Behavioral Management at the Phoenix Zoo: New Strategies and Perspectives

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It all started with a seemingly simple decision to re-evaluate and document the Phoenix Zoo’s behavioral management protocol. The purpose of this project was to present proactive standards for the care and psychological well-being of our living collection, while meeting or exceeding the guidelines of the Animal Welfare Act (U. S. Department of Agriculture Animal and Plant Health and Inspection Service, Animal Care, 1999). Preparing the protocol was a catalyst to re-evaluate the zoo’s philosophy and application of behavioral management. It suggested a restructuring of collection management and the rethinking of future goals and practices. Gradually, the process became more focused and organized. Behavioral enrichment, training, animal behavior issues, and exhibit architecture were embraced as essential components for providing quality of life. Staff from all levels worked side-by-side on assignments. Our way of thinking and working was changing.

What is behavioral management and what does it mean for the Phoenix Zoo? The goals of behavioral management are to encourage collection animals in the collection to use their natural abilities, to promote species-appropriate behavioral and mental activities, and to offer a sense of self by allowing choice and experiential exploration. The housing, social, and environmental circumstances of captive animals will always differ from those of animals in the wild. Where this differential conflicts with basic biological needs, behavioral anomalies (aggression, boredom, and physical and psychological illness) may result. Zoos have an ethical and legal obligation to provide for the holistic welfare of all animals in their care. Both organizationally and individually, all zoo staff share in
the responsibility to maximize the quality of living for all collection animals. The Phoenix Zoo identifies the priority obligation to evolve the materials and methods used in daily practice continually to improve the level of care given to our animal collection. The Phoenix Zoo extended its purpose to the following:

1. Inspiration of caring attitudes.
2. Sanctuary for animals rendered homeless through mankind's actions.
3. Conservation support through role modeling and through public participation.
4. Conservation action through the captive breeding, rehabilitation, and re-introduction of targeted species with a primary emphasis on the desert Southwest.
5. Exhibition supporting natural behaviors and habitat representation.

These outcomes require managing animal behavior through a holistic view of the animal’s biology. Encouraging natural behavior is important for maintaining and enriching the animal’s everyday life. Retention of core natural behaviors will be essential to the survival of specimens targeted for re-introduction to the wild. If the animals maintain representative natural behaviors in captivity, they will be more capable of supporting engaging experiences for the public as well as providing a resource for animal behavior classes and research programs.

Animal behavior has always had a substantial effect on the job of the zookeeper. Proactive, structured, and documented behavioral management often may be incorporated with little to no extra time requirements. Initially, zookeepers may feel that they are being asked to perform extra job assignments. However, the basic techniques of behavioral management and enrichment are simple. The primary requirement for their application is a staff that is imaginative and open to change with a flexible approach to husbandry. The remediation or prevention of pathological behaviors may represent a substantial reduction in the daily workload of the zookeeper staff. The presentation of a wide range of species-appropriate behaviors will significantly enhance the guests’ experiences and their perception of the zoo.

All staff now commonly accept enriching the lives of all collection animals as standard operating practice at the Phoenix Zoo. The zoo’s comprehensive management protocol outlines the philosophy and standards for animal training; a general, behavioral-enrichment protocol; and a specific, primate behavioral-enrichment program. Following the requirements of the protocol is mandatory and considered part of annual staff performance appraisals.

The evolution of management strategy is exemplified in the process for planning replacements or improvements for older exhibits. How does the current process differ from prior practices?
CURRENT PROCESS AND PRIOR PRACTICES

Staff Involvement at All Levels

The Phoenix Zoo now involves staff at all levels. Teams incorporating staff at all levels work on each case. In planning meetings, the input of zookeeper staff and the behavioral management coordinator are given equal consideration to other design criteria. Zookeepers are represented in meetings individually or through their senior keepers.

Staff-Designed Interactive Exhibits

These exhibits emphasize “species-appropriate” behavior. Recently, the zoo modified several exhibits following the new philosophy. Examples include the Asian elephant, orangutan, and siamang exhibits. Collection staff departed from a concentration on “natural-looking” as perceived by the guest and moved toward a programmatic focus on fostering conditions in which the animals exhibit species-appropriate behavior. Although the zoo continues to value “naturalistic” exhibit appearance, it pays more attention to creating stimulating, quality environments built around the behaviors and biological needs of the species.

