

LEE RICHARDSON ZOO ELEPHANT MANAGEMENT PLAN AND HUSBANDRY PROTOCOL

Introduction

The Lee Richardson Zoo has exhibited elephants since the 1950's. It has always been our goal to show captive elephants as ambassadors for elephants in the wild and to care for them in the best way possible. LRZ's elephant team (elephant manager and approved elephant keepers) follows guidelines based on the recommendations established by the AZA (and the Elephant Species Survival Plan) as well as other recognized elephant experts (EMA - Elephant Manager's Association). Annually these guidelines (the elephant management plan and husbandry protocol) will be reviewed (and revised if needed) by the elephant manager with input from other members of the elephant team. Any changes to the protocol will need to be approved by the general curator and the director of the Lee Richardson Zoo before they are put into effect.

Objectives

The keeping of elephants at the Lee Richardson Zoo is for conservation, research, education, and recreation. We will make every effort to manage our elephants in a manner which will aid in

- maintaining a genetically diverse captive population
- the conservation of wild populations by inspiring our visitors through education and recreation opportunities
- improving the conditions of captive or wild elephants through research.

In general, these objectives will be reached through cooperative efforts with other AZA accredited elephant holders.

The Lee Richardson Zoo converted its elephant management style to protected contact in September of 1993. At that time, plans were made for barn and exhibit renovations that would facilitate such a program. The conversion to this type of management was initiated to insure keeper safety in the area. Lee Richardson Zoo recognizes that all animal management programs are dynamic entities which are always changing. It is our goal to develop a well-rounded elephant program that can be an example to others and to work with the SSP in the conservation and propagation of the African Elephant species.

Management - Personnel

The day to day management of our elephants is under the direction of LRZ's elephant manager (head elephant keeper). The elephant team meets regularly to discuss any questions of policy, training, and management protocol. The elephant manager is directly responsible for overall training and management of the elephant keeper staff. Due to the difference of new keeper's skills/training, introducing a new keeper into an elephant management program cannot be done on a set schedule. Moving onto another step in the training procedures will require approval of the elephant manager.

Steps in training a new elephant keeper:

The new keeper will be introduced to fellow elephant keepers and zoo staff. Familiarization with the work area, including barns, exhibits, and service areas will then occur with the new keeper and the elephant staff.

Safety issues will be discussed thoroughly, including animal, chemical, and facility safety procedures. To help prepare the trainee for all aspects of the position, zoo library resources, videos, training demonstrations, and reading materials (elephant management protocol, animal welfare act, and etc.) will be utilized. The established members of the team will discuss with the new trainer the fundamental principles of operant conditioning, so the incoming team member

will understand the ins and outs of training in a protected contact situation. The elephants' characteristics/personalities will be discussed and safety when working around them will be reinforced.

The new keeper will observe two experienced keepers go through a typical day's routine. This will be followed by a period of "shadowing"; during this time, the new keeper will help with the daily cleaning/set-up of the barn and yard and assist with other responsibilities in the area. The person will not have any contact with the elephants during this time. The new keeper will also be observing all training sessions and husbandry procedures that occur. The new team member will progress from one phase of their training to the next only when the head elephant keeper agrees they are ready to move on.

The new keeper will be trained to operate the hydraulic system for transferring animals to and from the barn. First, the new keeper will observe an experienced keeper run the doors during transfer; during this time, the keeper may be allowed to do "practice runs" to get a feel for how they run. This will only occur under close supervision of an experienced keeper and will not include any animal transfers. The new keeper will continue to watch and do "practice runs" until the head elephant keeper clears them to move on to the next step – assisting in animal transfers. Once the new keeper shows his/her understanding and capability of running the system and has been cleared by the head elephant keeper, this person will be allowed to assist in animal transfers with an experienced keeper present.

Prior to any training with the elephants, the new keeper will be further versed in the use of operant conditioning and the protected contact methodology. Target training with the rhino and giraffe will be incorporated into this process to give the new keeper a "hands-on" feel and a better understanding of operant conditioning. Good accompaniments of this are the training game and books such as "Don't Shoot the Dog." Once the new keeper is found competent to do so, he/she will be allowed to start working with the elephants. Under close supervision of an experienced keeper, this person will start off with the basic commands that are essential for husbandry purposes (get over, move in, trunk/foot, steady, pad, rear pad, and ears). An experienced keeper will always be overseeing these sessions to insure proper command usage, bridging, and reinforcement. Following the sessions, any questions/concerns will be discussed. Sessions will be kept short and will occur until the elephants are responding in a consistent manner. The new keeper will then be allowed to hold the elephants for husbandry procedures. Additional commands will be learned through the same process.

