

# Training Protocol The Phoenix Zoo

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## *The Phoenix Zoo Mission Statement*

*We inspire people to live in ways that support the well being of the Natural World.*

### *The Behavioral Management Program's mission statement*

*To act as a role model to our audience and to our community in all aspects of care provided to our living collection.*

*To research and apply the techniques of Behavioral Management as a response to the physical and psychological needs of the living components of our collection.*

*To engage the public in understanding the needs of living creatures and the applications of Behavioral Management resources in responding to those needs, thereby informing and inspiring the development of caring attitudes.*

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# INTRODUCTION

## 1. Adaptation

Until about three thousand years ago organisms needed only to adapt to their natural environment. Evolutionary adaptation is the ability that facilitates an organism's capacity to respond to changes in its environment. Many different theories have been developed that address the complex process of learning, including instincts, observation, social facilitation, teaching, mimicry and classical and operant conditioning. Mankind has had a pervasive impact on the living world and the environments of its living creatures. In particular, by placing animals in zoos we have forced them to adapt rapidly to extremely artificial environments. We recognize that the presence of our living collection carries a significant responsibility to assist in a positive adaptive response to a captive environment by recognizing and assisting in their capacity to learn.

### **The Phoenix Zoo responds to this challenge by:**

A). Allowing our living specimens to practice all types of natural learning.

b). Providing structured resources and tools to assist the process of adaptation through the management of specified and predictable behavioral presentations.

These will generally fall into the categories of:

- Health and Husbandry
- Psychological Enrichment
- Public Education.

Is training learning? Is learning training? Can we separate them? Does training mean that we make our animals jump through hoops, or does it make it easier for animals to come into shelter at night through an opened door? Is it habituation, when a mandrill learns to ignore the colorful clothes of a visitor, or perhaps it is observational learning, when captive whales find contact with people positive through watching and learning the responses of other animals? Just how significant exactly is our responsibility in providing, directing and conditioning these behaviors?

Learning can be defined as a change in behavior resulting from practice or experience. When humans direct the practice, the process is called training. "**Training is teaching.** The term teaching implies shared experiences and goals between trainers and animals" (*Ramirez, K.1999*) Training is a simple tool to help our animals to respond to their physical and psychological needs. Participating in appropriately designed training sessions can give an animal some amount of control in their lives. They get to make choices and this may increase their sense of well being.

It is important to remember that, generally some behaviors will be easier for the animal to learn than others. It is generally easier to teach tasks that reflect an animal's species-typical tendencies, i.e., are biologically relevant. This concept is termed "preparedness" (Seligman, 1970). Behaviors that the animal is unprepared to learn are very difficult to master because they run counter to species-specific tendencies. Thus, it is imperative to keep in mind that each species is preadapted to learn certain behaviors and unable or able to learn only with great difficulty other behaviors due to morphological, sensory or other limitations. Since our goal is the improvement of the animal's capacity to live adaptively in its current environment we must choose our outcomes and applications carefully.

## 2. Learning

Learning is a way through which organisms respond to change in their environment.

Four key categories of learning:

### A). *Habituation*

-Habituation is the decline in frequency or intensity of a behavior as a result of repeatedly presenting a stimulus (an animal initially is startled by a loud noise, but if it's repeated many times, the animal eventually ceases to react to it).

### b). *Complex Learning*

- Observational learning- one animal learns how to perform a particular behavior simply by watching another animal perform the specified behavior.
- Latent learning- when an animal produces a behavior faster if it had been allowed first to explore the situation (a rat runs through a maze faster if it has been allowed first to explore the maze).

### c). *Classical conditioning*

[Pavlov](#) was a Russian physiologist that was interested in the digestive processes and won the Nobel Prize in science for his research on digestion. He had been working with dogs in an effort to establish the function of saliva in the digestive system. Pavlov presented dogs with food and measured their salivary response. Then he began to ring a bell just before presenting the food. At first the dogs did not begin to drool until the food was presented, but later they began to salivate when the sound of the bell was presented. They learned to associate the sound of the bell with the presentation of the food. The sound of the bell became equivalent to the presentation of the food. They formed **an association between two stimuli**.

The *response is involuntary (sometimes called an unconditioned reflex)*, related to biological survival and produces a change in the organism, elicited by a stimulus.

### D). *Operant (Instrumental) conditioning*

The major theorists for the development of operant conditioning are [B.F. Skinner](#) and [Edward Thorndike](#). They proposed that learning is the result of the application of consequences; that is, learners begin to connect responses with stimuli. Thorndike labeled this type of learning instrumental. Using consequences, he taught kittens to manipulate a latch (e.g., an instrument). Skinner renamed instrumental as operant because it is more descriptive (i.e., in this learning, one is "operating" on and is influenced by, the environment).

Operant conditioning is often viewed as response-stimulus learning since it is the consequence that follows the response that influence whether the response is likely or unlikely to occur again. The *response is voluntary* and precedes the stimulus. It forms **an association between a behavior(R) and the consequence (S)**.

## II. THE ROLE OF TRAINING IN BEHAVIORAL MANAGEMENT

### Animal training

#### 1. The Phoenix Zoo's philosophy of training

Theories regarding animal training traditionally have not been evaluated at a scientific level. More recently, with the development of the behaviorist school of experimental psychology, the necessary components to formulate protocols capable of shaping and maintaining trained or conditioned behaviors have become better defined.

Modification techniques are used within the social dynamics of wild animal groups and the development of appropriate strategies for behavior in the applied setting of captive care. Here the important issue of the relationship between the trainer and animal as distinct from the relationship between the animal and its conspecifics also becomes extremely critical.

With these considerations The Phoenix Zoo affirms that the various techniques of training, conditioning, or behavioral management are relevant tools to assist in the adaptation of living creatures to the circumstances of captive management. Such tools will be employed primarily to improve the quality of life of these ambassadors of the living world. While we will attempt to promote the productive adaptation of the animal to its captive environment, we will also recognize the inherent value in preserving the range of natural behaviors characteristic of the species as well as demonstrating a caring respect for the individuality of the specimen. These tools also will be utilized to improve the quality and efficiency of the messages and experiences afforded Zoo guests in an effort to inspire those guests to value and conserve the natural world.

The Phoenix Zoo will apply the techniques of behavioral management to:

1. Facilitate improved applications of health and husbandry management.
2. Enrich the psychological environment of the animals, replicating or replacing core behavioral components.
3. Engage the visiting public in experiences that illuminate the relevance of behavioral issues to an understanding of these living creatures.

The Phoenix Zoo recognizes the variety of behavioral management techniques available and that considerations such as type of animal, housing circumstances, intended behavioral outcome, and safety may influence the suitability and selection of technique protocol.

The Zoo will develop and apply a training program review and approval process that will establish relative priorities for training applications and will approve the specific management methodology applied.

**The Phoenix Zoo promotes the universal application of positive reinforcement in its practices** supporting the above goals. **Phoenix Zoo's policy prohibits the withholding of animal diets as part of a training procedure.** Where unusual or life threatening circumstances exist, consideration will be given to methodologies other than positive reinforcement, but such applications will require the additional review and approval of the Zoo's veterinary staff, and will be applied only in the absence of any other viable management strategies.

## 2. Key Principles and background for training

### a. The principles of Classical or “Pavlovian” conditioning

Classical conditioning is used by trainers for two purposes: to *condition (train) autonomic responses*, such as drooling, producing adrenalin, *or reducing adrenalin (calming)* without using the stimuli that naturally create such a response; to create an association between a stimuli that normally wouldn't have any effect on the animal and a stimulus that would.

#### A) Primary or **unconditioned stimuli (US)**

The stimuli that animals react to without learning. They are “hard-wired” or “instinctive”

#### b) Secondary or **conditioned stimuli (CS)**

The stimuli that animals react **ONLY** after learning about them and had to learn to like or dislike them. They are associated with the primary stimulus. In Pavlov's experiment the sound of the bell meant nothing to the dogs at first. After its sound was associated with the presentation of food, it became a conditioned stimulus. From this observation, Pavlov determined that must be two kinds of reflexes.

- 1) **Unconditioned reflexes**- inborn and automatic. Requires no learning and generally the same for all members of a species. Unconditioned reflexes are formed by an unconditioned stimulus (US) producing an unconditioned response (UR)
- 2) **Conditioned reflexes**- acquire through experience or learning and may vary a great deal among individual members of a species. Conditioned reflexes consist of a conditioned stimulus (CS) and a conditioned response (CR).

### Application

During the training session:

What is the US? - Food

What is the UR? - Salivation

What is the CS? - Bridge

What is the CR? - Salivation

Before training: US (food) → UR (salivation) CS (clicker) → NR (no response)

During training: CS (clicker) + US (food) → UR (salivation)

After training: CS (clicker) → CR (salivation)

The CS and the US must occur close together in time so that the animal learns to associate the two. CS must precede the US.

