

Primate Training at Disney's Animal Kingdom

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A training program has been in place at Disney's Animal Kingdom since the nonhuman animals first arrived at the park. The Primate Team and the Behavioral Husbandry Team have worked together closely to establish a philosophy and framework for this program. This framework emphasizes setting goals, planning, implementing, documenting, and evaluating. The philosophy focuses on safety, staff training, and an integrated approach to training as an animal management tool. Behaviors to be trained include husbandry and veterinary as well as behaviors identified for specific species, individuals, or situations. Input from all the teams was used to prioritize these behaviors. Despite the challenges to maintaining such a program, the benefits to animal care and welfare have been enormous.

Since the first primates arrived at Disney's Animal Kingdom (DAK) in 1997, a training program has been in place to assist in providing them the best care possible. As the collection and the primate team have grown, so has the scope of the training program. The goals and philosophy, however, have remained the same. They will continue to guide the program into the future.

Two teams are responsible for primate training at DAK. Currently, the Primate Team is made up of 16 keepers who are involved in direct animal care such as daily husbandry, enrichment, and training; 3 zoological managers, who are responsible for overseeing the animal care and supervising and training the staff; and a curator of mammals who oversees the Primate Team in addition to other areas of the park. The Behavioral Husbandry Team, made up of two zoological managers, a part time curator, and a full time curator, provides leadership, support, staff training, and resources for the entire animal care team in animal training and enrichment (see Figure 1).

The Primate Team animal collection contains 7.3 (7 males and 3 females) western lowland gorillas (*Gorilla gorilla gorilla*) housed as two groups of 4.0 and 3.3, 2.4 white cheeked gibbons (*Nomascus leucogenys*) housed as two groups of 1.2, 1.1 siamangs (*Hylobates syndactylus*); 3.6 mandrills (*Mandrillus sphinx*); 2.3 black and white colobus monkeys (*Colobus guereza*); and 1.1 mona monkeys (*Cercopithecus mona*). This is not an inclusive list of all the primates at DAK but is the extent of the collection discussed in this article.

PHILOSOPHY AND FRAMEWORK

The Behavioral Husbandry Team, in partnership with a cross section of Animal Care teams (area curators, zoological managers, and keepers), created a mutually agreed on list of expectations. This list became our philosophy of animal training at DAK (Mellen & Sevenich MacPhee, 2001):

1. Safety (animal, keeper, equipment, process, guest) is our first consideration in any training initiative.
2. All keepers and zoological managers must understand and articulate the animal training philosophy that was taught in a required Training Methods class. All keepers must be able to articulate and apply animal training techniques to achieve training goals as outlined by their team.

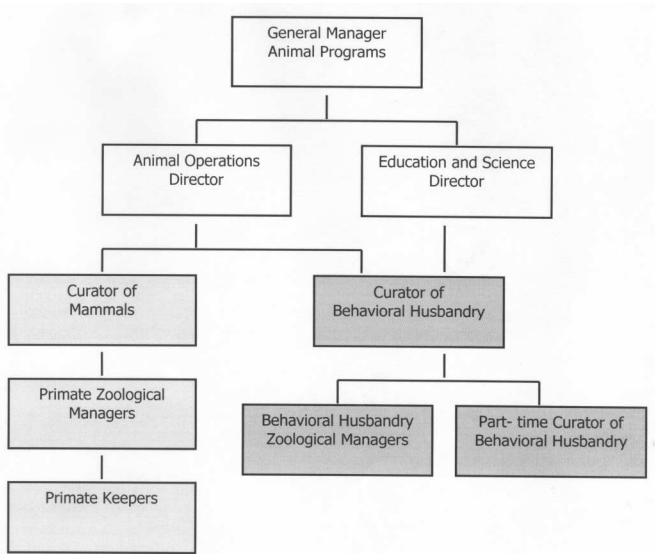


FIGURE 1 The reporting relationships of the Behavioral Husbandry Team and Primate Team at Disney’s Animal Kingdom.

3. There is no separation between animal training and animal management. All keepers/zoological managers are trainers. All trainers are keepers/zoological managers.