Training on footwork will follow after the new keeper has closely observed several sessions. He/she will be told and shown what to look for and how to correct/prevent foot health issues. These include uneven wear, separation of pad, formation of cracks, proper nail/cuticle care, and etc. Along with the foot care, all other husbandry procedures will be overseen by an experienced keeper until learned.

Management - Elephants

The principle goal of our program is to manage the elephants in an environment that is safe and positive for the keepers and elephants. The elephants will be handled through the use of **operant conditioning**. The basis of operant conditioning is that the consequences of a particular behavior will affect the future occurrence of that behavior. In this system, a bridging stimulus followed by a reward is used in order for a particular behavior to be learned and performed by the elephant. Each behavior is given a verbal command name to be used each time the behavior is desired. Once the behavior is learned, the reward can become random. When new commands are introduced, a set plan of progression must be defined. The plan should allow for attainable goals

with minimal regression. All trainers should remember that some occurrences of regression are likely and training sessions are to end on a positive note.

Training behaviors

The Lee Richardson Zoo will use vocal commands as well as condition the animals to work through the use of targets to present specific body parts or assume specific positions in response to the placement of the target. The target is a tool that can be made from a variety of items; this may be a plastic bottle or sponge ball placed on the end of a pole that the animal will touch with a body part to earn a reward. When a command is given and the elephant has properly performed the requested behavior, a whistle is blown (the bridge) to let the animal know it has performed correctly and a treat is forthcoming. For example: For the command "foot", the target is placed where the trainer desires the elephant to place its foot. Once the elephant touches the target with its foot, the bridge is given then the reward follows. In teaching a new command, rewards should be constant until the command is learned completely. Rewards can be given randomly to reinforce performance once performance of the command is constant. When a new command is introduced it will be assigned to one keeper. That keeper will train the command until the behavior is consistent. The command will then be passed on to other members of the team. Trainers need to be constantly aware of the timing of the bridge and reward. Bridging at the wrong time can serve to reinforce the wrong behavior.

Husbandry

The elephants are visually inspected daily. The elephants are to be bathed at least once a week in the ERD or stall. Bathing generally involves hosing and scrubbing needed areas and periodically using an approved animal cleanser (ex. Orvus C). This is augmented by weekly exfoliation to get rid of excessive dead skin buildup. It is important to remove all fecal stains from the skin and to thoroughly scrub inside of rear legs to remove urine splash. During winter months, mineral oil should be applied to the backs of the ears in order to prevent cracking. Daily/weekly blood draws will take place for testing according to instructions from the Vet and General Curator. This will take place in either the ERD or stall with head down and ears presented. New keepers will be trained in the proper technique for blood draws by experienced keepers.

Eye washes and tusk scrubs/checks will be done weekly.

TB tests and overall health checks by the Vet will occur annually.

Enemas are necessary for reproductive assessments, so periodic anal desensitization and flushing out may be performed on each elephant as needed.

A minimum of two qualified staff members shall be present at all times to work with the elephants, including the shifting of the elephants. When shifting out of stalls, both elephants will need to be held away from the gates if necessary to allow the gates to be opened safely. When worked in the ERD, the elephant is to be held in position when opening/closing back/front doors behind them and when opening in front of them when necessary.

Footwork

All elephant keepers must be practiced in common foot care and will be required to trim feet at least once every two weeks to stay in practice. The elephants' feet will be checked daily for any sign of injury, obtrusions, or abnormal wear. Foot care will consist of scrubbing around nails/cuticles, removing debris, working on cracks/nail bases, and trimming areas of overgrowth. When working on cracks in the nails, Koppertox may be applied to help prevent any infection if warranted after veterinary review. Application of Hoofsaver will be done to the nails/cuticles as needed. New keepers will be trained in proper foot care by observing foot care sessions,

discussion with experienced keepers on what to look for and how to deal with any foot issues that arise, and by 'hands-on' work under supervision of experienced keeper. Digital photos may be taken periodically to chart overall health of feet.

Diet

Elephants housed at the Lee Richardson Zoo shall be provided adequate and nutritious food daily. The diet shall be monitored to insure that it meets the needs of the animals. The diets are to be posted in the barn. Diets will consist of a high quality grain (i.e. Mazuri Elephant Supplement), grass hay, alfalfa, and produce as well as other dietary supplements such as fresh browse, trace mineral salts, TPGS vitamin E. Fresh water shall be provided ad libitum with water containers being cleaned regularly. Grass hay such as brome or timothy will be offered to the elephants free choice during the day in a manner which will encourage their natural foraging behavior. It will also be offered free choice overnight. Alfalfa is rich to the digestive system, so it will only be offered in limited amounts. Produce can be utilized for training, husbandry, and exhibit/stall enrichment. Browse will be provided on a daily basis. Since some species of plants can be toxic, an approved browse list will be established and reviewed regularly. Only browse from the approved list will be offered. Approved browse include: Bradford pear, locust, elm, mulberry, crabapple, redbud, pine, juniper, cottonwood, apple.

