was distributed across all the sub-parameters observed. Wild elephants have been reported to be active for nearly 20 hours of a day (Sukumar, 2003), females engaging in activities related to foraging, socializing and defending young, and males associated in bachelor herds or singly, foraging or wandering in search of females (Poole and Moss, 2008). The co-operation observed among wild elephants has been reported for unrelated captive Asian elephants also, in the context of allomothering and defense of young (Gadgil and Nair, 1982), stressing the role a family life for these animals.

Keeping this life history pattern in mind, the conditions experienced by the elephants in the three zoos was assessed.

- The zoos housed two to three individual elephants in semi-natural to man-made enclosures of varying sizes. Ignoring size variation, it is obvious that the elephants could not perform their natural activity of foraging as they were all stall-fed. Added to this deficiency, most animals, except for two elephants at the Poona zoo, were not allowed to range free.
- The presence of limited number of elephants in each zoo implied lack of choice among the animals to form and establish social relationships. This all the more important in the context of learning— social skills, mothering, food

preparation, establishing a hierarchy, etc., — which the animals acquire as they grow among group members in the wild (Kurt and Garai, 2007).

- The practice of chaining the elephants at night was prevalent among all the observed zoos. Kurt and Garai (2007) report of the adverse effects of chaining on the skin of the animals. Also, chaining has been negatively correlated with increased occurrence of stereotypy. Four elephants belonging to two zoos (two of the Aurangabad zoo and two of Mumbai zoo) were said to be restricted using spiked chains. Both elephants at Poona zoo were said to be shackled by both forefeet during free ranging.
- Of the three elephants for which data was available, two adult females were said to be either reproductively inactive or failed to conceive.
- Occurrence of barren/ small environments/ social stressors/ pain has been linked to expression of stereotypic behaviours (Veasey, 2006, citing another author). Five of the seven elephants among these zoos were said to exhibit this behaviour.
- Absence of suitable water sources of easy access to the elephants, for drinking/ bathing

Aspect of the zoos which could be considered suitable:

- The presence of mother-daughter pair in the same zoo (Aurangabad zoo)
- Provision of suitable veterinary care at all the zoos
- Maintenance of clinical records

Ratings for handlers was categorized as being moderately good (overall rating was 7.0) ranging from 5.0 to 9.0. Sixty percent of them were given a rating between 8 and 10.

Some parameters which were given low rating were:

- Health check-up: only two mahouts were said to have had a health check-up.
- Experience: Only two mahouts were said to have experience accounting for more than 50 % of their age.
- Tool use: all the observed mahouts were said to use tools to control their animal

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Section 3: Captive Elephants in Temples

Executive Summary

Elephants maintained in five temples in different districts of Maharashtra were observed and data was collected to assess the welfare status of its captive elephant/s and elephant handlers.

Data was collected through observation and interview of personnel/ management. Each of the parameter observed has been rated on a zero to ten scale with zero representing the worst possible situation and ten implying a satisfactory state, closer to what an animal experiences in the wild.

Ratings were graded in the following manner:

- 0 – 2.4: Bad conditions
- 2.5 – 4.9: poor
- 5.0 – 7.4: moderate
- 7.5 – 10.0: satisfactory

Mean age of the animal observed was 32.6 yrs. with age ranging from 14 – 70 yrs. for the four males. The single female was aged 21 yrs. Two males were purchased from Sonepur Mela, Bihar male, 70 yrs was purchased from Sadhu Maharaj, Ujjain, Ujjain Math in 1964-1965 male, 20 yrs was purchased from Forest office-Moolehole-Bandipur, Karnataka in 1993, male, 38 yrs, and the female, 21 yrs was gifted by Shimoga Mutt, Karnataka. Mean ratings for source of animal was 2.5 showing movement across facilities as a consequence of being purchased/ sold.

All the observed elephants were said to be kept for religious purpose. Mean rating was 0.0. The elephants were kept in man-made enclosures: ranging from aluminum tents to RCC sheds. Stone and concrete flooring was available for four elephants, while it was earthen for a female. Mean rating for shelter was 2.8 implying existence of poor conditions.

Source of water for all animals was tap water, lake water available for one male, river water available for male, and mean bath duration was 1.3 h. Mean ratings for water related parameter was 4.1 with 71 % of the all the rating getting a score less than five, showing occurrence of poor conditions

The opportunity provided to elephants allowed to interact among others to express species-specific behaviour was rated. Mean rating was 2.5 with only two animals said to be allowed interaction opportunity occasionally. All the elephants were chained; spiked chain was used for a male and a female. Mean rating for chaining related parameter was 0.0 implying occurrence of bad conditions.

All the elephants were used for temple related work, a female and a male were hired for marriage functions and the male was also hired for a film. Mean ratings for work related parameter was 4.2 implying poor conditions.

All the elephants were given only stall feed, feeding area was shelter or while walking. Food types were dry grass, crops, fruits, sugarcane, Vaidan, Wheat roti, Rice, Kadba Grass, Usa, Pend-wet, Fruits & vegetables, and the source of food was

purchased from market; and a male obtained while begging. Mean ratings for food related parameter was 1.2.

All the animals were said to be reproductively active by exhibiting musth (for males) and oestrus cycles (female). None of the four observed elephants were exposed to members of opposite sex. Mean rating for reproduction related parameter was 3.3 showing existence of poor reproductive and related conditions

Symptoms of paralysis, partial blindness in one eye, toe nail cracks, sneezing, Diarrhoea are some of the health problems observed for the animals studied. Mean rating for health related issues were 3.6 with 65 % of all rating getting a score less than three.

All the elephants had one mahout each, mean age of mahouts was 31.8 yrs and mean experience in the profession was 19.2 yrs. Mean salary per year was Rs.32, 400/- ranging from Rs.12, 000 to 60,000/- and mean number of elephants each mahout had worked with: 6.0. Overall mean rating for handlers was 6.3 considered across individual rating for all the parameters.

Overall mean rating for elephant welfare status in temples was 3.6 indicating occurrence of poor conditions. Sixty-two percent of the values were given a rating less than four.

Introduction

Maintenance of elephants by temples has a long history. However, this practice needs a critical study in terms of the conditions experienced by the animals as a consequence of the living environment imposed on them. The complex lives that wild elephants experience in terms of ecological variability and social environment may be hard to duplicate in captivity in temples.

Objective

Elephants maintained in five temples in different districts of Maharashtra were observed and data was collected to:

- Assess the welfare status of its captive elephant/s
- Assess the welfare status of elephant handlers

Method

Five elephants, belonging to different temples in Maharashtra were observed and data collected on several aspects of captivity.

The temples are:

- Yamai Devasthan, Aundh, District Satara, maintaining the elephant Moti (male, 70 yrs.)
- Mohan (male, 14 yrs.) belonging to temple (name not known)
- Martanda Devasthan, Taluq-Karad, Pal, Satara district maintaining the elephant Rajendra-Raja (male, 20 yrs.)
- Ganpati Mandir, Peth Bhag, Sangli district maintaining the elephant Bablu (male, 38 yrs.)
- Ganpati Devasthan, Taluq Tasgaon, District Sangli, maintaining the elephant Gauri (female, 21 yrs.)

The differences in ecological, behavioural, social and physical conditions between wild and captive environments play a role in the well-being of a captive elephant. Information about deviations experienced in living environment by captive elephants as opposed to their wild counterparts can be used to provide better conditions in captivity (Lee and Moss, in press). Captive conditions of the elephant has been assessed using several aspects such as its housing, whether allowed to browse/ graze in forest conditions, opportunity for exercise/ social interaction, group size, reproductive and health status, occurrence of stereotypy, etc. Data was collected through observation and interview of personnel/ management. Each of these factors or sub-parameters has been rated on a zero to ten scale with zero representing the worst possible situation and ten implying a satisfactory state, closer to what an animal experiences in the wild.

Ratings were graded in the following manner:

- 0 – 2.4: Bad conditions
- 2.5 – 4.9: poor
- 5.0 – 7.4: moderate
- 7.5 – 10.0: satisfactory

For some sub-parameters such as availability of veterinary doctors, frequency of visits by the doctor, etc, the ideal condition represents ease of access and prevalence of

features conducive to maintaining elephant health. Sub-parameters representing a particular feature such as shelter or water have been grouped together to form a parameter. Rating for a parameter is the mean across the sub-parameters, considering each rating for all the elephants observed. Graphs representing percentage occurrences of rating from zero to ten for each parameter have been included. Graphs depicting ratings for sub-parameters have been given.

The welfare status of mahouts/ handlers has been assessed by looking at socio-economic parameters and the handler's relationship with his animal in terms of experience, use of tools to control, etc. Bad or poor handler welfare maybe associated with poor handling of his animal.

Result

Population status

Five elephants each belonging to different temples in the state of Maharashtra were observed and relevant data was collected. Mean age was 32.6 yrs. (SE = 10.2, N =5) with age ranging from 14 – 70 yrs. for the four males. The single female was aged 21 yrs.

Source of elephant

- Mohan (male, 14 yrs.) purchased from Sonapur Mela, Bihar in 1998
- Moti (male, 70 yrs.) purchased from Sadhu Maharaj, Ujjain, Ujjain Math in 1964-1965
- Rajendra-Raja (male, 20 yrs.) purchased from Forest office-Moolehole-Bandipur, Karnataka in 1993
- Bablu (male, 38 yrs.) purchased from Sonapur Mela, Bihar in 1974
- Gauri (female, 21 yrs.) gifted by Shimoga Mutt, Karnataka

Elephants which are captive born/wild caught/purchased across facilities undergo a range of variation in their living environment. This may prove to be a source of stress for the animal. Mean rating was 2.5 (SE =0.0, N =5) showing movement across facilities as a consequence of being purchased/ sold.

Purpose of keeping

All the observed elephants were said to be kept for religious purpose. Maintenance of elephants for non-commercial purposes in natural conditions has been given high ratings Mean rating was 0.0 (SE 0.0, N =5).

Shelter

- The elephants were kept in man-made enclosures: ranging from aluminum tents to RCC sheds. Mean size was 958.8 Sq.ft. (SE = 173.8, N = 4).
- Stone and concrete flooring was available for four elephants, while it was earthen for Gauri (female, 21 yrs.)
- Shade type was from RCC building; tree shade for Moti (male, 70 yrs.)
- Mean number of hours within the enclosure was 18.4 hrs (SE = 0.8, N =5)
- Mean number of hours outside enclosure was 6.0 hrs (SE = 0.8, N =4).
- Shelter was cleaned from once to twice a day

This feature was rated considering type, size, flooring, shade type available and hygiene maintenance. Mean rating was 2.8 (SE = 0.8, N= 22) implying existence of poor conditions. Eighty-two percent of the values were given a rating less than four (Figure 1).

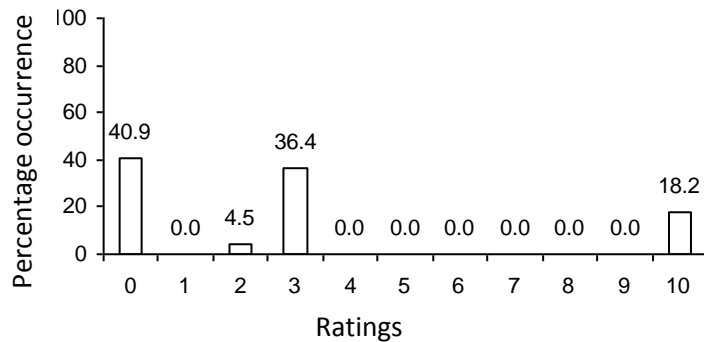


Figure 1: Percentage occurrence of ratings for shelter

Elephants are known to range several kilometers a day while foraging or as part of other species-specific behaviour (Sukumar, 2003). The physical features encountered during such activity forms part of their environment. The occurrence of such natural features in captivity has been given high rating. Mean rating was 2.5 (SE =0.0, N= 5) indicating confinement within an enclosed space.

Existence of natural/ earthen flooring is suitable for elephants and has been given high rating. Mean rating was 2.0 (SE = 2.0, N =5) with only one elephant, Gauri, 21 yrs., female, said to have access to earthen flooring. Wild elephants are known to range several kilometers a day. Confining them to small spaces may lead to poor health and welfare. Mean rating was 0.4 (SE = 0.4, N =5) with all elephants getting a rating less than three for this feature (Figure 2).

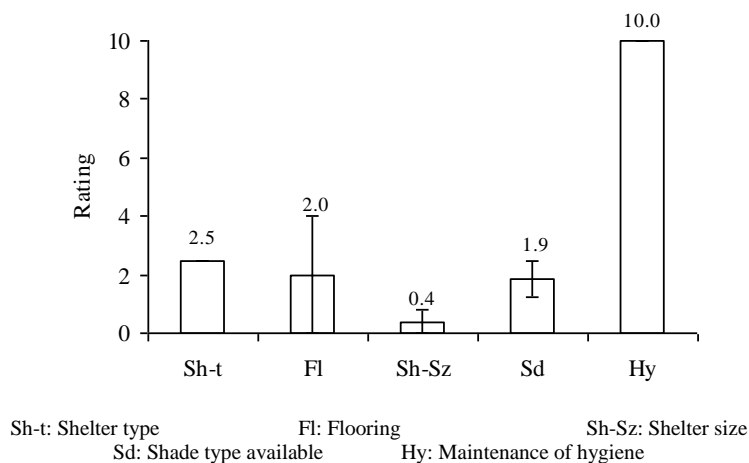


Figure 2: Ratings for shelter relates parameters

Water

- Source of water for all animals was tap water.
- Lake water available for Moti (male, 70 yrs.)
- River water available for Bablu (male, 38 yrs.)

- Mean number of times drinking water per day was 4.0 (SE = 0.4, N = 5)
- Mean quantity of water drinking was 193.8 l. (SE = 25.8, N = 4)
- Mean bath duration was 1.3 hrs (SE = 0.3, N = 5)
- Bathing materials used were brush, soap and stone

Drinking and bathing form part of the natural behaviour of wild elephants (McKay, 1973). This feature was rated considering seven variables such as access to running water, distance, bathing frequency, bathing place, etc. Mean rating was 4.1 (SE = 0.6, N= 31) with 71 % of the all the rating getting a score less than five, showing occurrence of poor conditions (Figure 3).

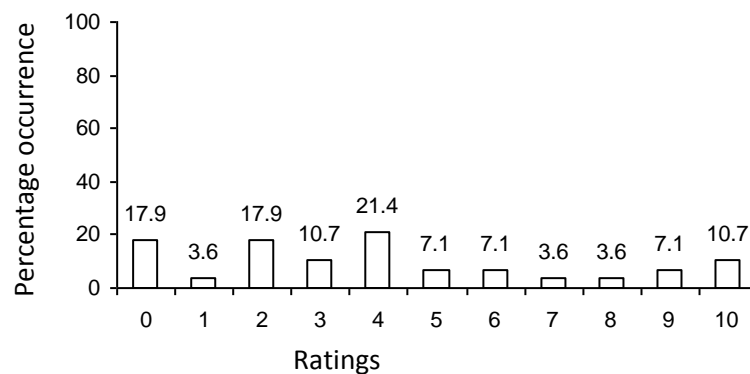


Figure 3: Percentage occurrence of ratings for water

Use of stagnant sources of water has been given low ratings due to increased chance of contamination. Mean rating was 3.9 (SE= 0.7, N =5) showing occurrence of water but through taps or ponds/ lakes. When captive adult elephants are provided a minimum of 150 l. of water per day, high ratings have been given. Mean rating was 4.0 (SE = 0.0, N =4).

Provision of sufficient water to immerse itself and express species-specific behaviour has been given high rating. Mean rating was 0.0 (SE =0.0, N =5) implying existence of bad conditions. Use of hard materials as a scrub may be injurious to the skin of the animal and has been given low rating. Mean rating (Figure 4) was 2.0 (SE =0.0, N =5).

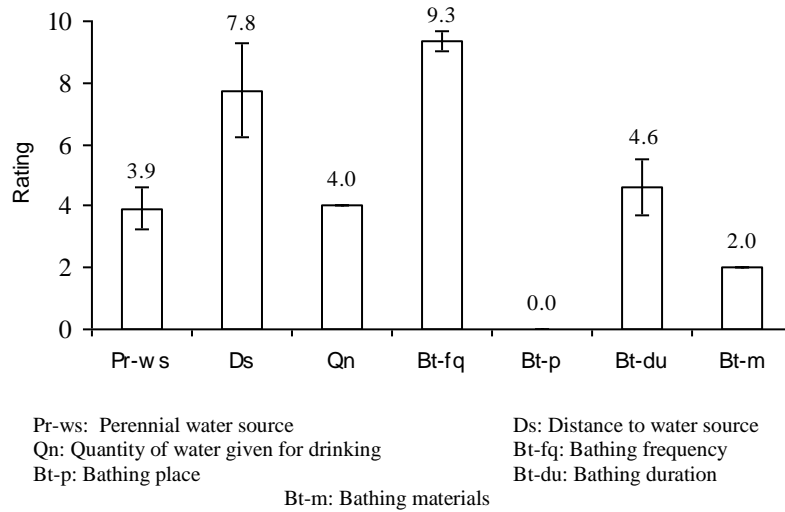


Figure 4: Ratings for water related parameters

Rest and sleep

- Mean sleep duration was 5.1 hrs (SE = 0.5, N =5)
- Rest and sleeping place was shelter

Provision of rest and sleep of sufficient duration and in suitable space was rated. Mean rating was 6.3 (SE = 0.9, N= 20) with place for rest and sleep getting low ratings.

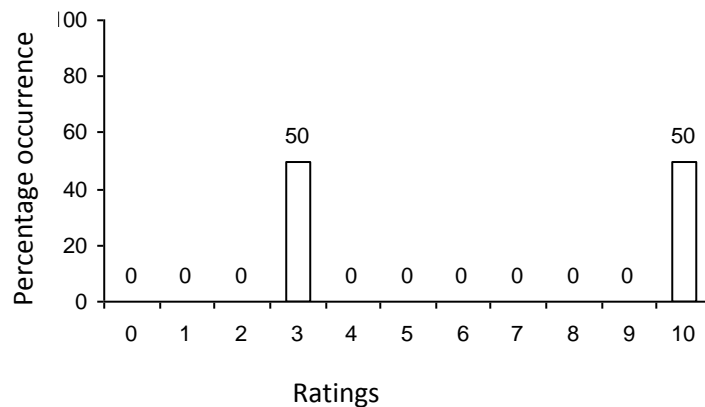


Figure 5: Percentage occurrence of ratings for rest and sleep

High rating indicates provision for such activity. Mean rating was 10.0 (SE = 0.0, N =5). Existence of hard substrates and insufficient space for both activities has been considered for rating. Mean rating was 2.5 (SE =0.0, N =5) for both the activities (Figure 6).

