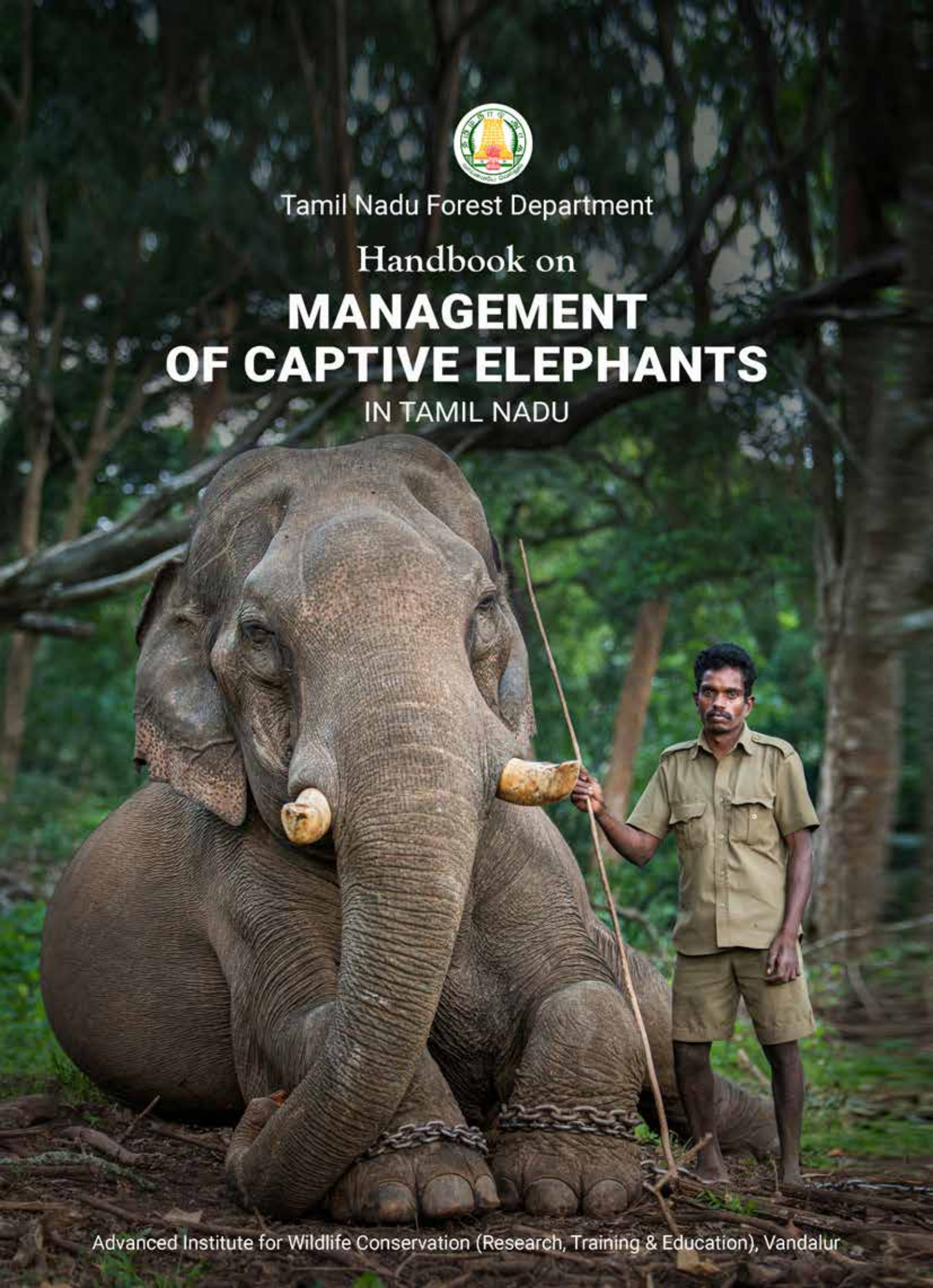

Tamil Nadu Forest Department

Handbook on
MANAGEMENT OF CAPTIVE ELEPHANTS
IN TAMIL NADU

Advanced Institute for Wildlife Conservation (Research, Training & Education), Vandalur

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2023

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(Research, Training & Education), Vandalur

Photography and design credit – Thiru. Senthil Kumaran and Dr. M. Gabriel Paulraj

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HANDBOOK ON MANAGEMENT OF CAPTIVE ELEPHANTS IN TAMIL NADU

FOREWORD

Tamil Nadu has been known across the world for the scientific and gentle management of captive elephants in the elephant camps managed by the Forest Department. The recent Oscar award to the documentary film '***The Elephant Whisperers***' has added credence to the above fact. The tribes managing the elephants in the Mudumalai and Anamalai elephant camps have been known for their strong bonding and intricate communication with the elephants. The Forest Officials, Forest Veterinarians and tribal people in the two camps have systematically managed the elephants, and this has been built on the century old experience of management in these camps. It is appropriate that these management standards and techniques are documented and provided to various stakeholders in the field of captive elephant management. This **Handbook on the Management of Captive Elephants in Tamil Nadu** will be an important document and will be useful in captive elephant management across the world.

Supriya

(SUPRIYA SAHU)

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Foreword

The elephant camps of the Tamil Nadu Forest Department in the Anamalai and Mudumalai landscapes are known across the world for their systematic management as well as the gentle methods adopted for handling and training of elephants. These elephant camps have been in existence for over a century and the tribes in the above landscapes have been their cornerstone. The assistance of the captive elephants and their mahouts from these elephant camps have been sought by several other states across the country for various wildlife and human-wildlife conflict related operations. Several mahouts and cavadies of other states have been also trained in these two camps.

The systematic management of the captive elephants in these camps has been the outcome of decades of dedicated service by the Officers, Forest Veterinarians, Uniformed staff and the Elephant-men. I am glad that the Committee appointed by the Government of Tamil Nadu has documented and brought out this excellent **Handbook on the Management of Captive Elephants in Tamil Nadu**. This scientific document will not only be useful for the Tamil Nadu Forest department but will serve as an important manual for elephant camps and Zoological parks managed in other states and countries.

(SRINIVAS R. REDDY)

Preface

Elephant camps in the Tamil Nadu Forest Department date over a century back and the management system adopted has been acknowledged to be highly gentle and very thorough. The mahouts and cavadies of these camp elephants hail from tribe communities living in the Nilgiris and Anamalais of the Western Ghats in Tamil Nadu. The strong bond between the Tamil Nadu Forest camp elephants and their caretakers (mahouts and cavadies) is woven by love and affection and the management methods adopted here have been replicated in other parts of the country and world. It would not be appropriate if the contribution of Dr. V. Krishnamurthy, the Forest Veterinarian who spent decades taking care of the camp elephants of the Tamil Nadu Forest Department is not mentioned.

Noting the need for documenting the management approach and for a ready-reference document on captive elephant management in the Elephant camps, the Government of Tamil Nadu constituted a Committee to prepare a Handbook in this regard. The Committee members included Shri. Akash Deep Baruah IFS, PCCF (Project Tiger), Dr. K. Ramesh, Scientist - F, Wildlife Institute of India, Dr. N. Kalaivanan, Veterinary Assistant Surgeon, Dr. Vivek Menon, Executive Director, Wildlife Trust of India, Dr. N.S. Manoharan, Additional Director of Animal Husbandry (Retd), Thiru S. Ramasubramanian IFS, CF & FD, Anamalai Tiger Reserve, and Thiru D. Venkatesh IFS, CF & Field Director, Mudumalai Tiger Reserve. The Committee met several times and deliberated on the issue and the contributions from the members as well as other special invitees have resulted in this Handbook on Captive Elephant Management in Elephant Camps.

This handbook is fairly comprehensive as it covers a broad range of topics and several books, notes, guidelines etc have also been consulted to obtain the inputs for this handbook. Being the Chairman of the Committee, I take pride in acknowledging the vital contributions made by the Committee members in developing this Handbook. The efforts of Dr. N.S. Manoharan, Dr. N. Kalaivanan, Thiru S. Ramasubramanian IFS, Thiru D. Venkatesh IFS and Dr. N.V.K. Ashraf merit special mention. The effort of Dr. Gabriel Paulraj, Project Scientist, AIWC in compiling and editing the book is greatly appreciated. The excellent work of Thiru Senthil Kumaran in the design and layout of the book is acknowledged.

Ms Supriya Sahu, IAS, Additional Chief Secretary, Environment, Climate Change and Forests, Government of Tamil Nadu provided the impetus for initiating this work and her guidance and encouragement is deeply acknowledged.

We are certain that this handbook will be very useful not only for the managers of the elephant camps in India but across the world.

A.Udhayan IFS
PCCF & Director,
Advanced Institute for Wildlife Conservation, Chennai

Contents

1 Introduction

1.1.

History and management of Elephant camps in Tamil Nadu

The practice of capturing wild Asian elephants and training them for work originated approximately 4000 years ago. Historically, capture and use of elephants have been in practice in the country from 6th century BC. Initially, used as war elephants in battlefields and for game hunting, they were later used extensively as draught animals in logging operations, clearing land for development, in temples, for entertainment (e.g., circuses), etc. The earliest written evidence of the use of elephants in temples is from Tamil Nadu, where they were used to carry water to the sanctums and also for transportation. The Chola dynasty of Tamil Nadu (9th century AD to 13th Century AD) had maintained a very strong elephant force. The Chola emperor Rajendra Chola had an armoured elephant force that had played a major role in his military campaigns. In the chapter titled “The Elephant Driver” of the book Ponniyin Selvan by Kalki, it is mentioned that an elephant handler (Mahout) was sent to kill Ponniyin Selvan by using his elephant. However, he failed in his mission as Ponniyin Selvan knew how to control an elephant. From their initial use in temples, the use of captive elephants has evolved in time to their recent engagement for wildlife management, particularly for carrying out anti-poaching patrolling and capture of problematic elephants (by kumkis).

• Elephant carving in Mahabalipuram

• Use of elephants for game hunting

The history of management of captive elephants in Tamil Nadu by the Forest Department can be traced back to 1890s when elephant capture was in practice in the Western Ghats, especially in the Anamalais and Nilgiris of the erstwhile Madras Presidency region. Elephants in our country have been captured by variety of methods, such as, the 'pit method', 'kheddah' or the stockade method, luring bulls by using 3-4 female elephants, Mela shikar etc. The ancient Sangam texts of Tamil Nadu mentions the use of pits to trap elephants and use of decoy female elephants as well to trap promising bull elephants. The Matangaleela, a rendition of the Gajashastra by the Sanskrit poet Nilakanta, talks of five different techniques that are used for capturing elephants—pens or stockades; using female elephants as bait; noosing the elephant; following the animal till it tires out and then restraining it; and placing a noose in a small pit and then attracting the elephant to the pit using food.

Elephant Capture in Ancient Texts

vārīkarmavaśāvilēābhanavidhi-;bhyā□cānugatyātatai-
vāpātēnatatēāvapātataitī-; hēbhagraha: pañcadhā

(Meaning: by the methods of working a trap pen and enticement with cows, and by pursuit, also by assault, and by pits, thus the catching of elephants is five-fold.)
— Matangaleela by NīlakantaŚarma

Chapter 12 of the Matangaleela/Gajashastra discusses the techniques to be followed while training an elephant. It lists commands, training protocols, and more importantly, the character of the mahout. In the state of Tamil Nadu, however, chosen wild elephants were mostly captured by the 'pit method'.

• Capture of problematic wild elephant by use of domesticated elephants (kumkis)

It is not known precisely when the practice of capturing elephants by the Forest Department began during British regime. Available records indicate that it began in 1889 when elephants were captured in the Anamalais using the 'pit method'. Later elephant capture began in Mudumalai Wildlife Sanctuary in 1910 after the establishment of an elephant camp in Gamehut. In 1855, the forests of Anamalais was brought under sustainable forest management of teak plantations by Foresters such as Douglas Hamilton and H. F. Cleghorn. Native vegetation was cleared and planting of teak on a large scale was taken up in the forests of Anamalais and Nilgiris. These plantations matured in the next 30 to 40 years. With the rising demand of teak for shipping and railroad during the British regime, the need for harvesting of teak plantations arose in the Western Ghats, especially in the Nilgiris and Anamalais. This in turn created a demand for trained elephants for use in logging operations due to absence of any mechanized means in those days for transportation of the felled timber. The Madras Elephant Protection Act was enacted in the year 1873. And in 1889, elephant capture was started by the Forest Department in Coimbatore Division. The rules for departmental capture of wild elephants were framed in the state in 1895. The rulebook described the details like location of the pits, their size and distribution, monitoring of pits, recovery of captured elephants, training and healthcare, grant of reward etc.

• Illustrations of use of a trained elephant in logging operations

For the purpose of training captured elephants, elephant camps were set up at Theppakadu in Nilgiris in 1910 and in Sungam (presently Anaipady in Kerala) in 1920. Following the reorganization of states in 1956, the Sungam camp was shifted to present day Varagaliar at Top Slip. Kozhikamuthi elephant camp started functioning as a working camp since 1970 to carry out forest thinning operation. More elephants were shifted to this camp in the year 1990 to carry out arrear tree felling operation. While the elephants were under the direct care of Mahouts and Cavadies, the early management was vested with the Forester-in-charge under the supervision of Ranger, Thunacadavu (presently Ulandi range). At present, there are 27 elephants (Male - 18 Nos. & Female - 9 Nos) in Kozhikamuthi elephant camp. Capturing continued in Anamalais and till 1972 more than 600 elephants were captured. With the enactment of the Wildlife (Protection) Act 1972, capture of wild elephants was stopped.

The Theppakadu elephant camp, the oldest in Asia, was established in 1910 at Gamehut and was later shifted to its present-day location at Theppakadu in 1927. In addition, there is a temporary elephant camp at Abhayaranyam. Currently, there are 28 elephants in the camp (21 males and 7 females) in the camp. Capture of elephants in Mudumalai Wildlife Sanctuary was suspended in 1953 but later resumed in 1972 as a population control measure. However,

• Elephant at Theppakadu elephant camp

with the promulgation of the Wildlife (Protection) Act in 1972, capture of elephants in the sanctuary was stopped in the year 1975. Since 1910 a total of 85 elephants have been housed in the camp (49 male and 36 females).

Since the early days of the elephant camps, local tribes were engaged for elephant capture, training and for their day-to-day care and management. In the Nilgiris, the communities involved are the Paniyas, Kurubas, Jainik-kurubas, Betta-kurubas and sometimes, the

• A mahout caressing his elephant at Theppakadu elephant camp

Kattunaikkas. In Anamalai, the elephant catchers, trainers, and mahouts hail predominantly from the Malasar community, with a few individuals from the Kadar community in the past. These communities have their own methods of tending and taming an elephant.

Captured elephants were trained by housing them in a wooden stockade enclosure called “Kraal”. In this method of training, the elephant is confined within a standard 12 feet x 12 feet kraal. The floors of the kraals are made of wooden slats with gaps in between that facilitate drainage. The roof is made of tiles or sheets. The approach of the Malasars of Anamalai and the Kurubas of Mudumalai is similar—they use the same vocal and tactile commands and employ a mixture of positive reinforcement/rewards-based training and punishment. According to them, recognising the thin line between punishment and harshness allows for correct practices. Punishment in this context does not necessarily involve physically harming the animal. But can involve treating the animal with loud or harsh vocal commands, showing the stick, splashing water on the elephant’s face and, sometimes, mild physical punishment. More importantly, both communities mentioned above start the training process by feeding the animal.

In the beginning, the trained elephants were used mainly for dragging timber from the felling sites to the roadside depots. These were then brought to the foothills for onward transportation to the dockyards for shipping them to overseas destinations of the British

empire. In the Anamalais, the felled timber was made to slide down from the top of a hill to the foothills below. The site in now popular as Topslip in Anamalai Tiger Reserve. Besides use of departmental elephants, timber contractors used to hire domestic elephants from Travancore for logging operations. Records show that farmers of Vettaikaranpudur living along the fringe of forest areas used to maintain elephants which were hired to contractors on a daily rental basis. The use of private elephants for timber logging continued till 1921.

The camps in Anamalais and Theppakadu follow strict management practices and daily regime to ensure the well-being of the camp elephants. Adequate veterinary care, balanced nutrition, regular exercise, etc are integral parts of the management protocol. The elephants are also periodically assessed for their physical and mental health, with specific attention given to their dental and foot health. In 1905, a post of Government Veterinary Inspector was created which was later redesignated as Special Veterinary Inspector. The first Forest Veterinary Officer was Dr. F. X. Mascarenhas. Among the notable veterinarians in the recent times, Dr. V. Krishnamurthy was a veterinarian of great repute as an expert in elephant physiology. He was popularly known as "Anai"(elephant) doctor. He was appointed as Veterinary Assistant in Topslip in 1957 and in 1966, he was posted as the Forest Veterinary Officer (FVO).

Presently, each elephant camp has its own dedicated veterinarian. The elephants are fed a nutritious diet in the morning (around 9:00 AM) and in the evening (around 6:00 PM). In general, the daily diet of an adult elephant comprises of about 14 kilos of Ragi, 4 kilos of Horse gram, 2 kilos of Rice, one coconut, sugarcane, jaggery, mineral and vitamin supplements, salt, etc. Elephants in the wild need to forage for 16 to 18 hrs a day to meet their daily dietary requirement. In captive elephants, several hours of foraging is lost due to time spent for work, bathing, training, treatment and exhibiting to tourists. To compensate for that, additional concentrate/ enrichment diet is given. Feeding an enrichment diet also helps to develop the bond between the elephant and it's care taker.

• Elephant supplementary feed ready for serving at Theppakadu camp

• A camp elephant at Theppakadu returning with fodder for night feeding

The day of a camp elephant begins at 6:30 AM when they are taken for a bath in a nearby river. This is followed by a short training session from 8:00 AM to 8:30 AM. This is followed by a health check up by the camp veterinarian and application of neem oil on feet. The morning feed is given around 9:00 AM. After feeding, the elephants are set free for grazing

• Elephant bathing at Theppakadu

in the nearby forests. The elephants are brought back to the camp around 3:30 PM and then taken for evening bathing and scrubbing. They are given the evening feed around 6:00 PM and then set free for grazing during the night. The elephants are brought back to the camp the next day around 6 AM for the next day schedule. As reproductive females are also set free for grazing, there are chances of mating with wild elephants.

