

**CLEVELAND METROPARKS ZOO
ELEPHANT MANAGEMENT PROTOCOL**

April 2001 (Revised: January 2003, February 2005, April 2006,
May 2007, July 2008)

Approved by:

Steve Taylor
Zoo Director

TABLE OF CONTENTS

1. INTRODUCTION.....	2
a. Elephant Care Program Philosophy	2
b. Method of Elephant Care	2
c. Staffing.....	2
d. Short Term Goals 2003-2004.....	4
e. Long Term Goals	4
2. ELEPHANT PROFILES.....	6
3. DAILY ROUTINE.....	11
4. BEHAVIOR LIST	12
5. HUSBANDRY	14
6. SAFETY	15
a. Non – Elephant Staff.....	15
b. Elephant Staff.....	15
c. Other Safety Notes	15
d. Elephant Facility and Program Safety Assessment.....	15
e. Emergency Plans.....	16
f. Incident Report	16
7. STAFF TRAINING	17
a. New Trainer Break – In.....	17
b. Removing personnel from program	19
c. Trainee tests	20
d. Ongoing staff training	24
8. RESEARCH.....	24
9. RECORD KEEPING	24

Appendix I: AZA Elephant Management Guidelines

Appendix II: Elephant Emergency Procedures

Appendix III: Cleveland Metroparks Zoo Animal Escape Guidelines

Appendix IV: Supervisor’s Report of Injury/Accident

1. INTRODUCTION

a. Elephant Care Program Philosophy: Cleveland Metroparks Zoo elephant program provides the daily care necessary to maintain the elephants' physical and psychological well being in a manner that is safe for both the elephants and their trainers. Staff working closely with the elephants is a key component to the program as it provides both physical and mental stimulation for the animals. This association allows trainers to observe the animals closely for the detection of physical or psychological changes, and strengthens the bond between the trainers and their charges.

b. Method of Elephant Care: On 31 December 1995 Cleveland Metroparks Zoo discontinued the use of free contact management of elephants (where handlers enter the elephant enclosure with the animals in order to manage them) due to concerns of staff and animal safety. A protected contact system was then initiated. In this system, trainers establish a cooperative relationship with the elephants from outside the enclosure through a reward system. Staff selectively capture, reinforce, shape, and maintain behaviors required for proper elephant husbandry, enrichment, veterinary care, control and restraint. Protected contact management of elephants is safer than free contact management. Staff must continue to be alert and work in a safe manner.

c. Staffing: The elephant training staff will consist of four trainers (a fifth relief keeper continues to be trained). At least two trainers must be present whenever working with the elephants, but one trainer per elephant is recommended whenever possible. The Elephant Manager (Animal Care Manager) is responsible for the direct management of the elephant program. As per AZA Elephant Management Guidelines (Appendix I), the Elephant Manager's responsibility is to train staff, develop/maintain the elephant program, be knowledgeable in all aspects of elephant restraint, work toward improving elephant management techniques, and maintain open lines of communication with administration, veterinary staff, and TAG representatives.

The elephant staff is responsible for the health and well being of the elephants. All cleaning, feeding, observations, enrichment, and other keeper duties are completed by these four trainers/keepers in accordance with AZA guidelines.

Components of Cleveland Metroparks Zoo's Elephant Care Program include husbandry, animal training, enrichment, exercise, reproductive activities, animal health, safety, staff training, research, and record keeping. These activities are defined, implemented and evaluated by the Zoo's staff. Roles of staff members in the overall program are defined below:

Zoo Director: Through the Curator of Zoological Programs, assure that the zoo's elephant care program is defined, implemented and evaluated.

Curator of Zoological Programs: Through the Curator of Mammals and the Animal Care Manager, assure that the zoo's elephant care program is defined, implemented and evaluated.

Curator of Mammals:

- Prescribe diet (in conjunction with the Chief Veterinarian). Follow established diet guidelines.
- With staff input, define or approve training, enrichment, activity (exercise), and husbandry needs and processes. Monitor and evaluate these activities, and report findings to Animal Care Manager for needed action. Follow established guidelines for training and enrichment activities.
- Through the Animal Care Manager, assure that the elephant program is in compliance with AZA guidelines.
- Design or approve reproductive program. Implement through the Animal Care Manager.
- With staff input, establish program goals (short- and long-term). Implement through the Animal Care Manager.
- Organize and participate in safety assessments. Define safety needs from these assessments, and implement changes through the Animal Care Manager.
- Approve (or not approve) (following our established research guideline protocols) any research projects that are proposed involving the zoo's elephants.

Animal Care Manager:

- Serve as Elephant Manager¹
- Provide input to the Curator and Veterinarian on all aspects of the Elephant Care Program.
- Supervise keepers in day-to-day activities
- Assure that the prescribed diet defined by the Curator and Veterinarian is fed
- Assure that training, enrichment, activity (exercise), and husbandry needs and processes defined by the Curator are met.
- Implement reproductive program as defined by the Curator
- Implement program goals (short- and long-term) as defined by the Curator
- Implement safety needs that are identified from safety assessments.
- Following our approved research guideline protocols, approve (or not approve) and implement (those projects requiring keeper staff involvement) any approved research projects.

Lead Keeper:

- Implement and help coordinate Elephant Care Program activities as directed by the Animal Care Manager.
- Provide input on all aspects of the Elephant Care Program.

Keepers:

- Implement Elephant Care Program activities as directed by the Animal Care Manager.
- Provide input on all aspects of the Elephant Care Program.

Veterinary Services:

- In conjunction with the Curator of Mammals, prescribe diets.
- Conduct weekly blood draws
- Examine stool samples for parasites at least twice per year
- Evaluate trunk wash samples for TB annually
- X-ray feet and jaws annually.
- Conduct other veterinary procedures and exams as needed.

Conservation and Science:

- Following existing protocols, coordinate or conduct approved research involving the zoo's elephants. If such activities involve keeper support, coordinate such activities through the Animal Care Manager.
- Provide input on all aspects of the Elephant Care Program.

¹ **Note:** The Elephant Manager's responsibilities are as follows (Taken from AZA's definition):

- Train staff
- Assist in development and maintain the elephant program
- Be knowledgeable in all aspects of elephant restraint.
- Work toward improving elephant management techniques
- Maintain open lines of communication with administration, veterinary staff, and TAG representatives.

d. Short Term Goals (2006)

- 1) Annual Physicals. Find out from Vet what new behaviors need to be trained for a physical.
- 2) Behaviors: Behaviors are divided into four categories: a) basic and control behaviors, b) husbandry and veterinary behaviors, c) restraint chute behaviors, and d) enrichment and show behaviors. An array of behaviors have already been trained within these categories (see Behavior List). The following behaviors are targeted for 2006: chaining, anal/vaginal palpation, x-ray of feet and jaw.
- 3) Continue working herd dynamics, especially the relationship between Jo and Moshi in hopes of decreasing the aggression of Jo toward Moshi and increasing Moshi's assertiveness and cooperation when Jo is present.
- 4) Strengthen the exercise program by increasing elephant activity through exercise-oriented behaviors. Implement a weight management program.
- 5) Explore soil / sand substrate inside barn.
- 6) Train for separation of Martika for shipment.
- 7) Relocate Martika to Miami Zoo.
- 8) Train Martika for acceptance of enema & ultrasound (external & internal).
- 9) Train behaviors for Reproductive assessment.
- 10) Modify ERD for rectal and vaginal access to elephants.

e. Long Term Goals (2007+)

- 1) Train new behaviors for additional blood draw sites and IV fluid therapy.
- 2) Develop and implement new enrichment and exercise program
- 3) Maintain learned behaviors.

- 4) Make necessary improvements to yard, allowing elephants to remain outside longer and creating outdoor training stations.
- 5) **Increase participation and contributions to *in situ* elephant conservation. (CMZ Elephant Trainers have donated over \$10,000.00 to Elephant Conservation since 2003)**
- 6) Relocate elephants.

2. ELEPHANT PROFILES

0.1 African Elephant "Jo" 970601 Studbook #62

Transaction History

The following information is from the 2001 African Elephant Studbook.

1969 – Estimated birth

1971 – Estimated date of capture in Mozambique

Ford Brothers Circus ????

Zeehandlr

Nov1974 - Toronto Zoo

29June1982 – Seogovill

21Jul1984 – Wildlife Safari in Winston Oregon

The following information is from the records supplied by Wildlife Safari in Winston Oregon.

Captured in Kruger National Park

1974 – Imported by Zeehandlelaar

January 1974 - June 1982 - Montreal, Canada (Metro Toronto Zoo)

Was named "Juanita" - attacked by bull several times

June 1982 – Sold to Bucky Steele in Dallas Texas, was named "Yolanda"

February 1983 – Sold to Bill Neville, was named "Yohanna"

Ride Contract for Denver Zoo - injured handler

January 1984 – Sold to Ford Bros. Circus was named "JoJo"

Killed handler

July 1984 – June 1997 – Donated to Wildlife Safari - Winston, Oregon

Was named "Johanna" - called "Jo" and/or "JoJo" - Injured handler

June 1997 - Cleveland Metroparks Zoo (loan)

Recurring Medical Issues / Concerns and Current Physical Condition

"Jo" had a history of epidermal cysts and feet problems. Currently her feet are in good shape. We have not experienced epidermal cysts.

Current (2006) physical condition - good

Socialization, Temperament and Behavior History

"Jo" is the dominant animal who regularly intimidates "Moshi" with everything from glances to mounting and physical blows. She tends to be stubborn with new behaviors but once learned is usually consistent. "Jo" has been aggressive with trainers at other institutions but we have experienced this only occasionally. "Jo" is a very confident animal.

