



“The Animal Behavior Management Alliance
Behavioral Buffet”
Annual Conference

San Diego, California
March 5-10, 2006

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Keynote Speaker



KEYNOTE SPEAKER ABMA 2006: KEN BLANCHARD

Transcribed by Jamie Fachler and Tracy Frampton



Thad Lacinak's Introduction

From one office to the other. I mean these are really nice professional offices. Everybody's very professional. And I saw this dog run from one office to the other and I was like, Chuck did you just see what I just saw. There's a dog in here. And he goes "yeah." So I walked, went into the office and there was somebody sitting at their desk petting the dog saying, "Hey Fido how ya doing?," or whatever his name was, and then he sent him back to the other office. So, we went a little further and there was a baby crib in one of the offices and a baby started to cry a little bit. And we went in and I went, "They let you bring your baby into work with you?" And, and she goes, "Yeah." Ken makes it really easy for us to do our jobs. I just had this baby a few months ago and Ken let's us for the first nine months bring the baby into the office. And that is exactly how he thinks. That is exactly how he walks the talk. He makes things good for his employees. And, without further ado, I want him to get up here and tell you all about it. But, Ken why don't you step up here and talk to everybody.

Ken Blanchard

How are you all? It's nice for you to be here in our home town. My wife Margie and I came out here in

1976 on a one-year sabbatical leave from the University of Massachusetts. We just never went back. We discovered that summer in Massachusetts was two weeks of bad skating. We just stayed here. You know it's interesting when we got here one of the first things people said was you gotta go of course to the Zoo, and Wild Animal Park. We are members of the Society and we go up there all the time. The Wild Animal Park is fairly near our corporate headquarters. But they said you gotta go to Sea World and see the Shamu show. And so, we went down there with our kids and all and that just kinda blew our minds. That show then was so slow, nothing compared to what it is today. Because that was almost 30 years ago. And so, that's what we did. And, we also found that you could go behind the scenes and find out what they were doing. And I got really excited about what they were doing at Sea World because I had been saying to people for years that the key to developing people, the key to creating a great organization is to catch people doing things right and accenting the positive.

That was the main thought of the "One Minute Manager" that came out in 1982 and millions of copies have sold of that thing and you would think that the message would have gotten across. And, because the first secret of "One Minute" is Goal Setting - All good performance starts with clear goals. The next one

is - Let people know what you want them to do then you can wander around and see if you can catch them doing something right. The second secret is the One Minute - Praise them.

It's really interesting, just take those two secrets and as I said millions of people have read that. I will say to people around organizations, tell me what you do. What are your major responsibilities? And people will tell me. And then I'll talk to their boss, and say, ya know I was talking to Alice and Frederica - what do they do? And the boss tells me. And then I compare the lists and what do you think I find? Funny little lists. And I find that a lot of people in organizations get punished for not doing what they didn't know they were supposed to do in the first place. So I know that goal setting isn't done very well.

And then I'll ask you too. How many of you in your own organizations are sick and tired of all the praise that you get. I mean you wish that they would lay off. I ask people all the time how do you know whether you are doing a good job. The number one response I get is "nobody's yelled at me lately." No news is good news. The number one management style around the world is what I call Seagull management. Your manager is not around until you screw up. And then fly in, make a lot of noise, crap on everybody and then fly out. That is supposed to be fun.

And so, I started to get a little discouraged. And then in about '85 I was taking a group of managers down to Sea World because I wanted, I thought they needed a more dramatic example of positive reinforcement. So, I mean because I even say to my clients how many of you know it wouldn't be a real good idea to punish a killer and then tell the trainers to get in the water with them. It just doesn't make much sense. Don't feed those suckers if they didn't do their trick. So, even they get that.

So I was taking a group down in '85 and Chuck was in town and had moved out here for a couple of years. He got the short end of the straw, and had to deal with the visitors. He was telling everybody about what they were trying to do, and some of the old approaches to training animals which was the dominance, control, and all that kind of thing and how the whales kept on throwing them out of the water.

We spent some time after that talking about all of this and then we stayed in contact even when Chuck went back to Orlando. And we talked about it ya know too, we outta do a book sometime on that. I always trust God, he always comes through when you are supposed to do it. Finally, we got to talking more seriously. He had this friend, this big friend. He almost had the lead role in "Brokeback Mountain" because he loves fishing (roaring laughter). So, cowboy, I knew you would appreciate that. We started talking more seriously and then I brought in a colleague of mine, Jim Ballard, who has helped me with some books, to get more serious about it in terms of what we could do to really help people understand the power of what you all are doing, in all of your locations.

It's really interesting, just to put everything in perspective, Margie and I not only love the zoo and wild animal park but we love safaris. And I don't know if there is anybody here from Topeka, but Gary Clark is a wonderful friend of ours. He ran the Topeka zoo for a long time. He has led people on over 100 safaris in Africa. Gary has taken us on 6 safaris over the last 15 years. It was interesting, just to put things into perspective about how advanced what you all are doing compared to what we are doing with human beings. I wish the managers in your companies would talk to you all more. Because I guarantee you that most of you are not in organizations that practice what you are trying to do with the animals. I have been around enough to see that.

This year when we went on safari I saw the jungle just a little bit differently than I had ever seen it before. I think it was at a function about two or three weeks before we went, we were at a dinner party, and the hostess said to us sitting around the table why don't we go around the table and everybody share, "if you could have dinner with anybody in the world who is living today, who would you like to have dinner with?" When it got to me, it didn't take very long for me to say that I would like to have dinner with Nelson Mandela. Because I would love to have dinner with somebody who was in jail for 28 years, abused, mistreated... we went to Robbins Island after this last safari because it was in South Africa and you should have seen where they had this guy and the stuff that they did to them and the work that they had to do on this big rock, that they were chopping, and all that kind of ... 28 years. And he comes out full of love, compassion and reconciliation. I mean I would like to

talk to somebody like that. And so I decided I was going to find out as much as I could about Nelson Mandela. So I started reading a "Long Walk to Freedom" about his life as we were heading over there.

When I got out of the jungle, what became clear to me even more than ever before is without the intervention of human beings, it's a very vicious place out there in the jungle. It's very territorial. It's very competitive. It's interesting, I'm sure a number of you here have heard a lion roar. Most people haven't. And that will put a chill up your spine, if you are right close to a lion. And Gary Clark when he always imitates the lion's roaring, he says what the lion is really saying is IT'S MINE! IT'S MINE! IT'S MINE! And when you listen to the roar it really sounds something like that. He says basically that's why he is roaring. He wants to say, "Baby this is my territory" Don't mess with me." In fact, you all know that a lion will kill their sons if they challenge their territory, or they will run them off.

One of the things I got real clear is that we are basically intelligent animals and those animals are pretty intelligent too if given the chance. But god gave us a really interesting opportunity more than he did the normal animals and that is that we can more easily choose the spirit versus the flesh. The flesh is all self-serving. It's about me. This is my territory and all those kinds of things. You have to really train a wild animal to think differently about that. A rhino doesn't get up in the morning and say, "Gee, I would like to make friends with the lions today." It's just not a natural instinct that they have. And the reality is it's probably not a natural instinct of human beings. If you have ever seen that movie about those little kids -

what's the name of it? Lord of the Flies - If you let human beings loose, they can get pretty vicious too. But we do have the potential more easily to choose the spirit versus the flesh.

Yet what I'm finding in the world of work so often people who run an organization are choosing the flesh not the spirit. They think leadership is all about them. And they are pushing and shoving to make sure all the money, recognition and power moves up the hierarchy in their direction. You see this happening in countries. You see this happening in business. You see it in church. I just came out with a book recently called "Lead Like Jesus." And it's not an evangelistic book, because I tell people we have enough trouble with the Christians we have, we don't need any more Christians. Gandhi said that if all Christians behaved like Jesus, everybody in the world would probably be interested.

But when I became a believer in the late 1980's and started to read the bible, ... I was, ... I'm a behavioral scientist like you all are and I went to Matthew, Mark, Luke and John and asked because I wanted to know what the man did. I was looking for the red print. And what I found is that everything I have ever taught about leadership, Jesus did. And he did it perfectly with twelve incompetent guys including one who screwed up and he hired him anyway. ...commit their lives to the vision. I mean how many of you can get people to follow you that much.

So, I got really interested in that because we desperately need a different leadership role model in the world today. We desperately need it. We have seen what self-serving leaders are doing. They are destroying it. And you all are leaders in this field. Because what are you doing? You are talking about a whole differ-

ent leadership role model. That's what you are doing with animals. You are accenting the positive. It's not about you. You spend so much time getting to know about them and how they behave and what their needs are and that kind of thing. Egomaniacs don't last very long in animal training because the animals square you away pretty quickly if you think it's all about you. So, what you are doing is so important.

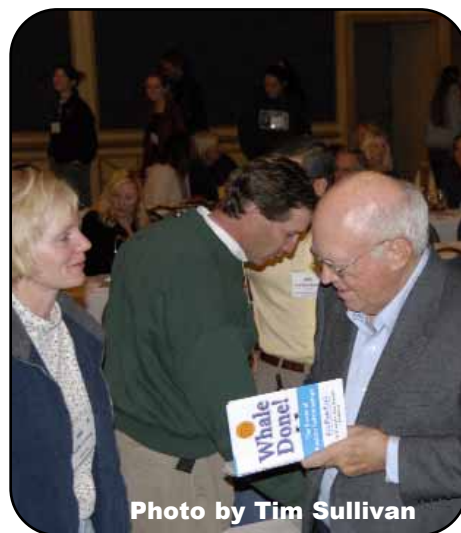
How can you get other people to understand what you are doing? So, they can say, "Well, maybe we outta do that with each another." Well, duh!? Wouldn't that be kind of interesting and creative. So that's what really "Whale Done" was all about when we really sat down. How can we take what they are doing at Sea World and what you are all doing in your operations and show how this can be applied to organizations, to families, to friendships, to raising kids? A lot of people say that it is the best child rearing book that they have ever read.

There are three key concepts that really define what you all do. The first one, before you do any training is really about Trust. What I would like to do is just show you a part of the video that we had done just so you can see a little bit about what we were doing and why we were excited about the relationship between what you all are doing and what we have to do with people. So, if we could show the video...

Sea World Video shown

Hi, I'm Ken Blanchard. For a long time I've been convinced that positive relationships are the key to results for any organization. Now you may be thinking, "OK, Ken, what does all this have to do with

killer whales?" Well, as a matter of fact, a lot. You see you can't punish a 9,000 pound orca and then expect the trainer to get in the water with it. Just like you really can't beat on your work team and expect them to improve their productivity at the end of the quarter. So, what's the alternative? Well, in the late 70's a couple of friends of mine, Thad Lacinak and Chuck Thompkins, were two of the first people in the world to attempt a new and innovative approach to training killer whales at Sea World in Orlando. Instead of the typical cycle of punishment and reward, they discovered the best approach is to focus on connecting and building positive relationships to get results. Of course, we all know that people aren't whales, but you can't get people or whales to do things they don't really want to do. That's why I'm so excited about the principles of Whale Done! What I hope is that by seeing what Thad and



Chuck and all the other trainers have accomplished and listening to their insights and how they go about it, you get a new perspective on the power of positive relationships.

Build Trust

To build relationships you have to build trust. And that just doesn't happen, you have to work on it.

Thad: In any relationship one of the most important things you have to have is trust. And to do that with killer whales, takes a long time. You have to invest a long time in that. You just can't come up to these guys and pretend like you are their friend. You've gotta mean it. You have to show them that you care about them. Show them that they can trust you. Show them that pretty much they can depend on you for anything.

When you are working with an animal like this, you know an animal that can hurt you just by playing with you, you have to spend the time, and you have to really develop the relationship and show the animal that they can trust you. And you have to trust them, because literally you are trusting them with your life. If your employees or if your people see you right there with them, doing the job with them, and working with them in a way that builds that trust and bond, I think then that they will trust you. But if you are always looking down on your people or if you are always telling them what to do instead of asking them to do it and showing them how and building that trusting relationship and showing the people that they can come to you when they are having a bad time or they don't understand something that you want them to do. I think that's that where the trust and bond come in. That's money in the bank. That's time well spent.

Chuck: I think that the most important thing as a trainer when you really sense that you have connected and you have that ultimate trust, is when you stand out in front of 5,000 people and you are about to

perform a show and that whale is working 100% with you. There is absolutely nothing more humbling than when you haven't established that trust in the relationship and you go to stand in front of 5,000 people and they are watching you and that animal sits in front of you and realizes he has no connection with you and he simply swims away and leaves you standing on stage with 5,000 people looking at you.

Laura (couldn't get last name/last name blocked by back of audience member's head): I think in building trust it's so important to experience that feeling of doing no harm. You know, work has the power to build up or tear down. Just like our actions with the whales has the power to build up, build trust, or tear it down. Katina is the perfect example with her little calf. I've been with her for 17 years. The trust that we have has allowed me to get this close to the baby. She will actually even just bring the baby really close and we are able to touch him at just two months old. She will let us get super close. See how she just holds him right there. "Hello baby whale." She will let us get that close to where we can even see his little whiskers. Then, the next step would be to just gently slide into the pool. See how comfortable she is right here, just allowing us to slide in. See that big deep breath. That just shows that she is so comfortable. And look at him. He is already getting used to trainers touching him and being in the water real close. "You are such a good girl. You are such a good girl. I love you."

Chuck: I think you can relate that back to people the same way. I think if you are not going to put 100% in somebody. If you are not 100% sincere or honest with them, they are not going to give anything back to

you either. (hard to make out what Chuck is saying because of audience laughing at the killer whales in the background, behind Chuck, making funny faces).

Ken: So the foundation for building relationships is building trust and for you and me that means when we are working with people we have to be sincere and honest. We have to do our best to make sure our words and actions do no harm. Remember, when you criticize a person's performance you harm the relationship. Keep it up and you poison the relationship. And we have to have the patience and invest the time it takes to really earn the trust of the people we work with. If we could do that, believe me, some really amazing connections could happen.

Ok, if we could stop it there.

You can see I'm very proud of that film. It really kinda gets at it. But I wanted you to look at the trust thing first. Why don't you all stand up? The first thing that I want you to do is I want you to wander around for about 30 seconds and greet as many people as possible. But greet them in a special way. Greet them as if they are unimportant and you are looking for someone much more important.

Ok, stop where you are, but don't sit down. Now I would like you to wander around again for another 30 seconds or so. This time greet people as if they were a long lost friend and you are really glad to see them.

Alright. Why did I do that? Because I'm absolutely convinced that if you want to create a great organization, a great relationship with anybody, it's all about managing people's energy, yourself and other people. Where was there more energy in the room? The first activity or the second? Significantly, the second. What did I do to change the

energy in the room? All I changed was what you were focused on. From a negative focus to what? A positive. Do I have to say anything more about the power of being positive? I mean people don't get that in organizations. They want to create excitement in organization, what do you do? You create a positive environment where people get caught doing things right much more than they get caught doing things wrong. You know, like Thad says, when you have dogs and kids and all those kinds of things ya know, people say you gotta be crazy, you know you get so much out of your people when you create an environment that builds on what is important to them and creates an environment that really makes a difference. It's a positive kind of thing.

And so, it's interesting. How many of you know that the mind and the computer have a lot in common? What they have in common is neither the mind nor the computer know the difference between the truth and what you tell it. You put information into the computer it doesn't say "where did you get those facts, those facts are wrong." The computer does whatever it can with what? The information you give it. We said to the computer for years, garbage in, garbage out. Isn't that the same way with the human mind? The human mind doesn't know the difference between the truth and what you tell it. You woke up this morning and looked in the mirror and said, "You are fabulous." Your mind is not going to say, "Who are you kidding me? I know you better than that." So you can just change your whole relationship with yourself and other people by what? By focusing on the positive, accenting the positive rather than the negative.

I'm talking to the choir, sharing

that with you. But as you can see one of the issues that we have in organizations is that we don't have that a lot. I'll give you one of the big examples in organizations talking about trust, which is so important. When I was a college professor, which I was for ten years, I was always in trouble with the faculty. I was investigated by some of the best faculty committees. The thing that drove the faculty crazy is the first day of class, I always gave out the final examination. They would say, "What are you doing?" I would say, "I'm confused." I thought we were supposed to teach these kids." "You are. But don't give them the questions to the final." And I would say, not only am I going to give them the questions, to the final, what do you think I'm going to do all semester? I'm going to teach them the answers so when they get to the final exam they get what? They get A's. Life is all about getting A's, not some frigging normal distribution curve.

What percentage of your animals do you have to identify as losers. Put them over there. You have to rate them down. What you are trying to do is bring out the very best in all the animals you are dealing with. You don't have a normal distribution mentality. You are not trying to see what percentage of the population you can screw. I mean how do you build trust in an organization when you know a manager has to rate a certain percentage of you down, no matter what. This is all kinds of organizations, including organizations where you all are working in that have that, where managers are trying to catch people doing things wrong. And they won't tell people what is going on because they have to save up a certain amount of stuff for that final review because they have to sort people out. I mean isn't

that the craziest thing in the world?

I tell people about "Leading Like Jesus." Did he have a normal distribution curve mentality? No, he wanted everybody in the program. "Keep away from them." What do you mean? C'mon in. We spend so much time as human beings judging everybody and trying to say well, they are bad and they can't do this and all that kind of thing. We need to get a life. We need to give up this being right all the time. It doesn't mean you shouldn't have opinions. But you know the biggest thing we need to do is have understanding of differences with people and those kinds of things. And not just this whole judgemental thing. I mean I'm under a lot of attack by the Christian right because they say I'm really a new ager, that I'm not a Christian. What are they talking about? They get all upset because I wrote a forward to "What Would Buddha Do at Work." Why would I do that? Number one - Buddha never said he was god. Number two - his stuff is great. You know, Buddha and Jesus would have loved each other. I gave an endorsement to Deepak Chopra's "The Seven Spiritual Laws." Why did you do that? Get a life! Why are we sitting around saying they are wrong and we are right and all that? We need to what? Bring in people and create an environment where they can win. There are three parts of managing people's performance. And I don't think it's any different from what you do. The first is performance planning. What's performance planning? That's when you are trying to get them to understand what the goals and objectives are - what you are trying to accomplish. And you do that with the animals, you are trying to give them a sense of what you got in mind. And that's what? Giving peo-

ple the final exam ahead of time. Performance planning. I mean why wouldn't you want to give them the final exam.

The second part of managing people's performance is day to day coaching. What is day to day coaching? It's wandering around and seeing if you can catch them doing anything right, which is the second key thing in "Whale Done!" - accenting the positive and all. And if they are not doing anything right or even approximately right, you don't beat them up. The third key is redirection, which is get them back onto the task, in terms of what you want them to do. That's so important in day to day coaching. And what's the last part of managing people's performance?

The performance evaluation, where you sit down and evaluate them over time. In most organizations where do the managers spend most of their time - planning, coaching or evaluation? Evaluation. People go in there and they say you will love our new performance review form. And I say to most of them, "Throw them out. They are stupid." First of all you are rating people on stuff that nobody knows what it is, like "initiative," "willingness to take responsibility" - that's a real good one "promoteability" - I

always love that one, and all that kind of thing. And when nobody knows what any of that means, what do they do? They suck up the hierarchy. You at least better have a good relationship with your boss because they are gonna sort everybody out. And nobody knows what they are doing.

Some organizations do a pretty good job of goal setting but what do they do after they set the goals? They put them away, they file them until when? Somebody says you got a performance review. Oh my god! -everybody is running around trying to find the goals. So they do the evaluation where they screw a certain percentage of the people. I mean, it's so sad that what you see in many organizations in relation to this. So day to day coaching is what? Teaching them the answers. If you see somebody making a mistake you don't say I'll save it for a performance review. What do you do? You just gently go over and say wrong answer. What do you think would be a better answer? Take responsibility - maybe you didn't make it clear on that. But you don't beat them up in there. And if they do something right, even if (can't understand Ken here) what do you do? You doatta boy, attagirl and accent the positive. Does it make any sense to accent the positive in everything? You better believe it!

Have you ever thought of doing that in your relationships? I don't know about where you live, about how marriage is doing. It's not doing real well in San Diego. The big joke in Southern California about marriage is that when a woman goes out on a date with a man her first thought is, "Is this the kind of guy I would like to have my children visiting on weekends?" When you look at the

demise of love relationships, I mean, look at it. It's so sad. When you first fall in love, have you ever heard about love is blind? What does that mean? All you do is you see them like, "Oh I'm so in love." And some of your friends might say, "I'm not sure that's the right one." And you say, "Oh yeah, I'm sure." Everything is great. And then what happens? You move in with them. What do you do? And all of a sudden you go, "Gee, what the hell is that?" I mean you gotta be kidding me. What's going on around here? What happens to love relationships is that after awhile you start doing what? You start accenting the negative and you forget about why you fell in love. It's so crazy.

I mean I see people, for example, one thing, the issue is that one of the mates is not home enough to help and all that. Well, if you want someone to come home more, what should you do when you walk in? You guys know - you are in this business. What should you do? Make it a great deal! You don't yell at them because they are late. "You haven't been home for a week - it's about time. Alright kids, let's give him a hand!" I was out drinking with a bunch of guys not long ago and this one guy said, "I gotta go. I gotta head home." We said, "Ah, stay for one more drink. And he said, "Why not, I'm gonna get yelled at anyway."

It's just so interesting to watch what we do in our relationships. Duh! I mean you are so nice to the animals, why aren't you nice to other human beings, the ones that might be sleeping with you. And the same way with your kids. I see parents, you know ...a kid walking down the street and there's the parent standing there with their lunch yelling out, "You idiot, if your head wasn't

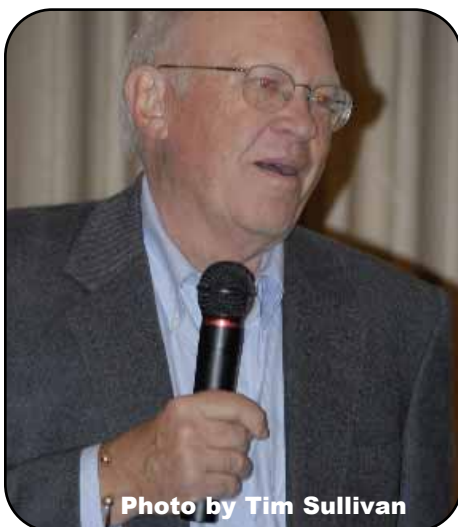


Photo by Tim Sullivan

screwed on, it would fall off!" Now you wouldn't do that with a stranger would you? You have a party at your house and a new neighbor happens to come to the party and the guy left his hat. So you grab the guy's hat and you go out to the street and you happen to catch him. Now if he rolls his window down, would you say, "You idiot. If your head wasn't screwed on!" No. You would say, "Here's your hat. So glad you came." We live with them, we will yell at them. I mean if this stuff is powerful and it works, it outta be used in all of your lives, in everything you do.

Why are you here on earth? You are here to serve, not to be served. I recognize that's a tough journey, isn't it? Because we come into this world self-serving, don't we? Is there anything more self-serving than a baby? A baby doesn't come home from the hospital and say, "Mom, Dad, is there anyway I can help around the house? My daughter, Debbie is 38, and she just had her first baby, he's four months old. This kid is really cute. But he is completely dependent on... everything is around him. When he yells out everybody runs and moves you know. I mean it's not sort of, "I would really kind of like a bottle." I have grandchildren - seven and nine - and they are the cutest self-centered people I've ever met. They are a lot of fun. But it's all about them. You finally become an adult when you realize that life is about what you give, rather than what you get. And about serving rather than being served. That's a real journey that you have to take. You have to really remind yourself on a daily basis that you want to choose the spirit, rather than the flesh, because everyday the evil one is waiting.

I wrote a book with Norman

Vincent Peale, (can't understand Ken here) leading minister. That's what he called the devil - the evil one. And what is the evil one waiting for? He is waiting there to catch your ego. And what is ego? Ego stands for Edging God Out and somehow putting yourself in the center of the deal and thinking everything rotates around you. And there are two ways that our ego catches us. One is false pride. What is false pride? That's when you think more of yourself than you should. You think you are a big deal. You keep on pushing and shoving for credit and raising your hand, notice me, and all that kind of thing. It's really kind of interesting. A wonderful book that came out a number of years ago called, "I'm OK, You're OK," talking about life positions. It said the worst life position, is I'm OK, you're not. And that's the false pride life position. And the research shows that people that act like I'm OK, you're not are really scared little kids inside and are over-compensating for their not OK feelings by acting like a bully. So, when you see somebody with false pride rather than pick on them, you need to give them a hug, because somehow they don't get it. Because god didn't make junk, and they are absolutely loved and they don't have to push and shove for more love.