• Elephant footcare at Theppakadu

• Elephant training at Theppakadu

Currently, the camp elephants are no longer used for logging operations. They are used primarily for habitat monitoring, anti-poaching patrolling, wildlife sighting for visitors and as Kumkis for control and capture of problematic and distressed

• Capture of distressed elephant by using kumki elephants

animals. The camp elephants were used for safari rides in both Anamalai Tiger Reserve and Mudumalai Tiger Reserve. However, the safari rides were stopped in 2018.

The recent wining of an Oscar in 2023 for the documentary “The Elephant Whisperers” has brought great attention to camp elephants and their caretakers. The Government of Tamil Nadu has now announced several welfare schemes for the Mahouts and Cavadis which includes cash emoluments and modern housing facilities.

Primary contributor to this chapter is
Thiru. Akash Deep Baruah IFS, PCCF (Project Tiger)

2

Camp Layout and Conditions

The present elephant camps in Tamil Nadu were established over a century back and are located in the core areas of the present day Protected Areas and Tiger Reserves. This is not an ideal situation as it is a fact that there is considerable damage to the prime wildlife habitat in the immediate vicinity of the camps due to intense grazing and browsing by the camp elephants. Also, the chances of disease transmission between the camp and wild elephants and vice versa is also high. Ideally, new elephant camps if need be should be located in Revenue lands or at the edge of Reserved Forests with suitable conditions and with the opportunity for the elephants to graze and browse in nearby forests. Some of the key conditions that need to be considered in the establishment or maintenance of elephant camps are described below.

2.1.

Soil and substrate

- Clay, sandy, rocky, hard, slippery and concrete substrates should be avoided.
- The soil should be well drained and loamy. Covered with native grass growth would be ideal.

2.2.

Water

- A perennial source of running water, free of pollutants & salinity should be available near the camp.
- Any stagnant source of water should be drained immediately.
- Water sources downstream of human habitation should be avoided keeping in consideration contamination by washing and human waste.

2.3.

Space

- Camp should be located in an elevated well-drained area having a natural ambience, away from human habitations, and roads.
- There should be considerable open space for the elephants to freely move around with natural barriers at the periphery which would give protection to the area.

2.4.

Shade/shelter

- The area should have natural shade by way of the presence of tall strong trees with a good canopy.
- During day time, animals can also be tied under the shade of tall trees.
- The camp must have a minimum of two shelters with the following dimensions (length – Breath - height) (12ft x12ft x12ft) to house the sick, weak animals and also during extreme weather conditions.

2.5.

Vegetation

- Camp should be close to a naturally well-vegetated area having elephant-preferred fodder plants like Ficus spp., Grewia tilifolia, Spondias, etc which can provide fodder throughout the year.

2.6.

Tools and Equipment

Chains: Trail chain, Bedi chain, musth chain.

Ropes: Nylon, vakka/ jute ropes.

Other equipment: Bill hook, sickle, water sprayer/ sprinkler, pressurized water pump set up, trolley/ wheelbarrow, molds for making feed blocks, crowbar, spade, barn, powerful torch lights.

2.7.

Kraal

- Dimensions: 12 ft x12 ft x24 ft
- The substrate should be elevated, well-drained and hard.

- Kraal structure should be made of wooden logs preferably well-seasoned Teak wood.
- A weatherproof, rodent-proof enclosure with a raised, clean and dry wooden platform, and with a proper drainage facility.
- The roof should be made soundproof as any sound may irritate the animal.
- Use of any unnatural materials like paints, plastics, rubber mats, chemical disinfectants etc., should be avoided in the enclosure as calves have a tendency to chew and lick upon them.
- The surrounding area should be well-ventilated and well-lit, and away from human habitations, commuting paths, etc. Should be located in a calm, hygienic environment with a forest ambience.
- The calves should get morning and evening sunlight
- There should be arrangements for caretakers to stay close to the kraal.
- A clean water facility should be available close to the kraal.
- Electrical installations should be well insulated so that it is not dangerous to the animal.
- No sharp objects like nails should be in the kraal or nearby trees or structures nearby.

2.8.

Hygiene

- Wastes produced in the camp like dung leftover fodder should be disposed of hygienically every day.
- A waste disposable pit away from the campsite and water sources should be maintained and the wastes cleared periodically.
- Medical wastes, if any should be disposed of as per the standard protocol.
- The possibility of establishing a biogas plant, vermicomposting and manure production for effective utilization of wastes generated in the camp can be explored.

2.9.

Kitchen

- A modern kitchen with adequate facilities like Gas stoves, vessels, pressure cookers and accessories should be available to cook rice, ragi and horse gram.
- The kitchen and store room should be damp-proof and rodent-proof to avoid fungal, faecal, and urine contamination.
- Flooring should be made of non-slippery washable tiles facilitating easy and effective cleaning. Kitchen premises should be well-lit and ventilated, preferably close to the camp.
- The path between the kitchen and the feeding area should have paver block to avoid soiling.

2.10.

Veterinary facility

- Camp should have a modern veterinary dispensary, with all necessary infrastructure and equipment, headed by an experienced veterinarian with para-veterinary staff like livestock inspector, veterinary assistant, lab technician and lab assistant.

2.11.

Safety of elephants and humans

- There should be a safe distance between the elephant feeding area and the visitors
- Necessary stand-off barriers/rails should be placed between the elephant and the public.
- The elephant standing area should not be slippery.
- No sharp objects, deep pits, or wells should be found close to the camp.
- Signage and caution boards should be available highlighting the dos and don'ts.
- The campsite should not have any electrical installations which can be dangerous to elephants and if possible underground cables may be used.

Apart from the safety and hygiene related matters in the elephant camp, it would be important to provide for the enrichment of the campsite in terms of providing opportunities for the elephants especially the calves to exhibit their natural behaviour and activities.

Primary contributors to this chapter are
**Thiru. S. Ramasubramanian IFS, Thiru D. Venkatesh IFS,
Dr. N.S. Manoharan & Dr N. Kalaivanan**

3

Daily Routine

3.1.

Water and Bath

- Clean and perennial water sources should be available in the camps. The elephants drink 3-4 times/ day (up to 36 – 80 litres per day).
- Contamination due to the adjacent villages/settlements (in some places sewage water also gets mixed with the water source) should be avoided.
- Regular water tests and water treatment need to be undertaken.
- When an elephant is bathing or drinking water, it may urinate and defecate, contaminating the water source. Mahouts should make efforts to isolate the dung piles from the water source.
- Two times a day, a thorough scrub bath for the elephant both morning and evening each lasting at least 1.5 –2hrs is given.
- The scrub bath should be given using a nylon scrubber or coconut husk/ bottle gourd fibres.

• Clean water facility for drinking and bathing

• Healthy male in a river

• Thorough scrub bath in a river with flowing water

• Scrub bath as a herd to improve compatibility

Scrub bathing helps in the following ways:

1. To regulate their body temperature
2. To relax the animals, as elephants love spending time in the water
3. Scrub bath improves their blood circulation and skin condition
4. Wound cleaning
5. Improves bond between animal and mahout/cavadi
6. Better chance to find abscesses, cysts, wounds and other skin infections in the early stage itself
7. Remove and prevent external parasites like ticks, mites, fleas, flies and louse infestations.

3.2.

Feeding

Concentrate feeding is given twice a day in the camp. During day time, the elephants are left for free grazing in the forest. Except for sick elephants and those in musth, all elephants are left for grazing inside the forest during the day as well as at night after the concentrated feed. Normally, mahout and cavadi would accompany the elephants during grazing.

3.3.

Sleep

Elephants sleep about 6 hours a day, while calves sleep longer.

3.4.

Foot care

After the thorough scrub bathing, the Dekamil Oil* is applied on the foot over the nails. This helps in the following ways:

1. Strengthening of cuticle
2. Prevent over-growth of cuticle
3. Prevent the splitting of nails
4. It acts as an antiseptic and prevents foot rot and foot abscess
5. It acts as a fly repellent and prevents egg laying on the foot and also in the commissure of tusk and female external genitalia and thus prevents gastric and vulval myiasis

*(Dekamil oil consists of neem (*Azadirachta indica*) oil 15 kg, Camphor (a Terpenoid with aromatic odour)-0.5g, Garlic (*Allium sativum*)- 0.5g and Dekamil(Gardenia resin)- 0.5g)

• Foot care: Dekamil oil application on the foot of the elephant

3.5.

Other daily care for good physical and mental health

- The preliminary health checkup starts with reporting about the injuries, wounds, and abrasions which may have been noticed from trunk tip to tail tip on the elephant while giving the bath.
- The foot and body parts are checked and Dekamil oil is applied after the checkup to prevent infections in the nails and skin folds.

- The temporal gland discharge during the musth episode is also noted and reported.
- The other discharges from the trunk, or the natural orifices are also noted and reported to the Veterinary officer through the camp manager.

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4

Dietary Requirement of Captive elephants

Elephants are bulk feeders since they have simple stomachs; they have to spend at least 18-20 hours a day to feed. The main reasons for the continuous feeding may be the lower efficiency and the shorter time spent in the Gastro-intestinal tract, i.e., about 21 to 24 hrs. The dry matter digestibility in elephants is 45 to 50% (Ananthasubramaniam,1979) whereas, crude protein and crude fibre digestibility is about 89% and 18.5% respectively.

• Camp elephant carrying fodder

4.1.

Natural diet- Grazing in the forest and cut fodders

Elephants in the forest camps are sent out for grazing. This is a desirable practice as they have seasonal preferences and choose their own required fodder. This also encourages socializing, resulting in mating and other activities. But under special circumstances such as, when the elephants are used for providing rides to tourists, elephants in musth, newly weaned calves and sick or incapacitated animals, they are tied near the vicinity of the camp and cut fodder is given during night hours.

- The quantity of cut fodder to be provided should be at least 3% of the body weight, considering wastage.
- When the elephants are left out for grazing, adequate precautions must be taken to hobble them, and using a trailing chain is essential. Even a hobbled animal can move over a distance of about 1~2 km.
- The elephant man (mahout/ cavadi) should take care to leave the animals, where adequate fodder is available.
- They must also check for the presence of wild tuskers, which tend to be aggressive towards captive elephants.

4.2.

Supplement feed

As elephants in captivity are maintained for various forestry works, the animals have to spend energy performing various types of hard work. About 7-8 hours in a day is spent on work, bath, walking, grazing, etc. Hence, to compensate for the loss of time for grazing and replenish the energy spent, the captive elephants are fed with readily available energy in the form of a concentrated grain ration.

4.2.1. Diet formulation for different age groups and elephants undertaking various activities

The following considerations are used for planning the supplement diet.

Selection of ingredients:

It is based on the nutritive value, palatability, ease of availability throughout the year and economic consideration of food grains. Compared to other food grains, ragi and horse gram are high in nutritive value, and cheaper. It is easy to cook and elephants also prefer them.

Diet is formulated according to age, sex, weight and workload. The quantity of each grain for different classes/sizes of animals has been decided after much care and thorough examination.

Age/Sex	Activity	Horsegram (Kg)	Ragi (Kg)	Salt gm)	Jaggery (gm)	Mineral mixture (gm)
1to6yrs		1	4	100	100	100
6~15yrs		1	8	100	100	100
Male	Rest	3	14	100	100	100
>15yrs	Work	5	18	150	100	100
Female	Rest	2	12	100	100	100
>15yrs	Work	4	16	150	100	100

The prescribed diet is used for the whole day and the elephants are fed with cooked rations both in the morning and evening i.e., half the prescribed quantity in the morning and the remaining half in the evening. Standard-size moulds are used for making cakes of cooked food. This facilitates easy distribution for individual elephants, and easy verification by inspecting officers.

4.2.2. Special diet considerations:

As and when necessity arises, such as for those animals which are in rundown condition, pregnant and lactating cow elephants, growing calves, orphaned calves, etc., prescription of special diets is followed such as coconut (Cocos nucifera), rice (Oryza sativa), gingelly (Sesamum indicum) oils, vitamins, and other nutritive tonics, etc.

Rice is included in the diet of young calves and lactating mothers, and sugarcane (Sacharum sp.) is prescribed for calves and animals under training. The inclusion of jaggery in the diet is to facilitate the administration of oral medicine to the elephants, as they are conditioned to the taste of jaggery. The quality and adequacy of the ration are inspected by the Forester and the Veterinary personnel regularly.

Primary contributors to this chapter are
Dr. N.S. Manoharan & Dr N. Kalaivanan

5 Health

5.1.

Signs of good health – Physical and mental

- Frequent movements of extremities, i.e., ears, foot, tail.
- The lower flap of the ear should be warm to the touch.
- Normal feeding and drinking of water and free passage of dung and urine in normal colour and consistency.
- Alert to its surroundings.
- Absence of abnormal posture or appearance.
- The mucous membrane at the oral cavity and tip of the trunk should be rosy pink in colour which indicates a sufficient quantity of blood in circulation.
- Moist nature of the tip of the trunk without any abnormal discharge.
- Good nutritional condition (ribs should not be visible), Clear gait, no limping etc.
- Free from swelling and injuries over the body surface.
- Clear eyes with a normal amount of teardrops.
- The body temperature can be checked at the brisket region and if that region feels cool to touch, it indicates ill health.
- The pulse can be taken below the chin or at the ventral part of the tail which can be felt by the fingers where an artery crosses the bone is pressed. The large arteries in the ear can also be used.
- The skin of the elephant is an important indicator of the water balance in its body. When pinched, if skin feels resilient or elastic to the touch it can be assumed that the elephant is receiving adequate water and if the skin feels dry and non-resilient, it should be understood that it needs more water.
- Ecto-parasites like lice can be seen at ear folds, inner aspects of limbs and tail switch and can be treated with ectoparasiticides used in livestock practice.

5.2.

Signs of illnesses

- Reduced movements of tail, ears, trunk & legs
- Less alert and dryness on the tip of the trunk.
- Partial closure of the eyes and the lower part of the ear may be cold to touch.
- Changes in the frequency of urination
- Changes in feeding/water consumption behaviour
- Development of oedema on dependent parts.

5.3.

Measurements

Weight and body measurements concerning height, neck and chest girth and body length should be periodically measured in standard, calibrated measuring units. Measuring the number of defecations, number of boluses, dung boluses per defecation, and circumference of each bolus is recommended in connection with an individual elephant's age. This provides authentic information on digestion, health and nutrient uptake by the animal.

Simple body condition measures should be documented regularly like visibility of ribs, scapula and buccal cavity. These measurements are an indicator of the captive animal's health condition.

5.4.

Common ailments

1. **Ecto-parasitic infection**: Cutaneous filariasis is characterized by nodules
2. **Endo-parasitic infection**: Elephants are heavily infested with gastro-intestinal helminths (Fascioliasis, Cestodiasis, and Helminthiasis)
3. **Colibacillosis and salmonellosis** are considered to be the major cause of mortality in calves due to poor hygienic conditions.
4. **Wounds**: Elephants have several callouses on different parts of their body acquired from daily work, laying down, from chains/ropes etc., and there may not be any problem as long as it is not prone to any injury/infection.
5. **Colic due to impaction**: Indigestion and impaction due to change in feeding
6. **Rope burn and chain injury** can also be anticipated due to tethering continuously for a long period
7. **Abdominal pain**
8. **Diarrhoea**
9. **Eye ailments**

10. **Foot ailments:** The common foot ailments encountered in captive Asian elephants includes foot-rot, podo-dermatitis, different types of wounds and abscesses in the foot pad, nail, cuticle, split/cracked nail condition, nail damage overgrown/deformed nails, excess cuticular growth over and in between the nails, excess foot pad growth (Hyperkeratosis), abrasion of sole, uneven wear and tear of foot sole, arthritis, ankylosis of joint, degenerative joint disease etc., Tetanus is a potential sequel to abscessation.

5.5.

Diseases

Asian elephants have been observed to be susceptible to various parasitic diseases such as helminthosis, trypanosomiasis and ectoparasitic infestations, bacterial diseases such as tetanus, tuberculosis, haemorrhagic septicaemia, salmonellosis and anthrax, viral diseases such as foot and mouth disease, pox, herpes and rabies and non-specific diseases like impaction of colon, foot rot and corneal opacity. A detailed study extending over two decades on captive and wild elephants in Kerala revealed a high incidence of helminthosis, ectoparasitic infestation, impaction of colon and footrot, and Diseases such as trypanosomiasis, tetanus, tuberculosis, pox and anthrax were also encountered. Nutritional deficiency / metabolic diseases, Herpes virus were also seen.

5.5.1. Parasitic diseases

Gastro-intestinal helminthosis, Cutaneous filariasis, Trypanosomiasis, Gastric myiasis, Louse infestation, Bacterial diseases, Tuberculosis, Tetanus, Anthrax, Viral disease, Elephant pox,

5.5.2. Non-specific diseases

Impaction of the colon, foot rot, corneal opacity, arthritis, decay of tusk pulp, sunburn

5.5.3. Wild elephants

Gastro-intestinal helminthosis, cutaneous filariasis, gastric myiasis, Louse infestation, Tick infestation, Louse infestation, Tick infestation, Endotheliotrophic Elephant Herpes Virus (EEHV) infection

5.6.

Vaccination routine

Vaccination: Captive elephants should be vaccinated against Anthrax annually. According to the regional endemic status, vaccinations against Foot and Mouth disease, and Haemorrhagic septicemia may be carried out as per the advice of the Veterinarian.

Anthrax spore vaccine: Preventive vaccination using spore vaccine, s/c at the base of the tail can be done.

Tetanus: Tetanus toxoid 3-6 ml/animal, I/M, Prophylactic (followed in India). The recent report describes that elephants do respond to tetanus vaccination with a 1ml dose

Deworming: should be done once every 3-4 months by using rotational anthelmintics based on regular faecal examination and as per the advice of the Veterinarian.

5.7.

Periodic Detailed examination

It is done two times a day, during the thorough scrub bath given for elephants both morning and evening each lasting at least 1.5–2 hrs. The preliminary health check-up starts with reporting about the injuries, wounds, and abrasions noticed from trunk tip to tail tip on the elephant while giving the bath. The foot and body parts are checked and Dekamil oil is applied after the check-up to prevent infections in the nails and skin folds. The temporal gland discharge during the musth episode is also noted and reported. The breasts are also checked for any changes in the enlargements/ secretions. The dung and urine are observed for any abnormality every day. The gait, lying down and getting up, and standing postures are observed for any abnormalities. Every day behavioural changes are also observed. The eyes are checked every day for discharges, injuries and swellings. The other discharges from the trunk, or the natural orifices are also noted and reported to the veterinary officer through the camp manager.