Training History

In Winston (1991-1997) "Jo" was maintained in a free contact system. She would lie down, stretch, salute, line up, and present ears and feet. She tolerated short periods of footwork, but blood draw was discontinued due to aggression.

Weights were taken with portable scales. When moving on or off exhibit, "Jo" was chained to an anchor elephant.

Current Training

In Cleveland (1997 - present) "Jo" is worked in a protected contact system. Currently she allows a complete bath (scrubbed over entire body via lean ins, turns, stretches, feet and ear presentations), weekly blood draws from ears and footwork including hoof knife, rasp and electric grinder. "Jo" has been desensitized to injections and allows trunk wash samples and mouth and eye inspections. She will salute (one and two feet) and retrieve items. She is very comfortable in the ERD and cooperates with all moving commands (in line, move up and back, side step, A to B's and steady).

Reproductive assessment training has begun. This includes training for a rectal ultrasound in the ERD.

Reinforcements/Discipline

Primate biscuits are used for rewards. Produce (fruits and vegetables) are used when training new behaviors and with medical procedures. An authoritative voice or time outs will usually gain "Jo's" cooperation.

Breeding Potential

Records show "Jo" was cycling in the past (1990) but blood work from October 1998 to present shows no rise in Progesterone.

0.1 African Elephant "Moshi" 970602

Studbook #139

Transaction History

The following information is from the 2001 African Elephant Studbook.

1976 – Estimated birth

1978 – Estimated date of capture in Cape Providence, Africa

Imported by DELFTS

May 1979 - June 1997 - Wildlife Safari - Winston, Oregon

June 1997 - Cleveland Metroparks Zoo (loan)

Recurring Medical Issues / Concerns and Current Physical Condition

No reoccurring medical problems

Current (2006) physical condition - good

Socialization, Temperament and Behavior History

"Moshi" is the submissive animal and usually nervous when "Jo" is present. Moshi and Martika are even when "Jo" is absent. "Moshi" has tried to hit staff with her trunk during the training of medical procedures and when vet staff is present. Otherwise "Moshi" is cooperative and likes to work.

Training History

In Winston (1979-1997) "Moshi" was maintained in a free contact system.

"Moshi" was ride and show trained but was seldom used for rides as she became more difficult to handle.

Current Training

In Cleveland (1997 - present) "Moshi" is worked in a protected contact system. Currently she allows a complete bath (scrubbed over entire body via lean ins, turns, stretches, feet and ear presentations), weekly blood draws from ears and footwork including hoof knife, rasp and electric grinder. "Moshi" has been desensitized to injections and allows trunk wash samples and mouth and eye inspections. She will salute (one and two feet) bow, kneel and retrieve items. She is comfortable in the ERD and cooperates with all moving commands (inline, move up and back, side step, A to Bs, and steady). "Moshi" is much more cooperative when not intimidated by "Jo".

Reinforcements/Discipline

Primate biscuits are used for rewards. Produce is used when training new behaviors and with medical procedures. Attention and warm water (from hose) also work well with "Moshi" as positive reinforces. Time-outs will usually spark better cooperation.

Breeding Potential

"Moshi's" current blood work indicates she is cycling normally. Due to Moshi's age she is beyond prime reproductive age for a first time mother and will not be bred per SSP.

African Elephant "Martika" 970616 Studbook #231

Transaction History

The following information is from the 2001 African Elephant Studbook.

1981 – Estimated birth

1983 – Estimated date of capture from Zimbabwe, Africa

1983 (estimate) – Nautilus in Ocala, Florida

1984 (estimate) – Campbell (Elephantastic)

04 June 1990 – Metro Zoo, Miami Florida

04 April 1991 – Campbell

08 April 1991 – 03 June 1997 Erie Zoo in Erie, PA

June 1997 – Cleveland Metroparks Zoo

The following information is from the records provided by the Erie Zoo

June 1985 – Estimated birth

1991 – Bought by Erie Zoo from Elephantastic (Alan Campbell) c/o Miami Metro Zoo; Weighed 2000 pounds at 6 feet 6 inches tall

April 1991 - June 1997 - Erie Zoo - Erie, PA

"Kiah " - public name, "Martika" - working name

June 1997 - Cleveland Metroparks Zoo (purchase)

"Martika" or "Tika"

Recurring Medical Problems and Current Physical Condition

Sand Colic

Current physical condition (2006)- good

Socialization, Temperament and Behavior History

"Martika" gets along well with "Jo" and "Moshi", initiating play with both. She seems to be getting to an age where she is not allowed to "get away" with as much with the older cows. She occasionally has temper tantrums when separated for long periods, but is improving. She has never been aggressive and likes to play and please. "Martika" is growing up and maturing. She is in 2nd position in CMZs elephant hierarchy.

Training History

In Erie (1991-1997) "Martika" was maintained in a free contact system. She was known to bolt when mentally challenged by trainers and would go through periods of being uncooperative with certain behaviors.

Current Training

In Cleveland (1997 - present) "Martika" is worked in a protected contact system. Currently she allows a complete bath (scrubbed over entire body via lean ins, turns, stretches, present feet and ear presentations), weekly blood draws from ears and footwork including hoof knife, rasp and electric grinder. "Tika" has been desensitized to injections and allows trunk wash samples and mouth and eye inspections. She will salute (one and two feet) bow and kneel and retrieve items. She is comfortable in the ERD and cooperates with all moving commands (in line, move up and back, side step, A to Bs, and steady). "Tika" rarely walks away and/or is non-compliant when challenged, compared to the beginning of her training when this was a problem.

Reinforcements/Discipline

Primate biscuits are used for rewards. Produce is used when training new behaviors and with medical procedures. Attention and warm water (from hose) also work well with "Martika". Time outs will usually spark better cooperation. Patience is a must when working with "Martika".

Breeding Potential

"Martika's" current blood work indicates a normal cycle. Due to "Martika's" age, she is not recommended by Elephant SSP to breed.

3. DAILY ROUTINE

Morning

Secure elephants in one pen and the ERD, or put them outside while pens are being cleaned.

Clean empty pen

Move Elephants to clean pen and feed breakfast

Clean empty pen and pre-soak Elephants

Bathe Elephants

Other husbandry and / or new behaviors as time and temperament allows

Education Tours (as scheduled)

Released outside with hay or inside with wood chips and hay

Mid-day

In line from outside and feed lunch

or in winter

Secure in empty pen same as breakfast routine

Husbandry and /or new behaviors as time and temperament allows

Released with hay (in/outside)

Afternoon

Same as mid-day routine and

Inspect and brush all four feet

Further Notes

*Morning and Mid-day routines can be interchanged as weather/temperament allows.

*Extra training sessions can be done between "formal" sessions either outside during longer summer hours or when inside for the winter.

*Elephants can be given outside access in the winter dependent on yard conditions and weather. Trainers consider temperature, wind-chill, sun/clouds, rain/snow, ice and the mood of the elephants before giving them access outside. If given in/out access the Elephants must be observed, as the back hallway is not "Elephant Proof". Elephants kept outdoors must be monitored frequently at temperatures below 40 degrees F (4.4 degrees C).

*Enrichment is given on a daily basis as per CMZ enrichment guidelines and Pachyderm enrichment book located in Pachy office.

*Trainers rotate which Elephant they work on a weekly basis to allow contact with each Elephant in a three week period.

*One trainer trains new behaviors until the Elephant learns the behavior well. That behavior is then transferred to the other trainers to work with.

*Standards for food, sanitation, and shelter have been outlined in the Animal Welfare Act and are enforced by the USDA.

4. BEHAVIOR LIST

Basic and Control Behaviors

whistle trained – recognize whistle as a bridge
target trained – touch specific body part to target
move back/up – move back/up in straight line
come here – move to keeper
side step (left and right) – moves laterally with trainer
steady - freeze
lean ins – position body parallel on bars
turns – pivot in a circle
trunk – curl trunk up to touch forehead
trunk down – drop trunk straight down to ground
foot – present specified foot to specified area
stretch – sternal recumbency
let's move – moves from one area to another (A to A or A to B)
in line – stand at specified station
square up – move hindquarters to specified direction
herd dynamics – allowing subordinate animal food, attention etc./subordinate
animal co-operating when dominant animal present

Husbandry and Veterinary Behaviors

present sides, front, back for skin care – through lean-in, turn, stretch etc.
bathing – complete hosing and scrubbing of elephant using the above commands
foot care
present ear – position ear outside bar from a lean in
take blood samples from ear
present eye for inspection – allow trainer to inspect/touch eye area
open mouth for mouth, teeth, tongue inspection- allow trainer to inspect/touch
areas
foot soak – place specified foot in a tub of solution
present tusk – position tusk outside of bar from a lean in
position and steady for injections
trunk wash – per USDA regulations
scale – position feet on scale

Restraint Chute Behaviors

enter chute
remain calm for extended periods of time
allow door to close
allow side to move
tolerate necessary basic and husbandry behaviors

Enrichment/Demonstration Behaviors

retrieval – pick up and bring object to trainer (pick it up/ give it)

bow – left wrist bent on ground and trunk up

kneel – bend both wrists on ground

flair ears – flap ears

salute – raise front left foot and trunk up

two foot salute – raise front left and back right feet

switch – switch feet from a two foot salute

wave – trunk up and wave object

painting

5. HUSBANDRY

Bath

The Elephants are bathed every day. During the bath a complete check is made of the overall condition of each animal. This includes: assessment of attitude and movements; inspection of mouth, teeth, tongue, gums, sulcus, eyes, ears and trunk; inspection and scrubbing of skin and feet. Any major irregularities are reported and treated as prescribed by Veterinary Services.

