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Tamil Nadu Forest Department

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

Standard Operating Procedure on  
**ORPHANED ELEPHANT CALF  
MANAGEMENT**



# Standard Operating Procedure on Orphaned Elephant Calf Management



Tamil Nadu Forest Department

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



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## **STANDARD OPERATING PROCEDURE ON ORPHANED ELEPHANT CALF MANAGEMENT**

### **FOREWORD**

Tamil Nadu supports a significant population of the Asian elephant and the Government has taken several initiatives for its conservation including the recent declaration of the fifth Elephant Reserve in the state. In the era of rapid human development and consequent impacts on elephant conservation, it is crucial that a scientific approach is adopted in the field management of the elephants and also during Human-elephant conflict situations. Though there have been several instances of successful rehabilitation of very young orphaned elephant calves in the wild or their successful rearing in captivity in the elephant camps of Tamil Nadu, the lack of a document to deal with such crisis was felt and the Government set up a Committee to address this. I am glad that the Committee has produced this crisp **Standard Operating Procedure on Orphaned Elephant Calf Management** and I am sure that this SOP will be of immense value to the forest and wildlife officers for wild elephant management. This will also be very useful for the personnel in the Elephant Camps in Tamil Nadu.

  
**(SUPRIYA SAHU)**

**Thiru. Srinivas R. Reddy, I.F.S.,**  
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### **Foreword**

Close to 3000 Asian Elephants are present in the diverse habitats located in the five notified Elephant Reserves of Tamil Nadu. Several steps have been taken to ensure the long-term conservation of elephants in Tamil Nadu with special emphasis on reducing the Human-elephant conflicts. Instances of wild elephant calves found orphaned or stranded due to various reasons have been noticed and the officers and field staff have been very successful in rehabilitating many such calves back to their herds and only under unavoidable circumstances, the calves have been brought to the elephant camps and raised in captivity. The Staff, Veterinarians, Mahouts and Cavadies in the renowned elephant camps at Mudumalai and Anamalai are known for their skills in management of orphaned elephant calves leading to either the rehabilitation of calves in the wild or hand-rearing in captivity. It is based on their experience as well as scientific principles that this **Standard Operating Procedure in the Orphaned Elephant Calf Management** has been developed. I am sure that this SOP will be very useful for the field officers in dealing with situations where orphaned elephant calves are noticed in the wild.

(SRINIVAS R. REDDY)

## Preface

Elephant calves and juveniles are greatly dependent on their mother and other caring herd members for their survival and learning. Though a major challenge, there have been several instances where wild elephant calves which have been separated from their herds have been rescued and brought to the elephant camps managed by the Tamil Nadu Forest Department and successfully raised into adult elephants. Occurrences, where elephant calves are found isolated within the forests or are found to enter human habitations after having been separated from their herds, have increased in the recent past. The rising human-elephant conflicts in many areas have also contributed to this. Noting this increase in incidence as well as the lack of a document on the approach towards the issue of the rescue of orphaned elephant calves from the wild or otherwise and the manner in which they need to be managed if taken in captivity, the Government of Tamil Nadu constituted a Committee to prepare a Standard Operating Procedure (SOP) 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 Standard Operating Procedure on Orphaned Elephant Calf Management.

This SOP has dwelt first on the issue of whether intervention is needed when an orphaned elephant calf is noticed in the wild. The SOP then subsequently deals on the efforts that could be taken to rehabilitate the calf with its herd and if inevitable, the manner in which the rescued elephant calf needs to be managed in the captive conditions of the elephant camp. The initial and periodical examination of the calf in the elephant camp, its hand rearing, feeding and training are also dealt with in the SOP. However, the focus has been to keep the SOP concise and crisp so that it is easily consulted for use.

As Chairman of the Committee, I would like to acknowledge that the contribution of the Committee members in developing this SOP has been invaluable. The input

of Dr.NVK Ashraf, Senior Director and Chief Veterinarian, Wildlife Trust of India, Thiru Nihar Ranjan, IFS, Additional Director, Advanced Institute for Wildlife Conservation (AIWC) is also acknowledged. The efforts of Dr. Gabriel Paulraj, Project Scientist and Thiru Senthil Kumaran in compiling, editing and designing the book are greatly appreciated.

The contribution of Ms Supriya Sahu, IAS, Additional Chief Secretary, Environment, Climate Change and Forests, Government of Tamil Nadu in being the guiding force behind the development of this SOP is deeply acknowledged.

Though this SOP is expected to be useful to forest officials, camp managers, veterinarians and elephant caretakers, it is acknowledged that it is a 'work in progress' and will be subjected to further improvement and refinement in the future.