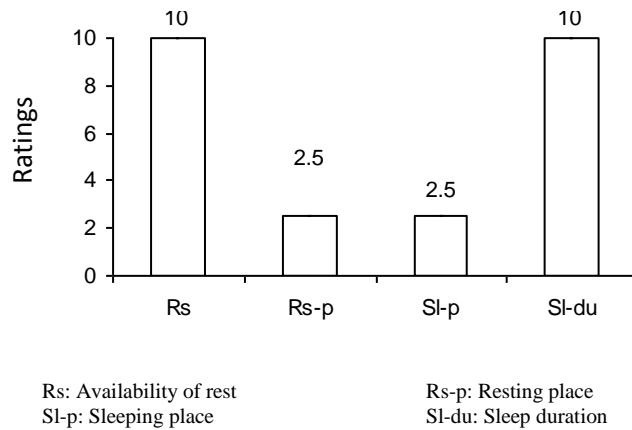


Figure 6: Ratings for rest/ sleep related parameters

Walk

- All the animals were walked
- Nature of terrain was road
- Time of walking was from 6a.m. or 8a.m to 10a.m and 4p.m. or 5p.m. to 7p.m.
- Mean distance of walk was 5.8 km (SE = 1.3, N = 5)
- Mean duration was 4.6 hrs (SE = 0.8, N = 5)

Wild elephants are known to forage several kilometers (McKay, 1973). Hence, in captivity, opportunity provided for walking has been rated as restriction of movement of animals in such situations is common. Mean rating was 6.3 (SE = 1.1, N = 14) considered across three sub-parameters (Figure 7).

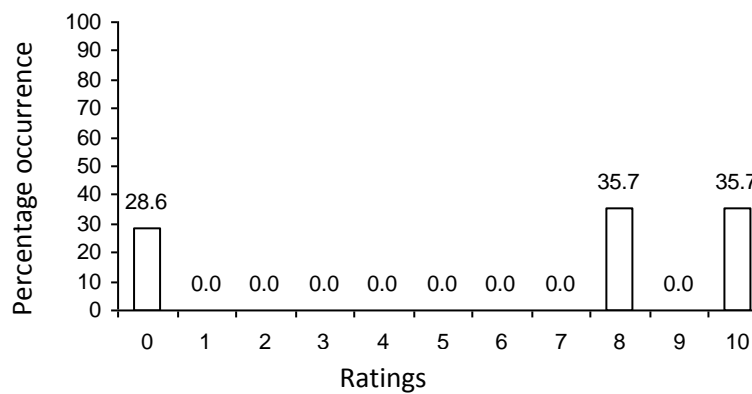


Figure 7: Percentage occurrence of ratings for walk

High ratings have been given when elephants are walked during cooler parts of a day. Mean rating was 7.5 (SE = 0.0, N = 5). Walking on hard substrates such as roads on a long term basis may prove injurious to the elephant's health. Mean rating (Figure 8) was 0.0 (SE = 0.0, N = 5).

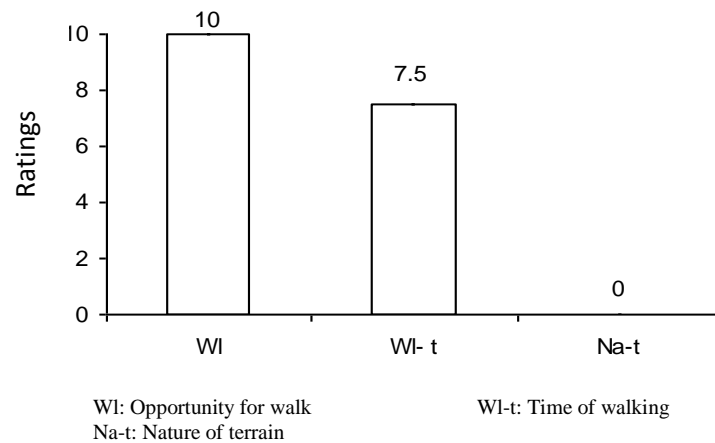


Figure 8: Ratings for walk related parameters

Opportunity for interaction

The opportunity provided to elephants allowed to interact among others to express species-specific behaviour was rated. Mean rating was 2.5 (SE= 1.4, N =4) with only two animals said to be allowed interaction opportunity occasionally.

Chaining

- All the elephants were chained; spiked chain was used for Moti and Gauri.
- Chain was tied in the leg region
- Mean chain weight was 80.6 Kgs (SE = 39.8, N = 4)
- Mean chaining duration was 18.8 hrs (SE = 0.5, N = 5)
- The observed elephants were not allowed to range free at night

Restricting movement of captive elephants by chaining imposes limitations on the ability by the animal to express its natural behaviour in different contexts. This feature was rated across three sub-parameters. Mean rating was 0.0 (SE = 0.0, N= 13) implying occurrence of bad conditions.

Sub-parameters were:

- Whether the observed animal chained or allowed to range-free
- Region of chaining
- Allowed to free range at night

All the sub-parameters were given a rating of zero for all the observed animals.

Behaviour

- All the observed elephants were described as quiet but undependable

Observed behaviour of the animal in terms of its temperament and incidence of aggression towards people can assist in providing a measure of well-being of the animal. Among various causes, aggression could be attributed to those induced by frustration (Broom and Johnson, 1993)[†], inadequate learning opportunity for males with other males / family members during development (Lee and Moss, in press).

- Mean rating for observed behaviour was 1.0 (SE =1.0, N= 5) showing aggressive/ undependable behaviour among four of the five animals observed. None of the elephants was given a rating more than five.
- Mean rating for incidents of killing or injury was 7.5 (SE = 2.5, N = 4) with one elephant, Gauri, female, 21 yrs., said to have shown aggression towards people.

Work

- All the elephants were used for temple related work
- Gauri and Moti were hired for marriage functions
- Moti also hired for filming purposes
- Food provided during work: Fruits, Vegetables, Cereals food, Coconut, Grass, Bread

This has been rated considering the nature of work and availability of food/water/shade/ rest during work. Mean rating was 4.2 (SE = 1.0, N= 24) implying poor conditions (Figure 9).

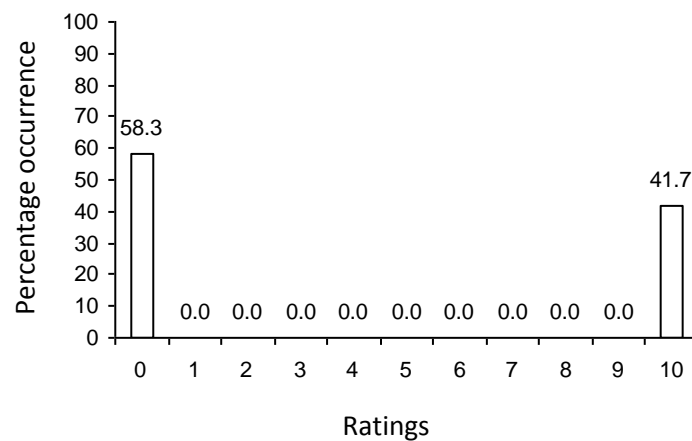


Figure 9: Percentage occurrence of ratings for walk

Performance of work alien to an elephant's natural repertoire of behaviours was given low rating. This includes non-performance of any behaviour wherein the animal is standing still. Mean rating was 0.0 (SE = 0.0, N =5) showing prevalence of bad conditions. Opportunity to rest during work has been given high ratings. Mean rating was 2.0 (SE= 2.0, N = 5). Provision for water during work was given high ratings. Mean rating (Figure 10) was 7.5 (SE = 2.5 N = 4).

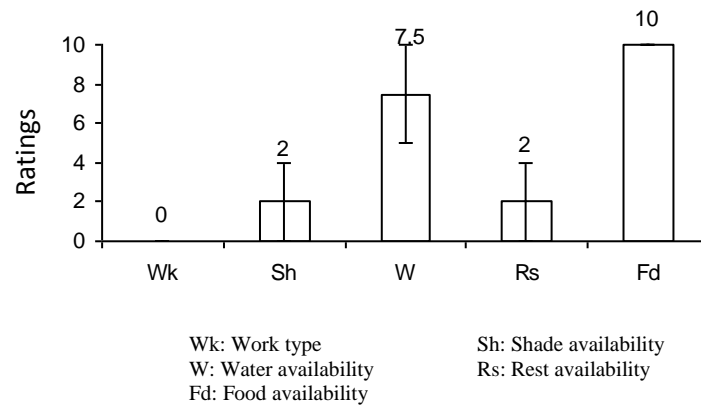


Figure 10: Ratings for work related parameters

Food provisioning

- All the elephants were given only stall feed
- Feeding area was shelter and while walking
- Food: Dry grass, crops, fruits, sugarcane, Vaidan, Wheat roti, Rice, Kadba Grass, Usa, Pend-wet, Fruits & vegetables
- Food source: purchased from market; For Moti—obtained by begging
- Doodh Peda, Burfi, Jilabi, Puran poli, Modak: sweets provided during festivals and special occasions

The kind and the method of providing food to the elephants was rated using three sub-parameters. Mean rating was 1.2 (SE = 0.5, N = 15) showing existence of bad conditions (Figure 11).

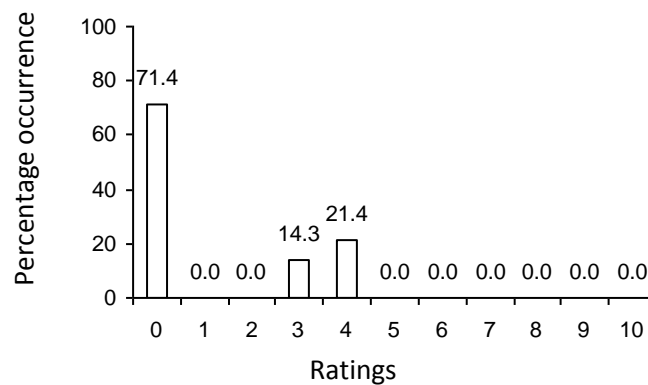


Figure 11: Percentage occurrence of ratings for food

Elephants choose a variety of foods as they browse or graze (Mckay, 1973). When captive elephants are provided only stall feed without any free ranging opportunity, low ratings have been given. Mean rating was 0.0 (SE = 0.0, N = 5). Usage of ration chart can assist in planning for the animal's diet according to its health and physiological needs. Mean rating (Figure 12) was 0.0 (SE = 0.0, N = 5).

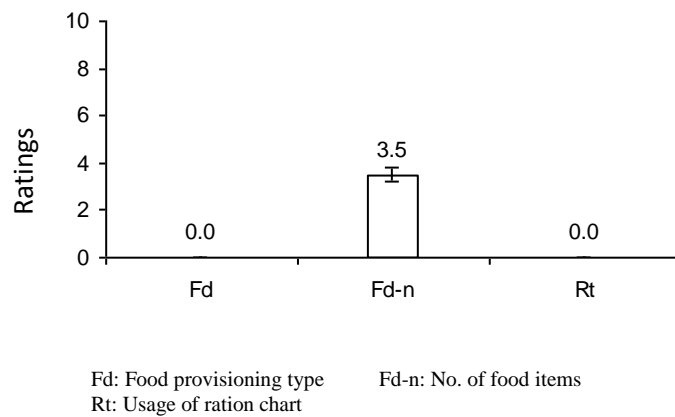


Figure 12: Ratings for food related parameters

Reproductive status

- All the animals were said to be reproductively active by exhibiting musth (for males) and oestrus cycles (female).
- None of the four observed elephants (no data for Moti) were exposed to members of opposite sex
- Method of handling musth was: Isolation, Chaining, Watering, Use of traditional medicine
- No injury/ killing reported as a result of musth for any of the males
- Leg wounds were reported as post-musth injury for Moti, Rajendra-Raja and Bablu

This feature was rated across four sub-parameters. Mean rating was 3.3 (SE = 1.3, N = 15) showing existence of poor reproductive and related conditions (Figure 13).

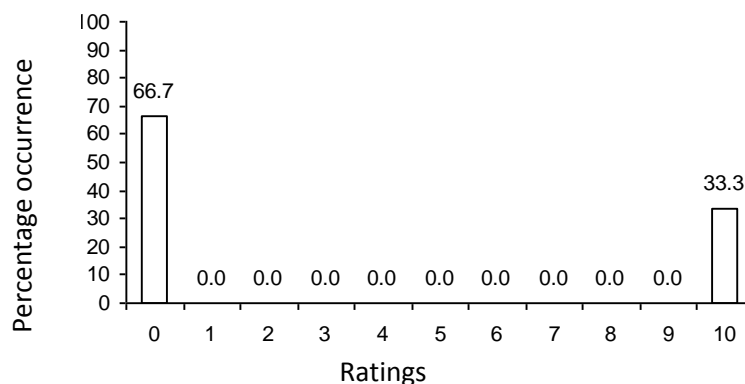


Figure 13:

occurrence of ratings for reproductive status

Percentage

Active reproductive state in males/ females was rated through observation of occurrence of musth / oestrus cycles. Mean rating was 10.0 (SE = 0.0, N= 5). Opportunity for expression of normal reproductive behaviour among adult animals involves exposure to members of opposite sex. Mean rating was 0.0 (SE = 0.0, N 4). Musth is a period of heightened hormonal levels (Vidya and Sukumar, 2005) with

likely expression of aggression towards people/ other animals (Kurt and Garai, 2007). In such situations, the way musth animals are handled can provide an indicator of the well-being of the animal with possible consequences on future reproductive state of the animal. Mean rating was 0.0 (SE =0.0, N = 4) showing bad handling conditions for all the males observed (Figure 14).

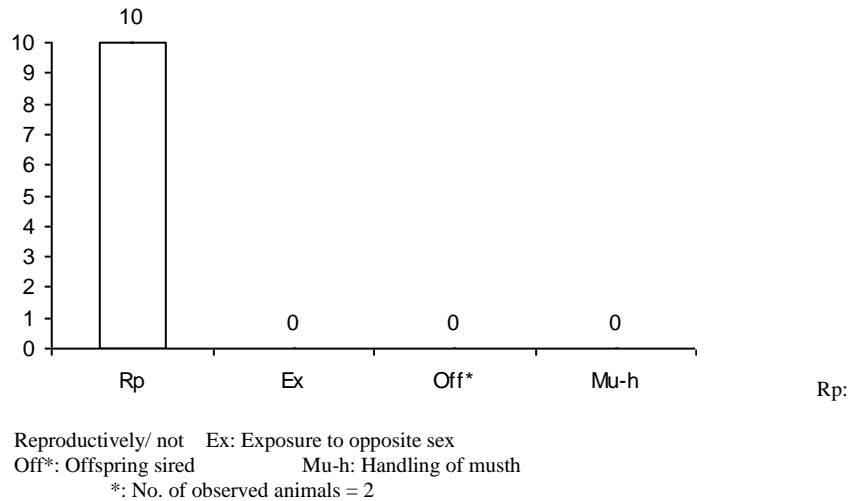


Figure 14: Ratings for reproductive state related parameters

Health status

- Gauri: right hind leg exhibiting symptoms of paralysis
- Moti: partial blindness in one eye
- Bablu: Toe nail cracks, Sneezing, Right eye problem
- Mohan: Diarrhoea
- Only two elephants had been reported to be dewormed: Mohan and Gauri with varying frequency from once a year to once in three months
- None of the four observed elephants had been vaccinated
- Coconut oil was used while oiling the elephants: Mohan, Bablu and Gauri with varying frequency: from once a day to once a month
- Veterinary doctor said to be available for only two elephants: Mohan and Bablu
- Only one doctor had previous veterinary experience with elephants
- Frequency of visits: on call as well as weekly or monthly

Occurrence of disease/ injury that deviates from those observed in wild animals in terms of kind and frequency is considered to be an indicator of poor well-being of the captive animal (Kaufman and Martin, in press). This parameter was rated across nine sub-parameters which included disease occurrence as well practices followed in maintaining health. Mean rating was 3.6 (SE = 0.8, N= 32) with 65 % of all rating getting a score less than three (Figure 15).

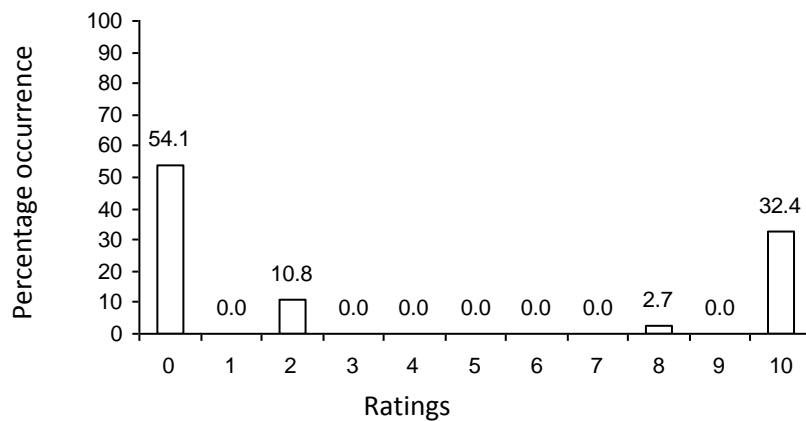


Figure 15: Percentage occurrence of ratings for health status

This sub-parameter has been rated considering the extent of effect on the elephant's health by being harmful/ painful to the animal, creating further health problems and/or being chronic in nature. Mean rating was 3.2 (SE = 1.2, N= 5) with four elephants getting a rating of only two. The mean rating indicates occurrence of poor health conditions. Oil is applied to various parts of the elephant as an insect repellent/ coolant. Mean rating was 6.0 (SE = 2.4, N = 5) with two of the observed elephants not subjected to this practice.

Testing samples of blood/ dung or urine for various biochemical parameters can give an indication of the health of the animal. Mean rating was 2.0 (SE = 2.0, N =5) with only one elephant Bablu (38 yrs., male) said to have been tested. Access to veterinary doctors is important for providing timely and proper care for the animal. Mean rating was 4.0 (SE = 2.4, N =5) with doctors said to be available for only two of the observed elephants (Figure 16).