Foot Care

Exercise and sound husbandry practices are the most effective way to maintain healthy feet. All foot care is done as needed under the guidance of the Elephant Manager. Daily inspection of each elephant's foot will include brushing of pad heel and nails, removing stones or foreign objects from pads and nails. Inspection and access to front and rear nails (including cuticle), whole front pad and heel, whole rear pad and heel is necessary. During inspection, trainer will look for cracks, abscesses, over growth, foreign objects, foot rot, nail deformities and space between nails.

Medical Procedures

Routine sample collections include: weekly blood draw, stool samples (2/yr), and yearly trunk wash samples as per USDA protocol.

Elephants have been desensitized for injections to all four quarters.

Elephants will enter ERD and allow door to close.

Short Term Goals

Urogenital manipulation – Desensitize to touch etc.

Chaining – Desensitize to chain

X-rays of feet and jaw- desensitize to x-ray plates and x-ray machine

6. SAFETY

a. Non Elephant Staff

No one is to enter an Elephant area without making prior arrangements with the elephant staff.

* Elephant areas are:

- Back Elephant hallway - including entrance through back doors
- Elephant side of public wall
- Elephant pens, yard, or "bull room"
- Elephant side of fence around yard

*Elephant staff is:

- Mitch Zverina (Lead Keeper), Meghan Sharp, June Madamba, Becky Johnson and Elliott Burton. Every effort will be made to have the GRK's trained on the elephant job, work with the elephants a minimum of 2 days per month and at least 4 hours per week to maintain their skills.
- They can be contacted on radio Channel 1 or at ext. 4445.

b. Elephant Staff

When working with/around Elephants

****Pay attention and use common sense!***

*Be "Trunk Aware" – always know the position of the elephant in relation to that of the trainer.

*Two radio carrying Elephant Trainers present in Elephant area (minimum)

*Know locations of safety/emergency tools

- hydraulic emergency stop
- CO2 fire extinguishers
- ankus

c. Other Safety Notes

*Elephant hallway end transfer door to be closed when not working in immediate area.

*When operating hydraulic doors, Elephants need to be in station or a second trainer watching their location and communicating with door operator.

*Elephants must be observed when given in/out access as the back hallway is not "Elephant Proof".

d. Elephant Facility and Program Safety Assessment

*Per AZA Elephant Management Guidelines, the elephant facility and program will be reviewed semiannually. It is the responsibility of the Mammal Curator initiate this assessment. The review team includes but is not limited to: Elephant staff, Animal Care Manager, Mammal Curator, Chief Veterinarian, Facilities Operation Manager, and experts in the area of Risk Management. A written report will be kept for each inspection, and that record will be reviewed and acted upon. A written record of such actions will be affixed to the inspection report, and copies kept on file by the Mammal Curator.

- e. Emergency Plans – see attached Elephant Emergency procedures. (Appendix II) and Cleveland Metroparks Zoo Animal Escape Guidelines (Appendix III).
- f. Incident Report – see attached Cleveland Metroparks Zoo Supervisor’s Report of Injury / Accident (Appendix IV).

7. STAFF TRAINING

a. New Trainer Break – In

During the new trainer initial probationary period in the Pachyderm building he/she will be under direct the tutorage of the Lead Keeper (Mitch Zverina) and Area Animal Care Manager (Ken Pekarek). He/she will also be working closely with the other trainers to learn the skills needed to operate safely and effectively in our protected contact Elephant management system.

There are three primary objectives for such intense training:

- 1) To do everything possible to help assure human and elephant safety.
- 2) To assure the physical and psychological well being of the elephants.
- 3) To assure the trainee's complete understanding of our program and our expectations for his/her success.

Step One

- *Trainee is assigned to the Pachyderm building four days a week.
- *Trainee is to be familiar with building routines.
- *Trainee is required to observe all work with the Elephants.
- *Trainee is to be familiar with the Elephants' profiles.
- *Trainee is to be familiar with the Safety protocol and know the location of all safety equipment.
- *Trainee is to be familiar with all verbal and hand signal commands.
- *Trainee must exhibit ability to follow directions of trainers and work as part of the team.
- *Trainee assists trainer with door operations only under direct supervision of the trainer.
- *Trainee becomes familiar with the natural history of elephants by reading the following materials: (list attached here)
- *The following areas will be evaluated:

Judgment	Initiative
Quantity of Work	Quality of Work
Communication	Dependability
Job Knowledge	Animal Knowledge
- *Trainee can move to step two upon passing step one test and approval of Lead Elephant Keeper and Animal Care Manager

Step Two

- *Trainee assists trainers with bath.
- *Trainee begins to work with Elephants under direct supervision of trainers.
- *Lead Elephant Keeper determines which Elephant the trainee will start with.
- *Trainee must be able to feed, steady, move and brush feet before moving on.
- *Trainee continues to assist trainers in bath and observe all other work with Elephants (footwork, blood draw etc.)
- *Knowledge of routine and commands, safety habits, ability follow directions, problem solving, timing and working as part of the team are tested in this step.
- *Trainee can move to step three upon passing test two and approval of Lead Elephant Keeper and the Animal Care Manager.

Step Three

- *Trainee gives Elephant bath under direct supervision of trainers.
- *Trainee begins to work Elephant on other commands (salute etc.) under direct supervision of trainers.
- *Trainee begins to participate in answering the public's questions and other required education programs.
- *Trainee is expected to be able to observe changes in elephant's behavior and health.
- *Trainee can move to step four upon passing test three and approval of Lead Elephant Keeper and Animal Care Manager.

Step Four

- *Trainee begins to work a second and then third Elephant (determined by Lead Elephant Keeper) in the same manner as the first Elephant.
- *Trainee can move to step five upon passing test four and approval of Lead Elephant Keeper and the Animal Care Manager.

Step Five

- *Trainee begins to work Elephants without direct supervision of a trainer.
- *Trainee begins to learn husbandry techniques such as footwork and medical procedures as determined by the Lead Elephant Keeper.

- *The trainee is considered a trainer when he/she passes test five and the Lead Elephant Keeper and the Animal Care Manager are confident the trainee can accomplish all tasks mentioned above.

- *The Trainee will attend the Principles of Elephant Management class

Evaluation

The Animal Care Manager and Lead Elephant Keeper are responsible for evaluating new keepers and administering tests. Each step should be completed in a month's time. The trainee's progress will be discussed with the trainee, Lead Elephant Keeper, and Animal Care Manager monthly.

b. Removing Personnel from the Elephant Program

The Animal Care Manager with consultation with the General Curator and Zoo Director may remove any individual from the Elephant program for any of the following reasons:

- 1) The keeper can be terminated anytime during the six-month probationary period if he/she is failing to make progress through the five steps. The keeper must complete the above within the six-month probationary period. If this is not accomplished, new hires will be terminated. Transferred employees will be removed from the program.
- 2) Failure to follow Elephant Management Protocol.
- 3) Inappropriate treatment of Elephants.
- 4) Failure to work with other keepers in program, thereby destroying the team concept and eroding consistency.
- 5) Removal of keeper can be immediate and permanent if warranted.

c. Keeper Tests

Test One – Elephant Keeper Trainee Program

Keeper: _____ Start date: _____ Today's date: _____

(Y = Yes, NI = Needs Improvement)

- *Demonstrates knowledge of building routines. Y NI
 - Quantity of work. Good Average Needs Improvement
 - Quality of work. Good Average Needs Improvement
- *Demonstrates knowledge of safety protocols and safety equipment locations. Y NI
- *Demonstrates knowledge of elephants. This includes statistics, behavior, disposition, and relationships with other elephants, handling recommendations, past history, medical history, and behavior profiles. Y NI
- *Demonstrates knowledge of all hand and verbal commands. Y NI
- *Demonstrates that he/she is able to work as part of the team. Y NI
- *Demonstrates the knowledge and ability to operate all hydraulic doors. Y NI
- *Demonstrates good judgment skills. Y NI
- *Demonstrates initiative. Y NI
- *Communicates questions, suggestions, etc. regarding his/her training to members of the elephant staff in an appropriate manner. Y NI
- *Demonstrates that he/she is dependable. Y NI
- *Demonstrates knowledge of the natural history of elephants

Comments/recommendations:

Lead Keeper (Date)

Keeper (Date)

Animal Care Manager (Date)

Mammal Curator (Date)

General Curator (Date)

Test 2 – Elephant Keeper Trainee Program

Keeper: _____ Date: _____

(Y = Yes , NI = Needs Improvement)

- *Demonstrates ability to assistkeepers effectively. Y NI
- *Continues to demonstrate ability to follow directions. Y NI
- *Demonstrates problem-solving skills. Y NI
- *Demonstrates the ability to work safely around the elephants. Y NI
- *Demonstrates the ability to steady, feed, and move elephants and brush feet. Y NI
- *Consistently performs skills and abilities required at previous level of training. Y NI
- *Continues to strive toward being part of the elephant team. Y NI

Comments/Recommendations:

Lead Keeper (Date)

Keeper (Date)

Animal Care Manager (Date)

Mammal Curator (Date)

General Curator (Date)

Test 3 & 4 - Elephant Keeper Trainee Program

Keeper: _____ Date: _____

(Y = Yes, NI= Needs Improvement)

- *Continues to demonstrate the ability to follow directions. Y NI
- *Demonstrates ability to give an elephant bath. Y NI
- *Continues to demonstrate the ability to work safely around elephants. Y NI
- *Demonstrates problem solving ability. Y NI
- *Demonstrates good observational skills. Y NI
- *Demonstrates ability and knowledge to educate the public. Y NI
- *Continues to strive to be part of the elephant team. Y NI
- *Consistently performs skills and abilities required at previous levels. Y NI

Comments/Recommendations:

Lead Keeper (Date)

Keeper (Date)

Animal Care Manager (Date)

Mammal Curator (Date)

General Curator (Date)

Test 5 – Elephant Keeper Trainee Program

Trainee: _____ Date: _____

(Y = Yes, NI = Needs Improvement)

- *Demonstrates ability to work with elephants without direct supervision. Y NI
- *Continues to demonstrate ability to follow direction (new behaviors etc.). Y NI
- *Demonstrates ability to perform footwork, blood draw, and other husbandry duties under supervision of trainer. Y NI
- *Continues to strive to be part of the elephant team. Y NI
- *Consistently performs skills and abilities required at previous levels.