- Will the animal learn this immediately? No, it will take a while.
- Is your animal now “conditioned” forever? No, it will go away. This is known as extinction.
- Can the animal relearn this response? Yes, called reconditioning.
- How can you help the animal to relearn it? You will repeat the same procedure. Will it take as long a second time? NO.

- Does your animal need identical stimulus in order to respond? What if you say the command – “sit” in a deep voice or “sit” in a high voice? In the real world, two stimuli are never really identical. But, if two stimuli are sufficiently similar, then the CR will occur to both. This is referred to as generalization.
- What if you say the command “sit” in a high voice and the command “turn” in a low voice? This shows discrimination. You are discriminating between two commands.
- **Second-Order Conditioning.** Once the CS-US relation is solidly established (i.e. the animal always anticipate food when it hears the word “sit”, the CS can serve to condition further stimuli. So instead of pairing food and “sit”, you can pair “sit” and a tone and get salivation. Thus there is a transfer. The tone is associated with “sit” which is associated with food the anticipation of which causes salivation.

Classical conditioning is very important to trainers, because it’s difficult to supply an animal with the primary stimuli in time for it to be an important consequence of the behavior. In other words, it’s hard to toss a fish to a dolphin while it’s in the middle of finding a toy on the pool floor thirty feet below. So trainers will associate something that’s easier to “deliver”- called the *bridge* because it bridges the time between when the animal performs a behavior and when it gets its reward.

#### *Charging up the clicker*

It’s also called “creating a conditioned reinforcer”. You can classically condition a clicker by clicking it and deliver some treat, many times in a row. After a little while your animal will start to form an association.

## **b. Principles of Operant (Instrumental) conditioning**

Operant conditioning is a learning process through which behavior frequency can be increased or decreased depending on the consequences for emitting that behavior. It is also called *response-stimulus* or RS conditioning because it forms an association between the animal’s response (behavior) and the stimulus that follows (consequence)

#### Four Possible Consequences to any behavior:

Something Good can start or be presented  
 Something Good can end or be taken away  
 Something Bad can start or be presented  
 Something Bad can end or be taken away.

Often an animal will perceive “starting Something Good” or ending “Something Bad” as something worth pursuing, while starting “Something Bad” or ending “Something Good” as something worth avoiding.

Consequences have to be immediate, or clearly linked to the behavior. The way to work around this is to use a bridge.

There is actually a fifth possible consequence to any behavior: nothing. You send out your job application and no one will answer. Your question is - did no one notice your behavior? Or was it just not worthy of reinforcement? To differentiate between these two possibilities, a trainer can use a **no reward marker (NRM)**. It will tell the animal that its behavior will not gain a reinforcer. Trainers often

use the word “Nope!”, “Wrong”, Uh-uh” as NRMs. It’s not a conditioned punisher and should not be used when your animal does something you don’t want it EVER to do. It is used when a behavior might be correct in a different circumstance, but not this one. For example, when you are teaching your animal to sit in response to the cue “sit” and he lies down, you can give a NRM.

Some trainers also have developed a **keep going signal (KGS)**. This signal tells the animal that it’s on the right track that its behavior is leading to something that will gain a reinforcer. For example when you teaching your animal to roll over and it will lie down on its side, you can use a KGS to let him know he is close to the behavior that will get it a reward, but not yet.

### Technical Terms

**Positive:** the term for “start or being presented”, since it’s something that’s added to the animal’s environment.

**Negative:** the term for “end or be taken away”, since it’s something that’s subtracted from the animal’s environment.

**Reinforcement:** anything that increases a behavior.

**Punishment:** anything that decreases the behavior.

Applying these terms to the Four Possible Consequences:

Something Good can start or being presented, so behavior increases= **Positive Reinforcement (R+)**

Something Good can end or be taken away, so behavior decreases= **Negative Punishment (P-)**

Something Bad can start or be presented, so behavior decreases= **Positive Punishment (P+)**

Something Bad can end or be taken away, so behavior increases= **Negative Reinforcement (R-)**

### Schedules of Reinforcement

A schedule of reinforcement determines how often a behavior is going to result in a reward.

- **Fixed interval-** means that the reward will occur after a fixed amount of time. Example: a paycheck works on this schedule- every two weeks you get paid.
- **Variable interval-** means that reinforcers will be distributed after a varying amount of time. Example: You complete and submit your tax return. You will eventually receive money, but you are not sure when.
- **Fixed ratio-** means that if a behavior is performed X number of times, there will be one reinforcement on the Xth performance. For a fixed ratio of 1:3, every third behavior will be rewarded. This type of ratio tends to lead to lousy performance with some animals and people, since they know that the first two performances will not be rewarded. Example: a worker gets paid for every 3 toys she makes.
- **Variable ratio** or VSR variable schedule of reinforcement - means that reinforcers are distributed based on an average rather than an exact or fixed number of correct behaviors. The ratio of 1:3 means that, on average; one out of every three but not necessarily every third behavior will be rewarded. (Some experts caution against needlessly using variable ratio. Most useful behaviors will get some sort of reinforcement every time. You might not always click and treat your dog for sitting on a cue, but you will always reward it with some recognition and praise. If there are some circumstances where you will

be unable to deliver any reinforcement-when an animal is out of contact- then you may need to build a buffer against extinction with a VSR).

- **Random schedule**- means there is no correlation between the animal's behavior and the consequence. Example: Lottery

### Extinction

If reinforcement fails to occur after a behavior that has been reinforced in the past, the behavior may disappear. This process is called **extinction**. A variable ratio schedule of reinforcement makes the behavior less likely to extinguish. This is how the slot machine works—even if you didn't win this time, try, and try it again! When a behavior that has been strongly reinforced in the past no longer gains a reinforcement, the animal may exhibit what is called an **extinction burst**. This is when the animal performs the behavior over and over again, in a burst of activity.

### Reinforcers

**Primary positive reinforcer** is something the animal does not have to learn to like. It comes naturally, no experience necessary – food, sex, interaction with others etc.

**Secondary positive reinforcer** is something that the animal has to learn to like. The learning can be accomplished through Classical Conditioning or through some other methods. Animal trainers often create a special secondary reinforcer they call the **bridge**. A bridge is a stimulus associated with a primary reinforcer through Classical conditioning. This process creates a conditioned positive reinforcer, often called a **conditioned reinforcer or CR**. Animals that have learned a bridge react to it almost as they would to the reward that follows. In some instances they may prefer the CR that tells them they got it right to the actual reward.

**Internal reinforcer** is a “self-reinforcing” behavior. It is very important to note that trainers cannot control all reinforcers and punishers. Environmental factors that you have no control over could affect the animal's behavior, and they may be a significant consequence for your trainee. Some of these come from the animal's internal environment – his or her own reactions. Relief from discomfort or boredom is common reinforcers and some “self-reinforcing” behaviors are actually maintained because of this. Example: A dog barks to relieve boredom.

### Application

#### Positive Reinforcement

This is the easiest, most effective consequence for a trainer to control and to understand, too. Positive reinforcement means starting or adding Something Good, something the animal likes and enjoys. These are consequences that will increase the behavior.

#### *Cautions in using positive reinforcement*

- If the animal is acting out of fear, you may be rewarding the fear response.
- The timing must be appropriate. If the animal did a great “steady” and you reward it after the release, you are rewarding getting up.
- The reward has to be sufficient. Getting paid motivates people. Try to write a check to your animal!

- Reinforcements can become associated with the person giving them. If the animal realizes the he can't get any rewards without you present, he will not be motivated.
- Animals can get sated with the reward you are offering when they have had enough, and it will no longer be motivating.
- Reinforcers increase the behavior. If you don't want your animal actively trying out new behaviors (throwing behaviors at you), be careful in your use of positive reinforcement. Use positive reinforcement to train an animal *to do* something.

*Example:* A dolphin gets a fish for retrieving a toy. The worker gets a bonus for his extra work. A wolf gets a chance to mate for fighting off rivals. The dog gets to play in the park for pulling his owner there.

### Negative Punishment

Negative punishment is reducing a behavior by taking away Something Good. If the animal was depending on Something Good or liked and enjoyed it, she will work to avoid it getting taken away. The animal will be less likely to repeat a behavior that results in the loss of a Good Thing.

*Example:* The elephant trainer walks away with the food when the animal acts aggressive. The teenager is grounded for misbehavior.

### Secondary Negative Punisher or “delta”

Trainers seldom go to the trouble of associating a particular cue with negative punishment. Some dog owner makes a mistake of calling their dogs in the park and then using a negative punishment of taking the dog away from the fun.” Rex, Come!” then becomes a conditioned negative punisher.

### Positive Punishment

Positive punishment is to reduce a behavior. The term “positive” means “added” or “started” and it is NOT the animal that is punished, but the behavior that is reduced. Positive punishment when applied correctly is the most effective way to stop unwanted behaviors. A critical flaw is that it does not teach specific alternative behaviors.