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



# STANDARD OPERATING PROCEDURE ON ORPHANED ELEPHANT CALF MANAGEMENT

1. **Title:** Standard Operating Procedure on orphaned elephant calf management
2. **Subject:** Dealing with situations arising due to orphaned/ stranded elephant calves in the wild.
3. **Purpose:** To ensure a scientific approach to the situation when orphaned/ stranded elephant calves in the wild are noticed. To avoid undue interference with the natural processes in population and ecological dynamics of elephants in the wild. To ensure greater success in attempts to rehabilitate the calf in the wild. As a last resort, if it to be managed in captivity, the methods to successfully raise the calf. Safeguards for the field staff involved in the operation.
4. **Short Summary:** This Standard Operating Procedure (SOP) provides the basic criteria, action and precautions required at the field level for dealing with orphaned/stranded elephant calves in the wild.
5. **Scope:** The SOP applies to all Elephant Reserves and Divisions with wild elephants in Tamil Nadu.
6. **Responsibilities:** The Wildlife Warden/ Deputy Director/ DFO would be responsible in the handling of the situation with necessary advice from the Field Director/Conservator of Forests. The overall responsibility at the State level would rest with the Chief Wildlife Warden of Tamil Nadu.

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## **References**

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

# Introduction

Asian elephants are iconic species of conservation with significant cultural and ecological value. However, their distribution is now confined to a few forest-dominated landscapes and they experience several issues which negatively impact their long-term conservation. These include the death of mothers leaving behind orphaned calves and sometimes the calves getting stranded due to sudden threats forcing elephants to flee, intermixing of groups, etc.

Being group living animals with behaviour guided by the matriarch and calves, the situation of the calves getting orphaned or stranded presents a unique problem, both for the elephants and managers. To address these situations from conservation perspectives, the orphaned and stranded calves may require rescue and rehabilitation. This Standard Operating Protocol (SOP) aims to provide the field managers and frontline functionaries with an informed and science-based approach to deal with the situations towards a logical end.

# Situations Causing Elephant Calves To Get Orphaned/ stranded

## 2.1.

### **Problem Statements and Situations**

Elephants usually move in herds consisting of family groups, primarily adult females and young elephants. The females can breed for over 50 years but produce a single calf each time with consideration of gestation and inter-birth intervals. The calves tend to stand up within hours of their birth and walk with herds within a few days, a special feature among the mammalian groups. While the oldest female, the matriarch, guides the herd, the calves receive considerable attention and care from other members of the herd. However, despite the maximum care and protection, there are situations where the calves are orphaned or become stranded. These situations can be as below:

**(i) Death of Mother:** the Adult elephant with a calf can die of unnatural causes such as deliberate or accidental killing such as retaliatory killing, electrocution, train kill, etc. In rare situations, the mother can die during delivery or due to disease during the lactating stage. Such a calf if not taken care of by other adult/lactating females will become isolated, stranded and eventually orphaned.

**(ii) Injury:** During the movement of the herd, there are several possibilities of injuries to calves, including road/rail accidents, falling into trenches/wells, getting hurt in power or chain link fences, etc. If the injury is not serious, the herd may manage to rescue and take the calf along. However, if the injury is severe causing the calf to be immobile, the herd and specifically the mother, after making failed attempts may desert the calf, leaving it behind.

**(iii) Disease:** It is not uncommon for newly born or grown-up calves to fall sick due to diseases and cannot keep pace with the herd and hence, become orphans or stranded.

**(iv) Trapped:** There are also situations where calves are seen fallen and trapped in trenches, wells, ditches/pits, marshes, fenced areas, etc. The mother and other members of the herd tend to help rescue the trapped calf. In the event of unsuccessful attempts to rescue the calf, the herd reluctantly leave the calf, especially if the location is a human-dominated area.

**(v) Herd Fleeing:** In situations where the herd encounters sudden danger from the presence of human beings, moving vehicle/train, forest fire, bursting of crackers etc., they may flee in different directions in panic. The young calves, which cannot keep up with the pace and/or move in different directions may become stranded and eventually orphaned.

**(vi) Intermixing of Herds:** Elephants are known to mix with other elephant herds at times and share resources of forage and water. Similarly, in the human interface areas, they also mix with buffalo herds. In the case of moving with other elephant herd or buffalo herds, when the herds separate, some calves tend to trail behind the other elephant herd or follow the buffalo herd wrongly. This also presents a situation of stranding or being orphaned.

**(vii) Rejection by mother:** There may be inherent behaviour and fitness issues that cause young mothers to abandon their calves or may force the mother to reject the calves. It is known in many mammals that if the young one is not capable of dealing with a certain environmental condition or the limitations seen in the calves can pose danger to other members of the herds, the mother tends to reject the young ones, as the nature favours genetically and behaviorally fit animals. This is also another situation where the calves may become stranded or orphaned.

