

Riddle's Elephant and Wildlife Sanctuary



Elephant Birth Protocol

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Equipment and Supplies

It is recommended that the following equipment and supplies be available for the birth:

Equipment:

- A 5-ton Hoist
- Assortment of Slings or Belly Bands
- Hand Winch and Come-Along
- Bolt Cutters
- Power Source
- Portable Lights
- Extension Cords
- Rope
- Wheat Bran or Sawdust
- Trash Cans and Bags
- Portable Scale
- Tape Measure (seamstress)

Medical Supplies:

- Tincture of Iodine (7%) or Nolvasan Solution
- Suture Material
- Ob Gloves
- Lubricant
- Suction Unit
- Oxygen Tanks
- Towels and Packing Blankets
- Stethoscope
- Thermometer
- Heat Pad
- Human Breast Pump
- First Aid Kit for Humans

Suggested Available Drugs

Emergency Drugs and Dosages for the Calf:

Dopram - Calculate dose for calf at 0,5 mg/kg. Have prepared and labeled in a syringe. Give under the tongue or IV to stimulate respirations. Can repeat the dose or double the dose one time is necessary.

200 lb (90 kg) calf = 45 mg (2,25 ml)

250 lb (113 kg) calf = 56 mg (2,8 ml)

300 lb (136 kg) calf = 68 mg (3,4 ml)

Epinephrine - Calculate dose for calf at 0,1 ml/kg of 1:1000 solution. Have prepared and labeled in a syringe.

Give inter-cardiac, intra-tracheal, or IV if there is no heartbeat.

200 lb (90 kg) calf = 9 ml

250 lb (113 kg) calf = 11,3 ml

300 lb (136 kg) calf = 13,6 ml

Calculate dosages for the following:

Atropine - to dry respiratory secretions

Sodium Bicarbonate - for acid balance if anoxic

Tetanus Antitoxin - 3cc given IM - sometime in first weeks after birth

Tetanus Toxoid - 1cc given IM - if injury with contamination occurs

Have chart prepared for various weights/dosage

Emergency Drugs and Dosages for the Female:

Oxytocin - To induce labor, dose is 20-30 IU given IM or IV to start, increase if needed every 20-30 minutes in 20-30 IU increments.

- For milk letdown, dose is 40-60 IU IV. Only give one injection when needed for calf to nurse, or to obtain milk for bottle-feeding.

Calculate dosages for the following:

Lasix - to reduce edema if present after calving

Lidocane - for local anesthesia if needed for episiotomy

Calcium Gluconate - for calcium deficiency if present

Tetanus Antitoxin - 3cc given IM at least 1 month prior to calving

Antibiotics if indicated

Monitoring Parturition

Monitoring Progesterone

Elephant gestation is approximately 659 days with a range of 612 to 699 days. African elephants may average slightly less, about 645 days.

Serum progesterone levels will be monitored weekly throughout gestation. At 20 months (approx. day 620), twice weekly samples will be assayed. Daily assays will start at 20 ½ months (day 640). As a general rule, before birth the progesterone levels will indicate a 50% decrease within twenty-four hours, and continue to decrease. Typically levels fall below 100pg/ml from 1 to 10 days, with an average of 3 days, prior to parturition.

Collecting Plasma

At least 8 weeks prior to birth, weekly plasma collections from the mother will begin. One (450 ml.) bag a week will be collected and taken to a local laboratory for separation and storage. This plasma will be given orally to the calf if the mother will not allow the calf to nurse.

The last plasma samples collected prior to birth will be the first plasma samples used because they will contain more antibodies than the first samples collected.

Milk Analysis

Calcium levels in elephant milk rise dramatically 12-48 hours prior to birth. However, it takes a substantial amount of fluid (2-3 ml) from the mammary gland to test. It is possible to use the commercial Foal Check system and also the water hardness kit available through a local water treatment business. If the water hardness test kit is used, the milk sample needs to be diluted 1 part milk to 9 parts distilled water for the kit to work. Direct use of milk results in calcium levels that are too high. Some females have not had any milk that could be obtained until about 24 hours before birth, and others have milk for weeks before birth.

Typical Signs of Labor

The following symptoms have been reported prior to the onset of labor in elephants:

- Progesterone drop
- Rise in calcium level in colostrum
- Appetite loss
- Passage of mucous plug
- Occasional squatting, stretching and kicking
- Frequent urination and/or defecation

Night watches will begin at the start of the 21st month and will consist of at least one experienced elephant handler and one volunteer. A remote video monitoring system with observations in and outside the elephant facility to facilitate a 24-hour watch will be used.

Parturition

When the first signs of labor appear, the elephant handlers will tether the elephant on 3 or 4 leg restraints (chain or rope). It is recommended that inexperienced or nervous elephants be tethered so the newborn can be pulled if the mother becomes excited. Inexperienced elephants have rejected and even killed newborns. The newborn calf will be immediately removed from the mother. The female is allowed to calm down as she watches her infant being attended to. This period of separation gives the female time to recover from the shock of birth, gives the staff time to clean and inspect the baby, the veterinarian time to perform the neonatal exam, and the baby time to become steady on its feet. Wheat bran or sawdust will be spread around the floor to absorb the birth fluids. It is important that the floor be kept clean to prevent poor footing for humans and animals.

The rest of the herd will be in adjacent stalls to avoid interfering with the elephant care staff but still observe the birth and newborn calf. It is important for all the females to witness the birth and after-care, as this is an invaluable learning experience. They may also need to be tethered if they become agitated.

The role of each person involved in the birthing process will be defined in detail well in advance of the event. Only people with whom the elephants are familiar will be present during the birthing process. There will be one person, the elephant manager, in charge of all aspects of the event so it is carried out without needless discussion.