The other way that your ego gets in the way is fear. Now it's good to have some fear because you could get hurt out there and you want to make sure you don't do stupid things. But when you are really operating your life around fear, you think less of yourself than you should. And now you are spending all your energy protecting yourself. And so you don't want to be honest with people, give anybody feedback, because the boss might not like it, and you are tiptoeing around and all that and you

don't get that you are loved either. And the only way to overcome that process is to accept that you are absolutely and unconditionally loved. God didn't make any junk.

It's just unbelievable isn't it - creation. I look at this little baby of Debbie's. Wow! Look at that kid. He's got ten toes and ten fingers. He's lucky because some people don't have those. It's an amazing process. One of the things you have to remind yourself in the morning is that you are OK. Where you get hooked in life and where your ego runs your life is if you think that your self worth is the function of your performance plus the opinion of others. Let me just repeat that because this is really a powerful thing for you to get. Because if your self-esteem goes up and down based on how well you do a show or a thing like that you're going to have a real exhausting life. How many of you know that your performance isn't great everyday? Have you all ever noticed that? How about people? The opinion of others. Ever noticed that people are fickle? You can't count on them all the time, so if your self worth is on the shaky ground of your performance and the opinion of others everyday, your self worth is up for grabs. And when it is up for grabs, how can you reach out and help other people? How can you really be there for the animals if it's all about you? It's really important work and it's also potentially dangerous work. I mean you are dealing with animals that have the capacity to hurt you a lot of times. You have to be on your game. And the game is to what? Be where they are.

One of the things that blew my mind being with Gary Clark out in the jungle...he has studied animal behavior so much ...that elephant looks like he is going to charge. And

he's not. He's on number two or three. They charge at ten. You don't want to take a chance and jump out of the LandRover to test it. The point is that you gotta be there wholly. You can't be fearful or somehow think you are the cat's meow. I started an Egos Anonymous program, which we are hoping to get it around the country, because to me this is the biggest addiction in the world. This is the papa of all addictions because all of the other ones - drugs, alcohol, sex, everything - they are all because you don't feel good about yourself, you need some outside agent to prove that you are OK. I have been running Egos Anonymous meetings now and I've probably dealt with over 15,000 people over the last number of years. And it's really kind of interesting because you get people to get to stand up behind their chair before you start the meeting because it's voluntary, and I'll say if you're ego has never gotten in your way either through false pride where you are pushing and shoving and feeling you want to be noticed or through fear, then you can leave, this is not for you. And we have never had anybody leave. And one by one, people start to get up and say, "Hi I'm Ken. I'm an egomaniac and the last time my ego got in my way, was..."

I had a funny experience ... I was on American Airlines and I was going through their magazine and I turned the page and there's a picture of my son Scott's new book. Scott just wrote a book last year, and got a great review and my thought was "I have never been in American Airlines. What is my publicist doing?" Let's just face it - EGO is there. And when I finally realized I just started to laugh, because the more you deal with this the more you can laugh at yourself, because to

say, "My ego never gets in my way." Are you kidding me? It's there all the time.

One of the things I recommend you all do in your work to get yourself in the right space, is you gotta enter your day slowly. The reason I say that is when I worked with Norman Vincent Peale, we said there are two kinds of things that we have in our lives, in terms of our minds. We have a task-oriented way and then we have a thoughtful, reflective sense of us. Now of those two, which do you think wakes up sooner in the morning? Our task-oriented self or our thoughtful, reflective self? Task-oriented? Why? The alarm clock goes off. Have any of you ever thought what a stupid term that is. Why isn't it the opportunity clock? Or the have-a-great-day clock. But what happens? THE ALARM GOES OFF! And BANG! You jump right into your task-oriented self, you're trying to eat while you are washing, you jump into your car, you got your car phone going, and you are racing to this meeting here and there, and you have a lunch meeting and a dinner meeting, and you get home 9 or 10 o'clock at night absolutely exhausted, don't even have the energy as you fall in bed to say goodnight to anybody who might be lying there. And the next morning, BOOM! ... you are outta there again. And I run into so many people who are in a rat race. And Lily Tomlin (could not catch the name), the great philosopher, said one time the problem with the rat race is that even if you win it, you are still a rat. What you need to do is find a way to enter your day more slowly, so that you wake up your inner self. And I do some things on a daily basis that really help me do that.

Number one, I read my mission

statement. How many of you have a mission statement? A personal mission statement? See, not very many. Why not? How do you make decisions if you don't know what business you are in? So you outta think about what business you are in. Do you know what business I'm in. My business is to be a loving, teacher and example of simple truths that helps myself and others to walk in the presence of God and life. And the reason I say God is I think that the human ego is the biggest addiction in the world. So when I think about making decisions about what I do I want to say, can I share simple truths, can I be an example of some simple truths, and can I push people about where they are in terms of their egos and all that kind of thing. People want me to tip toe around that kind of stuff. How do you make decisions?

The second thing I do is I read my obituary. I'll give you a nice assignment this week. Write your own obituary. Why would you want to wait for someone else to write it. And it's really interesting. I got interested in obituaries when I read about Alfred Nobel, who created the Nobel Peace prize. In the early part of the last century his brother died in Stockholm, Sweden and he went to get the local newspaper to see what they said about his brother, and they got he and his brother mixed up. So he had the opportunity over coffee to read his own obituary in the paper. How many of you remember from your studies when you were young that Alfred Nobel was involved in the invention of dynamite. What do you think his whole obituary was about? Dynamite and destruction and all that kind of thing. And he was absolutely devastated when he read this obituary, and how he was going to be remembered. He gath-

ered friends and loved ones around him and they said to him, Alfred, "What's the opposite of destruction?" And he said, "Peace." And he redesigned his life so that he would be remembered for peace. That's where he got the idea for the Nobel Peace prize.

One of the things I love about Jimmy Carter is he has rewritten his obituary. If he had been a typical president, just went off into the sunset and all he would be remembered as what? A mediocre president at best, naïve and all that. What's he going to be remembered now as? The greatest ex-president we have probably ever had, Nobel Peace prize winner. You know, I'm looking for Clinton to rewrite his obituary. Because when he dies, what's his obituary going to be all about? Monica Lewinsky. Being impeached. The guy is so bright, so intelligent, and so capable if he really focused on rewriting his obituary he could be the head of the U.N., he could do all kinds of incredible things. I read my obituary... because it's a stretch, a lot of things in there. It doesn't have to be true. In the end it says, I'm 185 pounds, mean and lean, flexible golfing machine. Now, I've been working on my weight, but I'm not quite there yet. It really helps me to read it, you know because it says about who I want to be in the world. People remember me because where I go I make the world a better place for having been there. I mean, that's a really big thing you know. You don't want to walk into a place and start abusing everybody. I mean, that's a really great way to write your obituary.

So many people are interested in what's their inheritance and fighting over money and what are you going to do about money. We told our kids

early in life we weren't going to leave them anything. We will pay for education, family stuff and all kinds of things, but don't sit around waiting for money. I have never seen it do anybody any good. I'm more interested in the legacy I leave. And how will I be remembered? The legacy you leave is the legacy you live. And that's why on a daily basis you got to remind yourself. I look at what my values are. I have a set of values. My number one value is spiritual peace. My number two value is integrity. My number three value is love. And my number four value is joy. And I have those operationally defined, so I want to read those. You might say, well where is the value - something about success. I just think you are going to be successful in whatever you want to do. For me if I feel peaceful, and I have high integrity, and I express love and joy in the world, then people are going to want to be around you, and opportunities are going to come towards you, like meeting these guys and having an opportunity to write a book.

So the opportunities come to you because of how you live your life. My mother always used to say when she saw someone with a real scowl on their face, "they get the life that goes with that." When people are really ugly and all that I just feel badly and want to reach out to them because they get the life that goes with that - which is loneliness and all kinds of other stuff. So, if you have some kind of strategy for entering your day, reading some inspirational stuff, doing some meditations, some opportunity for solitude, deep breathing, some flexibility exercises, or take a walk - do something. Try to have an hour or so before you have to do something, that you enter your day slowly, and then you can be cen-

tered. It's really interesting is if you take care of yourself you got a lot higher opportunity to take care of other people. But if you woke up and you are racing all around, and you charge into the office, there could be somebody really hurting right there and you go right by them because they are not in your palm pilot or your blackberry. You might miss your opportunity, the very reason that you exist that day.

Part of being great at what you all do is to be centered, to be there, to be present in what you are doing, because then you can really reach out into things and do things that maybe are not always quite as pleasant. If any of you have ever seen where Mother Teresa's ministry is? You would say, my god, how does she get so cheerful? And she said, there's nothing more cheerful than the opportunity to serve and be there for others. But she didn't get there by not taking care of herself, in terms of centering herself on a daily basis so that you can turn lemons into lemonade.

As I look at organizations and try to see what they are doing in relation to what we try to do in "Whale Done!," there's a lot of work still to be done. You need to be real clear with your people what they are being asked to do, give them their final exams ahead of time. And then what do you do? You wander around on a coaching basis and try to catch them doing something right. And accent the positive. To me, in my field there are five steps to training anybody to do anything, to be a good performer. The first one is you have to tell them what you are asking them to do. I use the word Tell because if they are experienced you could reach that together. Then, you have to show them what to do, which means people have to know what the perform-

ance standards are. What does good behavior look like? One thing is here's what we would like you to focus on, but here's what good behavior looks like - you will tell and show.

Then, the third step is to let them try - let's see you do this. And the fourth step is the one most of us miss, personally. You don't do it with the animals. Observe performance. And so often what happens is people are not so bad at the goal setting, and then they disappear. And so, person has made a major mistake and now they seagull in to deal with it. One of the most important things that you can do as a parent, as a spouse, as a friend, as a manager is to really be great at your observation skills so you are constantly aware of what's going on and what they are doing. It doesn't mean you are micro managing. It's just that you are aware. Why do you want to be aware through observation? Because you want to be able to do the fifth step. And what is the fifth step? Praise progress and/or redirect. So if they made some progress, you praise them.

At Sea World you know when the whale comes back to the stage and they do it right, or approximately right what do they do? They get greeted with a barrel of fish, hugs, scratching their tongue, or any of the kinds of things that they really enjoy. They get positively reinforced for what they do. But they have observed what they have been doing. You can't sort of... they don't say to the whale go out and do it and the two trainers start talking and the whale comes back and they say, "How did he do?" "I don't know. Give him a fish anyway." You are not going to be very effective. You have to what? Be observing what they are doing so that if you praise,

you are praising appropriately. I say praise progress and/or redirect because sometimes what you are doing is you are just praising the progress. But you might have to follow immediately with some kind of redirection. So that the next time I would love to see you try this, which will take it to a different level. So I really appreciate what you have done here, the next time if you try this it might even take it to another level, which is redirection.

If there is no progress, what do you do? At Sea World, if a whale comes back and they haven't done it right, there's not a lot of emotion. It's just usually something like this. The trainer has got their hand up and the whale knows, "Let's see that again." Or they might give a signal to do something else that they know that they can do. Why do they want to do that? Because they want as quick as possible catching them doing something right, so there's not all that emotion in there. Often with our kids, and with people we work with we get emotional. The reason we get emotional is that we haven't observed. And all we get to see is when disaster is potentially there.

You yell at your kids when they bring home their report card. How come you didn't know what was going on during the year? "Well, I don't know, the school doesn't tell you." You can ask the school. You know how we found out when our kids were growing up. If the kids were academically in trouble, every Friday they had to go to each of their teachers and the teacher had to fill out a form and say how well they did. But you can ask them to do

that with your kids that aren't in trouble. Nobody said you couldn't. So our kids knew that on Friday whether they were doing well or not. They had to go and get a report. Why? So, we knew what was happening along the line, so we were not surprised when they bring home the report cards. A little late to do anything then. So you want to be able to manage the progress there with them. The redirection is really powerful.

Now, the "One Minute Manager," the third secret that we identified was the one minute reprimand. Spencer Johnson when I met him, he was a children's book writer. He wrote a bunch of wonderful books for kids called Value Tales. The Value of Courage - The Story of Jackie Robinson, The Value of Determination - The Story of Helen Keller, The Value of Believing in Yourself - The Story of Louis Pasteur and all. I met him at a cock-



Photo by Tim Sullivan

tail party in 1980. My wife Margie met him first and hand carried him over to me and said "Why don't you guys write a children's book for managers?"

Part Two

How quickly would you reprimand? Immediately. You don't save it up for a holiday. Be real specific

you know. I would say, "Allen, you didn't get your report in on time on Friday." Very specific, you know. Then you tell them how you feel about it. Let me tell you how I feel. I'm really upset. Everybody else got their reports in and without yours I couldn't do my complete analysis, and I'm upset about it. And so you tell them as quickly as possible what they did wrong, specifically and then you tell them how you feel about it and then you end a reprimand by reaffirming, the reason I'm upset is that you are one of my best people and you normally have your reports in on Friday. It's so unlike you. And if you can't reaffirm a person at the end of a reprimand, you shouldn't be reprimanding, you should be redirecting. And if I was rewriting the "One Minute Manager" now I would have the third secret - One Minute Redirection because I think we have many more opportunities to redirect people today than reprimand them because the world of work is changing so tremendously that you don't get a lot of people that are experts in what they do completely. We are all in a learning mode. Plus I think that redirection is a more powerful kind of a thing to do.

My hope for you all is that you realize how great what you do is. In fact, why don't you just take your right hand and put it on your left shoulder and your left hand and place it on your right shoulder and I want you to give yourself a hug because you are in this field. This is a fabulous field. But don't departmentalize your life, so you do this with the animals, and you don't do it with any other part of your life. How can the success you have working with the animals be something that you can help communicate throughout your organization and how that could really be a powerful

thing for your organization to do? You can't do it in an arrogant kind of way. Like, "Man, you ought to really get shaped up." Because then you start acting like you are some big deal. But you might want to say, "Gee, I would love to meet with the management team and just share some of the excitement about what we are doing in the animal training area." And whether some of that might really apply to what we are doing.

You do it in a really humble and caring way. See if you can get them excited about it. What are we doing? What are we doing about performance reviews? Do we have a forced distribution, where you have to screw a certain amount of people and how that would affect what you are doing. Say a certain amount of animals are losers, there are only a few good ones and the rest are average. It's just a crazy thing. I'm on the board of trustees at Cornell where I went to school and Tom Peters and I were fraternity brothers. He screams and yells much more than I do. But we found out that they were giving the same speech that they gave us in the 1950s during orientation as Freshman. They said look to your left, look to your right, and then in four years one of you won't be here. What a way to greet a group of Freshman. Do you know the average boards of the kids going to Cornell? It's about 1350 to 1400. The top five percent of the people taking that thing, they are going to bust a certain percentage of them out, I'll bust a certain percentage of the faculty out.

And so what you gotta do is you gotta look at it, at what you are doing. You all look for the differences in animals. Do you look for the differences in your kids and how some of them, you know, you need

to be more gentle with even when you are doing redirection with and some of them maybe don't respond unless you raise your voice a little bit, and increase the intensity. You have to understand human beings are like the animals you work with - they are all different, even though they are of a certain species. And how do you do it? And you all are getting such great training in sort of leadership which I think the world needs more of.

Now let me just kind of end my thoughts by just saying, I recognize that sometimes I push people. I don't feel like I'm pushing you all because you are part of the choir in a lot of this, but maybe I'm pushing you to apply this in your life. But I go into organizations and they go "Duh" when I'm talking about positive reinforcement. They read B.F. Skinner and they thought he was a control freak. One of the things that I was mentioning where people get in trouble is how they evaluate their own success. And I see too often people evaluate their success on how much money they accumulate, the recognition they get, and the power and status they have in their field. Let me just say that there is nothing wrong with that, with any of those, in and of themselves. There's nothing wrong with making good money. There is nothing wrong with getting recognized for your efforts. There is nothing wrong with having a little power and status. What's wrong is when that's who you are and that's how you see yourself.

I pray for people like Donald Trump and Martha Stewart because they have to climb another mountain to prove that they are OK. Because if who you are is about achievement and accumulation the only way you can continue to feel good about yourself, is to achieve more and

accumulate more and all that. And what happens when you are caught in that success game, you miss significance. And significance is different than success because what is the opposite of the accumulation of wealth? It's generosity. And what's generosity about? It's not just generous with your treasure. It's generous with your time. Generous with your touch - how you reach out to people. Generous with the use of your talent and all. And that's where I think we really need to be. It's great to have a lot of stuff, but what are you doing with it and how generous are you in reaching out to other people? What's the opposite of recognition? Service. And what's the opposite of power and status? I think its loving relationships.

And a friend of mine, John Orchburg, (correct spelling?) he's a great pastor. He was up in Willow Creek, now he's up in Menlow Park. He tells a wonderful story. He wrote a great book called, "If You Want To Walk On Water, You Gotta Get Out Of The Boat." It's a wonderful book. He tells a story about when he was young, his grandmother was an incredible monopoly player. Any of you all ever play monopoly as a kid?



Photo by Tim Sullivan

His grandmother was vicious when she played. And at the end of the game, she always had everything, and he had nothing. She had Park Place and Boardwalk and he had nothing. And she would get this great grin on her face and she would

say, "John, someday you are going to learn how to play the game." And one summer, when John was about twelve, this kid moved next store who was a great monopoly player and he practiced with his kid every single day because he knew his grandmother was coming in September. And when Grandma came, he ran into the house and he gave her a hug and a kiss and he said, "Grandma, how about a monopoly game?" And her eyes lit up, and she said, "Let's go, John." He was ready for her this time, and he came out of the chute. He wiped his grandmother out. At the end of the game he had everything, and she had nothing. He said it was the greatest day of his LIFE. And his grandmother gets this great grin on her face and she said, "John, now that you know how to play the game, let me teach you a lesson about life. It all goes back in the box." And he said, WHAT? Everything you bought, everything you accumulate and see that's really true in life. You can push and shove for money, recognition, power, and status. Baby when you die, it all goes back in the box. And the only thing you get to save in life is your soul and that's where you store who you love and who loves you.

I love the ending of "Ghost." Did anybody every see "Ghost?" It's the story of this guy, Sam, who is a financial advisor, played by Patrick Swayze, and he gets killed by a supposed friend. He gets to stay on earth as a ghost to protect his girlfriend, Molly, played by Demi Moore. And he gets to communicate with her with this real character that Whoopi Goldberg plays, named Oda May, kind of a clairvoyant type. At the end of the movie he has avenged his death and the three of them, Molly,

Oda Mae and Sam are on the rooftop of Molly's apartment building. And all of a sudden, this white light starts coming toward them. And Oda Mae says, "They are coming for you, Sam." He's going to have to go now. And he goes over and stands in front of Molly. And if you saw the movie he never told Molly he loved her. She would say, "Sam, I love you." And he would say what? "Ditto." (Audience laughs.) Man from back room says,... "Every woman in here has seen that." And Ken says, "Well, get a life, will you pal." I love chick flicks - they are some of my favorite movies. Sleepless in Seattle, Pretty Woman, You've Got Mail. Here's Sam with tears coming down his eyes, and he stands in front of Molly and says, "Molly I love you. I've always loved you. And she is crying and she says, "Ditto." And then he turns to face the light and he stops one last time and turns to Molly and he says, "Molly, the remarkable thing about this, is that you can take the love with you."

And that's all you are going to take out of this world. That's all. Somebody asked my wife, Margie, "you've lived with Ken for over forty years, what do you think leadership is all about?" And Margie said, "Leadership is love." It's about love. It's about loving your mission. It's about loving your customers. It's about loving your people. It's about loving yourself enough to get out of the way so that other people can be magnificent. So, have a great conference. You are the greatest people. So, don't leave it at the zoo, or at the pool and all. Take it with you.

<Applause.>

<Standing ovation.>

Presentations

The background is a solid purple color. It features several large, organic, white shapes that resemble stylized clouds or liquid splashes. One large white shape is in the lower-left quadrant, another is in the upper-left quadrant, and a smaller one is on the right side. The word "Presentations" is written in a white, serif font, centered horizontally in the upper half of the image.

TOP 10 THINGS WE LEARNED AT ABMA 2005

Patricia Shoemaker*, General Curator Downtown Aquarium Houston



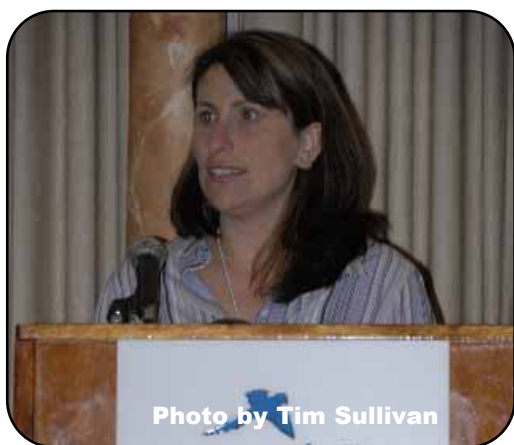
*The Animal Training Department at the Downtown Aquarium Houston cares for 2.2 tigers (*Panthera tigris*) and a variety of birds. The training program at the Downtown Aquarium developed training goals focused on medical, husbandry, education and entertainment. Aquarium Staff attended the 2005 ABMA conference in Houston, Texas and from presentations and interactions with other training professionals gathered a variety of techniques and ideas. We selected those training techniques that we felt would provide the best results and applied them to our training program and the department's behavioral goals. The resulting accomplishments in a short period were significant; including adapting a collection of birds for outreach programs and draining a hygroma on a tiger without chemical or physical restraints.*

This presentation will address the Top Ten Things we successfully applied or adapted to our Animal Training Program at the Downtown Aquarium Houston.

After the long and exciting week of ABMA last year, we decided to

keep the behavioral momentum of the conference going as long as possible so the training staff - Curator and two trainers - met and presented their ideas to the Downtown Aquarium. We selected a list of training concepts and techniques and adapted them to our program. This paper will review how we applied the new training concepts and the resulting accomplishments.

Training big cats seems to apply to the Downtown Aquarium more than some of the other presentations. From Moving on Out, we learned about the snake hook technique for pulling the tiger's tail out of the enclosure for training of blood draw. We purchased a snake hook and developed a training plan. The training plan was simple, have the tiger follow the target into a lean in behavior, lie down, and hold for a period of time. Also integrating the idea of the behavior being extended no matter what happens, we generalized the



behavior to include hooking the tail out from under the cage, holding for manipulation of the tail, applying the alcohol, and accepting the needle. We have successfully inserted the needle and drawn blood.

Again, Radiograph Training of a Juvenile Male African Lion Using Operant Conditioning is a presenta-

tion that focused on large carnivores should bring something to the table for the training program at the Downtown Aquarium, but a panel on elephant training may not. Both of these presentations covered modifying facilities to access portions of animal bodies safely during protected contact training. By removing the bottom panel of a cage front, we are able to use this space for several training goals. We are able to pull the tail out from this space and have the tigers present paws for radiographs and prints. A goal that was set for us by the Ron Tilsen, chair of the Tiger SSP, was to manipulate teats to confirm lactation. Although the Downtown Aquarium is not a breeding facility, our working through the steps of training this behavior will allow for other institutions to train this behavior safely.

Sometimes a great idea is right next door. Just for the Record covered the advantages of using Microsoft Excel for training records. We had been using a chart in Microsoft Word for daily reports and training records. By transferring record keeping to Excel, we are able to search records for key words, graph weights and diets, and perform other tasks not available in Word. A front page or individual record can access all records. We print the records out monthly and keep a hard copy in the training notebooks. Additionally, the records are saved on CD-ROM every 6 months. Modifying the training records to Excel has improved our

record keeping system.

After Hurricane Katrina devastated the Gulf Coast, we reviewed and updated the Hurricane Policies at Downtown Aquarium Houston, Rainforest Café Galveston, and The Aquarium Restaurant at Kemah Boardwalk. I recalled Angi Millwood's *Ridin' the Storm Out*, hoping that our hard work would look as fun...and that our animals would survive as well. While the Rainforest Café staff was gathering up their birds for transport, we organized the cages. Luckily, we had transport cages at the ready and birds trained to spend extended periods of time in them for outreach programs. We had previously trained some birds to spend time together as enrichment, so we were able to accommodate the extra birds (9 in all). Since the Shark Building and Tiger Quarantine building are in a flood plain, we transferred the Eurasian Eagle Owl to the upstairs conference room. Luckily, we had kennel trained him a few weeks prior and he had also been accustomed to a bow perch and being tethered.

This paper also influenced getting the tigers ready. They had all been conditioned for lean in behavior, but three out of four had actually accepted an injection. There is a rolling door in tiger holding and we were concerned that high winds would create lots of noise. We had Valium on hand for our more sensitive animals. Starting Wednesday, the two staff that would be present during the hurricane practiced injection training. We used a needle and injected all of the cats except Marina. We made the decision to not inject her and possibly break down the behavior until it was time to medicate. Luckily, the storm turned away and the only drama that occurred was 4 tigers being secured in holding with

no toys for safety reasons.

