Training Two Coyotes (*Canis latrans*) Through Extensive Desensitization Techniques
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Introduction

The Phoenix Zoo provides training and behavioral enrichment programs for its animals with the goals of elevating the welfare of the animals and engaging our guests. The behavioral management program utilizes keepers, interns, volunteers, docents and students. This report addresses the training of two geriatric animals that learned new behaviors by using desensitization techniques.

The subjects of the coyote (*Canis latrans*) training program were 1.1 eleven year old, wild-caught animals (Bob and Lucky), exhibited in a 1012 square meter enclosure in the Phoenix Zoo. The exhibit features a disturbed lowland Sonoran desert landscape, and has been the animals’ enclosure since they arrived in July 1993.

As of 2003 the coyotes were not using their night house; instead they were digging their own dens, hiding in the dense vegetation, and hunting on their own. They developed undesirable behaviors such as running the same tracks, running at high speed along the fence line when a keeper entered, hiding from the keepers, avoiding behavioral enrichment items and spending little time visible to guests when they were on exhibit. Daily routine checks, annual physical exams and capturing the coyotes became increasingly difficult. In order to dependably observe the animals, a different behavioral management plan was developed and implemented. The Phoenix Zoo brought in Gary Wilkes, an expert in canine behaviors, who suggested implementing an aggressive desensitization program. The objective was to change the coyote’s behavior and actively reward them for adapting to their new environment. The desensitization process was also thought to promote consistent viewing of the coyotes by guests.

The coyotes were not driven by food in exchange for learning new behaviors. Since the Phoenix Zoo’s policy prohibits the withholding of animal diets as part of a training procedure, and the coyotes were regularly hunting rabbits, birds, squirrels, and rats on their own, the coyotes were able to
break the performance-reward connection by out-waiting their trainers. This history of defeating all attempts to train them meant that no straightforward approach was going to work.

Methods

The behavioral management program was conducted from May 2003 through January 2004. The program was irregularly documented by taking pictures and videotaping training sessions. The methods used are presented in chronological order:

May 2003
1. The animal’s diet was varied. New food items such as mice, rats, hot dogs, cooked chicken parts, liver and fish were added to their diet.
2. The feeding and training schedules were varied to prevent predictability.
3. The keeper’s cleaning routine was changed: keepers were asked to walk in the opposite direction from their typical routine. Later the keepers walked in completely random directions to disrupt the normal pattern. One morning a keeper jogged around the exhibit.
4. The night house was opened for the first time in nine years, allowing the coyotes to explore it. Food rewards were introduced inside the night house to encourage investigation.

June 2003
1. Trails of treats (20-60 feet long) were created. The length of the trails depended on which way the keepers were walking around on exhibit. (Any keeper who laid down a series of treats was clicking intermittently between placing treats on the ground. This non-contingent clicking was meant to gently increase environmental variables into the exhibit and may help to habituate the coyotes to the sound of the click).
2. Stationary keepers tossed treats to each coyote encouraging the animals to come closer and closer for treats.
3. Variability of feeding locations was increased by offering diet from the top of the enclosure (visitors’ viewing bridge).

July 2003
1. Variations of keeper body postures were introduced such as feeding from a sitting position on a rock.
2. Other staff members were introduced to the animals. First, only one person was allowed to walk around in the company of the keeper for two to three minutes, then exit the enclosure. After a couple weeks the number of staff members increased to two. While these “trainers” were walking around, they left treats and clicked intermittently to make this act a positive experience for the coyotes.
3. Since the keepers were not highly skilled trainers, a keeper training program was started. Because of lack of time during working hours and the inability of trying to schedule keepers at the same time and same place, keepers volunteered in their free time to:
   i. Review clicker training video tapes and discuss them at meetings.
   ii. And to meet at each other’s houses for extra training lessons by training each other’s dogs to improve their skills.
4. Two keepers trained together in the exhibit. By slowly walking around the opposite side of the exhibit, one keeper would herd the animals towards the other keeper who
would attempt to maintain the coyote’s interest in the food treats even though the animals might have felt leery of being cornered.