Periodic blood tests (haematological and serum biochemical) are to be conducted preferably annually, to assess the various health parameters of the elephants. It is also important to assess the trend in the health profile of each individual elephant. The presence and extent of stress harmones can also be assessed. Based on the above blood analysis data, the standards for a healthy animal can be set and since the camp elephants are in near natural conditions, it would be a good reference standard to compare and assess the health of Zoo, temple and privately owned elephants. Laboratory tests on the dung of individual elephants can be carried out to assess the presence of parasites, level of stress harmones etc.

Appropriate research studies either by the Forest Department personnel or by researchers from colleges/universities/ academic institutes should be encouraged and carried out to improve the standards in elephant health as well as elephant camp management.

5.8.

Identifying dietary deficiencies

Biological samples should be collected (Blood/Serum) should be periodically carried out to assess the health status and any dietary deficiencies. The changes in body conditions like run-down body conditions, dry skin and restless appearance also indicate nutritional deficiencies.

5.9.

Trimming of tusks

The tusk tips of captive bulls become sharp by constant use. The tips are trimmed by Veterinary personnel periodically to avoid breakage while working, to prevent injury to other animals and also unnecessary tusk fractures while the animal is playing or fighting with another tusker. The trimming is only a managerial practice and not for show purposes. Hence the Veterinary personnel should take proper precautions in trimming the tusk tips, particularly in young stock to avoid injury in the core.

Tusks are modified incisors, the ever-growing structure of the elephant. The tip of tusks is usually trimmed, once in two years beyond a measured distance from its base which is equivalent to the distance between the inner canthus of the eye and the base of the tusk of the respective side. A maximum of distal 1/3rd of the length of the tusk is seen outside.

5.10.

Reproductive behaviour and management

Normal reproductive functioning among adult captive elephants can be considered to be an indicator of normal physical health/ and/or good welfare status.
The absence of normal reproductive functioning in adult elephants is indicative of poor health/increased stress/ absence of companions.

Knowledge of oestrus cycles, mating period, calving intervals, age at first birth and number of births is important in managing the reproductive health of females. Knowledge of the reproductive status of individual elephants can prevent untoward ill effects of making pregnant animals work.

Normal reproductive functioning should be observed among physically healthy elephants. The absence of normal reproductive behaviour is associated with social isolation/ other stress-inducing factors. The rating was designed to represent the social environment associated with pre and post-reproduction: the presence of individuals of opposite sex/ observations on mating/ presence of cows during parturition/ occurrence of musth and related factors.

The difficulty in establishing a self-sustaining captive population is mainly due to the low reproductive rate. There is a high incidence of undetected reproductive disorders in the captive elephant population. Some of these disorders may be attributed to continuous oestrous cyclicity in nulliparous females of prime breeding age (18-30y). After approximately 10-15 years of cyclicity with roughly 40 non-fertile ovulations, pathological alterations like uterine tumours (leiomyomas) and endometrial cysts (hyperplasia) often develop. These lesions usually remain undetected because of a lack of symptoms (eg. oestrous cyclicity appears normal) or outward signs except that no pregnancy results from breeding.

For mega vertebrates like elephants, it is critical that methods for evaluation of reproductive capacity be developed, including the development and health status of female and male

urogenital tracts as well as semen parameters. At this juncture, it is worthwhile to state that may be very appropriate to start assisted reproductive techniques in our elephants too.

5.11.

Pregnancy, delivery and calf care

Cow elephants in the forest camps breed regularly, as they have access to bulls both captured and wild. If the animal has conceived, the signs of pregnancy will be observed from 10 to 12 months of pregnancy, the gait of the animal shows down, and the breasts start filling with the outward tilting of the teats. There may be viscous discharge from the mammae. From 12-13 months of pregnancy, foetal movement can be observed.

Once the foetal movements are observed, the animal is taken off from work and given complete rest until the calf is born and is 6 months of age. The quantity of ration or concentration is raised. A special diet consisting of vitamins, minerals, soaked green grams and coconuts are provided, 6-10 coconuts/day provided before and 10 coconuts after delivery. Coconut milk contains several nutritious materials and enhances the quality of mother's milk. At the time of delivery, one of the non-lactating cow elephants will keep company with the animal and after delivery acts as an allo-mother.

As soon as the calving takes place, the animal must be brought to the camp and observed to know whether the mother allows the calf to suckle and the calf is active. Fly-repellant oil must be applied around the umbilical cord. Veterinary care for the mother should be available. FVAS must check whether the placenta has been expelled by the mother elephant and whether the milk is adequate for the calf and must also observe feeding frequency.

As and when necessity arises, such as for those animals which are in rundown condition, pregnant and lactating cow elephants, prescription of special diets is followed such as coconut (Cocos nucifera), rice (Oryza sativa), gingelly (Sesamum indicum) oils, vitamins, and other nutritive tonics, etc.

5.12.

Geriatric care and disposal of carcasses

An elephant shall normally be allowed to retire from its work on attaining an age of 65 years; healthy elephants above 65 years of age shall be allowed to be put to light work under a proper health certificate from the veterinarian.

Elephants which are old should not be used for tourist rides. Geriatric elephants need to be carefully evaluated for their ability to withstand any shifting; established relationships, if any, should not be disrupted.

The Chief Wildlife Warden or an officer authorized by him shall ensure proper veterinary assistance and advice on the disposal of the carcass.

5.13.

Basic equipment and drugs in elephant camps

Some of the basic equipment that could be procured in the Veterinary clinic at the large and well established elephant camp include Microscope with axicam, Haematological autoanalyzer with accessories, Biochemical autoanalyzer with accessories, Thermal imaging camera/scanner, Portable digital X ray, Ultrasound scanner, Lyophilizer, Deep freezer, Surgical instruments, nail/sole trimming set, Therapeutic laser, Hot air oven and autoclave, Animal pulsoxy meter with probes, Extra corporeal shockwave therapy machine, Ultrasound ophthalmic scope with probes and monitor, Dental equipment, High resolution cameras. It would be advisable to procure relevant advanced equipment for quick and accurate health assessment of the elephants.

The elephant is a non-ruminant ungulate and is comparable to the horse and pig in computing the dose of the drugs. Being a simple stomached animal, microbial degradation of anti-histaminics, glycosides and other similar active medicinal principles is very unlikely. This is an advantage in elephants for oral medication compared to cattle. Since force-feeding by mouth is impossible, a lot of patience is required in the administration of oral medication. As the gastrointestinal system of the elephant is close to that of the horse, usually horse dosages can be used for elephants if there is no exact elephant-specific dosage available.

During sedation/anaesthesia with intramuscular route, if the animal shows any sign of recovery 1/3rd of the initial dose may be given (e.g. Xylazine) to extend the period. During xylazine sedation protrusion of the penis indicates the beginning of the action of the drug and the animal should not be handled till the sedation becomes deep. The animal can go into heavy sedation to deep narcosis with xylazine in a standing posture itself. So in case recumbency is desired, it is better to make the animal lie down and then give xylazine. Otherwise, it will prove sometimes difficult or even dangerous to attempt to make an animal lie down which is under deep sedation.

Common medicines/drugs used in elephants

Indications	Medicines/ Drugs Used
Restrain / Chemical Immobilization	• Xylazine 300 mg- 500 mg I/M. Total dose @ 0.1 mg/ kg body weight (incremental dose of 50-100 mg may be given depending on the condition • Xylazine and Ketamine (0.125 mg/kg + 0.1 mg/kg) I/M, in combination) • Etorphine HCl (1mg/450 kg BW, I/M) (Immobilon)
Antibiotics: Ampicillin	• 10-15 gm/animal; I/V or I/M
Amikacin	• 3.5 mg/kg; I/V • 6-8 mg/kg; IM
Amoxycillin	• 11 mg/kg; I/M
Enrofloxacin	• 1 mg/kg; oral • 1.5 – 2.5 mg/kg; I/M
Gentamycin	• mg/kg; I/V (diluted with 10% saline) • 4 mg/kg; I/M
Cephalosporins	• 1 mg/kg; I/M
Polybion (B-complex)	• 50 ml/animal; I/V
Calcium panthenate	• 50 – 70 ml/animal; I/V
Calcium borogluconate	• 450 – 900 ml/animal; I/V
Dexamethasone	• 1-3 gm/ton
Furasamide	300 – 500 mg/animal; I/M
Metachlopromide	250 – 400 mg/animal; I/V
Control of Musth in pre-musth state	Flutamide 5000 mg/animal; oral
Control of aggressive behaviour during pre-musth and last phase of violent musth	Combination of Flutamide at the rate of 5000 mg to 7500 mg, Haloperidol 100 mg and Potassium iodide - once daily for a continuous period of 3 days, orally
Postponement of Musth temporarily	Flutamide 2500 mg/elephant; orally
Postponement of musth for a longer time (> many months)	Flutamide 7500 mg/elephant; oral (should not be done except when unavoidable)
Shock	Dexamethasone 1-3 gm/ton, fluid therapy; I/V Antibiotics and supportive therapy Dexamethasone 1-3 gm/ton, fluid therapy; I/V Antibiotics and supportive therapy
Transport related sedation	Xylazine 80 – 100 mg; I/M and or Haloperidol 40 – 100 mg; P.O.
Control of Vomit	Metoclopramide 2 mg/kg BW; P.O.
Suspected Ulceration	Anti-ulcerative drugs (eg. Ranitidine 2 mg/ kg body weight)
Haemorrhagic septicemia	Enrofloxacin @ 2 mg/kg body weight; I/M or Sulphadimidine 200 – 250 gm orally, daily and I/V injection of sulphadimidine sodium (33% solution) 500 ml for three consecutive days

Corneal opacity	Rule out the cause. Wash the eye with normal saline or boric lotion. Medication based on culture and ABST. Sub-conjunctival injection of 2 ml Placentrex or Prednisolone. Antibiotic eye ointments – 5 times/day. e.g. Ofloxacin/Chloramphenicol/Gentamycin eye ointment
	Rule out the cause, Icthamol glycerine/Iodine ointment application (for ripening)
Tissue swelling/ raw wound with swelling	50 ml/2000 kg B.wt. Deep I/M. Total of six injections at weekly intervals
Trypanosomosis	Therapy Diazepam – 250 – 300mg I/V (or) 400-500 mg Xylazine, I/M. Anti-tetanus serum(ATS) – 4-6 lakh units. I/V, twice a day for 7-10 days Crystalline Penicillin: 20,000 – 30,000 IU/kg BW i.m. – 30,000 Fluid Therapy – IV or Rectal Prophylaxis Tetanus toxoid: 3-6 ml , I/M.
Louse /tick/fly infestation	Ivermectin, Doramectin, External application 1% Sumithion / Butox solution as a wash.
Itching at toes with ulceration of toes due to Stephanofilariae (black patches in between the foot space and just above nails) - STEPHANOFILARIASIS	8% metrif onate ointment or Vaseline base along with Himax ointment
Bleeding from the nodules in the skin – during daytime only especially in the morning INDOFILARIASIS	Lithium antimony thiomalate (Antthiomalin) @50 ml /2 tom S/Cat weekly intervals for 8 weeks. Tail fold is the ideal site for S/C injection. The area at the neck anterior to the scapula may also be used.
Cestode infection	Praziquantel; 2.5 – 5mg/kg body weight P.O.
Helminthic infection	Pyrantel pemoate: 5 mg/kg body weight P.O. Albendzole ; 2.5-5 mg /kg P.O. Fenbendazole ;2.5 -5 mg /Kg P.O.
Gastric maggots due to cobboldia in elephants (colic, dullness, anorexia) loose motion	Tetramisole; 4mg/Kg P.O – has a very low safety margin.
Fascioliasis	Rafoxanide 5 mg/kg; P.O Oxyclozanide (Distodin) 5 – 7 mg/kg; P.O
Amphistomiasis	Hexochlorophene 10 mg/kg body weight; P.O. Oxyclosanide 7.5 – 10 mg/kg body weight; oral
Vaccination	Anthrax, HS, Rabies, FMD - in general
Anthrax	Penicillin 10,000 – 30,000 IU/kg body weight; I/M
Elephant Herpes virus infection	Famciclovir Tab. 8 – 15 mg/kg; oral, three days
Tuberculosis	Isoniazid @ 5 mg/kg and Rifampicin @ 10 mg/kg Body weight; oral, daily for one year

5.14.

Duties and responsibilities of Veterinary attendant, Forest Livestock Inspector and Forest Veterinary Assistant Surgeon

Duties of the Veterinary Attendant

- The Veterinary attendant should assist the Forest Veterinary Assistant Surgeon (FVAS) and the Forest Livestock Inspector (FLI) in all the day-to-day activities and in the treatment of camp elephants and follow up.
- Assist the FVAS and the FLI in all the field operations.
- Maintain the Forest Veterinary Hospital and the surroundings in a neat and hygienic manner.
- Should maintain inventory and keep the equipment and consumables including medicines in a neat and systematic manner.
- Carry out the instructions of the FVAS and the FLI
- xylazine in a standing posture itself. So in case recumbency is desired, it is better to make the animal lie down and then give xylazine. Otherwise, it will prove sometimes difficult or even dangerous to attempt to make an animal lie down which is under deep sedation.

Duties of Forest Livestock inspector

- Assisting the FVAS in the treatment of camp elephants and other wild animals.
- Accompany the Forest staff in assessing the ration and food provided to the elephants.
- Assisting the FVAS in periodic morphometric measurements of camp elephants.
- Assisting the FVAS in the preparation of checklist and arranging of equipment, drugs and accessories during treatment, capture, rescue etc. operations.
- Assisting the FVAS in the vaccination of camp elephants and the cattle in the fringe villages.
- Assisting the FVAS in the maintenance of equipment and medicines.
- Assisting the FVAS in record keeping and regular updating.
- Carry out the instructions given by the FVAS.

Duties of Forest Veterinary Assistant Surgeon:

- The main duty of the FVAS is the veterinary care of all the camp elephants.
- Prescribing diet for the elephants
- Responsible for disease prevention activities including periodic preventive vaccination of all camp elephants against communicable diseases like Anthrax
- Periodically record the body measurements of each and every camp elephant
- Prescribe the work load/dragging capacity.
- Fixes and revises annually the book value of the camp elephants.

- Provide instructions or remarks to the subordinate for guidance in care and treatment of the elephants.
- Check frequently the quality of the food materials and processed food for elephants
- Checks the availability of fodder resources around the camp site

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6

Work and Activities

Schedule	Camp routines
6:30 am	Elephants are brought back from the grazing area
6:30 am – 8:00 am	Bathing and scrubbing
8:00am – 8:30 am	Training session
8:30 am – 9:00 am	Application of neem oil on the foot, Inspection by veterinary personnel for the health check-up. Morning feeding with grain rations (cooked)
9:00 am – 3:30 pm	Left out for grazing
3:30 pm – 5:00 pm	Evening bathing and scrubbing
5:00 pm – 5:30 pm	Training session
5:30 pm – 6:00 pm	Evening feeding with grain rations (cooked)
6:00 pm – 6:30 am (next day)	Left out for grazing (males and calves are fed with fodder leaves in the camp itself)

During night hours, after the evening food, the elephants are released in the forest for free grazing with a long trailing chain; this will leave a trailing mark on the ground which enables the mahout to track the elephants in the morning.

6.1.

Works allotted to the elephants

The following works are allotted to the elephants in consonance with the objectives of sanctuary management

6.1.1. Forest operations

1. Timber movement - to clear fallen logs on the roadside and to move seized timber from patta land.
2. Clearance of jungle for a campsite.
3. Clearance of jungle on the roadside.
4. Clearing of obnoxious weeds like Lantana camera, Eupatorium, etc.
5. Construction of a temporary bridge over a stream by placing wooden logs

• Forestry work

• Forestry work

6.1.2. Forest protection

Used for patrolling in the interior of forest areas during monsoon season

6.1.3. Eco-tourism

1. Elephants are being used for joy rides to carry visitors for wildlife sightseeing
2. Elephant camp is opened for visitors to see their bathing, feeding and other husbandry activities.

6.1.4. Education and publicity

The Elephant camps are an important Ecotourism activity cum educational package for tourists. Efforts are being made by the forest department for the conservation and well-being

of these elephants in the camps. The camp serves as a platform for research to understand more about elephants.

6.1.5. Kumkie operations

1. A major role of the camp is to nurture and train Kumkie elephants which are being used to drive wild elephants whenever conflict happens. The Tamil Nadu camp elephants are being used even in other states for anti-depredation measures.
2. For capture and translocation of problematic wild elephants.
3. To assist in rescue operations, for rescuing animal/s in distress such as those stuck in swamps, fallen in wells, etc. or during disaster-affected (cyclone and landslide)areas.
4. To assist in treating sick wild elephants.

• A well-trained Kumkie elephant helps the forest officials in loading a captured problematic wild elephant into a truck for translocation

6.1.6. Breeding program and Germ-plasm conservation

Since both male and female elephants are left free in the wild, chances of such elephants mating with their wild counterparts are high, thus, ensuring the flow of genes between captive and wild elephants. The Camp acts as a rescue centre to rear and adopt wild abandoned calves, if any

6.2.

Work schedule/ working hours

Elephants which are used for joy rides to carry the visitors for wildlife sightings are worked in the morning - 7:00 to 9:00 hours- and in the evening- 16:30 to 17:30 hrs. During heavy energy consuming work like timber work and other regular forest operations, the following seasonal work schedule is followed:

Work hours are adjusted according to season, work sessions in South India during monsoon and winter are from 8:00 to 11:00 hours and 14.00 to 17.00 hrs. During the dry season from January to March, the working hours are from 7:00 to 10:00 hours and 15 to 18:00 hrs. Using elephants for work should be avoided during the hottest period of the day. If the elephants are used for work during this period, it may disturb all their thermo-regulatory mechanisms of the animal.

• Exercise and Obedience: Carrying fodder

6.3.

Workload

The workload given to the elephant varies according to age. Training for timber hauling starts at the age of 6 years. Above 45 years–Work is gradually reduced every year up to the age of retirement at 58 yrs.

A few animals that maintain good health and those whose teeth have not worn out are used for a few more years. The elephant is not a good pack animal and is not suited for carrying heavy loads. The elephant is unique in its ability to drag and lift weight, but it cannot carry a load of more than 400 kg.

6.3.1. Workload according to the height of an elephant

Height of Elephants(m)	Dragging limit allowed (Weight in Kg)
<1.50	Not used for carrying load
1.51 - 1.80	Not exceeding 150kg (carry only fodder and trainer)
1.81 ~ 2.25	Not exceeding 200 kg
2.26 ~ 2.55	Not exceeding 300 kg
>2.5>2.55	Not exceeding 400 kg

(Ref:' Kerala captive elephant management rules', 2003)

6.3.2. Dragging capacity allowed

Load should be reduced to 50 % in hilly or difficult terrain.