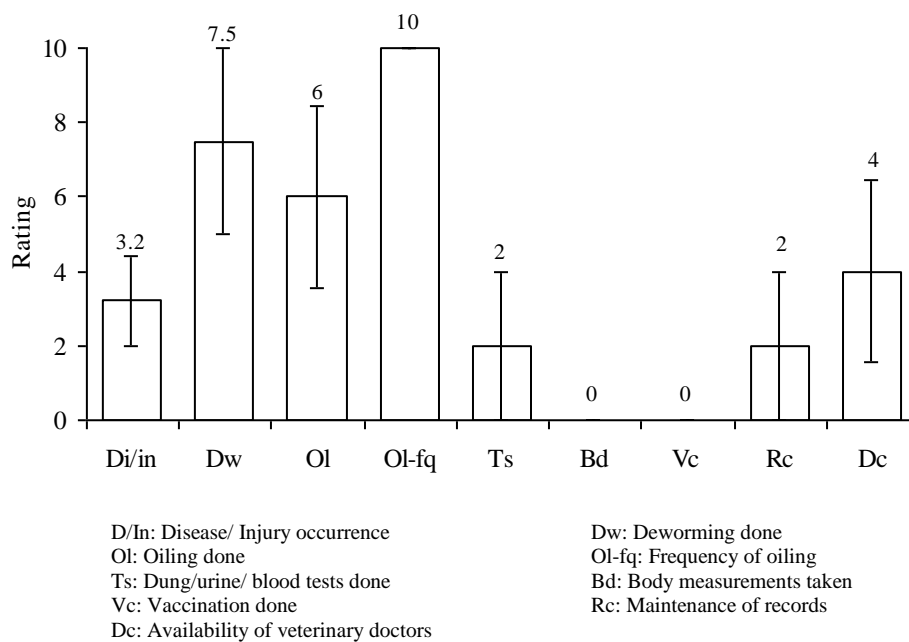


Figure 16: Ratings for health related parameters

Welfare status of Mahout

- All the elephants had one mahout each, the elephant Rajendra-Raja reportedly had two: a 20 yr. old and a 9 yr. old handler
- Mean age of mahouts was 31.8 yrs. (SE = 7.9, N = 6)
- Mean experience in the profession was 19.2 yrs. (SE = 8.2, N =5)
- Mean experience with present elephant was 18.5 yrs. (SE = 8.1, N = 4) ranging from 4 – 40 yrs.
- Mean salary per year was Rs.32,400/- (SE = 9217.4, N = 5) ranging from Rs.12,000 to 60,000/-
- Education ranged from 7th standard to B.Com. graduate
- Occupation of father/ grandfather for all observed handlers was mahout
- All the mahouts (N = 5) were married with number of children varying from two to four
- All the mahouts knew two languages
- All the mahouts used tools Metal ankush and/or stick pike
- Four mahouts were said to have had health check-ups
- Only two mahouts were reported to have no insurance cover
- Mean number of elephants each mahout had worked with: 6.0 (SE = 2.3, N = 4)

Handler welfare status has been rated based on several socio-economic factors. Experience in handling elephants has also been rated. Overall mean rating for handlers was 6.3 (SE = 0.6, N= 46) considered across individual rating for all the sub-parameters (Figure 17).

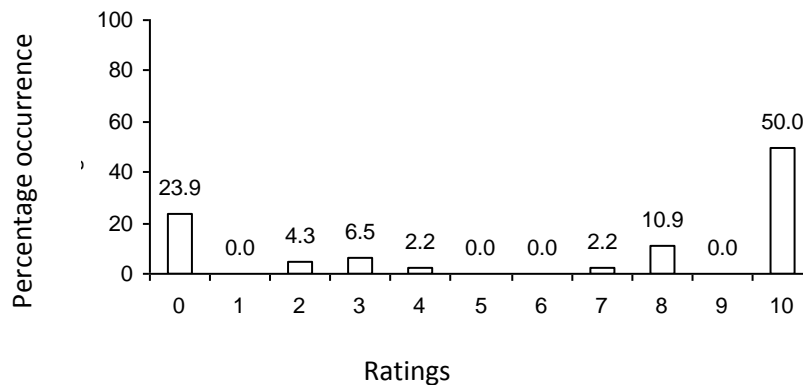


Figure 17: Percentage occurrence of overall ratings

Mean rating for socio-economic status was 7.8 (SE = 0.7, N = 28) considered across six sub-parameters. Mean rating was 8.6 (SE = 0.6, N =5) with all the mahouts said to have attended school. High ratings were given for wages capable of supporting a family of four in an urban environment. Mean rating was 5.2 (SE = 1.6, N = 5) with wages ranging from Rs. 12,000/- to 60,000/- per year. The occurrence of injury or death as they perform their duties places a high importance to availability of insurance. Mean rating (Figure 18) was 6.0 (SE = 2.4, N = 5).

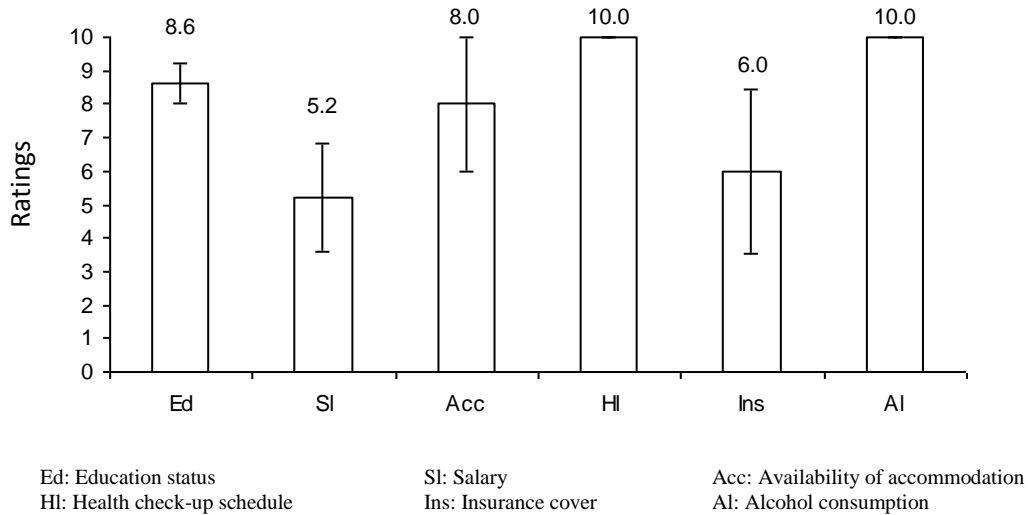


Figure 18: Ratings for socio-economic related parameters

Mahout-elephant relation was rated considering experience in the profession, use of tools and training status. Mean rating was 4.0 (SE = 1.1, N= 18) indicating poor conditions for this parameter. Higher rating implied more experience in this profession, calculated as percent of mahout’s age. Mean rating was 6.9 (SE = 1.6, N = 4) showing existence of moderate conditions. Higher rating indicates more experience with the elephant being observed, with experience being calculated as percent of the elephant’s age. Mean ratings was 7.0 (SE = 1.8, N = 5) showing occurrence of moderate conditions for this sub-parameter (Figure 19).

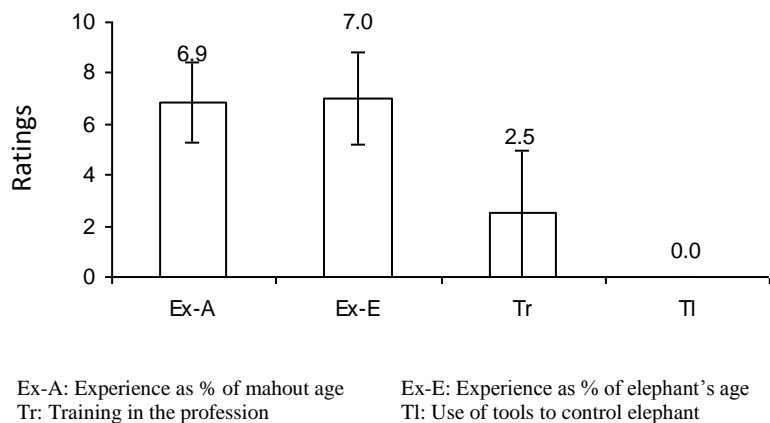


Figure 19: Ratings for socio-economic related parameters

Overall rating pattern for elephants in temples

Overall mean rating, considering individual ratings, across all the observed sub-parameters, was 3.6 (SE = 0.3, N= 214) indicating occurrence of poor conditions. Sixty-two percent of the values were given a rating less than four. Among the sub-parameters rated, 44 % could be assigned only two types of rating: zero or ten. Zero scores from such sub-parameters accounted for 25 % of all the rating implying complete absence of the feature (Figure 20).

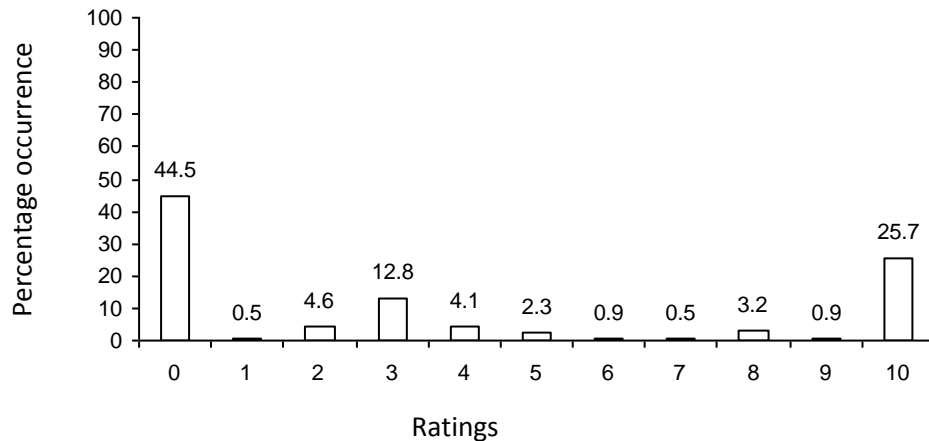


Figure 20: Percentage occurrence of overall ratings for elephants

Discussion

Overall mean rating for captive elephants in temple was 3.6 and “Poor” conditions (ratings between 2.5 and 4.9) imply a considerable deviation from the wild state. Poole and Granli (in press) state the need to consider “tame” elephants—captive elephants— as basically wild animals with the same social, behavioral, psychological and emotional needs as their wild counterparts. This is because elephants have not been domesticated: change in their genetic make-up, due to their human association, has not occurred.

- Wild elephants are known to travel several kilometers (Sukumar, 2003) as they forage and engage in species-specific activity. This involves traversing varied habitat, a feature completely absent for all the observed elephants. All the animals were provided with man-made enclosures of an average of 958.8 sq.ft. this was also their resting/ sleeping place.
- Maintenance of single elephants in these institutions: wild elephants are known for their rich social relations (Vidya and Sukumar, 2005), even males require a period of learning within a social framework to recognize the intricacies of the different individuals making up this society (Kurt and Garai, 2007).

All the observed elephants were kept singly, with occasional opportunity for interaction, during festivals, reported for only two males.

- Elephants have been reported to be near water sources in the wild (McKay, 1973). Access to and use of water sources depends on the animal. However, among the observed elephants for this report, tap water was the source for all, wherein access and use is dependent on people. Even the elephants, Moti (male, 70 yrs.) and Bablu (male, 38yrs.) with access to lake/ river water were in no different state as they were not allowed to range free.
- Food provisioning: wide variety of plant species is said to be used by wild elephants (McKay, 1973). The observed animals were not allowed to range free, stall feed being the only food source.
- Reproductive status: wild elephants use visual and olfactory cues to signal their reproductive status (Vidya and Sukumar, 2005). Such species-specific behaviour becomes redundant in the absence of animals of opposite sex. All

the observed elephants were reported to have no opportunity to mate due to absence of animals of opposite sex. Musth period among bulls is characterized by actively searching for mates, defending females, scent marking and increased roaming, in the wild (Kurt and Garai, 2007). All these features were conspicuously absent due to the practice of chaining and isolation of the observed bulls.

Conditions in captivity which were not conducive to the elephant's well-being:

- Kurt and Garai (2007) report of the ill-effects of wrongly fixing chains or constantly chaining the same region, on the skin and consequent wound formation among captive elephants. All the observed elephants were chained an average of 18.8 hours a day, with spiked chains being used for two elephants: Gauri and Mohan (male, 14 yrs.).
- Floor type was concrete/ stone, except for the elephant Gauri (female, 21 yrs.). Hard floors and poor foot health among captive elephants maybe correlated (Benz, 2005).
- Work type involved behaviours such as saluting, performing temple duties. These activities are not natural to the elephant's behavioural repertoire and may involve harsh training procedures. Three of the observed animals were also hired for marriage functions or movie picturisation. Such activities imply chances of being overworked for commercial gain.
- Record maintenance (health/ clinical/ service) was poor with only one institution claiming maintain records.

The socio-economic status of the mahouts was rated as being satisfactory, with a relatively low rating for the wages paid. However, their experience with elephants in terms of tool use to control the animal represented bad welfare conditions.

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Section 4: Begging Elephants

Executive Summary

The conditions experienced by animals exploited for commercial gain may vary from a satisfactory state to one deprived of all basic necessities for the animal. This investigation assesses the captive conditions of four female elephants and welfare status of the mahouts through a socio-economic profile of each with different individual owners in the cities of Thane and Pune, Maharashtra, for welfare status.

Data was collected through observation and interviews with the management/ personnel regarding each feature of captivity such as shelter/ availability of water/ shade, etc. Each parameter was rated on a 0 – 10 scale for its suitability to the animal. Zero represented the worst possible situation and ten, a satisfactory condition. The suitability of a parameter depended on the replication of near natural conditions for the animal.

Ratings were graded in the following manner:

- 0 – 2.4: bad
- 3.5 – 5.4: poor
- 5.5 – 7.4: moderate
- 7.5 – 10.0: satisfactory

Mean age of the animals that are used for begging was 29.5 yrs. Two elephants were obtained from a Temple, Varanasi, U.P. Two were obtained from the Sonepur Mela and these two elephants were reported to be from Assam. The rating for all the four elephants was 2.5 implying purchase/ transfer/ gifting across managements.

All the four female elephants were being maintained for begging as a way of resource generation. All the four elephants were given ratings of zero, indicating commercial use. Mean number of mahouts changed was 9.5 ranging from 6 – 11 per animal. Rating was zero for this feature for all the elephants observed implying frequent changes of mahout.

There was no provision of a shelter for any of the animals. Overall mean rating for shelter related parameter was 3.6 with 64 % of all the ratings getting a score of zero indicating poor shelter conditions

All the animals had access to a perennial source of water. However, this was accessible only through taps. Distance to water source depended on the location of the working animal. Bathing place was random depending on the location of the working animal and the overall rating for water related parameter was 4.2.

Three elephants were allowed opportunity for interaction, among them two females, were maintained together in one location and were said to interact at night, after their work schedule. The overall mean rating for interaction and related parameter was 5.5 with 58 % of all the values getting a rating less than five implying poor conditions for social interaction.

All the animals were chained and not allowed to range free, the mean chaining duration was 7.3 hrs and two elephants were restrained with spike chains. Overall

rating for chaining related parameter was 0 with all the observed animals getting a rating of zero.

Walking and begging was the main form of work, one female was maintained for “exhibition,” an elephant, 40y, was hired to film crews earning Rs. 65,000/- per hire, if hired for festivals it involved standing for 8 hours in a day. Overall rating for work related parameter was 2.8 indicating existence of poor work conditions.

All the four elephants were given only stall feed and any food given while begging, feeding place was random and hygiene was not well maintained and food per day included sugarcane, fruits, vegetables and rice. Overall rating for food related parameter was 0.33 with all the values getting a rating less than three showing existence of bad feeding conditions

Two females were exposed to males, once, for the purpose of mating. Overall mean rating for reproductive status of females was 3.1 showing poor conditions for female reproductive status.

All the elephants were reported be suffering from stomach problems and two elephants experience eye problems, foot-rot was observed for two elephants. Overall rating for health status was 2.3 with 82 % of all values getting a rating less than three. Veterinary doctor was not available for three of the four elephants. Veterinary care facilities were not available for any of the elephants. Overall rating for veterinary care was 0.7 and 93 values fall under zero indicating bad conditions of veterinary care.

Mean age of mahout was 30.3 yrs, mean experience in this profession was 11.2 yrs, salary ranged from Rs. 8000/- to 36,000/- per year. Overall rating for mahout was 4.4 implying poor welfare conditions with 55% of all the values getting a rating less than four.

Overall rating for elephants was 2.9 showing existence of poor welfare conditions with 66 % of the values getting a rating less than four. Ratings have been designed such that low values indicate poor welfare conditions as a consequence of deviation of an elephant’s natural living conditions and life history patterns.

Introduction

Individual owners keeping and maintaining elephants in captivity profess various reasons for the practice, nurturing a commercial interest and extracting an income from their animals is a practice that seems to occur frequently. The conditions experienced by animals exploited for commercial gain may vary from a satisfactory state to one deprived of all basic necessities for the animal.

Objective

Captive conditions are likely to impose an environment that is alien to a wild animal's life. This may be compounded by the handling of such animals by mahouts whose living conditions may not be ideal.

- To assess the captive conditions of four female elephants with different individual owners in the cities of Thane and Pune, Maharashtra, for welfare status.
- To assess the welfare status of the mahouts through a socio-economic profile of each.

Method

The deviation imposed by captive conditions on an elephant's natural life history pattern can affect its social, psychological, physical and physiological state. The existing captive conditions for the four elephants along with changes observed in the animal's natural life cycle have been considered in assessing its welfare status. Four female elephants belonging to different individual owners were assessed for their welfare status in the districts of Thane and Pune, Maharashtra. Data was collected through observation and interviews with the management/ personnel regarding each feature of captivity such as shelter/ availability of water/ shade, etc. Each of these features has been labeled as a sub-parameter. Each sub-parameter was rated on a 0 – 10 scale for its suitability to the animal. Zero represented the worst possible situation and ten, a satisfactory condition. The suitability of a parameter depended on the replication of near natural conditions for the animal, i.e., any feature which provided conditions experienced by the animal its wild state was given a rating of 10. The more the deviation from this state, the lesser the ratings assigned to the animal.

Ratings were graded in the following manner:

- 0 – 2.4: bad
- 3.5 – 5.4: poor
- 5.5 – 7.4: moderate
- 7.5 – 10.0: satisfactory

Results

Population Status

Mean age of the animals was 29.5 yrs (SE = 6.5, N =4). Sixty sub-parameters were observed and the data collected was rated.

Source of elephant

- Two elephants, Laxmi, 25 yrs and Rani, 40 yrs. were both obtained from a Temple (Shiv temple, Varanasi, U.P.). The other two, Laxmi, 13 yrs and Ramu 40 yrs. were obtained from the Sonapur Mela. These two elephants were reported to be from Assam.

Elephants which have been purchased may have been subjected to frequent change in ownership and consequent changes in captive conditions as a result of the economic considerations deciding an animal's length of stay in a facility or management. This may entail established social bonds (with other elephants, if any) and or introduction of new and unknown elephants into a system causing distress among the animals. Hence, low ratings have been given for animals which have been purchased/ gifted across facilities. The rating for all the four elephants was 2.5 implying purchase/ transfer/ gifting across managements.

Purpose of keeping

- All the four female elephants were being maintained for begging as a way of resource generation. Mean duration of their stay in this region was 2.7 yrs. (SE = 1.2, N = 4).

Elephants kept in captivity purely to extract monetary benefit from it have been given low rating. Such keeping systems tend to exploit animals at the cost of welfare of the animal. All the four elephants were given a rating of zero, indicating commercial use.

Mahout change

- Mean number of mahouts changed was 9.5 (SE = 1.3, N = 3), ranging from 6 – 11 per animal

When elephants are constantly exposed to different mahouts, they undergo stress in the form adjusting to the differences in the way the animal is handled by each; hence, low rating have been given for frequent mahout changes. Rating was zero for this feature for all the elephants observed (N = 4) implying frequent changes of mahout.

Shelter / enclosure

- There was no provision of a shelter for any of the animals.
- Three of the four elephants had access to earthen flooring. There was no data for the fourth elephant.
- Shade was available for two of the elephants: Laxmi, 25 yrs and Rani, 40 yrs. No shade was available for the elephant Ramu, 40 yrs.