### Secondary Positive Punisher

Because a positive punisher must follow a behavior immediately, or be clearly connected to the behavior to be effective, a secondary positive punisher is very important. Many trainers actively condition the word “NO” with some punisher, to form an association between the word and the consequence. The **conditioned punisher (CP+)**, if appropriately designed and applied, can be an effective part of training with Operant Conditioning.

### Cautions in using Positive Punishment

- Behaviors are usually motivated by the expectation for some reward, and even with a punishment, the motivation of the reward is often still there. For example a coyote has to face some considerable risk in order to catch food, must run over rough ground and through bushes, and face the hooves, claws, teeth, horns of his prey animal. He might be painfully injured during the pursuit. In spite of this, he still continues to pursue the prey. The motivation and the reward far outweigh the punishment.
- The timing must be exquisite. If you “punish” your dog for trying to grab you when he comes to you, you may be suppressing *coming to you*. The animal *will not* make the connection between the punishment and the grabbing.

- The aversive must be sufficient to stop the behavior in its tracks- and must be greater than the reward. If you start with small an aversive (a stern talking-to) and build up to a greater one (full-on yelling), your trainee may become adjusted to the aversive and it will not have any greater effect.
- Punishments may become associated with the person supplying them. Your animal that was punished after he tried to grab you may still try to grab your co-worker when you are not around, but it may stop trying to grab you.
- Physical punishment can cause physical damage, and mental punishment can cause mental damage. You should only apply as much of aversive stimuli as it takes to stop the behavior. If you have to punish more than three times for one behavior, without any decrease in the behavior, you are not “reducing the behavior”; you are harassing or abusing the trainee.
- The subject may not be able to stop doing the act to avoid punishment.
- Punishers suppress behaviors. Use positive punishment to train an animal *not* to do something.

*Example:* A barking dog is “punished” with a swat from a rolled newspaper.

NOTE: Positive Punishment is not a technique endorsed by the Phoenix Zoo. Any staff may not unilaterally implement a protocol involving the potential application of positive punishment. Such a circumstance will require the review of the Behavioral Management Coordinator, the endorsement of the Behavioral Management Committee, and the review and approval of the staff veterinarian. Failure to follow this restriction may result in employee disciplinary action.

### Negative Reinforcement

Negative Reinforcement increases the behavior by ending or taking away Something Bad or aversive. By making the animal’s circumstances better, you are rewarding it and increasing the likelihood that it will repeat the behavior

Negative Reinforcement is an often argued and confusing concept. For example: in order to use negative reinforcement, the trainer must be able to control the “Bad Thing” that is being taken away. This often means that the trainer must also apply the “Bad Thing”. Reducing a behavior by applying a “Bad Thing” is *positive punishment*.

So when you start your “Bad Thing” that you are going to end as a negative reinforcer, you run the risk of punishing some other behavior.

By taking away Something Bad is usually a *relief*, you are providing Something Good and that makes it an example of *positive reinforcement*.

*Example:* The choke collar (that you applied first) is loosened when your dog moves closer to you, the reins are loosened when the horse slows down, and the car buzzer turns off when you put on your seatbelt.

### c. Terminology

**Classical Conditioning:** a type of learning in which an organism forms an association between two stimuli. The response is involuntary, related to biological survival, and produces a change in the organism, elicited by a stimulus.

**Operant conditioning:** is a type of learning in which the likelihood of a behavior is increased or decreased by the consequences that follow, forms an association between a response and a stimulus. The response is voluntary.

**Training:** is the art of using Classical and/or Operant Conditioning techniques to obtain desired behaviors.

**Stimulus:** anything that causes a behavioral response.

**Discriminative stimulus or (SD):** is an event or stimulus that signals a certain behavior will be reinforced. (These cues can be anything from a hand gesture to an underwater tone of a specific frequency).

NOTE: bridge

**Response:** the actual performance of the behavior.

**Stimulus Control:** when a trained behavior occurs consistently in response to an appropriate cue. A subjective measure of performance (e.g... 70%, 80%, 90% etc.)

**Reinforcement:** anything positive or negative, which tends to increase the probability that the behavior will occur again.

**Punishment:** anything positive or negative, which tends to decrease the probability that a behavior will occur again.

**Positive:** is a term for “start or be presented”, since it’s something that’s added to the animal’s environment.

**Negative:** is a term for “end or be taken away”, since it’s something that’s subtracted from the animal’s environment.

**Positive Reinforcement:** increasing the behavior by starting or adding Something Good.

**Primary reinforcement:** is something the animal does not have to learn to like or dislike (food, water, sex, stress)

**Secondary reinforcement:** is something the animal has to learn to like or dislike (whistle, toy)

**Selective or Differential Reinforcement:** Reinforcing selected responses of higher quality to improve performance (holding leg steadier when touched with a sharp needle versus a blunt one)

**Conditioned reinforcer (CR):** is a special secondary reinforcer called the **bridge**. It’s a stimulus that has been associated with a primary reinforcer through Classical Conditioning. It bridges the time between when the animal performs a desired behavior and when it gets its reward.

**Schedules of Reinforcement:** refers to the rules that govern the delivery of reinforcement.

**Fixed interval:** when a reward will occur after a fixed amount of time.

**Variable interval:** when a reward will be distributed after a varying amount of time.

**Fixed ratio:** means that if a behavior is performed X number of times, there will be one reinforcement on the Xth performance.

**Variable ratio:** means that reinforcers are distributed based on an average number of correct behaviors.

**Random schedule:** means no correlation between the animal's behavior and the consequences.

**Regression:** – deterioration in learning process or performance of a behavior, usually temporary; a normal part of the training process. Also refers to when a trainer retraces the steps in the shaping process to reinforce lesser levels of performance.

**Extinction:** if reinforcement fails to occur after a behavior that has been reinforced in the past, the behavior might extinguish.

**Extinction burst:** is when a behavior that has been strongly reinforced in the past no longer gains reinforcement, it might result in what's called extinction burst. The animal performs a behavior over and over again, in a burst of activity.

**Negative Punishment:** reducing behavior by taking away something Good.

Time Out! Is an example and mild form of negative punishment. During a session animal breaks from position, keeper takes food away, turns around. After a couple of minutes, keeper returns and begins session again.

**Secondary Negative Punisher or "Delta":** associating a particular cue with negative punishment.

**Positive Punishment:** reducing the behavior by starting or adding Something Bad.

**Secondary Positive Punisher or Conditioned Punisher (CP+):** is actively conditioning a cue –for example the word "NO!" with some punisher, to form an association between the word and the consequence.

**Negative Reinforcement:** increases a behavior by ending or taking away Something Bad.

**Internal Reinforcers:** are environmental factors come from the animal's internal environment-their own reactions.

**"No Reward Marker" or (NRM):** tells the animal that its behavior will not gain it a reinforcer. For example the word "Nope!" or "Uh-uh" It's for when a behavior might be correct in a different circumstance but not this time.

**"Keep Going Signal":** or (KGS) tells the animal that it's on the right track that its behavior is leading to something that will gain it a reinforcer.

**Shaping:** building a behavior by dividing it into small increments or steps and then teaching one step at a time until the desired behavior is achieved. Steps become a series of intermediate goals.

**Jackpot:** is a reward that is much bigger than normal reinforcer, and comes as a surprise to subject.

**Habituation:** is the process of gradually getting an animal used to a situation that it normally avoids, by prolonged exposure.

**Desensitization:** is actively pairing a positive reinforcer with a negative event until the negative event loses its ability to adversely influence behavior. (Rewarding the animal with preferred reinforcement for moving further and further into restraint chute).

**Incompatible Behavior:** one that interferes with, or cannot be performed at the same time as, another behavior. (Stationing in a specific location while other monkeys are fed is incompatible with chasing another monkey and stealing food).

**Superstitious Behavior:** is an undesired behavior that is unrelated to the desired behavior, but is accidentally reinforced, and then becomes fixed in the subject's mind as a necessary for reinforcement. (An animal is bridged for making an initial movement of turn; he inadvertently shakes his head at the same time. On the next response he once again shakes his head as he begins to turn, and is again reinforced. The animal now views the behavior of "turn" as including shaking the head).

### 3. Training applications

Training programs are designed to enhance the animal's quality of life. Through training we can provide optimal care ensuring quality medical, physiological and psychological well-being. In addition, visitors are provided with educational and entertaining program experiences.

**Animal Health:** By training animals to cooperate in their health care we can reduce or eliminate the need for physical or chemical restraint. This includes some of the following:

- \*Presentation of body parts for inspection
- \*Injections
- \*Biological sample collection (urine, blood, saliva, semen)
- \*Transport cage entry
- \*Restraint cage entry
- \*Oral medication
- \*Nail trims
- \*T.B. testing
- \*Dental care
- \*Wound treatment
- \*Radiographs
- \*Ultrasound exams
- \*Weights
- \*Measurements
- \*Assisted reproduction techniques

**Mental Stimulation:** Participation in training gives the animals some amount of control in their lives and provides them with choices and challenges that replicate some of the choices necessary for survival in the wild.