Height of Elephants(m)	Dragging limit allowed (Weight in Kg)
<2.10	Not used for dragging
2.11~2.25	Not exceeding750 kg
>2.25	Not exceeding1000 kg

(Ref: 'Kerala captive elephant management rules', 2003)

6.4.

Requirement of equipment for various activities

Patrolling/riding/rescue missions: Namda, khadhi, ambary, leather belts and jute ropes.

Clearance activities: Jute ropes of various dimensions according to the work.

Kumkie operations: Elephant transport truck, jute ropes, nylon ropes and related restraining items, cooking utensils, provision, transport vehicle, make-shift tents.

6.5.

Precautions

- The safety and welfare of the elephant and elephant men are very important while engaging elephants at work.
- When working amidst public presence, the safety of the public and other personnel needs to be kept in mind.
- Only well-trained elephants of predictable behaviour should be put to such tasks.
- The elephant and elephant men should be physically and mentally fit and this should be ensured before engaging to work.
- In no case sick, injured elephants and elephants in musth be used for any work.

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7

Handling and Training

7.1.

Tools

Chains - Trail chain, Bedi chain, musth chain.

Ropes - Nylon, vakka/ jute ropes.

Other equipment - Bill hook, sickle, water sprayer/ sprinkler, pressurized water pump set up, trolley/ wheelbarrow, molds for making feed blocks, crowbar, spade, barn, powerful torch lights.

7.2.

Sensitive points and regions

Listed below are some sensitive parts and regions and the effect of injury to these regions. Elephants also have several callouses on their body acquired from work, laying down and also from chains. Injuries on callouses do not heal completely as they are constantly under pressure. Most of the injuries are caused due to ignorance and uncontrolled use of restraining devices. Mahouts must be aware that the well-being of an elephant rests in their hands.

1. **Trunk tip:** The finger-like tip on the trunk is the most important organ to an elephant. It depends on the trunk for a variety of functions such as breathing, sniffing, drinking water, breaking branches etc. The Trunk can pick up small objects from the ground. Damage to this appendage will affect the elephant's ability to perform the above-mentioned activities. The mahout must hence be careful, that the elephant does not injure its trunk, by accident.
2. **Temporal region:** Injuries to the temporal region area due to the use of the stick, will cause blindness eventually. Deep wounds may also affect the flow of musth fluid in bulls.

3. **Head:** Head injuries may lead to brain damage, internal swelling and pus formation.
4. **Forehead bump:** The forehead bump injuries result in swelling and pus. The pus sometimes drips out of the nose.
5. **Elephant Back:** The mahout's seat on the elephant's back. This region becomes tender due to the constant use of pressure by the mahout.
6. **Rope callous:** Timber elephants develop callouses on their forelegs from constant abrasion of the logging rope. This area becomes sensitive over the years.
7. **Base of the foot:** If the depression behind the forelegs, above the base of the foot is abused with a long pole, it will cause injuries which will result in bent front feet inwards.
8. **Penis:** At times penis may emerge to its full length, and trail on the ground. During this condition, the mahout must be careful while using the stick. The elephant must walk at a slow pace to prevent abrasions from trailing on the ground.
9. **Belly:** The belly is tender when it is full. Mahouts must not use the stick on the belly. It may affect digestion and may also cause internal infection leading to pus formation.
10. **Hip Callous:** Callous developed on the pelvis, from laying on the sides.
11. **Chain callouses:** Regular use of hobbles and body chains makes the skin on these areas calloused.
12. **Palate:** The upper palate is thick in texture, yet a slight prod with a sharp object can cause bleeding. During festivals, mahouts prod this region with their sticks, thus forcing the elephant to hold its head upright. This practice must be discouraged.
13. **The perineal region:** The base of the penis is in the perineal region. Prodding or beating on this area, will also injure the penis.

7.3.

Practical Aspects

The profession of a mahout is a demanding one and requires several kinds of skills and virtues from the mahout.

Listed below are pointers for mahouts, which may help them in their profession. Mahouts should know:

- To climb trees
- To prepare feed for the elephant
- To prepare coconut husks for bathing elephants
- To bathe an elephant
- To identify medicinal plants and prepare traditional medications
- To identify ailments in elephants
- To swim
- To identify various fodder species
- Foot and verbal commands
- Logging practices

- Preparing ropes
- Sensitive points on the elephant's body
- Use of restraining devices and their care.

7.4.

Types of ropes and chains used

Ropes - Nylon, vakka/ jute ropes.

Chains - Trail chain, Bedi chain, musth chain.

7.5.

Tethering elephants

The tethering site should have shade and proximity to water. The surface should not be too hard and must be preferably muddy. There should be provision for drainage and convenience to dispose of dung, urine and fodder refuse. These wastes also can be incinerated periodically. Elephants must be kept in a clean and dry place. The tethering area must be maintained neatly. Litter like plastic, paper, and rubber must be removed.

7.5.1. Methods of Restrain

It is essential to chain or restrict the elephant's movements during musth on account of the violent behaviour. The chains have to be tested for their condition. The musth elephant is chained both by the hind and front legs. One of the forelegs is chained to any tree or a pillar in the front. This arrangement makes it safer for the mahout. He can approach the elephant from behind, to clean the tethering area, and also move the chain from one leg to another Elephants may pull and fiddle with their chains during musth. They do not do this when they are not in musth. Therefore, special musth chains must be used. It is ideal to use a chain or fetter with 7/8" diameter links. The chains also must be fitted with ' U ' shaped clamps with strong screws. There must be a distance of 2 feet, 60 cm between the tethering pole and the elephant's hind leg. The chains and fastenings must be double-checked.

It is also sensible to keep spare chains, for emergencies. A circular loop (a ball and socket-like joint) should be present on the chain. This allows the chain to twist without breaking.

7.6.

Equipment for Problem Situations

During problem situations, the equipment and tools commonly used by the mahout to restrain the elephant are a stick, hook, long pole and knife. A mahout must know the proper usage of these tools. He must be armed with a stick and a long pole while approaching an elephant. This is for personal safety. It is only through observation, imitation and practice that one can learn the correct usage of the tools. A mahout should be on the elephant's body and provide the necessary commands. Carelessness on the mahout's part can cause irreparable damage to the elephant and also to the handler.

7.7.

Training elephants

During training sessions, the physical and mental health of the elephants is checked every day. If an animal is found sick, then the animal is subjected to a special examination by the veterinarian.

• Training: Pulling rope

• Training for various activities

After the elephants are brought from the grazing area, thorough scrub bathing is carried out. After that, the training session commences. The training session includes obeying the various commands, obedience training, various activities related to driving the elephants and Kumki operation training (which includes holding the rope, stamping the rope, standing close to the captured animal, allowing person to go under the belly and tying of the rope in the neck and legs, climbing on to the back of the animal, pushing and pulling the other elephant as per command, embarking and disembarking from the truck, training to work as a team with other elephants, compatibility training with other male elephants of the camp) under the camp supervision by mahouts and cavadies. Physical training is normally done by mahout and cavadies under the supervision of the camp forester/ manager.

Training is through positive reinforcement program, wherein, no ankush/ billhook/ sharp objects used. Only 'Thuvarai kuchi' (Diospyros Sp.) is used (Psychological Control).

The training is imparted in two methods namely open and closed types. Traditionally closed type (Krall) which is also a form of protective contact method, is followed in our camps, where the commands and training is imparted through positive reinforcement techniques.

Training: Climbing on an elephant

By repeatedly telling commands with softness and firmness and rewarding the animal after obeying the command or carrying out the task, positively reinforces the animal. The animal remembers such activity with pleasure and recalls it with happiness. It gets registered in the mind strongly with pleasant feeling.

The extent to which an elephant has been trained can be assessed by the number of commands being obeyed by the elephant. A greater number of commands obeyed indicate a higher level of training.

- Trust and Bondage

The traditional system of training practiced in the camps in Tamil Nadu is extremely gentle as compared to systems adopted in other places. However modern and alternate methods primarily based on 'reward' system have been put forth and the document 'Hasthisiksha – A manual on humane training of elephant calves destined for permanent captivity' deals with this.

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8

Safety Guidelines during transportation of elephants

Though until recently elephants were transported only on foot, present-day wildlife management requires transportation using vehicles. Camp elephants are often shifted across camps for management reasons. Kumki elephants often need to be transported from one place to another to tackle Human-wildlife conflicts. Likewise, crop-raiding elephants which are captured have to be transported from one place to another to release them into the forest or rehabilitate them in elephant camps. Transporting elephants from one place to another is a challenge due to their large size, weight and intelligence.

Elephants are generally transported: i) on foot ii) on the road iii) on rail and iv) by air. The guidelines will differ for the different modes of transportation.

8.1.

Preparations Before Transportation

The following points must be considered before transporting the elephants from one place to another:

1. It is very important to obtain a valid certificate from a veterinarian for the fitness of the elephant to travel and to confirm that the elephant is free from any diseases
2. The mode of transportation of the animal must be decided based on the animal's age, health, time, season, topography of the land and distance to be travelled.

3. The suitability of the animal enclosure (if used), its design and safety should be evaluated before transport
4. The temperament, degree of training, veterinary history and health issues of elephants should be assessed before transport.
5. The ability and training of the truck driver, other staff and mahout should be assessed and verified
6. A sufficient amount of fodder should be carried by the mahouts for the elephants during transportation.
7. Probable emergencies and the manner to handle those should be part of the plan. Facilities en route should be informed in advance for assistance in emergencies.

8.2.

Transportation on foot

If the animal is transported on foot, the following points should be considered:

1. Animals can walk for 2-3 hours in the morning and another 2-3 hours in the evening (Totally 25-30 km can be covered by the animal in a single day and should not be allowed to walk beyond this limit)
2. Forest officials in uniform must accompany the elephant and mahout
3. The place where the elephants can stay during the journey should be away from the sound and noise of traffic.
4. Travelling through wooded or deserted paths are safest
5. Travelling through villages and towns may be avoided, because it may lead to infections from cattle in the village and annoyance by village dogs.
6. Well water or running water may be provided to the elephants for drinking purposes.

8.3.

Transportation on the road

8.3.1. Basic specifications of elephant-carrying vehicle:

1. The vehicle must be in good condition
2. The floor of the vehicle should be sturdy enough to support the weight of the elephant and should have been designed so that the elephant's urine and spilt water can drain easily.
3. A strong wooden or steel barricade must be attached to the sides of the platform and must be at an appropriate height to provide safety.
4. An elephant (except a calf of less than 1.59 m in height) should not be loaded in a truck less than 12 feet in length.
5. More than two weaned calves (<1.5 m height) or one elephant with one un-weaned calf or one adult/sub-adult (>1.51 m height) should not be loaded in one single truck

6. The truck must be equipped with restraining devices.
7. The speed of the vehicle should not exceed 30 km/hr.
8. Low-chassis vehicles may be used to reduce the chances of toppling over
9. A ramp at the back end of the lorry should be attached for easy step-down or step-up by the elephants.

• Ramp and Positioning of Truck

• Loading and Positioning of Elephant in the Truck

• Loading and Positioning of Elephant in the Truck

8.3.2. Precautions and guidelines for on road transportation:

- Complete medical check-up should be given to the elephant before the journey.
- During transportation, the mahout should not be changed
- During the loading process, the truck should remain steady
- If the elephant is not familiar with loading itself into the vehicle, the vehicle may be reversed and parked adjacent to a straight land cutting to allow the animal to walk into the truck
- Mild sedation (80mg Xylazine for a ton of Bodyweight) may be given to intractable animals.
- For long-distance journeys, a veterinarian shall accompany to top-up the sedation, if needed in between the journey.
- Truck should be driven only for 5 hours at a stretch.
- Slow and steady driving is necessary and crowded areas should be avoided
- To avoid the chances of striking against the cabin sides and injury to the people, elephants must stand with their backs facing the cabin of the truck
- Pregnant cows and cows with calves should not be transported on vehicles.
- Especially in slope or undulating terrains, legs should be tied separately.
- Pilot vehicle in front of the vehicle with an elephant is often necessary to regulate the crowd and to have smooth transport, especially in case of a nervous or inexperienced or wild elephant.
- If the mother and calf are to be transported, it is better that the calf is to be tied to the fore limb of the mother.

8.4.

Transportation on rail

1. Trial runs may be done before a long-distance journey
2. Mild sedatives may be given initially to some animals if needed
3. Two adult animals can be loaded in a double-sized flat open wagon with proper scaffolding.
4. Proper platforms should be provided to the elephants and roof coverings should be provided for the mahout.
5. Water should be provided in large-sized drums (minimum 100 litres)
6. Regular fodder supply and cleaning of the wastes are a must during transportation.

8.5.

Transporting elephants by Air

1. For transport by Air, International Air Transport Association (IATA) regulations are to be checked. Not all airlines take elephants as cargo and there are height specifications.
2. Establish proper communication both at the shipping end and receiving end.
3. Crate should have all the necessary information like shipping origin, destination, and emergency contacts both in transit as well as at the destination etc.
4. Crate is designed so that it can be easily handled by the airport cargo handling system.
5. Salient points of the crate:
    - Roof over the head should restrict undue movements of the head and trunk
    - No sharp projections in the crate.
    - Design to protect humans from elephants.
    - Strong platform
    - The whole crate should be strong enough to restrain the animal
    - Non-slip floor.
    - Adequate ventilation
    - Provision for drainage and ventilation
6. Elephant has to acclimatize to the trailer or crate conditions, which may take 1-6 weeks depending on the elephant's temperament. The acclimatization process should begin as early as possible before the transportation date.
7. Better to be accompanied by an experienced vet and mahout and carry emergency drugs like sedatives, reversing agents, respiratory stimulants, parenteral fluids, etc.

8.6.

Transport of captured wild elephants

1. The captured wild elephant is usually taken on foot to the nearest camp and next to a distant place by truck. The help of an experienced elephant vet should be taken during the entire transport.
2. On transport to the camp and depending on the size of the animal, two kumkies in the front to pull, and one or two kumkies at the back/sides to push/prevent from straying away would be needed. Considerable resistance will be put up by the wild elephant and conspecifics may come to help the herd-mate and one needs to be prepared for this.
3. To subdue the wild-caught, a mock fight with the kumkies is done after a shot of mild sedative to the new capture.
4. Thick ropes made of natural fibre are preferred over chains and single strong ropes made of synthetic material. Ropes are tied in webbed fashion to avoid limb injury.
5. The animal is loaded into the truck with the front facing backwards. A mock drill with a captive one can be done.
6. If the animal is to be released back in the wild, appropriate collar/tags to be used on the animal for tracking etc.

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9

Handling Musth in Captive Elephants

9.1.

Musth Phenomenon

'Musth' (Urdu word meaning 'intoxicated, excited') is a normal physiological phenomenon generally occurring annually in male elephants, both tuskers and makhnas. Musth occurs more regularly in well-nourished and healthy animals between the age group of 21-80 years and is characterized by aggressive behaviour and a large rise in reproductive hormones. During musth, the testosterone (the male hormone) level increases to nearly 60 times higher than the pre-musth level. The temporal glands which are modified skin glands located on either side of the head just beneath the skin, above the zygomatic arch, halfway between the lateral canthus of the eye and external opening of the ear, are active at musth cycle and begin to secrete a thick tar-like liquid called 'temporin'. Histologically the temporal gland is a tubuloalveolar gland and during musth, it enlarges in size and produces foul-smelling musth secretion. The duration of musth ranges from 3 weeks to 3 months. Juvenile musth is sometimes observed in the age group of 15-20 years.

• Temporal secretion prominently visible in the cheek

9.2.

Behaviour during Musth

Some of the symptoms shown at the early stages of musth are listed below:

- Frequent sniffing of the mahout and people with its trunk
- Swift changes in moods and behaviour
- Fixed gaze
- Elephants stare at objects for a long time
- Saliva dribbles constantly from the trunk
- Eyes appear bright and red
- Elephants dig around the tethering area
- During a scrub bath, dirt comes off easily
- Temporal region swells up
- Urine dribbles constantly
- Frequent urination
- Malevolent look, wild eyes
- Acting 'spacey', glassy-eyed
- Increased aggression toward humans and other elephants
- Unpredictable or erratic behaviour
- Increased show of dominance towards other elephants
- Lack of interest in food
- Frequent protrusion and erection of the penis, including rubbing against the belly.

Proper handling of young elephants in juvenile musth will make it easy to handle the same elephants during their adult musth periods as the handling moulds the elephants' behaviour during musth. During juvenile musth, mahouts need to handle their elephant carefully and ensure that the elephant does not turn too aggressive.

With some elephants their behaviour and personality do not change, that is they do not become aggressive, but most elephants experience a behavioural shift and become stubborn, dangerous, and aggressive for a period of one to four months until the condition runs its course. The musth fluid that flows has a foul smell and has a grey or dark grey colour. The aggression of the elephant may turn on the mahout or other humans, or other elephants, even cow elephants. Some elephants may tolerate mahouts and other humans but may be aggressive only to other elephants. Some male elephants from about the age of twelve years and up begin to show signs of musth.

If the elephant is in good health and has been receiving abundant food and water, and sufficient rest, that first musth is shown by a secretion oozing from the temporal gland and agitation and stubbornness in the animal's behaviour. Sometimes such elephants will play

very roughly or injure other elephants or their keepers — but this is not the same strength as true musth. Elephants will generally come into true musth about 4 or 5 years after the first musth.

Sometimes female elephants who are fat and healthy will also come into such first musth, most often when some outside influence makes them nervous or before giving birth. The secretion exuded is greyish and pasty without a particularly bad smell. Beyond some agitation, there are few of the behavioural problems posed by males in true musth.

9.3.

