MEETING BEHAVIORAL OBJECTIVES WHILE MAINTAINING HEALTHY SOCIAL BEHAVIOR AND DOMINANCE - A DELICATE BALANCE

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Working with social animals offers unique challenges to animal trainers. By doing the right thing, such as housing them in groups, and providing opportunities for work and play interactions with other animals, we find ourselves referees in the resultant social problems. This is not a situation caused by captivity. It is a normal part of living socially in the animal kingdom. The stakes in the wild, in fact, are very high. Being pressured by the dominant animal and pushed to the outside of the group doesn't just mean you miss your cue for the high bow. It means you now are the most likely target for predators. While captivity protects animals from some lethal consequences, it does create other complications. For instance, animals do not get to pick their own social group, they can't escape from the bullies, youngsters can't leave their mothers when they normally would in the wild, and natural bonding based on conditions like sex and age similarities, may not be possible. Although we may not be able to change the circumstances themselves, as trainers we have the tools, and the obligation, to address the resultant social problems.

During our time at Marineland, dealing with social problems and dominance was an integral part of our training protocol. Over the years we developed a very active interventionist approach to those issues. As Tim and I branched out into behavioral consulting with a variety of animals in zoos and aquariums, socialization issues continued to be central to the problems we were called in to address. So much so, that some very interesting patterns began to emerge. Those patterns, and our strategies for dealing with them, are the subject of this paper.

Marineland was my teacher as well my classroom. It was there I first learned the value of socialization training. My lessons began working sea lions in teams of two. When working an individual sea lion my attention was undivided and I simply trained new behavior, worked old behavior, and interacted one on one. However, working two sea lions changed the game completely. Now attention was divided between training new behavior with one animal while reinforcing the other animal for doing something else, or for doing nothing at all. In fact, reinforcing cooperation, one animal allowing the other animal to eat and work, was essential to being able to accomplish anything else. It's really training on multiple levels. It's reinforcing the animal for: sitting on his seat, doing absolutely nothing, and allowing the other animal to get food and attention; and not making any kind of aggressive move, not trying to steal food, and not interfering with the other animal's work. The value of one trainer and two or more animals is that every training session is an opportunity to reinforce cooperation and reduce competition and aggressive behavior between the animals. When we focused on that, the result was a dramatic reduction in breakdowns due to fighting during the breeding season.

Dolphins normally live and work in larger groups, so the opportunity, and the need, to mediate social issues are even greater. Two situations with the Marineland dolphins stand out most in my mind. The first was the effort we put into socially rehabilitating a very submissive park-born dolphin named Pepe. Unable to successfully integrate into a show community of seven animals, he subsequently developed a number of nonadaptive behaviors. Through a concerted effort including cooperative training, husbandry training, tactile work, and strengthening of the human-animal bond he was successfully integrated into another social group and his problem behaviors reduced or eliminated. (Laule, 1984) To me, Pepe was an important lesson in how vulnerable an animal can be to negative social situations and how sensitive and responsive intervention can make a difference.

The other situation involved two subdominant males, Skipper and Dawn, also living in the Dolphin Arena. It was obvious they were strongly bonded, but I had no idea how strong, until Dawn died. Within four months, Skipper died as well. I can honestly say I have never experienced an animal giving up, like Skipper did. At the time I compared it to an elderly human couple, where one person's death is shortly followed by the others. It was seven years later that I learned of Randy Wells' long-term study of the wild dophin population of Sarasota, Florida.

Wells has now documented the strong bonds formed by adult male bottlenose dolphins in pairs or trios that endure for years. That was consistent with Skipper and Dawn's relationship and also that of the two dominant males in the group, Flipper and Semo, who ruled the show community in near perfect harmony for over ten years. Wells also reports, "The importance of strong bonds to some adult males has been indicated in several cases where individuals have been followed through time. In three cases, when one member of a pair died, the surviving males formed a close bond with another male." (Wells, 1991) In hind-sight I wish we could have found another compatible male for Skipper. In the present, I believe this is one piece of critical information to utilize in creating healthy social groups and keeping them stable.