5. New enrichment ideas were applied by the late shift keeper to see how the animals would react to new items. Items used included burlap bags covering their dens, “Alley Oop” plastic target (Click and Treat Products) or pigeon wings and fish hung from the bushes. Burlap tube with peanut butter inside was also offered and was suspended from their favorite tree (animals spent most of their time laying under this particular tree), placed near their den or put on their tracks.

August 2003

1. Keepers changed posture from sitting on a rock to sitting on the ground.
2. Documentation started to decrease because of technical difficulties, such as re-chargeable batteries not holding a charge, shortage of staff for filming, time restraints on keepers, or problems getting the duplicated response of the previous behavior. After discussing the dilemma with the team keepers and the Behavioral Management Coordinator, keepers committed to videotaping at least two sessions per week.
3. A motion sensor camera was installed in the night house to see if the animals were coming in.
4. Since this program was a desensitization program, complicated by the facts that keepers had various assignments to accomplish and the coyotes responded to each keeper differently, comparisons of behaviors needed to be more frequent and in greater detail. Written reports were submitted from keepers to the coordinator and the consultant regarding individual animal responses to individual keepers.
5. Any spoken command, including the animal’s name (Lucky, Bob or “Yotes” - short for coyotes), was to be said only once. If the command was given and did not yield
an immediate and correct reaction, then only the daily routine of feeding and cleaning was performed.

6. Keepers began each training session with a light ringing of a metal triangle bell which was hung outside the night house. The triangle would be used later as the signal for feeding at Zoo Lights, a night time winter holiday event for the general public. This allowed guests to see the coyotes.

7. A Boomer ball was added to the exhibit and placed in the rear of the exhibit along their pathway.

8. Keepers continued placing approved enrichment items such as frozen blood balls, rabbit legs, and autoclaved zebra and giraffe urine in the night house to prolong the time the coyotes spent inside.

September 2003

1. 11:00 AM guest encounter program began so zoo guests could voluntarily be engaged in our training program. Those who did not wish to enter the enclosure were assigned as “research assistants” reporting to the keepers of the change in the coyote’s behavior. Guest reactions, as well as the reactions of the coyote’s behaviors, were videotaped.

2. Due to scheduling difficulties and time restraints, keepers stopped herding the animals toward each other.

October 2003

1. Keepers began to sit on a camping chair under the tree in the East side of the exhibit.

2. Safety issues developed due to the increasing numbers of zoo visitors interested in entering the coyote exhibit. Keepers had a difficult time controlling more than ten to fifteen people at a time, especially children. Another safety factor became evident when it was realized that zoo guests were wearing sandals, or open-toed shoes, in an area landscaped with cactus. Due to these safety concerns the number of guests allowed into the exhibit was reduced to no more then 20 to 25 individuals at the same time.

November 2003

1. Night house floor was sprinkled with flour to track evidence of coyote footprints to see how far the animals came in to explore the area.

2. Large black plastic sewer tubes (4 feet in diameter and 15 feet in length) were placed on exhibit to help the coyotes get over the hesitation of entering small areas, such as the entrance to their night house.
3. Trail keepers that did not participate in the program very frequently, and thus were “strangers” to the coyotes, did a couple of training sessions to see if the animals would come close to them also.

4. In November 2003, the program generated a media event by a local television station.

January 2004

1. Attempted immobilization by offering two pre killed mice with ketamine hydrochloride in them.

May 2004

1. Attempted oral medication (lufenuron) for flea treatment in pre killed mice.

Results

During the eight month program the coyote’s behavior changed dramatically in our favor.

1. Animal’s relationship to humans:

   • Toward keepers:
     o The increased variety of diet and the unpredictability of feeding and training schedules kept the coyotes looking for keepers during the day, and thus were visible to zoo guests for greater periods of time.
     o Because of the variations with keepers’ body postures and cleaning routines, the coyotes became more at ease with disturbances. They maintained a more relaxed posture and became curious about what the keeper was doing rather than showing stressed behaviors.
     o The flight distance of the coyotes from the keepers decreased from 20 to 30 feet to 5 to 6 feet by the end of the training program.
     o Keepers could enter the exhibit at any time from any direction for routine cleaning without causing stress behaviors such as running the fence line at high speeds, hiding in bushes or retreating to their dens.
     o Animals were routinely training for keepers they rarely saw.
     o Keepers were able to do daily visual exams.
o On January 30th, 2004 the keepers made an attempt to administer ketamine in two mice, one for each animal, for reducing stress related behaviors during their annual exam.

o On May 1, 2004, lufenuron, an oral flea treatment was offered in pre killed mice and ingested by the coyotes for the first time. The medicating process was successfully continued for several weeks.