4. Training is one of the many animal management tools that we use to facilitate good animal care. Many of the behaviors trained specifically facilitate medical care, often allowing us to avoid immobilizing or physically restraining an animal for treatment. We choose immobilization or restraint versus training based on the amount of time needed to train, the severity and urgency of the illness or injury, and the benefit to the animal. Sometimes it is not possible to use training techniques during a particular husbandry or medical procedure and various levels of restraint or immobilization are necessary.

5. A successful training program is proactive, not reactive. In other words, planning is an important part of a successful training program.

6. Keepers should routinely review past training records for patterns. For example, training records can be used to assess routine causes of periodic aggression, or identify differences in relative success in training various behaviors. Keepers can use these past records to predict situations that may be the precursors to breakdown in trained behaviors. Zoological managers periodically ask keepers if these reviews have been completed.

7. All keepers must learn about the natural and individual history of the animals for whom they care and train. When training, keepers need to assess and understand how the animal's natural and individual history affects that animal during the training process. Zoological managers make sure that keepers have, and use, this knowledge.

8. Keepers use a variety of methods to shape behavior. The focus of the training program at DAK is operant conditioning using positive reinforcement as the primary tool. Negative reinforcement (e.g., walking behind an animal to herd) and punishment (e.g., a time out—when the trainer stops the session because of noncooperation) also may be appropriate in some situations. It is mandatory for the trainers to fill out a training approval and planning form to communicate how they intend to train a particular behavior. Any method selected should make the most sense for that animal, based on the natural and individual history. The zoological manager makes sure that a form is completed and approved prior to the onset of training.

9. When training, keepers work together as a team. The goal is a completed behavior trained to the level that other members of the team also can have the animal perform it successfully. The success should be the animals and the team's, not just the person's who initially trained the behavior. The zoological managers facilitate the integrated approach.

In an effort to create a consistent animal training program among all animal care teams at DAK, a mutually agreed on process or framework was created

(Sevenich MacPhee, & Mellen, 1999). The framework is used by all animal care teams to develop, initiate, and maintain area training programs (www.animaltraining.org). The components of this framework are setting goals, planning, implementing, documenting, evaluating, and readjusting desired programmatic and behavioral goals. This framework is referred to as the S.P.I.D.E.R. (using the first letters of each of the framework components) model and is taught as part of an American Zoo and Aquarium Association (AZA) course, Managing Animal Enrichment and Training Programs (see Figure 2).

Setting Goals

The first component of the S.P.I.D.E.R. model is an opportunity to identify clearly the desired behaviors to be trained and how the natural and individual history of the animals may affect the training. The process of setting goals includes input from the Animal Care staff, veterinarians, park operations and entertainment, and horticulture staff.

Planning

The second component of the model specifically involves the development of a training plan, clearly outlining steps of how the behavior will be trained. Many times, the training may look very different from the plan that has been laid out. However, the exercise (i.e., creating a training plan) helps to fine tune what the trainers want to reinforce as well as what they do not want to reinforce. A formal or written training plan has many additional benefits, including the sharing of information with others and getting approval from the zoological managers.

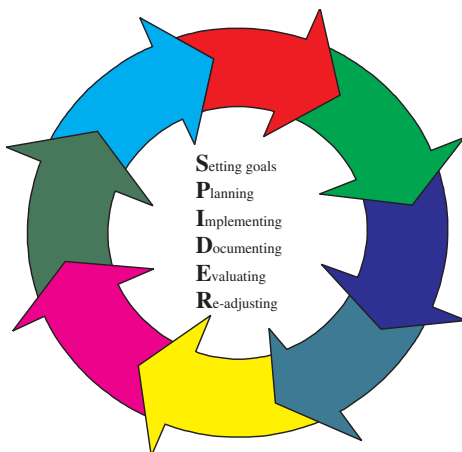


FIGURE 2 The S.P.I.D.E.R. Training Program Framework.

Implementing a Training Plan

This is simply the execution of the training plan and shaping the animal's behavior towards the desired goal.