The elephants are weighed twice a year. Diets will be reviewed based on the weights and other information available (health status) by the elephant staff, veterinarian and general curator and adjusted as needed.

Cleaning

Proper cleaning of the elephant barn will occur daily. The elephant stalls will be thoroughly swept, scrubbed and hosed each day. The stall floor will be disinfected at least once a week. The stall walls, gates, and bars will also be scrubbed as needed. If the elephants are kept inside during the day due to weather, construction, etc... modifications will be made to this routine (ex. extra dry cleaning in the afternoon).

Enrichment

Psychological stimulation will be provided in the form of environmental and behavioral enrichment. This will include: browse, scratch logs hung in stalls, boxes, tires, boomer balls, daily training sessions, chow/bread/fruits/vegetables distributed throughout the exhibit, pool access, street sweeper brushes, bathing, introduction to new commands, occasional transformation of exhibit/moving enrichment items, mud holes, dirt piles for dusting, etc. Enrichment will be provided on a daily basis.

Chaining

The elephants will not be chained at night. Procedures may take place that require chain restraint (i.e. artificial insemination). These will require the review and approval of the elephant staff, vet, and general curator.

Temperature/Outdoor Access

Under normal conditions, the elephants are allowed to go outside if they are dry and the temperature is 40 degrees F or above, with sun and little wind. Winds, clouds, or precipitation should be considered before allowing any animal outside access. If allowed outside when temperatures are below 40 degrees F, the elephants must be monitored frequently. At the first sign of any discomfort the elephants are to be brought in immediately. The elephants' skin is to be dry before they go outside any time it is below 50 degrees F. The barn temperature should be maintained at 68 degrees F.

During the summer months, keepers work a split shift. This allows the elephants to remain outdoors longer. In the keepers' absence, staff members will periodically check on the animals and report to elephant keepers if any problems arise.

Social Behavior/Aggression

For the psychological health of adult female elephants, female calves, and sexually immature bulls, it is essential that they not be maintained in solitary conditions for prolonged periods of time, except in cases of unforeseen circumstances (health or aggression). In the wild, adult bull elephants are known to spend more of their time alone. Even so, there are recommendations for sight/sound/smell access to other elephants that are to be followed for the psychological health of the bull. Elephants are highly intelligent and social animals. When separated out of its normal social grouping, an elephant may act out due to the separation. This may include ignoring keepers' commands and displaying signs of aggression and stress (rampaging about their enclosure, bluff charging anything in its path, etc.)

All handlers should be familiar with an elephant's body language. Warning body postures include a high-headed posture, refusal to respond to commands, coiled top of trunk, striking/grabbing with trunk, tail straight out, ears out, excessive drainage from the temporal gland, and kicking outward towards any object.

The Elephant Restraint Device

The Elephant Restraint Device (ERD) is a hydraulically operated, walk-through structure that holds the elephant in a stationary, standing position for husbandry or medical procedures. Both end gates and side walls are hydraulically operated. It is designed to confine, but not squeeze. The sides are composed of adjustable, six-inch, vertical bars that allow maximum access to key body parts.

Operation of the Hydraulics

The hydraulic gates, due to limited vision and minimum safety standards, should only be operated when two staff members are present. All keepers should be well versed in the operation and upkeep of the system and be aware of the slow maneuverability of the hydraulic units. All major repairs and maintenance will be handled by C & S Equipment Company, the original installer of our system.

When transferring elephants in the barn or to/from the exhibit, both keepers are required to check all locks and make sure gates are in proper position. The area the elephants will be entering should also be checked to make sure it offers no hazards to the elephants. This is done to make sure the elephants can be moved safely into a safe environment and both keepers are fully aware of the situation.

A minimum of two keepers from other areas of the zoo will be selected and trained on the use of the hydraulics by the elephant staff. They will be required to operate the hydraulics during the normal course of daily shifting at least once a month. This provides a manner in which we can still move the elephants safely when only one 'elephant keeper' is available. Moves will take place under the direction of a member of the elephant team.

Elephant Procedures in the ERD

Regular husbandry procedures for the elephants can currently be done either in the ERD or in the stalls. Procedures performed in the ERD should be made as positive as possible, to increase the likelihood of re-entry by both elephants.