Behavioral management necessarily is a key focus. An example is the ongoing program of improvements to our Asian elephant exhibit. The original structure was changed by building extra holding pens, generating more space for the elephants, and making them more comfortable by giving them a chance to spend more time outside. Holding area substrate was changed by adding a 2-ft-deep layer of sand (see Figures 1 and 2).

A new wallow, a scratching post, and sandstone boulders were installed in the exhibit yard. Large mounds of dirt were added, creating visual barriers, encouraging walking and exercise, and softening the ground in an attempt to reduce foot stress. Foraging behaviors were altered by eliminating bulk feeding on ground level. Instead, elevated hay and browse and puzzle feeders were installed to increase foraging time. Zookeepers regularly exercised the elephants by asking them to walk from one part of the exhibit all the way to the other end, while reinforcing the behavior.

Training scope was decreased to basic medical and husbandry behaviors and “performance” behaviors were eliminated. As a result, foraging time increased, the elephants started to display a wider range of natural behaviors, aggression toward both zookeepers and one another subsided, and visible foot problems decreased. Three separate observational studies were conducted to see if the environmental changes would make a difference in the elephants’ lives, in particular regarding foraging time and social behavior. The program was presented at the Elephant Manage-
FIGURE 1  Large mounds of dirt were delivered by Operations Department creating visual barriers and softening the ground. Photo by the author Hilda Tresz.

FIGURE 2  Asian elephant enjoying new dirt mound. Elephants use these mounds to sleep on often during the days and at night as well. Photo by Elephant Keeper Steve Koyle.
ment Association workshop in Portland, Oregon in 2005 regarding increased foraging time and decreased aggression both toward humans and conspecifics.

A New Position

*Management created a behavioral management coordinator position.* The coordinator is responsible for collecting information and supporting documentation on behavior, facilitating meetings, and creating recommendations addressing behavioral issues and associated changes in husbandry techniques. The coordinator is also responsible for program documentation through photo and video records as well as developing, conducting, and documenting behavioral studies.

Involvement of Zoo Members

*The Management involves Phoenix Zoo members.* For projects with larger budget requirements, such as the elephant and orangutan exhibit modifications, the zoo asks its members to help. The Development Department employs an annual, year-end, direct mail appeal. Last year, the focus was on elephants. The previous year focused on proposed renovations to the orangutan exhibit and night house. The appeals frequently emphasize the role of behavioral enrichment and behavioral management and their contribution of the quality of living provided to our living collection. Members are frequently updated on the progress of changes and improvements the zoo accomplishes with their help.

Staff Involvement of Phoenix Zoo Volunteers

It was recognized that we did not have the personnel and financial resources to achieve all our goals. In the case of the elephant program, a study protocol was organized with zoo volunteers conducting the majority of the behavioral observations. This allowed staff time to focus on developing the enrichment activities while providing management with objective data to evaluate the improvements and their impact on the behavior of our elephants.

### MANAGEMENT AND AN ENRICHMENT COMMITTEE

Consulting Practice

*Management consults with specialists.* The zoo frequently uses the knowledge of outside experts. Examples include the following persons:
1. Alan Roocroft, elephant management consultant (Elephant Business), who has frequently assisted with the development of our elephant program and associated facility changes.

2. Ken Gold, primatologist and formerly general curator of the Singapore Zoo, who consulted in the design of our Monkey Village project.

3. Gary Wilkes, Behavioral Consultant on canines (Click & Treat Products), who helped us conduct an 8-month desensitizing program with our coyotes.

A Behavioral Enrichment Committee

This committee is actively involved in supporting and implementing programs. Benefiting from a variety of small, but institutionally approved, fund-raising options, the committee allocates financial resources in support of small- and medium-sized projects. Zookeepers submit a written proposal to the committee specifying their proposed behavioral project considering the animal’s natural history, individual history, behavioral architecture, specified behavioral goals, and budget. The committee has the authority to support projects that otherwise might not receive attention in the larger budgeting process.

Follow-Up Assessment

Management conducts these follow-up assessments. Our philosophy is that quality exhibits are never finished. The Phoenix Zoo recognizes that these facilities need to be updated systematically, keeping them stimulating and unpredictable for the benefit of both our collection animals and our guests. Our evaluation department routinely assesses our facilities to determine their impact on the quality and content of our guests’ experiences.

SUMMARY

We are confident these adjustments have made positive changes in the quality of living experienced by the living collection of the Phoenix Zoo. We will share our experiences through future articles.

REFERENCES