The living space of a captive elephant is a pointer to the care provided to it, as the animal is constrained to spend its lifetime within the conditions provided. This feature was rated across three sub-parameters. Overall mean rating was 3.6 (SE = 1.3, N = 14) with 64 % of all the rating getting a score of zero indicating poor shelter conditions.

The overall value appears to suggest existence of poor welfare conditions. However, this rating was based on data available for only 29 % of the various shelter sub-parameters. Even within this low percentage of data, more than half the features of the shelter were given a rating of zero (Figure 1).

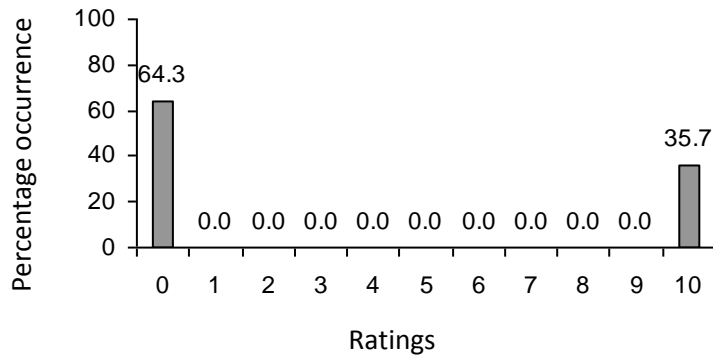


Figure 1: Percent occurrence of ratings for shelter

None of the four elephants was provided any enclosure or shelter; it was kept tied in the open. Rating for all the animals for this feature was zero. Shelter type was given a rating of zero for all the four elephants as there was no provision of shelter. Of the three elephants, two (Rani, female, 40 yrs. and Laxmi, female, 25 yrs.) were said to have access to shade within the shelter; a rating of ten was given for both. Ramu (female, 40 yrs.,) did not have access to shade. Hence, a rating of zero was given.

Water availability

- All the animals had access to a perennial source of water. However, this was accessible only through taps.
- Distance to water source depended on the location of the working animal
- Laxmi, 25 yrs and Rani, 40 yrs were said to drink around 6 times a day.
- Water quality tests were not done
- Bathing place was random depending on the location of the working animal
- Mean bath duration was 1.4 hrs (SE = 0.6, N = 3).
- There was no seasonal variation in bathing for two of the elephants observed.

Provision for and access to suitable sources of water and its use by captive elephants is integral to maintaining its health and welfare. This was rated across six sub-parameters. Overall rating was 4.2 (SE = 0.7, N = 15) and 80% values fall below ratings of five (Figure 2).

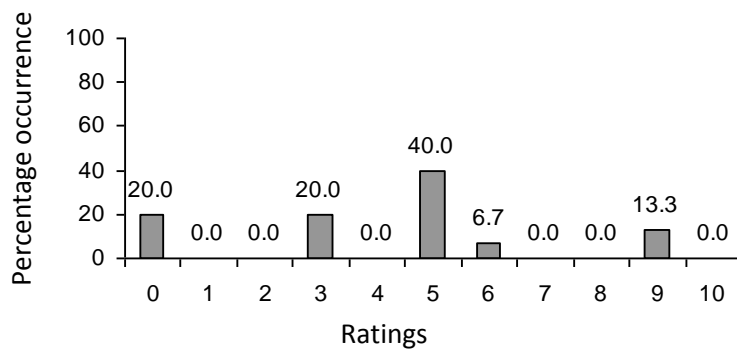


Figure 2: Percentage occurrence of ratings for water

Two factors have been considered while rating: accessibility and chance of contamination. Any source that is not easily accessible to the elephant when it needs to drink or bathe is given a low rating. Running sources of water are considered to be good as they reduce chances of contamination. Rating was 3.0 for the three elephants for which data was available, as they were said to use tap water.

Water sources close to the site of the animal have been given higher ratings. The elephants were given a rating of five for this feature as water sources were said to be random locations. Suitable bathing sites should allow for the expression of natural behaviors of the animals. The observed animals were given a rating of five as bathing sites were also random locations, depending on availability of sufficient water.

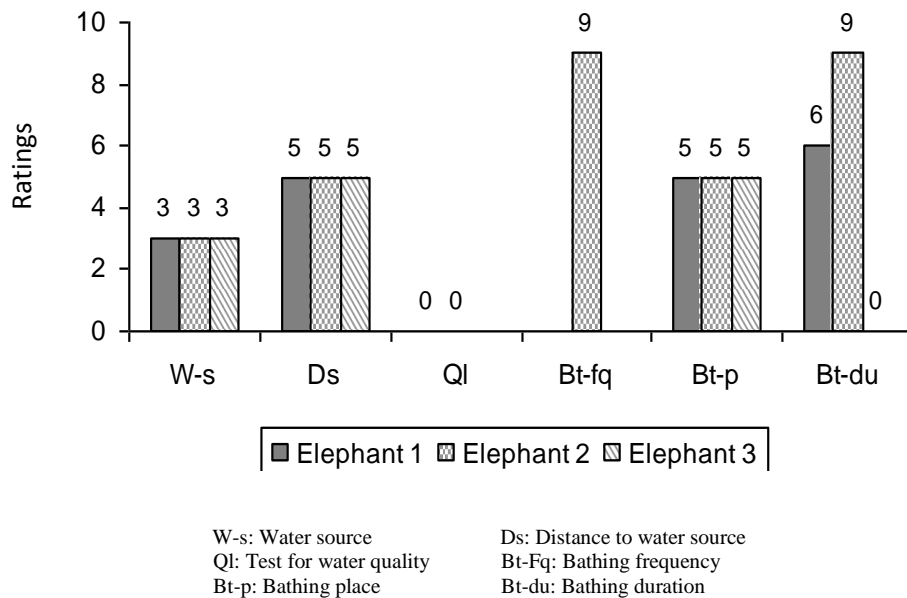


Figure 3: Ratings for water related parameters

Rest and sleep

- All the elephants were allowed to rest
- Locations were random depending on their work schedule
- Shade availability was lacking for all the four elephants
- All the elephants were allowed to sleep, sleeping place was random.
- Duration of sleep for Laxmi, 25 yrs., and Rani, 40 yrs was said to be 6 hrs.

Working elephants need provision of adequate amount of rest and sleep. This was rated across five sub-parameters. Overall rating was 5.0 (SE = 1.2, N = 17) with 53 % of all the rating getting a score less than three (Figure 4).

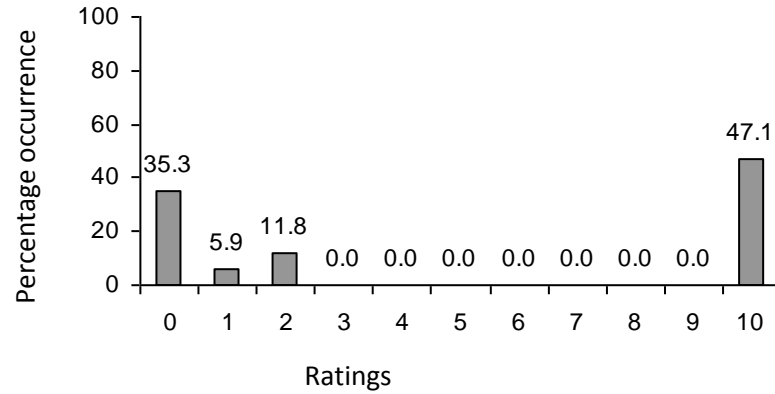


Figure 4: Percentage occurrence of ratings for rest and sleep

All the observed animals were said to be allowed to rest. Rating of ten was given. There was no provision for shade for any of the animals; hence, a rating of zero was given. Of the four elephants, three were given a rating of zero due to its unsuitability of the sleeping place to the animals (Figure 5).

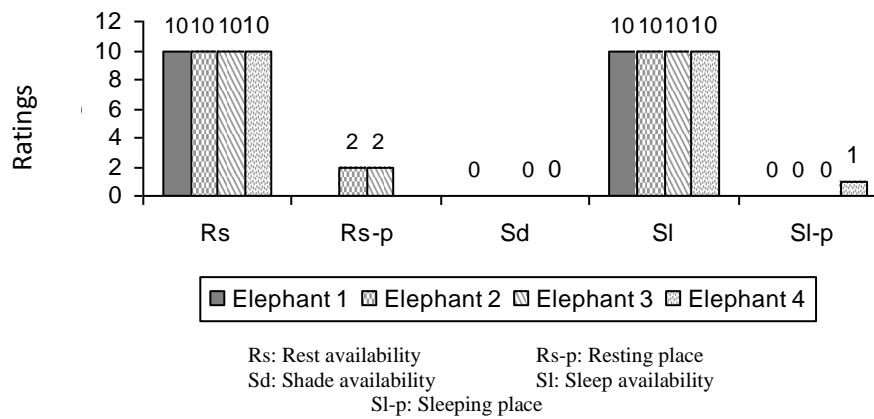


Figure 5: Rating for rest & sleep related parameters

Opportunity for exercise

- All the elephants were allowed to walk, accompanied by mahout
- Nature of terrain was tar roads
- Mean walking hours per day was 10.5 (SE = 0.9, %CV = 16.5, N = 4)
- Distance covered while walking ranged from 6 – 8 kms for two elephants for which data was available.

Allowing elephants to walk on suitable substrates without subjecting the animal to excess or restricted routines of walking duration was rated. Overall rating was 3.3 (SE = 1.4, N = 12) implying poor walking conditions (Figure 6).

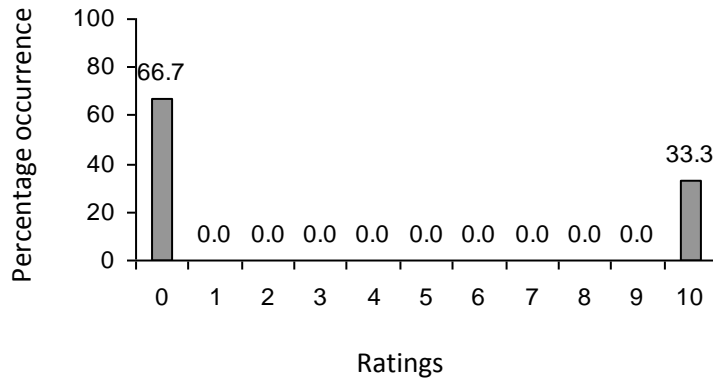


Figure 6: Percentage occurrence of ratings for walk

- All the four elephants were allowed to walk, a rating of ten was given
- A rating of zero was given for the four elephants for hour/ day of walking
- Likewise, all the four animals were given a rating of zero for nature of terrain

Social interaction

- Three elephants were allowed opportunity for interaction. The elephant Ramu (40 yrs.) did not have any interaction
- Laxmi, 25 yrs and Rani, 40 yrs. were maintained together in one location and were said to interact at night, after their work schedule

Social interaction forms a crucial and integral part of a social animal such as the elephant’s behaviour. This feature was rated across five sub-parameters. The overall mean rating was 5.5 (1.2, N = 12) with 58 % of all the values getting a rating less than five implying poor conditions for social interaction (Figure 7).

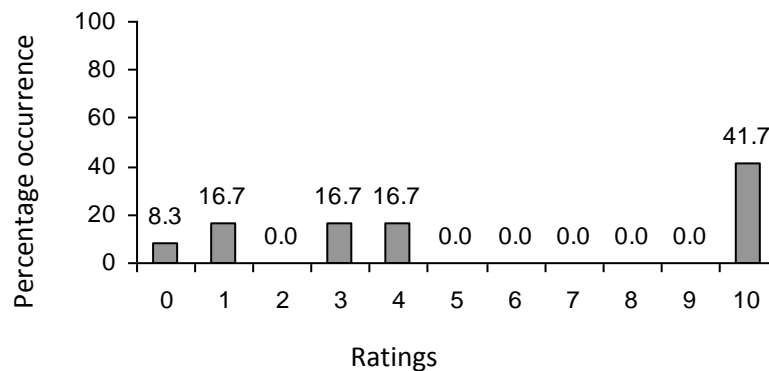
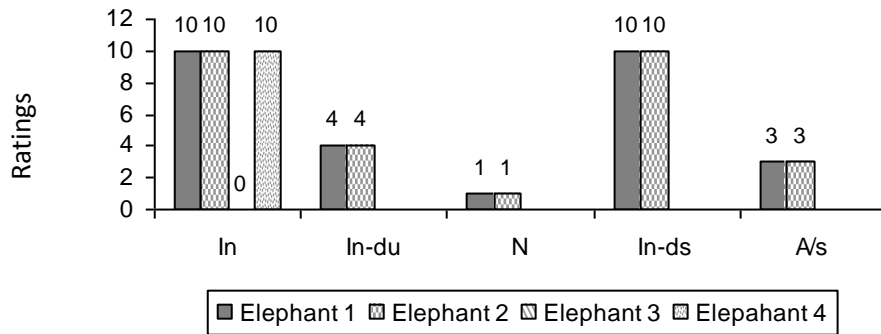


Figure 7: Percentage occurrence of ratings for social interaction

Allowing the animals to interact with other elephants was rated. Three of the four elephants were said to be allowed to interact, and were given a rating of 10. Group size which replicated average group size found in the wild was given higher ratings. Rating was two for the two elephants for which data was available.



In: Opportunity for interaction
 N: Number of individuals
 A/s: Age/ sex class of the animals
 In-du: Duration of interaction (hours)
 In-ds: Distance between animals for interaction

Figure 8: Ratings for interaction related parameters

Chaining

- All the animals were chained and not allowed to range free.
- Mean chaining duration was 7.3 hrs (SE = 1.9, N = 4).
- Laxmi, 25 yrs., Rani, 40 yrs. and Ramu 40 yrs., were restrained with spike chains

Restriction on the movement of captive elephants through the use of chains is common practice. This feature was rated considering such aspects as whether the animal is allowed to range free/ not and chain type used. Low ratings indicate that animal is not allowed to range free and/ or use of hobbles or spike chains. Overall rating was (SE = 0.0, N =7) with all the observed animals getting a rating of zero for all the observed sub-parameters.

Behaviour

- Three elephants, Rani, Laxmi and Laxmi were said to be quiet and reliable.
- Ramu was described as agitated and nervous
- Two elephants, Rani (40 yrs.) and Ramu (40 yrs.) were said to exhibit stereotypy of medium intensity.

The observed temperament of the elephant, incidences of aggression towards people along with occurrence of abnormal behaviors such as stereotypy have been considered while rating this parameter. Overall rating (Figure 9) was 5.8 (SE = 1.3, N = 13)

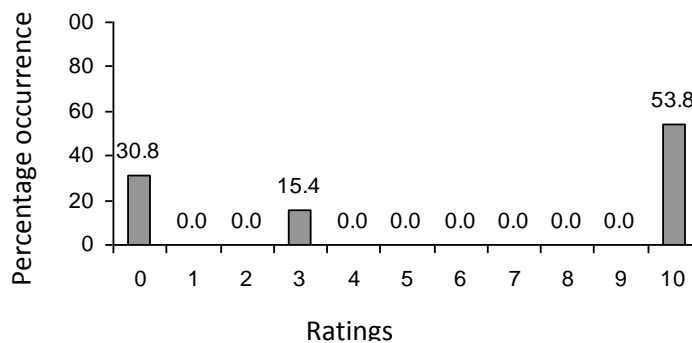
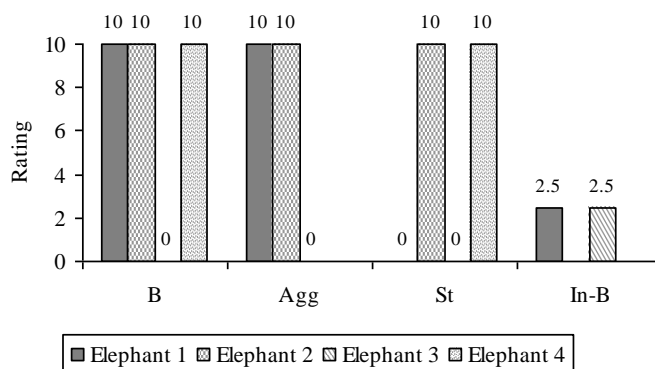


Figure 9: Percentage occurrence of ratings for observed behaviour

The ease of handling an elephant as well as the overt expression of stress through nervousness was rated. High rating indicates calm and quiet behaviour. Three of the four elephants were given a rating of ten. Two elephants were said to express stereotypy and were given a rating of zero (Figure 10).



B: Observed behaviour (temperament)
St: Stereotypic behaviour

Agg: aggressive behaviour towards people
In-st: Intensity of stereotypy

Figure 10: Ratings for behaviour related parameters

Work

- Walking and begging was the main form of work
- Laxmi (13 yrs.) was also said to be maintained for “exhibition.”
- Ramu was also said to be hired to film crews earning Rs. 65,000/- per hire
- Duration of work was 12 hours a day ranging from 8 a.m. to 9 p.m. on all days of the year
- Laxmi (25 yrs) began this work schedule from the age of 20 yrs. while Ramu (40 yrs.) began at the age of 12 yrs.
- Laxmi (25 yrs) was said to be hired for festivals which involved standing for 8 hours in a day. These festivals earned more than Rs. 5000/- per day.
- All the elephants were used for tourism which involved carrying a mean of 6 people (SE = 0.3, N = 3). The entire day was allotted for such trips without any specific timing.
- Metal howdah was used to carry people. Mean howdah weight was 29.2 kg (SE = 4.4, N = 3).
- There was no provision for shade or rest during work
- Food was available and depended on people providing it while the elephants were begging
- Fruits and vegetables were provided

This forms the defining feature of a working animal. This was rated considering the nature of work, working conditions such as shade/ water/ food availability, and accessories used on the elephant for work. Overall rating was 2.8 (SE = 0.88, N = 23) indicating existence of poor work conditions (Figure 11).

Opportunity to range free to browse/ graze for food is considered important for elephants as they are said to be active for nearly 18 hrs a day engaging in foraging (Eisenberg, 1981). Also the supplements provided in form of stall feed should contain a balanced proportion of the different food types. High ratings are designed to reflect this. Overall rating was 0.33 (SE = 0.15, N = 15) with all the values getting a rating less than three showing existence of bad feeding conditions (Figure 13).

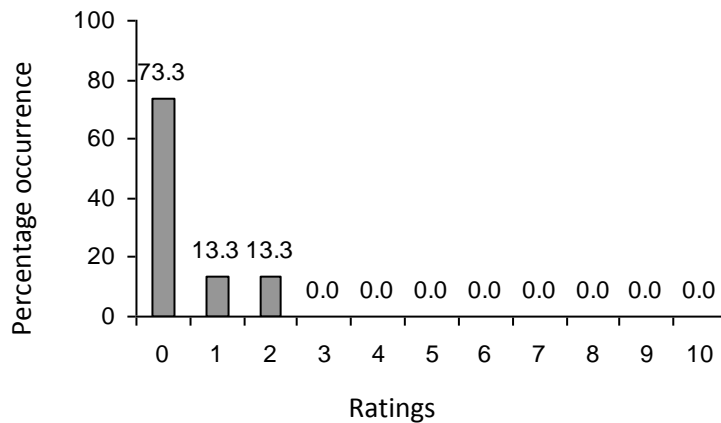


Figure 13: Percentage occurrence of ratings for food

None of the four elephants was allowed to range free. Hence, a rating of zero was given. All the four elephants were not given any mineral mix as a supplement (Figure 14).