ABMA is a great organization for bringing different animal training fields together. Shaping and Desensitizations Techniques, from the research branch of our field, and its techniques, applied to our injection training at Downtown Aquarium Houston. The author spoke about always feeding at a high reinforcement ratio for the injection. We integrated this into the medical training at the Downtown Aquarium. By increasing the reinforcement and always delivering reinforcement for the manipulation of injection training we have been very successful. We have administered all vaccinations through positive reinforcement of the "lean in" behavior. We have also delivered sedation medicines without stress. This resulted in two successful neuters with calm sedations and quick recovery.

Another idea that we used from this paper was delivery of liquid from a squeeze bottle. This enables us to deliver cow milk (a very strong reinforcer) during training sets. Cow milk has high reinforcing value to the tigers at Downtown Aquarium. Using the milk bottle for chemical restraint allows the delivery of a reinforcer before sedation. This delivery system has also enabled us to drain the hygroma of a female tiger. With the "up" behavior (both front paws on fence) and reinforcement delivery we have drained the hygroma 3 times, once removing over 50cc of fluid in several sticks using a 18 gauge needle.

Mike Scarpuzzi said it very well; there is no "voluntary" blood draw. These manipulation behaviors are trained and utilizing a high (and varied) reinforcement ratio builds confidence.

Even though Landry's is a large cooperation with over 30,000

employees, 4 Aquarium Concepts, 27 Rainforest Cafés, and the Golden Nugget, the animal collection at Downtown Aquarium Houston is small and needs to serve several roles. We currently house 4 macaws, two cockatoos, an aracari, turaco, and one raptor. Like Jen and Steff's collection, our animals are generalized to handle many situations. From Hurley and Skrovan's presentation, the discussion of context shift (loss of learned experience from change in environment) was very applicable to our situation. We created training plans to generalize the animal's behaviors in small steps to reduce the effects of context shift. In addition, we used both passive and active desensitization techniques. The bird collection is used on exhibit, for photo opportunities, outreach programs, on grounds shows, overnight presentations, media events, VIP tours, education classes, and any other situation our program will cover. By mimicking the sea lion desense program presented at ABMA, we have successfully accomplished all of our goals and are looking forward to training the animals under new circumstances.

Whale Done Thad! Soon after the conference, I went out and purchased a copy of *Whale Done!* I read it cover to cover and then read it again. I even loaned the book to a Vice President at Landry's. Previously, I focused my management on positive reinforcement; but clear direction, goal setting, and redirection are new tools for me as a manager. If it works for the animals, it should work for the staff. The results have been wonderful. The Downtown Aquarium has a dedicated team of individuals that works together for institutional and individual goals. We focus on reinforcing initiative and progress through

incentives (cash, hats, and free meals), giving more responsibility, and verbal (public) praise. We have reached our training goals and continue to improve. We look for ways to increase our knowledge and make our training program successful. We have also increased our education program sales by 100% over last year.

The Downtown Aquarium hosted many backstage tours as well as the banquet on Friday night. We were able to "show our stuff" to our peers and industry leaders. This can be great or not. The number one thing we learned from ABMA is that the animals may not perform when you really want them to, but they may perform better than you expected. For some of the smaller private tours, the trainers and animals were nervous. We do, however, have the advantage of being 5 miles from the cooperate office, so we had generalized the animals to working for large groups. Friday night went very well. The tigers ran through their behaviors for over 100 guests and the birds did well for the small groups that visited them. We learned that practice may not make perfect, but repetition does build confidence in the staff, animals, and training program.

In conclusion, we learned valuable information from our colleagues and the presentations at ABMA in 2005. By being flexible, the animal training program at the Downtown Aquarium Houston has continued to improve and grow. Since last year, we have hired 3 new staff, attended IAATE, visited DTAQ Denver, and called many of you for training advice. We will continue to put animals, guests, and program goals above any pretentiousness. The training staff and program at the Downtown Aquarium Houston is constant in training with

positive reinforcement and in learning new behaviors ourselves.

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Moving on Out: training Big Cats for Shipment to Other Facilities
Kay Buffamonte* and Tara Broody,
Philadelphia Zoo

Radiograph Training of a Juvenile Male African Lion (*Panthera leo*)
Using Operant Conditioning
Erica Calcagno and Kasturi
Mukherjee-Kahol*, Oakland Zoo

Signature Animal Presentation
Elephant Management: Making the Change
Jeff Andrews, San Diego Wild
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Busch Gardens Tampa

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Jackie Hasling* and Melanie
Powell, Houston Zoo

Ridin' the Storm Out
Angi Millwood* and DonnaSue
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Shaping and Desensitations
Techniques: Training Needle
Tolerance in Chimpanzees
J Perlman*, E. Thiele, M.
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Training California Sea Lions
(*Zalophus californianus*) to Operate
in Remote and Challenging
Environments.

Jenifer Hurley and Stefani
Skrovan*, Animal Training and
Research International

What do I do now? Reacting to

Incorrect Behavior - Animals &
People Thad Lacinak, Busch
Entertainment Services

AN UPDATE ON THE TRAINING OF A HERD OF WILD CAUGHT & NAIVE AFRICAN ELEPHANTS

Curtis Lehman* & Jeff Andrews, San Diego Zoo's Wild Animal Park



*In August of 2003 the San Diego Zoo's Wild Animal Park (WAP), under the auspices of the AZA's Elephant SSP and a USFWS permit, imported 1.6 African elephants, *Loxodonta africana*, from The Kingdom of Swaziland. At the time of their arrival all animals were estimated to be approximately 13 years old. During capture, transrectal ultrasound examinations revealed one cow was approximately 10 months pregnant. In February of 2004 she successfully gave birth to a healthy male calf that just recently turned two years of age. This elephant herd is the first ever in captivity to be trained in a protected contact (PC) program without any prior free contact (FC) training. Furthermore the term PC now often refers to only a physical separation between the animals and humans and not to how the animals are managed and trained. This paper is an update that highlights the benefits and successes of a management and training program that not only PC but is still based on trust and positive reinforcement.*

Elephants have been managed and trained for human purposes for approximately 4000 years (Sukumar, 2003). The techniques developed in India and Southeast Asia for breaking and training elephants seem to have eventually come to American zoos largely unchanged via European zoos and circuses. This system of elephant management is patterned after

observations of wild elephant's hierarchical social behavior and exercises social dominance through occasional physical punishment (Priest, 1992). Today, approximately 15 years after its introduction, around 50% of zoos practice some form of protected contact (Galindo, pers. comm.). Techniques have improved in both FC and PC. However there is still a disconnect between practitioners of both methods with frequent disagreements on which is the better system. Organizations such as the AZA and EMA are trying to overcome this struggle (often seen as an internal one being that we're all elephant managers and must stand united so as not to give our detractors supporting arguments against the holding of elephants in zoos) by promoting the similarities between the two systems and downplaying the differences. This position is very understandable because unity is very important across disciplines. However, this does not have to apply to the specific techniques used to actually train the elephants. We welcome the differences and want to promote our use of positive reinforcement in training and elimination of any form of dominance, as well as how we manage our elephants outside of training practices, as a preferred way to manage elephants in PC. We are not alone in our assessment that there is and should be innate differences in the best practices of PC and free contact. "The suggestion that there are no distinct

differences between training systems, only a continuum of options, inhibits rather than assists elephant managers..." (Laule and Whittaker, 2005). The uses of some elements of traditional FC are probably not appropriate in a PC environment. These may include the use of dominance, coercion, positive punishment and negative reinforcement. Our philosophy is one of working with them as equals where developing trust is paramount.

Prior to the importation of these elephants we were told by elephant experts, keepers and even some behaviorists that the only reason PC had any success with elephants was due to the fact that the elephants had a FC background where compliance was taught. Furthermore, we were told that we would fail in the training and management of this herd because the animals would have no behavioral compliance due to this lack a FC history. This is the first time ever where a complete herd of elephants with no free contact background has been trained in PC. We feel that the lack of this background is one reason why we have been so successful in training them. We were free to employ one consistently applied training program and one that was void of a history of many practices that may hamper progress where willful cooperation is essential.

Method

Study site and subjects

The San Diego Zoo's Wild Animal Park (Escondido, CA) under the auspices of the American Zoo and Aquarium Association's African Elephant Species Survival Program and a United States Fish and Wildlife Service permit, imported 7(1.6) African elephants from the Kingdom of Swaziland. The animals were scheduled for culling due to overpopulation, habitat destruction and their threat to critically endangered species such as black rhino, *Diceros bicornis minor*, in the reserves.

A calf (1.0) was born during the winter of 2004 increasing the herd to 8 (2.6) animals. Elephants are housed in a ~1.3 hectares outdoor enclosure containing trees, rocks, shade structures, grass, dirt, watering areas, and transfer structure with a restraint device and scale, and two indoor areas containing multiple stalls.

Management / Enrichment of the elephants

We decided that the most important aspect of our management system was to let the elephants behave like elephants as much as possible. This meant that, outside of training them, we would allow them the opportunity to socialize, forage, play, swim, sleep, establish their hierarchy, conceive, birth and raise their young, etc., as a herd with access to as much outside room and shelter as possible. We also realize that we are fortunate to have our San Diego weather that allows us to provide this opportunity year round. Both barns are heated and animals have access to them when it's cold or raining. Most of the year the animals are outside 22 hours or more per day. We minimize the amount of time any animal is in a stall(s) or barn and when they are we usually provide them an enrichment device or food item that keeps them

active.

Their entire diet is managed as well. Working with our nutritionist, the elephant's obligatory diet consists of three types of hay, beet pulp, an alfalfa-based pellet and a variety of browse. This variety of food items allows us to set their food or reinforce the animals in any way we choose. In fact, we spend a lot of time and take pride in how we set the yard (twice a day on average) to encourage foraging, climbing, tusk-ing, stretching, problem solving, etc. by using the different food items in conjunction with other enrichment devices, objects in the yard (rocks, boulders, tree stumps, logs, pools, perimeter fencing, etc.) and big piles of dirt! We feed them smaller amounts of food several times a day instead of employing a meal strategy. The animals receive no produce, breads or sweet feeds. Additionally, the animals receive no extras in their diet for training. We measure out their pellet in the morning and use this for their training and enrichment. We monitor their intake when feeding as a herd, weigh the calf every day and the others once a week to make sure they're getting their proper nutrition. Another important goal in the way we manage our elephants is to keep them active and in shape and work in conjunction with their diet to keep them from becoming overweight and to wear down the pads and nails of their feet naturally. We feel their nearly constant access to the large yards and its different substrates and topography, along with our enrichment program, is key to maintaining their health and well-being.

Training of the elephants

The backbone of our elephant program is the choices we made on how they were to be trained. The fact that

our elephants were naïve, not subject to any prior form of training, gave us an ideal situation to prove what we already knew from previous experiences within the vast field of animal training. Mainly, that a training program based almost exclusively on positive reinforcement would be highly successful, even with elephants. Because this system would be based on trust, we knew what our program would not entail. We would not attempt to establish dominance over them. We would not use positive punishment or negative reinforcement, including the aversive and pre-aversive objects or training associated with that form of conditioning. We would not teach or use a stimulus delta "no" or the elephant release "alright". We would purposely try to avoid set training routines such as time, place or behavior. Put another way, we were not going to use traditional elephant training methodologies found in free contact programs and even many PC programs. We agree with and try to promote the following statement regarding the current status of PC, "...the trainer often still carries the ankus, may use an authoritative voice to give commands, and doesn't actively attempt to abolish the pre-existing dominance-based relationship. Although some may consider this PC, we respectfully and adamantly, disagree. PC is not free contact conducted from the other side of a barrier" (Laule, et al. 2005).

What we do is establish relationships based on trust and positive reinforcement. Conditioning behavior is usually accomplished by shaping behavior through successive approximations, usually with the aid of targeting. A dog whistle is used as a terminal bridge. Intermediate feedback is in the form of verbal praise. Reinforcement almost always occurs

only after the bridge, this includes not giving the animal some hay or grain to feed on during training sessions to keep them occupied. We use an LRS (Least Reinforcing Stimulus) as a consequence for incorrect behavior or an incorrect bridge. The only form of negative punishment used is the infrequent use of a time-out. We strive to be able to train any behavior at anytime and any place.

Results and Discussions

We feel that the way in which we manage and enrich our elephant's lives has encouraged them to display their natural behaviors and promote a healthy environment for them to function as a herd. Our bull has bred all the females (except the mother of the calf) and we currently have two confirmed pregnancies.

The first calf born into this herd in San Diego was born outside in the presence of other elephants is now two years old and thriving under the care of the entire herd.

Not one of the elephants have chronic foot issues or abscesses. Stereotypic behavior such as rocking or swaying has been avoided. We feel that both these common problems have been avoided because our elephants are given access to the outdoors for 22 hours or more per day year round and are kept together as a herd the majority of the time. They are also encouraged to remain active and we purposely minimize the amount of time that they are in confined spaces, especially if it requires standing on cement.

We strongly feel our training through the use of positive reinforcement and the avoidance of all dominance-based methods have been the key factors in the success of our elephant program. We develop relation-

ships between each animal and trainer that is based on trust. Because we use a terminal bridge the whistle is not sounded very often, relative to an intermediate bridge, and the animals are very keen on listening for it. Through this we can pinpoint specific micro-behavior and draw more attention to it. The animals strive to interact with us and really appear to enjoy their training sessions. In the case of undesired behavior is performed we simply LRS and move on. Rarely is there a need to end an interaction on a negative note with a time out. When this occurs the time out lasts an extended period of time, typically hours in duration. They have probably learned that if we have to leave we're probably going to be gone for quite a while. We feel that the rarity of a need to prematurely end a session is due to the animals' desire for our attention and the length of our time outs.

In two and a half years we have trained 179 completed behaviors on our eight elephants (FIGURE 1). Husbandry behaviors such as trunk washes and blood sampling from their ears name only a few. Our current semen collection training work with the bull has been progressing rapidly and we should be collecting from him soon. Also along those lines is the fact that we've just recently trained our calf to perform a sternal and lateral lie down behaviors. These lie down behaviors, to the best of our knowledge, are the first lie-downs to be trained on an elephant exclusively in a PC environment, again solely through the use of positive reinforcement and shaping.

Conclusion

1. The animals are successfully learning behaviors through the near-

exclusive use of positive reinforcement in a dominance-free training system founded on developing trust.

2. Compared to some other elephants in PC where traditional methods have been maintained, our elimination of the use of any form of physical, emotional or social dominance or threat has only enhanced the behavioral reliability of the animals.

3. We feel that how we manage and enrich our elephant's lives leads directly to their overall physical and behavioral health and well being, including the successful birthing and rearing of our calf and the recent conceptions at the San Diego Wild Animal Park.

Acknowledgements

A special thanks to our videographer, Shawn Dennison, who filmed, edited, and helped produce this presentation. Thanks to all the trainers, past and present, who have trained the behavior and have taken care of all the elephants' needs. Finally, thanks to the current staff of Keith Crew, John Walko, Mindy Paulsen, Erin Ivory, Stephanie Norling and Brian Greco for their contributions to the success of our African Elephant Program.

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CAN IMITATION LEARNING HELP IN TRAINING YOUR ANIMALS?



Nicole R. Dorey^{*1,2} and Stephen Lea², Paignton Zoo Environmental Park¹ and University of Exeter²

Imitation is defined as a process by which one individual learns some part of the form of an action by



observing another individual, normally a conspecific. While the mechanism underlying such inter-individual learning is highly controversial, the fact that it occurs is not: since Thorndike (1898) first developed a methodology to study imitation, hundreds of research papers have reported imitation in apes, dolphins, birds, and other species. So why aren't we using imitation to our advantage in training animals? In this paper we present research that is investigating the process of imitation in a number of species at the Paignton zoo, and discuss whether such social learning may be a useful tool in animal training.



TRAINING, SHAPING AND SOCIAL LEARNING IN PIG-TAILED MACAQUES (*Macaca nemestrina*)

Caterina Spiezio^{*1}, Donata Grassi¹ and Fabio Sempreboni² Parco Natura Viva-Garda Zoological Park¹ and University of Padua, Italy: Department of Biology²



A captive colony of 10 subjects of Macaca nemestrina hosted at Parco Natura Viva - Garda Zoological Park, Italy, was employed with training procedure to habituate them to be isolated in a familiar area through a positive reinforcement (sweet/pellet). During the training each subject was employed with a shaping technique and was involved in a social learning study. The shaping procedure started with the reinforcement of a naturally occurring behavior, such as picking up a reward from the ground, then taking the reward from the trainer's hand, thus reaching for it from an opened box (Reward-box) and, in the end, opening the equipment to take

the reward. The results showed a significant difference across subject in learning how to solve the task. However all the macaques were shaped

to open a box. Furthermore, in the social learning study the Two-Action Test paradigm was employed to evaluate the social learning strategies used by macaques to acquire new

behavior. The results of this research showed that macaques socially acquire new behaviors via observation using a stimulus/local enhancement process plus individual learning. These studies alighted how training provides the tools not only to improve husbandry and veterinary care but also to reduce abnormal and/or stereotypic behavior with enrichment programs that create behavior to enhance animal care and increase our knowledge of the species.



CRICKET STICKS AND ELEPHANT BURRITOS: A RECIPE FOR USING EDUCATION PROGRAMS TO HELP WITH ENVIRONMENTAL ENRICHMENT AT THE SAN DIEGO ZOOS WILD ANIMAL PARK

Jeff Andrews*, Andy Schucker, Pam Meisner, and Michelle Reddy, San Diego Zoo's Wild Animal Park

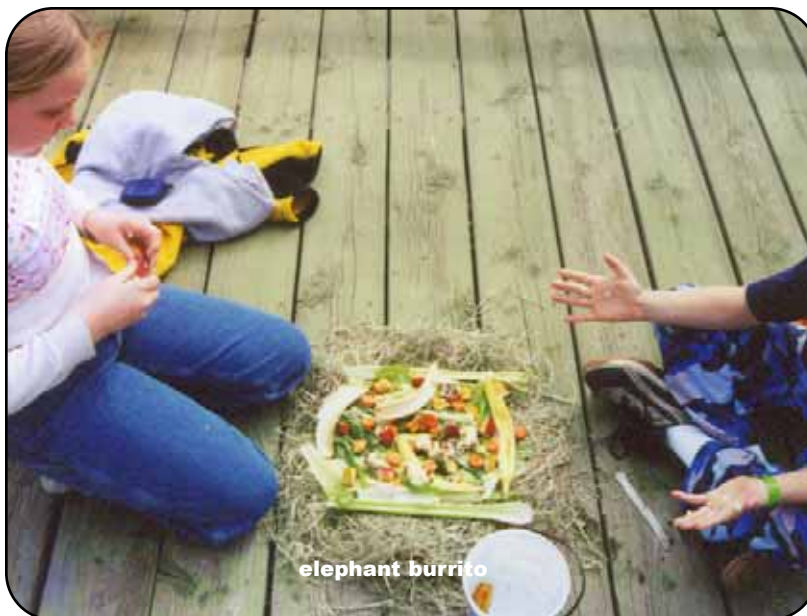


So, you want to expand your facility's animal enrichment program, but keeper time to create enrichment items is limited? At the San Diego Zoo's Wild Animal Park, we have discovered a recipe for success: start with a fine mix of kids from our education programs, blend in approved enrichment items and projects, toss in some fun and excitement, and there you have it. The result has been delicious! The kids supply an unlimited source of energy and enthusiasm for putting together enrichment items, they learn about the animals in the process, and, of course, the animals get to partake in the repast. As an added treat, the press gobbles it up for the daily news. What is the major limiting factor? Not enough animals available to be enriched--imagine that! Join us as we page through our recipe book and share our culinary talents for a most sumptuous spread.

Although enrichment is an important part of animal care, it can be time consuming for animal care staff. At the same time, The Education Department at the Wild Animal Park is always looking for new ways to enhance our education programs. Our recipe for success was to combine these two by having the children take part in creating enrichment items for the

animals as part of several education programs. These programs are specially-designed programs for children of all ages, and include: Conservation Corps (14-17), Safari Cadets (7-11), Kindersafari (5-6), Summer Camp (all ages), and a new evening program, Kids' Night out (4-6). It has been a great hit with the animal care staff as well as with the children.

The enrichment items created by the children are varied, and, of course, depend on the animal. Some of our favorites are: stew for swine, burritos for pachyderms, kabobs for primates, meat on the move for carnivores, and insects on the roll for birds. One of our goals is to design enrichment items that encourage the animals to exhibit natural behaviors.



This allows the students to gain a greater understanding of the natural abilities of a particular species and

how it interacts with its environment. It might demonstrate the stealthy stalking of a cat; the way an aardvark digs with its long, sharp claws; or how a spider monkey can hang by its tail while eating upside down.

A lot of planning goes into designing enrichment, which includes input and approval from keepers, animal care managers, hospital staff, and nutritionists. This allows us to incorporate facts about the natural history and behavior of subject animals, and take individual preferences into consideration. The recipes are relatively simple to make and generally incorporate food items from the animals' diets. We have the children wear surgical gloves while they are making the enrichment.

They also wear masks when preparing enrichment for primates.

Warthog Stew

Ingredients

Clean mulch

1 chopped yam

1 chopped carrot

2 chopped apples

3 stalks celery

Layer mulch, fruit, and vegetables in a clean wheelbarrow.

Wheel into enclosure and dump piles throughout. Add warthogs and enjoy! Lesson learned: Warthogs naturally forage for their food in the

wild by rooting through dirt with their long snouts, using their excellent sense of smell.

Elephant Burrito

Ingredients

- 1 flake of hay
- 1 chopped yam
- 1 chopped carrot
- 2 chopped apples
- 3 stalks celery
- 2 long branches of new-growth acacia

Slightly pull apart the flake of hay, leaving it structurally intact. Place the rest of produce on top of the hay. Roll tightly and tie with acacia branches. Serves one elephant.

Deluxe Hay Basket

Ingredients

- 5 flakes of hay
- 1 gallon bucket chopped produce (yams, carrots, apples, celery)
- 10 branches of acacia, 2-3 ft long
- 1 large, natural-fiber cargo net
- 50 ft natural-fiber rope

Lay out the cargo net on the ground under a tall tree or other similar structure. Spread the hay evenly around the net. Scatter the produce around the hay. Liberally add the acacia branches. Feed the rope through the edges of the cargo net and cinch it into a tight basket. Using the rope, raise the basket 20' off the ground and secure it well. Add elephants to taste.

Cricket Sticks

Ingredients

- 5 recycled paper towel rolls
- 2 sheets of newspaper (b&w)
- 25 live crickets (do not have to sing in tune)
- lots of fast hands and quick reflexes!

Punch four to five holes in each of the recycled paper towel rolls and set them aside. Tear the newspaper up into ten evenly-torn pieces. Fill one end of paper towel roll with one piece of newspaper. Add five live crickets and fill the other end of the paper towel roll with another piece of newspaper. Feed immediately. (serves five meerkats, four fennec foxes, five birds of prey)



Fruit Kabobs

Ingredients

- 10 branches
- 5 apples, chopped
- ½ melon (watermelon, honeydew, cantaloupe, etc), chopped
- 2 lg handfuls of grapes
- 1 sm handful of raisins

Using the branches as skewers, spear pieces of fruit onto them. Thinner branches can be folded in half to provide support for fruit. Serve. Feeds five primates.

Okapi Onion Baskets

Ingredients

- 1 wire hanging basket
 - 3 pieces of acacia browse
 - 1 yellow onion, chopped
 - 1 yam, chopped
- Weave the acacia branches through the basket to fill in areas between the wire. Add the chopped vegetables. Hang it on the fencing. Feeds two okapi.

Meat on a Spring

Ingredients

- 1 heavy chain
 - 1 garage door spring
 - 1 leg of lamb
 - 3 pieces (4x4') of burlap
- Attach a garage door spring to the end of the chain. Secure the chain to a tree or other tall, sturdy structure, so the garage door spring is at least 6 ft off the ground. Roll the leg of lamb inside a piece of burlap, and tie the ends together to close. Roll it into the remaining two pieces of burlap. Tie the ends to close, and hang it from the garage door spring. Add one hungry tiger or other large cat.

Meat-Stuffed Pumpkin

Ingredients

- 1 large pumpkin (big is best-- ~100 lb is good)
- 10 lb of ground meat (carnivore diet)

Pumpkin carving tools and scoopers

Cut top off of the pumpkin. Scoop out the insides and throw them away (or use as enrichment for other animals). Carve many small holes (about 2" in diameter) in the pumpkin. Roll the meat into balls that are slightly larger than the holes in the pumpkin. Pack the meatballs into the holes. Add the remaining meat to the inside of the pumpkin, replace the top of pumpkin, and make way for one hungry carnivore.