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*Primary contribution to this section is by Dr. K. Ramesh*



**Death of Mother Elephant**



**Herd fleeing**



**Rejection by mother**



**Trapped**



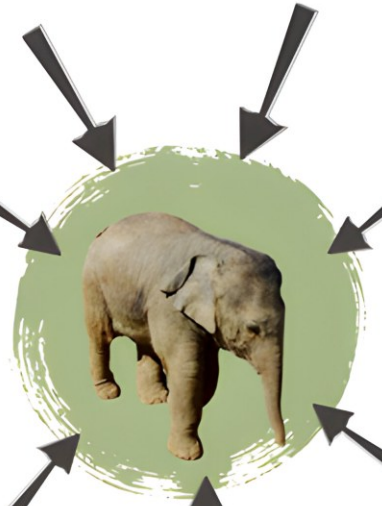
**Intermixing of herds**



**Injury**



**Disease**



Reasons/situations causing wild elephant calves to be orphaned/stranded

# Logical Assessment to Decide on The Course of Action to be taken Regarding the seemingly Orphaned Calf – Natural Course or Intervention ?

## 3.1.

### **Decision-Making Process**

Field situations of the elephant calf(ves) being orphaned or stranded in wild conditions pose cascading challenges for field managers as they are faced with the situation of observing the principles of scientific management and also legal and public pressure. In terms of wildlife management, this is a crisis management

situation and calls for immediate action. The bottleneck for immediate action is the process to be followed in alignment with scientific principles and legal directions under the constant but serious public pressure regarding the welfare of the elephant calf and the possibility to rehabilitate it in either captivity or the wild. In the past, at times, the decisions have not been based on scientific principles thereby causing difficulties for timely and right actions. Although there are successful and efficient cases of field managers having rescued and rehabilitated stranded and orphaned calves, these are situation and individual-specific. There is a clear need for guiding principles and steps to be followed in a systematic and science-based husbandry and rehabilitation process. Therefore, the SOP will be the guiding document and actions for various situations can be addressed through the steps outlined here. The response actions can be effected based on the following process:

**(i) Technical Advisory Committee:** In all cases of dealing with orphaned elephant calves or similar rescue issues regarding all wild animals Technical Advisory Committee with the following suggested members (non-officials to be chosen based on being locally available during such instances) should automatically start functioning immediately to assist and provide technical advice to the concerned Divisional head in taking decisions regarding the orphaned elephant calves.

- ❖ District Forest Officer/Wildlife Warden/Deputy Director, Chairman
- ❖ Assistant Conservator of Forests, Member
- ❖ Forest or Local Veterinary Assistant Surgeon, Member
- ❖ Scientist/Professor of Institution/University, Member
- ❖ Representative of NGO, Member
- ❖ Forest Range Officer, Member Secretary

The Committee would be an advisory body to deal with the manner in which the orphaned elephant calf situations (or other similar situations related to any wild animals rescue etc) are to be dealt with, and the discussion of the Advisory Committee can be through a physical meeting or video/telephonic conversation. The members of the committee are designation-based and hence, depending on the situation and availability, anyone meeting the above requirement should be incorporated into the Committee to avoid any delay in decision-making or approval of action taken. The Chairman of the above committee would need to appraise the Conservator of Forests/Field Director and the Chief Wildlife Warden and get the CWLW's approval before finalizing the course of action and advising the Field Action Team. If the situation demands urgent and immediate appraisal/approval/orders, can be done orally and then later brought into writing.

**(ii) Field Action Team:** The Protected Area or Forest Division should receive the directions from the Technical Advisory Committee and ensure the field execution of the same regarding the elephant calf (or other such situations) through a team generally comprising the following members:



- ❖ District Forest Officer/Wildlife Warden/Deputy Director/ACF, Chairman
- ❖ Veterinary Officer
- ❖ Field Biologist
- ❖ Forest Range Officer and staff

The Field Action team would be responsible for taking on-the-ground action following the advice of the Technical Advisory Committee. Except for a few cases where the trapped elephant calf can be rescued and rehabilitated with its herd waiting nearby or where the rescued calf can fend for itself, all other cases would require a decision to be taken by the Technical Advisory Committee on whether any intervention is required and if so, its directions. The Field Action Team should follow the advice of the Technical Advisory Committee on the nature of the intervention if any and its execution. The Technical Advisory Committee is to be guided by the following points specified below in the SOP.

