ANIMAL TRAINING GUIDELINES

EAZA
EUROPEAN ASSOCIATION OF ZOOS AND AQUARIA

Prepared by
The Animal Training Working Group

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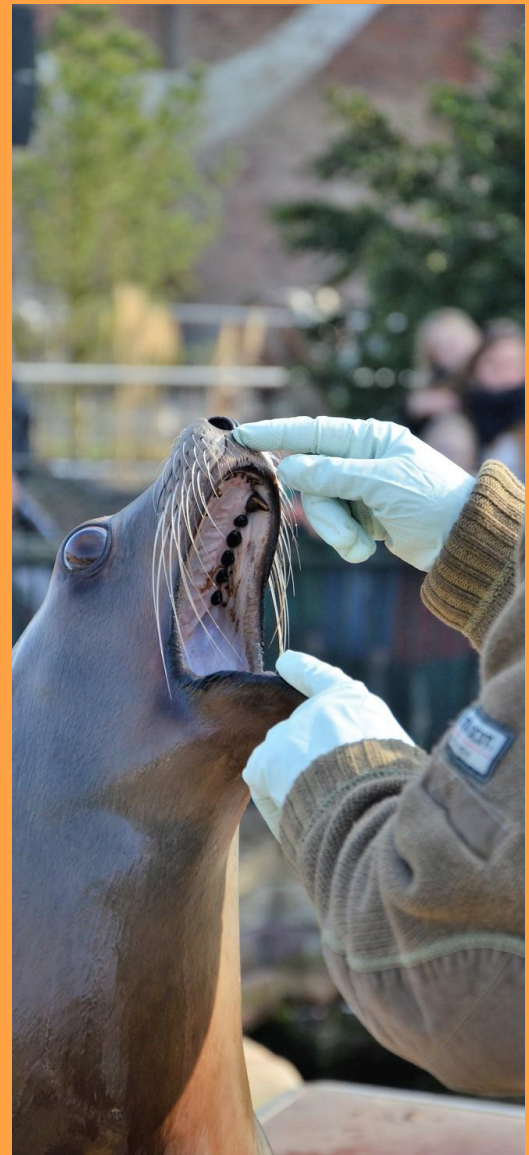## ANIMAL TRAINING GUIDELINES

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RECOMMENDED FORMAL CITATION

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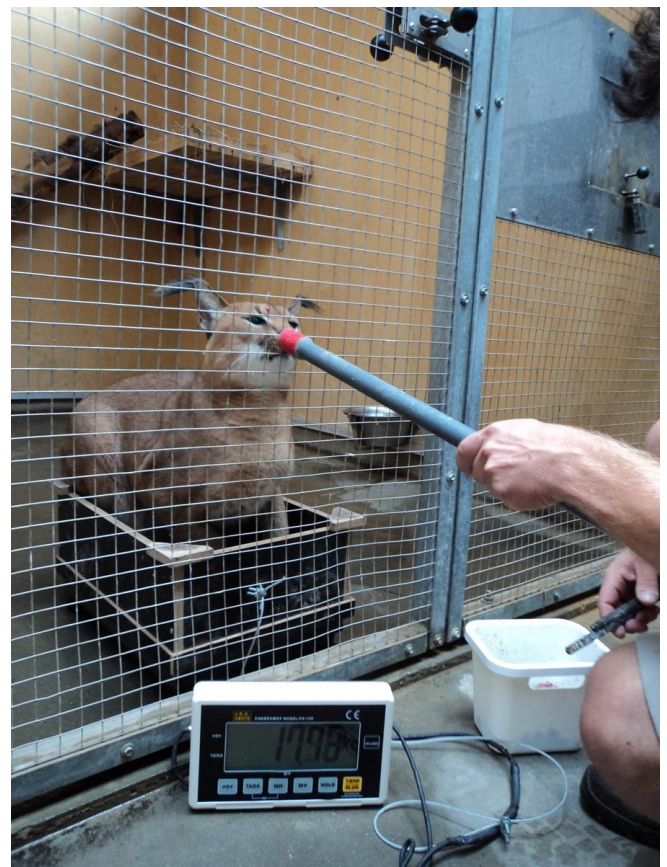*Advisor EAZA Animal Training Working Group*

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DISCLAIMER

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INTRODUCTION

Welcome to the European Association of Zoos and Aquaria (EAZA) Animal Training Guidelines prepared by the Animal Training Working Group (ATWG). This document is intended to provide a general introduction to behaviour science and animal training as it pertains to zoological environments.

The emphasis is on providing guidelines as opposed to being an instructional manual, as indicated by the title. This is because animal training as an applied practice involves a series of decisions that can change with each unique situation. Like other fields essential to animal care, foundational information and parameters can be very useful, however the many diverse behavioural scenarios encountered are impossible to condense into a single instructional resource. The competency required for achieving behaviour goals and addressing undesired responses is learned over time via professional development opportunities. As with any practical application-oriented specialty, animal training requires a combination of theoretical knowledge and hands-on experience in the field. The ATWG highly recommends communicating with species specialists for additional information on various taxa. The ATWG also provides additional animal training educational experiences and resources including workshops and courses via the EAZA Academy. Learning opportunities include both practical application and further study of behaviour science. For more information see the Additional Resources and References at the end of the guidelines.

Animal training and behaviour is an immense area of study and is increasingly evidence-based. This document serves to provide EAZA members with fundamental information. The ATWG anticipates this document will evolve as science and experience reveals new data beneficial to our industry. Colleagues are invited to reach out to the ATWG at any time with additional questions, ideas, and recommendations. The ATWG is eager to collaborate with EAZA members, and other professionals to help improve animal welfare, scientific studies, develop best practices guidelines, and support conservation with our collective knowledge and experience on animal training and behaviour.

The ATWG hopes EAZA members will find this resource useful as training becomes included in more facilities as an integral component of providing optimal welfare for animals in managed care.

~ The Animal Training Working Group

WHAT IS ANIMAL TRAINING?

On the surface, animal training seems simple. Animal care professionals have likely observed training, actively participated in training sessions, or unintentionally influenced animal behaviour. Furthermore, animals are always learning, and behaviour is fluid and ever-changing. Defining animal training in the context of a professional environment, such as a zoological facility, can help provide clarity and precision. For these guidelines, animal training is defined as intentionally changing behaviour with an awareness and understanding of the principles of behaviour analysis and applying these principles with individuals or groups of animals in managed care. In other words, the goal is more than just implementing behaviour change. It includes an understanding of why a procedure works, and how to apply it with specific animals under specific conditions. Ideally this is also accomplished while optimizing welfare (maximizing possible benefits and minimizing possible harms).

Animal training is defined as intentionally changing behaviour with an awareness and understanding of the principles of behaviour analysis and applying these principles with individuals or groups of animals in managed care.
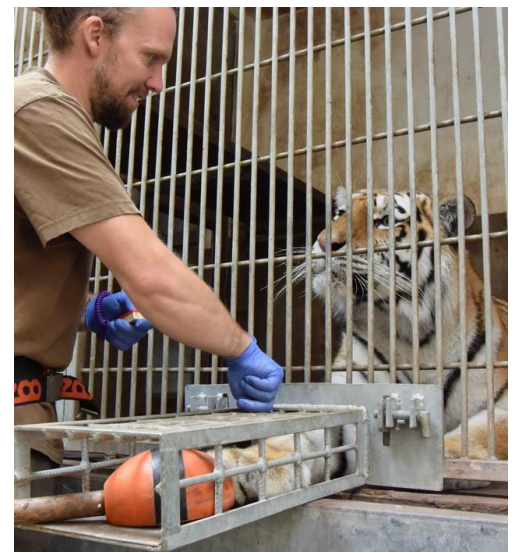
ANIMAL TRAINING IS BENEFICIAL AND ESSENTIAL

"EAZA recognizes that the use of evidence-based training technology can lead to improved animal welfare for animals in managed care. Because of this, training is considered an essential part of animal care." (EAZA Standards for the Accommodation and Care of Animals in Zoos and Aquaria, 2022)

Animal training is beneficial to supporting the objectives of EAZA member zoological facilities for numerous reasons. It facilitates providing optimal welfare, advances scientific knowledge, supports conservation, and can inspire visitors to care for wildlife. Historically training has been treated as a luxury. However, facilities that embrace the approach that training is an essential component of delivering optimal animal care alongside other responsibilities such as providing proper nutrition, veterinary care, enrichment, and appropriate habitats, can truly reap the benefits. Additionally, training has the potential to benefit human stakeholders, in addition to the focal animal(s).

ANIMAL TRAINING IS BENEFICIAL AND ESSENTIAL

The following list represents some potential beneficial outcomes of training animals in managed care:

COOPERATION IN MEDICAL CARE

PARTICIPATION IN DAY-TO-DAY CARE

ADDRESSES UNDESIRED RESPONSES

CREATES ENRICHING EXPERIENCES
See video example for more information about training and enrichment.

FACILITATES DATA COLLECTION FOR SCIENTIFIC STUDIES

SUPPORT FOR REHABILITATION AND CONSERVATION INITIATIVES

PROVIDES HUMAN HEALTH AND SAFETY MITIGATIONS

PARTICIPATION IN EDUCATIONAL PROGRAMS

ECONOMICALLY ADVANTAGEOUS (CLICK HERE FOR VIDEO)

Despite the varied list of reasons to train animals, they should all have one thing in common: all animal training should provide a net welfare benefit and should not interrupt, interfere, or compromise the species-typical social behaviours of an animal.