Documenting

This is a critical part of the process for a variety of reasons, including the sharing of information about how the training sessions are progressing.

Evaluating

This allows the trainer to look back at trends over time.

Readjusting

Reviewing the training plan may indicate a readjustment.

Priority Behaviors

Behaviors to be trained are prioritized based on the goals of the animal care, veterinary, and research teams. Some of these goals are applied to the entire collection, and others pertain to specific species or individuals. As the animal care team prepared to open the park 5 years ago, shifting animals on and off exhibit was a priority behavior. Later, after this behavior was established, additional behaviors such as stationing, cooperative feeding, and separations became the training focus. The veterinary team also influenced priorities; behaviors were trained that facilitated the inspection of body parts for wound treatment and administration of medications. Specific behaviors for animals with medical conditions also were identified, such as a face presentation for a mandrill needing eye drops after cataract surgery. Finally, behaviors—urine collection and artificial insemination—that could help facilitate research projects were identified and prioritized (see Table 1).

Shift, Station, and Scale Training

Shifting was the first behavior the team focused on both for the guest experience and for animal management. For the holding areas to be cleaned during the day and for exhibit work to be done at night, animals consistently must shift in and out. It also is important to be able to shift animals off exhibit in the event of unexpected events such as retrieving an object dropped into the exhibit or other safety issues.

Additional husbandry behaviors that received early focus included stationing animals at specific locations or separating individual animals from the group so

TABLE 1
Behaviors Trained With Primates at Disney's Animal Kingdom

<i>Behavior</i>	<i>Primary Purpose</i>	<i>Species</i>
Back	Husbandry	All
Back of hand	Husbandry	All
Belly	Husbandry	All
Chest	Husbandry	All
Chin	Husbandry	All
Cooperative feeding	Husbandry	All
Ear	Husbandry	All
Face	Husbandry	All
Foot	Husbandry	All
Forearm	Husbandry	All
Hand	Husbandry	All
Head	Husbandry	All
Infant care	Husbandry	Gorilla, Gibbon, Mandrill
Knee	Husbandry	All
Open mouth	Husbandry	All
Scale	Husbandry	All
Separation	Husbandry	All
Shoulder	Husbandry	All
Side	Husbandry	All
Station	Husbandry	All
Tail	Husbandry	Colobus
Target	Husbandry	All
Thigh	Husbandry	All
Tongue	Husbandry	All
Ear thermometer	Veterinary	All
Injection	Veterinary	All
Oral medications	Veterinary	All
Stethoscope	Veterinary	All
Ultrasound	Veterinary	All
Wound cleaning: spray	Veterinary	All
Wound cleaning: swab	Veterinary	All
X-ray	Veterinary	Gorilla, Mandrill
Semen collection	Research	Gorilla, Mandrill
Urine collection	Research	Gorilla, Mandrill, Gibbon

that animals could be visually inspected and receive medications. Some animals proved difficult to separate but relatively easy to station, whereas others were quick to leave their station but separated readily. Depending on species and individuals, there are differences in behavior that can be trained first. Stationing and separating allow one keeper to train several animals alone. Individual animals, group dynamics, and availability of keeper staff are all factors when deciding which technique to use.

Scale training allows weights to be recorded routinely and, if needed, for animals to be monitored more closely. For larger species, a permanent floor scale is used. Smaller species use portable scales that can be removed from the enclosure after the training session. Crate training also is a priority for species needing to be moved regularly or who are scheduled for shipment to another institution. All primates coming into quarantine are crate trained to avoid an additional immobilization when moved to their permanent area when quarantine is complete.

Infant Care

Infant care training is a priority for animals who are first-time mothers or who have a history of poor maternal care. Infant assessment and supplementation are the primary goals, the ultimate goal being to keep the infants with their social groups. Training includes desensitizing the pregnant female to a variety of objects such as bottles and cooperative feeding as well as training the female to pick up an object and bring it to the front of the enclosure. The goal is to establish an infant care training program that will take into account the individual animal's particular deficiencies in maternal care (Philipp, Breder, & MacPhee, 2001; Richards, Owen, Mullins-Cordier, & Sellin, 2001).