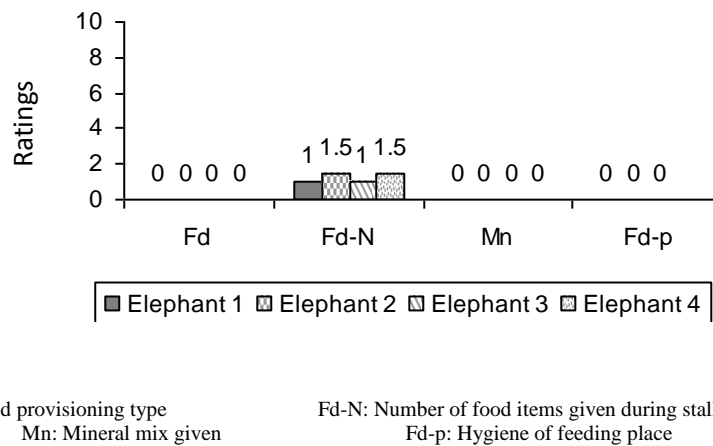


Figure 14: Ratings for food related parameters

Female reproductive status

- Laxmi (25 and 13 yrs.) and Rani (40 yrs.) were exposed to males, once, for the purpose of mating. Ramu had never been exposed to males
- Mating was unsuccessful for the three elephants

The normal expression of reproductive state in an animal is considered to be an indicator of its health and a pointer to the welfare conditions existing. This parameter was rated using five sub-parameters. Overall mean rating was 3.1 (SE = 1.2, N = 16) showing poor conditions for female reproductive status.

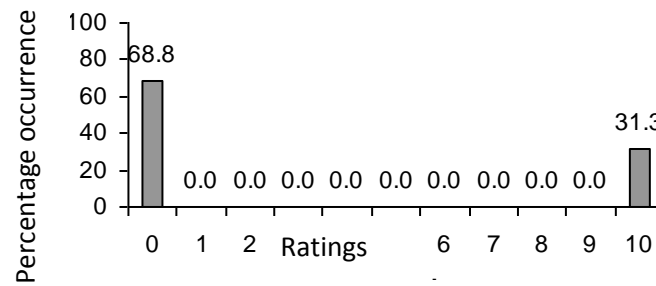


Figure 15: Percentage occurrence of ratings for female reproductive status

None of the animals were said to have raised/ tended to young calves, despite being adult animals. Rating was zero. Three elephants were said to been exposed to males, rating of ten was given (Figure 16).

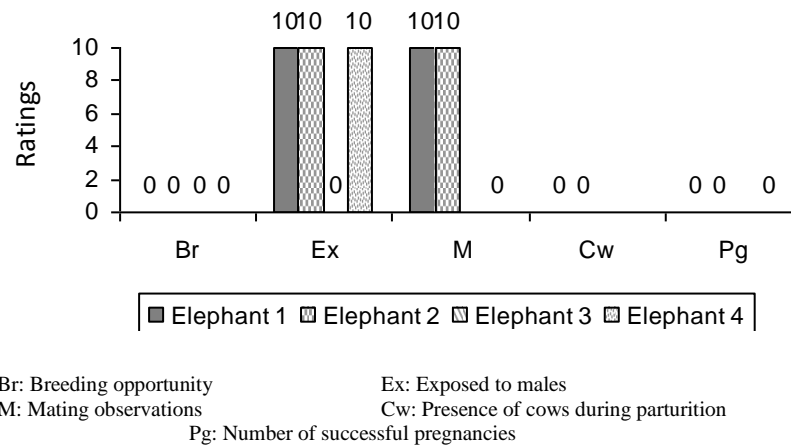


Figure 16: Ratings for female reproductive status related parameters

Health status

- All the four elephants were reported be suffering from stomach problems.
- Ramu was said to have experienced fever
- Stomach problems were said to occur frequently
- Laxmi and Rani (belonging to one owner) were both experiencing eye problems: injury in one eye for Laxmi and discharge for Rani.
- Foot-rot was observed for Rani (40 yrs) and Ramu (40 yrs).
- All the elephants were oiled on the head. Frequency ranged from once in a day once in a year.
- Tests of blood/ urine/ dung had never been done for the elephants
- No vaccination or deworming was done for any of the animals
- Body measurements were not taken for the observed elephants

Ill health/ occurrence of injuries can be an indicator of an underlying problem with the conditions of captivity. Occurrence of disease/ injury, intensity in terms of frequency, adherence to prescribed veterinary schedules and use of routine practices such as application of oil on elephants have been rated to indicate the animal's health status. Overall rating was 2.3 (SE = 0.8, N = 29) implying bad health status with 82 % of all values getting a rating less than three (Figure 17).

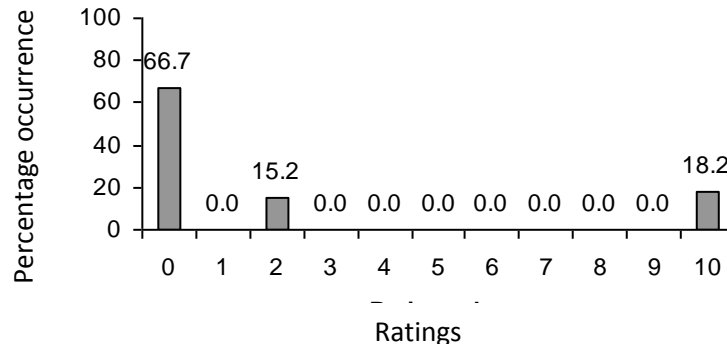


Figure 17: Percentage occurrence of ratings for health status

The nature of the disease or injury in terms of its effect through its virulence, incidence of pain with consequences on further deterioration of health has been considered for rating. All the four elephants have been given a rating of 2.0. None of the animals had been dewormed or vaccinated against known parasites/ pathogens. Hence, a rating of zero was given. Oiling, the application of oil on the animal, was said to be practiced for all the four animals, hence, a rating of ten was given. However, oiling was repeated only rarely for one of the observed elephants, hence a value of zero was given for it (Figure 18).

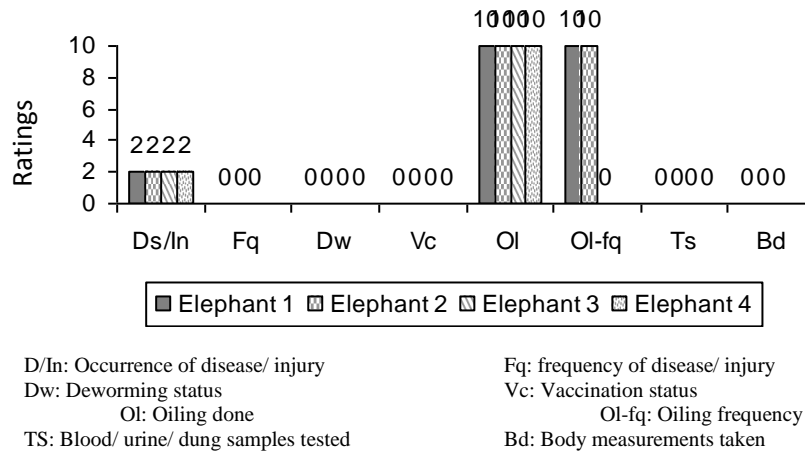


Figure 18: Ratings for health related parameters

Veterinary care

- Veterinary doctor was not available for three of the four elephants.
- Veterinary care facilities was not available for any of the elephants
- Records were not maintained

Facilities with easy access to a veterinary doctor with experience in treating elephants have been given high ratings. Also, such facilities should have provision for veterinary facilities and maintain records regularly. Overall rating was 0.7 (SE = 0.7, N = 14) and 93 values fall under zero indicating bad conditions of veterinary care (Figure 19).

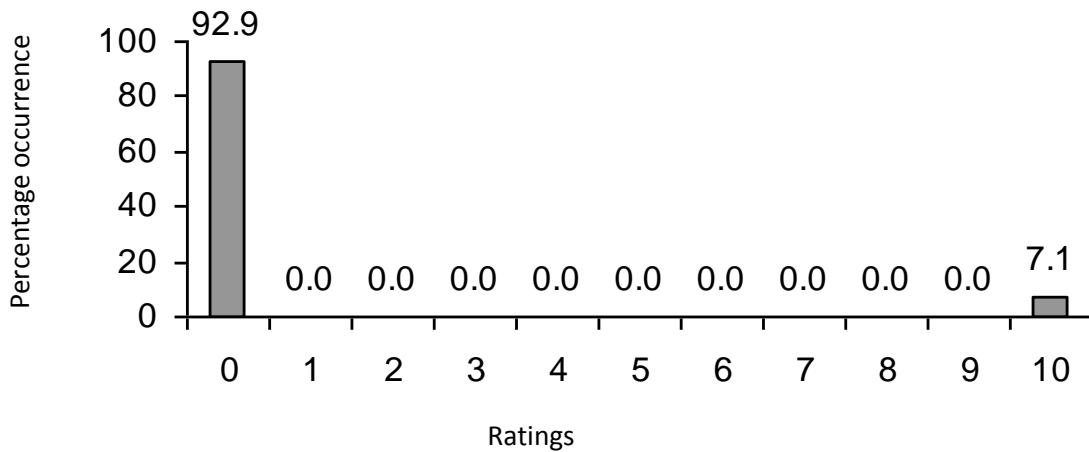


Figure 19: Percentage occurrence of ratings for veterinary care

Only one elephant was said to have access to a doctor (Figure 20). There was no provision for any other facility and records were not maintained.

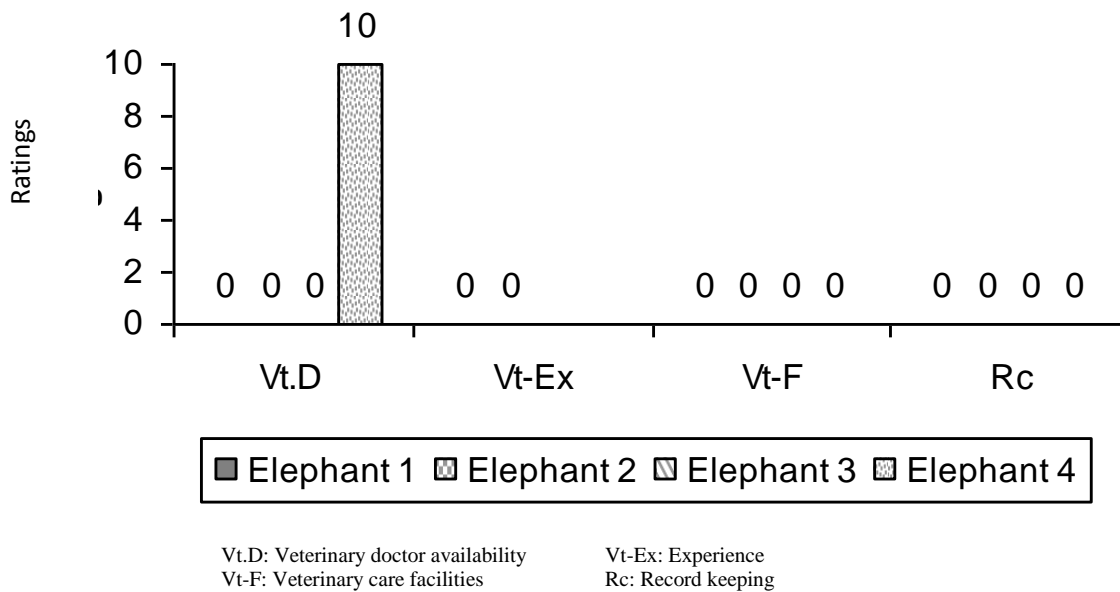


Figure 20: Ratings for veterinary care related parameters

Overall Welfare status of begging elephants

Among the fifteen important parameters considered for assessing the welfare status of begging elephants, 3 parameter get the value of zero, and 10 parameters values are below five (Figure 21)

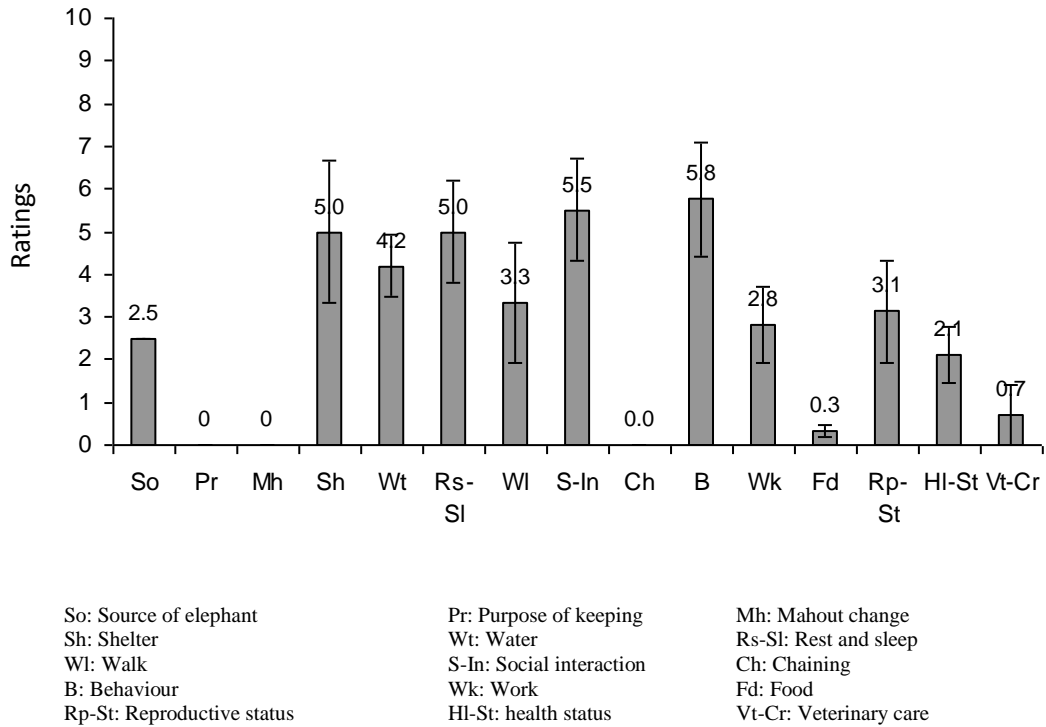


Figure 21: Overall ratings patterns for parameters investigated

Overall rating for elephants (when considered across each individual rating including all sub-parameters) was 2.9 (SE = 0.3, N = 202) showing existence of poor welfare conditions with 66 % of the values getting a rating less than four (Figure 24).

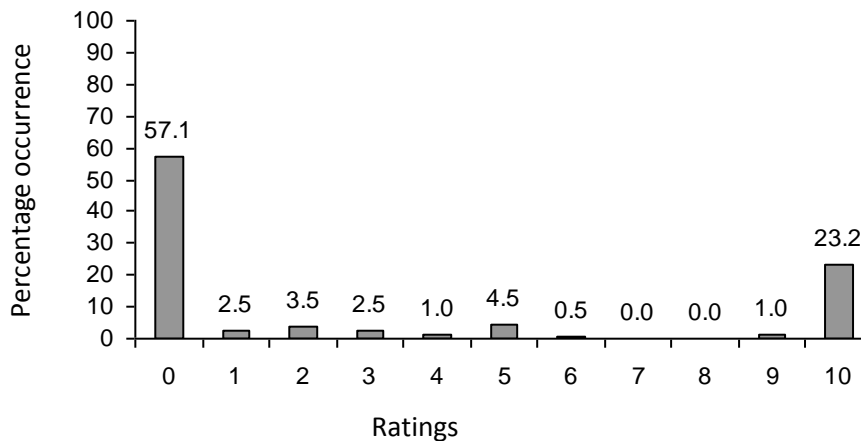


Figure 22: Percentage occurrence of ratings for elephants

Welfare status of mahout

- Mean age of mahout was 30.3 yrs (SE = 5.4, N = 3).
- Mean experience in this profession was 11.2 yrs (SE = 3.8, N =3).
- Mean experience with his animal was 11.3 yrs (SE = 3.8, N =3).
- Two mahouts had entered this profession out of interest while one needed a source of employment
- Family occupation was said to farming for the three mahouts
- Salary ranged from Rs. 8000/- to 36,000/- per year
- All the mahouts were single
- All the mahouts used a stick pike and / or metal ankush to control his elephant
- Only one mahout was said to have had a health check-up
- Insurance cover was not available for the two mahouts for whom data was available

The socio-economic status of the elephant handlers was rated to assess his welfare condition. Mahout's welfare is important not only to the person but also to the animal he cares for. Bad welfare conditions may lead to worse treatment/ handling of the elephant. Parameters with direct bearing on the elephant's welfare such as experience of the mahout, use of tools and knowledge of commands has also been rated. Elephant: mahout ratio was 1: 0.75 with two adult female animals cared for by a single mahout. Mean age was 30.3 yrs, ranging from 18 – 38 yrs. Overall rating for mahout was 4.4 (SE = 0.83, N = 31) implying poor welfare conditions with 55% of all the values getting a rating less than four (Figure 22).

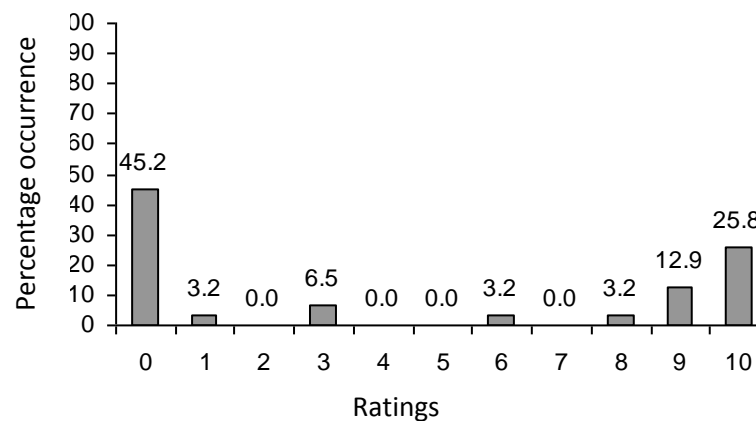


Figure 23: Percent occurrence of overall ratings for mahout welfare

When a mahout spends more than 50 % of his age in the profession he is given a high rating value. Of the three, two mahouts experience ranged from 33 – 57 % of their ages. Greater experience with a particular animal would lead to fewer periods of adjustment between an elephant and its handler. Only one mahout had less than 20 % experience in terms of the elephant's age. The others reported to have been with this elephant for 50 % of the animal's age.

None of the mahouts reported handling elephants to be their family occupation. None of the mahouts was educated. The salary paid ranged from Rs. 8000- 36,000/- per year. High ratings were given if the remuneration was sufficient to support a family of

four in an urban environment. Only one mahout had had a health check-up. There was no insurance cover for the handlers (Figure 23).