The equation kids + animals = success is always an exciting one to watch, but it reaches a new dimension when it comes to animal enrichment. There are many reasons why it is not possible for children to have direct contact with animals, but if the children make an enrichment item and then see an animal enjoying it, it is almost as if they were handing it to

the animal themselves. It also helps them see first hand how important enrichment is and gives them a sense of personal appreciation and pride for their involvement. It also allows the child to understand the importance of enrichment for all animals ? even their own pets. From here they take this knowledge and excitement gained from this experience home and the cycle begins again.

The educational value from this type of hands-on learning is unlike any other in that it provides a tactile, "I made a difference," experience that the child gets to take part in and then see immediate results. Preparing an enrichment item, physically placing enrichment within an enclosure, and then watching as the animals enjoy it gives a child a sense of pride, ownership, awe, and pure enjoyment and fun! Learning while having fun is another recipe for suc-

cess. where the enrichment is h a p - pening to let visitors k n o w that the a n i - m a l s are get- t i n g enrichment by the c h i l - dren in a

particular Education Program. It can be great for getting the word out about specific education programs. Even the adults want to sign up!

We have found that mixing kids from our education programs with



cess.

It's not only the kids and animals that benefit from enrichment. If your facility lets the media in on the event, it is great for positive PR and can help drive attendance. We try to put a sign outside any enclosure

animal enrichment turns out a batch of benefits every time. The animals get improved and more frequent enrichment, it can save on keeper time, it can be great for marketing and public relations opportunities, and it provides the children with an

GETTING EVERYONE ON BOARD. ENCOURAGING SOUTH AFRICAN KEEPERS TO PERFORM ENVIRONMENTAL ENRICHMENT

THE
SHAPE
OF ENRICHMENT

Beth Hammond^{*1,3}, Robynn Ingle-Moller² and Matthew Rich^{1,4}
Shape of Enrichment¹, National Zoological Gardens of South Africa²,
San Diego Wild Animal Park³, San Diego Zoo⁴

Environmental enrichment and husbandry training are quickly becoming core components of most keeper's daily routine. Many keepers willingly participate in environmental enrichment activities and have excellent training skills while other keepers may not be so enthusiastic about enrichment and training. Gaps in motivation and education create frustration for other keepers and supervisors and reduce the level of care for the animals. This paper chronicles the six environmental enrichment and two husbandry training workshops that were conducted by The Shape of Enrichment and hosted by the National Zoological Gardens of South Africa from 23rd May through 10 June 2005. Our goals were to encourage keepers to continue with species appropriate enrichment by encouraging them to think about how they care for the animal in relation to the species natural history, to generate empathy for the animals, to teach some basic animal training and give participants an opportunity to practice enrichment and training. The response from participants was overwhelmingly positive. Many keepers told us they had never thought about life from the animals' perspective and that the workshop had inspired them to continue with enrichment. At the time of this writing, the enrichment coordinator for the National Zoological Gardens of South Africa is still evaluating the

long-term successes of the workshop. Many of the attendees at the 7th International Conference on Environmental Enrichment held in New York, expressed frustration over low staff motivation and lack of education. The type of staff training we conducted could prove to be useful to other institutions.

In October 2003, Valerie Hare from the Shape of Enrichment, Dr. Rob Young from PUC-Minas in Brazil and Beth Hammond presented an enrichment and husbandry-training workshop for the Johannesburg Zoo at the Rietvlei Zoo Farm in conjunction with the 6th International Conference on Environmental Enrichment hosted by the Johannesburg Zoo.

Subsequently, The Shape of Enrichment was approached by Robynn Ingle, the enrichment coordinator for the National Zoological Gardens of South Africa, and asked if The Shape of Enrichment would be willing to return to South Africa and conduct another set of workshops for the Pretoria Zoo and its breeding centers at Mokopane and Emerald Animal World. We also allowed outside institutions access to the workshops as well. During the planning of the workshop, we realized that it would be highly beneficial to have a team member with construction expertise so Matthew Rich, an enrichment construction

specialist from the San Diego Zoo, was asked if he would be willing to help. After a long series e-mails, SKYPE internet phone calls and changing the schedule too many times to count, we returned to South Africa to join Robynn in conducting six environmental enrichment and two husbandry training workshops, hosted by the National Zoological Gardens of South Africa.

Methods

Setting goals

The ultimate goal for the staff at the Pretoria Zoo was to have a greater percentage of them include enrichment in their daily routine. As the enrichment coordinator put it, "I cannot do it all by myself!" She also wanted her staff to be introduced to the study of Animal Welfare, the concept of the 5 Freedoms as described in Environmental Enrichment for Captive Animals: freedom from hunger and thirst, freedom from discomfort, freedom from pain, injury and disease, freedom from fear and distress and freedom to express normal patterns of behavior and the three responses: fright, fight or flight.

To achieve our goals we had to keep several issues in mind. We discussed why there was a lack motivation, how to overcome variable education levels, how we should address cultural issues and the history of South Africa. We worked on techniques we could use to increase participation and interaction in the actual workshop.

Materials

We used Dr. Robert Young's book, *Environmental Enrichment for Captive Animals*, previous Shape of Enrichment workshop presentations, Ken Ramirez's *Animal Training* and Karen Pryor's *Don't Shoot the Dog*, as our basic set of course materials. The enrichment coordinator created a handbook with the highlights of the workshop and the important points that she wanted emphasized to her staff. Lastly, the enrichment coordinator created an enrichment logbook specifically for her staff. She told them that she and the curators would be collecting the books periodically for review.

Activities

We employed both in class and on grounds activities to keep the workshop fun and engaging. When planning an activity, we would always think back to our ultimate goals and how would the activity support achievement of the goals.

In Class

Much of the in class work was in a standard workshop style with brief lectures and then a question and answer period (Figure 1). To encourage staff to ask and answer questions, we used positive reinforcement in the form of candy, snacks and other fun items brought over from the United States. This worked very well! Topics included why we need to do enrichment, how you set goals and plan enrichment, scientific evidence that enrichment works, proactive vs. reactive enrichment and categories of enrichment. We also did an activity to highlight safety of enrichment. We had five volunteers come up front to be an "elephant", "leopard", "gorilla", "eland", and "macaw." We then gave each of

them a different item and had the group discuss if the object was safe for the "animal." We then rotated the items so that each "animal" had a different item. This activity helped to emphasize the concept that what is safe for one animal, might not be safe for another.

On-Grounds

We did several zoo walks where we would stop at various enclosures and discuss the natural history of the species, what we liked about the enclosure and what we would like to improve. Workshop participants had to be aware of the species natural history and how to best meet the 5 Freedoms of welfare for that particular species.

We created an activity where we put all the participants in an enclosure that was built in the 1910's. We acquired a box of apples and then rounded up a group of school children to "feed the animals". We then served the rest of lunch inside the old enclosure as well. We purposely had no tables or chairs so we had to sit on the hard floor of the enclosure. The third time we did this activity; I noticed something about how I was feeling. I was eating very quickly, I was very vigilant of what was going on around me and I was not enjoying my food very much. I was feeling a bit distressed, as I was not engaging natural foraging behavior. I ask the rest of the participants how eating their lunch this way made them feel and they had similar observations to share. Then I asked them how this might make an animal feel; having to eat in such an exposed manner, without it's natural surroundings. Many people answered that it might make the animal feel uncomfortable and stressed too. They had made the connection that it was important from a welfare perspective to feed

and care for their animals in a way that was compatible with the animal's natural history.

Another activity highlighted the concept that enrichment can be successful even if the animal doesn't interact with the enrichment the way we think it should. Ultimately it also became an excellent exercise in empathy as well. Each participant had to find a partner, one would be the "animal" and one would be the "keeper". The "animals" were put into a very old carnivore enclosure with nothing to do and instructed to hang out for about five minutes. They could vocalize, explore and interact with the other "animals" but they didn't do too much. We instructed a few of our animals to engage in abnormal, destructive or disruptive behaviors such as stereotypic rocking or pacing, peeling paint off the walls or excessive aggression. During this time we told the keepers to take a few notes about the different types of behaviors in which they saw their animal engaged. Then we shifted the animals out and the keepers were allowed to pick an enrichment object out of a box. They had to write down what behavior(s) they wanted to encourage or discourage how the animal might use the object and how the object might help them achieve the behavioral goal. Then we released the animals back into the enclosure for another five minutes to interact with the enrichment items and we asked the keepers to repeat the observational activity. Finally, we asked the keepers if they felt the enrichment was successful and why. Most responded that even though the animal may not have used the item exactly the way they thought, the animal did engage in the behavior they wanted to encourage or decreased the frequency of a negative behavior. When we talked

about this activity with all the participants, many of them told us they had never thought about life from the animal's perspective.

We also had participant break up into teams, and do enrichment in an assigned animal's enclosure. They were given a worksheet with guidelines to follow and questions to answer. They were to think about the animals' natural history, discuss what they liked about the enclosure, and discuss what they would like to improve, gather the materials, and install the enrichment. The rest of the class would then stay with the team and observe the outcome. During that time, the group had to share with us what they did and why and if they felt the enrichment was successful. We felt this was one of the most valuable activities for several reasons. It was a good team building exercise and it was practical experience with instant gratification. We realize that not every enrichment session will be highly exciting for animal care staff but for the goals of the workshop, we needed to get staff excited about doing and continuing enrichment. Seeing an "Oh Wow!" session helps to get and keep staff motivated. We videotaped one session where an entire class did an enrichment session in the brown bear enclosure. When the two female bears were released, they by-passed most of the food items and immediately stated sniffing, rubbing and rolling in the salad dressing and ketchup. We watched the bears interact with the enrichment for about 30 minutes but needed to press on since we had other animals to enrich, yet no one wanted to go. Everyone was enjoying watching the bears enjoy what we had done in the enclosure. When we reviewed the tape with the staff, we asked them how it made them feel. Sunnyboy Madumo, an

animal attendant replied, "It made me feel very proud!" We knew at that point, we were on the right track.

Behavioral Data Collection

Usually when The Shape of Enrichment conducts an enrichment workshop, we include a section on collecting behavioral data. We feel it is important for animal care staff to understand the basic science involved in behavioral data collection and give staff a chance to practice collecting data on live animals. In preparing for the Pretoria Zoo workshop, the enrichment coordinator and I decided to make this an optional evening session. We had a group of mice with which to work and decided to examine the behavioral diversity of the mice in an unenriched environment (a plastic tub with no substrate) and then in an enriched environment (the same plastic tub with three different substrates and some climbing structures) (Figure 10). Participants took focal point animal observations every thirty seconds for five minutes under each condition. We then combined the results and showed them to the class on a computer display. It was a wonderful lesson to be able to show students how easy it is to obtain scientific data that supports our gut feelings that the enrichment is beneficial.

The Training Components

Our goals for the husbandry-training component were to introduce animal care staff to the idea that you can train your animals to do some simple and not so simple behaviors that would make their job easier and safer and that they are training their animals all the time. The title used for this section is "Did I make them do that?" and serves to emphasize

the last point. It is important to note that this was not a workshop where we were going to teach participants how to train highly complex husbandry behaviors but rather introduce training concepts and have participants practice some simple skills. The concepts and definitions of operant conditioning, positive reinforcement, negative reinforcement, and punishment were thoroughly demonstrated and discussed.

Activities

While in class, we broke into small groups and each group was given a plush animal with a scenario that needed to be managed: for example, a non-insulin dependent diabetic marmoset or a lion that would not shift off exhibit. The participants worked together to brainstorm what behaviors could be trained to help manage the animal safely and in the least stressful way possible.

We also had the entire group play the Training Game. Everyone wrote down a behavior on a slip of paper and we put all the behaviors in a box. We gave examples such as jump up and down, lie down on the floor, turn on a light, etc. We had some wonderful and challenging behaviors such as lick lips, pour a glass of water, stand on a chair, and vocalize. Each person had to be an animal and a trainer. The trainer would pull a slip of paper out of the box and have to train the "animal" to do the behavior. When we asked participants how they felt when they were the animal being trained, they told us that they had never thought about it from the animal's perspective and that they understood now why their animals were doing certain behaviors.

Lastly, we had participants practice some of their skills with the goats and pigs housed in the farm-



(Keepers making bird enrichment)
Photo by Beth Hammond

yard. They worked on basic bridge conditioning, targeting and stationing. This was also an excellent opportunity for participants to actually see how the training techniques worked in a matter of a few minutes.

Challenges unique to South Africa

One cannot go to South Africa and not be aware of the racial issues that are still prevalent. (It should be noted that the terms black and white are used routinely in South Africa and are not considered derogatory.) As a white woman overseeing a staff that was over 50% black, this was one of the challenges that the enrichment coordinator faced. She told me that most of her white staff was fairly good about animal welfare and enrichment but that most of her black staff was not. Of course there were exceptions. When I asked why there was a lack of motivation among the black staff, she said it was because many of the staff did not take the job seriously. She said, "To them, it's just a job not a career." In the "why we need to do enrichment" section of the workshop I brought up the American Zoo and Aquarium Association job listings website and shared with participants that in the United States, enrichment and training are routinely listed as job duties and that these are highly sought after careers. We talked about how many applicants there are for animal care jobs in U.S. zoos and how as conservators and animal attendants, they are part of a larger community of animal care professionals. The enrichment coordinator informed me later that this was a major eye opener for many of the staff.

Another unique challenge in working with the black South Africans is that they just gained political and social independence 12 years ago. For decades, the welfare

of black South Africans was poorer than what we were asking them to think about and do for the zoo animals. There was a great deal of resistance to the idea that an animal should have the proper food and water, housing, behavioral choices, and control over their lives when for years, the black Africans had not been afforded these rights. This was not an easy social obstacle to overcome, so this was one reason why we wanted to highlight activities that generated empathy toward the animals. I expressed concern over the activity where we placed the workshop participants in the enclosures but the enrichment coordinator reassured me that since we were working with a mix of black and white staff, and that the emphasis would be on animal welfare, it would not be offensive. And as stated earlier, it turned out to be one of the best activities we did.

The last challenge we faced was one of gender. The black South African culture is highly patriarchal. As both the enrichment coordinator and I were female, we were concerned how the information would be received especially at one of the off site breeding centers where the staff was not only all black, but all older men as well. This was one reason why Matthew Rich was such a valuable resource. Having a man along gave us added credibility.

Language was also a challenge, as there are 11 official languages spoken in South Africa. For the Pretoria Zoo workshops, we decided to hire a translator that spoke Tswana. The benefit was staff could now understand what was being said, but the drawback was it would take a great deal of time and several of the words just did not translate. After we talked with some of the staff, they told us that they were doing just fine with-

out the interpreter. At Mokopane, there was a staff member who could serve as a translator as almost all of the black staff did not speak English. Robynn spoke some Afrikaans but it was helpful to have a third language available for clarification.

Results

A total of 215 people attended the workshops: 52 from institutions other than the National Zoological Gardens (Johannesburg Zoo, Lowry Park Zoo and the University of Pretoria Biomedical Research Centre), 12 zoo-keeping interns at the Pretoria Zoo, and 151 from the Pretoria Zoo, Mokopane and Emerald Animal World. Of the 151 from the Pretoria Zoo, there were not only conservators and animal attendants, but also animal food preparation staff, curators, education staff and public relations staff. Prior to the workshop, the enrichment coordinator for the Pretoria Zoo estimated that 26% of animal care staff included enrichment in their daily routine. This percentage included not only the Pretoria Zoo but the two satellite breeding centers as well. At the Johannesburg Zoo, it was estimated that 52% of the animal care staff included enrichment in their daily routine before the workshop. Immediately after the workshop, 47% of the animal care staff at the Pretoria Zoo were including enrichment in their daily routine. No numbers were available from the Johannesburg Zoo. At the time of this writing, about 30% of the animal care staff at the Pretoria Zoo is still including enrichment in their daily routine. It's been reported that certain behavioral problems have also been corrected. It should be noted that after the workshop, there was a shift in management at the Pretoria Zoo. The

enrichment program is now under the research section of the zoo whereas it was previously under animal care/curators.

Conclusion

The workshop trainers at The Shape of Enrichment donate their time and expertise to plan, create and implement enrichment workshops on the basis that these kinds of professional growth activities for animal care staff do indeed improve the lives of captive animals. The results from the Pretoria Zoo and other institutions support our mission of to further animal enrichment efforts worldwide.

Special Thanks

Carin Cloete, curator of carnivores, primates and the nursery at the Pretoria Zoo, Graeme Ogilvy, animal attendant at the Pretoria Zoo, Wimpie Swan, conservator at the Pretoria Zoo, Mark Howitt, General Manager of Mokopane, Sophie our intern from Germany, and most importantly, Robynn Ingle-Moller, enrichment coordinator for the National Zoological Gardens of South Africa. Her enthusiasm, skills and dedication made this workshop possible. Lastly, we want to thank the Shape of Enrichment and Dr. Nancy Gamble for their financial support to make this dream a reality.

NEVER SAY NEVER: ASIAN BULL ELEPHANT BEHAVIOR MODIFICATION THROUGH POSITIVE REINFORCEMENT MEASURES



Mike Connolly*, Tulsa Zoo and Living Museum

*The subject of this paper is an Asian elephant (*Elephas maximus*) bull named Sneezy, housed at the Tulsa Zoo and Living Museum in Tulsa, Oklahoma. Sneezy is a wild caught elephant who came to Tulsa on 29 November 1977 from the Memphis Zoo. He is currently housed with two other Asian elephants, both females, Gunda, age 55, and Sooky, age 33. He stands approximately 9' tall and weighs approximately 12,100 lbs. All three of our elephants are currently managed in a protected contact system. Sneezy has been under protected contact management since November 1987. In 1995, a new and improved elephant facility was constructed for our elephant pachyderms complete with a museum component that focuses on their natural history and unique adaptations that sets elephants apart as a species. This elephant encounter museum also allows for indoor viewing of our barn.*

My journey with this magnificent animal began in January 2001. Before this time, I had the opportunity to work with many different groups of animals but my involvement with elephants was minimal. I immediately became fascinated with this Oklahoma giant and interested in learning more about him and the challenges associated with bull elephant management. When I first began working with elephants we were in a period of heavy transition.

Unfortunately our daily interactions with Sneezy were limited to shifting, feeding and cleaning. Time and staffing constraints allowed little time for doing much more. If much more was asked of Sneezy, he often acted uncooperative and aggressive. My first opinion was that he was indeed a difficult animal to manage. However, in a relatively short period of time, staff decided to work on improving his behavior. Initially our personal goals included the creation of a competent well- trained staff and establishing positive rapport with the elephants under our care. With an additional elephant keeper position added to our department later in 2001, the elephant staff quickly started working on ways to improve our standards of elephant care. For the purposes of this presentation, I will focus on Sneezy and the evolution of his behavior over the past 5 years.

As mentioned earlier, the first critical steps with Sneezy included spending more time with him and working to capture his positive behaviors. As time permitted, staff increased the amount of time spent socializing with him. Tours of the area not only included our cows but now started involving more and more of Sneezy, our bull, as well. And why shouldn't it? After all, he is one of our most popular and attractive assets. Guests not only notice him for his sheer size, but also for his very unique name. It almost seemed to me at the time that Sneezy was

yearning for increased attention. From what I could tell, acting-out seemed to be his way of receiving attention. And act-out he did. He would often charge keepers, beat on and bang his shift doors both inside and out, and throw any objects he could at staff and guests alike. Were we guilty of conditioning him to be aggressive? Maybe so, but what was becoming clear was that staff could still give him the attention he deserved but through different means described below.

Efforts were made to give him just as much attention as our other elephants. Daily baths were initiated and his level of compliance with such procedures increased in no time. Not only did these sessions allow us to look him over but they also increased his activity level by asking him to position his body in a number of ways. Baths allowed us an additional means to measure his behavior and make sure he was acting and moving normally. Baths were now becoming part of his daily routine whereas before they were the exception. Footwork with this animal was also something that was sporadic when I started. However, staff realized the importance of footwork, as it relates to elephant care, and they began doing what they could to make this procedure as pleasant as possible with Sneezy. Again, part of the process was making the time for it. Initially effective timeouts and plenty of positive reinforcement were needed but in a rela-

tively short period of time, Sneezy began to accept such procedures much better and his level of cooperation improved substantially.

Footwork sessions no longer seemed to be such a game to him. We are fortunate that this particular animal spends a great deal of time walking around his exhibit but he is susceptible to cracks in his nails, and footwork indeed plays a critical part of his management as it does for all elephants. Another critical component of his management included blood draws. With this particular animal, blood is obtained from leg veins on his rear legs. Even though this was not a new behavior for Sneezy it was another one that he often met with resistance. Staff agreed that part of the problem was that a schedule needed to be created with blood draws factored into his daily management instead of occurring whenever it was convenient or blood was needed for diagnostic purposes. The goal was to draw blood every other week to both keep Sneezy in practice and to meet AZA standards for management and care. Each male and female elephant of reproductive age must have hormone values assessed through weekly (or bi-weekly) collection of blood samples (Brown, 2000). By desensitizing him to this procedure and maximizing positive reinforcement, he began to accept this procedure much better. Positive reinforcement can also work wonders for your veterinarian staff when they have the opportunity to deliver bananas smothered in peanut butter to their subjects!

Other husbandry behaviors, including tuberculosis testing, are also occurring more frequently as required by United States Department of Agriculture (USDA) and more reliably than in the past

(USDA APHIS, 2000). Additional exercise and training sessions also became a priority with this particular animal. Held mainly in his outdoor exhibit, the public could witness firsthand the incredible intelligence and agility of this magnificent animal. Sneezy seemed to thrive on the additional attention and began offering behaviors that had not been asked for in years. In no time the number of behaviors he exhibited increased and others were easily shaped. Enrichment with him went from non-existent to much more frequently. He is arguably the most entertaining and most responsive of our elephants to enrichment. Yes, he may eat items that he should not and he often destroys items in no time but carefully prioritizing enrichment for him has, on a number of occasions, helped better shape and manage his behavior. For example, when he is in a state of musth it helps to offer him items that he can take out his frustrations on, which seems to reduce his anxiety towards us. The staff was also able to obtain Sneezy's first real weight in the current barn late last year. On our first attempt with him in this area of our barn, we were able to get him to position himself on the barn scale in a relatively short period of time. If this section of the barn was able to better withstand the force of a bull elephant, I have no doubts that regular weights could be obtained on this particular animal. The staff's willing attitude to do more with this animal, instead of less, helped get us to this point.

All of the previously mentioned topics, in my opinion, have played a major role in getting this animal to where he is today. When I first began working the elephants, this particular animal would often throw various items at staff and strangers. He would also often wreck havoc on his

stall doors. Just shifting this animal outside could often take 15-30 minutes or longer by the time he was fin-



was a game to him and that acting-out seemed most reinforcing, at least at that moment. However, by making changes to his daily management and providing additional and alternative ways for him to gain attention and release energy, I have witnessed him becoming a much better behaved, and more manageable, animal.

Perhaps one of my greatest career achievements up to this point occurred on 30 July 2002 when our elephants were reproductively assessed by Dr. Dennis Schmitt. For years staff was aware of the significance of such a procedure, but once again this took a backseat when compared to other objectives. However, with a committed staff and better behaved and more responsive elephants we began conditioning our elephants for such a procedure. Two of our elephants, Sneezy and Sooky, were at an age where reproductive assessments were critical in order to measure their breeding potential. Our other elephant, Gunda, was at an age where we wanted to make sure she was free of cysts and lymphomas. Again, for the purposes of

this paper we will focus on Sneezy.

Honestly, when I began working this animal I would have never imagined he would tolerate such a procedure. As we learned more and more about the procedure, staff put their heads together to generate a game plan as to how we could make this happen. It required some facility modifications and management buy-in, but we did it. To start, Sneezy would have to allow us to lock him in his elephant restraint device (ERD). Even though this had been accomplished in the past, the behavior was lost. Surprisingly this step did not take staff very long to get back and the other steps in the process proceeded relatively smoothly as well. These steps included Sneezy willingly entering his ERD, and then allowing the pivot door to be shut behind him while pipes were put up and the door reopened, a squeeze by moving one of the ERD walls inward, and his rear legs to be restrained and tail to be tied off to one side. If that was not enough he would then need to be voided of fecal matter by allowing a thorough enema. He then had to allow several minutes of rectal palpation as a probe was manipulated through his rectum to check for normal anatomy and to measure the size of his testes. Dr. Schmitt also attempted semen collection with him during this time. All in all, Sneezy" behaved wonderfully and all reproductive physiology with him and our other elephants was well within normal range. I was amazed then at how cooperative and accepting he was of this procedure and it still amazes me today. Accomplishing this task after years of talking about it made us proud and set the groundwork for us to set even greater goals.