By far my most important teacher, and the animal that has left the most lasting impression on me, was Orky. He and Corky, adult breeding killer whales, lived together in a woefully inadequate facility, without holding or med pools. Everyone at Marineland would have given their last dime to help build the type of facility Orky and Corky deserved. In reality, however, they had their small world, each other, and us. Working with the whales was like working with a married couple. In fact, I considered writing them up as a case study for my Marriage and Family Counseling class. They had their roles, dominant male and subdominant female, and all the diversity and subtlety of behavior those labels fail to reflect. In fact, it was Orky who taught me that being dominant is not just a type of behavior, or a position in a pecking order, it is an integral part of who that animal is. And you never want to take that away from him.

So, at the risk of sounding anthropomorphic, we made a deal with Orky. In theory, the conditions were: we need to be able to give Corky food, attention, playtime, new training, and showtime activities; we need Orky to allow Corky to have those things, and to work in the shows; and we need all these things <u>most</u> of the time. In return, we would offer Orky attention and play (which he could choose to accept or

decline), new training challenges (which history had shown were important to him), and the flexibility not to cooperate <u>some</u> of the time.

In practice, we reinforced Orky for allowing Corky to receive those essentials. If showtime arrived and Corky was reluctant to work, we made our best guess as to whether it was due to her rebellion or his coersion, and reinforced or took time outs accordingly. We then assessed the animals' reactions to determine if we had guessed right or wrong, and then adjusted if necessary. We required a high yet reasonable level of behavioral performance from both animals. We frequently gave second chances. If Orky was really fired up about something, we gave him the freedom to be that way, if possible. Our most rigid requirement was around shows, and even there we had the authority to cancel the shows whenever necessary.

We made our share of mistakes, and things didn't always run smoothly. But the lessons I learned from Orky and Corky have served me well with everything from gorillas to elephants. And for that I am forever grateful.

With a strong base in marine mammal training, we moved on to consulting activities and found most of our work with terrestrials, and primarily primates. The interesting thing is that no matter how diverse each job sounded on first report - an introduction, maternal incompetence, or lack of breeding behavior, ultimately the roots of the problem, and the strategies we chose, revolved around social issues.

The best documented project to date was the work we did at the Los Angeles Zoo with a group of drill baboons. (Desmond, 1987) The central concern was that despite the presence of sexually mature animals, who had reproduced in the past, no breeding had occurred for over seven years. This was of particular concern since this species is extremely endangered and breeding of captive drills has been successful in only a small number of groups.

Observational studies of the drills conducted by the Research Department for 1 1/2 years prior to the project showed very little affiliative behavior or positive social interactions between group members. Our strategies, therefore, focused on enhancing socialization and reproduction. We approached it much like we had with sea lions, dolphins, and killer whales. Feeding pairs were established where animals were fed side-by-side, with the dominant animal being reinforced heavily for allowing the subdominant animal to eat. In the case of Sam and Nadine, the pair that had previously produced offspring, past observations had shown that Nadine's aggressiveness toward Sam often ended any mating attempts. So they were not only reinforced for eating together, but also for touching each other, and particularly Nadine for allowing Sam to touch her. Eventually she was turning and presenting to him as he placed both hands on her, approximating the mating position.

This project was important because the process and results were documented. The Los Angeles Zoo Research Department continued observations of the drills during the project, outside of training sessions, and after the project ended. The results showed dramatic increases in every catagory of social interaction by the end of the project, and beyond that time, while non-social behavior decreased. In

addition, aggressive behavior, although increasing on an absolute level, dropped from 34% to 25% of total social interaction. (Cox, 1987)

One gorilla project relevant to this discussion began as a request from the Columbus Zoo to help with two female gorillas that had histories of deficiencies in maternal behavior. Neither had successfully raised their infants and one, Lulu, was currently pregnant. Therefore, we concentrated on her. After talking to the keepers, curators, and veterinarians, viewing video tape records of her and her infant, and reading her animal profile and history, we formed an hypothesis. We felt that Lulu's problem was not her lack of maternal skills, or her desire to utilize them, but her discomfort with other gorillas that interfered with her application of those skills. So our recommendation, and the game plan we implemented, was socialization training.

Lulu had recently been moved to her present group, so we reinforced initially for proximity to other animals, at times as much as 6 to 8 feet away. We particularly focused on the silverback in the group since she had a history of not getting along with any dominant male. There were also a couple juveniles in the group that she had shown some interest in, so we reinforced that relationship whenever possible. Keepers continued the training for the four remaining months of her pregnancy. She eventually gave birth, and is currently successfully raising her infant.