There are six primary training goals for pregnant females:

1. Separation—to develop acceptance in case temporary removal from the group is required or a closer assessment of the infant is needed;
2. Pick up object—to develop the behavior of picking up her offspring if she should place the infant on the ground;
3. Pick up object and present the object at the mesh—to develop the behavior of allowing the animal care staff to get a close visual inspection of the infant to assess health status;
4. Pick up object and hold ventrally—to develop the behavior that encourages the female to place the infant in a proper nursing position;
5. Breast manipulation—to allow animal care staff to assess if the female is lactating and desensitize the breast to a nursing infant; and
6. Appropriate hold—to bridge and reward the female for holding the infant appropriately.

Soon after birth, a training program is begun for the infant to complement the female's training as well as to assist with the medical needs of the infant. Although the specific behaviors of this program require the infant's participation, it is critical that the female allow her infant to be interactive with animal care staff. In the case of an infant gibbon who had to be hand reared, this training allowed him to be reintroduced to the group much sooner because he was able to cooperate with the animal care staff consistently without requiring separation from the group.

There are six primary training goals for infants:

1. Station—once the infant is mobile, the infant comes to the front of the holding area where the trainer is to participate in the session;
2. Body part presentations—priorities depend on medical needs;
3. Separation—if needed, infant separates from the female for medical care;
4. Administration of oral medication—infant takes liquid from a syringe, such as oral polio vaccine or cold medicine;
5. Bottle feeding—feeding occurs without infant's being removed from the female; and
6. Injections—infant positions body part for injections, such as pediatric vaccine series.

Training for Veterinary Care

The Primate zoological managers and the Behavioral Husbandry Team meet with the veterinarians to discuss priority medical behaviors to be trained. These include behaviors that will facilitate immobilizations such as injection or an “open mouth” behavior for an oral anesthetic agent. Both of these behaviors also are useful in administering medications. In many cases, additional training can help avoid immobilizations. Presentation of body parts and desensitization to medical instruments and treatments often allow the veterinarian to assess the animal without immobilizing. Integrating of the Veterinary Team into the training program is an important factor in successfully training medical behaviors. Although this requires an additional time commitment from them, the veterinarians and technicians can assess the animals better when the animals no longer react to them negatively; the Animal Care Team benefits from the feedback the Veterinary Team can provide on things like injection techniques (Siever, Walsh, Weber, & MacPhee, 2001).

Individual animals or species with specific medical concerns may require additional priority behaviors (Colahan, Mangold, & Philipp, 2001). Ultrasound training is a priority for pregnant animals of any species as well as for individuals with other medical conditions. Animals requiring regular medication receive additional focus on injection or open mouth behaviors. Unforeseen injuries also may create new training priorities, such as two gorillas and a mandrill with injured hands who were trained to position for a portable X-ray machine, avoiding additional immobilizations through anesthesia.

Training of Specific Behaviors

Both internal and external research projects may prompt additional training of specific behaviors. Urine collection is the most common request for research

projects, used for monitoring reproductive cycles, measuring cortisol levels, and monitoring pregnancy. Animals are trained to station at the front of the holding area in the morning and urinate on cue where the keepers can collect it.

The need to find a balance between maintaining a genetically healthy population also housed in natural social groups has prompted the Gorilla Species Survival Plan to investigate sex selection through artificial insemination. If animals can be trained for semen collection and insemination, the need for immobilizations and, therefore, the associated health risk, is reduced. This project also includes the need for urine collection to measure hormone levels and hormone injections for ovulation ("Gorilla Husbandry Training," 2002).

TIME INVESTMENT

The initial time investment to establish an integrated, sustainable animal training program, train the staff, and train naïve animals can seem overwhelming, but the long-term advantages quickly become apparent. A few extra minutes each day over a few weeks training an animal to shift can avoid hours of baiting, pushing, and pleading with an animal to come inside every night. Although some keepers may be reluctant at first, most are eager to learn and use these skills both to make their day more efficient and provide better care of the animals. However, because these techniques were not used widely in zoos until relatively recently, not all keepers have acquired the skill set. All keepers at DAK attend a two-part class and then pair with an experienced mentor because the rest is best learned in the field.