After several unsuccessful attempts at natural breeding between

Sneezy and Sooky, which took place over Sooky's next several cycles, she was eventually removed as a breeding candidate due to her increasing age. Without natural or artificial breeding attempts as an option with our on-site elephants our attention turned to conditioning Sneezy as a semen donor. There are very few collectable Asian bulls in the North American Species Survival Plan (SSP) population so every available bull is looked at seriously. Therefore, staff was willing to see what Sneezy would be willing to offer. The initial steps would require setting him up in a similar manner to his reproductive assessment exam. For the most part, Sneezy readily accepted the procedure of staff manually stimulating his prostate in an attempt to have him pass an ejaculate. As staff would soon find out, this was the easy part. What proved difficult, and still does to this day, is getting him to pass a clean sample free of urine contamination. During this process one must be careful to minimize stimulating the bladder and instead focus on the prostate. What can also be deceiving is that a sample may look good to the naked eye but once it is placed under the microscope the sample may have little or no progressive motility. For the purposes of artificial insemination, there must be high levels of progressive motility.

The battle to obtain concentrated samples with high levels of progressive motility is still a challenge for staff. However, last year when we were asked to provide samples for the purposes of our first artificial insemination procedure we asked our neighbors and friends up the road to assist us in meeting this challenge. The staff at the Dickerson Park Zoo in Springfield had many more years of practice than we did so we asked one of their staff members

to come to our aid. It was our hope that by working cooperatively we would be one step closer for Sneezy to serve as a donor. Sneezy responded very favorably to a veterinary technician from Dickerson Park named John Bradford and with his help we were able to participate in four artificial insemination attempts last year - twice with the Woodland Park Zoo in Seattle, Washington; once with a private facility outside of Los Angeles called, Have Trunk Will Travel; and once with the Honolulu Zoo. Unfortunately each procedure was unsuccessful in that a pregnancy did not result with the exception of Have Trunk Will Travel; but, each attempt was a success in that we were able to provide quality samples from Sneezy for each time. We will have to wait approximately one more year to find out if Sneezy is the sire of the Have Trunk Will Travel calf as another bull was also utilized for this artificial insemination. However we are optimistic.

Even though Sneezy is a proven breeder, he is currently unrepresented in the North American captive population. He has sired two offspring in the past but unfortunately neither survives to this day. As is the case with many captive elephants, the need to breed is imperative if we hope to continue to have elephants in captivity to serve as ambassadors for their species. Elephants are one of the species our guests expect to see and one of the easiest for them to connect with if given the chance. The Tulsa Zoo and Living Museum elephant staff has every intention of continuing our efforts to help this species. Already this year we have assisted with another attempt at artificial insemination. The past several days were spent trying to obtain semen from Sneezy for the National Zoo. Even though this proved to be

our most challenging attempt yet, we were able to ship semen accompanied by one of our staff members to the District of Columbia, on scheduled. On one particular day, Sneezy proved too uncooperative and the other day was called off due to an early than expected ovulation. It's great when staff can accompany samples and be able to witness the actual insemination process from the other end. This was also the case last year with "Have Trunk Will Travel's" attempt. I can also announce that we have plans to assist the Woodland Park Zoo again next month as they will attempt this procedure for a third time on one of their cows. If all goes as planned we will once again try to help the Asian elephant captive population out by working collaboratively with our friends and fellow professionals.

In conclusion, Sneezy is a different animal now than when I first met him. His behavior continues to evolve and change for the better. Through a progressive elephant management program I believe his behavior has been modified for the better. What

staff is able to do with him now would not have been imaginable five years ago. He is truly a challenge but one that continues to teach staff something new all the time. As is the case with most of our responsibilities, if you are willing to invest in them, they will give back tenfold. The Tulsa Zoo and Living Museum elephant staff will continue to meet the challenges this individual animal, and species in general, present to us. I am proud to work with such a dedicated group of individuals and am looking forward to the day Sneezy lives on through surviving offspring. When it comes down to it,

"Never say never!"

Acknowledgements

To close, I would like to acknowledge the hard work and dedication of several others. First, thanks to the current elephant staff at the Tulsa Zoo and Living Museum, as well as the staff when I first joined the program. I would also like to thank Mr. John Bradford for his patience, professionalism and flexibility in assisting us. I also owe a huge thanks to the elephant staff and support services at the Woodland Park Zoo, "Have Trunk Will Travel," Honolulu Zoo, and Smithsonian's National Zoological Park. We could collect all the semen in the world, but if it were not for other institutions taking on the responsibility and allocation of



resources to conduct artificial inseminations we would not be as far along in assisted reproduction as we are today. Assisted reproduction is doing incredible things for elephants and for this I would also like to thank Dr. Dennis Schmitt and Dr. Thomas Hildebrandt's team for their pioneer work. Acknowledgements are also in order for the Tulsa Zoo and Living Museum's management and veterinary services departments for supporting and encouraging a bunch of idealistic and motivated individuals that make up our elephant department. I would also like to acknowledge and personally thank Maureen

O'Leary and Jessica Scallan for their assistance with this presentation and for their extreme dedication to their profession and animal collection. You both serve as wonderful examples for others in this field and have helped make me better at what I do. Thanks also to the ABMA organization. Providing a forum for professionals to highlight their accomplishments and serving as a resource for continual learning sets a fine example for the business. Finally, I must thank Sneezy. Wow, what an incredible animal! He has taught me so much and will continue to do so. To be associated with this incredible individual is often surreal. All too often we get too preoccupied or put our own selfishness before the needs of our animals and this particular individual reminds me each day how fortunate I am to be doing what I do and for that I can never thank him enough.

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HOW DO WE MEASURE IF TRAINING IS ENRICHMENT?

Dr. Vicky Melfi*, Paington Zoo Environmental Park



Training has been associated with many benefits, including the possibility that training is enriching to the animals being trained or can serve as part of the enrichment programme. Efforts made to establish if training is enriching, are hindered by semantics; what exactly do we mean by enriching or in fact by training? In addition, there have been few (may be one or two) projects which have actually tested whether training is enriching. As such, the association is currently anecdotal at best, and at worst an assumption.

This presentation will suggest four different mechanisms, by which training could be considered enriching: i) Training has the same effects as 'conventional' environmental enrichment (CEE), ii) Training is stimulating, iii) Training provides a dynamic change to the animals' day, or iv) Training facilitates the use of CEE. The identification of these mechanisms provides a starting point from which we can disentangle what is meant, when it is said the training is enriching. Steps have been taken,

by searching the literature for data, to support or refute these proposed mechanisms.

The next challenge is to create elegant research methodologies that can test whether training is enriching. With the results of these projects, we will be able to determine whether indeed training is enriching and how it therefore fits into the holistic husbandry of the zoo animals.



Photo by: Ricky Kinley

TRAINING A SUMATRAN RHINO (*Dicerorhinus sumatrensis*) ...A TEAM EFFORT.

Danila Cremona*, Los Angeles Zoo

The Los Angeles Zoo is home to a juvenile, male, Sumatran Rhino (*Dicerorhinus sumatrensis*). His name is Andalas. He is one of four Sumatran rhino living in captivity in The United States. He is part of an International breeding program that consists of only nine animals (Foose, 2005). From dietary needs to medical attention, every aspect of the rhinos care is an important and delicate matter. The health and procreation of this individual animal may contribute to the survival of his species as a whole. Four dedicated keepers, Steve Romo, Danila Cremona, Barbara Grisham and Danielle Epstein, worked together to develop a training program to help raise the level of husbandry care for this highly endangered species.

In the spring of 2005, a training plan was created. The primary training goal was to be able to obtain regular blood draws from the rhino to monitor his normal blood levels as well as testosterone and iron. Prior behavior was not under stimulus control and keepers frequently relied on baiting the rhino with food. Future behavior was desired to be under stimulus control.

The rhino's behavioral repertoire consisted of moving him to different stalls and inside a crate for daily weighing. The rhino also accepted regular sodium chloride eye drops as a preventative measure against eye cloudiness, swelling and cataract. In addition, the primary keeper could have free contact with the rhino and

assist him in lying down simply by rubbing his hind legs and stomach. For safety purposes, all training would now be done in a protected contact environment. The produce portion of the rhino's diet was used as primary reinforcement. Tactility and trainer attention was used as secondary reinforcement. Veterinarians regularly visited during training sessions and became a regular, positive part of the environment. Using this base information, we began implementing our plan.

A challenge faced by the trainers, was how to deal with undesirable behavior. Daily weight maintenance of the rhino is extremely important. It is mandatory that we offer him the total amount of his daily diet. Food deprivation was not an option. The team decided to use time out as a consequence to negative or undesirable behavior. For convenience and consistency, all four keepers agreed on a regular daily time when they could all meet and train with the rhino. We began to implement our plan.

Blood can be taken from a rhino via the ear, tail or on the foot, between the toes. After discussion with the veterinarians, the decision was made to initially focus on taking blood from between the toes. Due to the design of the barn, our access to the rhino's feet was limited. The barn walls are 1.524 meters (5 feet) high and made of concrete. All doors entering and separating the stalls are made of 10.16-centimeter (4-inch)



Photo by Tim Sullivan

wide metal bars. The barn doors are 0.9144 meters (3-feet) wide and the sliding doors separating the stalls are 1.2192 meters (4 feet) wide. We needed to train the rhino to move along the walls and present his feet at the site of the metal barred doors.

Our first step was to establish a bridge. Constant reinforcement paired with the sound of the clicker, soon developed meaning. To move the rhino from various locations, a target behavior was established. Constant pairing of a trainer's fist touching the rhino's snout, along with the previously conditioned bridge and reinforcement, was the beginning. Greater distance was placed between the fist and snout and coupled with the verbal request, "target." The rhino learned to travel towards the visual cue of a closed fist while listening to the verbal request. Contact with the fist resulted in positive reinforcement for the rhino. The rhino could also be called over with a simple "move-up" verbal cue. Since rhinos have poor eyesight, all behaviors are given verbally and occasionally paired with a tactile cue.

Moving the rhino to a given location in the barn was accomplished. The vets were now able to get a visual on his feet, but the rhino was too far away for blood draw conditioning. We developed "right-over" and "left-over" behaviors to move the rhino respectively. We targeted the rhino in to place and captured, with a bridge, the alignment of the

hindquarters of his body. Once the body was against the wall of the side we had requested, the rhino was given a jackpot of raw fruits and vegetables.

A "back-up" behavior was captured and placed with a verbal cue during the time the rhino was weighed. The rhino is weighed in a crate with a scale as the floor. To leave the crate, the rhino must back out. A touch on the hind end of the rhino in conjunction with a "back-up" verbal cue was implemented each time the rhino would back out of the crate. Reinforcement was given when the rhino would back out of the crate when requested. This behavior was then transferred to the barn stalls. A piece of bamboo, used as an extension of the trainer's arm, was initially used to guide the rhino into a backed up position. Once the behavior was successfully transferred, the bamboo extension was removed.

"Back-up," "right-over," and "left-over," behaviors were under stimulus control and could be requested of the rhino in all four barn stalls.

Now that we could position the rhino where we could access his feet, small successive approximations were used to desensitize the rhino to tactility on his foot. We began by

touching the area where the blood would be drawn with the tips of our fingers. The trainer at the foot would bridge for calm behavior during the palpation and the trainer at the rhino's head would deliver the reinforcement. Desensitization to a syringe with a multitude of pressure and subsequently the needle puncturing the skin followed. Piercing the skin of the rhino showed little to no adverse effects. Unfortunately, due to the unclear view of the foot, the veterinarians were unable to obtain a blood sample.

The structure of the barn was not optimal for our training purposes. Keeper, Steve Romo, along with the veterinarians and management, discussed building a training chute. A large part of the outside patio,

tions during daily training sessions. The rhino showed interest when his trainers would arrive. As we would gather our training equipment, the rhino would wait at attention to comply with trainer requests. The training sessions became enriching for the rhino and the trainers.

During the chute construction, two additional behaviors were trained. An open mouth behavior was trained to monitor the rhino's erupting lower incisors and a kiss behavior was trained for fun. Time was also spent on ear and tail desensitization for future blood draw sites.

The chute was ready in December 2005. It was 3.3528 meters (11 feet) long by 1.2192 meters (4 feet) wide. The walls were composed of 10.16 centimeter (4-inch) steel bars spaced

15.24 - 25.4 centimeters (6-10 inches) apart. This new chute allowed keepers and veterinarians to access all of the rhino's body and provided a clear view of his foot. The back of the chute has removable poles and could become use-



attached to the barn, was available to build this structure. It was modeled after the rhino chutes used in Sungai Du Sun, Malaysia at The Sumatran Rhino Conservation Center. Funds were granted and the chute was under construction.

In the mean time behaviors were maintained in a variety of barn loca-

ful if The Los Angeles Zoo ever acquired a female Sumatran Rhino, and artificial insemination or ultrasound became necessary.

On 8 December 2005, the rhino was targeted into the chute and given a high magnitude of reinforcement. Over a period of three days, the squeeze portion of the chute was

moved tighter until it remained on its last setting. The rhino had no hesitation and easily walked into the chute for primary and tactile reinforcement or trainer attention. Trainers were able to ask for conditioned behaviors in the chute by day five. By the end of week one, tractability was achieved on roughly all of the rhino's body. The veterinarian attempted to take blood in the chute by the second week. The rear poles of the chute were not used. The rhino could back out of the chute if he was uncomfortable. Redirection by targeting always got the rhino to voluntarily return.

On 29 December 2005 the veterinarians were successful at blood collection. A size twenty-two 2.54 centimeter (1-inch) needle was used. Regular blood collection was then completed once per week until a large enough sample was collected to run a full blood panel and test for iron storage. Constant reinforcement was given during any blood collection.

In January 2006, trainers discovered that rubbing the rhino's stomach and legs showed to be just as reinforcing as his food. During the massage, the rhino would become relaxed and refuse food. He would crouch his hindquarters and flutter his eyes. We utilized this method of reinforcement during blood collection as the rhino remained calm and steady. It was decided that any future blood collection would be done after the rhino was massaged into this relaxed state.

The latest behavior being trained is a foot behavior. After the rhino enters the chute, a small amount of pressure is applied to the front of the rhino's leg, just below the knee. Paired with the verbal cue, "foot," the rhino picks up the requested leg exposing the sole of the foot. A visu-

al exam can then be completed. Keepers can monitor any cracks or injuries in the feet. Goals for this behavior are to diminish the pressure on the leg and to extend the length of time the rhino will hold his foot up. A padded stool is being designed to use as a footrest during visual exams. Once the behavior is under stimulus control, any medical treatment or foot trimming can be done easily and safely.

Lastly, keepers can bring the rhino into a barn stall and scratch the rhino on his stomach and legs. This signals the rhino to lie down on his side exposing his stomach and the soles of his feet. In this free contact method, keepers and veterinarians can exam the ventral side of the rhino and administer treatment to the feet. Though both methods are available, the protected contact method being trained in the chute is more desirable. The protected contact method can produce similar results and provide a safe environment for the trainers, keepers and veterinarians.

The Sumatran Rhino training program is successful and heading in a positive direction. Learning is occurring constantly. Four trainers are dedicated to improving the life and care of this animal. Each individual plays an important part in the training team. Constant communication, a positive attitude and patience are always necessary. The trained behaviors allow keepers and veterinarians to perform routine medical exams, treat injuries, and monitor regular blood and hormone levels. Team efforts with peers, veterinarians and management have proven to have a positive outcome and allowed us to reach our goals.

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Acknowledgments

Thank you
The Sumatran Rhino Training Team
Dr. Janna Wynne RVT,
Jeannette Tonnies Curator of Mammals,
Jeff Holland Principle Animal Keeper,
Jeff Briscoe
Photographers: Tad Motoyama and Jaime Phan
Audio-Video Services Dave Keliher and Jason Cleanthes

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GROWING PAINS: USING OPERANT CONDITIONING TO ENHANCE CAPTIVE MANAGEMENT OF A GROWING CLAN OF SPOTTED HYENA

Nicole King*, Jeri Meeker, Heather Genter, Andrew Rowan, Erika Weaver
Denver Zoological Gardens Predator Ridge

Throughout history, and even up until the present, the mysterious nature of the spotted hyena has helped them establish a poor reputation among humans. Although these carnivores have held their own for thousands of years in direct competition with humans, lions and the like, they continue to lose in the court of public esteem (Glickman, 1995). Documentation from Aristotle, to Hemingway and even the writers at Walt Disney have portrayed the hyena as evil and gluttonous. Ask most people what they know about hyenas, and a negative image will emerge. You will mostly hear such descriptions as repulsive, greedy, cowardly, stupid, vile, smelly and ugly. Yet for those who have taken the time to watch or familiarize themselves with hyenas, it is easy to adjust their thinking of these amazing creatures. I am proud to say that the keepers at the Denver Zoo are among those who have formed an attachment to, as well as, respect for one of the most successful predators in Africa.

In 2004, a new group of spotted hyena were brought to Denver from a research facility in Berkeley California. These animals were to form a clan for a new exhibit, called Predator Ridge. We had heard that an introduction between the two males and female we were receiving had been unsuccessful as the female was somewhat aggressive. This was

not exactly what we wanted to hear, but we accepted the challenge to help this trio form a clan. Our keepers quickly learned that the primary challenge to colony management arises from the aggressive nature of the females. Among spotted hyena, females strongly dominate males in nearly all social contexts (Gosling, 1998).

Once our hyena arrived, the neutral territory of their new home seemed to help our new clan bond. However, within weeks of their arrival, we began to notice bite wounds on the shoulders and legs of our males, and there seemed to be growing dissent among our clan. In order to understand these animals more fully, the keepers at predator ridge began looking into the natural history of the spotted hyena. As these animals were to be housed in a large facility alongside other already trained African predators, it was also decided that the hyena would begin a



training program immediately, as well as, participate in an enrichment program. At first, we hoped that this training would simply help them learn to co-operate in their daily



care. As time went by, our keepers would come to realize how truly useful the training program would be. How could we have known the storms that brewed ahead?

In the first few months after our exhibit opened, normally confident keepers found themselves completely perplexed and exasperated by the high maintenance of only three Hyena. How was it we could easily care for a pack of 15 African wild dogs and two prides of lions, yet these three animals managed to frustrate us daily. Our female refused to go on exhibit, one of our males stayed out on exhibit for 6 days refusing food, and the continued injuries the males suffered from the female caused upset among our staff for these poor animals who, we thought, were clearly unhappy. We worked tirelessly every day by utilizing a variety of reinforcement strategies to help the animals become conditioned to their new environment and clan members. We eventually started to have some success and the animals became more reliable at cooperating with us in their basic management. Even the small scrapes we would see occasionally on the shoulders and legs of the males became hardly noticeable to us as our knowledge of hyena behavior grew. This is when we became aware that spotted hyena have a very complex social structure, which has been compared to that of mandrills and baboons. Furthermore, dominance among

female hyenas is maintained by aggression against lower ranking

our visitors. Our goal during these public interactions was to send our



animals in the form of displacements, threats and biting attacks (Drea & Frank).

As the weeks went by, we found our personal attachments to these hyenas growing. Our excitement over our small successes with the hyena left us wanting to share our newfound hyena intelligence with the outside world. It was then that we decided to take advantage of our new facility, which came complete with a public interpretive center. This area allowed us to bring our animals into a public viewing stall, giving the guests an up close encounter with these amazing creatures. It also gave us the added advantage of helping to dispel the common myths surrounding hyena. As well, it allowed us to demonstrate some basic animal training, which, we explained to our visitors, allows zookeepers to care for animals in a safer, non-threatening atmosphere. Behind the scenes we were continuing with their behavioral training program and soon these animals could target, lie down, sit, stand up, open their mouths, and present both their right and left sides for examination and hand injection in front of

guests away with a new sense of respect for the spotted hyena and it seemed to work. The public especially loved to hear that those supposedly smelly males, loved to take showers. At this point, we felt confident in our abilities. At the time, we thought the worst of our problems were over. Looking back, this was really a pleasant time for the clan and had we known chaos was coming, we would have enjoyed it more.

For the entire month of November of 2004, pandemonium in our clan became a daily occurrence. We did not know it at the time, but one of our males had been chosen as a mate, leaving his brother subjected to daily attacks by the female. We frequently noticed our female chasing this male for long periods. Many of these chases resulted in the female getting a hold of the shoulder area of the male and shaking him violently. Our veterinarians were concerned enough that a thorough exam was scheduled which would require anesthetization. We were proud that we were able to hand inject this male for sedation to examine his wounds more closely and found that none

were serious enough for sutures. Upon further inquiry, we discovered that wounds on Hyenas are common and scar tissue eventually forms to prevent further wounds. Injuries can usually be found on the shoulders, lateral neck and pinna of subordinate animals (Berger, Frank & Glickman, 1992). The wounds on our animal appeared superficial.

Once again, their training program became useful, as daily wound flushing with a cleansing agent and applications of antibiotic ointment helped his injuries heal and prevented infection. Although relieved that the training program would allow us to treat his wounds, we also felt distressed. It seemed that our peaceful days were over, and we began to question whether we should separate them. According to some studies, severity of aggression increases with group size with more than five or six adult animals and lower ranking individuals are subject to attack (Berger, Frank & Glickman, 1992). Was it possible that even 3 hyena were too much to handle? We learned that only 19 institutions that house Spotted Hyena in North America report to ISIS. Most of those institutions keep solitary hyenas, single pairs, groups of males only, spay their females or have per-



manently separated already small clans of hyena into two or three groups. In the past, some institutions have even been known to blunt the canines of their hyena to prevent

injuries resulting from aggression. Our curiosity was growing and now we really started to take interest. We knew that removing animals would further destabilize the group. As our goal was to keep the clan together, we realized that time and patience would be essential. As we explored our options, this storm too blew over, though we had no idea why. For the rest of the winter, our hyena clan was at peace again.

Now we were skeptical of the appearance of cohesion in the clan and we started to look for problems. At this time, we began to worry about the mental health of our two males, who occasionally could be seen off and on exhibit pacing nervously, even when the female was sound asleep. Further reading on our part indicated that appropriately timed submissive signals among subordinates might prevent physical



retribution by dominant animals. Subordinates can be frequently appeasing, even in the absence of overt aggression (Drea & Frank). We questioned if this pacing was related to submissive behavior. , our keepers continued to look for ways to use enrichment and training to

help the clan govern themselves peacefully. For example, it has been found that, regardless of social status, hyenas that roll in potent odors become more attractive to conspecifics, and are then given privi-



leges typically reserved for dominant males (Drea & Frank). Our keepers even now are experimenting with this theory by providing smells for our males to roll in, such as cologne, and even elephant poop, whenever our female seems grumpy. We also began to learn about the natural behaviors of the spotted hyena and the differences among the sexes. One study found that female personalities were consistently confident, bold, assertive, argumentative, aggressive, strong, persistent and irritable. Males, on the other hand, are commonly found to be fearful, nervous, careful and high strung. The same seems to be true for wild hyena as well as captive (Gosling, 1998). Could we be over reacting to what we perceived as problems? We felt this was possible. Overall, most days seemed uneventful. Looking back, we really should have enjoyed it. All that ruckus in November of 2004 resulted in a pregnancy.

In February of 2005, we began to prepare for Denver's first hyena birth

in 20 years. Luckily, our training program again came in handy and our female allowed us to examine her teats and growing belly daily. We also weighed her weekly and in March, our female successfully gave

birth to a male cub. Though a new mother, our female was very attentive, and for a few months we kept our males separated but housed with visual access to the new arrival. As our males could see, hear and smell the cub, we did not believe they would hurt our

new clan member. Mostly, we worried about the female hurting our adult males. We knew that other institutions did not suggest long periods of separation, so how were we going to reunite the clan? We started by letting the female have alone time with the males in increasing increments of time. Once ready to introduce the males to the cub, we made sure we had plenty of staff and management on hand to help intervene if necessary while the introduction took place. Only this time, we were not so confident in our abilities. We had heard that other institutions had used acepromazine, a relaxant, to help reunite animals. Therefore, during the introduction, we administered small doses of acepromazine to our adults in an effort to keep them calm. Despite this, there were times we were not sure if it was working. Eventually the chaos did subside, though it became quickly apparent that our new cub was a true prince, as dominance is inherited in Spotted Hyena clans. Even at 3 months of

age, our new cub held status over his father and his uncle, who had now dropped in the hierarchy. Interestingly, they displayed the same appeasing behaviors toward this 12-pound ball of fur as they did to his mother.