The phases of Musth

Musth period is divided into three phases – i) Pre-musth, ii) Mid-musth or violent musth and iii) Post-musth.

i) Pre-Musth symptoms

- Engorgement of temporal glands
- Discharge is observed at the temporal gland openings. This initial discharge is a dirty brown, viscous fluid, with a strong smell. This fluid may sometimes block the temporal opening or the opening may be too small to allow the free flow of fluid. Both these conditions are very uncomfortable for the elephant. It may scratch the region with a twig or any other sharp object. This may injure the area and cause an abscess. The gland on that side may stop secreting fluid and will have to be operated on. On noticing signs of discomfort due to blockage, the mahout must assist the flow, by squeezing out the fluid.
- The perinea region, below the tail, enlarges. This is a very obvious symptom.
- The penis will emerge to its full length and the elephant will masturbate frequently. The penis strikes against the stomach, resulting in the ejaculation of seminal fluid. Sometimes the penis emerges to its full length and trails on the ground. The mahouts may have to prop it up with a cloth to prevent abrasions.
- Urine dribbles constantly.
- Elephant exhibits a tendency to gore any moving or non-moving object that catches its attention. There is an intense feeling of vengeance towards mahouts. The assistant mahouts must be careful while approaching the elephant. Many ignorant mahouts are unaware of the danger. They get killed or severely injured while approaching the elephant during this period.

ii) Mid or violent musth symptoms

a) Initial phase of violent musth:

- The secretion of fluid is slow and it is viscous in nature
- Behaviour continues to be unruly. It disobeys commands and will reach violently on hearing Mahout's voice
- The body is stretched, taut and stiff. The trunk is extended forwards as if reaching out for something. The ears are spread out as if listening intently to sounds

b) Middle phase of violent musth:

- The temporal fluid flows faster (like teardrops) and has a pungent odour like that of gunpowder and can be recognized from a distance
- Some elephants may have a red colour around the temporal region
- Behaviour continues to be aggressive. The trunk is beaten on the ground as an indication of discontent and anger
- Tendency to pull more violently at chains and tethers
- Lack of appetite

c) Final phase of violent musth:
This phase may last for a month

- The glands reduce in size and the flow of the musth fluid subsides
- Normal urination with protrusion of the penis
- The elephant becomes less aggressive and violent and may even start obeying commands

iii) Post Musth – This is the final stage of Musth

- The gland is regressed and the flow of fluid stops completely
- Urination is normal
- The behaviour reverts to normal. Mahouts must continue to be careful while handling. The elephant must have restraining chains on its body, while being moved around, right after musth.

9.4.

Musth Management

Musth is a dangerous period for handling as the elephants become aggressive and at times go out of control and cause damage to life and property. Musth management in captivity/ camp has always been a problem. However, by taking some precautionary measures, it is possible to overcome this problem. Some measures are discussed below.

- Stop or restrict the elephant's movements during musth
- The musth elephant should be strongly chained with one of its forelegs and the opposite hindleg with a strong object like a large tree or a pillar
- The mahout must check the strength of the tree to which the elephant is to be tethered.
- The tree must be large enough to provide plenty of shade.
- There must be a distance of 2 feet between the tethering pole and the elephant's hind leg.
- Special musth chains must be used and the chains should be tested for their condition
- A chain or fetter with 7/8" diameter links is ideal for the purpose and the chains must be fitted with 'U'- shaped clamps with strong screws.
- Keep spare chains for emergencies.
- A circular loop called 'thirukanni' (a ball and socket-like joint) should be present on the chain. This allows the chain to twist without breaking.

- The surroundings must be clean and hygienic. Elephants must be left alone during musth. They are agitated by the slightest noise, from traffic or people.
- The tethering site must be on a slight incline to facilitate the drainage of urine and dung.
- The mahout can approach the elephant from behind to clean the tethering area and move the chain from one leg to another.
- During musth, elephants have to be chained for long periods, until it becomes safe for mahouts to handle and hence padding should be provided.
- The elephant may develop chain sores from prolonged chaining. Mahouts must attempt to move the chains up and down the leg, with a long pole. He must stand behind the elephant to do this. It may not be possible to do so with every elephant, as some may grab the stick or charge at the mahout. So, chain sores, during musth are inevitable. Some elephants, on the contrary, remain docile and allow chains to be transferred from one leg to another.
- A water tank, with a constant supply of running water, must be provided. It must be placed at a distance reachable to the elephant's trunk.
- The tank must not be too close to the elephant, as it may destroy it.
- The elephant must be showered with water at least once a day, to cool it.
- The mahout must be present in the vicinity, throughout the musth period and ensure that other factors which can excite the elephant are minimized
- Special musth enclosures/pens consisting of two compartments divided by a sliding door may be used to keep the musth elephants

9.5.

Diet in Musth

- During musth period, elephants must be given special foods to lower their internal temperature.
- The most appropriate food for musth elephants is food with low nutritional value. When the elephant eats such food, it will feel full very quickly.
- High-energy food should be avoided as it extends the musth period and is dangerous to the elephant's physical health. Feeding of horse gram is generally avoided during musth.

9.6.

Mechanisms to reduce the Musth

- Recurrence of musth can be prevented by subjecting the elephants to intense physical activities.
- Physical exertion and strain delay the onset of musth
- Combination of Flutamide @ 500 mg, Haloperidol @ 100mg and Potassium iodide @ 20mg orally, once a day for 3 days may be effective in controlling the aggressive behaviour (this should be used in elephants with prolonged musth period only and should not be used to stop the regular musth)

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10
Kumkies

Forest Department camps across India maintain elephants for several decades. These elephants were very actively used for commercial timber operation, and currently are used for patrolling the forests, tourism, weed control, kumki operation, conservation education and training.

Well-trained elephants called 'Kumkies' are being used to drive away wild rogue elephants as a conflict mitigation measure, to build confidence and create conservation awareness among the public. Kumkies are also used to capture and translocate problematic wild elephants from highly fragmented forest patches as a population control measure, this would otherwise not be possible by any other machinery. Kumkis not only act as a commando but also act as a companion, mentor, mate, friend, assistant and well-wisher for the newly captured elephants.

Elephants in forest camps are also used for forestry operations such as uprooting Lantana plants and removing trees fallen along roads. They can also be used to patrol the forest in areas with thick forest cover. Provides an opportunity for a scientific study of elephant biology and behaviour that would otherwise not be possible with wild elephants. The result of that research study can be used for the management of elephant reserves.

Camp elephants are also used in rescuing and treating wild elephants which are in distress/ indisposed due to human activities. As a means of providing awareness of nature and natural resources.

The camp serves as a place to educate and teach students from schools and colleges about elephants in their natural environment as well as providing opportunities to observe wildlife. Tourism and education of the public on wildlife through eco-tourism using elephant rides in forest areas, involvement of tourists in feeding routine of camp elephants.

10.1.

Identification of potential Kumkies – Signs and features

Good Kumkie: desirable features of kumkies shall be able to work in Musth also. These characters are identified at an early stage and training starts.

10.2.

Training of Kumkies

Taking the animal along with senior, older experienced elephants for perambulation, minor tasks like cleaning the forest roads (bamboo, bushes, weeds etc.), driving the strayed elephants from the field to reserve forest areas, monitoring the wild herds and other species (Tiger, Gaur, Leopard, Bear, Wild dogs, Deer, Primates etc.), Kumki operations (standing along with other kumkies, captured elephants).

10.3.

Retaining characteristics of Kumkies

Presence of frontal hump, forehead structure, tusk shape (slightly downward, outward, curved upward, thick, stocky, white, good girth, optimum length etc.), Barrel-like body, Muscular strong forelegs, well-rested round feet, thick smooth nails, strong cuticles, straight back, No visible bones, good hearing, eyesight, obeying the commands and carrying out the tasks even in musth, able to be handled by mahout and others, eat readily variety of green fodder with a good appetite, should rest well, lie down and get up easily, bright eyes, trunk touching the ground, tail with good hair tuft, mingle with other elephants easily. Handled by other mahouts as well, good teammate, dominant, virile, embarking and disembarking from a truck.

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11

Elephant Calf Management: Weaning and Training

Newborn Asian elephant calves weigh between 90-100 kg. Calves nurse for the first six months of life and a calf drink about 10 L milk in a day. At the age of four and six months, calves try to pick grasses and leaves to supplement their diet and weaning from milk gradually follows this process. Calves are not completely weaned up to the age of two years.

11.1.

Weaning of calf

It is a general practice in camp-born calves to wean them at the age of 15-18 months. Early weaning was done in those days, so that the mother can be put to work earlier and it has to be noted that, this early separation does not affect the growth of the child. The weaned calf is put in the kraal, and the Cavadi (assistant mahout) of the mother or cow elephant, is in charge of the calf.

During the first two or three days of weaning, the calves will cry continuously for their mother and some calves are very aggressive. The diet is changed from milk/ rice/ ragi along with a few vitamins and mineral mixtures that are mixed in the food. Slowly the calf gets accustomed to separation and being alone.

11.2.

Training of Calf

In nature, the calf learns the art of living by interacting in the natural setting and with the herds. Soon after weaning, the training of the calf begins as soon as it is enkralled. Basic commands like “jhuk” (to bend down), “thrae” (to hold the stick), “paara” (to raise the trunk) etc., are taught. The calf is also trained to wear chains and hobbles within 10-15 days of enkralling. After the preliminary training is completed, the calf is removed from the kraal.

Every morning and evening, the calf is trained for an hour. They are sent out for grazing with the adults during the day but are chained at the camp in the night. The calf has to be dewormed periodically as prescribed by the veterinarian.

In the camp, after the age of six years, the animals have to undergo serious training. This helps in controlling and disciplining the animal, at an early age. Stereotype movements (like weaving rocking forwards and backwards) due to chaining must be controlled at a very early age, as they may persist throughout the animal’s life.

In the case of orphaned, abandoned calves the basic training starts from day one of arrival at camp simultaneously with rearing as the calf grows. There is no need for enkraalment in this case.

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12

Handling Captured Adult Wild Elephants

Elephants when faced with danger (stranded/ injured/ snared/ struck in slush etc.) or become problematic (crop-raiding, straying out into human habitation, property damages/ threat to human life etc.) may be brought under captivity as a last resort. Problematic elephants cause extensive damage to property and life when they go out of control. These problematic elephants are captured mostly by using chemical methods and rarely by physical methods.

Chemical capture includes tranquilizing elephants which is a widely used practice these days. Thus it is very essential to control and put them in chains as quickly as possible. A variety of tranquilization equipment, accessories and chemicals are available.

12.1.

Elephant kraal

Some elephant kraals continue to exist from the old days and are used to house weaned calves or ailing elephants. The elephants were brought to the campsite and enkralled, with the assistance of Kumkies. The entire kraal can be divided into six sections, of 12 square feet each, with one single roof. The wood used to build a Kraal should be very strong and could not be easily destroyed, by the elephant. The roof was built about 20 feet high from the floor beyond the reach of the elephants to facilitate proper ventilation and sunlight.

12.2.

Elephant training

The training takes place in 3 stages. Elephant training is generally carried out for calves and wild-caught elephants in the elephant camps.

- Training within the Kraal.
- Training outside the Kraal.
- Training to perform forestry operations.

The Kraal should be located within the camp area as the presence of other camp elephants in the vicinity of the enkralled animal gives psychological support and soothes aggressiveness.

12.2.1. Training within the Kraal.

After the elephant is enkralled, two mahouts were assigned to train it. They first treat the elephant for bruises or any injuries with the help of veterinary advice. Then the mahout tries to build up a relationship with the elephant by giving vocal commands, to familiarise the elephant with his voice.

The commands were repeated constantly and the elephant was rewarded with titbits of food or verbal approval when it obeyed the commands. During the initial stages of training, the mahouts use only the stick, to restrain the elephant. The mahouts were expected to spend lots of time with the elephant to develop a bond between him and his elephant. After a certain period, when the mahout felt comfortable enough to trust the elephant and vice versa, he would try and place one leg inside the cage and continue training in this manner. Later, smaller cages were built within the actual Kraal, to let the mahout get closer to the elephant and enable him to safely clean the Kraal. During this period, the mahout had to be wary of the elephant's movements, for his own safety. Towards the end of the training, the mahout had to fasten ropes and chains, on the elephant to familiarise it with the idea of being chained. It normally takes two months to complete this initial phase of training.

12.2.2. Training outside the Kraal

With the help of kumkies, the elephants were taken out of the Kraal and walked to the river, to be familiarised with scrub baths. This was carried out every morning for two weeks, until the elephant was accustomed to the new environment outside the Kraal and also to being bathed, by its mahouts. The walk to the river will also familiarise the elephant, with the sounds and sights of civilisation. The mahout had to constantly reassure the elephant and help it get over its fears.

12.3.

Using restraining devices

A variety of devices are used to control elephants. They are the short stick, long pole, etc. The short stick measures 3.5 -4 feet in length and is about 2-2.5 inches thick. The anterior end is rounded and thicker. The mahout handles the elephant with that end. The stick is made from the branches of a few local trees such as Diospyros paniculata (Karunthuvarai) are used. The mahout must always carry the stick with him while approaching the elephant. It also has a psychological effect to build his confidence.

Long pole with a length of 10.5 feet and a thickness of 5.5 inches is meant to be used from a distance when the elephant does not allow the mahout to come close. This long pole would be useful when the elephant is in musth and the Mahout can handle it from a distance. All the above-mentioned devices must be used with extreme caution. It requires a lot of experience to understand the appropriate use of these devices.

Chains: Elephants may be tame or docile, but in captivity they require chains. Chains make it easier to fasten an elephant that has bolted or is out of control. It is a precaution against any accidents, damage to property and loss of life. While tethering, one chain is fastened onto one of the hind legs and the other to a tree or solid object. If an elephant is mischievous, one of the forelegs is also fastened to an object in front of the elephant. The chains should not be too tight. The hook on the chain must further be strengthened by using a small piece of plastic rope or fibre. The knots must be strong so that the elephant is unable to open it with its trunk tip. The same chain can be used as a body chain, while the elephant is walking. One end stays on one of the hind legs and the other goes around the body. The hook on the loose end of the chain is tied loosely to one of the links. If the chains are fastened too tightly, the elephant will not be able to walk. When the elephant bolts or goes out of control, it makes it possible for the mahout below, to snap the chain. The mahout on top can push the chain down to trail on the ground. On finding a suitable tree or post, the mahouts should try to fasten the chain.

Elephant chains should be strong, without any sharp endings and flawless. The tethering chains should be 16mm, 18mm or 20mm thick and 30 feet in length.

Hobbles should be 11 feet in length. The rope around the neck is about 21 feet long while tethering.

12.4.

Mounting and riding

An elephant can be mounted in 8 different ways they are; mounting by front and hind legs, by ears, by trunk, and by stepping on tusks. Similarly, elephants can be dismounted by 10 methods. The first eight, are the same as in mounting. The other methods are dismounting via the tail and by using the body chains. While riding an elephant, it is safer to use the rope around the neck. The rider must insert his feet between the ropes and the neck, for better balance.

Foot commands: Elephants are trained to obey foot commands at an early age. They are trained to respond to the movements of the rope around the neck. Some basic foot commands are listed below:

Walk forwards -Press with toes behind the elephant's ears

Walk backwards - Press backwards with heels

Lift trunk - Use toes and push upwards

To sit down - Use one heel and push downwards. The rider must remove the feet from the rope when the elephant begins to start sitting.

Turn left - Hold left heel backwards and press right toe forwards

Turn right - Hold right heel backwards and press left toe forwards.

Primary contributors to this chapter are
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13

Selection of Mahout and Cavadies

Physically fit persons, who have completed 5 years of continuous service without any adverse remarks and completed a basic training course on elephant management and handling can be considered for recruitment as permanent cavadi.

Preference can be given to tribal candidates and descendants from elephant-men families. Promotion to Mahout can be given based on seniority as and when a vacancy arises.

13.1.

Duties and responsibilities of mahouts and cavadies

Each working elephant has a Mahout and Cavadi (Second mahout). Both Mahout and Cavadi are responsible for the proper upkeep of the animal and they are under the control of the official in charge of the camp.

13.1.1. Mahout

- Responsible for training the animal for all purposes.
- Takes proper care of the accoutrements provided for the elephants.
- Responsible for taking the animal for work, giving baths and assisting the official in charge of the camp in all the activities connected with the elephant camp.
- Responsible for the health of the animal and report promptly for proper veterinary care as and when his elephant falls sick or gets injured.

13.1.2. Cavadi (Second mahout)

- The mahout is assisted by his cavadi in training, giving baths to the animal, feeding the animal, taking proper care of the accoutrements provided and also in other activities in managing his ward.

- Assists in cooking rations in the camp.
- Assists in maintaining the camp hygiene by proper disposal of dung and litter collected around the camp, providing water for cooking, collection of fuel for cooking, etc.,

13.2.

Assessment of work output and performance

Work output and performance can be assessed based on his and his elephants' turnout in the camp. Credit can be given to those going out of the station for any kind of operation. In the case of elephant-men caring for retired elephants, credit can be given to the efforts put forth by elephant-men for the welfare of the elephant.

13.3.

Training to mahouts and cavadies

13.3.1. Emerging Issues in the Elephant Camps:

Several incidents in the last 10 years reveal that the camp elephants are increasingly breaking the bondages with the caretakers and having strained relationships with them. This includes disobeying commands, charging, injuring, and even killing the mahouts and cavadies in a few instances.

This had led to a few young mahouts and cavadies leaving the job/work. Every incident should be thoroughly studied for the background, circumstances, prompting or driving factors, information from the site, and statements from the witnesses to comprehensively understand the issue, take effective measures to prevent recurrences and also suitably educate and motivate the mahouts and cavadies to professionally carry out their day to day work. Any excess on the part of Mahouts or the unprovoked attack by the elephants must be carefully studied and rectified immediately. Each event will be remembered by the other Mahouts and the elephant themselves and will be having a profound impact on their Psychology in future.

A basic training course before appointment as a permanent cavadi can be given. Continuous refresher training on elephant management needs to be given at least every 2-year. The possibilities of overseas training can also be explored.

Primary contributors to this chapter are
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14

Visitor Management

14.1.

Guidelines

To ensure visitor management and their safety, they are allowed to visit the elephant camp during the morning and evening during feeding time to have a glimpse of the elephant, their feeding practices and their behaviour.

The visitors comprise various age groups and are from different States and Nations.

They are allowed to stand at a safe distance from the elephants which is marked by a stand-off barrier to witness various camp activities.

Appropriate signage in multiple languages indicating the rules, regulations, and do's and don'ts should be prominently displayed.

14.2.

Precautions

- Visitors should not go too close to/ behind the animal.
- Should not wear brightly coloured clothes and glittering materials.
- Should not use strong scents/body sprays.
- Should not take selfies/ use flashes, standing close to the animal
- They should not approach the animal without the presence of mahout or cavadi.
- Should not make loud noises and sounds in the camp area.
- Littering and loitering should be strictly avoided.

Primary contributors to this chapter are
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15

Record Keeping in the Camp

15.1.