Click here for video examples

FOUNDATION BEHAVIOURS

Identifying and prioritizing behaviour goals is an important part of adding structure to an animal training program. Depending on the specific needs of the organization, behaviour goals will vary at any given time. However, the following list represents some important foundation behaviours that can facilitate day-to-day care for many species. Additionally, they are often components to achieve other behaviour goals such as cooperation in medical care:

"CALM" BEHAVIOURS:

Reinforcing calm behaviours in the presence of animal caregivers is often an important first step in a training program. Calm behaviours must be observable and measurable. This requires acceptable responses to be described and well understood by those building behaviour (see operationalizing behaviour in How Animals Learn). It is helpful to reinforce many acceptable responses. This allows the behaviour goal to be attained faster.

The following are some examples:

Relaxation: Desired behaviour changes such as eyes relax (less round), muscles relax (less tense), weight dispersal shift that is desired.

Self-Care: Desired behaviour changes such as self-care, grooming, scratching, head shake, eating.

Environment Awareness: Desired behaviour changes such as attention to the environment (conspecifics, objects, sounds) Desired movements in the direction of the animal caregiver (intentional or unintentional).

Click here for a video example
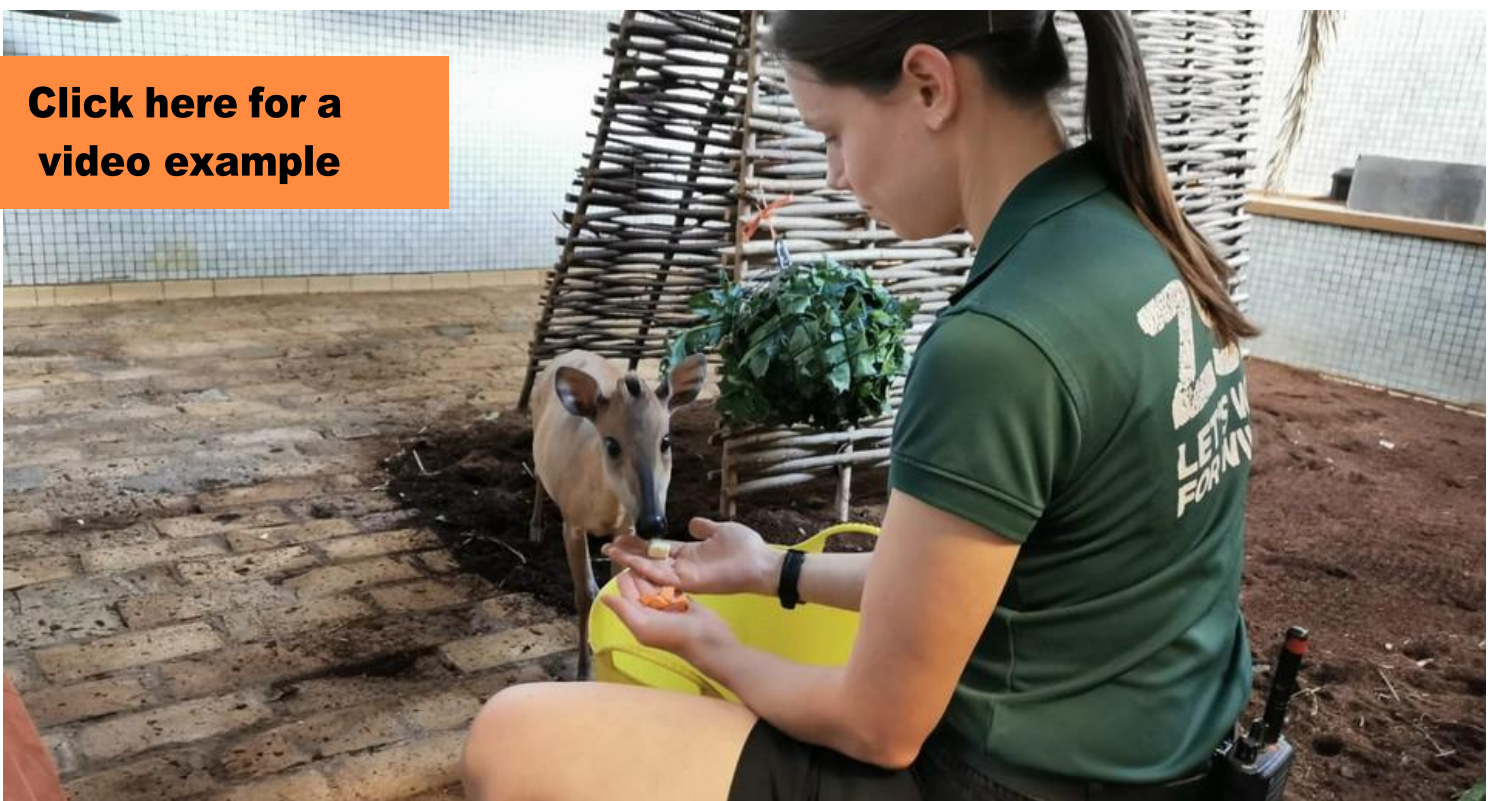
FOUNDATION BEHAVIOURS

TARGETING:

Targeting or target training is training an animal to orient a body part towards something. This can then be used to direct the animal or body part without touching the animal. Targets can be tangible objects such as a ball on the end of a stick. However, they can also be a point of light, a traffic cone, a plastic geometric shape, a pattern, a sound, an odour, etc. The stimulus used as a target often depends upon how the animal is adapted to explore its environment.

STATIONING:

Stationing is training an animal to remain in one location for a prolonged duration. This behaviour usually also includes the criteria of "calm" behaviours in order to achieve desired results. Stationing is often used to achieve other behaviour goals such as collecting animal weights, radiograph training, blood sampling, etc. It is also useful when managing groups of animals.

Click here for video examples

FOUNDATION BEHAVIOURS

SHIFTING:

A shifting behaviour involves the animal(s) moving from one designated location to another. This move is usually through a doorway that eventually can allow the spaces to be separated by a physical barrier. When trained, a signal is given (for example, a vocal cue or the sound of a shaker), the behaviour is emitted which then results in a desired outcome, such as preferred food items delivered to the animal(s).

RECALL:

A recall behaviour involves training the animal(s) to move from the current location to a designated location(s) when cued. The movement is usually towards the signal but not always. This can depend on the criteria that is chosen for the behaviour. Many facilities prefer to use audio signals (such as whistles or bells) to cue recall behaviours. However, animals also often learn to respond to visual signals. A modified version of this behaviour is the "emergency recall" which can be trained so that animals move to habitats inaccessible by the public quickly if needed.

Click here for video examples

FOUNDATION BEHAVIOURS

TRANSPORTATION:

Most animals in managed care will move from one enclosure to another or from one facility to another, sometimes several times in their lifetime. They will also probably need to be transported for veterinary health services. Teaching transportation proactively, before it is necessary, is helpful in reducing the potential stress associated with animal moves. This can look different depending on the species in question, but typically requires training the animal to voluntarily enter a transport container appropriate for the species, remain in the space for a duration of time, allow the door to be closed, and allow the container to be moved. When the container is opened, the animal exits calmly.
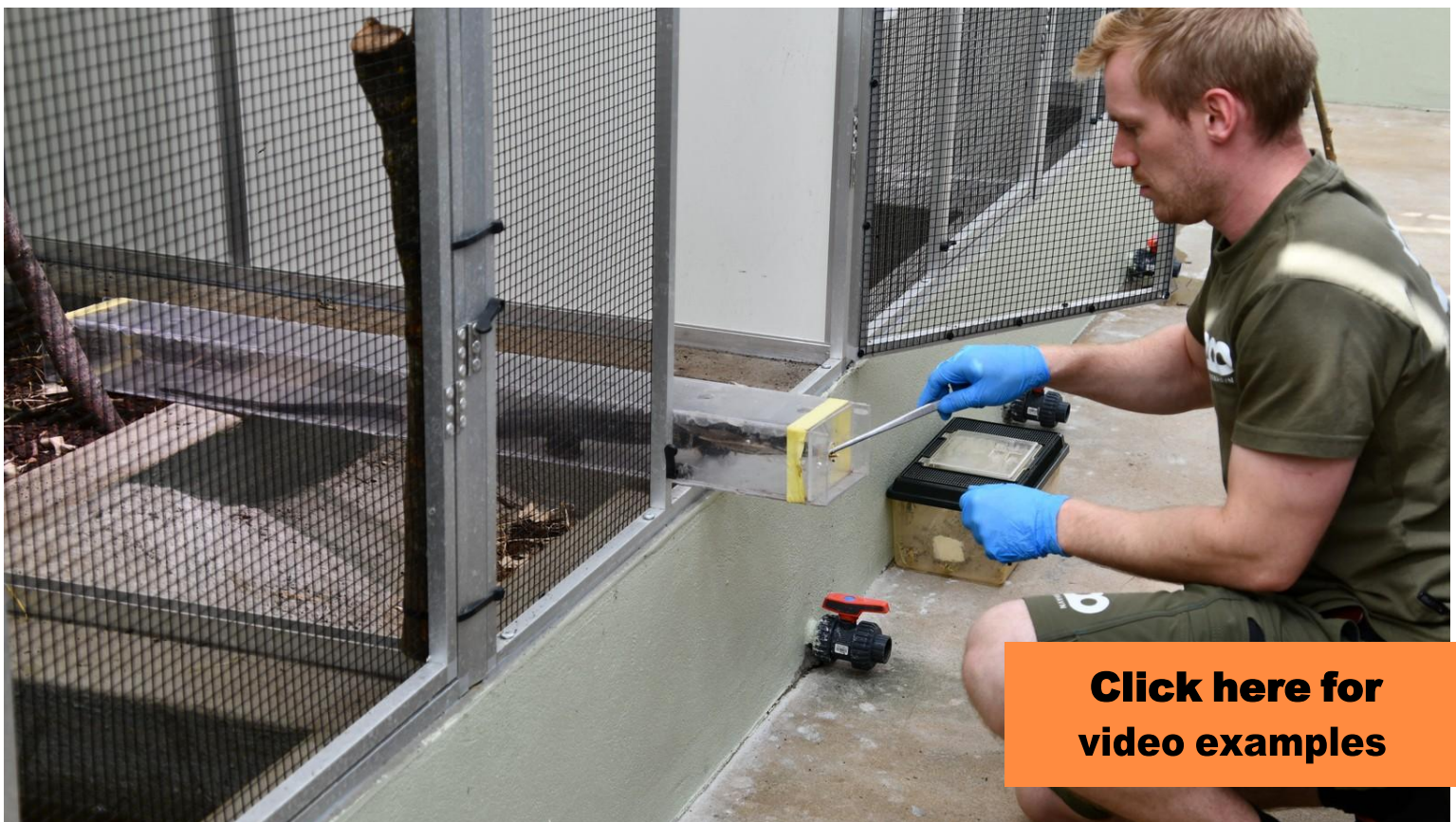
Click here for video examples

GENERATING INSTITUTIONAL SUPPORT FOR TRAINING

There are many benefits to implementing an animal training program. However, a program can be difficult to maintain without support. There are many stakeholders required to contribute to ensure a shift in culture towards acceptance of animal training as a management tool at an institutional level. These include, but are not exclusive to, zoological directors, taxonomic curators, operations managers, animal caregivers, education staff, veterinary practitioners, and commercial teams.