The entire birth process will be recorded on videotape and a person will be designated to record all pertinent data (weight, measurements, etc.).

Immediately after birth, the calf is pulled a short distance from the mother so she can smell and touch the calf but not grab or step on it. Extreme caution must be utilized at all times. Handlers must remain calm and alert for aggressive behavior from the mother particularly when the calf vocalizes or falls down. The floor is cleaned and bran or shavings are spread. The mother may not respond to commands as well as she usually does. Each situation is different so it must be evaluated as the process is going on.

When the new mother has calmed down and it is determined to be safe, veterinary staff can enter the holding area to do the initial calf examination and treat the umbilicus. Veterinary staff should have on hand:

- a) Emergency Drugs and Supplies
- b) Oxygen given orally or up the trunk if the calf is hypoxic or respiratory problems are evident
- c) Tincture of Iodine or Nolvasan Solution (umbilicus area)
- d) Shop-Vac, Towels and Blankets to remove mucous from the trunk and mouth, and to dry and stimulate the calf
- e) Serum banked in advance and Milk Replacer in the event of maternal rejection

The calf is allowed to attempt standing on its own (range from 5 minutes to 5 hours) after birth. The calf can be allowed with its mother when the elephant manager in charge is confident the mother is calm, interested and responsive.

It is suggested that handlers use a strap to support the calf in standing. This has been found to be the time when the mother stresses (gets aggressive). When the calf is struggling to rise, or rises and then falls down emitting a squeal, this will excite the dam. The use of a strap between the front legs to support the calf until it is steady on its feet and able to walk about normally greatly reduces the mother's concern. The strap (a soft rope with loops at both ends or a canvas strap works well) should go between the front legs on either side of the calf and be held by a keeper on each side. The calf doesn't have a reverse when it begins walking so the reason to go between the front legs is to be able to pull the calf backwards rapidly from the mother if needed. Also small straps to put around the calf's ankles quickly at the time of birth helps in pulling the calf away from the mother (the legs are large and very slippery) and prevents using the convenient handles (trunk and tail) to pull the calf away.

The calf should be allowed to find the teat on its own. Range for initial suckling attempts is ½ to 24 hours. Successful first nursing has varied from 1-10 days. Ideally successful nursing should occur within the first 12 hours to insure that the calf receives the necessary colostrum. If the calf does not nurse during the first 12 hours, the calf should be supplemented with either the mother's colostrum or the banked serum.

Weight and Measurements of the Calf

The following weight and measurements are taken as the situation allows:

- Body weight
- Height to the top of the back
- Length with trunk and tail relaxed
- Heart girth
- Body temperature
- Heart rate
- Respiratory rate

The afterbirth is collected and examined to determine if the mother passed the entire placenta. The placenta is weighed and made available for research.

The mother and calf are monitored closely after birth for a minimum of 24-48 hours. Milk consumption is very hard to assess; daily weights of the calf can determine if the calf is meeting its nutritional requirements. As with most animals, elephants may lose up to 10% of their birth weight the first few days after birth (in elephants this may last up to a week). Then calves should gain 2 to 2 ½ lbs. (about 1 kg.) a day. Stools need to be charted and monitored closely. Weather extremes are also a concern as calves are more sensitive to cold and heat than adults.

Night watches will continue until the staff is comfortable that the calf is strong enough and the mother is not showing any aggression – this may be as long as several weeks after the birth. When introducing calves to adults, caution is utilized, as any aggressive move by an adult towards a newborn can be fatal. No matter what management system is used, it is important that the calf learn basic barn manners. If in free contact, the baby must learn to be careful around people. Playing with the baby is not permitted as it can lead to bad habits and confusion when it is time for formal training. Limited formal training begins within weeks depending on the individual animal's temperament. If the juvenile is accustomed to some handling, this will enable the elephant care staff to easily perform simple procedures such as blood collections, treatment of injuries, eye and mouth examinations, etc., instead of attempting to tranquilize the animal. With the threat the herpes virus presents to young calves, husbandry training at a young age may save its life.

Guidelines for Monitoring Parturition in an Elephant after Progesterone Drop

1. After progesterone falls, the monitoring of stage I of parturition during normal cervical dilation and entrance of the placental membranes into the cervical canal and vagina can be accomplished by twice daily ultrasonography.
 - a. It is possible to determine the imminent entrance of the extremities into the birth canal.
 - b. The entrance of the feet into the birth canal usually is associated with overt signs of labor.
 - c. With the entrance of feet into the birth canal far enough to be palpated the monitoring of parturition by ultrasonography is limited.
2. When the feet can be palpated, monitoring of the movement of the fetus during stage II of parturition is possible.
 - a. Progression of the fetus in the birth canal is measurable by palpation just prior to labor and after labor has begun. If the fetus has not progressed into the birth canal between three palpations 2–3 hours apart, then the use of oxytocin should be considered for induction of parturition.
 - b. Oxytocin for labor induction in elephants should be used judiciously. Initial rates of administration should be 20-30 IU given IM. If additional administration is necessary then 20-30 minutes between injections should be observed with increases in dosages at 20-30 IU considered.
 - c. If oxytocin is not productive, alternative strategies should be discussed.
3. After birth the calf should be examined and the umbilicus disinfected. Due to the unusual pattern that the umbilicus breaks, the disinfectant should be infused into the opening of the umbilical sheath. Use of tincture of iodine or nolvasan solution is recommended. During the first few days, disinfection of the calf's umbilicus should occur several times a day.
4. Following the birth of the calf, rectal palpation of the birth canal to eliminate the possibility of a second calf should be performed. This may be done prior to, or following, the delivery of the placenta.
5. Examination of the placenta to ensure its complete delivery and its weight should be recorded.

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