The months went by and our cub continued to grow. Yet now more questions remained. Did we have to resort to drugs as a means to help reunite our clan? How is it that clans can number up to 70 in the wild without the use of acepromazine? Did it matter if it meant maintaining peace? And specifically, would it help more if we administered the acepromazine to ourselves? Maybe we were the ones who needed to relax. No matter, our clan was now numbered at four and after awhile, all was peaceful. We knew we had had some difficulties and we would overcome them. We were happy with our new hyena addition and proud of our accomplishments. Yet

next course of action was to prepare for the future. We had done ultrasound training with our pregnant lions and were able to draw blood from our African Wild Dogs. We decided we could try this with our hyena female as well. In November 2005, keepers began working with our female in a specially built squeeze, which would allow us to draw blood and help us stay abreast of our Hyena breeding activities. Although the keepers had years of training experience with a variety of animals behind them, this task seemed daunting as our female still displayed high levels of aggression at times, not only toward her clan but toward her trainers. The training steps would not be the difficulty. It would be persevering with an alpha female. Though she regressed in her training on several occasions, keepers remained optimistic and by January of 2006, we were toward the end of the training. We had only to

number rose to five. A healthy, active cub was born and named 'Pinduli', Swahili for 'catalyst for great change.' We thought this was a fitting name as experience now told us that changes were expected. With our female and her new cub once again separated from the clan, order and structure seemed absent among our three males. We tried keeping the males together, but every plan seemed to fail, with the adult males battling for dominance and the now one-year-old cub joining in the forays. Again, we found ourselves worried about all the fighting and chasing. There were more wounds. There were more treatments. Alas, we decided to temporarily separate the males and began rotating them with each other in daily diads with the hopes that we could try to reunite them. We were feeling discouraged and ready to give up again.

Then we remembered that we have had success in the past. Our team of keepers and management even now are devising a plan to reunite our animals. Ideas such as, refurbishing exhibits and opening up more living space to accommodate all is being discussed. Devising enrichment that is more novel, contacting more institutions for potential ideas and even training new behaviors to help further treat wounds, which we know will occur again, are also in the works. Our males have calmed down a bit and our female is again working with us on her blood draw behavior. But we now know why many institutions shy away from exhibiting clans of spotted hyena. We do not wish to fool you into believing that we know all the answers and our struggles continue to this day. What we do know is that people's attitudes tell us little about hyena and reveal a great deal about our own needs and anxieties (Frank



we knew not to let our guard down. We now wondered why we had not known of our female's delicate condition until we began to see obvious signs of pregnancy. As we believed our Hyena had bred at night, how were we to know the next time? Looking forward, we decided our

finish the desensitization of touching her leg to prepare for blood draw from her lateral saphenous vein. We were confident in our abilities.....And then we noticed that her belly seemed swollen and her nipples looked bigger.

On January 19, 2006, our clan



& Glickman, 1996). Therefore, judging them by and applying human social standards to hyena clans may not be appropriate. We are somewhat fearful of what the future holds, but drawing on our knowledge of Spotted Hyena, we will continue to use our training and enrichment program to help accommodate them in any way we can. We will not give up in our effort to maintain our clan as we work toward proper management and care of these animals through understanding their nature. We will be confident in our abilities as we work toward our goals. Despite our growing pains, we will not look back, for we know that pleasant times lay ahead.

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HUSBANDRY TRAINING- A STORY OF AN ARCTIC WOLF (*Canis Lupis*) WITH ALLERGIES AND HOW A TEAM AT THE ZSSD CAME TOGETHER TO HELP KENAI

Jacqueline Rae Kleinberg¹ and Carol Otjens², Hunte Amphitheater¹ ZSSD and Wegeforth Bowl ZSSD²



When most people think of wolves they imagine huge teeth and a vision of a little red riding hood fable pops into their heads. What most people do not realize is that wolves are very shy by nature. They are highly intelligent and loyal animals. We happen to be very lucky to have an Arctic wolf named Kenai in our animal family in the Behavior Management Department at the San Diego Zoo (ZSSD). As time passed, we discovered that Kenai developed some allergies when we saw that Kenai began to scratch himself more than usual. Our Veterinary Staff asked the trainers if it would be possible to train Kenai to allow us to give him voluntary allergy shots each week. A voluntary shot once a week with a wolf - had this been done before? Not that we knew of, but we were not going to let this stop us.

Have you ever had an allergy attack? For those who haven't, an allergy attack may consist of: sneezing, coughing, runny eyes and nose, accompanied by a pounding sinus headache at times. Humans have these symptoms because the target organ for our allergies is our sinus. However, that isn't the case for other animals. For your dogs at home, their target organ is their skin. Wolves are part of the same family as dogs, and this, unfortunately, is just what happened with our Arctic wolf, Kenai. It took several months with many ZSSD staff including 3 departments within the zoo and one outside the zoo consultant, to work

together to make Kenai comfortable. Here is his story.

Kenai and his brother Keeli arrived at the San Diego Zoo in Aug 2003 when they were 3 months old. Keeli went to live at the Wegeforth Bowl and Kenai went to live at the Hunte Amphitheatre. Kenai treks up to the Wegeforth Bowl weekly to have a full day of enjoyment with his brother Keeli. At the end of the day, exhausted from his fun-filled day, Kenai is excited to come home for some rest.

As time passed it was soon evident that Kenai, unlike his brother Keeli, suffered from allergies. For a wolf (or your dog at home) the symptoms of allergies can be scratching, itching, licking between the toes, rubbing their ears, or scooting their bottoms. Kenai was exhibiting these symptoms. He even developed "hot spots". Hot spots can occur when an area is scratched and bit so much that it becomes inflamed and the spot then can possibly develop an infection. His trainers worked diligently with the veterinary staff to alleviate his discomfort. The Veterinary Staff prescribed a regime of medications, which helped Kenai; nevertheless, the allergies kept coming back. The veterinary staff then recommended that Kenai be tested for allergens to identify the specific items he was allergic to. An outside veterinary dermatologist, whose expertise was allergen testing, was brought into the San Diego Zoo to perform a skin test on Kenai. The

testing was well worth it, because the results told us a lot. The conclusion of the testing told us that Kenai was allergic to two types of grass, elder trees, a few weeds, several mites, cat dander, and bird feathers! The best solution was to then train him to allow us to give him allergy injections. This is when we inject him with a very small amount of the things he's allergic to. The hope is that over time, his body will build up immunity to these items and then not react when exposed to them.

The schedule of injections was to be: 1) every other day for a month, 2) once a week, 3) every two weeks, 4) once a month, and then 5) just as needed. To make this happen, we needed the cooperation of 3 different areas in the zoo: The Veterinary Department, the Hunte Amphitheater trainers, and the Wegeforth Bowl trainers. The Behavior Management Dept (which includes the Hunte and Wegeforth crew) has been training animals through operant conditioning techniques for years. With the utilization of positive reinforcement, animals can be trained to voluntarily participate in their own health care. This is called Husbandry Training. Husbandry behaviors are veterinary behaviors or behaviors that aid us in providing the best type of health care for the animals. Husbandry training takes a lot of patience, hard work, and a positive trusting relationship between trainer and animal. Kenai was the perfect candidate for this

type of behavior.

THE TRAINING

Step one:

Build a positive relationship with your animal. From the beginning, all of our team members made sure to spend time with Kenai in order to create the bond, which would later give us the type of trusting relationship that would allow each of us to work side by side with Kenai as an adult wolf. He already enjoyed it when we scratched, rubbed, and tickled him in his favorite spots. This allowed us to thoroughly check out his body and of course the reinforcement was the social time between the trainer and Kenai.

Step two:

Building on learned behaviors. In the early months, Kenai was trained on basic behaviors like knowing his name and being comfortable eating



from the hand of his trainers. Kenai also learned

intermediate behaviors like collar and leash training, going on stage to participate in Hunte shows, taking long walks around the zoo, and he was taught to be comfortable as people approached him. He was trained how to step up or "mark up" on objects. He also learned that the word "good" was in fact a very good thing and hearing the word "good" meant some type of reinforcement was forthcoming. This word "good" is a signal (otherwise known as a "bridge") that serves as a way of communicating to Kenai that he is doing a first-rate task and that some

type of reinforcement is forthcoming. The bridge is essential in Operant conditioning training. Kenai is a wolf who is now very comfortable with his surroundings due to the



trainers (his pack) desensitizing him to the zoo environment and giving him positive reinforcement for being calm in many situations. All of this behavioral conditioning was key in training Kenai to voluntarily accept the allergy shots.

Step three:

Teaching Kenai to allow mock or simulated injections. The injections were to be given just under the skin in the loose skin area located between his shoulder blades. This meant that while Kenai was "marked up"; he needed to allow someone to approach him from behind and touch or rub him in that area. This was the most vital part of the training. For a wolf to allow someone to come up behind them takes an enormous amount of trust on the wolf's part. For consistency, we had a team of four trainers Kathy Marmack, Jackie Rae Kleinberg, Heidi Ensely, and Kristi Lee Dovich, to work directly with Kenai as his very own primary leash trainer for when the actual shots were to be given. For the approach from behind, we started with the Hunte trainers which he was most comfortable with, then we moved to the Wegeforth trainers who he was also very comfortable with. When he could "mark up" any-

where, and allow any of the Hunte and Wegeforth team members to approach him; we were then ready to move on to the next step.

Step four:

It was important to allow a veterinary technicians to administer the injection. Luckily, we have a registered vet tech, Carol Otjens, in our Behavior Management Department. She had already been accepted into Kenai's pack long ago, so it was a logical step for her to ready Kenai for the actual injection. Before the allergy shot training session would start, Kenai and Carol had a social time, which consists of a friendly greeting of rubs and tickles. To start the session, one of the primary leash trainers would ask him to "mark up" on an object (this means to stand his two front paws on whatever object the trainer asks him to) and then Carol would approach him. We approximated from Carol offering just a touch, to a poke with her fingers, to a poke with a capped



syringe, to a pinch of increasing sharpness. The goal was to approximate or get Kenai closer to the finished behavior: which is the actual stick of a needle. When Kenai was totally calm and relaxed for this part

of the training, we knew we were on the right track. Kenai was then



rewarded with a variety of different things, which consisted of: a big walk, a play session, social time with his brother, and/or a tub of ice. Eventually, he grew to understand that nothing terrible was going to happen back there, and he looked forward to the sessions. We knew that the zoo's registered vet techs in our Hospital Department were going to need to give the injections at times, too. So we then introduced Kenai to the Hospital's vet techs through a fun "social time" interaction. Eventually, we worked them up to being present when we did our allergy shot training sessions with Carol. The hospital vet techs would stand behind Kenai but right next to Carol and they would talk so that Kenai would get used to his new friends being behind him. Soon Kenai allowed the hospital vet techs to approach and pinch him in the future injection site. The rest of the members of the training team helped in all other aspects of training this important husbandry behavior. Once the behavior is trained, the hardest part is maintaining it. It was crucial that each team member spent some time each day or each week

working on maintaining some aspect of the behavior. We also vary the place in the zoo where Kenai's shot takes place so he never knows where or when it will occur.

Step five: Giving the allergy shots. The key was building trust with the Kenai. Surrounding him with his "pack", making sure he was feeling safe, and ultimately making the behavior reinforcing, unpredictable, and most of all fun! Kenai had an audience for his first injection. The Hunte trainers, the Wegeforth trainers, and even some of the veterinary staff were all there for support for Kenai. All the weeks of teamwork and consistent training paid off. Kenai was calm and relaxed and was thrilled with all the attention. We are



proud and happy to say that the subsequent injections were given as scheduled. Sometimes Carol will give the injection, and other times the Hospital's registered vet tech will administer the shot. Kenai is always excited to get visitors so often and his life has greatly improved. Kenai is not only mentally

stimulated from his training, but physically, his quality of life has improved due to the allergy shots. He feels better and that is what is most important; the itching isn't completely gone, but it is greatly improved.

It took the cooperation and teamwork of the Veterinary Staff, The Hunte Amphitheater trainers, and the Wegeforth Bowl Trainers to make it happen, but everyone worked hard and came together for the sole purpose of helping Kenai. We are proud of our White wolf and we are so pleased that his life is more pleasant. If you want to come take a look at Kenai, you may be able to see him at the Hunte Amphitheater participating in the Hunte Amphitheater Wild One's "Legends and Lore"

Show or you may be able to enjoy the beautiful sight of a white wolf on his daily travels about the San Diego Zoo.



A HELPING HAND: THE EVOLUTION OF SEMEN COLLECTION FROM TWO MALE CHIMPANZEES

Maureen O'Leary*, Tulsa Zoo and Living Museum



Several years ago, the chimpanzees (Pan troglodytes) at the Tulsa Zoo stepped into the world of operant conditioning. The program was initiated to increase the consistency and reliability of birth control administration. That early program has now expanded to include a variety of husbandry behaviors. This past year however, we were presented with the challenge to collect semen from the two males. After twelve years of birth control regulation, the chimpanzee troop was granted SSP permission for two of our individuals to breed. This meant that vasectomizing one of our two males was required. Previously trained behaviors were utilized to minimize stress for the impending surgical procedure and recovery process. New behaviors were introduced to both males in order to acquire the semen collection that would validate sperm viability. Each male responded to the new training techniques in his own unique way. The techniques successful with one male, proved to be intimidating to the other. Continual modification and brainstorming were necessary to meet the challenge. The reality is operant conditioning is a process that evolves along a path to reach a goal.

In the mid 1990's, most of the captive chimpanzee (Pan troglodytes) populations in the United States were placed on a breeding moratorium. The breeding cessation for cap-

tive chimpanzees was required for laboratories, but only recommended for zoos. Contraception strategies were initiated in an effort to manage the population. The Tulsa Zoo complied and the females began receiving oral contraceptives. The younger females, however, were not consistent in taking their dosage. This inconsistent behavior created the need for a formal operant conditioning program. The initial behavior trained was stationing each chimp in the group at the mesh to deliver birth control. The basic concepts of bridging and reinforcing were introduced. This structure and reward system increased the reliability with which the females accepted the birth control dosage. Gradually, other behaviors were trained which included body parts presentation and injection training, which later proved beneficial.

This past year, the Chimpanzee SSP granted permission for two of the Tulsa Zoo's 2.4 chimpanzees to breed, meaning that vasectomizing one of the males was required. The alternative to the surgical procedure was pair housing the two designated breeders during the female's estrus cycle and then reintroducing them to the troop. Chimpanzees by nature have a complex social structure and isolating individuals could increase tension and prove detrimental to the dynamics of the troop. Consequently, the chimpanzees' operant conditioning program was presented with the challenge of

semen collection. The AZA Contraception Advisory Group has taken a new research course toward male-directed contraception (AZA Contraception Advisory Group, 2005). Morris (19 years old) was the first male in the SSP population to have the reversible vasectomy procedure performed precluding him from siring offspring. Proof of aspermic ejaculate collected from Morris validates the success of the surgery, and ensures Alvin's (14 years old) paternal rights to breeding with Jodi (32 years old). Obtaining confirmation of aspermic ejaculate was where the path to semen collection began.

Method

Months prior to the SSP breeding recommendation, the cue for penis presentation (thingy) was introduced for urine collection training with the male chimps. This was done by pairing the toes and chest behaviors to position the male's torso to the mesh and capturing the penis behavior. The penis presentation behavior proved to be important in the series of events to follow. Additionally important, the chimpanzee group was previously desensitized to the sight and prick from a 23-gauge needle, but only half were accepting to the actual needle insertion. This was an ongoing challenge with the chimpanzees. Consequently, needle insertion for some, including Morris, only occurred when an examination was

pending; however, the veterinary staff supports operant conditioning and appreciates keeper assistance as a way to reduce the stress for these animals during medical procedures. Preceding surgery, Morris was isolated in a small overhead run where he presented his hip on cue, and was hand injected with a pre-anesthetic dose. The overall stress of the procedure was minimized and the surgery was a success. Following surgery Morris' incision sites on the lower abdomen were closely monitored by cueing the penis behavior. This was beneficial, as he had removed some of the sutures on both sides of his abdomen. The frequent attention to his surgery site seemed to make him apprehensive but he continued to

allow visual and tactile inspections. Reinforcements followed consistently.

Post surgery, a 2 month period was required to allow healing and cleansing of sperm from the vas deferens, after which the ejaculate could be evaluated. Semen collection training began briefly before the surgery and again one week following surgery. At this same time, to confirm viable sperm in his ejaculate, it was requested that a semen sample from Alvin be collected. The ejaculates did not need to be collected using a sterile technique but confirmation of the respective male donor was necessary.

Initially, the approach to acquiring the ejaculate came from the

obvious; manually stimulate the male's penis to the point of ejaculation. This stimulation or massaging seemed like a good first step as male chimpanzees become aroused easily and are periodically seen masturbating. The manual stimulation behavior was shaped from the penis behavior. Sometimes the penis of a male chimp retracts inside its sheath (prepuce), if this was the case; the penis cue was repeated while simultaneously gently tugging on the tip of the penis. Once the penis was tugged, movement in an outward direction usually followed. At first, any outward movement of the penis was bridged and reinforced. Next, the full extension of the penis, and lastly the production of an erection



was bridged and reinforced. The erection behavior (stiff) was cued by tapping on the underside of the penis or gently tugging on the shaft. The fully erect penis was the goal.

After achieving erection, the manual stimulation followed. The males were first desensitized to the sensation of stroking the shaft of the penis in a repetitive motion. Next, they were desensitized to the smell and touch of a lubricant. The lubricant aided in the fluidity of the massaging. The males were bridged initially for any flexing felt during the massaging and later for a longer duration in maintaining the full erection. Usually, they would hold an erection for a several seconds then relax some. If aroused, the erection was held for a longer duration of time, this behavior was bridged and a jackpot was received.

It was during these manual stimulation sessions that individual behaviors were being documented to indicate arousal in the males. These behaviors would be key for designating when the males were about to ejaculate. In Dr. Jane Goodall's book, *The Chimpanzees of Gombe: Patterns of Behavior*, important points were made with respect to ejaculation in male chimpanzees. Dr. Goodall references Tutin and McGinnis (1981, p. 239-264) by quoting, "Ejaculation occurs after an average of 8.8 pelvic thrusts." Furthermore, Goodall (1986, p. 448) states, "During copulation the male often utters copulation pants." Significant behaviors noted with the Tulsa males included body posture, erection duration, and vocalizations (specifically pant grunting). It was becoming clear during these observations, and while also reflecting on the past sexual behaviors noted within the troop, that Alvin was going to be more receptive to this training

than Morris.

Alvin was the only male to ejaculate during these massaging sessions. Behaviorally he would position his torso closer to the mesh, begin pant grunting, and hold a very rigid erection when he was nearing the point of ejaculation. Unfortunately, he never ejaculated in the trainer's hand, as hoped, instead he became aroused by the massaging and then pulled away and masturbated to ejaculate in his own hand. A behavior to trade the sperm plug was introduced in an attempt to collect the sample. Chimpanzee semen is a very viscous liquid that coagulates immediately upon ejaculation. Alvin would tend to flick the semen off his hand once he ejaculated. A jackpot was given if he did trade part or most of the sample. He became consistent with trading the sperm plug sample. Morris, on the other hand, was not as aroused with manual stimulation. Documentation was again important to indicate behavioral changes with respect to altering the massaging technique. The zookeeper staff had heard about the training and offered their expertise on the subject matter by providing a variety of suggestions. A couple of sessions showed promise as he elicited pant grunts and similar body language to Alvin, but he never ejaculated.

Subsequently, a search for information was conducted on the subject of a semen collection device, artificial vagina (AV tube), for male chimpanzees. Jaine Perlman, then at MD Anderson Cancer Research Center and Valerie Beardsley at the Dallas Zoo were essential in supplying the information which included, providing training protocols, completing the AV tube set up, and answering questions. The plan initially was geared for Morris but later was tested on Alvin, for results com-

parison. For reference, the following describes the artificial vagina model set up.

The artificial vagina consists of an inner chamber of Penrose tubing supported by an outer tube of PVC. The PVC measures 3.2 cm wide by approximately 45.7cm in length. A length of Penrose tubing 3.2 x .65 x 30.5 cm was prepared by folding the tubing over onto itself creating a tube half as long but twice as strong. The folded end was turned up approximately 1.3 cm, and secured with a rubber band. This banded end was tied off with a small diameter string about 70 cm long. The Penrose tubing was placed with the string end inside the PVC. The open end of the Penrose tubing was stretched over the outside of the PVC tube about 1.3 cm. The Penrose tubing was secured in place on the outside of the PVC with packing tape. The string was pulled taught out the opposite end and taped around the outside of the PVC tube. Warm water at 102° F was poured into the PVC from the string end and then the tube was capped off. A slight leak from the capped end occurs due to the string preventing a good seal. Lubricant was smeared around the Penrose end of the tube, which prepared it for use. The pressure from the water on the Penrose tubing acted as resistance and the temperature and lubricant created a climate that was favorable for the males to ejaculate.

First, desensitization to the AV process occurred by using a smaller diameter 1.9 cm piece of PVC tubing. Morris was the focal subject for this process. He was cued to present his penis, and then by using successive approximation, the PVC was moved closer until the tube was touching his penis. The tube was placed around his penis until the

entire length of the penis was inside. The duration of this behavior was extended to a 10 second count. This was not a problem at first and he was comfortable with the PVC moving over and around his penis. The larger tube was introduced and Morris was accepting of this tube for the first few sessions. He soon became leery of both PVC tubes and refused to present his penis or participate in a training session. It is unsure what spurred this hesitation, but it was difficult to re-establish this behavior with him. Morris never became fully comfortable with the large PVC tube.

The same AV tube protocol was followed with Alvin and a different outcome was achieved. Alvin was desensitized to the smaller PVC and the penis was inserted fully. Periodically, Alvin would thrust into the PVC and this behavior was reinforced. Alvin's transition to the large PVC was smooth and accepting. Next, the Penrose tubing was introduced using the actual AV tube, but without the warm water. Lubricant was applied and almost immediately, Alvin began thrusting into the artificial vagina. This behavior received a jackpot. Frequently, he would pull out of the tube and masturbate to the point of ejaculation. He was cued to trade the sperm plug through the mesh and if some of it was collected, he was reinforced. Alvin was stimulated but not ejaculating in the artificial vagina. It was hoped that the warmth and pressure from the water was what he needed to ejaculate in the tube. The use of the AV with the water was a quick-paced process, as the 102° F water cools rapidly. On the fourth session, Alvin had successfully ejaculated in the AV tube. After this success, distinguishing between thrusting and actual ejaculation was important. Monitoring

Alvin's behavior gave insight to gauging the point at which ejaculation occurred. The most important behaviors to note were the pant grunting, rigid body posture, and thrusting. Pulling the artificial vagina away too early could be counter-productive. In comparing the body language between the two males, Alvin's posture and attitude appeared much more comfortable with the training process.

To review, multiple semen samples were acquired from Alvin using massaging and AV tube techniques. However, collecting a semen sample from Morris was still a concern. Unfortunately, the 2-month period the veterinarian had allowed for semen collection had expired. After careful consideration and histology confirmation, the veterinarian and curator determined that they would allow Jodi to come off birth control without confirmation of Morris' aspermic sample. Training with Morris was to continue and with any luck provide the desired results in the near future. Although, the training progress with Morris was erratic, one morning he was observed copulating with Jodi and an idea formed. Morris' semen sample could be extracted from a female.

At this point in the process, females became the focal point for collecting Morris' sample. Females in the troop were already conditioned to press their swelling against the mesh (present). From here, the females were desensitized to manipulation of the vulva area using fingers. Initially, cotton swabs were used for insertion but then it was determined that something larger was going to be needed to actually pull the sperm plug from the females vagina. A variety of tools was collected, and a small plastic coated baby spoon was chosen. Each

female was first desensitized to the site and touch of the spoon and the lubricant. They were then desensitized to the touch of the lubricated spoon on their swellings. The spoon was gradually inserted deeper into the vaginal cavity using successive approximation. Once the spoon was inserted, a sweeping motion was performed and the spoon was removed.

Initially, three of the four females were trained on the collection behavior, as Hope, Morris' full sister, was rarely seen copulating him. However, as the females were becoming comfortable with the collection procedure, further consideration was made as to which female would be the most likely candidate for collecting Morris' sample. Jodi, the breeding female, was a risky choice as there was a high probability that Alvin would also be copulating with her during peak tumescent stage. This would cross contaminate the sample. Suzie, Morris' mother, was an unlikely candidate because, "incestuous matings between sexually mature males and their mothers are extremely uncommon" (Goodall, 1986. p. 466). Sarah, Alvin's mother, was seen copulating with Morris on a regular basis, and he would monopolize her when she was in estrus. It was determined that Sarah was an excellent choice and would be the focal female used for collecting deposited semen. The limiting factor in this process was the actual observation of the two chimps copulating and the retrieval of the sample. Nonetheless, there were many successes achieved and much knowledge gained along this training course.