- \*Increased mental activities
- \*Decreases aggression toward staff and other animals
- \*Decreases frustration
- \*Combats boredom
- \*Increase positive social interactions

**Physical Exercise:** Daily training provides the animals with physical activity that helps to keep them in good physical condition.

**Animal Management:** The animals are trained to perform basic behaviors.

- \*Timely and reliable shifting between exhibits and holdings
- \*Ability to collect biological samples in a frequent and timely manner
- \*Increased access to animals
- \*Facilitates animal introductions or separations
- \*Reduce risk of injury
- \*Improve job experience: enhanced keeper/animal relationship

**Public Education:** Behaviors are trained to demonstrate an animal's natural abilities and adaptations as well as allowing us to safely interact with the public.

- \*Demonstrates care for animals
- \*Demonstrates public displays and presentations
- \*Education programs

**Research:** The animals may be trained a variety of behaviors to assist researchers in gaining knowledge of the animal's physiology and behavior.

#### 4. Behavior training guidelines

The following are Karen Pryor's "Ten Laws of shaping" (Pryor, 1984), which provides excellent guidelines for training a new behavior:

1. Raise criteria in small increments, so that the subject always has a realistic chance for reinforcement.
2. Train one criterion at a time.
3. Always put the current level of response onto a variable schedule of reinforcement before adding or raising criteria.
4. When introducing a new criterion, temporarily relax the old ones.
5. Plan ahead; be prepared if the animal makes a leap in learning.
6. Don't change trainers in midstream.
7. If your training plan doesn't work, change it.
8. Don't stop a session gratuitously.
9. If a behavior deteriorates, quickly review the whole shaping process with a series of easy reinforcements.
10. End session on a high note, but in any case quit while you're ahead.

#### Shaping techniques

##### *Scanning or capturing*

A technique when a behavior that is naturally offered by an animal is being reinforced.

Example: Dolphin executes a back flip; trainer reinforces it, and then puts it on a cue.

##### *Targeting*

A technique when an animal is being asked to touch its body part to an object.

Example: Giraffe touches a triangle with its nose on cue, trainer reinforces.

##### *Modeling or molding*

A technique when the trainer literally shows the animal how to do the exact behavior.

Example: When trainer teaching sign language, puts the animal's hand in the desired position, then reinforcing the animal for allowing it.

## Mimicry

A technique when an animal learns to copy or imitate a behavior.

Example: A young dolphin copying its mother's behavior while she is being trained.

## Abstract learning

Two separate concepts are put together for the first time to form a new idea or behavior. It is not truly considered shaping; it is actually teaching.

Example: It is the method most used in teaching people in school.

## Karen Pryor's Rules of Stimulus Control

A behavior is considered under stimulus control;

1. The behavior always occurs immediately upon presentation of the conditioned stimulus (the dog sits down when told to).
2. The behavior never occurs in the absence of the stimulus (during a training session never sits spontaneously).
3. The behavior never occurs in response to some other stimulus (the dog does not sit when you say "lie down").
4. No other behavior occurs in response to this stimulus (the dog does not lie down when you say "sit").

## Specific Guidelines for Diet Based Training The Phoenix Zoo

### TRAINING DIET

Food items used as training tools may aid in obtaining a targeted response for improved husbandry care.

During training period, food may consist of the following items:

1. **Basic diet.** Basic diets are composed of less and more desirable components. At first, trainers should attempt working with preferred food items.
2. **Management food** (approved training and enrichment food). These items are high in calories and an addition to the original diet.

### PREVENTATIVE MEASURES PRIOR DIET REDUCTION

- **GROWING, PREGNANT, LACTATING, UNDER WEIGHT, POOR BODY CONDITION AND SICK ANIMALS.** Withholding diet is not allowed for the above. Additionally, underweight, poor body conditioned and sick animals should not be trained until they are fully recovered.
- **CREATING PSYCHOLOGICAL APPETITE.** This simple step prevents diet withholding by creating food shortage (breaking up and offering the same diet several times a day) and therefore creating psychological appetite. "When combined with variable reinforces and small window of opportunity psychological appetite provides increased motivation **without** having to reduce an animal's body weight" (Malina, C., 2003).
- **OTHER EFFECTS.** Weight is just one factor in assessing an animal's motivation to perform a behavior. Prior lowering weight, trainers will evaluate other possible influences of behaviors (motivation, relationship with trainer, confidence, ability of to perform behaviors, past experience, natural influences, environmental effects, if the animal is the right animal for training, and for last- its hunger state.

### DIET REDUCTION

In extreme cases where the use of food items and other tools have been unsuccessful and the animal's health and/or husbandry could be compromised, a temporary diet reduction or fast may be proposed as an alternative. All attempts are made to design training programs that do not require food abstinence—*failing that, the following guidelines must be*

followed unless assessed and agreed upon for individual animal training management by Veterinarian, Behavioral Management Coordinator, Nutritional Services Manager, Trail Manager, and Director of Animal Management.

### **Non opportunistic eaters**

1. **No diet reduction allowed** for training purposes. Withholding the original diet is not allowed for non-opportunistic eaters such as seed, fruit and pellet eating animals that are by nature foraging for a long period of time during the day and food shortage is an uncommon situation for them by nature.
2. **No temporary fast allowed** for training purposes.
3. **Parameters to facilitate training.**
  - None-opportunistic feeders **should be free fed** their prescribed diet to avoid food related aggression during training and in order to prevent obesity.
  - If animals are on a feed up system, animals **should be pre-fed a portion of the diet to avoid aggression, prior to training.**
  - If an animal refuses to train, trainer can:
    - Withhold novelty food items from original diet and **substitute** them with less desirable food
    - Withhold management food items that are additional to original diet

### **Opportunistic eaters**

#### **1. Diet Reduction to facilitate training**

During establishing target weight:

- The diet reduction may not exceed 10% of daily calories.
- Weight reduction may not exceed 3% of ad-lib weight (ideally weight reduction will not exceed 3% of ad-lib weight). Further reduction is permissible with veterinarian approval. as long as the animal maintains a BCS of 2.5 or higher.
- Body score may not fall below a 2.5 on a 5 scale point system.
- If body condition score drops below a 2.5/5, or if weight loss is greater than 3%, the regimen is discontinued.
- Diet reduction to encourage training needs to be SUDDEN and NOTICEBLE (within above parameters). Lowering the animal's weight too slowly may result in compromising its health and not necessary will provide desired motivation.
- Diet reduction also needs to be in correlation of the animal's type and body size.
- Once target weight is reached and animal is "working" reliably, its weight is to be SLOWLY built up to its ad-lib weight or even above
- Small animals with higher metabolic requirements and individuals that maintain a high activity level must be weighed daily.
- Medium and large individuals with slower metabolic requirements or low activity level must be weighed weekly.

#### **2. Temporary fast**

- A temporary fast exceeding 24 hours, but limited to 72 hours may be approved for opportunistic feeders assessed in good body condition.
- Physiological state and feeding frequency is taken into account.
- It is not recommended to fast individuals growing, pregnant, lactating, clinical, under weight or in poor body condition.
- If the desired result is not achieved within 72 hours, a second attempt may not be instituted until 2 weeks of regular daily diet consumption is confirmed unless approved by vets.

Reference:

Horger, D. Parrot handling and Training , Phoenix Zoo document , March 25, 2006

Malina. C. The Mouse Went Down The Hole Psychological Appetite: Nature's Training Tool, 2003

2/20/08—by saw

Revised by H.T.; J.H.; W.H. September 5, 2008

### The danger of anthropomorphism

Ken Ramirez writes about the subject in his book, *Animal Training* on page 45-47. “When we assign human qualities, characteristics, or motivation to animals, it is referred to as anthropomorphism. **“Anthropomorphic thinking can be a trainer’s biggest stumbling block”**.”

When trainers say: “Oh, she knows exactly what I asked from her” or start to make excuses for their animals such as “I don’t think my cue was clear, so I gave him the benefit of the doubt”, or “It’s not what I wanted exactly, but he made a good effort so I will reward him”, it seems they believe they understand the thoughts of animals.

“While these excuses may indeed be valid, they do not justify reinforcing poor behavior. When reinforce an incorrect response based on such excuses we are anthropomorphizing. Reinforcement of this sort mistakenly assumes that the animal will understand why you reinforced its substandard behavior. So, when you later expect the animal to perform up to par, the animal may become confused or frustrated”.

### The danger of emotions

Trainers sometimes feel so invested in their animal’s training that they could take their animal’s failings personally. Emotions will cloud good judgments. Even unrelated emotional states (family or money problems, divorce, or even happy events such as ones best friend is arriving or one gets married in two days) could cause a trainer to lead a bad training session. **Operant conditioning works because it based on solid, scientific principles to modify behavior and not on emotional decision makings.** If a trainer cannot leave his or hers emotions behind that person should not conduct a training session on that day.

### **5. Behavioral problems guidelines**

If a keeper is having trouble getting the desired behavior from the animal there are several steps that should be taken. Personal judgment and experiences have to be used at this time.