One way of ensuring collection wide support for a training program is to design or adopt a policy statement with site/organization specific guidelines for training (such as these guidelines), and evidence to support its use. However, culture change can be led by any number of stakeholders. Within any institutional training program there should be reference to planning, record keeping and evidence-based training techniques and principles to which to adhere. Any training should be conducted transparently and shared with other stakeholders to generate interest and provide evidence of the beneficial impacts of the training. Greater exposure to, and understanding of the various benefits, will build support, acceptance and eventually the desire and need for a fully integrated, coherent, and consistent approach to training.

GENERATING INSTITUTIONAL SUPPORT FOR TRAINING

All stakeholders have key roles to play in the successful implementation of animal training at an institutional level. Means of providing support can vary depending upon the responsibilities and authority of different stakeholders. The following are possible examples of ways colleagues can generate institutional support for an animal training program. The following exemplars are not necessarily exclusive to the specific stakeholders.

Directors/Curators: Recognize training as an essential component of an animal care program. Include funding in budgets for professional development as it pertains to animal training. Include funding in budgets for resources that facilitate training (such as training equipment, structures that facilitate training, etc.) When building new habitats, consult with training staff and/or experts and add elements to accommodate training. Recognize training accomplishments that have been difficult to attain and/or produced significant outcomes. Publish/share/report successful training programs that have been integral to supporting species management.

Supervisors: Allow time in the schedule for animal caregivers to implement training. Offer professional development opportunities related to animal training and behaviour to ensure staff members receive educational support on how to train. Facilitate acquisition of supplies needed to achieve training goals. Support dissemination of information opportunities such as sharing training accomplishments at conferences or in publications.

GENERATING INSTITUTIONAL SUPPORT FOR TRAINING

Animal Caregivers: Identify behaviour goals that make it easier to care for the animals and improve animal welfare, support colleagues in helping achieve training goals. Take responsibility for identifying opportunities for continual personal development and create institutional networks of caregivers to allow knowledge sharing and promotion of training as an animal management tool.

Veterinary Staff Members: Collaborate with animal caregivers on training projects to facilitate meeting objectives related to medical care. Give animal caregivers advanced notice and time to train cooperative behaviours when possible. Collaborate on training plans before animals are brought into the collection (quarantine training if applicable, pro-active species management).

Education Departments: Collaborate with animal caregivers on training projects to facilitate meeting objectives related to Education.

Marketing Departments: Collaborate with animal caregivers on training projects to facilitate meeting objectives related to Marketing.

Additional Areas: Share approved social media posts that feature animal training.

ANIMAL TRAINING AND SCIENTIFIC DISCIPLINES

Animal training draws upon several scientific disciplines. Some of these include ethology, phylogeny, and ontogeny.

ETHOLOGY

The scientific study of animal behaviour, especially as it occurs in a natural environment.

PHYLOGENY

Phylogeny: The natural selection of traits due to genetic inheritance over generations.

ONTOGENY

Ontogeny: Selection of behaviour by consequences during the lifetime of the individual organism.

Zoo professionals frequently draw upon these sciences as they address building training repertoires and address behaviour challenges. For example, an animal may have the genetic capability to emit a behaviour, but the conditions may not be suitable to evoke the desired response. For example, this sometimes occurs when attempting to facilitate reproduction of rare species, such as birds. The birds are physically capable of reproduction, they may be paired with mates, and they may be receiving the required diets/nutrition. But perhaps further exploration into the ethology of the species reveals the environment is lacking in sufficient nest sites and appropriate nesting materials.

ANIMAL TRAINING AND SCIENTIFIC DISCIPLINES

Some animals may have the appropriate conditions and genetics, but the learning has not yet occurred. An example of this might be a non-human primate who is orphaned at birth who may need to learn survival and socialization skills to integrate with a family group.

Caregivers can use all of these disciplines to their advantage to evoke desired responses. When developing a plan to evoke the response of a big cat climbing a pole for exercise and enrichment, the caregiver can study the behaviour of the species in the wild, think about the physical capabilities of the species based upon its genetics, both disciplines (ethology and phylogeny) may help with the design of the climbing apparatus, and the response can be shaped using reinforcement.

Some undesired behaviours can be challenging to address, and it can be tempting to talk about such behaviours as mentalistic (or a problem behaviour that comes from within the animal). However often the most parsimonious explanation is to view behaviour as being selected by the environment similar to the way genetic traits are selected. However instead of being selected over generations, the behaviour is selected over the lifetime of the animal. For example, instead of saying the elephant is "aggressive" because it was born that way, a useful strategy would be to focus on the conditions under which the undesired specific behaviour occurs as well as evaluate related events that may be contributing to maintaining the response. This leads to a discussion of the scientific principles of learning that are useful in animal training.
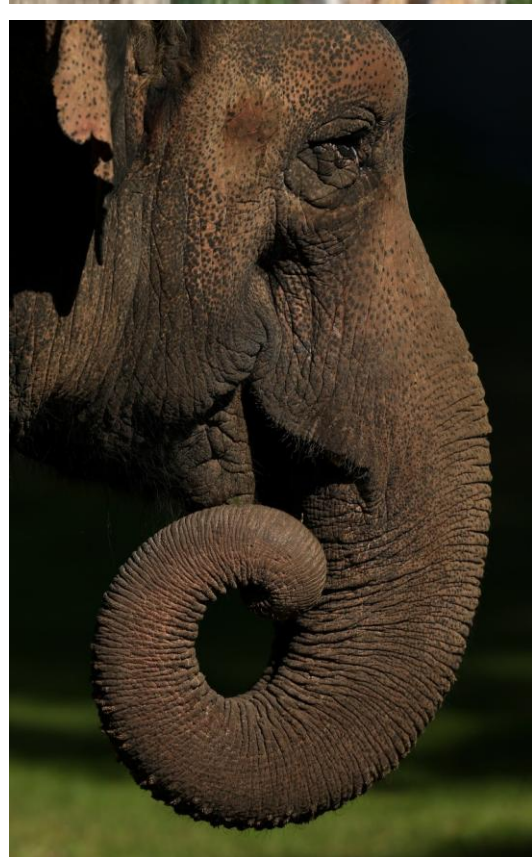
HOW ANIMALS LEARN

Zoo animal training has evolved tremendously in the past few decades. An emphasis on the learning principles based in behaviourism has guided the zoo community. This requires an adherence to some basic principles or laws of nature that demonstrate an organism responds to changes in the environment in systematic ways. Understanding these provides a foundation upon which all animal training is built.

Behaviour is Selected: A most basic principle to understand is that behaviour is selected by the environment. This then leads to the relationship between the behaviour and the resulting consequences, which can be described as a contingency.

Contingency: A contingency is the relationship between two events, one being "contingent" or a consequence of the other event. Consequences can occur on a variety of schedules from continuous to almost none and still maintain behaviour. The range in between is referred to as intermittent. It is also important to remember that contingencies occur under specific conditions. This is how "behaviour change" is produced.

An easy way to remember it is if the animal does "this," then "that" will likely happen. For example: If the pig touches the target with its nose, food will be delivered. If food is delivered when the pig touches the target, then target touching will likely increase in the future. The pig could also be taught it needs to touch the target on average three times before food is delivered. This would be an intermittent schedule of reinforcement.

HOW ANIMALS LEARN

Contiguity: Contiguity also is important. In other words, the two events need to happen close together in time for an association to be formed. However, there is some flexibility here. This is addressed in animal training usually by using a bridging stimulus.

Bridging Stimulus: The bridging stimulus is a term coined by the Brelands (Bailey & Gillaspy, 2005). They were behaviour scientists who pioneered training animals in zoological settings using information learned from the experimental analysis of behaviour in laboratory settings. The bridging stimulus is a signal that becomes a secondary reinforcer when properly conditioned and maintained by being paired with an appetitive. It can be useful in animal training, particularly under certain conditions. These conditions include when reinforcers cannot be delivered quickly. In other words, when contiguity is difficult to attain. For example, when animals are at a distance from where the reinforcer is accessed. Animals are looking for reliable predictors of desired outcomes. It takes practice to ensure your chosen bridging stimulus is the most reliable signal in the environment.

Click here for video example

HOW ANIMALS LEARN

A few terms that have already been discussed likely need more explanation. It has been assumed that the word behaviour is understood. However, it deserves some further defining .

Behaviour: Behaviour is what the organism is doing. Overt behaviour is observable and measurable. There is also covert behaviour such as thoughts and emotions.