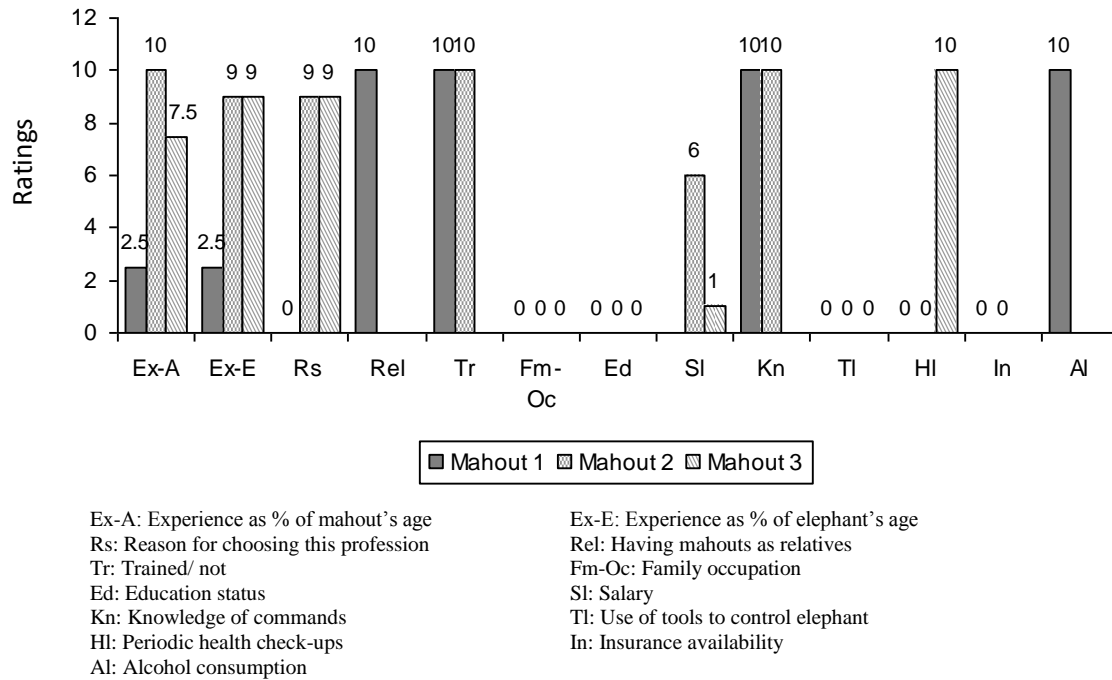


Figure 24: Rating for mahout welfare related parameters

Discussion

Overall rating for elephants for begging elephants was 2.9 (66 % of the values getting a rating less than four). This rating and the distribution of the values suggest a poor welfare conditions Ratings have designed such that low values indicate poor welfare conditions as a consequence of deviation of an elephant's natural living conditions and life history patterns.

Reasons for poor welfare status are:

- Studies have shown that elephants are active for most part of a day (18 -20 hrs) foraging (Sukumar, 2003), resting during periods of high temperatures (Kurt and Garai, 2007), and engaging in social activities within the herd.
- The only similarity between natural elephant behaviour and that seen among these four begging elephants is that they are active for 12 hrs a day. Activities for the entire day are completely controlled by the mahout who decides where and when the animal will work/ rest/ sleep/ eat/ drink, etc.
- Elephants are said to drink at least once a day not wandering away to great distances from a water source (Shoshani and Eisenberg, 1982). This was absent for these elephants as their nature of work impelled them to depend on random sources of water, if available. Likewise, bathing times and place was also random depending on location and availability. Physical activity increases body temperatures. Rest periods are not determined by the elephants, but by the mahouts. These two interrelated factors make the need for a bath an imperative issue. However, bathing frequency and duration depended on location and availability of water.

- Chaining the elephants in open spaces, without access to a shelter, for the duration of the night. Three of the four elephants were said to be chained using spikes. The harmful effects of non-abrasive chains causing skin wounds as the animals walk has been reported along with the long duration of treatment needed to heal such wounds (Kurt and Garai, 2007). Physical activity during the day followed by restraint using spikes at night can result in physiological and psychological distress as will be seen in the discussion on stereotypy and reproductive malfunction. Coupled with this is the occurrence of foot injuries in two elephants, both without access to a veterinary doctor.
- Nature of work was to travel from place to place in search of food for the animal and remuneration for the mahout. One of the elephants was also said to be hired to people making films. All the animals were used for tourism through joy-rides. It is a well-known fact that working elephants need greater care with food provisioning due to the nature of their physical exertion (Kurt and Garai, 2007). However, none of the animals was allowed to range free to browse/ graze. Only stall feed was given with few variations in the number of items.
- Two of the four elephants were said to exhibit stereotypy. Restraining elephants by inhibiting performance of species-typical behaviour can result in stereotypy (Wiedenmayer and Tanner, 1995)[†]. Higher frequency of stereotypy was observed among chained elephants (Kurt and Garai, 2007). The expression of stereotypy suggests psychological distress.
- One elephant was maintained in isolation and two belonged to one owner. Elephants are known for maintaining social relations within a herd over time and space (Sukumar, 2003). Such restricted or absent instances of group living for a highly social species can be deleterious to their welfare. One of the elephants Ramu (40 yrs., female) was said to be nervous/ agitated and aggressive towards people. This elephant was maintained without any social interaction.

The absence of reproductive behaviour in the observed adult females indicates deviation from the normal. Such abnormal reproductive states can be attributed to psychological distress or social isolation (Bearden and Fuquay, 2000)[†] among other causal factors.

Efforts made to expose the females to male elephants for mating proved unsuccessful. Kurt and Garai (2007) state that exposing unknown elephants for the purpose of mating may not result in successful mating/ pregnancy.

The absence of veterinary care facility for most of the elephants even though all the animals showed signs of ill-health or injury indicates poor focus on the animals' needs. Records regarding ownership of the elephants were absent or not accessible. No records were maintained regarding clinical/ service or any other type by the management.

Overall rating for the mahouts suggests existence of poor welfare conditions.

- Absence of health or insurance cover. Both these factors are important considering the nature of their profession.
- Lack of education among all the mahouts.
- Absence of suitable accommodation for the handler
- All the mahouts were said to use tools to control their animal.

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†: Original not referred

Section 5: Captive Elephants in Circuses

Executive Summary

Elephants act as an attraction to children and bring additional revenue to circuses and hence are employed. Keeping this in mind, the welfare of the animals, especially those such as elephants that are not domestic, assumes importance.

This report aims to assess the welfare status of elephants used in circuses in the state of Maharashtra, through a study of the parameters reflecting the animal's captive conditions. Elephants belonging to four circus companies—Great Royal Circus at Thane, Rambo Circus at Ahmednagar, Rayman Circus at Kalwa, Kharegaon and Great Golden Circus at Mumbra, Thane—were observed and their handlers interviewed to collect relevant data.

Management practices adopted regarding space, shelter, interaction, feeding, bathing, work type and other daily routines were investigated.

Welfare status of an animal was measured in terms of a number of variables: physical, physiological and behavioural. Each variable/parameter was rated on a 0--10 scale for its suitability to the animal. Zero represented the bad situation and ten, the good. A similar rating scale for mahout/cawadi is used. High ratings imply suitable economic, social and other living conditions.

The elephants have been purchased from a temple in Kerala and the Sonepur Mela in Bihar. Mean rating for source of animal is 2.5 indicating purchase/transfer of the animal across a cross-section of owners. High ratings are attributed only to those animals which are born in captivity and those that experience a less drastic shift in their living conditions.

Mean age of the animals kept in these circuses was 27 years, ranging from 5 to 42 years. There were 16 female elephants and the mean age was 29 years, ranging from 14 to 42 years. Ages of males ranged from 5 to 28 years.

Most of the elephants in the circus surveyed were housed in tents, the same being also the source of shade for the animals. Mean rating for shelter-- type related parameter is 2.5 indicating poor shelter for all the animals.

Tap water is used as a source for drinking and bathing and the bathing place was the enclosure itself for all the six animals. Mean rating for water-- related parameter was 5.1 with 78% of the rating occurring between 3 and 5.

The animals were walked around the tent. Walking was done in the morning for some time and the time of day was not fixed for the other animals.

Interaction was allowed in the enclosure (tent) for a mean duration of 22 h in a day; mean number of animals for interaction was 2.7; and the distance between the animals varied from 1 to 6 ft.

The elephants were made to work in accordance with circus timings, which begin from 1 p.m. They were put to work every day, except when the circus had to shift to a new location. Score for work type was 0.0.

All the animals were stall fed and the tent (shelter) was also the feeding place. Mean rating for provision of food is 0.86, with all animals getting a score of less than 3.

Stomach pain, worms or gastro-intestinal problems are reported for the elephants. Toe nail cracks and foot rot is reported for some animals, and rating for the occurrence of disease and injury is 0.0.

Mean rating considered across all individual scores across all parameters is 4.6, with 58% of individual ratings occurring in the range 0- 5.

The period experience for mahouts ranged from 7 to 30 years and experience with a particular animal ranged from 0.5 to 20 years. Mean salary was Rs. 41,250 per year ranging from Rs. 30,000 to Rs. 60,000. All the mahouts used tools to control their animals and the preferred tool used was the stick pike. Mean rating for mahout welfare parameter is 5.1.

Mean overall funds required per animal per year is Rs.1, 20,125 and mean annual manpower cost alone is Rs. 43,000.

Introduction

This section aims to assess the welfare of elephants used in circuses in the state of Maharashtra through a study of the parameters reflecting the animal's captive conditions. This includes an assessment of the socio-economic conditions of the animal's handler. Elephants belonging to four circus companies—Great Royal Circus at Thane, Rambo Circus at Ahmednagar, Rajman Circus at Kalwa, Kharegaon and Great Golden Circus at Mumbra, Thane—were observed and their handlers interviewed to collect relevant data.

Methods

Eighteen elephants, belonging to these four circuses, were observed and their keepers/managers were interviewed to collect relevant data. Ratings for 47 parameters (inclusive of sub-parameters) for the elephants have been presented. Ten parameters for mahouts/cawadis have been rated (see section 1 for survey methods and data analysis more details).

Results

Population status

Mean age of these animals was 27.4 years (SE=0.19, N=18) ranging from 5- 42 years. There were 16 female elephants, mean age being 28.8 years (SE=0.19, N =16) ranging from 14- 42 years. There were two males, aged 5 and 28y.

Purpose of keeping

When an animal is maintained for commercial use in unnatural conditions, its welfare is reduced due to the imposition of alien living conditions and the possibility of over-exploitation for commercial gain. Mean rating was 0.0 (SE=0.0, N=16).

Source of elephants

The elephants have been purchased from a temple in Kerala and from the Sonepur Mela in Bihar. The change in conditions which an animal undergoes as a consequence of being sold/transferred to different owners implies a change in the way the animal is taken care of with each change of hands. High ratings have been given for animals that are captive-born, followed by those that experience a less drastic shift in their living conditions. Mean rating is 2.5 (SE=0.0, N=16) indicating purchase/transfer of the animals across owners.

Shelter/enclosure

Sixteen of the elephants were housed in tents in the circuses observed and the elephants were kept for a mean duration of 22 h. (N =14) in the enclosure. The tent was also the source of shade for the animals. The enclosure is cleaned 2---12 times a day using different implements such as broom, spade and rake. Ten of the enclosures did not have seasonal variation in temperatures. Six were open type of shelters.

Living conditions for the animal in terms of physical space is rated across six sub-parameters. Overall rating for shelter is 5.1 (SE=0.41, N=6) with mean rating for individual elephants in the range 4.3---6.5. Percentage occurrence of overall rating for each elephant indicates 67% of the animals given a score between 6 and 7. This suggests the existence of 'moderate' shelter conditions for the animals. However, this score has to be viewed in terms of the high rating given to the sub-parameter—shade availability. This was a sub-parameter with only two possible scores: 0 or 10,

irrespective of the kind or extent of shade/sunlight available excluding this sub-parameter overall mean rating was 4.1 (SE=0.48, N=5) with 89% of ratings getting a score less than 6.0 (Figure1).

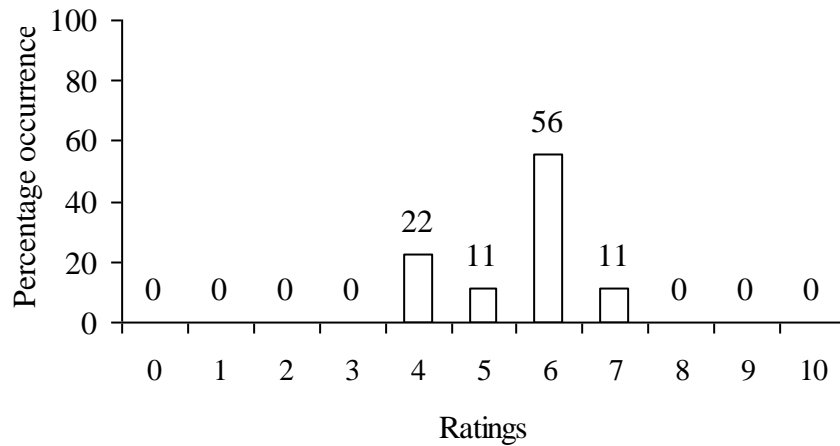


Figure 1: Overall rating of elephants for shelter

An important aspect of captivity is the shelter type provided to the animal. The provision of a shelter or enclosure has been rated based on the type of shelter--whether it resembles forest conditions or is a structurally enclosed space, and on the materials used in building the enclosed space. Mean rating of 2.5 (SE=0.0, N=18) indicates poor shelter type for all the observed animals. The size available to the captive animal was rated with the maximum value given to the animal allowed to free range and lower values for any size less than 5000 m². Mean rating is 0.0 (SE =0.0, N =12).

All the observed elephants have earthen flooring. Hence, mean rating is 10.0 (SE =0.0, N=18). Keeping animals within an enclosed space makes it important that the hygiene is maintained by regular cleaning. Mean rating of 4.8 (SE=0.13, N=18) with 56% of the animals getting a score less than 3, implies poor hygiene (Figure.2).

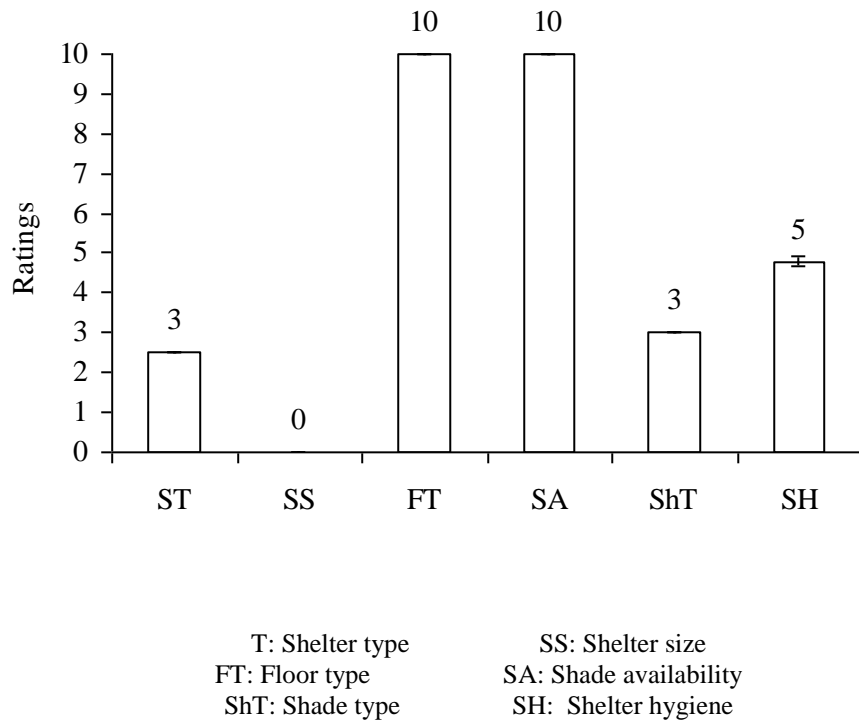


Figure 2: Ratings for shelter sub-parameters

Water

Tap water is a source for drinking and bathing and the animals drink water 3---7 times a day. The bathing place is the enclosure itself for six animals. For seven elephants, it is near the tent or outside the circus premises. A bathing place was built for four animals. Coconut fibre was used as a scrub. An important factor in the assessment of the welfare of captive elephants is the availability of and access to water. This parameter is rated across seven sub-parameters. Overall mean rating is 5.13 (SE=0.88, N=6) with 78% of the ratings for individual elephants occurring in the range 3--- 5 (Figure.3).

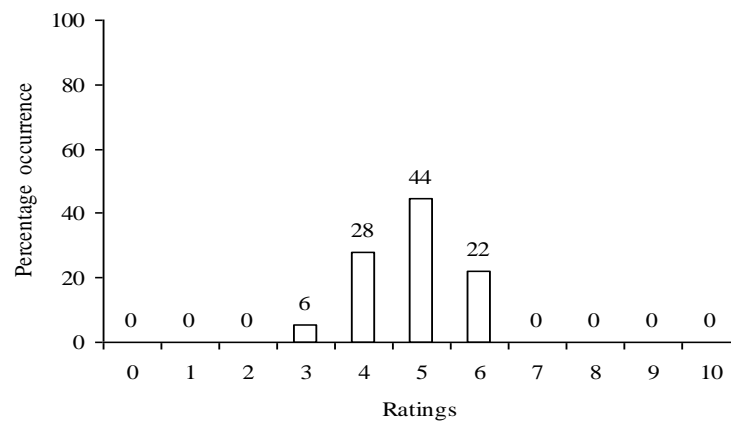


Figure 3: Overall rating of elephants for water.

Running water through the year is of paramount importance. Running water reduces the incidence of contamination for which stagnant water sources are prone. Mean rating is 9.2 (SE=4.8, N =13) with 92% of the animals having provision of running water and only one does not have access to this facility. The provision of running water needs to be viewed in the context of its ready accessibility to the animal. Sources of water that are not easily accessible to the animal have been given low rating. . Mean rating is 3.0 (SE =0.0, N= 12) with water being supplied through taps for all the animals.

None of the observed circuses had tested the quality of water given to the elephants. Mean rating is 0.0 (SE=0.0, N =17). Use of hard and abrasive materials, e.g., plastic brush or brick has been given lower ratings (Figure 4). Use of natural materials has been given a high rating. Mean rating is 10.0 (SE=0.0, N=9).