Veterinary care registers

Veterinary care registers are vital registers to understand the health conditions of the elephants maintained in the camp. The following are the registers maintained in the forest veterinary dispensaries of the Department of Tamil Nadu.

i) Vaccination register:

Vaccination register should be maintained by the Forest Veterinary Assistant Surgeon/ Forest Veterinary Officer inspecting the elephant camp.

ii) Treatment register:

Medical and surgical interventions and related particulars on a day-to-day basis will be entered in the treatment register.

iii) Deworming register:

Periodical deworming particulars and the anthelmintic used are entered in the deworming register.

iv) Mortality Register:

Post-mortem details and causes of death and related particulars are entered in the mortality register.

v) Biological sample collection register:

The details of biological samples like dung, urine, mucous secretion, trunk wash, blood, serum, biopsy materials etc., are collected and sent to various laboratories and their results are entered in the biological sample register

vi) Outbreak register:

Any disease outbreak in the camp area, surrounding area, sanctuary area or in the landscape and the action taken are entered in the Outbreak register.

vii) Expendable and Non-expendable Register:

The medicines, ointments, dressing powders, dressing materials, gloves, aprons, masks, other one-time-use materials etc., are to be brought under expendable register.
The tranquillisation gun, accessories, rescue and rehabilitation materials, surgical equipment/ accessories, microscopes, centrifuges, refrigerators, binoculars, cameras, range finders, GPS, etc., are brought under a non-expendable register.

Vaccination register, Treatment register, Deworming register, Mortality Register, Biological sample collection register, Outbreak register, and Expendable and Non-expendable Registers are to be maintained by the veterinarian.

15.2.

Service register of elephants

Should be maintained for individual animals

S. No.	Date	Elephant Name & Microchip No.	Age	Sex	orphaned/ abandoned/ orphaned/ abandoned/ born in captivity/ captured/ transferred from other sources	Area of capture	Physical/ Chemical method of capture	Breeding Particulars	Training	Temperament	Body Condition & Health	Mahout & Cavadi	Remarks

Service register should be maintained by the Forest Range Officer.

15.3.

Feed register

Feed register should be maintained by the Forest Range Officer and Camp Forester. The diet schedule and changes in the diet for each elephant should be recommended by the Veterinarian and entered in the register.

S. No.	Age/ Sex	Date	Horse gram (Kg)	Ragi (Kg)	Rice (kg)	Salt (gm)	Jaggery (gm)	Mineral Mixture (gm)	Sugarcane	Coconut	Special recommendations	Remarks

15.4.

Any other register

Morphometric register

Morphometric measurements to be noted for every elephant periodically at regular intervals and entered in the register.

S. No	Name of the elephant	"Height (at shoulder joint) in cms"	Weight (in kgs)	Trunk length (in cms)	Body length (in cms)	Tail length (in cms)	Tail tuft (in cm)	Neck Girth (in cms)	Chest Girth (in cms)	Circumference of the forefeet (in cms)	Circumference of the hind feet (in cms)	Remarks

Morphometric register should be maintained by the Forest Range Officer and camp Forester. The veterinarian should see and monitor the morphometric register at regular intervals for any intervention.

The livestock register should be maintained by the Forest Range Officer and Camp Forester, which contains details of all the animals present in the elephant camp.

The livestock register

S. No	Date	Elephant Name & Microchip No	Age	Sex	orphaned/ abandoned/ born in captivity/ captured/ transferred from other sources	Area of capture	Physical/ Chemical method of capture	Feeding Particu-lars	Breeding Particu-lars	Training	Tempera-ment	Body Condition & Health	Mahout & Cavadi	Remarks

Elephant Movement Register

S. No	Name and Microchip No	Age	Sex	Tasks carried out- Driving/ Capturing/ Kumki operations	Date of Travel	Date of Arrival	Mahout	Cavadi	Remarks (Orders if any.)

Work Register

S. No	Name and Microchip No	Date	Age	Sex	Tasks carried out- Driving/ Capturing/ Kumki operations	Mahout	Cavadi	Remarks

All the above-mentioned registers must be brought under digital form and updated periodically

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16

Management of Disasters in the Elephant Camps

Elephant camp management ought to address the issue of disasters, both natural and man-made, affecting the camps and develop a management strategy to mitigate as well as tackle them. Man-made disasters could result from errors as well as deliberate acts whereas natural disasters result from many physical, biological and climatic factors such as natural fires, heavy rains and floods, lightning, earthquakes, landslides, droughts, pathogenic diseases, etc. Appropriate action plans are essential to effectively protect elephants as well as the camp assets from disasters and to react in such situations to minimise the impacts. These action plans should be well-researched and implemented

16.1.

Natural disasters

Storms, heavy rain and floods, droughts, forest fires, endemic and epidemic diseases, landslides, earthquakes and lighting are major natural disasters. Though natural disasters cannot be prevented, their impact can be minimized by proper planning, preparedness and response measures.

a) Diseases

Elephants are affected by many infectious and non-infectious diseases. Infectious diseases are the most commonly reported factors of elephant mortality. Many viral and bacterial diseases such as Herpes, tuberculosis, anthrax, haemorrhagic septicaemia, Encephalomyocarditis and rabies are life-threatening diseases to elephants. It is reported that elephant endotheliotropic herpes virus (EEHV) has accounted for 65% of death of Asian elephants (between the age group of 3 months and 15 years) in Europe and North America in the past 20 years. Some blood-feeding insects and ticks also transmit diseases like Trypanosomiasis.

Management of diseases

1. Quick Identification of the primary cause of the disease is very important for effective treatment and response
2. Tourists and other visitors should not be allowed to give feed to the elephants
3. All visitors to the camp premises will be required to go through a disinfecting foot dip to help reduce the risk of contamination.
4. Entry of unauthorised vehicles should be strictly prohibited into the camp premises
5. Diseased individuals should be isolated immediately
6. Disinfection is very important; excreta of diseased animals should be burnt.
7. Traps may be installed in the camp to attract and kill haematophagous insects
8. Regular vaccinations shall be provided to animals to keep them immune to diseases outbreak.
9. A pathology lab may be instituted within the campus of the main elephant camp according to Government norms for the timely screening of samples and detection of pathogens

Table 1. Some important infectious and non-infectious diseases of elephants

Infectious Diseases			Non-infectious Diseases
Viral	**Bacterial**	**Parasitic**	
• Pox • Foot and Mouth Disease (FMD) • Papilloma • Rabies • Herpes • Encephalomyocarditis	• Anthrax • Tuberculosis • Tetanus • Salmonella • Haemorrhagic Septicaemia (HS) or Pasteurellosis • Colibacillosis • Leptospirosis • Black-quarter	• Roundworms • Amphistomes • Flukes • Cestodes • Protozoa • Trypanosomiasis • Louse • Flies • Cobboaldiasis	• Impaction • Arthritis • Constipation • Colic • Sand consumption • Eye disorders • Ocular lesions • Foot ailments • Rickets • Vitamin deficiency • Wounds, injuries, sunburn • Tusk injuries and Molar problems

Source: Subramanian, K.S. 2010. Veterinary management of captive Asian Elephants. Tamil Nadu Veterinary and Animal Sciences University, Chennai; 34 pp.

b) Drought

Drought conditions have become more common at times when southwest and/or northeast monsoon seasons fail to produce average rainfall. Drought condition leads to scarcity of water and fodder.

Suggested Measures

1. Alternate sites for relocating the elephants during severe droughts
2. Emergency measures to provide access to water and fodder to the elephants should be identified and planned well in advance
3. The regular water sources in use are to be continuously monitored for their quantity and quality and necessary action is to be taken well in advance before the drought situation becomes serious.
4. Establishing rainwater harvesting systems in/near the elephant camps can enhance the water availability

c) Heavy rain and flooding

In Tamil Nadu, the north-east Monsoon season is known for storms and floods. Due to heavy rains and storms, hazards such as landslides, floods and falling trees can occur.

Safety measures during heavy rain and flood

- Identification and development of safe sites during floods so that the elephants can be shifted in such events. If flood water rises dangerously, the elephants are to be immediately evacuated to such higher grounds.
- Facilities should be provided in the camps so that the rainwater drains easily, quickly and water logging is prevented
- After the flood, there are chances of increasing incidence of spore-forming bacteria like Anthrax. So post-flood health check-up by veterinarians is essential
- Physical evaluation of elephants to check the occurrence of water-related injuries
- Debris caused by flooding should be immediately cleared

d) Earthquake and Land/mudslides

Though earthquakes and landslides have not been reported to have occurred in the elephant camps in Tamil Nadu, certain safeguards should be put in place to respond appropriately to such occurrences.

Damage through rainfall-triggered landslides can be prevented by the following measures:

- Identifying unstable slopes and moving elephants away from such sites during heavy rainfall
- Vegetation clothing of nearby slopes to reduce chances of slides
- Building a protective bank or wall to support the bottom of the slope
- Avoiding activities which would increase the instability of the slopes

e) Fire

Forest fires are a frequent occurrence during summers in deciduous areas. Elephant camps are mainly located amidst forest areas and so there is a high chance of wildfires affecting camp elephants. The heat arising from fire may kill vegetation and animal life especially if the elephants are tethered and are unable to escape.

Managing fire accidents:

- Attention may be provided to both preventing forest fires and controlling them in case it affects the elephant camps
- Hazard may be reduced by clearing firebreaks around the elephant camps.
- Build-up of fuels like dried leaf litter, dried grasses and tree branches, fallen trees, etc. around the camps may be reduced by controlled burning.
- If the roof material of the shelter is constructed with plant materials, they should be changed every two years
- Fire extinguishers should always be kept in the camp and they should be easily accessible and usable by all the workers of the camp.
- Training on handling and using fire extinguishers must be given to all camp workers
- Elephants should be immediately shifted to safe places when fire accidents occur in the camp

f) Lightning

Lightning is a significantly important natural disaster, which may injure or kill animals in different ways. An individual in an open field may be struck by lightning directly if its body is protruding over other nearby objects. Side flash of lightning may strike the animal if it is standing near a taller object like a tree.

The lethal effects of lightning can be avoided by the following precautionary measures:

- Elephants may be evacuated to safer locations like sheds and valleys and moved away from hilltops or high grounds. To be also moved away from the location of the tallest trees
- Keep elephants away from water sources

g) Attack by wild elephants and other wild animals

In general, no other animals pose a threat directly to camp elephants other than wild elephants. Entry and attack by wild elephants especially males to the elephant camps are a common occurrence and often the camp elephants are injured and sometimes even killed. Wild elephants visit camps either to share fodder with the camp elephants or for a mate. Camp elephants are tied by trail chains when they are let out to graze freely in the nearby forest areas or are tethered and thereby become very vulnerable. They often cannot protect themselves strongly and may get serious injuries in encounters with wild elephants.

Measures to manage wild elephant attacks on camp elephants

- Camp elephants should be kept in safe places at night.
- The likely entry points/routes for the wild elephants to be well lit to prevent as well as notice the entry of wild elephants
- Certain mahouts and cavadies should always be on night duty and alert to the entry of wild elephants

- Electronic warning systems may be installed to provide alerts on the entry of wild elephants into the camp area
- If need be, restriction of entry of wild elephants into the camp area can be ensured by constructing elephant-proof trenches and erecting an electric fence
- Arrangements are to be made for driving away the Wild elephants from the camp with the help of fire-crackers, search lights etc.

h) Unexpected violent behaviour of camp elephants

The elephant camp should have developed appropriate strategies to tackle sudden and unexpected violent behaviour by the camp elephants. Necessary physical and chemical restraints to be readily available and the camp personnel should be trained to use them in case of emergencies.

16.2.

Man-made Disasters

Human activities may also pose danger to the captive elephants akin to disasters. The camp managers and forest officers should ensure that the forest areas adjacent to the elephant camps are not hazardous to the camp elephants and also ensure that the activities of reckless tourists are curtailed.

Some tourists abandon polythene bags and empty glass bottles near the camp area. Elephants injure their feet when they step on broken glass bottles. Hazardous chemical spills can be extremely damaging to the health of elephants. So Tourists should be strictly controlled and those who violate them should be punished according to law. No tourists should be allowed in the protected forest surrounding the elephant camp. CCTV cameras should be installed and monitored.

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17

Role and Duties of Elephant Camp Forester and Forest Range Officer

17.1.

Forester

Forester in charge of the elephant camp is directly responsible for the care and management of the elephants under his control.

His duties are:

1. Wholly in charge of the livestock, their accoutrements, food grains and other miscellaneous stores entrusted in the same and accountable for the same.
2. Responsible for the day-to-day management of the camp and seasonal work schedule, this is in vogue.
3. Responsible for the maintenance of discipline among the elephant men.
4. Responsible for the issue of daily grain rations, supervising the proper looking after and feeding of elephants according to the diet schedule.
5. Responsible for the proper training of the newly captured elephants and weaned calves.
6. Takes adequate care of the elephant's health as and when elephants fall sick, arranges to get proper veterinary care promptly, and is conversant with giving first aid both for elephants and elephant men.
7. Maintenance of proper hygiene conditions in and around the campsite.
8. Periodically checks the fodder resources available around the camp and their abundance.

9. Provision of an adequate supply of cut fodder to the animals, which needs to be tied up for various reasons.
10. Maintains all the records and registers intended in an elephant camp and records relevant information.
11. Maintains separate register for day-to-day happenings and interesting events, such as mating, calving, birth/height and weight of calves, monthly growth rate, incidence of musth, behaviour, sickness and other relevant matters.
12. Maintain a register to record the movement of camp elephants for driving, capturing and kumki operations.
13. Carries out the instructions given by his superiors and veterinary personnel. Get all instructions recorded in the Instruction Note Book from Veterinary Personnel, Forest Range Officer, Deputy Director, and Field Director and should invariably send copies of such instructions to his ranger

17.2.

Forest Range Officer

The Forest Ranger is the administrative head of the camp and is responsible for all the administrative matters, personnel matters, pay and establishment of the camp staff. He is also responsible for the reporting for the camp, estimation and financial budgeting, expenditure and maintenance of the accounts.

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18

Legal Provisions

The Asian elephant, Elephas maximus has been assessed as **Endangered** under criteria A2c in the recent assessment for The IUCN Red List of Threatened Species in 2019. (The A2C criteria implies the reduction in population size based on an observed, estimated, inferred or suspected population size reduction of 50 % over the last 10 years or three generations, whichever is the longer, where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on a decline in area of occupancy, extent of occurrence and/or quality of habitat).

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) has listed the Asian elephant (*Elephas maximus*) in Appendix 1 of the CITES from 1975, which implies that it is a species threatened with extinction and Trade in specimens of these species is permitted only in exceptional circumstances.

In the Indian Wild Life (Protection) Act 1972, the Asian elephant (Elephas maximus) is included in Schedule I indicating maximum protection being provided to the species. It also finds a place in Appendix I of Schedule IV in the Wild Life (Protection) Act, 1972 as Schedule IV includes all the CITES notified species. Some of the key provisions of the Act which apply to captive elephants are listed below:

- As per Section 40(2) of the Act, no person shall acquire, receive, keep in his control, custody or possession, sell, offer for sale or otherwise transfer or transport al elephant except with the previous permission in writing of the Chief Wildlife Warden or the authorised officer.
- As per Section 42, the Chief Wildlife Warden may issue a certificate of ownership to any person who, in his opinion, is in lawful possession of an elephant.
- Section 43(1) prohibits the transfer of elephants by way of sale or offer of sale or by any other mode of consideration of commercial nature by any person who possesses a certificate of ownership for the said elephant.

- Section 43(2) mandates that when a person transfers or transports any elephant covered by a certificate of ownership from one state to another, he shall, within thirty days of the transport, report the transfer or transport to the Chief Wildlife Warden or the authorised officer within whose jurisdiction the transfer or transport is effected provided that such transfer or transport for religious or any other purpose shall be subject to the terms and conditions prescribed by the Central Government.
- Section 48A mentions that No person shall accept any elephant for transportation except after due care to ascertain that permission from the Chief Wildlife Warden or any other officer authorised by the State Government in this behalf has been obtained for such transportation.

In exercise of the powers conferred by clause (f) of sub-section (2) of Section 64 of the Wildlife (Protection) Act, 1972 (Central Act 53 of 1972), the Government of Tamil Nadu notified the Tamil Nadu Captive Elephants (Management and Maintenance) Rules, 2011. The rules deal with the following topics:

- Possession of an elephant
- Mahout and Cavady
- Housing of elephants
- Care of elephants
- Feeding of elephants
- Workload of elephants
- Norms and standards of transportation
- Retirement of elephants
- Records to be maintained
- Cutting tusks
- Acts which are tantamount to cruelty to elephant
- The aged elephants taken by the department
- Welfare committees

The above Rules have been provided as an Annexure to this Handbook.

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Annexures

G.O. (D) No.68 Environment, Climate Change and Forests (FR.5.) Department dated 17.04.2023.

Tamil Nadu Captive Elephants (Management and Maintenance) Rules, 2011.

ABSTRACT

Forests – Wildlife – Constitution of Committee for preparation of SOP for management of new calves / orphaned or injured calves brought to Theppakadu Elephant camp and also preparation of an Elephant Management Hand Book for maintenance of captive elephants in Tamil Nadu – Orders – Issued.

Environment, Climate Change and Forests (FR.5) Department

G.O.(D).No.68 Dated: 17.04.2023
சுபகிருது, சித்திரை – 04
திருவள்ளுவர்ஆண்டு- 2054

ORDER:

The Standard Operating Procedure (SOP) is the most important document that is required to take care of calves and young elephants in elephant camps. Similarly, a Management handbook is a must for proper upkeep of elephants in a scientific manner.

2. The Government has therefore decided to constitute a committee to prepare Standard Operating Procedure (SOP) for management of new calves / orphaned or injured calves brought to Theppakadu Elephant camp and also preparation of an Elephant Management Hand Book for maintenance of camp elephants in Tamil Nadu. The Committee will have the following members :-

1	Thiru. A.Udayan, I.F.S., Principal Chief Conservator of Forests and Director, Advanced Institute for Wildlife Conservation, Vandalur, Chennai-48.	Chair person
2.	Dr.K.Ramesh, Scientist, Wildlife Institute of India	Member
3.	Thiru. Akash Deep Baruah Additional Principal Chief Conservator of Forests (Project Tiger) Chennai.32	Member
4.	Dr.N. Kalaivanan, Assistant Veterinary Surgeon	Member
5.	Dr. Vivek Menon Wildlife Trust of India	Member
6.	Dr. Manoharan, M.S., Additional Director of Animal Husbandry (Retd.,)	Member
7.	Co-opted Member nominated by the Chairman of the Committee	Member
8.	Co-opted Member nominated by the Chairman of the Committee	Member

3. The Committee shall prepare the Standard Operating Procedure (SOP) for management of new calves / orphaned or injured calves brought to Theppakadu Elephant Camp and also prepare an Elephant Management Hand Book for maintenance of camp elephants in Tamil Nadu and submit it's report within 30 days. The above Committee shall be treated as first class committee for the purpose of payment of Travelling Allowance, etc.,

(BY ORDER OF THE GOVERNOR)

SUPRIYA SAHU
ADDITIONAL CHIEF SECRETARY TO GOVERNMENT

To
The Principal Chief Conservator of Forests,
(Head of Forest Force), Chennai-32.
The Principal Chief Conservator of Forests and
Chief Wildlife Warden, Chennai-32
All the Members
[**Through**: Principal Chief Conservator of Forests & Director,
Advanced Institute for Wildlife Conservation, Vandalur, Chennai-48].
Copy to:-
ThePrivate Secretary to Additional Chief Secretary,
Environment, Climate Change and Forests Department, Chennai-9.
SF/SCs.