- *Thoughts:* They are covert behaviour but are behaviour as well (Pierce & Cheney, 2017). Although trainers cannot access an animal's thoughts, overt behaviour can be observed and interpreted as "thinking" behaviour.

- *Emotions:* Emotions are also covert behaviour. What is observable is body language and/or other movements that may be described as emotional behaviour. This overt behaviour gives information about the contingencies that are impacting the animal that result in the emotional behaviour. The contingencies can be changed which results in a change in the emotional behaviour (Layng, 2017). For example, behaviour indicative of distress may be evoked from restraint, this can be changed by training an animal to voluntarily participate in medical care so that restraint is not required, and emotional behaviour associated with distress is no longer emitted.

HOW ANIMALS LEARN

Labels: In our everyday use of language, people tend to use labels to take the place of behaviour. For example, a caregiver may use an adjective to say an animal is "nice," "friendly," "aggressive," "scared," "flighty." In general, these can sometimes make it easier to communicate. However, the problem with labels is that they tend to imply the label describes an inherent trait or condition that cannot be changed. When what the person is usually describing is a behaviour that occurs under certain conditions. It is not typically something that is observed all the time. The other problem with labels is what one person observes may not be the same as what another person observes. Therefore, the label may not be describing the behaviour accurately amongst those using the label. For example, a caregiver may say the tiger was emitting aggressive behaviour. One person may envision a tiger that is lunging at the bars, and another may picture a tiger that is crouched in a corner growling. Therefore, it is beneficial to describe behaviours in detail (Johnston, 2016). This is referred to as operationalizing behaviour.

Operationalizing Behaviour: To really describe behaviours in detail it is beneficial to operationalize them. When trainers operationalize a behaviour, the descriptions are so detailed another person could read it and understand what the behaviour looks like without seeing it. This can take practice to implement to the degree described.

HOW ANIMALS LEARN

Reinforcers, desired outcomes, food, etc. have been mentioned, but often these are described as consequences.

Consequences: The outcome for doing the behaviour. This can increase or decrease the future probability of a behaviour being emitted. some possible consequences of behaviour are:

- Escape/avoidance
- Tangible items (food, enrichment, etc.)
- Attention/social affiliations
- Sensory or automatically reinforcing experiences (such as self-stimulatory behaviours)
- Preferred activities

Here are some examples of consequences seen frequently in the animal community: food, scent, interaction with conspecifics, enrichment, shelter, escape from conspecifics, preferred activities, escape from public, access to breeding/nest sites, access to mates, access to territories, escape from confinement (Heidenreich et al., 2021).

HOW ANIMALS LEARN

Appetitive Stimulus: Appetitive is a catch all term that refers to desired items and experiences. This can include tangible items such as food and enrichment. But it may also include sensory experiences, social affiliations, preferred activities, etc. The word appetitive also is useful when caregivers have not yet begun to train and do not know if the desired item or experience will increase responses. Therefore, it is not known if it will function as a reinforcer for behaviour.

Aversive Stimulus: Stimuli that generally evoke withdrawal or escape responses. Aversive stimuli are an important part of a feedback loop and should not be confused with coercion. Pain, fear, anxiety, or distress are not required for aversive stimuli to provide feedback to the learner.

For example, most birds will turn to fly into the wind to gain lift and have better control of flying behaviours. The wind blowing against the back is considered an aversive stimulus in this example and evokes a turning response. The strength (or potency) of the aversive stimulus is identifiable by the behavioural response of the animal. The bigger the response the more potent the aversive stimulus. This potency can change based on learning history.

Click here for video example

HOW ANIMALS LEARN

Reinforcer: Contingent consequences that increase or maintain the frequency of a behaviour (Layng et al., 2022). The consequence can be appetitive or aversive, added or removed. Once the appetitive or aversive stimulus has shown to reliably increase behaviour, that stimulus can be called a "reinforcer."Reinforcers can range from barely noticeable to extremely salient and still reinforce behaviour.

Contrived Reinforcers: Contrived reinforcers are those that require the mediation of the caregiver for the animal to access them. These may be required to initially train a behaviour that is not in the animal's repertoire or maintain a behaviour for which there is no natural or program specific reinforcer. For example, food is a contrived reinforcer often used to initiate and maintain behaviours such as voluntary participation in hand injections.

Functional Reinforcers: Functional reinforcers are the reinforcers already existing in the environment that have been identified via assessment as maintaining the behaviour. It can be particularly helpful to look for the functional reinforcer when evaluating undesired behaviour and the consequence that maintains it. For example, an animal that growls and lunges when a veterinary professional approaches may want distance as a reinforcer. This is information that can be used to develop an appropriate behaviour intervention plan.

Natural or Program Specific Reinforcers: Reinforcers that serve to maintain behaviour independent of the animal caregiver's efforts. Naturally, existing reinforcers are helpful for behaviours that caregivers would like to see emitted outside of training sessions. An example might be integrating an animal into a social group. Training may be used for introductions, but eventually social reinforcers will replace contrived reinforcers used to train introductions.

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Click here for video examples

HOW ANIMALS LEARN

Motivating Operations: Motivating operations are any conditions that influence the value of the reinforcer. This can include how much work the animal must do to acquire the reinforcer (for example the impact of the antecedent architecture.) It can also include the effect of conditions such as if the animal is hungry, sick, tired, reproductive, etc. They are called value altering in that they alter the value of the reinforcer. Establishing operations increase the value of the reinforcer and abolishing operations decrease the value of the reinforcer. They are also behaviour altering. Because they will either evoke behaviour or abate behaviour. Some motivating operations are unlearned. These include the following: food deprivation, water deprivation, sleep deprivation, activity deprivation, oxygen deprivation, sex deprivation, becoming too warm, becoming too cold, increase in painful stimulus (animal will do the behaviour required to either access or avoid these items/experiences as reinforcers.) There are also learned or conditioned motivating operations. These are neutral stimuli that gain their value through pairing. For example, a halter for a dog that when touched may indicate the potential for going on a desired walk. This may make it more likely the dog will emit behaviours previously reinforced by the opportunity to go for a walk, such as sitting to allow a halter to be placed on its body.

As previously discussed, behaviour is impacted by the environment. One aspect of the environment is the consequence or outcome that will determine whether a behaviour is repeated or not. Another aspect of the environment is the antecedents.

Antecedents: Antecedents are the settings and conditions under which the behaviour occurs. When does it occur? Who is there when it occurs? Where does it occur? What is in the environment? What activities were observed? Etc. Another term for antecedents is the occasion. Both antecedents and consequences can be manipulated to control behaviour.

HOW ANIMALS LEARN

The Learning Processes: These are naturally existing processes. They were identified and studied by behaviour scientists. These learning processes have been empirically tested through the experimental analysis of behaviour, which is considered a hard science. This science requires demonstration of cause and effect between controlling variables and changes in behaviour (Farhoody, 2020). Behaviour changes in response to contingencies that exist within an environment; the animal trainer's job is to alter environments to manipulate current contingencies of reinforcement and punishment and bring the animal into contact with contingencies that act upon the animal and control the animal's behaviour. The better the animal trainer understands this, the greater that trainer's ability to use the four fundamental forces in ways that are minimally stressful to the animal at every moment of training (Farhoody, 2021 p12-13).

While there are many learning processes. The following represent some with which most animal caregivers are most familiar.

Reinforcement: Is a learning process in which consequences serve to increase the future probability of a behaviour being emitted under certain conditions.

Positive Reinforcement: Positive reinforcement involves the addition of a stimulus as an outcome of emitting a response that results in an increase or strengthening of the behaviour under certain conditions.
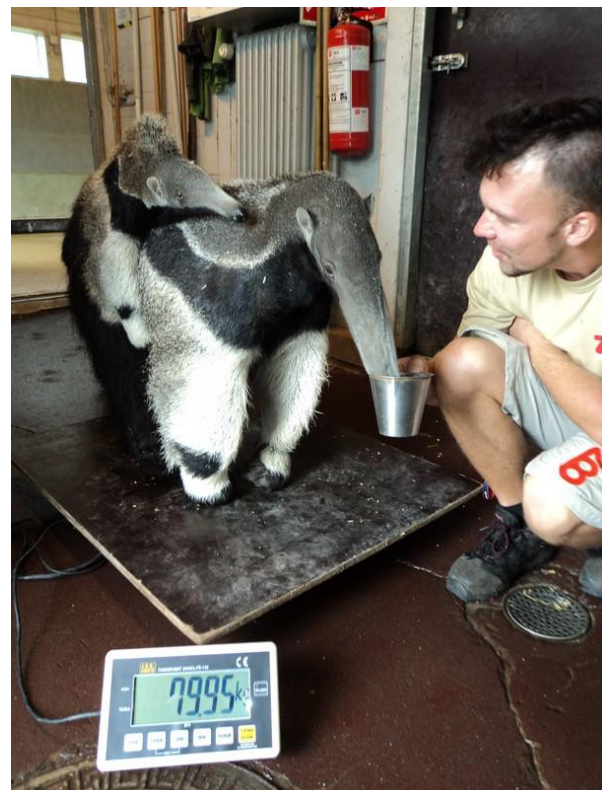
HOW ANIMALS LEARN

The following is an example of positive reinforcement:

Many animals in zoological collections are trained with a barrier separating the caregiver and the animal. This is referred to as working in protected contact (PC). There can be numerous reasons for working in a PC arrangement. Often a primary reason is safety for both human caregivers and animals. When working with animals such as elephants in PC it is beneficial to their health and welfare to train them to cooperate in their own care. An example of this is training for voluntary foot care. The caregiver can train an elephant to touch its foot to a target using positive reinforcement. This involves creating conditions in which it is easy for the elephant's foot to contact the target and when this occurs, an appetitive is delivered, such as food. This then can increase the likelihood of the behaviour occurring again. If when the target is presented, the behaviour of touching the target is increased or maintained, the behaviour has been positively reinforced. The target can then be used to help train a new behaviour of teaching the elephant to position its foot through an opening in the protective barrier for foot care.