Comments/Recommendations:

Lead Keeper (Date)

Keeper (Date)

Animal Care Manager (Date)

Mammal Curator (Date)

General Curator (Date)

d. Ongoing Staff Training

The elephant keepers are encouraged to be involved in the Elephant Manager's Association (EMA). Every effort will be made to send two keepers to the annual EMA conference. This conference is an opportunity for the keepers to make contacts and learn how to better care for the elephants. The elephant keepers are also encouraged to submit requests for any other elephant and/or training conferences (Footcare symposium, IMATA etc...).

The elephant keepers are also encouraged to keep up to date on elephant issues.

The lead keeper and area animal care manager is responsible for staff training, but the elephant keepers must work as a team in order to be successful. Constructive criticism should be given and taken in the spirit of bettering the elephant program by maintaining consistency.

The animal care managers evaluates all animal care staff on a yearly basis.

9. RESEARCH

Research will be approved and conducted under the direction of the Conservation and Science Curator, Veterinary staff, Mammal Curator, Animal Care Manager, Lead Keeper, and Elephant staff. All research findings will be shared with all those involved or interested.

APPENDIX I

AZA STANDARDS FOR ELEPHANT MANAGEMENT AND CARE Adopted 21 March 2001

The following standards apply to the husbandry and management of both African (*Loxodonta africana*) and Asian (*Elephas maximus*) elephants in AZA accredited institutions, AZA related facilities, and non-member participants in the AZA Elephant Species Survival Plan (SSP). The intelligence, strength, and social needs of these magnificent animals can pose many challenges for captive managers. Institutions desiring to hold elephants should therefore understand the substantial human, financial, and ethical commitments involved in appropriately maintaining these large and potentially dangerous species (Hutchins and Smith 1999). These standards have been developed to guide institutions that are planning and improving their elephant programs and are considered during the AZA accreditation process and non-member SSP participant evaluation.

The AZA Board of Directors believes that the Association performs a valuable role in the cooperative development of standards for zoo and aquarium animal management and care, which are designed to advance the collective mission of AZA and its members. The development of these standards and the adoption of them through the AZA accreditation process is what sets AZA members apart from roadside animal attractions. The Board understands that there will be differences of opinion as to what constitutes appropriate standards. Standards evolve over time reflecting changes in knowledge, expertise, and public perception.

The AZA Board of Directors has asked the AZA Elephant SSP/TAG to begin formulating a draft vision for the future of elephant management in AZA accredited zoos. Because current standards are expected to change over time, it is recommended that members seeking to plan new elephant exhibits/care programs look to the vision, rather than the current standards, for guidance on where to go in the future.

Compliance with some minimum housing (specifically space, enclosure design, and elephant restraint device (ERD) requirements) must be implemented no later than five years from the issuance of these standards (1 May 2006). Institutions must have written implementation plans for compliance with these standards no later than three years from their issuance (1 May 2004). AZA accredited and related facilities must meet all other provisions described here within one year (1 May 2002) of the issuance of these standards, unless the Accreditation Commission approves a variance. Failure to meet basic AZA standards for elephant management and care will be noted during accreditation inspections. Current non-member participants in the SSP will be given the same time schedule for compliance, but new non-member participants must meet all new standards prior to approval.

1. Abiotic Environmental Variables

1.1. Temperature

- 1.1.1. Elephants must be kept outside on natural substrates as much as possible. Institutions should consider designing exhibits that allow elephants outdoor access twenty-four hours a day – weather, health, and safety permitting. During daylight hours, elephants kept outdoors can tolerate moderate temperature extremes. Provisions must be made to protect animals from adverse weather, including intense sunlight, chilling rain, sleet, etc. Animals kept outdoors must be monitored frequently at temperatures below 40 degrees F (4.4 degrees C). Facilities may install outdoor heat sources to extend the amount of time the animals are able to remain outside.
- 1.1.2. While outdoors, all elephants must have access to shade during daylight hours in temperatures above 80 degrees F (27 degrees C) and when they are exposed to direct sunlight.
- 1.1.3. Indoor holding areas must be ventilated, and heated to a minimum temperature of at least 55 degrees F (12.8 degrees C) at all times of the year. One room must be capable of maintaining a temperature of at least 70 degrees F (21.1 degrees C) and be free of drafts, for accommodating sick or debilitated animals.

1.2. Humidity – There are no standards for humidity at this time. Information is limited, but this does not seem to be of major concern for elephant management.

1.3. Illumination

- 1.3.1. Natural daylight cycles are adequate for elephants, even in temperate regions. Indoor areas must be well illuminated during daylight hours, followed by a period of darkness. Fluorescent lighting provides a sufficient spectrum of illumination; skylights, in addition to interior lighting, are highly recommended. Ample interior lighting must be available, as it is especially important to maintain staff safety.

1.4. Space

- 1.4.1. Indoor space must provide adequate room for animals to move about and lie down without restriction. A minimum of 400 sq. ft (37.2 sq. m) is required for a single animal, approximately 800 sq. ft (74.3 sq. m) for two animals, and so on (AZA 1997). Because of their size and space requirements, bulls or cows with calves must have a minimum of at least 600 sq. ft (55.7 sq. m) (AZA 1997).
- 1.4.2. Outdoor yards must have at least 1,800 sq. ft (167.2 sq. m) for a single adult individual and an additional 900 sq. ft (83.6 sq. m) must be added for each additional animal (AZA 1997). If this space is the only location for exercise, then it is recommended that the space per elephant should be even greater.

** Note: Institutions can petition for a variance from the current minimum indoor or outdoor space standards. The applicant must explain why their facilities are adequate, even though they do not meet the minimum size standard. Accreditation inspectors will take a holistic approach to accreditation inspections, rather than focusing on specific size measurements. Context is particularly important. For

example, it may not be a problem that the indoor space requirements are under the standard by a small amount if a zoo is located in a warmer climate and the animals are outside most of the time. If, however, the zoo is located in a cooler climate and the animals are kept inside for many months during the winter, then the indoor space requirements must be met or, preferably, exceeded. Environmental enrichment programs should also be taken into consideration when evaluating space available.

- 1.4.3. Mature animals can reach a vertical height of 20 ft (6.1 m). Consideration of this must be given with regard to ceiling heights and fixtures (e.g., lights, heating units, plumbing, etc.) so that animals do not harm themselves or the facility.
- 1.4.4. All facilities must have the ability to separate and isolate animals to address behavioral concerns or allow veterinary procedures to occur (EMA 1999).
- 1.4.5. Outdoor yard surfaces must consist primarily of natural substrates (e.g., soil, sand, grass) that provide good drainage and have a cleanable, dry area for feeding (EMA 1999).
- 1.4.6. While outdoors, elephants must have access to sand or soil at all times for dust bathing (EMA 1999).
- 1.4.7. Rocks, tree stumps, or large sturdy objects must be provided in the exhibit so that the animals may use them for rubbing and scratching.
- 1.4.8. Elephant containment barriers must be in good condition and able to prevent elephant escapes. A wide variety of building materials can be used as long as they are able to withstand the animals' strength, contain the elephant in a specific space, and prohibit direct contact between elephants and the public.
- 1.4.9. Door and gate design is extremely important to ensure the safety of both elephants and keeper staff. Both doors and gates must be engineered to withstand extreme force. If mechanical opening devices, such as hydraulic or electrically powered drives are used, they must be able to be operated manually or with a backup generator in the case of a power failure.
- 1.4.10. Enclosures must be cleaned of excrement daily. Frequent daily manure removal is recommended and may be necessary for the maintenance of both sanitary and esthetic conditions (EMA 1999).
- 1.4.11. If the AZA Elephant SSP-managed population is to become sustainable, it is necessary to create housing for many more adult males (Wiese 2000, Wiese and Olson 2000). All institutions considering new construction for elephants should include holding space for adult males. Institutions modifying existing facilities should also make provisions for bull housing.
- 1.4.12. There are no standards on the visual, acoustic, and olfactory needs of elephants at this time.
- 1.4.13. There are no specific standards for the transportation of elephants at this time, but see Fowler (1995).

1.5. Water and Moats

- 1.5.1. While outdoors and weather permitting, elephants must have regular access to a water source, such as a pool, waterfall, misters/sprinklers, or wallow that provides enrichment and allows the animals to cool and/or bathe themselves.