Possible ways to handle the situation are listed here, and should be considered.

- Remember and return to basic training concepts.
- Break the behavior down to its simplest form.
- Remove distractions.
- Control your emotions
- Have another keeper assist.
- Have another, more experienced keeper to assist.
- If the other keeper obtained the desired behavior, the original keeper should try again.
- Reminder! Phoenix Zoo’s policy prohibits the withholding of animal diets as part of a training procedure.

### **Dealing with unwanted behaviors**

Keepers must always be aware that their actions may cause animals to exhibit unwanted behaviors. It is inevitable that animals will develop or offer behaviors we do not desire.

The following are techniques used to deal with such problems.

#### **Pause**

If a behavior is done incorrectly or below established criteria, the keeper needs to indicate this to the animal with a complete lack of reinforcement. Since almost any change in an animal’s environment could potentially be reinforcing, the best way is to do nothing at all.

Briefly discontinue your normal attentive posture, and when the animal returns to station, in the window of time that you would normally reinforce, stop moving and wait a couple of seconds (eye contact is OK, but avoid unnecessary head movements).

### **Ignore**

If an animal wanders away (more than one body length away), or acts aggressively toward the keeper or another animal, or otherwise disrupts the training session, then you should lengthen the pause. During an ignore, avoid eye contact with the animal.

### **Time Out!**

Time out is a mild form of negative punishment when a training session is temporarily stopped and attention is removed from the animal for a short period of time. It should not be used often to be an effective tool. When the time out is over, the trainer must display a positive attitude toward the animal. It is the start of a new interaction and should be applied as such. The time out should be used when ignoring the animal has proven unsuccessful, aggression has escalated or if you do not have the animal's attention (you can't ignore an animal that is ignoring you!).

### **Desensitization**

Actively pair a positive reinforcer with the negative event, rewarding only calm or no reaction behavior.

Example: an animal is afraid to go into a chute, reward him for moving closer and closer every time until he will get used to it.

### **Extinction**

Do not reinforce the behavior and it will eventually die out.

Example: an animal throws salt dust at you every time you pass by; do not reinforce the behavior, and the animal will get bored and stops it.

### **Train an incompatible behavior**

A negative behavior could be eliminated if the animal is trained to perform a behavior that makes it impossible to perform the negative behavior.

Example: Train a mouth open behavior. The animal cannot bite his paw and open his mouth for examination at the same time.

### **Put the behavior on a cue and never give the cue.**

A behavior is said to be under stimulus control when the animal performs it only on cue or does not perform it on any other cue. By pairing a cue with the unwanted behavior, the keeper can train the animal to perform it and later never ask for that behavior.

Example: An aggressive animal jumps at the fence every time you pass by. Put the behavior on a cue, reinforce him until the behavior is under stimulus control and never ask him to do it again.

### **Determine the motivation and then change it.**

This is perhaps the most effective method.

- Find the motivation. Observe your animal in an every day basis, or if its necessary set up a behavioral study to look for factors that affects the behavior.
- Desensitize the animal to that stimulus or remove the stimulus.

Example: An animal continually carries her offsprings around in her mouth every time she gives birth. Provide her with new nesting sites and materials to see if she just didn't feel safe in the old ones.

### **Negatively reinforce the behavior**

Pairing the behavior with an aversive stimulus can have positive effects on behavior.

Example: If an animal were to obtain a bitter taste from biting his paw, it might be less likely he will do it again.

**After an unwanted behavior has been handled, the methods chosen to handle it and the reasons why the unwanted behavior happened must be considered and corrective measures taken!**

## **6. Safety**

Our Behavioral Management Program is dedicated to safely providing the animals at the Phoenix Zoo with the best possible quality of life. Each keeper can either enhance or jeopardize the program's ability to provide this quality of care. Each keeper's behavior and ability directly affects the quality of care provided to our animals, and in how the public perceives the program. **It is the keeper's responsibility to perform their job professionally and safely, and to present this image to the public.**

Safety should always be the first consideration in any training initiative (i.e., animal safety, keeper safety, training process safe, equipment safe, visitor safety, etc.). Keepers should never put themselves or their animals in a compromising position! The keeper or trainer is ultimately responsible for the well being of all visitors, staff, and animals.

That keeper or trainer always has the authority to discontinue any session or interaction where safety is a concern.

Safety basics are covered in this document. Specific safety issues must be addressed in any training protocol submitted for consideration.

**Please remember to bring any safety concerns to your supervisor's attention immediately. Do not put yourself or your animal at risk!**

### **Keeper safety**

- If you are training in an area to which you are not routinely assigned, notify the keepers in the area before starting the session.
- When performing any type of procedure during a training session, use the appropriate equipment.
- Carry your radio all the time.
- Know your animal's life history and natural behavior.

### **Animal Safety**

- Do not exceed your animal's mental and physical comfort level. Your goals should be attainable within these limits. Example: When you are trying to shift an animal to a new area, it may easily panic if it is moved quickly out of a familiar territory. Respect what the animal considers its "safe area" and let it get comfortable in transitional areas along the way.
- Before and after you begin your training, inspect for any object that may cause harm to you or your animal.
- During a session, be aware of possible distractions. If your animal suddenly becomes "spooked", or its attention is drawn to something else, it may injure itself or you.

## **7. Behavioral management (training) approval process 2003**

All new behaviors, training techniques and the purpose for training them, must be in keeping with the Phoenix Zoo's protocol on Behavioral Management. In all cases the impact upon the animal's quality of life should be clearly specified. A successful training program should be proactive, not reactive.

**STEP #1** Complete the *Behavioral Management Proposal Form* (found on the Q drive).

**STEP#2** Submit the proposal to the Living Collections Manager for approval.

**STEP#3** Submit the form to the Behavioral Management Coordinator. The Coordinator will evaluate the proposal and make recommendations. Suggestions and edits will be made if necessary.

**STEP #4** The Behavioral Management Coordinator will turn the form in to the Executive Vice President of Living Collections, Director of Animal Management, Commissary and to one of the Veterinarian for final approval. The managers will consider issues of public impact, strategic planning, and collection health and welfare in establishing priorities and action plans.

**STEP #5** The project then will be specified by the primary trainer in greater detail within 30 days clearly indicated training goals, techniques, and outcomes by completing a ***Training Protocol***. (The training protocol sample is available on the Q drive).

The Living Collections Manager and the Coordinator will review the detailed specifications for consistency with approved techniques and compliance with original proposal.

**STEP#6** The Coordinator will announce the new training at the Living Collections Managers meeting.

**STEP #7** The trainer will review the proposal in detail with the appropriate Living Collections Manager and the staff members. Based upon operating considerations the project will be initiated.

**STEP #8** The Behavioral Management Coordinator and the Living Collections Manager will conduct follow-up evaluations and re-adjustments at predetermined intervals.

**STEP#9** Once a month a summary report will be generated by the primary trainer via e-mail and submitted to the Executive Vice President of Living Collections, Director of Animal Management and to the Director of Animal Health until the training is completed.

## **12-07-2005**

### **Revised Behavioral management (training) approval process**

All new behaviors, training techniques and the purpose for training them, must be in keeping with the Phoenix Zoo's protocol on Behavioral Management. In all cases the impact upon the animal's quality of life should be clearly specified. A successful training program should be proactive, not reactive.

**STEP #1** Complete the ***Behavioral Management Proposal Form*** (found on the Q drive).

**STEP#2** Submit the proposal to the Living Collections Manager for approval.

**STEP#3** Submit the form to the Behavioral Management Coordinator. The Coordinator will evaluate the proposal and make recommendations. Suggestions and edits will be made if necessary.

**STEP #4** The Behavioral Management Coordinator will turn the form in to the Executive Vice President of Living Collections, Director of Animal Management, Commissary and to one of the Veterinarian for final approval. The managers will consider issues of public impact, strategic planning, and collection health and welfare in establishing priorities and action plans.

**STEP #5** The project then will be specified by the primary trainer in greater detail within 30 days clearly indicated training goals, techniques, and outcomes by completing a ***Training Protocol***. (The training protocol sample is available on the Q drive).

The Living Collections Manager and the Coordinator will review the detailed specifications for consistency with approved techniques and compliance with original proposal.

**STEP#6** The Coordinator will announce the new training at the Living Collections Managers meeting.

**STEP #7** The trainer will review the proposal in detail with the appropriate Living Collections Manager and the staff members. Based upon operating considerations the project will be initiated.

**STEP #8** The Behavioral Management Coordinator and the Living Collections Manager will conduct follow-up evaluations and re-adjustments at predetermined intervals.

**STEP#9** Once a month a summary report will be generated by the primary trainer via e-mail and submitted to the **Living Collections Manager, the Manger of Animal Experiences and to the Behavioral Management Coordinator** until the training is completed.