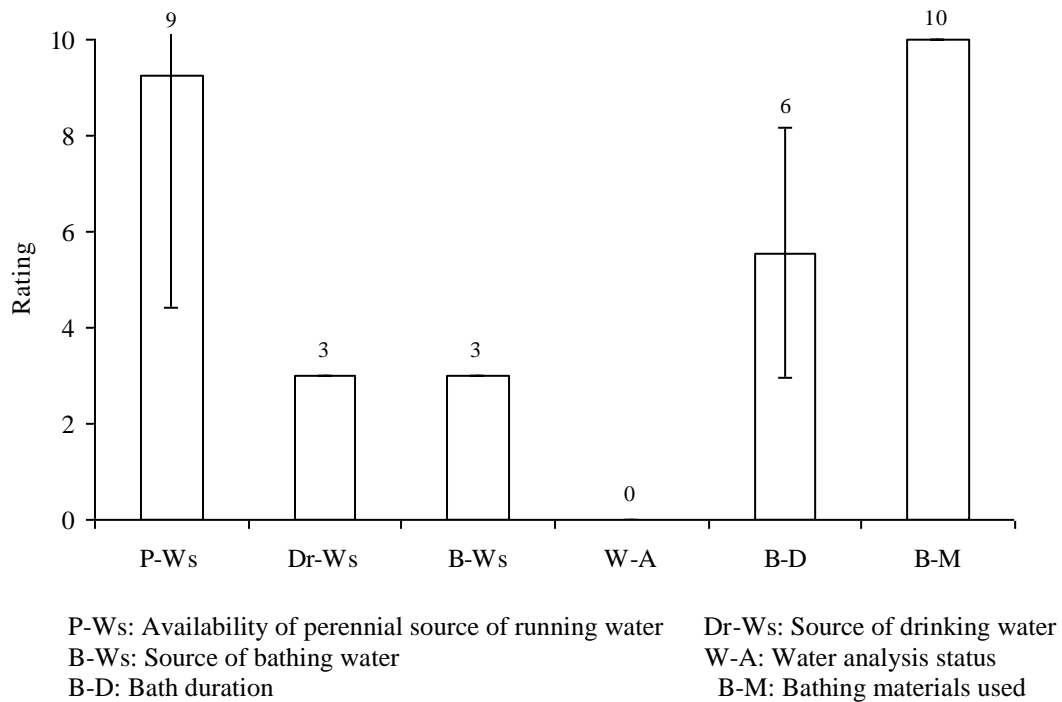


Figure 4: Ratings for water sub-parameters

Walk/Sleep and physical exercise

The animals were walked around the tent. Walking was done for 1--2 h in the morning time and the time of day was -not fixed for other animals. The sleeping place forms an integral part of the physical environment of the animal. Its mean rating is 2.5 (SE=0.0, N =18). Allowing the elephant to walk on suitable terrain or time of day is significant as they are subjected to long periods of inactivity or unnatural activity. Mean rating is 10.0 (SE=0.0, N= 18).

Social interaction

Interaction was allowed in the enclosure (tent) for a mean duration of 21.8 h (SE=0.26, N=16). Mean number of animals for interaction was 2.7 (SE=0.2, N=16) and the distance between the animals varied from 1 to 6 ft. Provision for social interaction among the animals is a feature of significance considering the social nature of elephants in the wild. Opportunity for interaction was assessed using four sub-parameters such as the sex of the group, the distance between the animals, etc. Overall

mean for interaction is 8.21 (SE=0.73, N=4) with 82.4% of the animals getting a score between 8 and 9 (Figure.5).

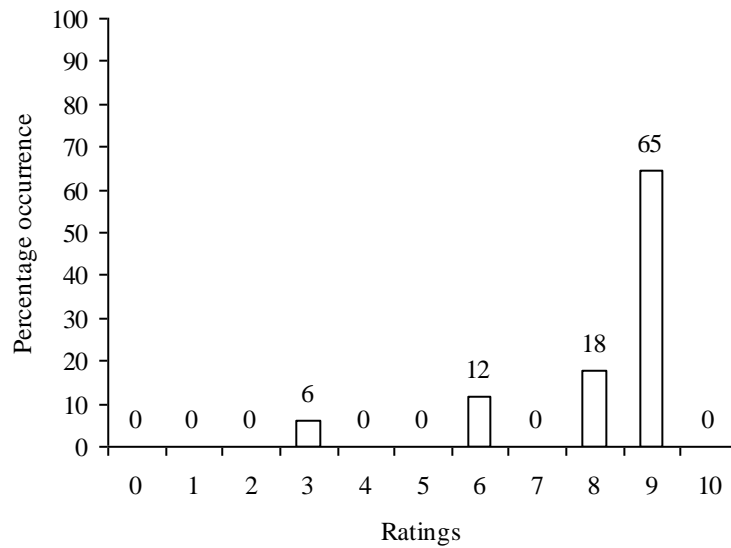


Figure 5: Overall ratings of elephants for social interaction

Mean rating of 7.8 (SE=0.5, N=18) with 78% of the animals being allowed an opportunity to interact (Figure. 6) indicates group size replicating the environment found in the wild. Mean rating of 6.2 (SE=0.16, N=17) implied the presence of male-- female or all female groups, with restricted movement of the animal due to lack of free-ranging opportunity.

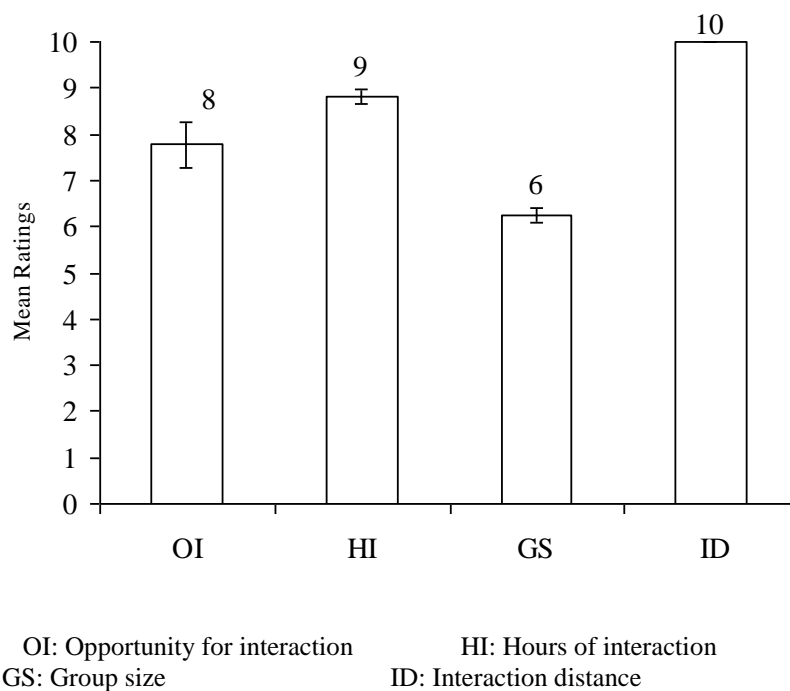


Figure 6: Ratings for interaction sub-parameters.

Chaining

Twelve of the eighteen animals were chained in more than one region—on both forelegs or one fore and one rear leg. The restriction imposed on free movement of the animal is a conspicuous feature of most captive elephants. This is rated across three sub-parameters: whether the animal was chained or not, the chaining region and whether it is allowed to free range at night. Overall mean rating was 0.1 (SE=0.3, N=3) with all the sub-parameters getting a rating less than 2 (Figure.7).

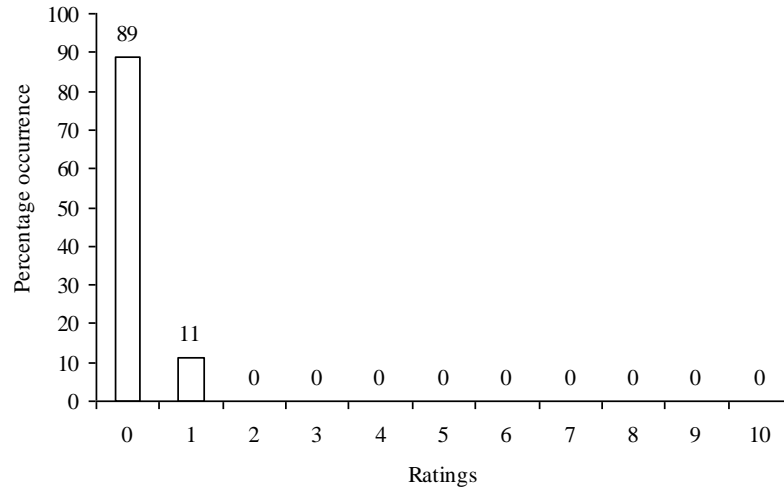


Figure 7: Overall ratings of elephants for chaining.

The elephants which were allowed to free range were given high rating. Mean rating was 0.0 (SE=0.0, N=16) with all the animals being chained. Animals which were chained in more than one region were given low rating. Mean rating was 0.3 (SE=0.17, N=17) with all observed animals getting a score less than 3. All the observed animals were not allowed to range free at night (Figure. 8). Mean rating was 0.0 (SE=0.0, N=9).

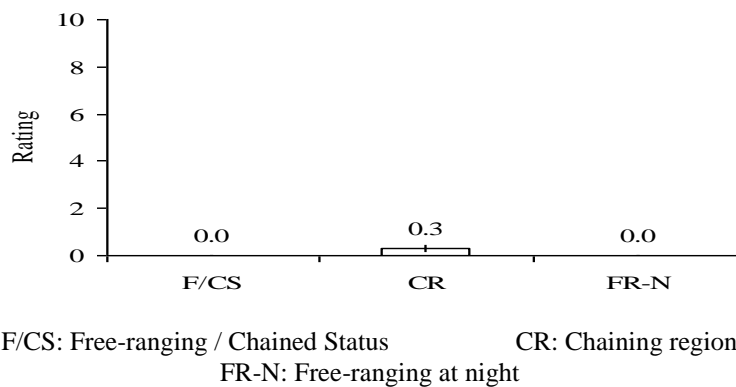


Figure 8: Ratings for chaining sub-parameters.

Observed behaviour

The observed temperament was as follows:

- a. Quiet: 9
- b. Nervous and undependable: 6
- c. Undependable and quiet: 3

The elephant Nitya (female, 14 years) was said to be aggressive. Bahadur (male, 28 years) is aggressive towards his mahout, and none of the animals observed (N=12) were reported to have injured or killed people. Expression of abnormal behaviours such as stereotypy can provide important insight into the welfare of a captive animal. Behaviour of the animal was rated across five sub-parameters. Overall mean rating was 5.4 (SE=1.0, N=5) with 61% of elephants getting a rating from 3 to 5 (Figure.9).

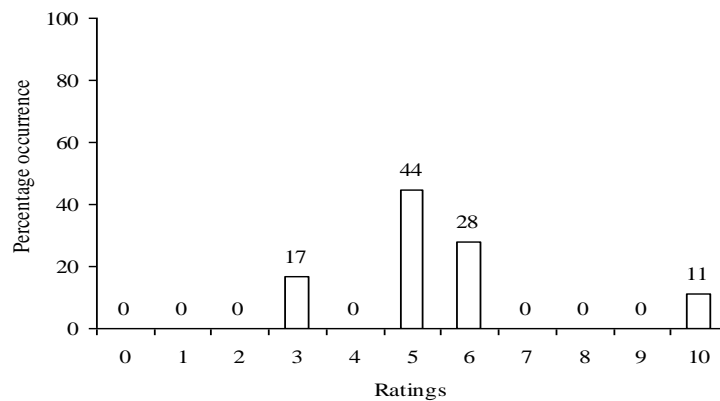
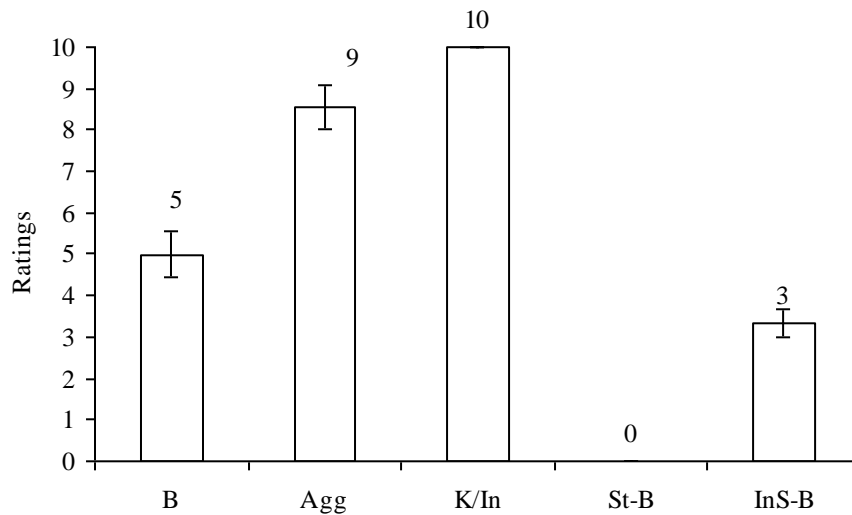


Figure 9: Overall rating of elephants for behaviour.

The behaviour of the animal has been rated in terms of interaction with its human handlers or keepers. An animal which is calm or quiet is given a higher rating than one which is nervous or unpredictable. Mean rating was 5.0 (SE=0.55, N=18) with 50% of the animals getting a score of zero. Low ratings were given for expression of aggression towards people/other animals. Mean rating of 8.6 (SE=0.53, N=14) shows absence of aggressive behaviour. Mean rating is 0.0 (SE=0.0, N =15) with all the observed animals exhibiting stereotypic behaviour (Figure.10).



BB: Observed behaviour
 K/In: Incidents of killing/injuring people
 InS-B: Intensity of stereotypic behaviour
 Agg: Aggression towards people/animals
 St-B: Occurrence of stereotypic behaviour

Figure 10: Ratings for behaviour sub-parameters.

Work

The elephants were made to work during the circus timings, which began from 1 p.m. Duration ranged from 30 min to 2 h. They were put to work every day, except when the circus is on the move. The observed animals belonged to different circuses and performed in front of audiences every day. Score for work type is 0.0 (SE=0.0, N=18). Among the four animals observed, all had access to water during work. Of the eight animals for which data are available, rest was given to four animals while working. None of the animals observed (four in number) were given food while working.

Provision of food

All the animals are stall fed (N= 18) and the tent (shelter) is the feeding place. They are fed throughout the course of the day and the food offered was dry grass, bread, jaggery, rice, fruits, maize, 'jowar', carrots, cabbage, sugarcane, dry "kadba". Jaggery mixed with rice, vegetables, 'roti', bananas and mineral mixture was given for four of the elephants.

- "Lacto" mix was given for four of the elephants as per the veterinarian's advice.
- The observed animals (N=10) were not allowed to range free for grazing/browsing.

Captive animals provided with only stall feed have been given low rating as being deficient in the variety of food available while they range free. Provisioning of food was rated across three sub-parameters. Overall mean rating is 0.86 (SE=0.86, N=3) with all the animals getting a score less than 3 (Figure.11).

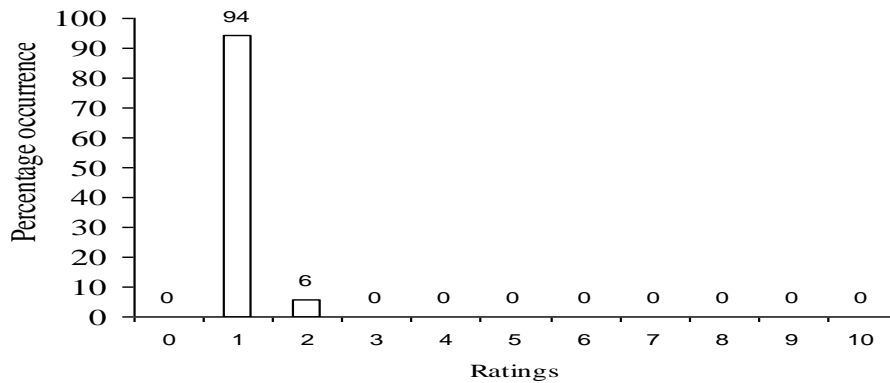
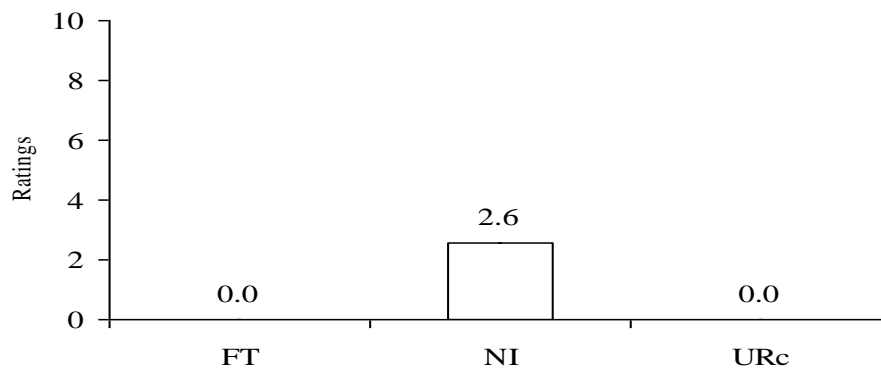


Figure 11: Overall ratings of elephants for food.

Animals that were allowed to range free to graze/browse for food and given stall feed were given high ratings. Mean rating was 0.0 (SE=0.0, N =18). The number of food types was rated to assess the range of feed given to the animal. However, an animal that was not allowed to range free for food and provided with stall feed was given a lower rating than one which was given the maximum possible number of food types. Mean rating was 2.6 (SE=0.1, N=18) with all the animals getting a rating less than 5 (Figure.12).



T: Food type NI: No of items Urc: Usage of Ration chart

Figure 12: Ratings for food sub-parameters.

Reproductive status

Female

Reproductive health is considered to be an indicator of the welfare status of an animal. This parameter was rated using such factors as whether the animal was in oestrus cycle/not, allowed to mate, number of times pregnant, etc.

- Occurrence of oestrus cycles among six adult females was reported to be unknown.
- Rating for exposure to males for breeding purpose was 0.71 (SE=0.45, N=14) with a lone female (Anar, 42 years) having been allowed the opportunity to mate.
- There was no report of observed mating among the elephants sampled (rating =0.0, SE=0.0, N=5).

- Elephant, Anarkalai (female, 42 years), was said to have given birth once. The calf had been sired by a captive male used for begging purpose. Status of the calf is not known.

Male

Among the two male elephants, was a five-year-old male (Surya). Hence, it was considered to be sexually immature. The reproductive status of the other male (Bahadur, 28 years) was ‘unknown’. The elephant was isolated during “musth”. There were no reports of aggressive behaviour during “musth”.

Health status

Stomach pain, worms or gastro-intestinal problems were reported in 16 of the elephants. Toe nail cracks and foot rot was reported in seven and were oiled using mustard or coconut oil. Poor health or frequent injuries maybe caused by the living environment of the animal. Health status is rated across 10 sub-parameters. Overall mean rating is 5.0 (SE=0.7, N=10) with 71% of the elephants getting a score less than 6 (Figure. 13).