**(iii) Decision to intervene or allow Nature to take its course:**

The question of whether to intervene or allow nature to take its course when an elephant calf in the forest is noticed is seemingly orphaned would have to be a scientific decision and would depend on several factors like

- ❖ Whether the elephant calf is really orphaned or just temporarily separated from the herd with its mother being alive provided the above fact can be determined
- ❖ Whether the elephant calf is orphaned due to natural reasons or any human-induced cause/disturbance provided the reason can be determined
- ❖ Whether the orphaned elephant calf is still in its natural habitat/forest or has entered into human habitation areas
- ❖ Whether the forests/habitat supports a healthy elephant population with necessary connectivity and corridors
- ❖ Whether the elephant calf has been isolated from an elephant herd which is inhabiting a sub-optimal habitat and the habitat is under the threat of a declining elephant population

In cases where elephant calves have become orphaned due to natural reasons and are present in interior forest areas which support healthy elephant populations, it would be appropriate to adopt the 'Allow nature to take its course' approach. The calf can be monitored to see the developments and intervene only if the calf strays into human-dominated areas.

In the other cases, intervention may be necessary to either rescue and rehabilitate in the wild or captivity depending on the circumstances narrated below.

**(iv) Decision to Rescue and immediately Rehabilitate in the Wild:** Based on the conditions outlined above, there may be situations that might warrant the rescue and rehabilitation of calves back to the wild adding value to the local elephant population. Therefore, these calves are to be rescued with the mind set to be rehabilitated back in the wild. Depending on the age of the calf, location of the herd and nature of the situation, if conducive, action to be taken to immediately rehabilitate the calf to its herd. If that situation does not exist, the first step should be to rescue the animal from the location and take it to a safer location for temporary captive management/treatment. The capture of the animal can involve either physical or chemical methods and will be based on the advice of the Veterinary Officer. Depending on the nature of the physical and psychological health of the calf, efforts should be made to reunite with the herd at the earliest if herd identification is possible. After releasing the calf, 24\*7 monitoring of the calf should be done based on either physical monitoring or the use of technology linked to the released calf. In case of a successful reunion, as ascertained based on monitoring for at least a week, the case final report should be furnished with all details to the appropriate authority. Instances of immediate rejection of the calf by the herd during rehabilitation or a delayed rejection by the herd after initial acceptance have been encountered and hence, monitoring of the calf is very important.

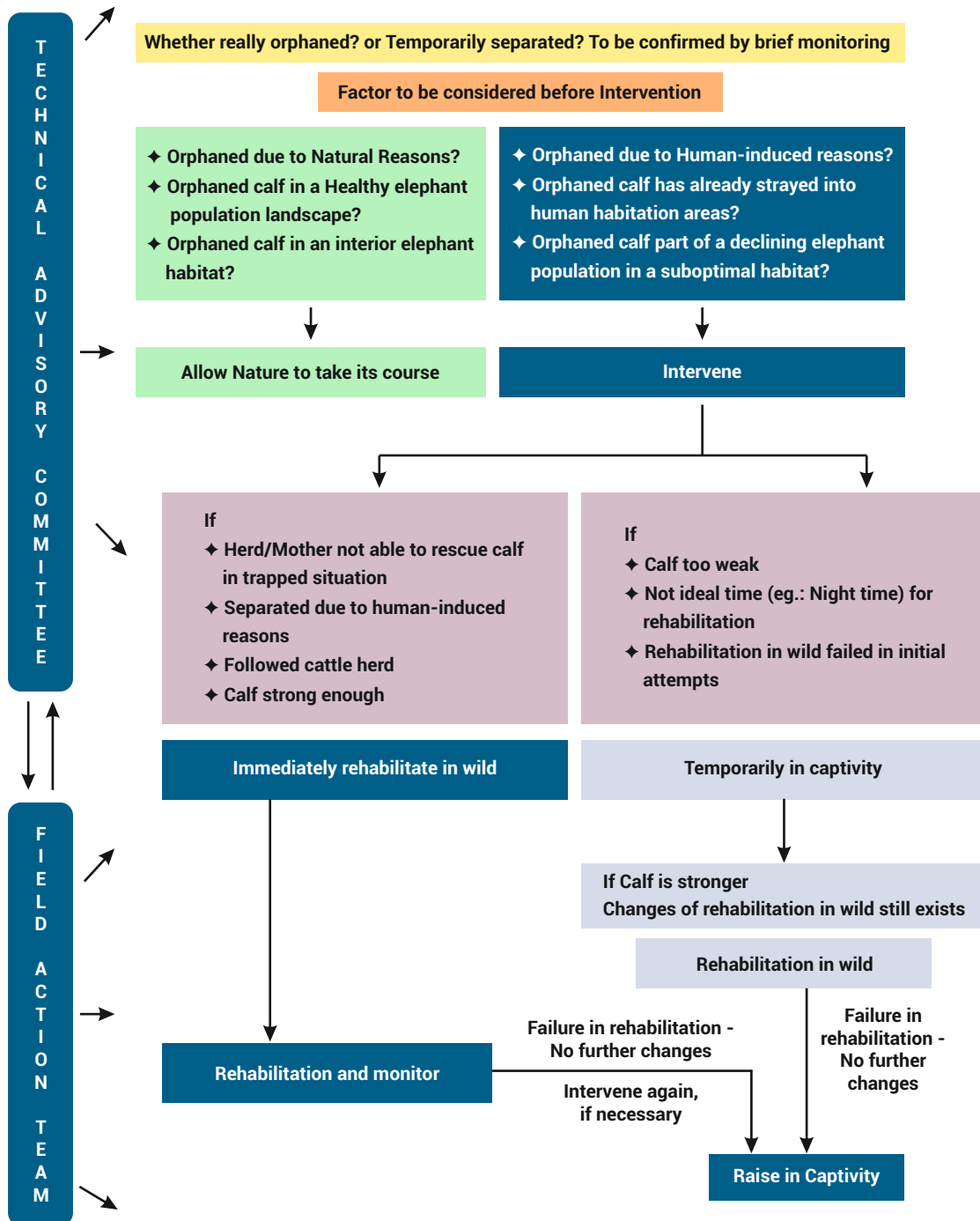
**(v) Decision to Rescue and Rehabilitate in Captivity:** In situations where the elephant calf which has been rescued is too weak to attempt rehabilitation in the wild or where the efforts to rehabilitate the calf in the wild have failed the decision to temporarily keep the calf in captivity has to be taken. The animals brought to such captivity should be classified by the Technical Advisory Committee as (a) to be rehabilitated back in the wild and (b) to be managed in captivity.