- 1.5.2. Standing water in indoor floor areas can cause foot problems and become a breeding ground for bacteria. Floors must therefore be impervious to water, quick to dry, and sloped to a drain. Floor surfaces must be relatively smooth, but not enough so that they become slippery when wet. Conversely, very rough surfaces may cause excessive wear or irritate footpads.
- 1.5.3. Dry moats can pose a substantial threat to elephants and their use must be limited with the ultimate goal that they are eventually phased out. Moats that are deep, narrow-sided, and hard-bottomed can be particularly dangerous. Although there should be no risk of animals falling or being pushed into the moat, written animal extraction protocols must be in place for any moat that is more than 3 ft (1 m) deep, less than 10 ft (3 m) wide, and/or hard-bottomed.

2. Biotic Variables

2.1. Food and Water

- 2.1.1. Elephants must have access to clean, fresh drinking water (EMA 1999). When water containers are used, drinking water must be cleaned and refreshed at least twice a day. Containers must also be cleaned daily.
- 2.1.2. Fresh browse and produce should be used as dietary supplements and enrichment for the animals.

2.2. Group Composition

- 2.2.1. The minimum age offspring must remain with their mothers is three years. Some flexibility is necessary in cases of maternal rejection and when infants cannot be reestablished in their social group.
- 2.2.2. Institutions must have the ability to manage social compatibility as well as dominance and aggression among an elephant group (EMA 1999).
- 2.2.3. Institutions must have the ability to manage introductions and separations of a new female to a herd and, if the institution is a breeding facility, females to males for breeding, newborn calf to its mother, and calf and mother to the herd.
- 2.2.4. Institutions must provide an opportunity for each elephant to exercise and interact socially with other elephants (Taylor and Poole 1998, EMA 1999).
- 2.2.5. Adult males (six years and above) may be housed alone, but not in complete isolation (opportunities for tactile, olfactory, visual, and/or auditory interaction with other elephants must be provided) (Rasmussen et al. 1982).
- 2.2.6. A behavioral profile must be maintained for each individual elephant and updated annually.
- 2.2.7. All holding institutions must have a written environmental enrichment plan for their elephants and show evidence of implementation (Shepherdson et al. 1998, EMA, 1999, Shepherdson 1999).
- 2.2.8. Staff must be aware of each animal's social compatibility and the dominance hierarchies of the herd (EMA 1999).

2.3. Group Size

- 2.3.1. Zoos should make every effort to maintain elephants in social groupings. It is inappropriate to keep highly social female elephants singly (see Sukumar 1992,

Taylor and Poole 1998, EMA 1999). Institutions should strive to hold no less than three female elephants wherever possible. All new exhibits and major renovations must have the capacity to hold three or more female elephants.

****Note:** It is understood that obtaining additional elephants for zoo exhibits can be difficult at this time. Temporary variances will therefore be considered regarding group size requirements. Institutions that do not currently meet the group size standard should demonstrate that they have requested assistance from the SSP in obtaining additional animals.

It is recognized that some socially aberrant adult females currently exist and these elephants can be managed singly if the institution has made every effort to introduce them to a social group and the SSP agrees that the anti-social behavior is not correctable.

2.4. Human-animal Interactions - A minimum of two qualified elephant keepers must be present during any contact with elephants. A qualified keeper is a person the institution acknowledges as a trained, responsible individual, capable of and specifically experienced in the training and care of elephants.

2.5. Introductions - There are no specific standards for elephant introductions at this time, but see Lindburg and Robinson (1986) and Krantz (1996).

3. Health and Nutrition

3.1. Diet

3.1.1. High quality and nutritionally correct food must be provided in sufficient quantities to maintain animal health and appropriate weight (EMA 1999). Hay and grain should be formulated to provide a complete diet as recommended by the Elephant SSP Nutrition Advisor.

3.1.2. There are no specific standards for elephant nutrition at this time, but see Dierenfeld (1995), Oftedahl et al. (1996) and Ullrey et al (1997).

3.2. Medical Management

3.2.1. A veterinarian with experience in large mammal medicine must be on call at all times to deal with routine elephant health evaluation and treatment and medical emergencies.

3.2.2. Each elephant must be given a thorough annual physical examination (Mikota et al. 1994).

3.2.3. All elephants must be visually inspected on a daily basis (EMA 1999). A general assessment must be made and any unusual activities should be recorded in the daily log at each inspection. Specifically, reports should include observations such as condition of urine and feces, eating and drinking patterns, administration of medications (if any), and general condition and behavior.

3.2.4. A veterinarian or trained veterinary technician must perform fecal examinations to look for parasites and other problems at least twice a year (Samuel et al. 2001). Results should be recorded.

- 3.2.5. All elephants must be trained to permit a complete body daily exam (include feet, eyes, ears, open mouth and tongue, teeth, and tusks) for any sign of abnormalities. Results should be recorded.
- 3.2.6. All elephants' body weight must be assessed and recorded at least twice a year (EMA 1999) through actual weighing or through the use of standardized body measurement tables, photographs, or similar, previously validated techniques (e.g., Nirmalan and Sreekumar 1990).
- 3.2.7. For management purposes, all elephants must be trained to accept injections, oral medications, insertion of ear or leg vein catheters, treatment of wounds, enemas, and urogenital examinations (Mikota et al. 1994, EMA 1999).
- 3.2.8. All elephants must be trained to accept regular collection of blood, urine, feces, saliva, semen, skin biopsy, and temporal gland secretion (Brown 1998, EMA 1999). Biological specimens should be stored according to the SSP Veterinary Advisor's guidelines on biomaterials collection.
- 3.2.9. All elephants' skin must be thoroughly inspected on a daily basis and cared for as needed through bathing, removal of dead skin, and treatment of dry skin or other skin problems (Mikota et al. 1994, EMA 1999).
- 3.2.10. Each elephant facility must have a written protocol for routine foot care and show evidence of its implementation (Mikota et al. 1994, Csuti et al. 2001). This protocol must include daily cleaning and inspection of each elephant's feet.
- 3.2.11. Baseline foot radiographs or thermographs of all adult elephants must be taken and kept on file. In some facilities, it may be appropriate to annually monitor selected elephants (i.e., those that have a history of chronic foot problems) (Csuti et al. 2001).
- 3.2.12. A written daily exercise program for each individual animal must be designed and followed (Taylor and Poole 1998). The program should be developed in consultation with the elephant manager, elephant handlers, and the staff veterinarian(s).
- 3.2.13. When forming new herds, Asian and African elephants should not be placed together in the same enclosure. Herpes viruses endemic to one species can be fatal in the other (Richman et al. 1996, 1999). In addition, there is concern that behavioral differences between the two species may lead to problems with dominance and aggression (Hutchins and Smith 1999).
- 3.2.14. Institutions must adhere to USDA APHIS requirements for testing and treatment of tuberculosis (USDA APHIS 2000, Mikota et al. 2000).

4. Reproduction

- 4.1. Each male and female elephant of reproductive age (8 to 35 years) must have an initial reproductive assessment and follow-up assessments on a regular basis by transrectal ultrasound to verify reproductive status and assess overall reproductive health (Hermes et al. 2000, Hildebrandt et al. 2000 a,b). Exceptions include elephants with known reproductive problems, actively breeding animals, or those with documented medical/behavioral conditions that preclude them from breeding.

4.2 Each male and female elephant of reproductive age (8 to 35 years) must have hormone (progesterone or testosterone) values assessed through weekly (or bi-weekly) collection of blood samples (Brown 1998, 2000). Exceptions are elephants with known reproductive problems or those with documented medical/behavioral conditions that preclude them from breeding.

5. Behavior management

5.1. Training

5.1.1. Electrical devices designed for use on livestock, such as commercially manufactured electric prods and shocking collars/belts, are prohibited as routine training tools or for handling animals during exhibition. Electric prods are permissible only as an emergency safety device; however, their use is restricted to situations in which keepers feel the imminent need to defend themselves against elephant attacks, or to protect an elephant from possible injury (see Schanberger et al. 2001).

5.1.2. Elephant training terminology and descriptions of specific behaviors are outlined in the *AZA Schools for Zoo and Aquarium Personnel Principles of Elephant Management (PEM) Course Notebook* (AZA Board of Regent's 2001). Trained behaviors should allow the elephant staff access to the animal in order to accomplish all necessary animal care and management procedures and permit inter-institutional consistency. The PEM-recommended list of commands and their corresponding behaviors are ones that every elephant and elephant keeper must know so that basic husbandry and veterinary practices can be accomplished. Behaviors should be reinforced so that all elephants attain close to 100% compliance upon request of the elephant staff (Sevenich et al. 1998).

Appropriate elephant training may employ several training aids or "tools" (see PEM Course notebook for a list and description of some elephant training tools and procedures). The goal of a good trainer is to be able to reduce the amount of time any particular training aid is used (Roocroft and Zoll 1994).

The AZA considers the following training tools/techniques to be inappropriate for use at member institutions:

- a. Insertion of any implement into any bodily orifice, unless directed by a veterinarian specifically in connection with training for a medical or reproductive procedure.
- b. Striking an elephant with anything more substantial than an ankus (a traditional training tool used by elephant trainers)
- c. Striking an elephant with any sharp object, including the hook of an ankus (Fowler 1995).
- d. Striking an elephant on or around any sensitive area, such as the eyes, mouth, ears, or genital region.

- e. No tools used in training should be applied repeatedly and with such force that they cause any physical harm to an animal (i.e., breaking of the skin, bleeding, bruising, etc.).
- f. Withholding or reducing an animal's daily-recommended amount of food and or water.
- g. Withholding veterinary care for any reason.