**04-12-2006**

### **Revised Behavioral management (ONLINE TRAINING) approval process**

All new behaviors, training techniques and the purpose for training them, must be in keeping with the Phoenix Zoo's protocol on Behavioral Management. In all cases the impact upon the animal's quality of life should be clearly specified. A successful training program should be proactive, not reactive.

**STEP #1** Complete the *Behavioral Management Online Proposal Form* (found on the Q drive).

**STEP #2** Send a hyperlink to the Executive Vice President of Living Collections, **Director of Husbandry**, Behavioral Management Coordinator, Living Collections Manager, Veterinarian and to Commissary for final approval. The managers will consider issues of public impact, strategic planning, and collection health and welfare in establishing priorities and action plans.

**STEP #3** The project then will be specified by the primary trainer in greater detail within 30 days clearly indicated training goals, techniques, and outcomes by completing a *Training Protocol*. (The training protocol sample is available on the Q drive).

The Living Collections Manager and the Coordinator will review the detailed specifications for consistency with approved techniques and compliance with original proposal.

**STEP#4** The Coordinator will announce the new training at the Living Collections Managers meeting.

**STEP #5** The trainer will review the proposal in detail with the appropriate Living Collections Manager and the staff members. Based upon operating considerations the project will be initiated.

**STEP #6** The Behavioral Management Coordinator and the Living Collections Manager will conduct follow-up evaluations and re-adjustments at predetermined intervals.

**STEP#7** Once a month a summary report will be generated by the primary trainer via e-mail and submitted to the Living Collections Manager, Manger of Animal Experiences, Behavioral management Coordinator **and Director of Husbandry** until the training is completed.

**September 2006 Revised training documentation**

Once a month a summary report will be generated by the Behavioral Management Coordinator via e-mail and submitted to the Living Collections Manager and Director of Husbandry until the training is completed.

**05-01-07**

### **Revised Behavioral management (ONLINE TRAINING) approval process**

All new behaviors, training techniques and the purpose for training them, must be consistent with the Phoenix Zoo's protocol on Behavioral Management. In all cases the positive impact upon the animal's quality of life should be clearly specified. A successful training program should be proactive, not reactive.

**STEP #1** Complete the *Behavioral Management Online Proposal Form* (found on the Q drive).

**STEP #2** Send a hyperlink to the General Curator, Director of Husbandry, Behavioral Management Coordinator, Living Collections Manager, Veterinarian and to Nutritional Services for initial approval.

**STEP #3** Within 30 days the primary trainer will submit the project in greater detail, to the Collection Manger. The *Training Protocol* must clearly identify training goals, techniques to be used, outcomes expected, and the methods for measuring outcomes. (A training protocol sample is available on the Q drive). The Living Collections Manager and the Coordinator will review the detailed specifications for consistency with approved techniques and compliance with original proposal.

**STEP#4** The Coordinator will announce the new training at the Living Collections Managers meeting.

**STEP #5** The trainer will review the proposal in detail with the appropriate Living Collections Manager and the staff members.

**STEP #6** The Behavioral Management Coordinator and the Living Collections Manager will conduct follow-up evaluations and re-adjustments at predetermined intervals.

**STEP#7** A monthly a summary report will be generated by the Behavioral Management Coordinator by the end of the first week of each month via e-mail and submitted to the Director of Husbandry until the training is completed.

**07-21-08**

### **Revised Behavioral management (ONLINE TRAINING) approval process**

All new behaviors, training techniques and the purpose for training them, must be consistent with the Phoenix Zoo's protocol on Behavioral Management. In all cases the positive impact upon the animal's quality of life should be clearly specified. A successful training program should be proactive, not reactive.

**STEP #1** Complete the *Behavioral Management Online Proposal Form* (found on the Q drive).

**STEP #2** Send a hyperlink to the ~~General Curator, Director of Husbandry~~, Behavioral Management Coordinator, Living Collections Manager, Veterinarian and to Nutritional Services (if diet related) for initial approval.

**STEP #3** Within 30 days the primary trainer will submit the project in greater detail, to the Collection Manger. The *Training Protocol* must clearly identify training goals, techniques to be used, outcomes expected, and the methods for measuring outcomes. (A training protocol sample is available on the Q drive). The Living Collections Manager and the Coordinator will review the detailed specifications for consistency with approved techniques and compliance with original proposal.

~~STEP#4 The Coordinator will announce the new training at the Living Collections Managers meeting.~~

**STEP #5** The trainer will review the proposal in detail with the appropriate Living Collections Manager and the staff members.

**STEP #6** The Behavioral Management Coordinator and the Living Collections Manager will conduct follow-up evaluations and re-adjustments at predetermined intervals.

~~STEP#7 QA-quarterlymonthly a summary reports will be generated by the Behavioral Management Coordinator by the end of the first week of each month~~-via e-mail and submitted to the Director of Animal Management Husbandry until the training is completed.

## 8. Planning for training

### Helpful hints to develop a training plan:

\*Your protocol should contain:

- a) Animal behavioral profile
  - Species
  - Name
  - I.D. number
  - Sex
  - Birth date
  - Tattoos and other marks
  - Origin
  - Rearing
  - Reproductive health
  - Housing
  - Social history
  - Health history
  - Training history
  - Behavior, temperament
- b) Staff information
- c) Staff and Visitor Policy
- d) General protocol information (see examples)
- e) Purpose of the training
- f) Objectives and techniques
  - Primary reinforcer
  - Secondary reinforcer
  - Schedule of reinforcement

- Tools

g) Shaping plan

**\*ALWAYS SET YOUR ANIMAL UP TO SUCCEED!**

**\*KNOW YOUR ANIMAL!** Individuals of the same species, sex and age may differ greatly in behavioral, physiological and psychological responses. There are two general ways for an animal to cope with environmental challenges:

- 1). an active, highly reactive pattern characterized by increased activity, aggression or resistance.
  - 2). A passive, submissive pattern characterized by decreased environmentally directed activities.
- Any individual may exhibit both types of patterns.

The predominant response pattern of an animal is often called “temperament”. An assessment of temperament is very important to predict the future behavior of the trained animal.

An individual’s temperament is a combination of:

- Inherited behavioral tendencies
- Lifetime experience, including early rearing and social development
- It’s past and current surroundings

\*Always consider the behavioral differences between individuals! Try to be objective when preparing the behavioral assessment. It may be helpful, if more than one, experienced keeper is asked to assess what is the problem.

\*When you rate your animal on frequencies of behaviors consider when “it is most active” or “when it is with a conspecific”, or “when it is with an infant” etc. Recall how the animal behaves when it is with other conspecifics during its most active periods.

\*Focus energy on reinforcers to increase motivation.

\*Avoid predictability.

\*Focus on the animal.

\*Try to understand the behavior from the animal’s perspective.

\*Avoid calling attention to undesirable behavior.

\*It’s the behavior that is reinforced, not the animal!

**\*Be consistent!**

\*Maintain clear criteria for all behaviors.

\*Avoid using negative reinforcement.

\*Share your goals with the team that will be doing the training.

**Behavioral Management Proposal Form**  
**The Phoenix Zoo**

Trainer's name: \_\_\_\_\_ Area: \_\_\_\_\_

Date of Submission: \_\_\_\_\_

***Proposed Training Subject(s):***

Species: \_\_\_\_\_ Name: \_\_\_\_\_ I.D#: \_\_\_\_\_

***Training Goal:***

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

***Proposed Time Resources:***

Estimated time available for training: \_\_\_ minutes /sessions \_\_\_ x/day \_\_\_ x/week

Do you have a specific deadline to accomplish a specific behavior?

When, please describe:

\_\_\_\_\_

***Reinforcers (include SPECIFIC type and amount):***

Primary: \_\_\_\_\_ per session \_\_\_\_\_ per day

Conditioned: a) Bridge \_\_\_\_\_

b) Other \_\_\_\_\_

***Any expected challenges, changes in routine required to conduct training sessions, etc.:***

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

***Completed by trainer:***

Training 101 Part 1       Training 101 Part 2       Training 101 Part 3

Training game       **Exam**

***Tools Needed:***

Whistle     Clicker     Target(s)     Weekly Log Sheet      Other): \_\_\_\_\_

\_\_\_\_\_

***Approved (please check):***

-Exec. Vice President of Living Collections \_\_\_\_\_

-Director of Husbandry \_\_\_\_\_

-Living Collections Manager \_\_\_\_\_

-Behav. Manag. Coordinator \_\_\_\_\_

-Veterinarian \_\_\_\_\_

## Training Committee proposal

H.T.

August 22, 2008

**Purpose of the committee is to** review animal training programs as a group and to give collective suggestions to move programs forward. Any staff members with training experience can be a member with managerial approval and attend to the meetings. The committee will meet once a month and review video footage(s) of problematic training programs and then provide solutions to improve training.

**Sub-committees** will be formed to work on individual projects if necessary. Trainers with same interest and knowledge level will mentor projects if needed.

For example: if eagle/raven/vulture project doesn't proceed as effectively as hoped for, the coordinator will choose experienced raptor trainers who will mentor the training program regardless which trails or departments they are from. Once a collective suggestion is made, coordinator will present the new idea to the area managers for approval.

