



**BEHAVIORAL MANAGEMENT  
AN INTEGRATED APPROACH TO ANIMAL CARE**

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Optimal care is the only acceptable goal for an animal management system in zoos today in North America. Gone are the days of setting our sights on the minimum or even the adequate. Our public, regulators, animal welfare activism, the thirty second sound bite, and our own professional growth have seen to that.

The challenge, then, is how best to pursue that ideal. Of course, it's full steam ahead on all fronts: better facilities, improved medical care, innovative husbandry practices, and more research on wild and captive animals. But what should be the lens through which we focus our efforts? Where should we find that standard that we use to integrate and establish priorities for our efforts? The intent of this panel of papers is to suggest that the behavior of our animals be that standard.

An animal that is acting healthy and normal for its species is not only the best indicator that all of our systems are go, but also it is the best tool we have to achieve our institutional goals for conservation, education, research and recreation.

We believe that the animal's behavior makes a viable standard because, if it is "normal" in both the short and long term, we are very likely to have done most things right. For example, if the physical environment includes appropriate space, substrates, and raw materials, if the animals are healthy, comfortable, well stimulated and their social setting is stable, if the design of the facility provides good visitor viewing yet sufficient protection from the public, then the people will see gorillas build their nests as they would in the wild.

On the other hand, the absence of a full range of normal behavior in an animal is the litmus test that tells us we must do more.

It may not be possible to make every animal behave normally. However, we must demonstrate to our friends, our critics, and ourselves that we are making our best effort. And how do we turn this wonderful concept into a practical reality? By developing a system for the management of animal behavior that fully integrates the legitimate yet competing agendas that abound within a functioning zoo into a cohesive unified approach toward caring for animals.

The intent of the four papers being presented today is to give you some sense of where we should be heading, and how a comprehensive, well-integrated system for managing animal behavior would help us get there.

First, I'd like to define a few terms and outline the basic functions of a behavioral management system that we've identified to date.

## **Environmental Enrichment**

For the purposes of this discussion, we've adopted the definition presented by Dr. David Shepardson which describes environmental enrichment as "the manipulation of key elements of the captive environment to achieve changes in behavior that more closely resemble that of a healthy wild conspecific." Operationally, environmental enrichment includes the following categories:

- 1) Behavioral enrichment as defined by Hal Markowitz, which combines some initial conditioning of behavior with the use of mechanical devices such as feeders, games, puzzles, and so on.
- 2) Feeding strategies such as scattering food on various substrates; hiding food in logs, rocks, and toys; providing browse; and providing live prey such as meal worms, crickets, and fish.
- 3) Providing exhibit furniture, natural or artificial, such as logs, rocks, straw, bags, and so on.
- 4) Providing toys, both natural and artificial.
- 5) Traditional habitat manipulations such as the use of visual screening, light, heat, and sound to elicit species appropriate behavior.

## **Training**

When we speak of training we refer to training which relies primarily on positive reinforcement to achieve its goals. Negative reinforcement is used only when all practical positive options are exhausted.

## **Behavioral management**

Behavioral management is a comprehensive, pro-active approach to managing animal behavior. Its primary technical elements are environmental enrichment and positive reinforcement training. Both environmental enrichment and training are now recognized as valuable tools in animal care. It is our belief that they are complementary processes whose individual strengths are greatly enhanced by integrating them into one comprehensive system. The next component of behavioral management system is measurement. We must record not only what we do, but also what impact our actions

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have on the animals - not just for the scientific benefits but also for daily decision-making.

A responsive operational setting is the final element of a behavioral management system. This means a setting where managers from all departments are sensitized as to how their activities can impact animal behavior, enabling them to grant higher priority within their own operations to minimizing the negative and maximizing the positive impacts of their actions on animal behavior. This is a subtle, yet fundamental change in mind set which influences policies and procedures throughout the zoo.

## **FUNCTIONS**

To date we have identified several general functions of a behavioral management system, although as systems become fully operational, others will likely emerge.

### **Improve Husbandry and Veterinary Care**

It is becoming increasingly difficult to defend the use of negative reinforcement or escape/avoidance techniques to achieve necessary husbandry and medical care for captive animals when positive methods to achieve the same goals are available. However, to maximize the use of positive methods, a pro-active approach to animal care must be adopted that includes planning ahead for non-emergency procedures and allowing the time necessary to adequately desensitize animals to the specific experiences they must tolerate. Only then can the benefits of positive reinforcement techniques be realized.