We can't claim that the training solved all of Lulu's problems, and training alone rarely does. But the keepers report that she is more relaxed in the group, and with the keepers themselves. They were even able to condition her to allow them to supplementally feed her offspring. That is an important change since she did not trust people around her baby after her last one was taken from her.

One final example with primates involves chimpanzees. We currently have a long-term contract with an NIH funded chimpanzee breeding colony associated with the University of Texas, M.D. Anderson Cancer Center in Bastrop, Texas. Our job is to introduce and integrate positive reinforcement techniques into the management of the chimpanzees, numbering approximately 142. It is the most ambitious and comprehensive project of its kind that I am aware of. The Director of the facility, Dr. Michale Keeling, created a new position of trainer, and my job for the past nine months has been to train that individual and to implement training projects with the chimps. Our focus has been on husbandry and veterinary behaviors, daily maintenance behaviors, and enrichment activities. As in every other case discussed here, socialization issues and dominance have been at the heart of much of our work.

A primary example of the application of this training is Pug. His face, and his personality, match his name. He is the dominant male in a group of 8 animals, and there was consensus among the staff in reporting his overly-aggressive, dominant behavior toward other members of his group. This was particularly true at feeding time. These animals live in one of eight big corrals, and feeding is done from the wall around the compound. That means you are throwing food from about 20 feet above the animals. It was in this circumstance that we initiated training of cooperative feeding.

We began by teaching Pug to sit, and reinforcing him for remaining seated throughout the entire feed.

Initially, everytime another animal got a piece of food, so did Pug. This worked pretty well, but the difficulty was in creating some kind of consequence for his non-compliance. Because of our distance from him, he could sit and receive one reward, chase someone and take their food, then go back and sit down again, and there wasn't much we could do about it. So verbal commands became critical. We talked to him when he was sitting still, telling him good as the apple went flying by to the animal behind him. A sharp "Pug No!" as he got up to chase someone began to stop him in mid-chase, particularly when he was rewarded immediately for sitting down again. Total breakdowns were responded to by going downstairs to the inside holding area and feeding from there. That could be tricky, because of the too close quarters, but it could be effective if you managed to get food to the others and not to him. Over time our efforts paid off.

Documentation of results includes before and after video, and subjective observations from a variety of staff members attesting to the change in Pug's behavior. Most promising is data from an ongoing aggression study that may reveal significant changes in group dynamics. In any event, it is now a joy to feed the group and watch Pug sitting there like a little angel as everyone receives and consumes their equal portion. His reinforcements for cooperation are consistent but can be as little as one special treat at the end of a feed. A variety of training is being conducted with the group, and every opportunity to reinforce cooperation among all group members is utilized.

Leaving the realm of primates, there is one last experience that is relevant to this discussion, and it focuses on Chico. Chico is a very large, very aggressive, very dangerous African bull elephant. He had not been touched for over ten years, with any necessary handling being conducted remotely. He was one subject in a pilot program conducted at the San Diego Wild Animal Park. The purpose was to develop an alternate method of elephant handling that was safe for the trainers, achieved all the necessary husbandry behaviors, and utilized only positive reinforcement techniques. Our solution is a system we call "protected-contact". Briefly, trainers work from shielded positions, using targets to manipulate the animal's movement, reinforcing with praise, tactile, and carrots and apples. (Desmond, 1991)

The reason this training is important here, is in the way we responded to Chico's aggressiveness. We accepted from the very beginning, that Chico is a dominant bull. Like Orky, that is who and what he is. We also recognized that we were introducing him to a whole new ball game. We expected some resistance, and we got it. However, because we always worked from a protected-contact position, we allowed him full freedom to express his disapproval, frustration, and dominance. Within that context, it was amazing how quickly it diminished. At first, he took opportunities to swat or grab the target. He registered disapproval by charging at us. We let him make his point, gave him time to cool off, then offered him the chance to work some more. Rarely did he turn us down. We also consistently reinforced his cooperation. Approaching the target calmly, gently touching it, lifting feet without kicking, all these responses were heavily rewarded.