**Trail Representatives** will have additional duties just like the B.E. Representatives:

- Appointed by Area managers and will serve for one year
- Attend to monthly Training Committee Meetings
- Assist in Assigned training activities including other areas' training programs
- In charge of communicating all training activities with their trail staff
- In charge of ensuring all training proposals are being proposed, filled out appropriately by staff and submitted to the Behavioral Management Coordinator. After coordinator reviewed the proposal she will send it to the Area Manager for approval.
- In charge of ensuring all training logs are being filled out appropriately by staff and signed off by Area Managers
- Updates animal Training Projects Master List monthly by adding new programs, updating their status and shifting programs under completed or on-hold folders

[Training Project Master List.xls](#)

- Coordinates Training Articles in LC newsletter
- Assist the coordinator with quarterly inventory and tracking the whereabouts of enrichment items on each trail
- Responsible for writing supply order requests for budget submission. Order forms will be approved by The Area Manager and the Behavioral Management Coordinator for purchasing.
- Research training supplies and helps L.C. secretary with ordering

## 10. Record keeping

In order to be able to track the training process and learn the most from it, documentation is necessary. For the records to be reliable, it is essential to define all terms and make sure there is an agreement among those who are recording information.

Maintain records on progress. Documentation tracks the trainer, the animal and the behavior trained.

### a. Daily Section Reports (DSR)

When training programs start, the first day of training as well as end of training program is recorded on the DSR under #13

**b. Standard Operating Procedures (SOP)**

Training programs are outlined and documented in SOP.

[..\Living Collection's SOP's\SOP TEMPLATE.doc](#)

**c. Online Training Protocols**

Training protocols should include a provision for documentation. The project then will be specified by the primary trainer in greater detail within 30 days clearly indicated training goals, techniques, and outcomes by completing a *Training Protocol*. (The training protocol sample is available on the Q drive).

December 2005 Revised Training – Training protocol needs to be completed and submitted online

Training Procedures and Protocol

a) Collection:

At the.....zoo we currently house .....

b) Staff:

- a. The authorized trainers will be
- b. These authorized persons are the only one to be allowed to train the .....
- c. The .....will oversee all training procedures.

c) Unauthorized Staff/Visitor Policy:

- a. No unauthorized personnel/visitor shall have any direct contact with the animal(s) outside of daily husbandry..
- b. The training cannot be disturbed at any time unless it is an emergency.

d) Protocol:

- a. There will be .....trainer present during the training session.
- b. On the trainer’s days off, the .....trainer will take over.
- c. The trainer should have his/her bridge with him/her all the time. The bridge indicates a correct completion of the behavior in response of auditory, tactile or visual command and reward should be given.
- d. While working with the animal, the trainer should give his/her undivided attention.
- e. The trainer should strive to practice positive reinforcement during the training.
- f. Only the current sets of established auditory, tactile or visual commands are to be used during the training.
- g. If the animal is not cooperating, the trainer should choose from the following methods (under the guidelines of the Director of Living Collections and Staff Veterinarian) to deal with the unwanted behavior:
  - Pause
  - Ignore
  - Time Out!
  - Desensitization

- Extinction
- Train an incompatible behavior
- Put the behavior on a cue and never give the cue
- Determine the motivation and change it

- h. The Phoenix Zoo promotes the universal application of positive reinforcement in its practice. Where unusual or life threatening circumstances exist, considerations will be given to methodologies other than positive reinforcement, but such applications will require the additional review and approval of the Zoo's veterinary staff, and will be applied only in the absence of any other viable management strategies.
- i. After the behavior is corrected, the reasons why the unwanted behavior happened must be considered and corrective measures taken.
- j. The training session should not be longer than .....min. considering the animal's attention span.
- k. At the end of the training session an auditory and visual command, along with some novel food items are to be given to help the animal understand the session is concluded.
- l. All staff members are to avoid putting herself or the animal at risk.
- m. All trainers must follow the exact training procedures with consistency as written!
- n. All staff members are to be TB tested.
- o. After the animal learns the behavior, the .....relief keepers will be involved in training.
- p. The trainer has to maintain records in progress by training logs and also by videotaping and taking pictures.
- q. The status of the training program will be evaluated weekly with the Operations Supervisor and, Behavioral Management Coordinator, and Staff Veterinarian..
- r. If any changes occur in the process during the training process (diet change, diet amount change, different tool, usage of different technique etc,) by the co-trainers) it should be documented in the daily training log and discussed in the weekly review. The primary trainer has to be notified immediately of the change.

e) Behavioral Profile

Species:

Name:

ID Number:

Sex:

D.O.B:

Origin:

Rearing:

Reproductive Health:

Housing:

Social History:

Health History:

Training History:

Behavior, temperament:

f) Purpose of the Training:

g) Objectives and Techniques:

Objective:

Techniques:

*Primary reinforcer:*

*Secondary reinforcer:*

*Auditory commands:*

*Visual commands:*

*Schedule of reinforcement:*

*Tools:*

Specific tools to be used are:

h) Shaping Plan

**d. Training Logs**

Training logs are filled out on hard copies and stored in each area. The Behavioral Management Coordinator and the Area Managers are responsible for signing off on the logs weekly.

<b>Species: Bennett's wallaby</b>						
<b>Trail: N.M.P. Children's Trail</b>						
<b>Trainer:</b>	<b>Tracy</b>					
Key:	Continuously breaking, animal does not come to control					
1	2 Breaks from control, poor criteria, low energy					
	3 A good average demonstration, average energy, no break					
	4 Good energy, no breaks, missed a stimulus or two					
	5 Perfect criteria, high energy, no breaks of control					
<b>AM</b>						
<b>Animal's name</b>	<b>Night House</b>	<b>Medication</b>				
Tan collar	5	5				
Blue collar	5	5				
Dark Bown-tip R ear	1	1				
Black collar/Red tag	5	5				
Black collar/Blue tag	5	5				
Black collar/Purple	5	5				

tag						
<b>Reward:</b>						
<b>Comments:</b>						
<b>PM</b>						
<b>Trainer:</b>						
<b>Animal's name</b>	<b>Night House</b>	<b>Medication</b>				
Tan collar						
Blue collar						
Dark Bown-tip R ear						
Black collar/Red tag						
Black collar/Blue tag						
Black collar/Purple tag						
<b>Reward:</b>						
<b>Comments:</b>						
<b>Reviewed by:</b>						
<b>Behav. Man. Coordinator</b>		<b>L.C. Manager</b>				

**December 2005- Revised training documentation**

Training logs are filled out via [online excel spreadsheet forms](#). The Behavioral Management Coordinator and the Area Managers are responsible for signing off on the logs weekly.

**e. Training updates and meeting minutes**

Once a month a summary report will be generated by the primary trainer via e-mail and submitted to the Living Collections Manager, Manger of Animal Experiences, Behavioral management Coordinator and Director of Husbandry until the training is completed.

**September 2006 Revised training documentation**

Once a month a summary report will be generated by the **Behavioral Management Coordinator** via e-mail and submitted to the Living Collections Manager and Director of Husbandry until the training is completed.

Training meeting minutes are on the Q drive in each training programs' folder.

These meeting minutes also serve as summaries of monthly training accomplishments and next month plans and are copied into the each protocol's shaping plan.

Example:

- **From:** Hilda Tresz  
**Date:** Thursday, August 14, 2006  
**Present:** Sheila Lindquist, Hilda Tresz; Abigail Smith, Teresa Fleshman  
**Subject:** Wallaby target and scale training meeting
  
  - 1. Sheila will confirm if we will get a scale for sure and what kind
  - 2. Abigail Smith will be the primary trainer. On Abby's days off training is to be discontinued
  - 3. Abby will develop her shaping plan by August 31, 2006
  - 4. Training will not have a set time-Abby will train generally after Tracy finished with her night house and medicine training
  - 5. We will start conditioning the target and simultaneously desensitizing the animals to a wooden board as a "scale"
  - 6. Training will take place on exhibit
  - 7. Once we finished with scale training we are planning to proceed to crate train as well
- 
- **From:** Terasa Fleshman  
**Sent:** Tuesday, August 29, 2006 12:39 PM  
**To:** Sheila Lindquist; Mandy McCluskey; Tina Hughes; Abigail Smith; Alisa Tisdale-Rowe; Amanda Donagi; Courtney Mitchell; DeLaura vanPallandt; Julie Combs; Terasa Fleshman  
**Cc:** Tina Hughes; DeLaura vanPallandt; Tamara Muller; Alisa Tisdale-Rowe; Debra Evers; Hilda Tresz  
**Subject:** String 1

Please leave the Wallaby misters on overnight whenever it's 105 or higher.

The Wallabies should have access to the turtle pool anytime the temperatures reach 100 or higher except during an electrical storm or when it's raining. Thanks.

- Effective 9-5-06 removed peanut butter from training as one of the Wallabies gained over 10lbs.