Results

Semen collection training with Alvin and Morris included a variety of techniques such as, manual stimulation, the use of an artificial vagina, and collection of deposited semen from females. Alvin's cooperation proved that operant conditioning methods work for semen collection with chimpanzees. Morris did not participate at an equal level to Alvin. However, the realization of achievement with Morris came when observing copulation with Sarah. Afterward, she stationed at the mesh in the present position and insertion of a lubricated spoon extracted a small amount of sperm plug. The sample was taken to the veterinary hospital and was confirmed aspermic. The veterinarian requested an additional semen sample for confirmation. This was a larger sample and was found to be aspermic. Interestingly, retrieval of this second sample was attained by using a lubricated finger instead of a spoon. The curvature of the female's vaginal canal bends toward the spine and a human finger traces this pathway better than a rigid spoon. Additionally, two of Alvin's ejaculate samples were analyzed and proved to have a high concentration of viable sperm. The results found in each respective male's semen sample gave the desired results. Morris could not father offspring and Alvin had a high concentration of viability in his semen sample with which to impregnate Jodi.

Semen collection from Morris was particularly challenging. Intimidation emerged as the obstacle preventing the training from moving forward. At points in this process, there was frustration when comparing the results between the two males and when attempting to dis-

cern why Morris was not cooperating. However, paying close attention to the various signals that Morris emitted was important. His intense observation of the keeper's body movement, eye contact, or any new element caused him to periodically retreat. Morris has always been a cautious individual and this behavior carries forward in training sessions. Fortunately, he eventually cooperates and nearly all behaviors re-establish in time. Training Morris for success with the AV tube will continue because male chimpanzee vasectomies have a tendency to autoreverse. Therefore, periodic evaluation of Morris' ejaculate will be beneficial.

Overall, knowledge was gained that will carry forward to future training with the chimpanzees. Humans, as the higher primates, need to observe and respond to their animals' communication signals. Recognition of these signals creates an opportunity for trainers to better themselves by monitoring their own actions. Flexibility, patience, and awareness were the keys to creating an environment where Morris felt most comfortable.

The major discovery throughout this process was that each male responded to the new training techniques in his own unique way. The techniques successful with one male, proved to be intimidating to the other. Continual modification and brainstorming were necessary to meet the challenge. The reality is operant conditioning is a process that evolves along a path to reach a goal. Sometimes the challenge means never giving up.

Acknowledgements

Special thanks to Pat Murphy, Kay Backues DVM, and staff for their support of the Chimpanzee Training Program. Additional thanks to Tammie Bettinger PhD, Steve Ross, Jaine Perlman and Valerie Beardsley for sharing their knowledge. Sincerest thanks to Joe Enloe and Christy Coker. Most of all, thanks to Morris, Alvin, and the girls. They have directed my life down a path of respect, dedication, and compassion for the past ten years and operant conditioning has enlightened that journey.

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BEHAVIOR MODIFICATION AND POSITIVE REINFORCEMENT TECHNIQUES USED TO HAND RAISE A NEONATE KILLER WHALE FROM BIRTH

Steven M. Aibel, Marcy Artavia, Christopher D. Bellows*, Mark V. Boucher, Dave Force, Jamee Ferguson-Lakey, and Julie Sigman, Sea World San Antonio



*On October 9, 2005, at SeaWorld San Antonio, Kayla, a 16-year-old killer whale (*Orcinus orca*) gave birth to her first calf at 4:23 pm. The female calf was born healthy; however, it was apparent quickly that Kayla was not exhibiting natural maternal behavior. An immediate decision was made by zoological staff and veterinarians to remove the calf and proceed to hand raising. This paper describes how the zoological and animal training staff relied on the techniques of operant conditioning and positive reinforcement to insure the health, well-being and enrichment of a newborn killer whale calf. It details how behavior modification and positive reinforcement were used to maintain milk collection from Kayla and to condition the calf to feed from a bottle. Finally, methods describe the techniques used to teach stretcher conditioning for weight measurements. The use of these techniques has contributed to the successful hand raising of a killer whale calf for the first time in zoological history.*



On October 9, 2005, at SeaWorld San Antonio, Kayla, a 16-year-old killer whale (*Orcinus orca*) gave birth to her first calf at 4:23 pm. The calf was born healthy, however, it became apparent that Kayla was not exhibiting natural maternal behavior. An immediate decision was made by zoological staff and veterinarians to remove the calf and proceed to hand-raising. The following describes how the zoological and animal training staff relied on the techniques of operant conditioning and positive reinforcement to insure the health, well-being and enrichment of this newborn killer whale calf.

Kayla, a first time mother, experienced an uneventful pregnancy and delivered a healthy female calf. Immediately upon parturition, she exhibited aggressive behavior that very quickly compromised the health of the calf. She mouthed and displaced it to the point where separation was necessary. Kayla voluntarily separated to another pool in the 4.5 million gallon facility and a gate was closed creating permanent separation. She showed no further interest in the calf.

Separation brought forth immediate challenges for the zoological and animal training team. Without her mother to teach her, the calf swam awkwardly around the pool coming close to gates and pool walls. To prevent this,

approximately 10 trainers were positioned at strategic points inside the pool and along the glass panels to prevent the calf from sustaining further physical damage. The train-



ers gathered the calf as she approached a wall or a gate and assisted her as she learned to navigate around corners and became more proficient swimming on her own.

During this period of time, a team of zoological staff members including animal trainers, animal care professionals and veterinarians consulted to decide upon a course of action that would provide the best chance of survival. While other whales in the collection vocalized and watched the newborn calf through the gates, Kayla positioned herself with two large male killer whales as far away from the calf as possible. Two alternatives were presented as options: remove the calf and attempt to hand raise her or provide a second chance for Kayla to bond and raise the calf herself. Kayla's aggressive behavior toward the calf, and her lack of interest

after separation proved to be the key in the decision to hand raise. The team decided to remove the calf from Shamu Stadium. Hand raising presented many challenges and although successful with other cetacean species, had never been successful with a killer whale.

Success depended upon the calf, named Halyn, receiving proper nutrition and care necessary for her survival. Without a mother to guide her, the staff would play a critical role in her neonatal learning experience. Applying the techniques of behavior modification and positive reinforcement during the many procedures involved in her care gave the calf an improved chance of survival and started the process of teaching Halyn to learn. This paper details the steps taken to apply positive reinforcement during the calf's first five months of life. Using these techniques would insure that the process of learning was a positive experience for the calf and would set up a foundation for learning in the future.

Behavior Cycle and Learning

It is extremely rare, in fact unprecedented, to begin an extensive conditioning program with a killer whale from birth. In all of the

successful killer whale births at SeaWorld, behavioral conditioning started during the first year when the training staff was able to interact with the young calves. Access to these calves depended upon the mother's willingness to allow her calf to interact with the training staff. For Halyn, behavioral management started immediately.

Behavior Modification, and the application of positive reinforce-

ment techniques, occurs through a process called operant conditioning. This technique can be outlined using the ABC model. ABC is a common acronym describing the Antecedent, Behavior and Consequence components that make up the behavior cycle (Baldwin and Baldwin, 1998).

Antecedents are events or factors that precede targeted behaviors and often act as triggers that initiate the

behavioral change occurred in a positive manner. This paper describes how the ABC's applied to teaching Halyn to bottle-feed and to obtain weights through stretcher conditioning. It also describes how Kayla, Halyn's mother, assisted with the care of her calf as she was conditioned to provide milk during the critical early period of development.



expression of these behaviors. Behaviors are the measurable responses emitted by an organism. Finally, consequences are the events that follow targeted behaviors. The goal of a behavioral management program is to modify expressed behavior. When consequences are reinforcing, targeted behaviors will increase in frequency and antecedent events begin to take on the value of the consequence (Kazdin, 1989). In this specific case, the ABC model provided the framework for all of the interactions between the staff and the whale calf. Being careful that antecedents were consistent, behavioral criteria was well defined and clear, and positive reinforcers were delivered for specific responses, we were able to insure that

Conditioning Bottle Feeding

As with all baby animals whose care has fallen to their keepers, providing an adequate diet is essential to the survival of the animal. In order to take advantage of the innate suckling response in newborns, the SeaWorld team decided immediately to condition Halyn to feed voluntarily from a bottle. During the process of training her to nurse from a bottle, she was fed via stomach tube to insure adequate nutrition. This process involved lowering and raising the water level in the pool or maintaining her in a low water environment. At times, it could take 4 hours to lower and raise the water level. With bottle-feeding, Halyn could ingest the

milk in less than two minutes. The



choice to condition bottle-feeding was obvious.

Conditioning Halyn to bottle-feed took fourteen days. In order to facilitate learning during training, two members of the staff were chosen to condition the behavior. This allowed for consistent process in exposing Halyn to the bottle, clear definition of what suckling approximations were accepted, strong communication between bottle feeders and, of course, primary reinforcement.

Initial approximations were accepted as Halyn was offered a nipple attached to a bottle. As seen in neonate mammals, she would suckle on the nipple as it was placed in her mouth. She was reinforced for this reflex as formula was delivered into her mouth and subsequently swallowed. It took two days for Halyn to develop the proper positioning that enabled her to latch on to the nipple, suckle correctly and learn to swallow the formula. During this time, the nipple and bottle became positive antecedent events.

To assist with this process, two

people were positioned in the water next to Halyn to provide stabilization as she swam through the water latched onto the bottle. This allowed her to latch onto the nipple for a longer period of time and receive more primary reinforcement during each nursing bout. She quickly learned to nurse while "walking" around the pool perimeter. As she became more proficient, the pace of the walk was slowed to approximate stationary nursing in low water. Once Halyn learned to stationary nurse from the bottle in low water with only one person stabilizing her, it was time to raise the water.

With the pool lowered, Halyn learned to associate the bottle as a source of primary reinforcement and people as source of secondary reinforcement. She now needed to learn to receive these forms of reinforcement in high water at the side of the pool. This was a new context for her. Often, there is regression in learned behavior due to this type of context shift. To prevent this, the staff used three prompts while conditioning high water bottle-feeding. Two of the prompts were the same as those used in the low water context, two people to stabilize her.

The final prompts were the legs and feet of the bottle feeder which were positioned under the pectoral flippers of the whale. Halyn was conditioned to lean against the legs of the feeder for additional stabilization. As Halyn improved, the prompts were faded and removed from the conditioning process.

Once these final prompts were removed, Halyn was considered fully bottle conditioned and feeding her became a one-person operation.

It was during the conditioning of nursing, that Halyn learned to associate people with primary reinforcement. During this process, the people feeding Halyn become secondary reinforcers. Before, during, and after the bottle feeds, Halyn was offered tactile stimulation and various forms of play. Very quickly, she learned to associate the bottle feed with these forms of stimuli. She began to solicit these interactions before and after her feedings and her first secondary reinforcers were established. It is significant to point out that this process occurred much more quickly once people began to offer primary reinforcement in a way that was positive for Halyn and involved minimal restraint. This basic process can often be taken for granted, but the time spent bottle-feeding Halyn allowed for additional forms of interaction to become reinforcement. Since a variety of reinforcers are the best way to maintain behavior, this was time well spent. These two-minute bottle feeds lengthened to become ten to twenty



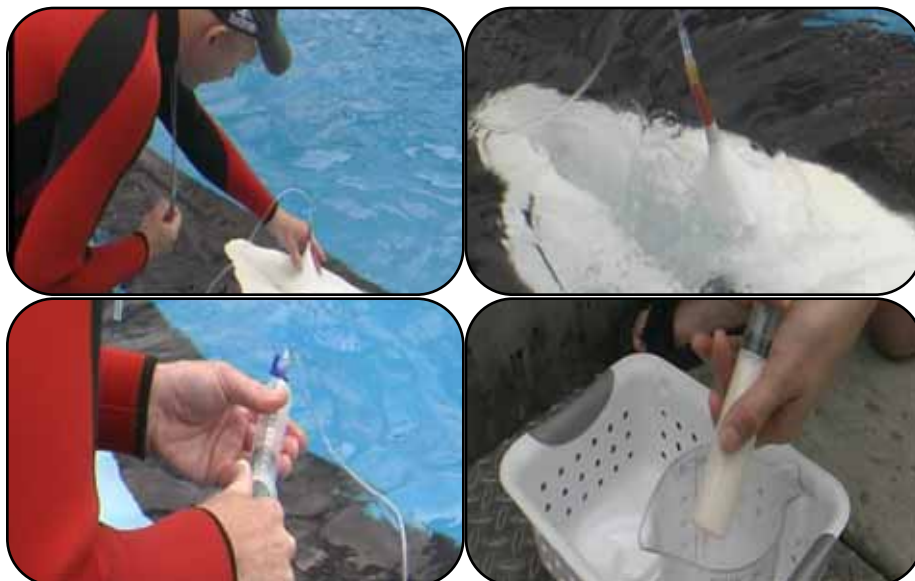
minute enrichment sessions where the beginning steps of relationships

began to form.

immune system. With assistance from the staff veterinarians, a milk

her pregnancy. These prior positive reinforcement histories over the course of many years, and in many contexts, contributed to the successful conditioning of the milk collection process. In order to draw milk successfully from Kayla, she was trained to roll over ventral and present her mammary openings at the surface of the water. The milking process consisted of covering the mammary opening with a funnel connected to a syringe via extension set tubing and three-way valve. Kayla was quickly conditioned to the presence of the funnel and the substantial pressure created by the suctioning process.

During a milking session, milk was not expressed immediately. Some suctioning needed to occur to stimulate the letdown reflex of milk. As the nipple rose through the mammary opening and into the funnel, pressure built up. This part of the suctioning process seemed to cause discomfort for Kayla. If there was a point where she would refuse the behavior, it was generally here. The training staff experimented with various suctioning methods intended to create less discomfort



ABC's of Bottle Feeding

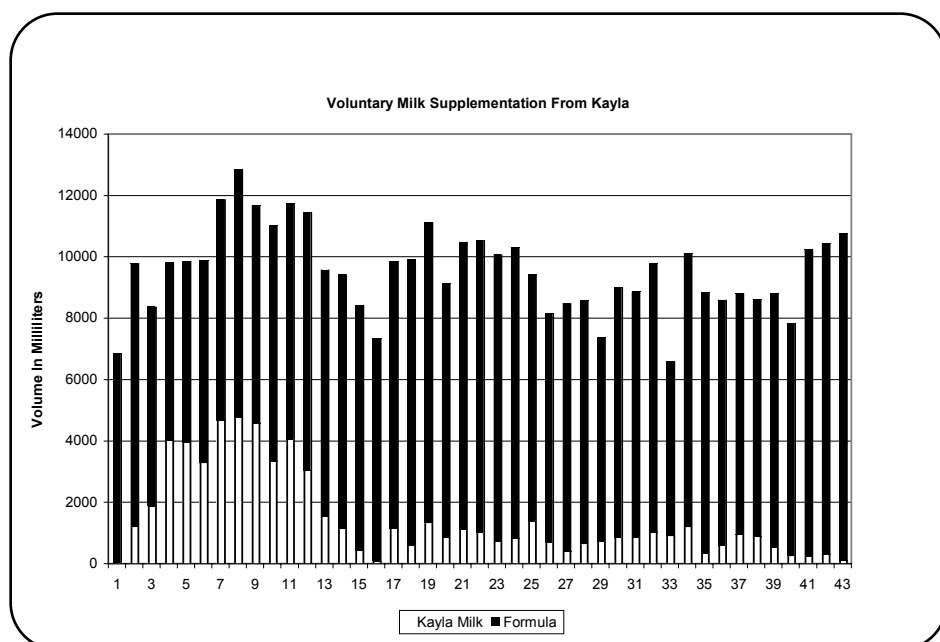
- A: Only two bottle feeders conditioned bottle-feeding
Consistent nipple and process of bottle exposure
Familiar prompts utilized during the context shift to high water
- B: Suckling reflex upon nipple presentation
Swallowing of the milk and formula
- C: Primary reinforcement (Milk and Formula)
Conditioning of secondary reinforcers such as tactile stimulation

collection set up was created using a syringe, extension tubing and a large funnel.

Prior to milk collection, Kayla had extensive conditioning with other husbandry behaviors including desensitization for medical procedures such as ultrasound, x-rays, urine collection and preventative dentistry. She had not been conditioned on milk sampling, but had some desensitization conditioning with mammary stimulation during

Voluntary Milk Collection

The staff decided to train Kayla, Halyn's mother, to contribute to her well being by conditioning voluntary milk collection. Milk from the mother would be used in addition to formula to provide the necessary nutrition for her growth and development. This conditioning needed to occur quickly in order to acquire colostrum, which would assist in the development of the calf's



during this part of the process. No consistent method was found to alleviate all of the discomfort. Critical to maintaining this behavior, was reinforcement during the letdown response when Kayla was calm and relaxed. Once milk began to flow, Kayla's behavior relaxed and the suctioning of the remainder of milk became easier. As in any conditioned behavior that can cause discomfort, it was important to provide variable reinforcement in all phases of the collection process. This was especially critical when Kayla was calm as the letdown reflex was occurring. For the trainers it was difficult to bridge and reinforce Kayla when the letdown reflex occurred because it compromised the collection of the sample in the short term. The short-term sacrifice of periodically reinforcing the letdown reflex may have been the key to long-term maintenance of this behavior.

With assistance from the veterinarians, the staff was able to acquire 42 ml of amber colored colostrum from one mammary gland on the



first day of collection. Milk production started one day later on the right side and the following day on the left. Milk collection continued for 43 days and contributed to the formula being fed to the calf. Milking generally occurred up to 8 times per day, and took approximately 3-4 minutes per side. In should be mentioned how valuable it was to have desensitized Kayla to



in all contexts with the desensitization process and husbandry behaviors in general allowed her to generalize learning very quickly to this new behavior (Kazdin, 1989). The long-term reinforcement history with the desensitization process established a trust between the training staff and Kayla, which allowed the staff to condition this behavior quickly and efficiently.

ABC's of Milk Collection

- A One trainer conditioned this behavior
Three trainers maintained it
- B: Ventral presentation of mammary openings
Desensitization to milking equipment
Desensitization to pressure associated with the letdown process
- C: VRRV, Variable Ratio with Reinforcement Variety

Stretcher Conditioning

Monitoring Halyn's weight gain was a critical measurement in determining the state of her overall welfare. Initial weight data was obtained in a low water environment and involved collecting the calf and physically maneuvering her

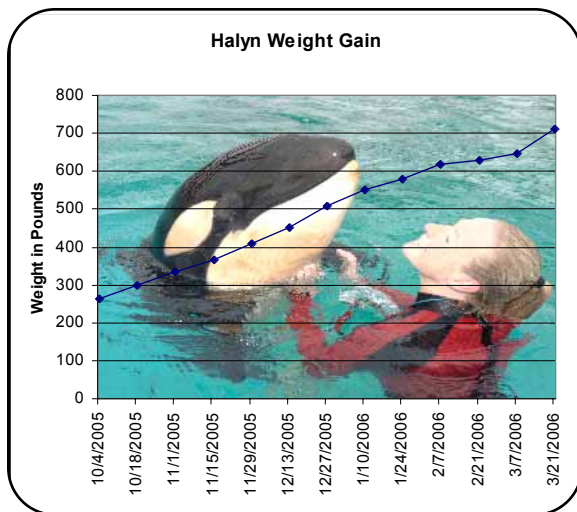
a wide variety of stimuli over the course of her life. Her reinforcement histories

into a stretcher. From start to finish, this process could take up to four hours as the water level was lowered and raised. In order to facilitate this process the staff took steps to train this behavior voluntarily in high water.

Conditioning for voluntary stretcher weights started after Halyn learned to nurse in a full pool. Criteria for this behavior required Halyn to calmly line up poolside as trainers wrapped a stretcher around her and subsequently lifted her with a crane. She was then required to remain calm as the entire process occurred in reverse. She needed to learn to wait as she was lowered into the pool and the stretcher was unwrapped before she was reinforced from the bottle.

A 22 ton crane was parked adjacent to the pool and was used to lift her during the weighing procedure. Desensitization to the crane occurred as Halyn learned to eat in a variety of different pool positions while the crane was in operation. Desensitization to the stretcher itself was accomplished by slowly exposing her to the stretcher in the water. Variable reinforcement was delivered in the form of bottle feeding and secondary reinforcers as the stretcher was placed into and out of the water.

Halyn was then bottle fed next to and touching the stretcher to further desensitize her to its presence. Additional staff members entered the water around Halyn while she was fed, often applying secondary reinforcement. Halyn was then desensitized to the wrapping and unwrapping process of the stretcher. Once these approximations were successful, she was lifted and weighed. Primary reinforcement was delivered after Halyn was calmly released from the stretcher.



Secondary reinforcers such as tactile were applied during all aspects of the lifting process. Successfully conditioning this behavior made it very easy to monitor Halyn's steady weight gain throughout the first five months of her life.

In referring to the basic behavioral cycle of Antecedent, Behavior and Consequence, some important points were once again followed. A small team of staff members was assigned to train this behavior. This insured that antecedent stimuli were clear and that contingencies for behavioral response were communicated on a daily basis. Training this behavior served a variety of different purposes. Weights were obtained more quickly and the process of lowering the water was eliminated. The process of desensitization to foreign objects (the stretcher) and to people in the water was also started. These two elements are critical components to long-term waterwork with killer whales. Finally, criteria were established that allowed Halyn to learn positive consequences for contingency specific responses. Halyn was learning that it was fun to learn!

ABC's of Stretcher Conditioning

- A: One person feeding Halyn
- Two people in the water
- Consistent lifting process
- B: Calm layout while wrapping and unwrapping the stretcher
- Calm layout while being lifted
- C: Primary reinforcement
- Tactile reinforcement

Waterwork

The Road Ahead

Halyn's story is just beginning. The first five months of her life have been an amazing experience for the staff at SeaWorld San Antonio. What started as a risky proposition has become an extremely successful TEAM effort! Halyn has thrived and although there are many challenges ahead, Phase One of this project can be considered successful. Halyn is a healthy killer whale calf and is learning how to live in a zoological setting. Phase Two will involve weaning Halyn fully to a fish diet, continuing to teach her husbandry behaviors, and reintroducing her to the resident killer whale pod.

Many different trained behaviors contributed to the success of this project. Teaching Halyn to eat from a bottle, stretcher conditioning her, and milking her mother were all achieved through daily commitment to utilizing positive reinforcement throughout the process. During the entire conditioning process, certain protocols were established and followed. Antecedent conditions were estab-

lished for the behaviors that were requested. Behaviors were broken down into small steps and a criterion was established for each step along the way. A small team was selected to condition each new step. Most importantly, positive reinforcers were delivered for correct trials. In each situation, these principles brought forth positive solutions that allowed Halyn to begin to establish strong relationships with her caretakers.

Conditioning a killer whale with no learning history was a unique opportunity. As an animal learns, an ontogenetic history develops as the animal gains experience with the environment (Ferster, C.B., Culbertson, S., Perrott-Boron, M.C 1975). It was vital that Halyn's histories were positive. Commitment to nurturing this calf brought forth innovative methods to teaching some very basic behaviors essential to Halyn's survival.

Given the surrogate role to be played by the staff, it was important that Halyn perceive people as a positive element in her environment. When she was separated from her mother, a critical model was removed from Halyn's environment. Without a mother she needed to rely on people to initiate positive interactions with the environment. It took time for people to play this role and become positive reinforcers in Halyn's life.

Immediately after birth, people were objects in the environment that collected and tube fed her. It was not until Halyn learned to nurse that people became secondary reinforcers. This took approximately two weeks. Once Halyn learned to associate people with food, they began to take on reinforcing qualities in and of themselves and the

process of conditioning other secondary reinforcers was accelerated.

It is important to realize that Halyn would be learning regardless of whether the staff was involved. By applying the techniques of behavior modification in a positive way, each step has become a piece of a foundation that this young whale will rely upon throughout her life. Halyn has gotten off to a good start based on positive reinforcement and trust. It is this foundation that will allow for proactive behavioral management to continue throughout her life.