Negative Reinforcement: Negative reinforcement involves the removal of a stimulus as an outcome of emitting a response that results in an increase or strengthening of the behaviour under certain conditions.

The following is an example of negative reinforcement:

When caregivers are present, a herd of antelope moves in the opposite direction. Observations indicate the animals are trying to escape or avoid people. This suggests that people are an aversive stimulus, and the animals are seeking distance as a reinforcer. A goal can be to increase calm behaviour by providing the desired outcome of distance as a reinforcer. To do this conditions must first be created in which the animals are able to emit calm behaviour and people are far enough away so that animals do not emit escape or avoidance behaviours. This provides an opportunity for calm responses to be reinforced by the removal of people. Over time criteria can be gradually increased (distance to the stimulus is decreased) and the animals can learn calm behaviour is sufficient for people to move away. Over time this can be transitioned to positive reinforcement as animals learn to emit calm responses in proximity to people. (See Heidenreich, 2022 for a more detailed shaping plan).

Click here for video examples
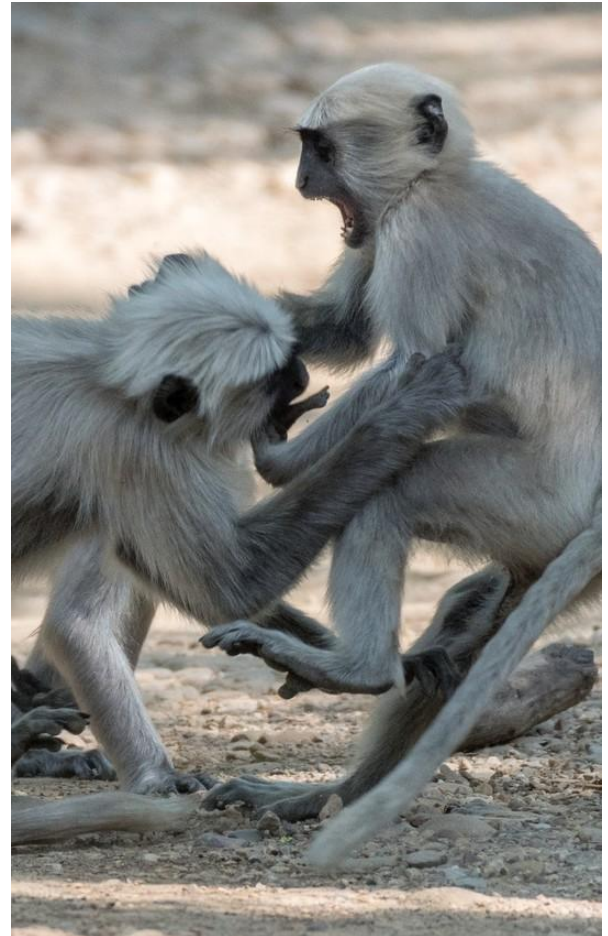
HOW ANIMALS LEARN

Punishment: Is a learning process in which consequences serve to decrease the future probability of behaviour being emitted under certain conditions.

Negative Punishment: Negative punishment involves the removal of a stimulus as an outcome of emitting a response resulting in a decrease or weakening of the behaviour under certain conditions. The term "time out" is used to describe a negative punishment tactic sometimes used in animal training. There are different "time out" tactic categories. The two categories are nonexclusion and exclusion time out. In a nonexclusion situation the animal trainer remains in the same vicinity as the animal and may use a tactic such as planned to ignore to decrease an undesired response. In an exclusion time out, the trainer or the animal is removed from the session. Because negative punishment typically involves removal of an appetitive stimulus there is the potential for fallout such as aggressive responses when it is applied poorly.

The following is an example of negative punishment:

During its first session of learning to touch its nose to a buoy target a tiger attempted to touch the target with its front paw. Because the tiger had already touched the target with its nose five times in a row successfully and had received food for doing this action, when it touched the target with its paw, the target was removed for several seconds, and no food was offered. This negatively punished the behaviour of touching the target with the paw. The target was offered again near the tiger's nose, and the tiger touched it with its nose which was then positively reinforced. Positive reinforcement increased touching with the nose and negative punishment decreased touching with the paw.

Positive Punishment: Positive punishment involves the addition of a stimulus as an outcome of emitting a response resulting in a decrease or weakening of the behaviour under certain conditions. Hotwire, steep slippery surfaces, and dark tunnels can function as positive punishers that prevent animals from contacting these stimuli to move into certain areas whether desired or undesired by animal caregivers.

HOW ANIMALS LEARN

Respondent Behaviour: Respondent behaviour is considered genetic, inherited, phylogenetic. Some good examples include blinking your eye when a puff of air is blown on it to test for glaucoma or when your animal salivates anticipating food. These are behaviours that don't require a consequence to be maintained. There is a stimulus and then the response. Reflexes are described as respondent behaviour. Therefore, it is said the behaviour is elicited. This is not said about operant behaviour. Operant behaviour is selected by consequences and therefore the word emitted is used.

Extinction: Extinction is a reduction procedure in which the contingent relationship between the behaviour and the consequence is broken. The behaviour is still in the repertoire and can spontaneously recover at any time. It has not disappeared or been "forgotten," it simply no longer earns the outcome it did in the past. Common effects of extinction include (a) extinction burst, (b) response variation, (c) initial increase in response magnitude, (d) spontaneous recovery, (e) resurgence, and (f) emotional outbursts and aggression (Cooper et al., 2017).

Habituation: Repeated presentations of an unconditioned stimulus leads to a reduction of the unconditioned response (Pierce & Cheney, 2017). Like gravity, habituation is occurring (or not.) It cannot necessarily be implemented as part of a procedure.
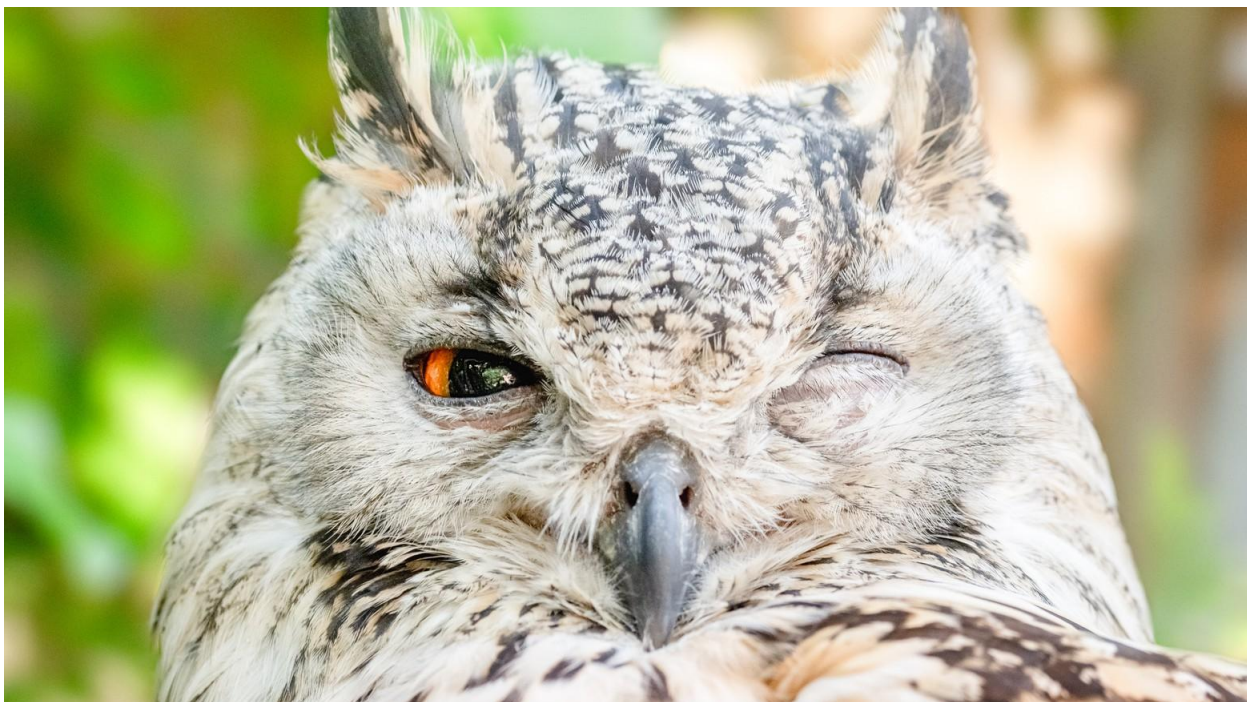
HOW ANIMALS LEARN

Desensitization: Graduated exposure to an (aversive) stimulus. The procedure depends upon exposure to the stimulus and waiting for extinction of undesired (usually fear) responses. Instead of removing the stimulus once extinction has occurred, criteria is increased. For example, the stimulus is brought closer and the process repeats.

Flooding: Flooding involves sudden, full-intensity exposure to the aversive stimulus without means of escape until the organism no longer resists (Baum, 1970, Shipley & Boudewyns, 1980, Gordon & Baum, 1987). Flooding triggers the physiologic and psychologic effects of the "fight or flight" response, with the goal of quickly habituating the organism to the aversive stimulus. While it may be effective in some situations, it is easy to misapply (especially to animals, who cannot assent to the procedure). The potential behavioural impacts of flooding may include increased sensitization to the aversive stimulus, increased aggression, and learned helplessness. Learned helplessness is observed in both animals and humans who have been conditioned to expect pain, suffering, or discomfort without a means of escape. Eventually, the animal will stop trying to avoid the undesired experience, even if escape is possible. The resultant behaviour may be misinterpreted as compliance with restraint (McLaughlin et al., 2020).