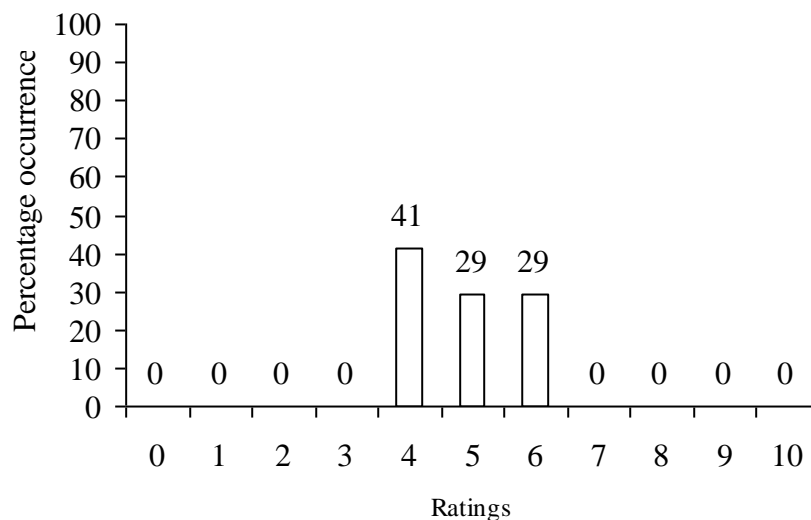
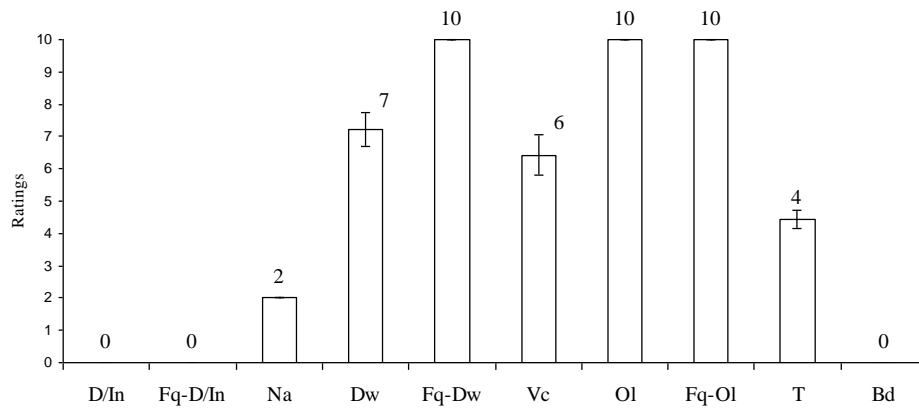


Figure 13: Overall ratings of elephants for health status.

Ratings for the occurrence of disease or injury is 0.0 (SE=0.0, N =17) with all the animals observed reporting disease/injury. Rating is 0.0 (SE=0.0, N=16) with regular occurrence of disease/injury among all the animals observed. Ratings are designed to reflect the nature of the disease/injury: whether it was harmful and led to further problems and if it was curable or not. Rating was 2.0 (SE=0.0, N=17) implying that it is less harmful/painful, but led to further health problems and is curable.

Rating for vaccination status is 6.4 (SE=0.62, N=14) with 64% of the animals being vaccinated (Figure.14). However, even among the animals which are vaccinated, immunization was done using Tetanus toxoid. The location of the circus amid human population with possible presence of domestic cattle necessitates immunization against such diseases as Foot and Mouth or Anthrax. This is not done.



D/In: Occurrence of disease/injury Fq-D/In: Frequency of disease/injury occurrence
 Na: Nature of disease/injury Dw: Deworming status
 Fq-Dw: Frequency of deworming Vc: Vaccination status
 Ol: Oiling done Fq-Ol: Frequency of oiling
 T: Blood/dung/urine tests done Bd: Body measurement taken

Figure 14: Ratings for health sub -parameters.

Veterinary care

Availability of doctors and veterinary assistants with experience in treating elephants and their frequency of visits to check the animals is rated. Overall mean rating is 5.8 (SE=1.0, N=5) with 59% of the animals getting rating of 7.0 (Figure.15).

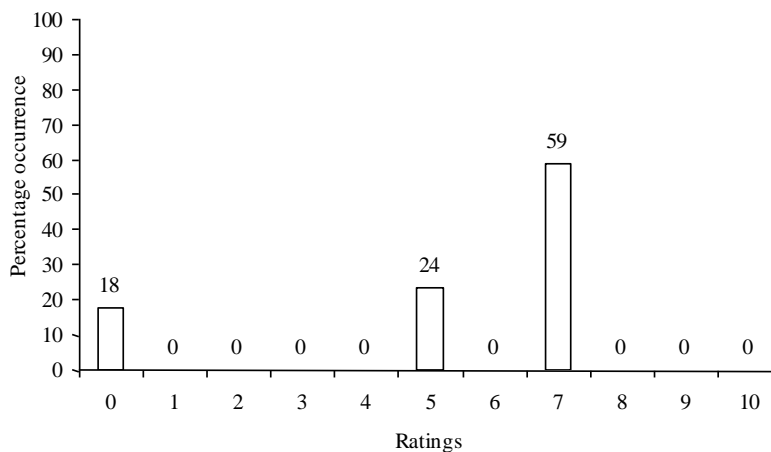
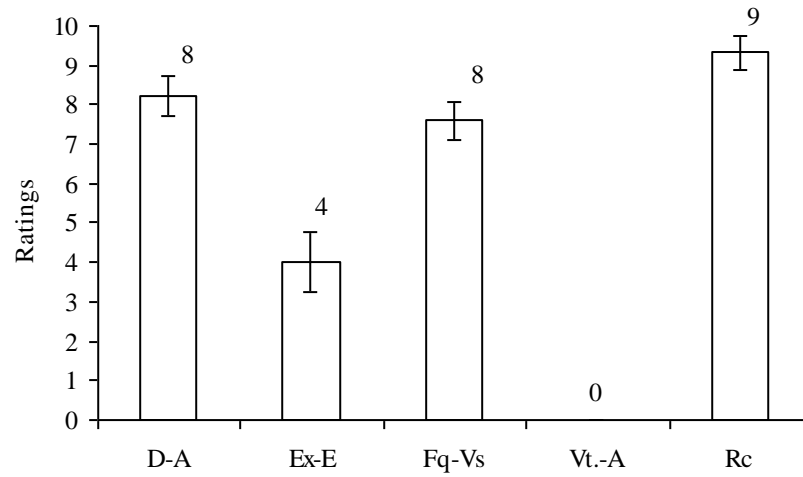


Figure 15: Overall ratings of elephants for veterinary facility.

Ratings of 8.2 (SE=0.5, N =17) implies availability of veterinary doctor for most of the circuses (82% of the animals had access to a doctor). However, when the doctor's experience in treating elephants is rated, it was 4.0 (SE=0.76, N=10) with only 40% of the animals having access to a doctor with 10 or more years of experience.

Maintenance of records

Ratings for maintenance of service/clinical/other records is 9.3 (SE=0.43, N =15) with 93% maintaining records (Figure. 16).



D-A: Availability of doctor Ex-E: Experience with elephant
 Fq-Vs: Frequency of visit Vt.-A: Veterinary assistant availability
 Rc: Record keeping

Figure 16: Ratings for veterinary facility sub-parameters.

Mean overall funds required per animal per year was Rs.1, 20,125.00 (SE =70.68,N=16). Mean annual man power cost is Rs. 43,000.00 (SE=33.25, N=9) and the source of funds is through the sale of tickets for one of the circuses.

Welfare status of mahout/cawadi

Mahout's experience in this profession ranged from 7 to 30 years and experience with a particular animal ranged from 0.5 to 20 years. All the mahouts interviewed (N=8) had received training in the job for a duration of 1--- 2 years. Mean salary was Rs. 41,250.00 per year (SE=35.3, N=8) ranging Rs. 30,000.00 to 60,000.00 (1US \$= Rs. 43.75). Mean number of children was 4.0 (SE=0.67, N=6) ranging from 2 to 7. All the mahouts interviewed (N=9) reported using tools to control their animal. Preferred tool used was stick pike. The welfare of the animal handler may be correlated with the way the animal is maintained. Poor keeper status might be associated with poor or bad handling of the animal and a consequent reduction in the animal's welfare. The elephant handler's (mahout/cawadi) welfare was assessed through his socio-economic profile. Along with this, experience in handling elephants was also rated.

A total of 12 mahouts were said to be employed as elephant handlers in the circuses observed. Mean age of the mahout was 31.2 years (SE=0.41, N=9) ranging from 18 to 45 years. Among the elephants observed, the mahout belonging to the Rambo circus was taking care of four adult female elephants. The welfare status was rated across 10 variables. Overall mean rating was 4.8 (SE=0.6, N= 10) with all the values being less than seven (Figure.17).

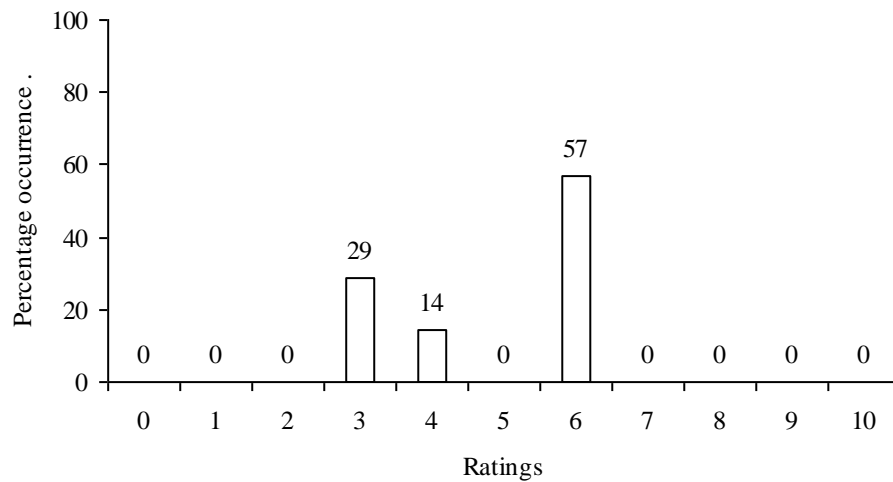
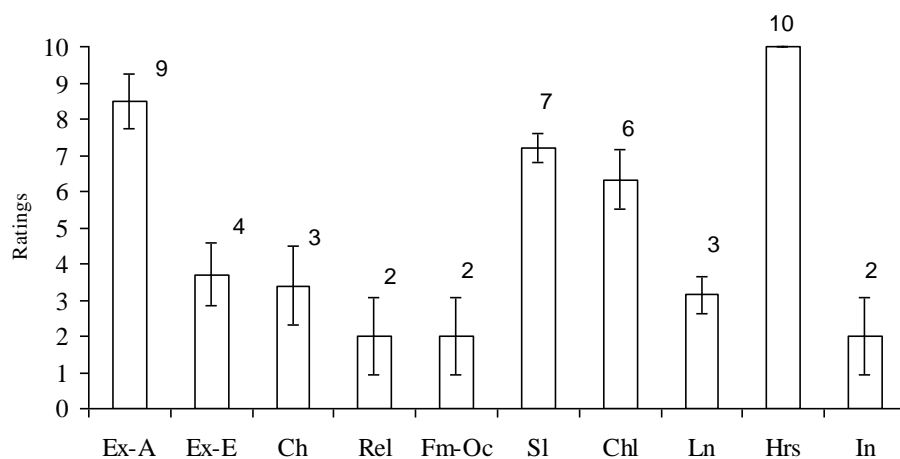


Figure 17: Overall ratings for mahouts.

The mahout's experience with the animal he is handling at present is rated as a percentage of the animal's age. Mean rating was 3.71 (SE=0.85, N=7) with 71% of the handlers getting scores less than 4. Mean rating for salary was 8.5 (SE=0.75, N=5) with three handlers getting scores of 10.0. High ratings were given considering wages which supported a family of four. Mean rating was 7.2 (SE=0.39, N=10) with 50% of the handlers getting scores between 8 and 10. High ratings were given if the handler spent a greater proportion of a day with the animal. Mean rating was 10.0 (SE=0.0, N=7). Eight per cent of the mahouts interviewed did not have any insurance cover (Fig. 4.18). Mean rating was 2.0 (SE=1.1, N=5).



Ex-A: Experience as mahout (as% of his age)	Ex-E: Experience with a particular elephant
Ch: Reason for choosing this profession	Rel: Has mahout relatives
Fm-Oc: Family occupation	Sl: Salary paid
Chl: Number of children	Ln: Languages known
Hrs: Hours spent with the elephant	In: Insurance cover available

Figure 18: Ratings for mahout sub-parameters.

The mean rating, considered across all individual scores and all parameters, was 4.6 (SE=0.08, N=695) with 58% of individual rating occurring in the range 0---5. The

mean rating for the mahout, considered across all individual scores and all parameters, was 5.12 (SE=0.26, N=62). Comparison of elephant and mahout welfare rating show that, both are in a similar welfare status (Figure.19) and substantial improvements have to be made to reach the moderate or satisfactory welfare rating for both.

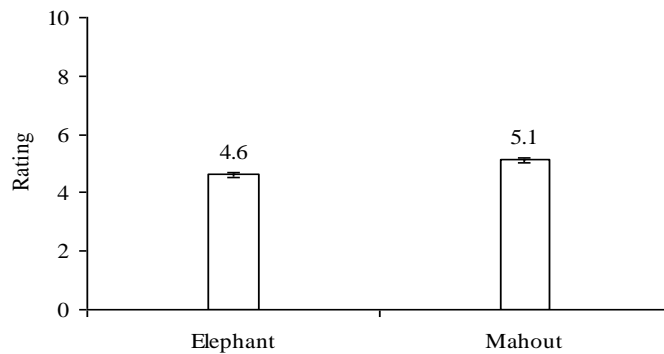


Figure 19: Comparison of mean ratings.

Ratings less than 5 indicate poor welfare status. Overall ratings for elephant welfare were biased towards 0 to 4.9 (Figure.20).

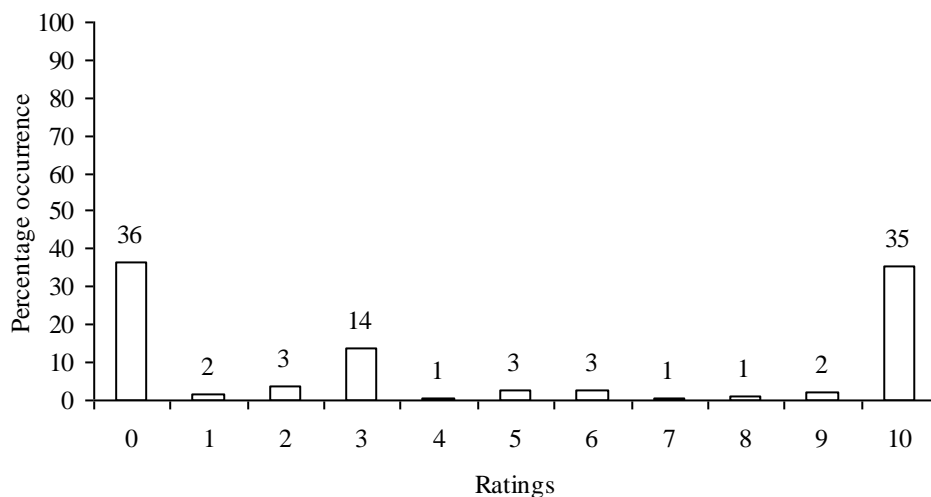


Figure 20: Ratings for elephants across all parameters.

Discussion

Ratings less than 5 indicate poor welfare status.

The following factors are responsible for the low ratings:

- A significant feature common across all the circuses observed was the duration for which the animal was kept in its enclosure. The animals were kept there for a mean duration of 22.1 h a day.
- Studies on wild elephants have shown that about 80% of their time is spent on foraging and walking (Sivaganesan and Johnsingh, 1995, Kane et al., 2005). On the contrary, elephants in the circuses spend 87% of their time being housed in a

shelter; and they have only about two hours a day allowed for work. The confinement of the animals results in low ratings for the shelter type, shelter size and other associated aspects.

- Water was available through a tap, but this sacrifices the animal's freedom to bathe/drink when it wants. Other uses of water such as an elephant's thermo regulation and maintenance of healthy skin is also jeopardized (Shoshani and Eisenberg, 1982)[†].
- Even though the animals are reportedly walked around the circus premises, they may have poor foot health and conditions due to lack of variation of substrates (Fowler, 2001, ^{† †}).
- As the elephants are housed together, they have access to interaction. However, as they are always chained, natural interaction and play behaviour are inhibited. Brockett et al., (1999)^{††} also reported that chaining compromises welfare.
- A large portion of sampled elephants (71%) were chained/tied in more than one part of their body. Spike chains were used on five individuals although it is banned by law. Spike chains are banned as they cause abrasions; also injuries and continuous pain (imposed by the spike chain) could lead to psychological stress. Gruber et al. (2000) report lower incidence of stereotypy among circus elephants when not chained.
- Various degrees of stereotypy were exhibited by sampled elephants and higher incidence (or degree) of stereotypy is a result of poor welfare management (Clubb & Mason, 2002).
- Work in a circus involves performance of unnatural behaviour. The repetition of such unnatural behaviour and the complete absence of new activities or changes in the work routine lead to apathy and lack of stimulation for the elephants. This is exacerbated by lack of variety in the stall feed as opposed to free range foraging.
- The regular occurrence of stomach--- related disorders among all the elephants observed needs to be noted. Mean duration for which the animals were reported to have been staying in a particular place was 1.78 years (SE=0.09, N =16). In these places, the floor type was earthen for all the observed animals. Despite the occurrence of suitable flooring, foot-related injuries occurred in 39% of them.
- Mean of 4.6 mahouts (SE=0.06, N=10) were said to have been changed per elephant. Frequent changes of handlers imply a period of stress for the animal as it has to learn to adjust to the ways of the new mahout. The change in mahouts is due to the incentive of increased salary from other circuses.

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- †: Original not seen

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 in alleviating suffering at the hands of humans. CUPA does not differentiate between pet, stray or wild animals, since both often require assistance and relief from cruelty, neglect and harm. The organization's objective has been to design services and facilities which are employed fully in the realization of these goals.

Asian Nature Conservation Foundation (ANCF) is a non-profit public charitable trust set 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 co-ordination with Government 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 procured information, knowledge and inferences in professional, academic and public forums.

Plant and Animal Welfare Society (PAWS) was established in 2001 by 4 youngsters with the mission to save urban wildlife, and help distressed domestic animals. The other activities of PAWS also include conducting awareness programs on animal rights, environmental Conservation & tree protection. PAWS has strength of 3 People's staff, 200 volunteers, 2 Ambulances for animal rescue and the team working tirelessly to help distressed animals & wildlife past 7 years. In first year PAWS helped around 600 animals, now PAWS helps more than 1,500 animals each year.

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 organizations in 153 countries. WSPA brings together people and organizations throughout the world to challenge global animal welfare issues. It has 13 offices and hundreds of thousands of supporters worldwide.

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Welfare status in terms of how the animals are cared for, especially animals such as elephants that are not domestic, assumes immense importance. The state of Maharashtra is home to a number of elephants kept in captivity for a range of reasons: as a performance animal in circuses/ by private owners, as a religious symbol in temples, as an animal maintained for public display in zoos. Maintenance of elephants in each of these ownership categories may involve provision of diverse facilities which may not be in the best interest of the elephant/s. This report aims to assess the welfare status of elephants kept in Maharashtra, through a study of the parameters reflecting the animal's captive conditions. This includes an assessment of the socio-economic conditions of the animal's handler.