- Toward visitors:
  o By October 2003, up to 50 guests were tolerated by the coyotes in their exhibit without fleeing from them. The animals became conditioned to understand that the presence of humans meant food reward. By the end of the program, instead of running away or staring at the “intruders” from afar, the coyotes kept close, even following the groups in hopes for their food reward.
  o By feeding from the exhibit viewing bridge, the animals became used to being at a closer proximity (10 to 15 feet) to the guests and ate in view of the guests.
  o Classical conditioning of the animals to the triangle bell made it more efficient for the late shift keepers to feed the coyotes at night. This conditioning also increased the visibility of the animals during Zoo Light hours.

2. Animal’s relationship to new spaces and to objects:

- By August 2003 the female coyote regularly entered and explored the night house.
- The variety of behavioral enrichment items and the frequency of offering these items were significantly increased from occasional offerings to at least twice a week. New behavioral enrichment items were investigated immediately or at least within the same day. Prior to this program the animals kept away from new objects, sometimes over a week. In some cases they never investigated new items or would show signs of panic towards certain objects, resulting in the keepers needing to remove these items to normalize their behavior.
- The coyotes did not use the large black sewer tube.

3. Humans’ relationship to animals:

- Zoo staff, volunteers, and guests became familiar with the coyote training program and actively participated.
- By advertising the Coyote Encounter with a sign at the front of the exhibit, and with news traveling around that zoo guests could enter with the coyotes, the number of guests increased. At one point we had close to 90 guests waiting for the keeper to be part of the training program. 50 of them were allowed inside the enclosure; the rest remained outside and helped as “research assistants”.
- In November 2003, the program also generated a media event.
- The amount of time the guests spent in front of the coyote exhibit also increased. Instead of the usual 2-3 minute stay, visitors were now waiting for the keepers for up to 5-10 minutes prior of starting the training session and participated until the end (an additional 10-20 minutes).
• The tours on exhibit gave the guests a chance to see first hand how the coyotes lived. Inspecting their dens, their feces, identifying footprints and favorite resting places helped understanding of things they might encounter in the wild.

Discussion

By not allowing the coyotes to know by whom, how, what and when they were to be fed, they lost the advantage of refusing treats based on the assumption that they will be fed later regardless of their performance. This critical lesson did not require deprivation- it merely required a randomized schedule.

The increased variety of diet, enrichment and time the keepers spent with the coyotes, resulted in a change of the coyotes’ behaviors; from being panicky (running at a high speed along the fence line with their tails tucked and their ears laid back) to curious, active and relaxed (trotting at a normal space with their tails outstretched and their ears up).

The distance between keepers and animals decreased to 5 - 6 feet without being a threat to one another and elevated the relationship to a safe and comfortable level. The coyotes became accustomed to people entering their enclosure in large groups. The female coyote became more comfortable entering into a smaller, more confined space such as the night house; however we did not have any evidence of the male’s presence for unknown reasons. Since the exhibit is such a large enclosure, the animals also had no reason to use the large PVC tube.

The attempt of administering the ketamine has failed, possibly due to the smell of the medicine. However, the coyotes have learned to take pre killed mice without fighting and were successfully medicated for fleas - a behavior that is being continuously maintained since.

The Phoenix Zoo staff believes that by having other zoo staff and guests to be part of the program, these people have gained a unique personal experience. With this program, the Phoenix Zoo staff hopes that these two coyotes will have better lives and that our guests are inspired to accept responsibility for the well-being of all living creatures of the natural world.

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References

Gary Wilkes, Behavioral Consultant, Phoenix Arizona, Click & Treat Products