A study by Desportes et al. (2007) demonstrated that regular and frequent handling over several years did not suppress a significant stress response in porpoises restrained for blood sampling. Although three of the porpoises showed some habituation to handling over the course of the study, the circulating cortisol levels obtained under voluntary blood sampling showed a dramatic three-fold decrease compared to levels obtained under out of water restrained sampling. This sensitivity to handling shown by porpoises, as well as bottlenose dolphins and likely other marine mammals, provides data to demonstrate the advantage of training animals for cooperative care for limiting stress (p. 291).

To learn more about behaviour science, see the Additional Resources section.

STAKEHOLDERS

The first step to adding new behaviour to an animal's repertoire or implementing a behaviour intervention plan is to determine if a change is needed and justified. This must take into consideration the welfare of the animal, as well as the implications for humans and other animals who are directly or indirectly impacted if the behaviour changes or does not change. This can require trainers to: Identify all relevant stakeholders – the focal animal, other animals, and people (Heidenreich et al., 2021).

In a zoological setting stakeholders may include the following:

Direct Animal Care Staff Members
Supervisory Staff Members
Curators
Veterinary Staff Members
Directors
Board Members
Zoo Visitors
Other Zoo Professionals at Other Institutions
Media
Animals in the Same Space
Neighbouring Animals
Other Animals in the Zoo
Animals in Other Zoos
Conservation Projects
Other Zoo Professionals at the same institution (education staff, communication staff, etc.)

Animal caregivers will need to determine how the existing behaviour affects the welfare, safety, and behaviour of these stakeholders, and how the success or failure of the intervention will impact them.

They will also need to consider the availability or limitations of resources (time, money, space, etc.).

This is often best accomplished by conducting a thorough Risk/Benefit Analysis. Risk/Benefit analysis gives a way to quantify the decision-making process for stakeholders. It provides a process to measure the probability and magnitude of risks and benefits anticipated from implementing (or not implementing) the intervention or training the identified behaviour (Heidenreich et al., 2021).

BEHAVIOUR CHANGE PROGRAMS AND PROCEDURES

Once determined training the identified behaviour or implementing the intervention will proceed, animal caregivers need to consider the program and procedures that will be utilized. The goal is to maximize animal welfare, minimize risks, and consider the needs of all stakeholders. This requires trainers to consider the combination of effectiveness (producing intended results), efficiency (minimizing use of limited resources), and use of optimal procedures (maximizing possible benefits and minimizing possible harms). Each factor must play a role in determining the overall course of action (Heidenreich et al., 2021).

Programs:
Programs are approaches to behaviour changethat can encompass multiple steps or elements (including procedures) to be evaluated and/or implemented to attain desired outcomes. The following are some examples of behaviour change programs.

Functional Behaviour Assessment (FBA): Functional Behaviour Assessment is a process used for gathering information used to maximize the effectiveness and efficiency of behavioural support (O'Neill et al., 1997). It includes providing an operationalized definition of the behaviour, identification of events that are functionally related to the behaviour, identification of consequences that maintain the behaviour, hypothesis about the function of the behaviour, and direct observation to confirm/support hypothesis, careful monitoring of interventions once implemented. This gathering of information helps caregivers speculate what might be the reasons behind the behaviours observed (MODeptofEducation, 2016).

BEHAVIOUR CHANGE PROGRAMS AND PROCEDURES

Functional Analysis (FA): Functional Analysis is where speculations from FBA are actually tested. Antecedents (A) and/or the consequences (C) in the A-B-C's can be manipulated to observe their effect on behaviour. Motivating operations (MO) can also be changed to observe their impact on the value of the consequence and whether this evokes or abates behaviour.

- *Three-Term Contingency Analysis (ABC):* Many animal caregivers have been exposed to what is often referred to as the A-B-C's, linear contingency analysis, or three-term contingency. This approach for evaluating behaviour looks at a target behaviour and evaluates the antecedents and consequences directly related to that target behaviour. Manipulation of antecedents and/or consequences can result in changes to the target behaviour.

- *Four-Term Contingency Analysis:* In a four-term contingency analysis, motivating operations are also evaluated for their impact on their ability to increase or decrease the effectiveness of the consequence (the C in the A-B-C's) and in turn evoke or abate behaviour.

Looking at the A-B-C's of behaviour is considered a linear contingency analysis of behaviour. This information is useful. However, the target behaviour is often the result of the control of many contingencies. This can sometimes require careful evaluation, research, and further investigation to reveal. When animal caregivers conduct a nonlinear contingency analysis, they can discover multiple factors that contribute to the resulting behaviour. This can give them more information to achieve desired results and optimize welfare.

BEHAVIOUR CHANGE PROGRAMS AND PROCEDURES

Nonlinear Contingency Analysis: Nonlinear contingency analysis can help reveal the multiple contingencies that are operating on the same target behaviour. This can be viewed as a package of contingencies (which includes the contingency that results from the direct linear analysis.)Each of these contingencies involves a cost or benefit. If one of these contingencies involves a critical consequence (something important to the survival to the animal) it can override or suppress the impact of the other contingencies (Layng et al., 2022). This type of analysis can help reveal when training strategies may be less than optimal. For example, if an animal is hesitant to shift into an enclosed space off display and allow the door to be closed, a strategy that might be considered is to only offer the animal's diet in the enclosed space. While this may on the surface appear to be a positive reinforcement-based procedure (offering food for moving into the enclosed space), there are also other contingencies to consider. Hesitancy to move into the enclosed space could indicate a negative reinforcement contingency is also maintaining behaviour. The animal is moving to avoid or gain distance from the off-display space. The animal may also emit this response when closing the door is attempted, which would indicate another negative reinforcement contingency. Therefore, for the positive reinforcement procedure to be non-coercive and more effective it would be beneficial to address the negative reinforcement contingencies first that are maintaining escape and avoidance behaviours. This would remove the high cost involved in approaching the off-display area and increase the benefit in approaching to access the food, instead of waiting for hunger to override the fear response. A nonlinear contingency analysis is used in programs such as the constructional approach.

BEHAVIOUR CHANGE PROGRAMS AND PROCEDURES

The Constructional Approach: The constructional approach is a program that includes five elements for attaining desired behavioural outcomes. The five elements include the following:

01 Identify a specific behaviour goal

02 Identify existing behaviours (a starting point from which behaviour can be built)

03 Determine appropriate change procedures based upon....

04 the consequences (linear and nonlinear) that maintain the behaviour including functional reinforcers, and

05 implement a means of monitoring progress. This can be as simple as taking video recording of sessions (Layng et al., 2022).

There are other programs animal caregivers can consider. The ATWG recommends carefully evaluating programs for their validity, and ability to optimize animal welfare.

BEHAVIOUR CHANGE PROGRAMS AND PROCEDURES

Procedures:

Procedures utilize learning processes and/or combinations of learning processes to evoke behaviour change. Procedures can maintain behaviour, establish behaviour, and/or extinguish behaviour. There can be endless procedure possibilities. Each should be evaluated for their ability to optimize animal welfare before implemented.

Shaping: Shaping is a procedure. It is defined as the differential reinforcement of successive approximations toward a terminal behaviour. The previous response goes on extinction, which creates more responding (the result of an extinction burst), which is then differentially reinforced. Shaping can be used in both positive and negative reinforcement procedures.

BEHAVIOUR CHANGE PROGRAMS AND PROCEDURES

I*ndividualized, Function-Based Training:* In recent years, caregivers have been advised to focus on a specific learning process such as positive reinforcement to evoke behaviour change. It is important to understand that behaviour is not optimally controlled necessarily by any single learning process. There is always more to consider. For example, positive reinforcement can be coercive when animals have only one way to gain desired outcomes and the consequence is critical to survival, such as food. This can become further compromising when deprivation of the critical consequence is involved.

Some behaviours are maintained by animals seeking distance from an aversive stimulus. This is often the case when animals emit behaviours identified as fear responses, and in some examples of aggressive behaviour. In these cases, the behaviours are often maintained by negative reinforcement contingencies which once addressed can provide great relief to animals who learn calm responses are enough to cause aversive stimuli to go away.