### **Manage Social Interactions**

From an ethological perspective, housing social animals in social groups is the management situation of choice. Many experts tout social housing as an ideal enrichment strategy, directly contributing to the psychological well-being of social animals. However, others warn of the potential risks. Indeed, the realities of social living in captivity can place constraints on the ability of animals to cope with the normal rigors of group life. Unnaturally small spaces, limited visual barriers, hard boundaries, and artificially created group composition can place some animals in jeopardy. An important function of behavioral management is to pro-actively identify the problems, and to develop and implement strategies to address them.

### **Maintain Psychological Well-being**

While organized programs for the maintenance of psychological well-being are only required by law for primates and dogs, sound animal management indicates that such

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programs should be in place with all animals. A major function of behavioral management is to provide (and document that we provide) species appropriate levels of physical activity, sensory stimulation, mental challenge, and ample opportunities to display species-typical behavior. Finally, we must create and implement plans to deal with abnormal behavior promptly and effectively.

### **Improve Captive Breeding**

A behavioral management system must be able to create and consistently maintain the conditions which promote species appropriate breeding and reproductive behavior, and the normal development of the young.

### **Prepare for Reintroduction**

When appropriate, behavioral management system should be able to identify potential candidates, and prepare and maintain them in a state of readiness for return to the wild.

### **Enhance Visitor Experience**

Active, healthy animals that engage in species-typical behavior make excellent educational vehicles. Balancing the behavioral needs of the animal with the need to educate and motivate our public is a complex but achievable task that behavior management must address. For example, with creative programming and scheduling, the enrichment program for the bears can be integrated into a tasteful presentation based on the bears' behavior. However, the behavior involved is not specialized show behavior, but normal enrichment activity occurring at its scheduled time. No trainer is required and the keeper does no more work than if conducting enrichment only. The presentation functions completely independently and occurs in an area integrated into the exhibit proper so there is minimal extra facility cost associated with the presentation activity.

So, with these opening thoughts in hand, let's take a look at the following papers with an eye to developing a better general sense of what behavioral management system is and how it works.

### **Closing Comments**

Implementation of a comprehensive behavioral management system will fundamentally change how we manage animals. First, its pro-active approach will require an on-going assessment of every animal for the presence or absence of appropriate behavior as well as for the presence of problems. Interdisciplinary strategies to address problems must be designed and implemented, with on-going assessment of results. Routine

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animal management tasks must be addressed with foresight. Things such as non-emergency veterinary procedures, an upcoming introduction, or the disruption due to construction should be planned for and addressed well before the event actually occurs. Only then can training and enrichment strategies be fully effective and only then can supportive changes in the operations of other departments be fully coordinated and implemented. Finally, with optimal care as the standard, even in the absence of identifiable problems, the question should be regularly raised, are the animals really doing okay?

There are significant implications for operations. It is yet to be determined how much behavioral management will impact staffing requirements, however it will certainly impact staff duties and responsibilities. Keepers will need to develop new skills, including some expertise in positive reinforcement training. Ideally, they should also be capable of conducting observations and collecting and recording simple data. Researchers will have to become more involved in daily operations where they will be called upon to help keepers and curators engage in much more sophisticated problem solving than is currently the norm.

More important, however, are the fundamental changes that must occur in zoo management policy. First and foremost, there must be a shift in philosophical perspective. Behavioral management and all it entails must be viewed as a necessity, not a luxury. Optimal care, not adequate, must become the standard by which we judge our success in meeting our animal welfare agenda. Second, the necessary support requirements must be identified and provided for behavioral management in terms of staff time, equipment, technical and research support, skills development, and capital spending for facilities. Third, greater flexibility in operations must be achieved. Historically, it has been rigid, often outdated operations protocols that have constrained and derailed progressive animal management practices. It is time for that to change.

Those who believe the cost of this change is too great need only to observe the current political, public, and activist climate. The data is there now with enrichment studies and is rapidly developing with training which will make it difficult to defend not having a coherent program to manage animal behavior in place.

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