//FORWARDED BY ORDER//

P. Sahu 17.4.23
SECTION OFFICER
AGI

[Regd. No. TN/CCN/467/2009-11.
[R. Dis. No. 197/2009.
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TAMIL NADU GOVERNMENT GAZETTE

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Part III—Section 1(a)

General Statutory Rules, Notifications, Orders, Regulations, etc., issued by Secretariat Departments.

NOTIFICATIONS BY GOVERNMENT

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NOTIFICATIONS BY GOVERNMENT

CO-OPERATION FOOD AND CONSUMER PROTECTION DEPARTMENT

Amendment to the Tamil Nadu Co-operative Societies Rules, 1988.

[G.O. Ms. No. 79, Co-operation, Food and Consumer Protection (CJ1), 20th September 2011, புரட்டாசி 3, திருவள்ளுவர் ஆண்டு–2042.]

No. SRO A-15/2011.

In exercise of the powers conferred by sub-sections (1), (2) and (3) of Section 180 of the Tamil Nadu Co-operative Societies Act, 1983 (Tamil Nadu Act 30 of 1983), the Governor of Tamil Nadu hereby makes the following amendment to the Tamil Nadu Co-operative Societies Rules, 1988:—

AMENDMENT

In the said Rules, in rule 150, in sub-rule (2), in clause (a), for sub-clause (ii), the following sub-clause shall be substituted, namely:—

"(ii) The Managing Director or the Special Officer, as the case may be, of the Central Co-operative Bank concerned, who shall be its Member Secretary".

T.N. RAMANATHAN,
Secretary to Government.

ENVIRONMENT AND FORESTS DEPARTMENT

Tamil Nadu Captive Elephants (Management and Maintenance) Rules, 2011.

[G.O.Ms. No. 107, Environment and Forests (FR.5), 16th September 2011.]

No. SRO A-16/2011.

In exercise of the powers conferred by clause (f) of sub-section (2) of Section 64 of the Wildlife (Protection) Act, 1972 (Central Act 53 of 1972), the Governor of Tamil Nadu hereby makes the following rules, namely:—

RULES

1. Short title and commencement.—(1) These rules may be called the Tamil Nadu Captive Elephants (Management and Maintenance) Rules, 2011.

(2) They shall come into force on the date of 16th September 2011.

2. Definition.—(1) In these rules, unless the context otherwise requires,

(*a*) "Act" means the Wild Life (Protection) Act, 1972 (Central Act 53 of 1972);

(*b*) "cavady" means a person engaged to assist the mahout;

(*c*) "Department" means the Tamil Nadu Forest Department;

(*d*) "elephant" means any elephant, captured or kept or bred in captivity;

(*e*) "mahout" means the person who manages the captive elephant;

(*f*) "owner" means a person who owns an elephant;

(*g*) "veterinary doctor" means a registered veterinary doctor.

(2) Words and expressions used and not defined in these Rules but defined in the Act shall have the meanings respectively assigned to them in the Act.

3. Possession of an elephant.—The elephant donated to the temple should be in good health condition and that should be accepted only after obtaining prior permission of the Chief Wildlife Warden. Whenever an elephant is donated by private individuals or institutions to the temples, the State Level Committee appointed by Government shall scrutinize the application regarding health, age and pedigree of the elephant and the infrastructure facilities, and the financial position of the temple and the donor and recommend to the Chief Wildlife Warden for consideration and passing appropriate orders under Wildlife (Protection) Act, 1972 (Central Act 53 of 1972). The State Level Committee should also take into account, whether the donor would meet out the annual maintenance cost as claimed by Temple authorities or in consolidated amount for several years together as one payment in the beginning.

4. Mahout and Cavady.—

(1) For taking care of each elephant, the owner thereof shall engage a Mahout and a Cavady having atleast three years experience in managing an elephant. The recruitment of Mahout and Cavady should be as per the guidelines of the Chief Wildlife Warden.

(2) The experience of the mahout and a cavady shall be certified by the officer authorised for the purpose by the Chief Wildlife Warden.

(3) Every mahout shall attend training programme in elephant care as and when called for by the Department and it shall be the responsibility of the owner to facilitate the above training by relieving the mahout after making suitable arrangements.

(4) The mahout and cavady should be kept in-charge of the same elephant during its life span except when the mahout and cavady are under inebriated condition or in prolonged illness or affected with any contagious diseases.

(5) The owner of the elephant, mahout and cavady should compulsorily follow the guidelines of do's and don'ts at Annexure-I.

(6) All the mahouts and cavadies shall be sent for compulsory training provided by the Forest Department at Arignar Anna Zoological Park, Vandalur. The Hindu Religious and Charitable Endowment Department or temple authority or elephant owner has to bear the training cost fixed by the Forest Department.

(7) The owner should ensure that the mahout and cavady are not alcoholic.

5. Housing of Elephants.—

(1) The owner shall provide a stable (tethering place) in a clean and healthy environment with sufficient shade to keep elephants during its rest period. Elephant should not be kept on concrete flooring or on any hard surface for long periods. The tethering area should necessarily have earth and sand for proper foot care.

(2) The owner shall provide two concrete sheds with proper ventilation for each elephant (for both adult and sub-adult). A minimum floor area and height of 9 meter x 6 meter x 6 meter shall be ensured.

(3) Proper ventilation with drainage facility shall be provided.

(4) No corrugated iron sheets or asbestos be used for roofing of elephant stables. The shed and surrounding area should have good drainage facility. The yard earmarked for elephant shall be with wooded or trees planted.

(5) The elephant may be tethered to a well grown tree during day time in summer season.

6. Care of Elephant.—

(1) (a) There shall be bathing pool of minimum size 10 meter x 10 meter x 1.5 meter to 2 meter with gentle slope on all sides.

(*b*) The mahout shall ensure that the elephant gets a thorough bath every day. The elephant should be kept in bathing pool for not less than three hours while bathing.

(*c*) Scrubbing and cleaning of elephant body with coconut scrap should be done properly by the mahout himself and the cavady.

(2) Provisions shall be made by elephant owner for providing shower bath near the shed during summer season at least twice a day.

(3) The foot of the elephant should be maintained properly by applying Decamalli oil.

(4) A board with instructions not to feed elephants by pilgrims shall be kept near the elephants.

(5) If the elephant is found sick, injured, unduly stressed or pregnant the mahout shall report the condition to the owner or temple authority who in turn shall consult a veterinary doctor for providing treatment expeditiously.

(6) Routine examination including parasitic checks shall be carried out regularly and preventive medicines including vaccination be administered at such intervals as may be prescribed by the veterinary doctor. Regular de-worming should be carried out once in three months with suitable medicine.

(7) Annual vaccination against Anthrax shall be mandatory and a proper record shall be maintained.

(8) The owner shall arrange for a medical checkup of the elephant once in a year to screen diseases like Tuberculosis, etc.

(9) The owner shall arrange for medical checkup of the mahout and cavady responsible for upkeep of the elephant at least once in a year to ensure that they do not have any communicable diseases, which may infect the elephant.

(10) The organisers of festivals where elephants are used shall submit in writing the programmes with details to the Station House Officer and the Range Officer of the Department having jurisdiction over the area, who in turn shall ensure the implementation of the provisions in these Rules well in advance.

(11) The elephant should not be taken to street and other places for begging or any other mean purposes.

(12) The owner shall inform within 24 hours to the Chief Wildlife Warden or the nearest forest office of the Department, the cases of attack of anthrax, rinderpest, hemorrhagic septicemia, surra or any other contagious diseases and shall follow the instructions issued by the authorities regarding the treatment of the animal or disposal of the carcass. The Chief Wildlife Warden or an officer authorized by him shall ensure proper veterinary assistance and advice.

(13) The owner shall obtain prior permission of the Chief Wildlife Warden or the officer authorised by him before undertaking distortions, sterilization, vasectomy, tubectomy or any other population control measures for the elephant and shall ensure the assistance of a competent veterinary doctor for these measures.

(14) The elephant showing symptoms of musth shall be got examined by a veterinary doctor.

(15) No drugs or intoxicants shall be used to suppress musth except on a written prescription by a veterinary doctor.

(16) The owner of the elephant shall ensure that in case of musth, the elephant is secured properly and does not become a hazard to the public at large.

(17) The Forest Department or Animal Husbandry Department shall depute the Veterinary Doctor to treat the elephant during musth under guidance of Chief Wildlife Warden or the Officer by authorised by him. The expenditure shall be met by the owner of the elephant.

(18) An elephant in musth shall not be put to any work. The elephants shall be fed as per the direction of the Veterinary Assistant Surgeon.

(19) The periodicity of musth shall be monitored by mahout and the elephant owner by testing the urine to find out the presence of testosterone hormone.

(20) No owner shall put to work any elephant having pregnancy of twelve months or above, or any cow elephant having a suckling calf of age below six months, or any elephant of height below six feet.

(21) No owner shall permit the use of nylon ropes or chains or hobbles with spikes or sharp edges for tying the elephants.

(22) Weight of the chains and hobbles shall be commensurate with age and health of the elephant.

(23) No owner shall permit any type of harness which may expose the back or other sensitive organs of the elephant to pain or injury.

(24) No owner shall permit his elephant to be trained by a trainer who is not approved by the Chief Wildlife Warden or the Officer authorised by him for the purpose.

(25) In the event of death of the elephant, the owner shall report to the Chief Wildlife Warden or to the officer authorised by him within twenty four hours and the certificate of ownership should also be surrendered to the Chief Wildlife Warden or the Officer authorized by him. The tusks or tushes of the dead elephant, if any, shall be declared to the Chief Wildlife Warden or the officer authorised by him within fifteen days of the death.

(26) The owner shall get the postmortem examination of the elephant done by a veterinary doctor in the presence of a Forest Officer having jurisdiction not below the rank of Range Officer and shall submit the report to the Chief Wildlife Warden or the officer authorized by him within fifteen days of the death of the elephant.

(27) The owner of the elephant shall be responsible for the loss of human life or injury to human beings caused by the elephant at any time.

7. Feeding of Elephants.—(1) The owner or the person who is managing the elephant on contract or the person who has taken the elephant for own purpose shall ensure timely supply of wholesome feed with variety in required quantity to each elephant. Green fodder shall be supplemented as prescribed by veterinary doctor;

(2) The minimum feed supply for elephant per day shall be as follows:—

Height of Elephant	Green Fodder
Below 1.50 meter (Weaned calf)	Not less than 100 Kilogram.
1.50 meter to 1.80 meter	Not less than 150 Kilogram.
1.81 meter to 2.25 meter	Not less than 200 Kilogram.
Above 2.25 meter	Not less than 250 Kilogram. (or five per cent of its body weight)

(3) Supply of sufficient quantity of succulent food to the elephant shall be ensured during hot climate;

(4) The owner or contractor or hirer of the elephant shall provide sufficient potable drinking water to the elephant, preferably from a river or any other source of unpolluted running water or bore well water which does not contain salinity.

8. Work load of Elephant.—(1) The scale of load including gears, riders and materials for the elephant shall be as follows:—

Height of Elephant	Load
Below 1.50 meter	Not to be used for carrying load.
1.50 meter to 1.80 meter	Not exceeding 150 kilogram. (To carry only fodder and trainer)
1.81 meter to 2.25 meter	Not exceeding 200 Kilogram.
2.26 meter to 2.55 meter	Not exceeding 300 Kilogram.
Above 2.55 meter	Not exceeding 400 Kilogram.

(2) The load scale shall be reduced by fifty per cent in hilly or other difficult terrain;

(3) The elephants of height below 2.10 meter shall not be deployed for logging operations;

(4) The elephants of height from 2.10 meter to 2.25 meter shall not be engaged for dragging logs exceeding 750 kilogram in weight;

(5) The elephants of height above 2.25 meter shall not be engaged for dragging logs exceeding 1000 kilogram in weight;

(6) Using ill designed logging harness, which expose elephants back-bone and chest to extreme strain and injuries and using tusks and jaws regularly for dragging timber logs, timber hauling over steep areas or rocky areas shall not be done;

(7) The elephant shall not be used for any work more than five days in a week and shall be in rest completely during monsoon;

(8) In no case the elephant shall be made to sit down on its stomach for a long period.

9. Norms and standards for Transportation.—(1) For transportation of the elephant, necessary permission from the Chief Wildlife Warden or any other officer authorised by the Government in this behalf shall be obtained as provided under section 48-A of the Act;

(2) A health certificate from a veterinary doctor to the effect that the elephant is fit to travel by road or rail, as the case may be, and is not showing any sign of musth or infectious or contagious disease shall be obtained in Form- 1;

(3) (*a*) No elephant shall be transported to other states, without obtaining a Transit Permit from the Chief Wildlife Warden, Tamil Nadu.

(*b*) No elephant from other States shall be transported to Tamil Nadu without obtaining No Objection Certificate from the Chief Wildlife Warden, Tamil Nadu;

(4) The elephant shall be properly fed and given water before loading;

(5) Necessary arrangements shall be made for feeding and watering the elephanten route;

(6) No elephant shall be made to walk for more than three hours at a stretch. Walking by the elephant shall be avoided between 10 A.M. to 2 P.M.;

(7) While transporting elephants by walk during nights, two prominent reflectors shall be placed at the front and hind portion of the elephant;

(8) No elephant shall be made to walk more than thirty kilometers a day and any transportation of the elephant for more than fifty kilometers shall be carried out in a vehicle;

(9) Trucks with length less than twelve feet shall not be used for carrying elephants except calves (height upto 1.50meter);

(10) One truck shall not be used to carry more than two weaned calves (height upto 1.50 meter) or one elephant with one un-weaned calf or one adult or sub adult elephant (height above 1.50 meter);

(11) At least twelve hour rest should be allowed to elephants for every twelve hours of journey by trucks; .

(12) Cow elephants in advanced stage of pregnancy should not be transported by trucks;

(13) While transporting elephants by rail, an ordinary goods wagon should not carry more than three adult elephants or six calves on broad gauge, or not more than two adult elephants or three calves on meter gauge, or not more than one adult elephant or two calves on narrow gauge;

(14) While transporting elephants by truck or train, care shall be taken to maintain constant speed avoiding jerks and sudden stop and reducing effects of shocks and jolts to the minimum;

(15) Each truck or wagon carrying elephant should have at least two attendant mahouts;

(16) Sedatives, if necessary, shall be used to control nervous or temperamental elephants only as prescribed by the veterinary doctor.

10. Retirement of elephants.—(1) No elephant shall be put to any work on attaining the age of sixty years;

Provided that healthy elephants above sixty years of age may be allowed to put to light work under proper health certificate from the veterinary doctor and with previous permission of Chief Wildlife Warden.

11. Records to be maintained.—Every owner of the elephant shall maintain the following records and registers and such records and registers shall be produced before the officers authorized by Government in this behalf for inspection at such time as may be called for:—

(*a*) Certificate of ownership Register.

(*b*) Health Register.

1. Vaccination Record as in Form 2 in the Appendix.

2. Diseases and treatment Record as in Form 3 in the Appendix.

(*c*) Movement Register as in Form 4 in the Appendix.

(*d*) Feeding Register as in Form 5 in the Appendix.

(*e*) Work Register as in Form 6 in the Appendix.

(*f*) Health Registers of mahout and cavady.

(*g*) Register of salary disbursement.

12. Cutting Tusks.—(1) The owner of the tusker shall apply in writing for permission of the Chief Wildlife Warden or the officer authorized by him in this behalf, for cutting or shaping the tusk, indicating the location where it will be done and the name of the competent person who would perform the operation at least one month in advance;

(2) The Chief Wildlife Warden shall issue the permission within three weeks to carry out the operation in the presence of an officer not below the rank of Forest Range Officer or Forest Veterinary Officer or Assistant Forest Veterinary Officer as instructed by the Chief Wildlife Warden;

(3) The authorised officer shall report to the Chief Wildlife Warden, the details of the cut portion such as, length and weight of the tusk;

(4) In case permission is not granted, the owner shall be intimated of the reason for rejecting the request in writing;

(5) The Chief Wildlife Warden, based on a written request with the details shall issue a ownership certificate to the owner for keeping the cut tusks in accordance with the provisions of the Act.

13. Acts which are tantamount to cruelty to elephant.—The following acts shall be considered as acts of cruelty to elephant and are prohibited:—

(1) Beating, kicking, over-riding, over-driving, over-loading, torturing or treating any elephant so as to subject it to unnecessary pain or suffering, or being an owner permitting, any elephant to be so treated;

(2) Employing in any work or labour or for any purpose, any elephant, which by reason of its age or disease, infirmity, wound, sore or other cause, if unfit to be so employed, or being owner permitting any such elephant to be employed;

(3) Willfully and unreasonably administering any injurious drug or injurious substance to an elephant or uses drugs or intoxicants to control elephants particularly to suppress musth without proper veterinary doctors advice;

(4) Conveying or carrying an elephant, in or upon any vehicle or otherwise in such a manner or position as to subject it to unnecessary pain or suffering or cause accident;

(5) Keeping or confining an elephant, in any cage or receptacle, which does not measure the specifications as given in rule 5.