Creating behaviour change often takes closer evaluation to ensure individualized, function-based interventions are provided. This means animal care professionals need to consider the specific individual and behaviour in question, as well as the combination of effectiveness (producing intended results), efficiency (minimizing use of limited resources), and use of optimal (maximizing possible benefits and minimizing possible harms) when developing a training procedure. This includes avoiding the intentional use of aversive stimuli to inflict pain, fear, anxiety, or distress. (The only exception is if an animal or human life is at risk.) There is no one size fits all or ideal recipe to follow when training animals. This helps emphasize the importance of understanding not only the application, but the science behind behaviour-change procedures.
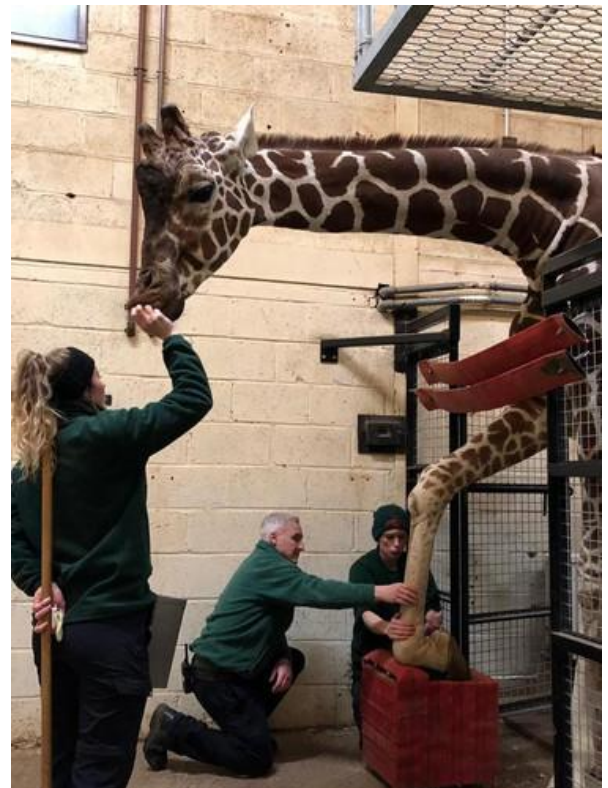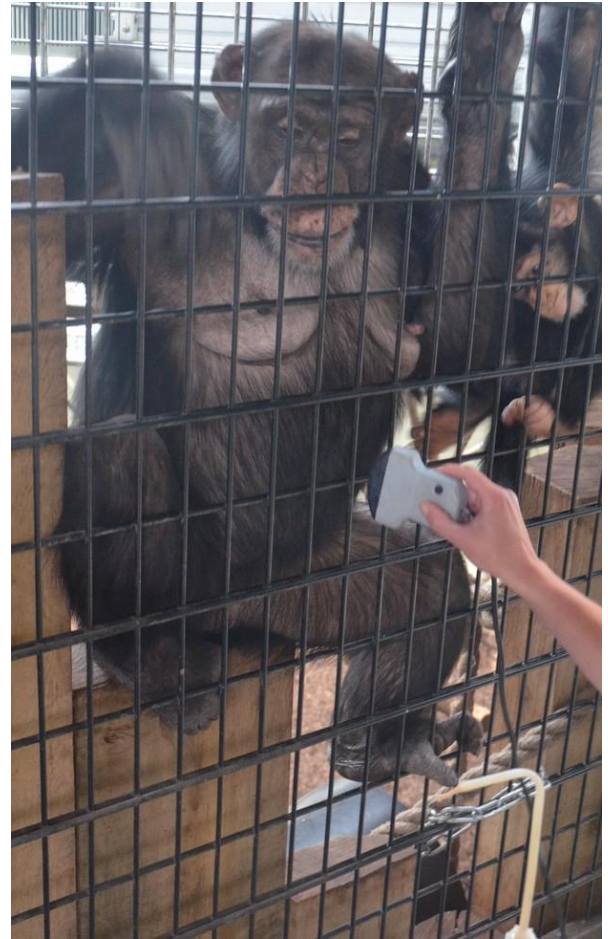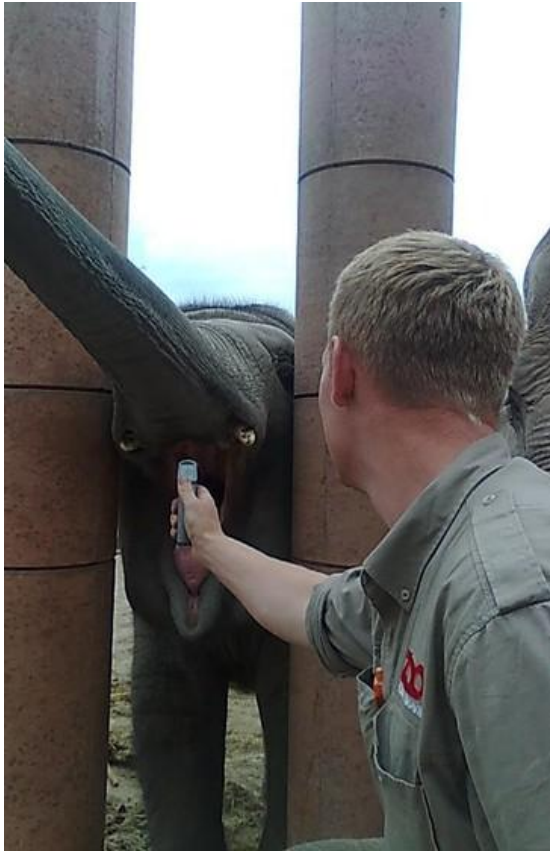
ETHICAL CONSIDERATIONS

As stewards of animals, caregivers address numerous ethical considerations regarding welfare. Animal training is no exception. In this section there are several areas the ATWG has identified as priority. Animal caregivers are encouraged to always promote training practices that encourage optimal welfare, even if not listed in this document.

Training Should Optimize Animal Welfare: Participating in the animal training program and procedures maximizes possible benefits to the animal(s) and minimizes possible harms.

Facilities Should Promote Competency of Practitioners: Optimal animal training practices demand caregivers demonstrate competency in both theoretical knowledge as well as "real-life/hands-on" expertise of applying scientific principles. The ATWG encourages facilities to support opportunities for caregivers to gain knowledge and practical application skills to properly implement animal training procedures. This can be accomplished by utilizing the materials listed in the Additional Resources sections, in particular by attending the training courses and workshops provided by the Animal Training Working Group via the EAZA Academy.

Risk/Benefit Analysis: A risk-benefit analysis is a deliberate evaluation of the potential risks (e.g., limitations, side effects, costs) and benefits (e.g., treatment outcomes, efficiency, savings) associated with a given intervention. A risk-benefit analysis should conclude with a course of action associated with greater benefits than risks (Behaviour Analyst Certification Board, 2018).

ETHICAL CONSIDERATIONS

Regularly Conduct Risk/Benefit Analysis of Training Goals: Before a behaviour is trained, compare the risks and benefits of training the behaviour or not training the behaviour based on the input of the relevant stakeholders. Use this information to decide whether the behaviour should be trained or not.

Regularly Conduct Risk/Benefit Analysis of Programs: Different programs follow different approaches. Compare the risks and benefits of specific programs based on the input of the relevant stakeholders. Use this information to guide your decision-making process on the use of specific programs. For example, you may want to make sure the program supports an animal's assent to participate. You may also want to evaluate the program for its ability to achieve efficient, effective, and optimal outcomes.

Regularly Conduct Risk/Benefit Analysis of Procedures: If it has been decided to train the behaviour or implement a behaviour intervention plan compare the risks and benefits of the specific procedures chosen based on the input of the relevant stakeholders. Use this information to guide your decision-making process on the use of specific procedures.

ETHICAL CONSIDERATIONS

Support Assent Based Programs: Assent means to agree with an opinion, approval, or permission. In other words, the participant agrees with what is happening. This agreement can be non-verbal and expressed by one's actions or conduct. In animal training this means assessing body language and often providing freedom of movement to escape or avoid participation if desired. Assent usually signals stronger agreement than consent which suggests acquiescence and little more. Zoo professionals are really looking for assent in animal training vs consent. Animal caregivers are also monitoring for assent throughout the training process. Assent also requires that animals have multiple ways to access desired outcomes. Limiting options to only one, especially for critical consequences such as food, can be coercive.

Disseminate Knowledge: Help elevate the collective knowledge of the industry and ability to improve animal welfare with training by dissemination of information. Document animal training and share experiences in trade organization journals, conferences, EAZA resources, and other outlets. This includes proper citations and credit for intellectual property. Intellectual property includes shaping plans, behaviour ideas, original ideas for training props and materials, in addition to publications and presentations. Appropriately citing colleagues for their intellectual property adds credibility to animal training as an evidence-based practice. It allows the community to build upon a foundation of the contributions of many professionals working together. It also can build a network of trackable useful information to better facilitate improving animal welfare.

ANIMAL TRAINING PROGRAM STRUCTURE

There are many ways to structure a facility training program that can be successful. The following are general recommendations.

Oversight: It is often helpful to have a person who is responsible for the oversight of the training program. This person may be designated as the training coordinator, behaviour manager, behaviour management officer, or other similar title. Their responsibilities may include identifying/approving behaviour goals, training staff members, facilitating animal training, providing resources, aide in staff accountability and meeting behaviour goal deadlines, teach animal training classes, provide additional resources on animal training, act as a liaison between stakeholders, create/evaluate the institution's animal training program and training policies, disseminate information to the professional community, oversee data collection/record keeping, assign additional study material, and more.

Application: Practical application includes training specific behaviours, reporting undesired behaviours, maintaining trained behaviours, facilitating identifying new behaviour goals, writing shaping plans, and data collection/record keeping. This generally tends to be the responsibility of caregivers who work directly with the animals daily.

Primary Trainers: Some facilities use a strategy in which a primary trainer is assigned to train a behaviour when it is in the initial stages of training. Once the behaviour is learned, a final step in the shaping plan is to transfer the behaviour to other trainers. This is often beneficial to both the animal, the team, and facility. This primary trainer does not have to be the same team member or person for all trained behaviours but can be different team members for different new behaviours. Training provides a means to communicate what actions result in what outcomes. This requires the trainer to carefully observe and reinforce specific responses during training sessions. Because everyone is an individual, there is some variability in what each person will see and reinforce. This means the animal must adapt to each person. If the number of people shaping a behaviour is limited in the early stages of learning a behaviour this can make it easier for the animal to understand what responses earn reinforcement.

Once the goal behaviour is reached and has built up reinforcement history, adding a new person becomes the only additional approximation upon which to focus. The animal will likely offer the behaviour that has earned reinforcement many times for this new person. After the behaviour is mastered with this person, the process is repeated with the next new individual. This is also often a desired goal so that many caregivers can manage animals. This goal also can help ensure the animal can receive optimal care because the behaviour can be successfully executed independent of any specific caregiver.

ANIMAL TRAINING PROGRAM STRUCTURE

Consultants: Different consultants offer different benefits. Some may be specialists with specific species and/or taxonomic groups. Some may specialize in scientific theory, and others may carry expertise in practical application with limited or a wide variety of species. Others may offer a combination of these skills. Consultants may provide classroom instruction, coaching and guidance during training sessions, provide training demonstrations, facilitate behaviour problem resolution, conduct on-site workshops, provide resources for continuing education, facilitate dissemination of accomplishments in publications/at conferences, and overall promote the professional development of staff members as it pertains to animal training. Services and fit will vary depending on the needs of the facility and the competency of the consultant. Use of consultants varies from a single on-site visit to regular consistent contracts. Consultants can help launch training programs, help build structure and add foundation, and refresh programs that are established.