If properly executed training procedures are ineffective in eliminating aggressive or inappropriate behavior in a given animal, institutions should consider other alternatives, including transfer to a facility with more experienced staff or a different management system. Protracted and repeated use of corporal discipline in training is of serious ethical concern and AZA considers abusive training practices to be unacceptable. Further, elephants that are untrained, unexercised, or unable to complete minimum behavioral requirements may be considered neglected and thereby abused.

5.2. Management Systems – Different elephant management systems have both advantages and disadvantages (Desmond and Laurie 1991, Doyle 1993, Preist et al. 1998, Schmid 1998). AZA standards for elephant management recognize that a diversity of approaches exist, but encourage members to continue to experiment with the goal of maximizing elephant health and reproduction and minimizing risk of injury to keeper staff (Lenhardt 1991, 2001, Chapple and Ridgway 2001). System definitions have been defined in the PEM Course and are as follows:

Free Contact – The direct handling of an elephant when the keeper and elephant share the same unrestricted space. Neither the use of chains nor the posture of the elephant alters this definition.

Protected Contact – Handling of an elephant when the keeper and the elephant do not share the same unrestricted space. Typically in this system the keeper has contact with the elephant through a protective barrier of some type while the elephant is not spatially confined and is free to leave the work area at will. This includes confined contact, where the handling of an elephant through a protective barrier where the elephant is spatially confined, as in an Elephant Restraint Device (ERD).

5.3. Management Protocols – Each AZA member institution and related facility that holds elephants must have a written elephant management policy. This policy must be consistent with AZA standards for elephant management and care, and must, at minimum, include a description of the institution's:

- a. Elephant management program's missions and goals (EMA 1999).
- b. Elephant management policies, including guidelines for handling, training, and translocation (EMA 1999).
- c. Plan to separate animals from each other, safely manage elephants that are aggressive toward other elephants, safely move elephants from one location to

another, and safely manage elephants that are aggressive toward humans (EMA 1999).

- d. Staff management policies, including guidelines for keeper safety (EMA 1999).
- e. Individual elephant profiles and incident reports for all cases in which elephants show aggression toward keepers or the public, regardless if any injury actually resulted.
- f. Emergency response protocol. Institutions should be able to demonstrate readiness to respond to an emergency situation, such as an elephant escape or keeper injury (EMA 1999).

5.4. Safety Assessment – All elephant-holding institutions must undertake at least a semi-annual elephant facility and program safety assessment, identify safety needs, and fully implement any corrective measures. Each facility shall establish a safety assessment team. The team may include elephant staff, management staff, animal health care staff, and experts in the area of risk management and safety. Each facility should establish the make-up of the team based on its own needs and resources. A written record must be kept for each inspection and that record be reviewed and its recommendations acted upon.

5.5. Restraint

5.5.1. Chaining is acceptable as a method of temporary restraint (Fowler 1995). However, elephants must not be subjected to prolonged chaining (for the majority of a 24-hour period) unless necessary for veterinary treatment or transport. Institutions that regularly use chains for some portion of a day must alternate the chained foot on a daily basis. All new construction and major renovations must be constructed in a manner that minimizes or eliminates the need for chaining (Schmid 1995, Gruber et al. 2000).

**Note: If AZA policies on chaining require new construction, rather than procedural changes, then institutions will have five years to comply with this requirement. Plans must be in place within three years and institutions must apply for a variance from the AZA Accreditation Commission.

5.5.2. All elephant holding facilities should install an Elephant Restraint Device (ERD) (Schmidt et al. 1991). However, all bull-holding facilities, as well as those that manage elephants in protected contact, must have an ERD. Use of the ERD should not be weather dependent.

5.5.3. Each elephant must be trained to enter and stay in the ERD, if one is available, for husbandry, veterinary, reproductive assessment, and other procedures to occur in a safe and efficient manner (Schmidt 1991).

5.5.4. If a facility does not have an ERD, staff must demonstrate a method of restraint that allows necessary husbandry, veterinary, and reproductive procedures to occur in a safe and efficient manner (Fowler 1995).

6. Staff Organization and Training

6.1. Each institution must have one person, designated as the elephant manager. This individual is responsible for (1) staff training; (2) developing and maintaining the

program; and (3) communicating with others about the elephant program. The elephant manager must also demonstrate knowledge about all emergency protocols and continually improve elephant management techniques as the industry standards evolve.

6.2. All elephant managers should attend the AZA Principles of Elephant Management Course within 18 months following acceptance/promotion to the position. In addition, every elephant keeper is encouraged to attend this course.

7. Conservation, Education, and Research

7.1. Education Programs

7.1.1. Every institution should institute a program to educate zoo visitors about elephant and elephant conservation issues (EMA 1999, Smith and Hutchins 2000). Assistance is available from the Elephant SSP Education Advisor

7.1.2. Every institution should have up-to-date educational graphics and/or information about elephants on display to the public.

7.2. Conservation and Research Activities

7.2.1. Every institution should contribute in some way to elephant research activities (Keele and Dimeo-Ediger 1997, EMA 1999, Smith and Hutchins 2000). Involvement in one or more of the following disciplines is strongly recommended: behavior, cognition, reproduction, communication, enrichment, health (disease/pathology, nutrition), and education.

7.2.2. Every institution should contribute in some way to *in situ* conservation of elephants and their habitats (EMA 1999, Smith and Hutchins 2000).

7.2.3. AZA members are strongly encouraged to provide financial, personnel, logistical, and other support for priority research and conservation initiatives listed in the AZA Elephant SSP/TAG Action Plan (Wiese and Hutchins 1994).

Documentation

AZA Regents. 2001. *AZA Schools for Zoo and Aquarium Personnel: Principles of Elephant Management*. American Zoo and Aquarium Association, Silver Spring, MD.

Brown, J. (1998) The need for routine elephant blood draws. *Animal Keeper's Forum* 25: 357-359.

Brown, J. 2000. Reproductive endocrine monitoring of elephants: An essential tool for assisting captive management. *Zoo Biology* 19: 347-367.

Chapple, C. and Ridgway, D. 2001. Elephant handling and an analysis of the risks. *Journal of the Elephant Manager's Association* 11: 163-165.

- Csuti, B., Sargent, E.L., and Bechert, U.S., eds. 2001. *The Elephant's Foot: Prevention and Care of Foot Conditions in Captive Asian and African Elephants*. Iowa State University Press, Ames, IA.
- Desmond, T. & G. Laule. 1991. Protected contact: Elephant handling. Pp. 84-91 in *Proceedings of the 12th International Elephant Workshop*. Burnet Park Zoo, Syracuse, NY.
- Dierenfeld, E. 1995. Nutrition and feeding. *Journal of the Elephant Manager's Association* 6: 32-39.
- Doyle, C. 1993. Protected/confined contact as a supplement in a free contact system. Pp. 30-32 in *Proceedings of the 14th Annual Elephant Managers Conference*. Marine World Africa USA, Vallejo, CA.
- EMA 1999. The EMA standard guidelines for elephant management. *Journal of the Elephant Manager's Association* 10: 203-204.
- Fowler, M.E. 1995. *Restraint and Handling of Wild and Domestic Animals*. Second Edition. Iowa State University Press, Ames, IA.
- Gruber, T.M., Friend, T.H., Packard, J.M., Beaver, B., and Bushong, D. 2000. Variation in stereotypic behavior related to restraint in circus elephants. *Zoo Biology* 19: 209-221.
- Hermes, R., Olson, D., Goritz, F., Brown, J.L., Schmitt, D.L., Hagan, D., Peterson, J.S., Fritsch, G., and Hildebrandt, T.B. 2000. Ultrasonography of the estrous cycle in female African elephants (*Loxotana africana*). *Zoo Biology* 19: 369-382.
- Hildebrandt, T.B., Goritz, F., Pratt, N., Brown, J.L., Montali, R., Schmidt, D.L., Fritsch, G. and Hermes, R. 2000a. Ultrasonography of the urogenital tract in elephants (*Loxotana africana* and *Elaphas maximus*): An important tool for assessing female reproductive function. *Zoo Biology* 19: 321-332.
- Hildebrandt, T.B., Hermes, R., Pratt, N.C., Fritsch, G., Blotner, S., Schmidt, D.L., Ratanakorn, P., Brown, J.L., Reitschel, W. and Goritz, F. 2000b. Ultrasonography of the urogenital tract in elephants (*Loxotana africana* and *Elaphas maximus*): An important tool for assessing male reproductive function. *Zoo Biology* 19: 333-345.
- Hutchins, M. and B.R. Smith. 1999. *AZA Elephant Planning Initiative: On the Future of Elephants in North American Zoos*. American Zoo and Aquarium Association, Silver Spring, MD.
- Keele, M. and N. Dimco-Ediger. 1997. *AZA Elephant Masterplan 1997-2002*. Oregon Zoo, Portland, OR.

Krantz, K. 1996. Introduction, socialization and crate training. Pp. 78-87 in Kleiman, D.G., Allen, M., Thompson, K.V., and Lumpkin, S., eds. *Wild Mammals in Captivity*. Smithsonian Institution Press, Washington, DC.

Lenhardt, J. 1991. Elephant handling: A problem of risk management and resource allocation. *AAZPA Annual Conference Proceedings*: 569-575.

Lenhardt, J. 2001. Response. *Journal of the Elephant Manager's Association* 11: 165-166.