As a result, Chico, recognized as the most dangerous animal at the Park, has been the star of the program. He seems to enjoy the sessions, often making rumbling sounds, verbalizing his pleasure. He has amazing

endurance, working for over an hour on several occasions. He also responds to the attention and tactile we can now safely offer him. He lines up against the gate and allows us to rub and scratch him, occasionally adjusting his position so eye contact is possible through the holes we've added. He voluntarily cooperates with invasive procedures such as blood sampling from his ear, and recently allowed us to apply medication to a very sore eye several times a day. We've also found it a challenge to keep him mentally and physically active by introducing new behaviors into his repertoire. Keepers in the area seem surprised and impressed at the change in his behavior.

It's important to note that Chico is still as dangerous, and as dominant, as ever. The training process has given him the opportunity to respond and interact on an entirely different level, without changing who he is. Both we and Chico have benefited from the experience.

In conclusion, let me return to my opening statement. Working with social animals offers unique challenges to animal trainers. Socialization and dominance-related issues will always be a part of their lives, and the source of many of our training problems. However, as trainers we have the tools, and the obligation, to address these issues. In some cases that will mean adjusting our behavioral goals in order to accomodate a dominant personality and achieve a healthy social balance. Our goal should be no less than creating and maintaining as natural of a social grouping as is possible, within the constraints of captivity. Here are just a few suggestions.

Structure training sessions to include one trainer, multiple animal situations. Then take advantage of those sessions to reinforce cooperation and non-aggressive behavior between animals whenever possible.

Take a look at the growing amount of research on marine mammals in the wild. There's some valuable information there. Information that wasn't available even ten years ago. To understand their social behavior in the wild, can help in our efforts to establish and protect strong, healthy social units in captivity.

Be pro-active. When dominant behavior becomes a problem, address it behaviorally. Utilize training strategies to problem-solve solutions. Shape and reinforce cooperation. Our goal is to create social units that all animals can thrive in - the dominant and the subdominant. Don't settle for separating animals, unless it is absolutely necessary. As Koehler (1931) said, "The single individual is often merely an abstract concept. A chimpanzee kept on its own in captivity is not a chimpanzee at all". That statement is true of more than just monkeys. If separating animals is the answer, someone, or everyone, loses.

Consider the impact of moving animals between social units. Transporting animals from one pool to another, or one continent to another, has become a relatively safe procedure. But what are the social and psychological consequences of moving animals from one social grouping to another? Undoubtedly it puts pressure and stress on the relocated animals, as well as on the effected social groupings that have lost or gained a new animal or animals. What is the price they pay? It is time to ask that question and look hard for the answer.

Finally, allow dominant animals to be dominant. Reinforce cooperative behavior, enhance affiliative behavior, mitigate the negative consequences of dominance, but don't take it away from them. Just like Orky, Pug, and Chico, it's who they are. And we wouldn't want them any other way.

REFERENCES

Cox, Cathleen R. "Social Behavior and Reproductive Status ofDrills (Mandrillus leucophaeus)." Proceedings of the 1987 American Association of Zoological Parks and Aquariums (AAZPA) Annual Conference, Portland, Oregon.

Desmond, Tim. "Surrogate Training with a Pregnant Orca." Proceedings of the 1985 IMATA Annual Conference, Orlando, Florida.

Desmond, Tim; Laule, Gail; McNary, Jennie. "Training to Enhance Socialization and Reproduction in Drills." Proceedings of the 1987 AAZPA Annual Conference, Portland, Oregon.

Desmond, Tim; Laule, Gail. "Protected Contact Elephant Training. "Proceedings of the 1991 AAZPA Annual Conference, San Diego, California.

Herman, Louis M. (Ed.) Cetacean Behavior, New York: Wiley & Sons,1980.

Koehler, W. "The Mentality of Apes." in Hediger, H., WildAnimals in Captivity, New York: Dover Publications Inc., 1964: p. 168.

Laule, Gail. "Behavioral and Husbandry Intervention in the Case of a Hybrid Tursiops sp." Proceedings of the 1984 IMATA Annual Conference, Los Angeles, California.

Laule, Gail; Desmond, Tim. "Use of Positive Behavioral Techniques in Primates for Husbandry and Handling." Proceedings of the 1990 American Association of Zoo Veterinarians Annual Meeting, South Padre Island, Texas.

Wells, Randall S. "The Role of Long-Term Study in Understanding the Social Structure of a Bottlenose Dolphin Community." in Pryor, Karen and Norris, Kenneth S. (Ed.), Dolphin Societies, Berkeley: University of California Press, 1991: pp. 199 - 225.