DATA COLLECTION/RECORD KEEPING

As previously discussed, animal behaviour and learning are rooted in hard sciences. The work of the zoo professional draws upon these sciences and incorporates them daily in practical application. The accumulation of this work often represents tremendous outcomes that dramatically improve animal welfare. There are a multitude of benefits to documenting these efforts throughout all stages of the process.

The following are just some of the reasons it is beneficial to collect data and keep records on animal training:
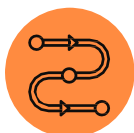
There is a record of the process used to train a new behaviour or address an undesired behaviour. This can be important if the behaviour needs to be retrained/addressed with the focal animal.

The records can be used as a model to determine how to train the same or similar species later, for example if the collection temporarily cares for Sumatran tigers and then becomes a holder again later, the caregiver can refer to previous records for planning purposes.

Data is available to review and evaluate to determine if your chosen intervention or training plan is producing desired outcomes.

Data collection/record keeping can encourage regular behaviour monitoring.

Data collection/record keeping can facilitate excellent communication amongst stakeholders about training and behaviour.

Detailed information about the training and behaviour of the individual is part of the animal's permanent record. This can provide continuity of care and optimal behavioural welfare when moving to other facilities.

Training records can be useful when behaviour changes emerge over time. The historical record can provide information that can be important.

Records can be referred to for dissemination of information to other industry professionals, for example for journal articles, conference presentations, and scientific studies.

If information is recorded into a networked database (such as ZIMS) this can better facilitate worldwide sharing of data to enhance industry communication and knowledge.

Go to the EAZA Sharepoint and the ATWG documents for samples of record keeping forms

DATA COLLECTION/RECORD KEEPING BASICS

As a rule, the more information that can be collected the better. However, there is some basic information when it comes to animal training that is most useful.

Behaviour Goals and Proposed Deadlines
A first step towards building a behavioural repertoire for an animal is to identify specific behaviour goals. It is recommended these goals are identified and approved with input from relevant stakeholders. These goals are then prioritized. Proposed deadlines and trainers can be attached to these behaviour goals. This information should be recorded and referred to as needed to regularly assess progress towards meeting desired behaviour goals. This can facilitate accountability.

Shaping Plans
Many facilities require animal caregivers to write a shaping plan (the steps they anticipate using in a procedure) to train an identified behaviour goal. This can provide a way for various stakeholders to review/approve a proposed plan. This is often just an outline to provide some guidance that will change based on the actual behaviours emitted during the training sessions. Some animal caregivers write the actual steps used after the behaviour was trained and keep this in the animal record. These also can be useful to review if the behaviour needs to be retrained or the shaping plan would like to be used with another animal.

Other useful information to research before commencing training a new behaviour or developing a behaviour intervention plan are the natural history, individual behavioural history, and medical profiles from the current or previous institutions. Different electronic databases (e.g., ZIMS) ask for specific information such as the purpose for training the behaviour. (For more detailed guidelines see www. BIGforAnimals.com and courses in the Additional Resources section)

DATA COLLECTION/RECORD KEEPING BASICS

Training Logs

The training log is usually a written account of each training session. This usually includes details such as the personnel involved in training and specific details about the session. It should be written in a manner that someone reading the log who is unfamiliar with the animal, the behaviour, or the session could understand the information. Therefore, a phrase such as "the session was good" would lack sufficient details. The reader would want to know more details such as the behaviour being trained, how many repetitions were completed, what was the resulting outcome of the session, etc. If the session were video-taped this could also be stored and linked with the data input for that session. Systems have been created in which numbers or similar abbreviations (with their meanings well defined) have been used to streamline record keeping. However, the key is sufficient details so that the information can be understood if the people who wrote the records were no longer there to interpret the system.

Records/Video of Completed Behaviours

Detailed records, especially videos of behaviours that are considered trained and in the animal's repertoire should be kept on file for several reasons. This can be helpful for when new animal care staff are hired to work with the animal, if a behaviour needs to be retrained, and/or if the animal is to be moved to another facility. The video should include clear views of what the trainer is doing (demonstrating cues, bridging stimulus, delivering reinforcers, etc.) as well as how the animal responds and what is considered meeting criteria for the behaviour.

Documenting Undesired Behaviour and their Interventions

Sometimes animals emit undesired behaviours that require behaviour change procedures to be implemented. It is helpful to get in the habit of taking video of the undesired response before implementing an intervention. This can be considered the "baseline" video. It is also useful to take video throughout the process of implementing the intervention, as well as writing down information which may include recording data such as frequency or duration of undesired responses (depending on the behaviour problem). Once resolved, video can be taken again to illustrate the outcome. This type of data collection can be especially helpful for dissemination of information of how training can be used to address undesired behaviour.

Additional data collection and record keeping is encouraged! These are just some minimum recommendations.

Go to the EAZA Sharepoint and the ATWG documents for samples of record keeping forms

RECOMMENDATIONS FOR IMPLEMENTING ANIMAL TRAINING GUIDELINES

Each facility is at a different place in their journey towards implementing an animal training program. This resource is meant to outline some of the elements that are most helpful in understanding and adding structure to a training program. Every element EAZA members can put into practice is another step towards optimizing welfare of animals in managed care. We recommend adding components that are easily implemented and building upon this groundwork. Each success can lead to more accomplishments as a program progresses.

We have included elements that most facilities can utilize and implement right away as well as ideas that may inspire future development of a training program. The ATWG hopes members have found these guidelines useful wherever you are on your journey towards improving welfare via the use of animal training.

Please see the following sections for additional information and educational materials. We also invite member feedback and recommendations to improve this resource. Thank you for utilizing the EAZA ATWG Animal Training Guidelines.

~The Animal Training Working Group

ADDITIONAL RESOURCES

The following are additional resources or links to opportunities for continued professional development in regard to animal training and behaviour:

SharePoint: Look for the ATWG

The Economic Value of Zoo Training by Jim Mackie

Animal Training Courses and Workshops via EAZA Academy

The Secret Life of the If/Then Contingency by Barbara Heidenreich

Animal Training Workshop at Annual Conference

Addressing Undesired Repetitive Behaviour

Events at Annual Conference

Heidenreich, B. E., (2021). From Ex-Situ to In-Situ Conservation. Using Behavioural Technology to Improve the Rehabilitation and Release of Orangutans in Borneo. Operants. (2 and 3) 30-34

Facebook Group

Mackie, J., (2021). Monkey Magic! Operants. (2 and 3) 17-20

EAZA on YouTube

Pedersen, A., (2021). A Small World – A Big Impact! Operants. (2 and 3) 21-24

TEMPLATE FOR EEP/TAG
BEST PRACTICES GUIDELINES

Recommended Guidelines for Training [*Genus species*]

EAZA recognizes that the use of evidence-based training technology can lead to improved animal welfare for animals in managed care. Because of this, training is considered an essential part of animal care (EAZA Standards for the Accommodation and Care of Animals in Zoos and Aquaria, 2022).

The [*Genus species*] EEP/TAG recommends following the EAZA Animal Training Guidelines (Heidenreich et al., 2023)

Recommended Behaviors to Train [*Genus species*]:

The [*Genus species*] EEP/TAG recommends training the following behaviors whenever possible.

Behaviors Useful for Day-to-Day Care:

List behaviors (if any) recommended to be trained with [*Genus species*]

Behaviors Useful for Cooperation in Medical Care:

List behaviors (if any) recommended to be trained with [*Genus species*]. It may also be helpful to make a recommendation on which behaviors to prioritize or train first. For example, training for voluntary hand injections is often recommended before training for voluntary blood collection.

Other Behaviors:

List additional behaviors (if any) recommended to be trained with [*Genus species*]

TEMPLATE FOR EEP/TAG
BEST PRACTICES GUIDELINES

Common Behavior Problems Observed

Describe any behavior problems (if any) commonly observed with [*Genus species*]

Specific Tools, Props, Apparatus that Facilitate Training *[Genus species*]

Describe any specific tools, props, and/or apparatus that facilitate training [*Genus species*]. Examples may be feeding sticks, tongs, types of targets, training wall designs, types of transport crates, induction boxes, boxes for hoof curl behaviors, chutes, blood draw sleeves, etc.

Safety Considerations

Describe any safety considerations that are important when training [*Genus species*]. Examples may include the following: at least two people must be present, do not feed from the hand, must be trained in protected contact, etc.

Ethologic/Phylogenetic Considerations

Describe ethologic and/or phylogenetic considerations of the species that may impact training of [*Genus species*]. Examples may include the following: group dynamics are impacted by dominance hierarchies, reproductive states such as musth and estrus cycles impact training, age of animal, human imprinting, etc.

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In text citation: (Heidenreich et al., 2023)

(EAZA Standards for the Accommodation and Care of Animals in Zoos and Aquaria, 2022).

Go to the EAZA Sharepoint and the ATWG documents to access this template

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EAZAVideo (2021). Animal Training in Zoos by Jim Mackie [Video]
https://youtu.be/RWSZPogNadg

EAZAVideo (2021). The Economic Value of Zoo Animal Training by Jim Mackie [Video]
YouTube. https://youtu.be/OyY6TNy9Q5U

EAZAvideo (2021). The Secret Life of the If/Then Contingency by Barbara Heidenreich [Video] YouTube. https://youtu.be/H0dbQAWQubw

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Farhoody, P. (2020). How I Learned to Love the Learning Processes (AKA the 4 Quadrants)
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https://animaltrainingfundamentals.com/courses/learning-processes/

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