In situations where the animal needs to be rehabilitated back in the wild, the calf needs to be maintained in separate location, away from regular human intervention and other captive animals. Efforts should be made to release the animals in the wild as soon as possible. As it may not be easy to trace/locate the herd to which the elephant calf actually belongs, it is advised that several attempts be made by the team to rehabilitate the calf in the wild. All decisions for actions to be made will be done by the Technical Advisory Committee of each Protected area of forest division.

In all other cases, the elephant calf needs to be brought under proper husbandry practices that are well-established already and perhaps guided by the Elephant Management Handbook for Captive Elephants.

The logical framework to be adopted in the situation where an orphaned elephant calf in the wild is encountered is provided in the form of a flow chart in next page .

## ELEPHANT CALF SEEMINGLY ORPHANED



Primary contribution to this section is by Dr. K. Ramesh and Thiru. A. Udhayan IFS

# Tips on Aiding The Elephant Calves / Juveniles to rejoin The Wild Herd

- i. The cause of separation from the mother/herd should be analyzed critically to decide the future course of action.
- ii. A quick assessment of the age of the calf and its feeding behaviour has to be done immediately for the veterinarian to decide on the nature of artificial feeding for the calf if decided so.
- iii. Estimation of age can be done by observing the size, skin colour, skin texture, skin turgor, eye colour, and right forefoot circumference measurement (in case of indirect measurements by foot pad marks, multiple measurements can be taken and mean is calculated), shoulder height measurement (by indirect comparative), dung bolus diameter. Calves below one month of age retain their umbilical cord, their eyes are red and they always hang their head. Gait, trunk coordination, dusting behaviour, resting and sleep pattern can be monitored to ascertain the age of the calf.
- iv. Feeding behaviour can be assessed by direct observation of time spent on grazing, and browsing, by examining the dung for consistency, and content of the dung to assess the feeding habit.
- v. In the case of the mother being dead and the calf being on a complete milk diet

(less than 1.5 years of age), the chance of reunion and survival of the calf is very unlikely. In such cases, attempts can be made to reunite the calf with the nearest herd having a lactating mother in it. In the case of the mother being dead and the calf being on a grass diet, the chance of reunion and survival with its herd/clan members is high and every possible attempt can be made to unite the calf with a nearby herd.

- vi. Human imprinting and handling of the calf to be minimum and attempts of reunion to be tried as soon as possible to have a greater success rate. While one team is attending to the calf, multiple teams should be deployed to locate the nearest possible locations where the mother or herd could be moving around. Drones can be used at adequate heights without disturbing the herd to locate the herd, read the landscape and plan the reunion strategy effectively and also to ensure a successful reunion.
- vii. While attempting reunion, exposure to any unnatural scent must be avoided, as the mother could identify the calf through scent. The calf should be left preferably in a forest ambience near the place where the mother or herd is expected to be present. Urine, the dung of the calf or that of the herd can be sprayed over the body of the calf before exposing it to the herd.
- viii. Avoiding unnecessary sound and minimal human presence will increase the chance of reunion. Only one or two persons should handle the calf. Using full-arm gloves, an elephant mask, grey or camouflage dress will ensure less human imprint while handling the calf. The use of sign language instead of verbal communication is advised during the entire operation.
- ix. Mother elephant relies more on scent to identify the calf. So use of disinfectants, antiseptics etc on the body of the elephant calf can be avoided to the extent possible. Perfumes, soaps and other cosmetics with a strong odour should be avoided by the team handling the calf.
- x. Based on the health and hydration status, the veterinarian will decide on the diet schedule. In most cases, for the first 24 hours, giving tender coconut water alone is sufficient.
- xi. During reunion attempts, ample time should be given for the calf and herd to interact during the attempt of reunion. Multiple attempts to rehabilitate the calf in the wild would be required.
- xii. The calf can be tethered using soft rope under the shade of a tree or cordoned in a small paddock (such that mother or herd members can easily rescue the calf out) and facilitated to make a sound which will help the herd to pick up the location of the calf or the herd can be directed towards calf's location

facilitating easy reunion.