Lindburg, D.G. and Robinson, P. 1986. Animal introductions: Some suggestions for easing the trauma. *Animal Keeper's Forum* 13: 8-11.

Mikota, S.K., Larson, R.S. and Montali, R. 2000. Tuberculosis in elephants in North America. *Zoo Biology*: 393-403.

Mikota, S.K., Sargent, E., and Ramglack, G.S. 1994. *Medical Management of the Elephant*. Indria Publishing House, West Bloomfield, MI.

Oftedahl, O., Baer, D.J., and Allen, M.E. 1996. The feeding and nutrition of herbivores. Pp. 129-138 in Kleiman, D.G., Allen, M., Thompson, K.V., and Lumpkin, S., eds. *Wild Mammals in Captivity*. Smithsonian Institution Press, Washington, DC.

Samuel, W.M., Pybus, M.J., and Kocan, A.A. 2001. *Parasitic Diseases of Wild Mammals*. Second Edition. Iowa State University Press, Ames, IA.

Sreekumar, K.P. and Nirmalan, G. 1990. Estimation of body weight in Indian elephants (*Elaphus maximus indicus*). *Veterinary Research Communication* 14: 5-17.

Priest, G., Antrim, J. Gilbert, J. and Hare, V. 1998. Managing multiple elephants using protected contact at San Diego's Wild Animal Park. *Soundings* 23 (1): 20-24.

Rasmussen, L.E.L., Schmidt, M.J., Henneous, R., Groves, D., Daves, G.D. Jr. 1982. Asian bull elephants: Flehman-like responses to extractable components in female elephant estrus urine. *Science* 217: 159-162.

Richman, L.K., R.J. Montali, R.C. Cambre, J.M. Lenhardt, Kennedy, S.K. Potgieter, L. 1996. Endothelial inclusion body disease: A newly recognized fatal herpes-like infection in Asian elephants. *Proceedings of the American Association of Zoo Veterinarians' Annual Conference*: 483-485.

Richman, L.K., R.J. Montali, R.L. Gerber, M.A. Kennedy, J. Lenhardt, T. Hildebrandt, D. Schmitt, D. Hardy, D.J. Alecendor & G.S. Hayward. 1999. Novel endotheliotropic herpesviruses fatal for Asian and African elephants. *Science* 283: 1-5.

- Roocroft, A. and Zoll, A.T. 1994. *Managing Elephants: An Introduction to Their Training and Management*. Fever Tree Press, Ramona, CA.
- Schanberger, A. et al. 2001. Discussion on chaining, electricity continues. *Journal of the Elephant Management Association* 11: 160-161.
- Schmid, J. 1995. Keeping circus elephants temporarily in paddocks-The effects on their behaviour. *Animal Welfare* 4: 87-101.
- Schmid, J. 1998. Hands off, hands on: Some aspects of keeping elephants. *International Zoo News* 45: 476-486.
- Schmidt, M.J., Henneous, R.L., Haight, J.D., Rutkowski, C., and Sanford, J. 1991. *The Elephant Restraint Chute Owner's Manual*. Washington Park Zoo, Portland, OR.
- Sevenich, M., Upchurch, B., and Mellen, J. 1998. The science of animal management: Evaluating the effects of training and enrichment on elephant behavior. *Journal of the Elephant Manager's Association* 9: 201-205.
- Shepherdson, D.J. 1999. Environmental enrichment for elephants: Current status and future directions. *Journal of the Elephant Manager's Association* 10: 69-77.
- Shepherdson, D.J., Mellen, J.D., and Hutchins, M. eds. 1998. *Second Nature: Environmental Enrichment for Captive Animals*. Smithsonian Institution Press, Washington, D. C.
- Smith, B. and Hutchins, M. 2000. The value of captive breeding programmes to field conservation: Elephants as an example. *Pachyderm* 28: 101-109.
- Sukumar, R. 1992. *The Asian Elephant: Ecology and Management*. Cambridge University Press, Cambridge, U.K.
- Taylor, V.J. and Poole, T.B. 1998. Captive breeding and infant mortality in Asian elephants: A comparison between twenty western zoos and three eastern elephant centers. *Zoo Biology* 17: 311-332.
- Ullrey, D.E., Crissey, S.D., and Hintz, H.F. 1997. Elephants: Nutrition and dietary husbandry. Fact sheet #004. *AZA Nutrition Advisory Group Handbook*. American Zoo and Aquarium Association, Bethesda, MD.
- USDA APHIS. 2000. *Guidelines for the Control of Tuberculosis in Elephants*. United States Department of Agriculture, Washington, DC.
- Wiese, R.J. 2000. Asian elephants are not self-sustaining in North America. *Zoo Biology* 19: 299-309.

Wiese, R.J. and Hutchins, M. 1994. *Species Survival Plans: Strategies for Wildlife Conservation*. American Zoo and Aquarium Association, Bethesda, MD.

Wiese, R.J. and Olson, D. 2000. State of the North American African elephant population and projections for the future. *Zoo Biology* 19: 311-320.

APPENDIX II

ELEPHANT EMERGENCY PROCEDURES

In the event an employee, guest or intruder enters the elephant enclosure the steps will be followed:

Employee Discovering Emergency

Broadcast appropriate information on radio (Channel 1)

1. Name and location of incident (inside or outside)
2. Tell receptionist to call 911, if needed. EMS is to enter through hay road behind amphitheater.
3. State whether any injuries are known.

Emergency Response Team ERT is same as in Animal Escape Guidelines. Respond immediately to area, acknowledging estimated time of arrival.

1. Distract elephants and remove from area if possible.
Possible distractions include use of CO2 fire extinguishers, food, training, voice, waving/teasing elephant, hose etc. Do not take unnecessary chances.
2. If person is able to move, instruct them to safest area available.
(Corner of moat, inside tree guard, into keeper hallway).

If person is unable to move, work towards removing elephants from area following #1 from above. After elephants are removed and secured attend to victim until EMS arrives. Do not move victim.

Helpers/Rangers

1. Crowd control
2. Escort EMS to area

APPENDIX III

CLEVELAND METROPARKS ZOO ANIMAL ESCAPE GUIDELINES

DATE: August 26, 1994 (Updated April 20, 1995) (Updated January 6, 1997) (Updated January 18, 2000) (Updated March 6, 2000)

JUSTIFICATION: There are several types of animal escapes that warrant action from an organized group of Zoo staff members. They range in severity and proper responses. We recognize that different situations can affect and determine our proper response. The ultimate decisions are left to the person in charge to be determined as they deem necessary. Priorities during an animal escape episode are:

- A. Safety to the public.
- B. Safety to Zoo personnel.
- C. Safety to the animals.
- D. Safety of the facilities/environment.

DEFINITIONS

- A. Escape - Unplanned exit of an animal from a designated enclosure.
- B. Code Red - Dangerous or potentially dangerous animal escape (e.g., lion, tiger, bear, ape, hippo, elephant, cat, ostrich, large antelope).
- C. Non-Confined - Animal not in secure holding area (e.g., in a public area).
- D. Confined - Animal is out of exhibit, but confined to a secure holding area.
- E. 911 - Emergency medical aid required, call 911.

EMERGENCY RESPONSE TEAM

- A. Emergency Response Team - Team that responds to emergency animal escapes and attacks.
 1. Animal Tranquilization Individual - Trained personnel to load and fire tranquilization equipment, including veterinarian, veterinarian technician, animal curators, animal care managers, and another designated employee.
 2. Assistant for Animal Tranquilization - Prepares tranquilization equipment. This person can be any individual listed in "A1 above" or any lead keeper.
 3. Person in Charge - Curator of the area, curator of Zoological Programs in absence of curator of area, or animal care managers in absence of curators.
 4. Person Who Knows Animal Best - Keeper of the escaped animal.
 5. Firearms Personnel - Trained personnel to load and fire weapons, including veterinarians, veterinarian technician, animal curators, and animal care managers.
- B. Helpers
 1. Crowd Control - Rangers and other Zoo personnel as directed by person in charge.
 2. Other - Other Animal Division personnel in the area as needed, especially keepers of animals in the area, and all lead keepers.

SITUATIONS AND PROCEDURES

- A. Dangerous or potentially dangerous animal escape.
 - 1. Employee Discovering Emergency
 - a. Broadcast appropriate information on radio.
 - 1. Name and location.
 - 2. Code Red.
 - 3. Animal involved.
 - 4. Confined or non-confined.
 - 5. Tell receptionist to call 911, if needed.
Example: "Code red, lion, confined" or "Code red, lion, non-confined, receptionist call 911."
 - b. Direct public to safe area.
 - c. Administer appropriate first aid, and if possible assure animal is kept under observation.
 - 2. Base Station
 - a. Turn on tape recorder when Code Red broadcast is made.
 - b. Acknowledge transmission and time.
 - c. Instruct channels 3 and 5 to turn to channel 1 due to emergency situation.
 - d. Repeat emergency situation information on Channel 1.
 - e. If requested, call 911 for EMS.
 - f. If EMS is called:
 - 1. Direct emergency vehicle to Wildlife Way (main) Entrance.
 - 2. Announce estimated time of arrival on channel 1.
 - g. Notify food services, gift shop, and Zoo director of emergency, and stand by for further instructions.
 - 3. Emergency Response Team
 - a. Each team member acknowledge transmission, current location, and proposed course of action.
 - b. Curator in charge assure Emergency Response Team is in route with all needed equipment.
 - c. Take appropriate action.
 - d. When emergency is over, inform all personnel by radio.
 - 4. Guest Services/Rangers (Whichever ranger is assigned to the Zoo assumes role of liaison with rangers).
 - a. Close and monitor doors/gates and secure perimeter.
Direct public to secure area.
 - b. Notify personnel in Administration/Education building of emergency.
 - c. If EMS is called:
 - 1. Meet EMS at the gate.
 - 2. Notify curator in charge of EMS arrival, and request permission to escort EMS to scene.
 - 5. Other Staff (including maintenance)
 - a. Stay away from area unless directed to do so.