Acquisitions/Dispositions/Breeding Loans

Acquisitions/dispositions will be made with the approval of the SSP program. A profile of the incoming elephant will be reviewed by the Director, General Curator, and elephant manager/Head Elephant Keeper. Before any elephant is moved to the facility, the General Curator and/or the Head elephant keeper shall visit the facility where the animal is housed, inspect the animal, and talk with the staff before a final agreement is made.

Emergency Procedures

In the event of any emergency, the safety of the visitors, the community and the staff are the most important factors. The zoo's emergency procedures should be implemented if such situations develop. In an emergency, time is of the essence and a quick, correct response to the situation is imperative.

In the event that an elephant should escape and gain access to a public area, steps should be taken to regain control of the situation. If necessary/possible, control of the second elephant should be maintained while alerting the office and calling for back-up via the radio. Visitors should be warned to clear the area or be directed to one of the zoo's safe areas. The safe areas include giraffe viewing areas, bathrooms, Finnup Center, Safari Shoppe (away from the glass), maintenance shop, nocturnal building, and aviary building. Other keepers/staff should be notified to secure the perimeter gates in an effort to prevent the elephants from leaving the zoo grounds.

In the event a fellow handler or other person has been struck down by an elephant, radio the Law Enforcement Center for EMS; also use your radio to notify the office, and to call for back-up. **THINK BEFORE YOU ACT.** Assess the situation, and if you can safely do so, shift the elephant to another area or remove the injured person. Otherwise, do what you can to distract the elephant from the injured person until back-up arrives. Possible distractions would include food, fire extinguisher, hose, etc.

Safety Rules

1. No one is to enter any areas with the elephants unrestrained.
2. Although the elephant voluntarily enters the ERD, once the doors are shut it cannot leave. In this situation the keepers have hands-on contact with the elephant, but they are protected from injury by a barrier separating them from the elephant. This is an example of protected contact.
3. Both keepers will check the safety of the set up (doors, area moving into) prior to any shifting of elephants.
4. Know elephant safety zones.
5. Two keepers are required at all times when working with the elephants.
6. Both handlers should carry radios and pepper spray at all times.
7. Non-elephant personnel may not go within reach of the elephants unless the elephants are under keeper control or in the ERD.
8. Only members of the elephant staff may give commands to the elephants.
9. Under no circumstances will physical discipline be administered.
10. No actions abusive to the elephants will be tolerated.
11. If any problems should arise, the Head Elephant Keeper, General Curator, and/or the Director should be notified.
12. When elephants are in the ERD, all visitors will be required to stand behind the safety boundary markers that are painted on both sides of the ERD.
13. Behind the scenes visits must be approved in advance by the Head Elephant Keeper and/or General Curator.
14. All personnel needing to enter the elephant barn, particularly in the morning hours, will notify keepers prior to entering the barn. This is important in case husbandry procedures are taking place.

15. Elephants will be held away from the gates when gates are being opened/closed during transfers if necessary to do open/close the door safely.

Elephant commands

The trainer's voice is the most effective means of communication with the elephant. The trainer's voice should be firm, clear, and audible. The system relies on positive and negative reinforcement of behaviors.

Any time a command is given, consistency is a must. It's very important to only reward the elephant after the command given is performed correctly and completely. When new commands are introduced, a set plan of steps to reach the desired behavior must be defined. The plan should allow for attainable goals. All trainers should remember that some occurrences of regression are likely and training sessions are to end on a positive note. Trainers need to be constantly aware of the timing of the bridge and reward. Bridging at the wrong time can serve to reinforce the wrong behavior.

Positive: A food reward, verbal praise, special opportunity for a good behavior or response. The training in itself is a positive reward.

Negative: The loss of opportunity to earn food rewards and attention due to a negative behavior or by their own refusal to cooperate; also keeps elephants from certain behaviors that may be destructive to themselves or the exhibit. ("Time out" from training is a negative reinforcement)

The following is a list of verbal commands currently used to position or manipulate the elephants:

All Right:	Releases the elephant from the held position
Back:	Move back
Stretch:	Lie on sternum
Lay Down:	Lie down on side
Come In Line:	Faces keeper straight on
Move Up:	Move forward from present position
Steady:	Maintain current position
Come Here:	To call elephant to come to handler
Open:	Wide open mouth
No:	Stops elephant's undesirable behavior
Foot:	Lift indicated foot
Other foot:	Present other front or other back foot
Lean in:	Position perpendicular to bars, direction of head indicated by keeper
Other side:	Position opposite 'lean in'
Knuckle:	hold indicated foot up with pad perpendicular to ground
Rest:	rest indicated foot on indicated object
Shake:	Position tip of trunk to hand
Trunk:	Lift trunk to forehead
Ear:	Present ear perpendicular to body
Salute:	Trunk up, one front foot is up, down on both knees.
Turn:	Presents base of tail to target
Target:	To position elephant's head to target
Brace:	Holds up right front/left rear leg simultaneously
Head Down:	Lowers head to target
Blow:	Blows water from trunk