- xiii. The health status of the mother also needs to be assessed while attempting reunion and the reunited calf and mother should be monitored at least for one week after reunion to ensure that the calf is permanently reunited with the herd.
- xiv. Unnecessary clicking of photos, selfies, and video recordings of the calf in the name of documentation should be avoided, as it will cause stress to the calf.
- xv. The safety of the staff associated in the rescue and rehabilitation of the elephant camp is paramount and adequate precautions need to be taken to reduce unnecessary exposure to danger and hazards.

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*Primary contribution to this section is by Dr. N.S. Manoharan, Dr. N. Kalaivanan, Thiru.S. Ramasubramanian IFS, Thiru.D. Venkatesh IFS, and Dr. N.V.K. Ashraf*

# Detailed examination of elephant calves if taken to captivity and their care - hand rearing

## 5.1.

### **Examining the calves**

- i. Detailed external examination of the calf for any wounds, injuries, ectoparasites and signs of infection needs to be done.
- ii. Alertness, activity, sleeping pattern, orientation, and gait of the calf need to be assessed.
- iii. Vital parameters - Body temperature, pulse rate, heart rate, respiratory rate, hydration status, and the status of mucous membrane oral, eye, rectal, genital, nasal / trunk tip need to be observed.
- iv. The nature of dung, urine, and frequency of voiding needs to be assessed.
- v. Biological samples like Trunk wash, oral swab, rectal swab, conjunctival swab, dung, urine, etc may be collected based on veterinarians' advice.
- vi. If very necessary, blood samples can be collected to assess the

haematological and serum biochemical parameters keeping in mind the stress status of the calf.

- vii. The body weight of the calf needs to be measured, preferably by a portable weighing platform in the enclosure .

## **5.2.**

### **Care of calves - Hand rearing**

Abandoned elephant calves are normally noticed by villagers, cattle grazers, tribals, and forest staff and are brought into the elephant camps or zoos. Raising orphaned calves is very challenging and involves a lot of care and attention. In the past, Tamil Nadu Forest Department camps have received orphaned calves and have had moderate success raising many of them. Over the years they have understood the do's and don'ts of rearing the orphaned calves. The fundamental knowledge of managing camp elephants coupled with observations made from the growth pattern, dietary requirements, and habits of other calves with their mothers, can be applied to rearing orphaned calves. The art of raising orphaned calves involves a lot of commitment, dedication and focus on their nutritional and health requirements.

## **5.3.**

### **Stress management of newly arrived calf**

Stress is the single largest cause of mortality in rescued wild animals. The calf will be stressed and anxious when it arrives at the camp as the mother's/herd protection is lost, has faced transportation stress, and lack/change of feed among other factors. Stress factor plays a major role in hand rearing and survival of the calf. Hence every attempt should be made to avoid further stress. The following points need to be considered to reduce the stress level after arrival at the camp:

- i. Avoid unnecessary human presence and handling except the care takers.
- ii. Avoid bright lights during loading and unloading of the calf in the vehicle, and during night hours while in the enclosure.
- iii. Ensure adequate sleeping time for the calf. Avoid unnecessary sounds (sudden unexpected sounds in particular) like crackers, vehicle sounds, and sounds from other disturbances as it negatively impacts sleeping and add to the stress.
- iv. Avoid shifting the enclosures and unnecessary transport of the calf once it



arrives in the camp. Make sure a comfortable enclosure is ready well before the arrival of the calf.

- v. It is better to make the camp care takers accompany the calf from the time of rescue and they should escort the calf from the place of rescue to camp.
- vi. Immediately after arrival tender coconut water alone must be given in adequate quantities for the first 12 hours as it will be difficult for a trained calf to digest natural milk substitute.
- vii. The presence of other female elephants in the vicinity (without direct contact) can be encouraged for the psychological comfort of the elephant calf.
- viii. The calf on arrival at the camp has to be checked for general health conditions, injuries or sprains from falling into the pit, and tick infestation among others and should be addressed immediately. The dryness of the skin can be addressed by the liberal application of emollients like coconut oil or olive oil.
- ix. Taking pictures, and videos with flash cameras, and taking selfies should be avoided.