#### **f. Master Training Project List**

All training programs are combined into an excel spreadsheet named - Master Training Project List and divides the programs into:

- a. Ongoing programs
- b. Completed programs
- c. Discontinued programs

The document is located on the Q drive under:

<..\TRAINING\Training Projects 5.06.xls>

#### **g. Pictures and video documentation**

Training programs are periodically documented by still pictures and videos. The pictures are located on the Q drive under:

<..\TRAINING\Training pictures>

#### **h. Operant Conditioning Transfer Form**

When animal is transferred to another institution the primary trainer or area managers or registrar completes the OCDTF for the new institution to be able to follow up and continue the animal(s) training. The document is located on the Q drive under:

<..\Forms\OPERANT CONDITIONING DATA TRANSFER FORM.doc>

## **OPERANT CONDITIONING DATA TRANSFER FORM**

(Addendum to the AAZK, Inc. Animal Data Transfer Form)

**Date:** \_\_\_\_\_

**Specimen's house name:** \_\_\_\_\_

**Species common name:** \_\_\_\_\_

**ISIS#** \_\_\_\_\_

**Studbook#:** \_\_\_\_\_

Scientific name: \_\_\_\_\_

Institution: \_\_\_\_\_

Contact person: \_\_\_\_\_

Phone # \_\_\_\_\_

.....  
**GENERAL BACKGROUND INFORMATION**

Rearing type: \_\_\_\_\_ dam or family reared \_\_\_\_\_ hand reared (\_\_\_\_ with \_\_\_\_ without conspecifics)  
imprinted? \_\_\_\_\_ yes \_\_\_\_\_ no

Animal housed: \_\_\_\_\_ individually \_\_\_\_\_ with conspecifics \_\_\_\_\_ with mixed species  
\_\_\_\_\_ Other (please describe: \_\_\_\_\_)

**TRAINING SPECIFICATIONS**

Animal training: \_\_\_\_\_ housed individually and trained individually  
\_\_\_\_\_ separated from conspecifics for training  
\_\_\_\_\_ trained with conspecifics present  
\_\_\_\_\_ trained with mixed species present  
\_\_\_\_\_ other, please describe: \_\_\_\_\_

Training type: \_\_\_\_\_ free contact \_\_\_\_\_ protected contact

Reinforcers: \_\_\_\_\_ verbal  
\_\_\_\_\_ tactile  
\_\_\_\_\_ food; lost type and amount used: \_\_\_\_\_  
\_\_\_\_\_ combination of all of the above

Bridging stimulus: \_\_\_\_\_ clicker  
\_\_\_\_\_ whistle  
\_\_\_\_\_ verbal, please describe: \_\_\_\_\_  
\_\_\_\_\_ other, please explain: \_\_\_\_\_

How long has animal participated in conditioning program? \_\_\_\_\_

Training schedule:  
\_\_\_\_\_ once a day \_\_\_\_\_ twice daily \_\_\_\_\_ once a week \_\_\_\_\_ twice weekly  
\_\_\_\_\_ other, please specify: \_\_\_\_\_

Average length of training session: \_\_\_\_\_ (minutes)

Animal attitude/demeanor towards/during training:  
\_\_\_\_\_

**BEHAVIORS TRAINED** (please provide a brief summary. More detail can be added in subsequent section)

Behavior	Verbal cue/Command	Visual cue	Criteria for reinforcement	Devices used

**MISCELLANEOUS INFORMATION**

Please list any “unique” behavioral traits, problems with aggression, safety concerns, or other behavioral problems that affect training: \_\_\_\_\_

\_\_\_\_\_

What seems to trigger behavior? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Manner in which you dealt with it? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Animal conditioned to enter crate/chute/cage for transport (circle appropriate device)? \_\_\_  
no \_\_\_ yes

Please give dimensions of device used: \_\_\_\_\_ length \_\_\_\_\_ width  
\_\_\_\_\_ height

Describe other behaviors that require further explanation: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**i. Inventory of training supplies**

All training supplies are accounted and by yearly and cataloged into a Microsoft Word document that can be found on the Q drive under:

<..\TRAINING\Inventory-Training supply .doc>

## 11. Evaluation/Re-adjusting process

Evaluation is an on-going process. When meeting to discuss the status of a particular behavior or problem, it is a good idea to review documentation to look for trends in the data.

Look for:

- Changes in the animal's motivation.
- Their focus at different times of the day or under various circumstances.
- Regression in progress.
- Inconsistencies in reinforcement.

This review can lead to a clear idea of what the issues are, as well as potential solutions. When time allows, videotaping of sessions can be very helpful.

Given the information derived from documentation and evaluation, training initiatives are fine-tuned and the cycle continues.

The Living Collections Manager and the Behavioral Management Coordinator will agree on a schedule to evaluate and re-adjust the training process. Once the new behavior becomes a routine, the Living Collections Manager will take over.

Once a month a summary report will be generated by the primary trainer via e-mail and submitted to the Executive Vice President of Living Collections, Director of Animal Management and to the Director of Animal Health until the training is completed.

### September 2006, Revised Training

Training programs are evaluated and readjusted during the monthly training meetings.

Once a month a summary report will be generated by the **Behavioral Management Coordinator via e-mail and submitted to the Area Manager and to the Director of Animal Health** until the training is completed.

## 12. Work as a team

Staff needs to work together as a team. The key measurement of success is the levels that other members of the team can also successfully have the animal perform the same behavior. The success should be the animals and the team's, not just the person's initially training the behavior.

To establish a successful training program staff need to consider the following:

### Compatibility

- Quality teamwork is essential to any training team. It is unfortunate, but a fact of human nature, that people can let their personality conflicts affect their teamwork.

- A professional attitude and good communication can sometimes overcome incompatibility. Your supervisor should be consulted if the incompatibility results in ineffective training.
- Compatibility with the animal to be trained may be a factor. If an animal is not comfortable with a trainer, the team should try to work the animal through an introduction via desensitization. However, if the progress takes too much time, other options should be considered.

## **Communication**

- Before and after each training session, short meetings as well as regular team meetings can help meet team goals. A valuable part of team meeting can be the viewing of previously videotaped sessions, followed by discussion of problems observed and their possible solutions.
- It is hard for any trainer to be objective. Because of this, all trainers must be willing to give and take constructive comments in order to improve their skills. **A very good trainer with no communication skills can do more harm than good!**
- Not every trainer is going to be present during every session. The activities need to be communicated through a daily training log to all members.
- Trainers should be able to communicate with their supervisors and with the knowledge of their supervisors about training problems and progress.

### 13. Resources

IMATA- International Marine Animal Trainers Association  
IAATE- International Avian Association of Trainers and Educators  
ABMA- Animal Behavior Management Alliance  
AAZK – American Association of Zoo Keepers  
AZA – American Zoo and Aquarium Association

#### Books and articles:

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*Utah's Hogle Zoo Training protocol*

*Smithsonian's National Park Elephant Management Manual*

*The Living Desert Animal handling and Training Protocols*

*Indianapolis Zoological Society Training Protocol Samples*

*Auckland Zoo Mission Statement*

*Point Defiance Training Protocol*

*Toledo Zoo Animal Behavior Management Program*

*Columbus Zoo Training Protocol Samples*

*Ocean Park Honk Kong Training Philosophy and Protocol*

*Operant Conditioning Protocol for the Memphis Zoo*

*Birmingham Zoo Environmental Enrichment protocol*

*Central Park Wildlife Center Management Guidelines for the care and Psychological Well-being of nonhuman primates*

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Websites:

ABMA list serve: to sign up contact [mthompson@memphiszoo.org](mailto:mthompson@memphiszoo.org))

Animal Trainers Forum <http://members.tripod.com/~AnimalTrainersForum>

Karen Pryor's Website <http://dontshootthedog.com>

Cambridge Center for Behavioral Studies <http://www.behavior.org/animals/index.cfm>

Managing Animal behavior through Environmental Enrichment  
<http://www.zoolex.org/ivan/sect4.html>

Keepers Link <http://wagntain.com/OC/>

Animal Enrichment Program <http://csew.com/enrich/>

<http://www.clickandtreat.com>

<http://www.clickertrainer.com>

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<http://www.geocities.com/marineanimalwelfare/doesthe.htm>

<http://www.naturalencounters.com>

AZA website [www.aza.org](http://www.aza.org)

[webmaster@animalark.org](mailto:webmaster@animalark.org)

<http://www.synalia.com>

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The Psychological well-Being of Nonhuman Primates (1998).

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Environmental Enrichment for Nonhuman Primates Resource Guideline January 1992-February 1999 - [awic@nal.usda.gov](mailto:awic@nal.usda.gov)

Annotated Bibliography on Refinement and Environmental Enrichment for Primates kept in Laboratory, 2003

[http://www.animalwelfare.com/Lab\\_animals/biblio/index.html#contents](http://www.animalwelfare.com/Lab_animals/biblio/index.html#contents)