Possible future commands

Sit Up: In lay down position, then (with front feet) moves into sit up position

	with front feet up and out
Here Down:	Lie down towards keeper
Over Down:	Lie down away from keeper
Go:	To send to other handler at point B
Rear Pad:	Present rear pad
Pad:	Present front pad
Leave It:	Self-explanatory
Bow:	Bends left leg at knuckle parallel to ground with trunk up
Kneel:	Goes down on both knuckles parallel to ground with trunk up
Play:	Plays harmonica
Catch:	With trunk to forehead, catches object thrown
Release:	Let go of object
Trunk Down:	Elongates trunk downward
Trunk Pull:	Pulls up object given with trunk to forehead action
Back Pull:	Pulls object given backwards with total body
Station:	Moved to specific area and remains steady; keeper may stay or walk away
Dive:	Submerges in pool
Pool:	Enters pool
Fetch:	Retrieves object thrown
Crawl:	Moving forward on ground in stretched position
Push:	Self-explanatory
Turn:	360 degree turn-around
Speak:	Vocalizes
Wave:	With trunk up, moves end of trunk in an up-down motion
Split:	Holds up either right side or left side leg simultaneously
Transfer:	One elephant takes object to other elephant
Receive:	Elephant receives object from transferring elephant
Pick Up:	Self-explanatory
Dip It:	Puts end of trunk in bucket of water for cleaning (used before painting)
Paint:	Movement of paint brush on canvas
Draw:	Movement of sidewalk chalk on surface
Kick:	Self-explanatory
Toss:	Self-explanatory
Put it in bucket:	Places item into bucket
Get one:	Takes one item from bucket
Move In:	Move left (rear in toward keeper) or to target
Get Over:	Move right (rear in toward keeper) or to target

Elephant Profiles – LRZ (revised annually)

Missy

Missy is unquestionably the dominant elephant. She is not aggressive toward Kimba, but takes what she wants from her without resistance. She is blind in her left eye. Though it is possible that she has some sight in the eye, it is assumed she has none. During long footwork sessions, she is prone to losing concentration and begins to guess what the trainer will ask for instead of listening for a command. She responds well to rapid-fire commands when in a free form training session. Missy was slower to trust her new keepers than Kimba, seen in the reluctance displayed when she first arrived in late 2006 to lie down and her fear of passing by the rhino while shifting. These misgivings were overcome and have not presented a problem since. As she has grown accustomed to her new home, different variations in shifting (including separation from Kimba

and being closed in the ERD) have not presented a problem. Missy has had one episode gastrointestinal distress/colic at LRZ. Missy does occasionally try to run through doors as they are being closed, and will squeeze through if at all possible. She shows stereotypic behavior by “rocking” - taking one step forward, then one step back. Missy is reluctant to ‘lean in’ with her left side on the exhibit perimeter, but she has done it on occasion. Missy’s performance on exhibit has been very spotty—sometimes very good, sometimes very poor. Missy does not cycle regularly.

Kimba

Kimba is the more inquisitive of the two. This being the case, Kimba is more prone to boredom than Missy, and exhibits stereotypic swaying frequently. She is subordinate to Missy. In Jacksonville she was aggressive toward, and maintained dominance over Sheena, the third member of the herd. She seems to have put the rhino into this role, as she often takes aggressive postures toward the rhino when he is shifted past the elephants. While she is on exhibit though, she mostly ignores the rhino. Kimba also works very well with rapid-fire commands when in free form training. She has shown reluctance to salute/stretch on exhibit if Missy is not stretched out also, but she has done this on occasion. Kimba’s performance on exhibit has also been very spotty—sometimes very good, sometimes very poor. Kimba was more trusting of her new keepers initially, as only the ‘turn’ command presented a problem, and that was overcome quickly. Kimba initially would shift without Missy, but this quickly changed and Kimba would not enter any alley without Missy going first. This has also changed as she has become more comfortable, and she shifts well despite the various permutations of shifting we request of her. Kimba remains close to the gate when separated, but does not appear to be stressed by it. Kimba also loses focus during long footwork sessions. Kimba was considered prone to colic and recently stopped cycling regularly while at Jacksonville Zoo.

Signature of Elephant Manager

Date

Signature of General Curator

Date

Signature of Director

Date