Consistency is the key to successful training. It works best when all the keepers use the same technique every day when training a new behavior. This requires managers to provide the training and support to the entire staff and ensure that the agreed on training plans are being implemented. Initially, this requires additional time for both staff and animal training, and the buy-in at all levels is critical for success. Once the program is established, the maintenance of established behaviors and progress on new ones can be achieved in a few minutes each day.

CHALLENGES

At DAK, we have a large number of people caring for the animals in the collection. Because of this, one of our greatest challenges is consistency. The gorilla building houses 10 gorillas, and three to four keepers work the area each day. This means that no fewer than five people work the area in any given week. Consistency in the area always is the top priority when creating this schedule; vacations, call-ins, and turnover only add to this number. Although having a

large staff has been beneficial to many aspects of our training program, it also creates our greatest challenge.

To address this challenge, we adhere to guidelines. When an animal is learning a new behavior, only the primary trainer for that animal trains the behavior. This makes the training as consistent as possible during the most critical time and allows the animal to build a relationship and trust with one keeper at a time. Other keepers can ask for any behaviors that have already been trained with that animal. This allows all keepers to participate in training all the animals, and training can continue when the primary trainer is not present.

For group behaviors such as shifting and separations, we have found that using one trainer for the entire group is the most successful method. Early on, we felt that it was important to make the inside holding area a positive, appealing place to be. Although shifting animals inside rarely is a problem, getting them to go outside can be a challenge. Even though the outdoor exhibits are complex, enriching places where the animals are fed their favorite food items, the indoor holding areas are familiar, climate controlled, and where keeper interactions take place. Today, the shifting behavior is solid. Occasionally, however, the behavior begins to break down and the team always goes back to one keeper who trains it consistently until it becomes solid again.

Separations is another behavior we have trained this way. Although some species have had no problem with this behavior, our gorillas were challenging. After attempting several different methods, success came when one keeper trained the entire group. In the past, separations often had been associated with immobilizations, and this contributed to the challenges surrounding this behavior. Regular training sessions include one trainer per animal; up to six trainers plus observers are in the holding area for a session. When doors started closing, the animals became anxious and began leaving their stations and trying to block the doors. With one trainer in the hallway, the atmosphere is quiet. This makes it easier for the animals to keep track of what doors are closing and to maintain eye contact with the trainer throughout the behavior, increasing their comfort level and the trainer's success.

The use of designated primary trainers allows keepers to build relationships with the animals they train, and this trust can lead to faster progress when training new behaviors. However, these feelings of ownership can make it difficult for individuals to let go and allow someone else to train that animal when the situation calls for it. We have developed a program where our success has come from using different methods depending on the situation.

BENEFITS

The benefits to our training program have been both obvious and subtle. The differences in immobilizations and the need for other veterinary treatment are apparent.

Instead of animals being immobilized for minor injuries, they can be assessed and treated because of being trained to perform the behaviors necessary for treatment. Thus, the number of immobilizations is reduced. When immobilizations are necessary, they begin with the animal voluntarily separating and accepting a hand injection for anesthesia instead of fleeing from dart guns. This has made these procedures easier and safer for the keepers, veterinarians, and animals.

The more subtle benefits are seen in the day-to-day management. Animals shift in and out reliably and present body parts for inspection. Animals are weighed regularly, urine is collected for analysis, and medications are administered more easily. When special circumstances arise, requiring specific training, such as research projects or medical needs, the foundations are already in place to achieve these behaviors more quickly and easily.

CONCLUSIONS

By following a framework and establishing a consistent, self-sustaining training program, we have created an environment that better addresses the needs of both the animals and the staff and that will continue to evolve as the institution grows. Although the program certainly requires a time investment and faces occasional challenges, the benefits have been enormous. Training, as an integral part of day-to-day management at DAK, has become an indispensable tool in providing uncompromising animal care.

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