## 5.4.

### **Housing-Calf enclosure**

Meticulous care should be given to preparing housing to offer maximum comfort.

The following points need to be considered in this aspect.

- i. The calf should be housed in a well-lit, well-ventilated, weatherproof, rodent-proof enclosure with a raised, clean and dry wooden platform, with a proper drainage facility. The roof also should be made sound proof, preferably with concrete roof with a rain water drainage facility.
- ii. Use of any unnatural materials like paints, plastics, rubber mats, chemical disinfectants etc. should be avoided in the enclosure a calf tends to chew and lick up on them.
- iii. The calf should be housed away from human habitation and any pathway used by the public. It should be located in a calm and hygienic environment with a natural ambience.
- iv. There should be an open area with sufficient space outside the enclosure for the calf

- to get exposure to adequate sunlight and exercise.
- v. Floor spacing should not be less than 12ftx12 ft. So that the calf does not feel claustrophobic and has adequate space for moving freely.
  - vi. There should be arrangements for care takers to stay close to the enclosure in the vicinity of the calf.
  - vii. Gunny bags, stuffed with soft materials like paddy straw, hay etc., must be provided to sleep comfortably in the night. During winter, the calf may require warmth and suitable arrangements must be made for it.
  - viii. Electrical installations should be well protected so that they are not accessible to the calf. There should not be any sharp edges or nails inside the enclosure.
  - ix. A clean water facility should be available near the enclosure.

## **5.5.**

### **Caretakers for the calf**

- i. Two caretakers who have previous experience in handling the calf should be appointed to attend to the calf. Care takers should be dedicated to rearing the calf assuming the role of the mother elephant.
- ii. Changing care taker scan be avoided keeping in mind the physiological and psychological well-beingofthecalf.
- iii. The care takers should be there in the vicinity of the calf around the clock. This makes the calf develop an emotional bond with them.
- iv. The personal hygiene of the care takers and the cleanliness of the uniforms worn by them should be ensured.
- v. The regular duties of the caretaker include cleaning the calf shed, preparing food, taking the calf for a walk, bathing etc. No other person is allowed to make direct contact with the calf except the care takers.

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*Primary contribution to this section is by Dr. N.S. Manoharan, Dr. N. Kalaivanan, Thiru.S. Ramasubramanian IFS, Thiru.D. Venkatesh IFS, and Dr. N.V.K. Ashraf*

# Feeding of young calves and their development and care at different stages

Normally, villagers or people who find the calf, normally overfeed it, with a variety of food like bananas, fruits and vegetables. This may upset the calf's digestion. Therefore, it is safer to under feed the calf during the first few days so fits arrival at the camp.

As soon as the calf is brought in to the camp, it is important to develop a strict feeding routine or feed chart for the calf depending upon the size, age and feeding behaviour of the animal. The details need to be recorded accurately for assessing the impacts and for future learning. Several points have to be followed to ensure a safe and healthy diet.

## 6.1.

### **Initial diet**

The animal must always be given fresh food. In the case of a calf under 1 year of age, initially, the calf should be fed with tender coconut water for the first 12 hours on arrival in the camp. This is to avoid digestive problems associated with

the new unnatural milk replacer diet in a stressed animal. For the first 45 days, after arrival, it is advisable to feed only milk. The food (especially milk) in the early stages, must be given at the calf's body temperature

Replicating or substituting elephant milk is not an easy proposition considering its composition. The milk substitute ought to have Fat-Sugar-Protein compositions roughly in equal proportions, with fat being capric acid dominated. Inappropriate formulas can cause not only formula intolerance but also affect growth rate.

Though not ideal, Milk powder or lactogen (baby food, available in the market but which has a high lactose sugar formula) may be used if other alternatives do not exist, as it is rich in iron content. In certain circumstances, Goat milk, whose composition again differs from elephant milk may also be considered as an alternative or substitute, but obtaining it in sufficient quantities to feed the calf would be an issue. Cow's milk is not advisable for calves, since it contains large fat globules and causes diarrhoea. It takes time for the calf to adjust to the milk replacer given to it. The dilution can be altered depending upon the digestive performance and necessary supplements can be added to facilitate digestion. Coconut milk powder is a good source of capric acid and can be added to a skim milk-based formula.

There are commercial milk replacers available outside India (Grober, for instance) but they are prohibitively costly. It would be advisable to make our formula, using skim milk powder and coconut milk powder as the two primary constituents. A little bit of Protinex can be added to augment the protein composition. And then some probiotics like lactase enzymes in the early stages would help to stabilize the calf to the new formula.

## 6.2.

### **Mode of feeding**

Artificial milk feeding to young orphan calves by bottle-feeding with nipples would provide the closest experience to the feeling of natural suckling and would hence reduce stress levels. The behavioural deprivation of suckling at the neonatal stage of nursing should be avoided. However, it is important that large-sized nipples are used instead of the ones used for human babies. Large-sized nipples ideal for animals like elephants/Rhinos are available online. Though bottle feeding is comparatively more labour-intensive, it can be resorted to during the early stages of the orphan calf. Feeding through 'Can' can be introduced after one year of age.