- b. Direct visitors and other staff to safe area. Acknowledge when areas are secure.
 - c. Stand by for further instructions.
 - d. Do not approach area unless requested.
- B. Non-dangerous animal escape.
 - 1. Employee discovering escape notify keeper, lead keeper, animal care manager, or curator of area.
 - 2. Call Guest Services or rangers if necessary to monitor crowd, close gates, etc.
 - 3. Safely return animal to appropriate enclosure as directed by one of the above individuals.
 - 4. Area keeper notify appropriate supervisor, area curator, or Curator of Zoological Programs.
- C. Dangerous or potentially dangerous animal escape after hours.
 - 1. Person discovering escape
 - a. Call Ranger headquarters at (440) 243-0442.
 - b. Keep the animal in sight without endangering him/herself until help arrives.
 - 2. Ranger Headquarters
 - a. Calls Zoo curators, animal care managers, or veterinarians until one is reached.
 - b. Radio Zoo night watch person on duty.
 - 3. Zoo person receiving call will call Emergency Response Team, go to the Zoo immediately, and proceed as in a daytime escape.
- D. Non-dangerous animal escape after hours.
 - 1. Person discovering escape radio night watch person on duty.
 - 2. Night Watch person
 - a. Proceed to escape scene.
 - b. Call Ranger Headquarters at (440) 243-0442
 - c. Keep the animal in sight without endangering him/herself until help arrives.
 - 3. Ranger Headquarters call Zoo curators, animal care managers, or veterinarians.
 - 4. Zoo person receiving call will call for assistance and proceed to Zoo if needed.

PUBLIC INFORMATION - All inquiries about an emergency should be referred to the Zoo's Marketing Manager, who will act as the spokesperson, or appoint a designee who is familiar with the emergency. In the absence of that marketing representative, the Zoo director, curator of Zoological Programs, area curator, or animal care managers will assume responsibility as the spokesperson. When serving as a spokesperson, the following guidelines should be utilized:

- A. If possible, assemble press in a designated area for a "press conference."
- B. Know as much of the details of the emergency events as possible.
- C. Relate only the essential facts of the event. Under no circumstances make "educated guesses." Interviews should relate a brief, factual narration of events.

- D. Do not give names of anyone who died as a result of the emergency. Also, do not give the name of any minors involved in an incident. This information will be released by a designated Metroparks official after the next of kin has been notified in the event of a death, or after a parent or guardian has been notified in the event of involvement of a minor.
- E. Exercise extreme care when discussing blame or responsibility for any action. Do not attach blame or guilt to anyone. The spokesperson's job is not to fix responsibility for an action or to characterize that action as legal or illegal; it is only to report a factual outline of the event.

FIREARM GUIDELINES

- A. Firearms (four 12-gauge shotguns with slug shells)
- B. General Guidelines
 - 1. Lock in gun cabinets in specified locations.
 - 2. Chamber shells only at the escape site.
 - 3. Once a shell is chambered, the weapon will remain on safety until fired or no longer needed. The weapon will then be carefully unloaded and returned to the proper gun cabinet.
 - 4. Shooters will position themselves where line of sight to the escaped animal is clear, danger to the public and other Zoo personnel is minimal, and any chances of stray bullets or ricochets are minimized.
 - 5. An assigned staff member will be responsible for quarterly weapon training and maintenance or maintenance after each firing.
 - 6. Shoot to kill dangerous animals (e.g., large primates, large cats, bears, elephants, etc.) if:
 - a. Public or Zoo personnel are clearly in danger of injury from the animals.
 - b. The animal is leaving the confines of the Zoo. (i.e., outside the perimeter fence that encompasses the "Main Zoo." This does not include the parking lots around the RainForest.)
 - c. As ordered by supervisor.
 - d. Or as deemed necessary.
- C. Authorized Personnel - Curator of Zoological Programs, all area curators, veterinarians, veterinary technician and animal care managers. All authorized personnel must be qualified by the Cleveland Metroparks Ranger Department, and attend target practice sessions at least four times each year. A list of authorized individuals and their firearms qualification records will be maintained by the curator of Zoological Programs.

INVESTIGATION - (Injury or death will be investigated by the Metroparks Ranger Department.)

- A. Following the escape of any animal, an inquiry will be made by the area curator or animal care manager.
- B. Within 24 hours following the escape of a dangerous or potentially dangerous animal, all personnel involved will prepare written statements

for the curator of Zoological Programs of what they personally did and observed.

- C. Within 48 hours all involved in a dangerous or potentially dangerous animal escape will meet as a group with the curator of Zoological Programs to review and evaluate the escape incident and the procedures used to resolve it. Any improvements in emergency procedures resulting from this review will be incorporated into the written protocols.

ANIMAL ESCAPE DRILL

- A. Guidelines will be presented bi-annually at the General Employees Meeting (GEM).
- B. An animal escape drill will be held quarterly, as directed by the Curator of Zoological Programs.
- C. Procedure
 1. Drills will be held at varying times on varying days, and involve varying Zoo areas.
 2. At the time of the drill, a senior staff member will pick an animal to be the escapee, inform the base station that a drill is about to commence, proceed to the keeper at the scene, and tell him/her to immediately initiate animal escape drill procedures.
 3. All escape procedures will be followed in detail. The keeper initiating the drill procedures will announce twice that a drill is being initiated. It is important for all employees to know this is a drill, not an actual escape. Weapons will not be loaded for drills. Effort should be made to keep weapons out of sight of the public.
 4. Base station will complete all procedures as indicated, except 911 will not be called. Each time base station uses the radio, it will be announced that a drill is being conducted, and an actual escape has not occurred.
 5. The drill will terminate as soon as all procedures have been completed.
- D. Evaluations
 1. Immediately following the drill, those participating will critique the drill, and prepare a written evaluation.
 2. Improvements resulting from this critique will be incorporated into the written protocol.
 3. A file of all drills will be maintained by the Curator of Zoological Programs.

Special Note: If a Ranger discovers a dangerous animal that has escaped and is obviously endangering human life, and if the Emergency Response Team has not arrived at the scene, the ranger is authorized to shoot-to-kill the animal. Rangers are also authorized to shoot-to-kill the animal if it leaves the perimeter fence. If the Emergency Response Team is at the scene, Rangers are to assist as defined in Section A. 4 of this document unless otherwise directed by the Person in Charge.

**ZOO RECEPTION/BASE RADIO
ANIMAL ESCAPE CHECK LIST**

THE FOLLOWING CHECKLIST IS IN PRIORITY ORDER

- 1. TURN ON TAPE RECORDER WHEN CODE RED IS GIVEN _____
- 2. ACKNOWLEDGE TRANSMISSION AND TIME _____
- 3. INSTRUCT CHANNELS 3 & 5 TO TURN TO CHANNEL 1
DUE TO EMERGENCY _____
- 4. REPEAT EMERGENCY SITUATION INFORMATION ON
CHANNEL 1. _____
- 5. CONTACT GUEST SERVICES DAY SUPERVISOR AND INSTRUCT
THEM TO BASE TO ASSIST _____
- 6. IF REQUESTED, CALL 911 FOR EMS _____
- 7. IF EMS IS CALLED, DIRECT TO MAIN ENTRANCE _____
- 8. ANNOUNCE ESTIMATED TIME OF ARRIVAL ON CHANNEL 1 _____
- 9. NOTIFY: FOOD SERVICE (398-5750) _____
GIFT SHOP (398-7959) _____
METROPARKS ADMINISTRATION (3200) _____
ZOO DIRECTOR (EXTENSION 3330) _____
- 10. AFTER THE ALL CLEAR IS GIVEN, NOTIFY ALL OF THE ABOVE _____
- 11. TURN OFF TAPE RECORDER _____
- 12. SIGN AND DATE _____

**FORWARD THIS DOCUMENT AND TAPE TO THE OFFICE OF THE GUEST
SERVICES MANAGER**



APPENDIX IV

**SUPERVISOR'S REPORT OF
EMPLOYEE INJURY/ACCIDENT**

(This report should be completed by the injured employee's supervisor/manager on duty)

First Things First!

- Secure medical assistance for the injured
- Gather the facts (this report)
- Call or fax this report into H.R./Risk Management within 24 hours
Ph. (216) 351-6300 ext. 241 ; Fax (216) 351-2584

Injured employee/volunteer _____ Position _____ D/B _____

Home Address _____ Phone _____ Work _____

Accident date/time _____ / _____ Reported by: _____ Report date/time _____ / _____

Exact location _____

Description of accident _____

(additional narrative space available on back of this form)

If this accident involved the actions of another person or party, please identify.

Name _____ Address _____ Phone _____

Nature of Injury/part of body _____

Medical treatment required yes no Transported to _____

Will employee miss any days of work (Not counting the accident day) Yes No Unknown

If yes, estimated return to work date _____

Witness name _____ Address _____ Phone _____

Other Information _____

Employee's Supervisor _____	Position _____	Division Code _____
This report completed by _____	Date _____	Phone _____
Faxed to Risk Management on _____		

(Injured employee and witnesses must complete attached statement form)