(6) Keeping for unreasonable time, an elephant chained or tethered upon by unreasonably short or unreasonably heavy chain or cord;

(7) Using an elephant for drawing any vehicle or carrying any load, more than nine hours a day or for more than five hours continuously without a break or rest for the elephant or exposes the elephant to hot climatic conditions without ensuring enough succulent food and electrolytes;

(8) Failing to provide an elephant, with sufficient food, drinking water or shelter;

(9) Abandoning an elephant in circumstance which will render it to suffer pain by reason of starvation or thirst;

(10) Offering for sale any elephant which is suffering from pain by reason of mutilation, starvation, thirst, over-crowding or other ill-treatment;

(11) Not providing adequate veterinary care to a sick, injured or pregnant elephant;

(12) Cutting the tusks of a bull elephant too short so as to expose horn tusk / pulp;

(13) Forcibly weaning away an elephant calf below two years of age from its mother;

(14) Using heavy chains and hobbles with spikes or sharp edges or barbed wires for tying elephants;

(15) Using "Patti" (belly band) on cow elephants in advanced stage of pregnancy;

(16) Using pad and Nundah of improper size on working elephant exposing its spinal cord to injuries;

(17) Marching a sick, injured or pregnant elephant or a young calf over a very long distance or for a long duration at a stretch;

(18) Marching an elephant over black topped roads or otherwise, during hottest period of the day and for a long duration at a stretch without rest for religious or any other purpose;

(19) Transporting elephants in trucks of inadequate size or trucks with uneven floor, or tying them in an improper manner-subjecting them to severe jerks during journey by truck;

(20) Transporting elephants in trucks for over twelve hours at a stretch;

(21) Transporting elephants through any conveyance without making arrangement for adequate fodder and drinking water during the journey;

(22) Carrying load on an elephant without proper pad;

(23) Making an elephant to carry load unevenly balanced on its back;

(24) Making the elephant to stand in scorching sun for long duration, or putting the ceremonial gears or decoration for unreasonably long duration, or bursting crackers from or near the elephants for ceremonial purposes;

(25) Using an elephant in such a manner so as to cause any injury over-stress or strain to the elephant for tourism purpose;

(26) Using an elephant for sports and games such as tug-of-war, football etc. in such a manner so as to cause over stress or strain to the elephant.

14. The aged elephants taken by the Department.—The aged elephants which could not be maintained by the temple / Private authority shall be taken by the Forest Department after due checkup by Forests Veterinary Officer / Assistant surgeon. The cost of maintenance should be born by the Hindu Religious and Charitable Endowments Department or Temple or Private authority.

15. Welfare Committees.—(1) There shall be a welfare committee at the State level and at the District level.

(2) The State level committee shall consist of—

(*a*) An officer of Forest Department not below the rank of Chief Conservator of Forests to be nominated by the Principal Chief Conservator of Forests & Chief Wildlife Warden.

(*b*) An officer of Animal Husbandry Department not below the rank of Joint Director to be nominated by the Commissioner, Animal Husbandry Department.

(*c*) An officer of Hindu Religious and Charitable Endowment Department not below the rank of Joint Commissioner to be nominated by the Commissioner, Hindu Religious and Charitable Endowment Department.

(*d*) A person from State Board for Wildlife to be nominated by the Principal Chief Conservator of Forests & Chief Wildlife Warden after obtaining the consent from the person and the State Board for Wildlife.

(3) The district level committee shall consist of—

(*a*) A District Forests Officer or Wildlife Warden of the district nominated by the Principal Chief Conservator of Forests and Chief Wildlife Warden.

(*b*) An Assistant Director of Animal Husbandry Department in the district to be nominated by the Commissioner, Animal Husbandry Department.

(*c*) Joint/Deputy/Assistant Commissioner of Hindu Religious and Charitable Endowment Department in the District to be nominated by the Commissioner, Hindu Religious and Charitable Endowment Department.

(*d*) A person from State Board for Wildlife or A person from any Non Governmental Organisation to be nominated by the Principal Chief Conservator of Forests and Chief Wildlife Warden.

(3) The district level committee shall inspect the records maintained under these rules and send a report to the state level committee for its recommendations. The district level committee shall review the welfare and maintenance of the elephants, once in three months.

(4) Each district level committee shall maintain a data sheet as specified in Annexure-II in respect of each captive elephant in the district under their jurisdiction.

C.V. SANKAR,
Principal Secretary to Government.

ANNEXURE-I

[*See* rule 4 (5)]

Management and Maintenance of Tamil Nadu Captive Elephants

DOS

1. Please love the elephant as it is a lovable, kind, intelligent and gentle giant.

2. Do you know that the elephant is an endangered animal as per the Wildlife (Protection) Act, 1972 (Central Act 53 of 1972) and needs protection?

3. The health and welfare of the elephant is in your hands.

DONT'S

1. Please do not tease the elephant.

2. Please do not insist on asking the elephant to bless, as you or elephant may transit communicable diseases like TB, Skin diseases etc. to you / elephant.

3. Please do not offer un-cleaned feed or coconut to the elephant, as it may carry bacteria / germs causing stomach disorders. Offering such feed to elephant, in addition to feed given daily by management would increase the weight of the elephant causing arthritis, diarrhea, dysentery etc.,

4. Please do not make noise, whistle, blow horn etc. which may annoy the elephant. Elephant is highly sensitive to such repulsive sound.

5. Please do not offer money to the Mahout / Cavady for making the elephant blessing. Do not encourage the Mahout to do unlawful activities under the Wildlife (Protection) Act, 1972 (Central Act 53 of 1972).

6. Do not go near to the elephant. Keep 10 meters away from the elephant.

7. Please Do not take a vow for offering elephant to temple as this lead to separation from its social life or encouraging to Cap Fuse the elephant from wild illegally else where.

8. Do not go near to the elephant when you have applied perfumes / scent balm or any body spray as this may provoke the elephant.

9. Please do not approach or go near to the elephant with bright dresses / glittering objects-such as diamond / ornamental stones.

10. Do not stand behind the elephant, as the elephant may feel insecure, provoking the elephant to kick.

11. Please do not try to pull or ask for the tail bristle (Hair) which is used for warding off ectoparasites like fleas besides causing pain to the elephant.

12. Do not sprinkle with holy water on the body of elephant which may provoke the elephant.

13. Do not crowd around the elephant as the elephant does not like crowd land noises emanating from crowd due to different behavior and attitude of the crowd.

C.V. SANKAR,
Principal Secretary to Government.

ANNEXURE-II

CAPTIVE ELEPHANT DATASHEET

I. Location

District: Range:

Place:

II Elephant Details

Name: Other Names:

(As in possession certificate)

Possession Certificate: Yes / No / Applied for / Others.....

Sex: Malel Female Date of birth: Known / Unknown

If male: Tusker / Makhna If known / / (dd/mm/yyyy)

If not known: Approximate age,

Identification

Microchipped: Y / N Microchip No.:

Other individual identification marks

Source:

Purchased / Donated / Captive born / Others.....

Origin:

Tamil Nadu / Kerala / Assam / Bihar/ Andaman / Others.....

If purchased from whom .....

If donated by whom .....

Purpose for keeping the elephant: Temple / Public exhibit / Kumki / Tourism / Ceremonies / Patro / Logging / Unemployed / Others.....

Measurements:

Height at shoulders:	cms	Right forefoot circumference:	cms
Neck girth :	cms	Chest girth :	cms
Body length 1:	cms		
(from base of forehead to base of tail)			
Tusk: Right: Length :	cms	Left: Length :	cms
Circumference :	cms	Circumference:	cms

III. Ownership Details

Owned by: Forest Department / Temple / Trust / Individual / Others.....

Name of the owner: Address:

Native Place: Number of elephants under possession:

Years of possessing elephants: Years of possession of this elephant:

Financial Status: Strong / Weak

Has adequate income to maintain the elephant: Yes / No — Source of Income to maintain elephant:

If yes, Rs...../ year

IV. Health and Body Evaluation

Body condition: Obese / Good / Fair / Poor — Visible mucosa: pink / moist

Gait:, Normal / Abnormal — Condition of molars:

If abnormal, describe

Eyes:

	Right eye	Left eye	Remarks
Vision			
Corneal opacity			
Cataract			
Others			

Wounds: Yes / No — Swelling: Yes / No

If yes, lacerated / abscess / surgical / others..... — If yes, edema / inflammation / tumour

Soft / hard

Location:

Location

Condition

Foot:	
Toe nail cracks: Yes / No	Overgrown nails: Yes / No
If yes, horizontal / vertical	If yes, LF / RF / LH / RH
Foot: LF / RF / LH / RH	
Sole: cracked / infected / proper wear and tear / improper wear and tear / others	Skin condition:
Regular application of oil: Yes / No	
Any other health conditions:	
Deworming done: Yes / No	Vaccination: Yes / No
Frequency:	Against:
	Frequency:
Dung examination: Yes / No	Any other laboratory investigation: Yes / No
Frequency:	If yes, describe
VETERINARIAN	
Name of the vet	Designation
Address	Frequency of visit
Employed on contract / consultant / visit	Emoluments paid per month / visit:

V. Husbandry

A. HOUSING	How many shelters:
Separate Shelter: Yes / No	Permanent / Temporary
Shelter in a shady area: Yes / No	Location of shelter: away from roads / near the road with traffic / Others.....
Disturbances near the shelter: Yes / No	Duration of tethering in the shelter:.....hours / day
If Yes, Due to traffic / people / livestock / machinery / others.....	
Area of shelter:	Floor type: Concrete / soil / sand! stone / others...
Length:	
Walls:	Concrete / Stone / wood / thatch / others.....
Width:	
Height	Roof: Concrete / Tiles / Asbestos / Tin / Thatch / others.....
Water supply: through over head tank / well / borewell / pipes / others.....	Water troughs available: Yes / No If yes, dimensions:
Water troughs' cleanliness: Yes/No	Water troughs white washed: Yes / No Frequency of white washing:
Over head shower facility: Yes / No	
Drainage facility: Yes / No	Discharge drained in: open / soak pit / public drain/others.....
If yes, Open / Closed drainage	

Proper disposal of dung & feed waste: Yes / No

Garbage disposal yard: Yes / No

If yes, situated near the shelter / away from the shelter / Others.....

Feed Preparation room available: Yes / No / Others.....

B. FEEDING

Feed prescribed by:-

Type	Name of the feed	Quantity	Frequency per day
Green fodder			
Concentrates			
Supplements and Additives			
Seasonal Special diet: Yes / No			

Source of green fodder: Own farm / Purchased / donated / Others...

Who feeds the elephant:

Whether the elephant is allowed to accept feed from devotees / Public: Yes / No

Type of feed given by devotees / Public:

C. DRINKING WATER

Source of drinking water: Open well / Bore weill Pipe supply / Tank / Lake / Pond / River / Others.....

Number of times the elephant is allowed for drinking:

Tested for salinity: Yes / No

D. BATHING

Pond for bathing: Yes / No

Source of supply of water:

If yes, dimensions:

Duration of bath:.....hrs.

Number of baths in a day: one/two/others .....

Seasonal variations: Yes / No

If yes, how many times during-

Summer:

Winter:

Scrubbing by: Coconut husk / Paddy straw / Brush / Light stone / Brick / Others

Scrubbing performed by: Mahout / Cavady / Both

E. EXERCISE

Elephant is allowed for walk: Yes / No

Frequency of walk! day: Once / Twice / Others.....

If yes, Distance travelled per walk:

Duration per walk:

Location, From:

Separate walk path: Yes / No

To:

Walk path made of: Metal / soil / black top / sand / concrete / stone / others.....

F. WORK LOAD

Type of work: Processions! Religious ceremonies / Functions / logging / tourism / No work / Others.....

Load including gear.....kgs

Work load as per specifications: Yes / No

How long the work load, given to the elephant:

Forenoon:.....hrs

Afternoon:.....hrs

G. RESTRAINT DEVICES

Tethering material used: Chains / Ropes / Both / Others.....

Hours chained/tied in a day ..... hrs. Spikes in Hobbles: Yes / No

Number of legs chained / tied: 1 / 2 / 3 / 4

Length and weight as per specifications: Yes / No

Other restraint implements used:

VI. Behaviour

Temperament: Calm / predictable / aggressive / nervous / unreliable / scared / friendly

Has the elephant injured / killed people / elephants? Yes / No

If yes, describe

Is the elephant exhibiting any abnormal behavior? Weaving / Head bobbing / Swing of trunk / Others.....

Interaction with other elephants: Yes / No

VII. Reproduction

For females:

Pregnant: Yes / No

Has the female attained puberty? Yes / No

Behaviour during estrus:

Has the elephant calved: Yes / No

If yes, how many

and when

Sired by: Wild bull / Captive bull

For Males:

Has it come to musth? Yes / No

Temperament during musth . Calm / predicatable / aggressive / nervous / unreliable / scared / friendly / Others.....

If yes, when?

Duration of musth:

Seasonality of musth:

Frequency of musth:

Treatment during musth:

Under whose supervision:

Feeding during musth

Is the elephant taken for processions / allowed for work during musth

POPULATION CONTROL MEASURES:

Whether vasectomy / tubectomy / sterilization / population control measures adopted.

If yes, describe.....

Retirement details:

VIII. Other Interventions

TRIMMING OF TUSK

When:

By whom:

Measurement:

Under whose custody:

Length:

Weight

Possession certificate: Yes / No / applied for

Circumference:

TRANSPORTATION:

Transit permit:	Health certificate:
Vehicle for transport: Owned / Hired	Type of vehicle
Arrangements prior to transport	Feed during transport:
	Water during transport:
	Medication during transport:
	Attendants:
Any problems encountered during transport	

IX. Mahout and Cavady Details

Details	Mahout	Cavady
Name		
Age		
Father's Name		
Native place		
Qualification		
Experience in handling		
How long with this elephant		
Tribe / Non tribe		
Salary		
Insured		
Health condition		
Medical examination: Yes / No		
Frequency:		
Last done:		
Positive for contagious diseases		
Drinking habit		
Marriage status		
Family details		
Place of stay		
Hours spent with elephant per day		
Does he like to be with this elephant?		
If no, why?		
Attitude and Temperament towards the elephant		
Sincerity in attending the needs of the elephant		

X. Registers

Vaccination Record: Yes / No	If yes, maintained properly: Yes / No
Disease and Treatment Register: Yes / No	If yes, maintained properly: Yes / No
Movement Register: Yes / No	If yes, maintained properly: Yes / No
Feeding Register: Yes / No	If yes, maintained properly: Yes / No
Work Register: Yes / No	If yes, maintained properly: Yes / No

XI. Management Aspect

Whether the owner engages Veterinarian for treating the elephant: Yes / No

Whether the owner has provided all the facilities to the elephant as required:

(a)	Housing	: Yes / No
(b)	Drinking water	: Yes / No
(c)	Feed	: Yes / No
(d)	Bath	: Yes / No
(e)	Exercise	: Yes / No
(f)	Salary to mahout & cavady	: Yes / No
(g)	Insurance for mahout & cavady	: Yes / No
(h)	Insurance to the elephant	: Yes / No
(i)	Medical testing of mahout / cavady	: Yes / No
(j)	Testing of elephant for diseases	: Yes / No

APPENDIX.

FORM 1.

(*See* Rule 9)

FORM FOR CERTIFICATE OF FITNESS TO TRANSIT ELEPHANTS.

(This certificate should be completed and signed by a Veterinary Doctor)

Date and Time of Examination.....

Number of Elephants.....

Name of the Elephant.....

Age / Sex.....

Number of Cages.....

I have read rule 9 of the Tamil Nadu Captive Elephants (Management and Maintenance) Rules, 2011 and hereby certify that;

1. at the request of (consignor).....I examined the above mentioned elephants in their travelling cages not more than twelve hours before their departure.

2. each elephant appeared to be in a fit condition to travel from the ..... area to ..... by road / rail and is not showing any signs of infections or contagious diseases.

3. no cow elephant appeared to be under advance stage of pregnancy.

4. the elephants were adequately fed and watered for the purpose of the journey.

5. the elephants have been vaccinated.

(a) Type of Vaccine/s

(b) Date of Vaccination/s

Signed.....

Address.....

.....

.....

Qualifications.....

Place.....

Date.....

FORM 2

(*See* Rule 11)

Vaccination Record

(a) Name of the Elephant :

(b) Sex :

(c) Age :

Date of Vaccination	Name of Disease	Due date for Next Vaccination	Signature of the Veterinary Doctor
(1)	(2)	(3)	(4)

FORM 3

(*See* Rule 11)

Disease and Treatment Record

(a) Name of the Elephant :

(b) Sex :

(c) Age :

Date of Treatment	History	Prescription by Veterinary Doctor	Diagnosis	Treatment	Preventive Measures	Signature of the Veterinary Doctor
(1)	(2)	(3)	(4)	(5)	(6)	(7)

FORM 4

(*See* Rule 11)

Movement Register

(a) Name of the Elephant :

(b) Sex :

(c) Age :

Date	Place to Move		Time		Signature of the Mahout
	Starting	Ending	Starting	Ending	
(1)	(2)	(3)	(4)	(5)	(6)

FORM 5

(*See* Rule 11)

Feeding Register

(a) Name of the Elephant :

(b) Sex :

(c) Age :

Date	Type of Food	Quantity given	Signature of the Mahout
(1)	(2)	(3)	(4)

FORM 6

(*See* Rule 11)

Work Register

(a) Name of the Elephant :

(b Sex :

(c) Age :

Date and Weather	Type of Work	Duration		Signature of the Mahout
		From	To	
(1)	(2)	(3)	(4)	(5)

C.V. SANKAR,
Principal Secretary to Government.

HOME DEPARTMENT

Amendment to the Special Rules for the Tamil Nadu Police Subordinate Service

[G.O.Ms. No. 473, Home (Pol.VI), 24th August 2011, ஆவணி 7, திருவள்ளுவர் ஆண்டு–2042.]

No. SRO A-17/2011.

In exercise of the powers conferred by Sections 8 and 10 of the Tamil Nadu District Police Act, 1859 (Central Act XXIV of 1859) and Sections 9 and 11 of the Chennai City Police Act, 1888 (Tamil Nadu Act III of 1888) read with the proviso to Article 309 of the Constitution of India and of all other powers hereunto enabling, the Governor of Tamil Nadu hereby makes the following amendment to the Special Rules for the Tamil Nadu Police Subordinate Service, (Section 34 in Volume III of the Tamil Nadu Services Manual).

2. The amendment hereby made shall be deemed to have come into force with effect from the 26th day of December 1979.

AMENDMENT

In the said Rules in rule 18, in sub rule (a), in the tabular column, in column (3) for item (a) against the item 3(i) in column (1), the following item shall be substituted, namely:—

"(a) Minimum of the time scale of pay admissible to the post, from the date of enlistment and during the period of training".

RAMESHRAM MISHRA,
Principal Secretary to Government.

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ON BEHALF OF THE GOVERNMENT OF TAMIL NADU

Tamil Nadu Forest Department

Advanced Institute for Wildlife Conservation (Research, Training & Education), Vandalur

Handbook on Management of Captive Elephants in Tamil Nadu