Feeding milk using an enema can at a later stage offer the following advantages when compared to bottle feeding:

- ❖ The flow of milk can be regulated.
- ❖ The flow is smooth and uninterrupted.
- ❖ Bottle feeding can be time-consuming as each bottle has to be changed or refilled and the calf may get impatient.
- ❖ The calf may pull too hard at the nipple on the bottle and if one is not careful, it may be swallowed.

### 6.3.

#### **Frequency of feed**

Normally upto 2 months of age, calves suckle their mother every 60 - 90 minutes. During each feed, they consume atleast 1 litre of milk. The same pattern can be applied to hand-reared calves. Under normal circumstances, the calf will cry out when hungry. It is a sign of appetite and also with progress in health, it can be fed at regular intervals between 5 am and 10 pm.

### 6.4.

#### **Concentration of the feed**

Studies have shown that the concentration of mother's milk (i.e. of cow elephants) decreases as the calf grows older. The first few days after delivery, the elephant milk contains colostrum essential for the calves to develop immunity, it is therefore essential to duplicate the function of colostrum with artificially prepared milk in camp conditions. Initially, the concentration of the milk powder must be very low (i.e. highly diluted with water). For the first week, the feed should contain 50 grams of milk powder in 1 litre of water. This can be continued and later the concentration of powder can be increased if the calf is feeding well, it will manifest signs of good health such as urination 10-12 times a day and faecal excretion twice a day. The dung may be semisolid and slightly yellow. A healthy calf will normally rest between feeds. The environment where food is prepared must be clean and all the cooking vessels used must be sterilized before use.

## 6.5.

### **Concentrate foods**

After 7 months of age, the calf can be introduced to semisolid foods like cereals, rice, tapioca, ragi etc. Ragi has to be processed properly. Dirt and stones have to be removed by winnowing and the ragi soaked in water for 4-5 hours. The soaked ragi is then suspended in a moist sack and allowed to sprout. The sprouts are dried in the sun, fried in a pan powdered. The processed ragi has to be stored in a dry place to prevent fungal attacks. Ragi is an excellent concentrate feed, as it has a balanced calcium and phosphorus ratio.

A well-nourished calf is very active. Hand-reared calves generally have a low growth rate when compared to calves raised by their mothers. After 6 months, the calf can be introduced to solid foods. The milk intake can be reduced to 1-1/2 litres/day until the 1st year.

## 6.6.

### **Green fodder**

Calves have a tendency to eat mud. They should be discouraged from doing so until three to four months of age. Calves in a herd, imitate the feeding habits of their mother or other adults of the herd. Around the 2nd or the 3rd month, they eat their mother's fresh dung, which encourages the growth of bacterial flora in the intestine. This helps in the digestion of green fodder, which the calf may begin eating soon. This can be mimicked if fresh dung of one of the healthy cow elephants from the camp is collected, diluted in water, filtered and administered to the calf. At 8-9 months of age, calves consume 30 – 40 kg of fodder per day. They sometimes suffer from a lack of appetite. Digestive stimulants (which have to be kept in the camp) can be mixed with the feed to help digestion. Multivitamins and calcium tablets can also be administered along with the feed.

Calves have to be weighed and morphometric measurements be taken regularly. Healthy calf weighs between 80-100 kgs at birth.

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*Primary contribution to this section is by Dr. N.S. Manoharan, Dr. N. Kalaivanan, Thiru.S. Ramasubramanian IFS, Thiru.D. Venkatesh IFS, and Dr. N.V.K. Ashraf*

# Training of Elephant calf

## 7.1.

### **Training of Calf**

In nature, the calf learns the art of living by interacting in the natural setting and with the herds. In general, the training of the captive-born calf begins as soon as it is enkralled for weaning. In the case of orphaned, abandoned calves the basic training can start from day one of the arrival at camp simultaneously with rearing as the calf grows. There is no need for enkraalment in this case. Basic commands like "jhuk" (to bend down), "thrae" (to hold the stick), "paara" (to raise the trunk) etc., can be slowly taught. The calf is also trained to wear chains and hobbles.

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 at 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 systematic 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.

The further training and upkeep of the elephant calf would be as per the routine management prescriptions of the Tamil Nadu Forest Department elephant camps.

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## 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

திருவள்ளூர்ஆண்டு- 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:-**

The Private 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  
*261*



Tamil Nadu Forest Department  
Advanced Institute for Wildlife Conservation  
(Research, Training & Education), Vandalur

Standard Operating Procedure on Orphaned  
Elephant Calf management