Acknowledgements

Raising Halyn has been a true testimony to teamwork. There are so many people who have put their heart and soul into the well being of this young whale. Every department at SeaWorld San Antonio has made a significant contribution to this success. Pat Sassic and Mark Urby deserve special recognition as they split 12-hour shifts for weeks feeding Halyn while we continued to condition her to a bottle. Their tireless efforts were key in getting a positive head start. The Animal Care and Animal Training departments have worked more closely than ever insuring that Halyn has round the clock care. Finally, many other zoological departments such as Aviculture, Aquarium and the Lab assisted with many tasks that were required to handle this young whale. Staff from our Whale and Dolphin, Sea-Lion, Interaction Program and Animal Encounter teams have been tremendous in assisting with all aspects of this calf's care. Thanks go to Bob French for all the time and effort

put into taking photographs and video to document this process. One final acknowledgement goes to the unsung hero of this process. An Atlantic bottlenose dolphin was put into Halyn's pool to provide companionship...thank you Mattie! The African proverb "It takes a village to raise a child" has never been more appropriate. Thanks go out to all members of this team...we hope that you take justified pride in what you have accomplished!

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TRAINING A NORTH AMERICAN BEAVER (*Castor canadensis*) TO PERFORM A BEHAVIOR CHAIN ON STAGE

Sara M. Mattison*, Maureen O'Keefe, Laura Schauert and Jessica Sutherland,
Point Defiance Zoo and Aquarium



Point Defiance Zoo and Aquarium's Wild Wonders Outdoor Theater presents a scripted, large format program two to three times a day during the peak season. The program uses many free-flight and off-leash behaviors to help deliver its conservation message. Buckley, a 5-year-old beaver, participates in the majority of the presentations. For two years, Buckley's part in the program has been a behavior chain: climbing into a pool on stage, swimming a few laps, climbing out of the pool, and exiting stage via a lodge prop. This chain was trained using several foundation behaviors such as targeting and crate training. During the winter two more behavior chains are being trained which will be incorporated into the theater presentation next year either in addition to or as a substitute for his established behavior chain. This paper describes the steps taken to successfully train Buckley to perform these behaviors, and addresses the many challenges and set-backs involved.

Introduction

During the summer of 2004 Point Defiance Zoo and Aquarium began presenting shows in the brand new Wild Wonders Outdoor Theater (WWOT). The staff and animals moved into the building in November of 2003 and were slated to have a polished show up and run-

ning by Memorial Day weekend 2004. Some of the program animals had been specifically acquired for the new theater, but several had already been participating in the informal presentations that had been the inspiration for the WWOT. The theater would showcase a wide variety of animals, including leaping wild cats, flying raptors, parrots, and even a snake. Included in the line-up was an animal that at first glance did not seem as glamorous: a North American Beaver (*Castor canadensis*) named Buckley. However, this charismatic representative of the largest species of rodent native to the United States soon proved that he had earned his place in the spotlight.

First Steps

Buckley was four years old at the start of his training for the show, but his basic training began much earlier. Buckley arrived at Point Defiance Zoo and Aquarium when he was only five weeks old, in April of 2000. At that time, he was housed off-exhibit in the "World of Adaptations" building. Buckley was acquired from our sister facility, Northwest Trek, in order to be used in our education program. To accomplish that, he was conditioned to contact with his handlers, trained to wear a harness, go into a crate, and became accustomed to going out on zoo grounds to be viewed by the public. At this point the trainers

introduced the clicker as a bridge, as a basis for future training.

In July of 2003, the program staff for the World of Adaptations (which would become the staff at the WWOT) began looking ahead to the opening of the theater. To that end, some staff members were assigned to train Buckley to target using operant conditioning principles.

The first step in the plan was to control his diet. Prior to beginning training, Buckley was free fed rodent chow and offered produce in varying amounts daily. At the start of training, we began measuring out a set amount of rodent chow and produce, using a cup measure. The second step was to choose a suitable target. We chose a wooden target stick with a white buoy on the end, similar to one commonly used by marine mammal trainers. The one drawback to this target was that beavers are avid chewers and regard any wooden item as fair game. Fortunately, we had relatively few problems with our choice of target, because we determined from the beginning that Buckley would only be reinforced for touching his nose to the buoy. Any time he touched the wooden stick, the target was removed and he was not reinforced.

After a few sessions to reacquaint Buckley with the clicker, we introduced the target in his enclosure. By smearing the buoy with a small amount of banana, we encouraged Buckley to reach out his nose to sniff it. When he bumped it slightly, we

bridged and reinforced him. We only had to use the banana to lure him to the target once. He quickly caught on that touching the target earned

training plan for this behavior, and then discussed the individual steps in more detail with the rest of the staff.

backward from the pool to the lodge prop, where we hoped Buckley would enter the stage (see Figure 2).

Behavior: Buckley will walk out from back wall lodge prop to pool. He will climb into pool, swim around, climb out of the pool and walk off-stage

Training steps

Weight management step: Weigh Buckley weekly. Weigh out food and treats.

1. Familiarize with stage and pool (3/day out on stage with treats)
 - 1a. Target Buckley around on stage with his stick. Start off-leash to eliminate the temptation to use the leash to direct him rather than positive reinforcement. He doesn't move too quickly so having him escape is not a hazard.
2. Using target stick, get Buckley to get out of pool on a cue (maybe even use tail slap sound as cue)
3. Have Buckley walk to and into pool by placing him on rock steps at first and then moving him backward until eventually he is starting from hole in the wall

The First Challenge: Instincts Kick In

We encountered our first setback at the point where Buckley reached the front of the stage and was supposed to turn towards the pool. If we placed him at the front of the stage, he would turn

him a reward. Within six sessions, Buckley was following the target all around his enclosure and into his pool, even diving underwater.

The next step was to try Buckley's targeting skills in more distracting environments such as the hallway outside his enclosure and out on zoo grounds. Through the use of high value reinforcement, such as Fig Newtons and dried fruit, and by initially relaxing the criteria somewhat, Buckley became fairly consistent at targeting in the hallway and around the zoo.

Preparing for the Stage

By January of 2004, we knew we had to begin training animals for the show that summer. We decided to have Buckley do a routine utilizing the pond built on stage, because he was the only animal we had at the time that was associated with water.

Two of the full time staff members were designated as primary trainers. We drew up a concise

Figure 1. Training plan for Buckley's first on-stage behavior

The first few training steps of the plan were easily accomplished. We began weighing Buckley's food instead of using cup measurements. This gave us the ability to fine tune his diet and ensured consistency even when different people prepared his diet. Initially we just cut his rodent chow so that he didn't leave any overnight. Later we managed his diet to the point that he ate all his food during his training sessions.

At first we brought Buckley out to the stage two or three times a day and fed him treats. Since Buckley was well acclimated to being out on zoo grounds, this step only took a few days. After that we built a ramp out of rocks and spent some time configuring it so that Buckley would be able to climb up them and into the pool. We used the target to lead Buckley into and out of the pool. The pool is set to one side of the stage, so it was easy for Buckley to immediately exit. We began to work

toward the pool, walk over and climb in. However, as we moved him back from the front of the stage and closer to the lodge prop from which we wanted him to enter, his tendency was to turn around and run into the lodge prop. We determined that the problem was that the dark and quiet lodge prop was a much more inviting place for a beaver to be than the bright and frequently loud stage. Buckley's instincts were kicking in.

We spent a lot of time trying to train him to come out of the lodge prop. We tried capturing the behavior, targeting him out, and even luring. His targeting behavior was so ingrained that he could follow the target through the whole routine, but we needed to phase out the target. A beaver trainer holding a target stick just didn't work well into the show script! The premier of the show was getting close, and we still hadn't gotten Buckley to walk halfway to the front of the stage without multiple reinforcers. He would also often grab his treats and run back into the lodge to eat them there, thereby rein-

forcing himself for returning to the lodge.

After discussing Buckley's progress with the entire team, the decision was made to try to reverse the routine to see if Buckley would be more comfortable and make more progress. The modified routine called for Buckley to enter stage left, climb into the pool, climb out and exit stage via the lodge prop on the back wall. We were confident that training this behavior would go more quickly than previously, since Buckley had already demonstrated that he was comfortable in both the pool and the lodge prop. His new route did not take him near the front of the stage, which was disappointing to us because a small segment of the audience would only see him for a short time. However, the new routine suited Buckley much better. Instead of having to do a very long (for a beaver) A to B for his first treat, he got to immediately climb into a pool. The pool was particularly reinforcing on hot days! Then, after he got out of the pool, he could head directly for the dark, comfortable, quiet lodge prop, where a large portion of his daily food was waiting for him. We did have to spray the prop with Bitter Apple to prevent Buckley from making too many modifications to his lodge, but he was usually eager to go right inside to his waiting jackpot.

As expected, this routine fell into place much more quickly. Within 4 days, Buckley was moving confidently through his routine. A month after we switched his routine we began practice shows, which drew a larger crowd than the training sessions we had been doing. This did not disrupt Buckley's routine, and we were ready to start shows by Memorial Day.

Maintaining the Behavior

Though we felt we were done training this behavior chain, certain patterns began to emerge that told us we weren't finished yet. Though Buckley was fairly consistent about doing the routine, when he did make a mistake, it was almost always in one of two ways. The first setback was that Buckley would often enter his pool and swim for much longer than the script we had for him called for. The second difficulty was that he was sometimes slow to climb into the pool at all. These difficulties had several origins.

The first setback was a missed step in training the behavior chain. When we initially began training Buckley he would get out of the pool very quickly. We did not look far enough ahead to realize that the time he spent in the pool was going to get longer as the days got warmer. There was no cue in the behavior chain signaling Buckley to get out of the water. Thus, we were forced to introduce a target and hope he followed it out of the pool. This was somewhat disruptive to the flow of the program.

The second difficulty was related to Buckley's nocturnal habits. We had two shows a day, one at noon, and one at 3:30 pm. Buckley was rarely slow to get in the pool at the 3:30 show. However, he would often be very slow for the noon show. After managing his diet to try to increase his noon-time motivation didn't help, we felt that it was simply a matter of him not being as alert that early in the day as he was at 3:30.

Both of these difficulties were exacerbated by the sudden addition of several more animal handlers in the form of seasonal staff members. While all of our seasonals were com-

petent animal handlers, they each had limited training experience and a slightly different way of working with Buckley. At this point, the full-time staff members had to spend more time working with the animals that only we were able to handle, and had to turn over the daily handling of Buckley to the seasonals. Buckley was sometimes reinforced inappropriately or wasn't reinforced at a critical juncture, and the behavior chain started looking a little tattered.

We did not find a solution to the problem of Buckley staying in the pool too long that first season. We did not have the time to add a cue to exit the pool into the behavior chain, and we did not have enough staff to supervise the beaver handlers during the show to make sure that they were making consistent decisions about how and when to reinforce Buckley. The interim solution was to add more lines to the script about Buckley, or, since his routine was at the end of the show, to simply move on to the conclusion while he swam around in the pool, neither of which were satisfactory to the team.

The second difficulty was alleviated by feeding Buckley more of his diet earlier in the morning. We also had an exercise yard with a pool that we would try to put Buckley in the morning to wake him up and more firmly establish a diurnal schedule. Also, if the crowds were very small for the morning shows, we would give Buckley a show off. These solutions seemed to help Buckley complete his behavior chain more consistently and quickly.

New Behaviors

Buckley successfully performed the behavior chain described above for two show seasons. However, for this

coming season, we have done an entire re-write of the show, which calls for Buckley to do a new behavior chain. His training for the new chain started in the summer of 2004, concurrent with his performances in the show. We assigned two members of the seasonal staff team to train Buckley to do a novel behavior. They chose to train him to chew a stick on cue (see Figure 3).

Within a month Buckley was confidently chewing sticks placed before him or that he was targeted to. He preferred willow over alder and would often become possessive of the sticks that he was chewing, which made it difficult to reinforce him for the chewing behavior. However, that inspired the trainers to try teaching him to carry the stick. The stick-carrying behavior was quickly trained by putting the target in front of him when he had the stick in his mouth to chew. The target and the stick cue given simultaneously resulted in a new behavior of carrying the stick to the target. The challenge with this behavior was Buckley tended to run off with the stick rather than going to the target. However, through precise reinforcement of movement to the target and by only incrementally increasing the distance to the target, this tendency was extinguished.

After two months, Buckley had two new behaviors under his belt: chewing a stick on cue and carrying a stick to a specific spot. These two behaviors seemed to be the perfect candidates for a behavior chain in which Buckley would carry a stick out of his onstage pool to his lodge prop and another behavior we called "timber". The completed "timber" behavior chain would have Buckley coming out of a crate behind stage, walking to a vertical branch, chew-

ing it down and carrying it back to his lodge prop. The end of the chain was already firmly established as Buckley had been seeking the shelter of his lodge prop at the end of a behavior for two years and he was very possessive of his sticks.

The stick retrieve out of the pool went quickly. We simply placed one of his sticks in his pool, had him climb in the way he had been doing for his show routine, and let him discover the stick. We gave him the cue to carry the stick and rewarded him for touching his nose to it while in the water. Soon he was picking up the stick and swimming with it towards the target and following the target out of the water. After this he fell back into his old routine of returning to the lodge prop for a large reinforcer.

The timber routine was more time intensive. As before, returning to the lodge was not a problem. To work on the next part of the chain, we created a device to hold a one inch diameter branch in place vertically. We placed Buckley very close to the branch and gave him the cue to chew the stick. Initially Buckley was hesitant to chew the stick while it was vertical, so we re-trained the behavior through successive approximations. He caught on very quickly and once he started chewing the stick (rather than sniffing or touching it with his nose), he chewed completely through it and carried it off to his lodge. From there it was simply a matter of moving him farther back from the stick to have him walk to it first, chew it down, and then carry it to the lodge.

To get Buckley to walk to the stick from longer distances, we used the target to guide him to the stick. When he chewed the stick down he got a treat (which he ate very quickly or ignored, depending on how

much he wanted the stick), and he got treats in the lodge prop. Buckley was quite consistent with this routine, as long as we used willow branches. With the harder alder branches, it was a hit or miss affair. In order to conserve willow, we reused willow branches often, and even screwed on pieces of alder on top of short pieces of willow. That way, Buckley could chew down a visually impressively four foot tall stick, which was actually a foot of willow attached to three feet of alder.

2006 Show Season

For the 2006 season, we elected to have Buckley do the "timber" routine instead of his old pool routine or the stick retrieving routine. We decided this because another animal would be using the pool, and Buckley's routine now fell in the middle of the show, so we couldn't let him stay in the pool for a long time. We also wanted to demonstrate how proficient beavers can be at chewing, since that is one of the things they are best known for. The completed routine for the 2006 season has Buckley coming out from a release box in the back wall of the stage, walking about eight feet forward to a stick secured in a hole in the stage, chewing it down, and dragging it to his lodge prop about fourteen feet away.

The typical challenges associated with training a shy prey animal have cropped up again; Buckley was initially hesitant to enter stage from the hole in the wall and he sometimes ignores the stick in his eagerness to exit stage via his lodge prop. However, perhaps because of his previous two seasons doing a behavior on stage, Buckley has quickly

YOU WANT TO DO WHAT! WITH A ZEBRA: TRAINING A JUVENILE CHAPMAN'S ZEBRA AS A CONSERVATION AMBASSADOR

Rob Yordi*, Busch Gardens Williamsburg

In early 2005 a cooperative project was proposed between Julie Scardina (BEC Corporate Animal Ambassador), Busch Gardens Williamsburg, Zoo To You, and SeaWorld San Antonio to train a juvenile zebra as a Conservation Ambassador. The initial idea was to begin training the Zebra at SeaWorld San Antonio and then after a month of work transfer the animal to Busch Gardens Williamsburg in time for a number of presentations Julie was scheduled to do. Ideally, the Zebra would be an ambassador that represents our SeaWorld/Busch Gardens Conservation Fund and its numerous projects.

The Beginning

The identification of a viable candidate for this project was found and the acquisition process was started during the first part of July 2005. Due to a number of contributing factors the initial plan of housing and

initial training of the zebra at Sea World San Antonio was not possible. Instead of having a partially trained animal for the Busch Gardens zoological staff to work with we were challenged with a mostly green animal that was being fed formula three times a day by the time of the transport. On August 17th, 2005 a three month old female Chapman's zebra named 'Spot' arrived at Busch Gardens Williamsburg accompanied by her friend a three month old male American bison named 'Turner'. The bison was still on the bottle three times each day. Both of the animals were unloaded from their transport trailer and placed in their new pen behind the Zoo Building.

Training and Show Presentations

Due to the change in the initial training plan the Zoological team was challenged to work with Spot quickly to prepare her for her first scheduled Julie Scardina show which was two days away. The first step was to get as many of the zoological staff comfortable with handling Spot and the basics of lead rope control. Due to the long transport from Texas Spot also was in need of a good bath which she handled very well.



Photo by Tim Sullivan

All of the training sessions were done without food as a reward. We only used tactile reinforcement for all of her behaviors. The next morning the training sessions included walking with Spot through a number of park back areas to get her comfortable with new sights. Her behavior was so positive during all of this that the decision was to give her the opportunity to participate in the evening rehearsal for the planned show the next day. This required Spot to walk with a trainer through the guest parking lot to where the theater was located. This was such an important event that she was given a Security vehicle escort the entire way. The next challenge was to have Spot walk up a ramp and on to the stage area. A custom made aluminum ramp had been installed for this purpose. Spot showed no hesitancy in this behavior. Due to all of her successes Spot was scheduled to be in the following day's shows.

Spot's show day started with another bath and some well deserved grooming. At 9:30AM she was walked to the theater back area where a special temporary pen had been set up for her. During the course of the next three days Spot participated in three shows each day and logged a number of miles going back and forth to the theater each evening. She had done so well on the first day that we again challenged her to handle some guest photographs after a few of the shows. Spot again excelled and as a true



Photo by Tim Sullivan

Conservation Ambassador the proceeds of the photos went to the SeaWorld/Busch Gardens Conservation Fund. For such a short amount of training time Spot amazed the staff with her comfort level and her focus on what her trainers were asking of her. In addition to the Julie Scardina shows Spot also was able to star in two days of presentations by Jack Hanna at the park.



Photo by Tim Sullivan

Traveling Presentations

During the weeks following her in park presentations the zoological staff was asked to prepare her for some traveling presentations. Her training included continued work walking in and through the park, especially up steep inclines. Spot was exposed to as many new situations as possible in preparation for her first big trip. On 27 September Spot was loaded into a crawl-through rental van and transported to New York for an appearance with Julie Scardina. Spot's comfort level during the transport was matched by her willingness to walk into a service elevator and go up to the second floor to do her presentation. The show went very well even though there was a surprise encounter with

an adult gray wolf on the way out. It turns out that another facility had brought an ambassador wolf for the show without us knowing and was transporting it on leash when they came about 20 feet from Spot and her trainers. Spot calmly looked at the wolf and then at her trainers and waited for the door to be closed to separate them. As before Spot amazed us with her calm behavior.

The big finale of Spots training at Busch Gardens Williamsburg was traveling to Florida to participate in the first SeaWorld/Busch Gardens Conservation Fund fundraiser held at SeaWorld Orlando. Spot was again transported in the same vehicle and was successfully unloaded in a temporary pen at SeaWorld Orlando. This time she was given one chance to practice in the new facility before her big performance. As with everything so far Spot was comfortable and worked easily in front of hundreds of attendees. The event was so successful that in the one evening over \$275,000 was raised to support conservation worldwide. Spot's role as a Conservation Ambassador had been very successful.

Conclusion

From the initial plan, to her SeaWorld/Busch Gardens Conservation Fund presentation Spot was able to continually impress and enrich everyone that she was able to work with. The challenges she overcame and the relaxed attitude she showed during all of her work made the trainers' work that much easier. The training program using only tactile reinforcement worked very well for her. After the successful fund raiser Spot was transported to the Zoo To You compound in Paso Robles, CA to contin-



Photo by Tim Sullivan

ue her work as a Conservation Ambassador. To this day Spot continues to do presentations with Julie Scardina and conservation programs with the Zoo To You team.

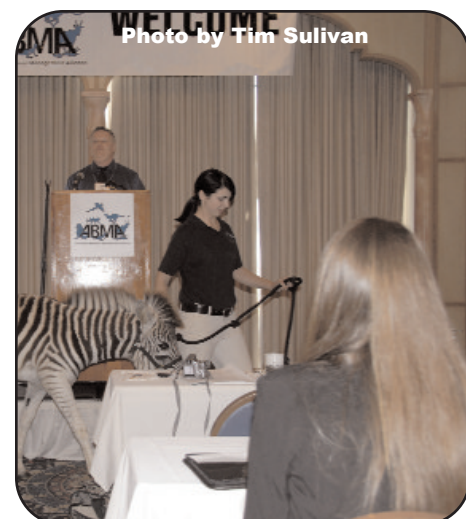


Photo by Tim Sullivan

CONCURRENT SAFETY SYSTEMS AT WILDARTIC: CREATING A SAFE ENVIRONMENT IN WHICH TO TRAIN AND ENRICH POLAR BEARS

Mike Price*, Meredith Wehner and Eric Otjen SeaWorld San Diego



*Polar bears (*Ursus maritimus*) are dangerous apex predators. For the safety of zoological staff, protected contact scenarios are used when working with polar bears in zoos and aquaria. The challenge under these constraints is to provide an enriching environment for the bears while maintaining a safe staff environment. At SeaWorld San Diego the Wild Arctic team has designed a protected contact environment incorporating concurrent systems for the park's 1.2 polar bears. A combination of facility design, redundant action protocols, and extensive staff training create a safe environment for the Wild Arctic team. Automated control of gates, video monitors and the use of indicator boards ease the transfer and movement of animals within the facility. Overlap in operational steps prevents "one-mistake" incidents and allows for a buffer against human error. A ladder design for staff training, a step-by-step learning process for interacting with the bears also increases safety. Concurrent systems at Wild Arctic create an environment rich in training and enrichment for the bears, while simultaneously maintaining a safe and comfortable workplace for the team.*



TRAINING WITH DISTRACTIONS: A PROACTIVE APPROACH FOR SUCCESS

Heather Leeson*, Moody Gardens and Greater Houston Search Dogs

Distractions are ever present in the lives of our animals, but become more noticeable during training sessions and procedures. From birds to mammals and reptiles to search dogs, our animals must perform in a variety of environments with sights, sounds, and smells they may have never encountered before. How can a trainer effectively prepare their animals to perform in adverse and unknown circumstances/environments without regressing? Positive outcomes can be achieved though the use of distraction training. This presentation will identify general distraction categories, effective utilization during training, how to record observations and create successful training plans, and give examples with a variety of animals for a proactive approach for successful distraction training.

Distractions. The nemesis of every trainer that always seem to arise at the moment a breakthrough is about to occur. By definition, a distraction is a qualitative aspect of the environment (Ramirez, 1999). The root word of distraction is distract, which means to turn aside; to divert; to draw or direct to a different object or in different directions at the same time (Merriam-Webster, 1974). No matter how you describe it, distractions are ever present during training sessions. We have all dealt with a variety of distractions during training sessions where an animal's focus

is no longer with us. Most try to train around them, but what about utilizing them to your advantage by incorporating them as training tools. Is it possible for that animal which always breaks when it hears any kind of noise to actually stay calm and focused while activities occur all around it Absolutely!

Moody Gardens

A new mammal exhibit opened in the Rainforest at Moody Gardens (MG) in May of 2004, and with this collection came a great responsibility of training over 15 species while maintaining other rainforest training programs. Shortly after opening, the behavior management coordinator (BMC) began receiving several different training updates from the aquarium and rainforest trainers. To streamline training records, the BMC, the lead rainforest trainer, and our training consultant had a brainstorming session and examined a variety of records. We were able to create a universal training record for our facility, which includes a daily, weekly, and monthly form for any animal at the rainforest or aquarium. Included on all the records is a section for distractions, which shortly will be the main topic of discussion.

During our brainstorming record session, we thought it would be advantageous to identify common distractions and include a quick annotation for them. Previous



records were time consuming to write out (some read like a redundant monologue) and we wanted something quick and general, yet precise to identify any trends. First, we looked at all the species in the rainforest and aquarium that are or eventually would be in the training program; these included fish, reptiles, birds, and mammals. Next, we identified potential distracters for each taxon, such as predatory animals, crowd noise during a show, and the ever-dreaded mosquito season for our outside inhabitants.

We created seven general categories of distractions- another animal, exhibit flaw/maintenance, noise, olfactory, physical ailment, tactile, and visual. Each general category can be easily noted next to a behavior that was disrupted and the disruption can be further defined in the notes section if needed.

Two goals were created with the addition of a distraction category. The first goal was to easily record distractions and look for trends on a short term basis, i.e. weekly or monthly, thus showing trainers where an animal excels or lacks. The second goal was to use desensitization in each category to create a more positive environment for the animals to work in. Theoretically, by utilizing these goals an animal would feel more comfortable in any environment which would lead to an increased confidence level and focus during a training session. With greater confidence, the ability to

work with a variety of new distractions can easily occur with less desensitization, regression, or both.

The rainforest animals utilize distraction training several times a month. These sessions are treated like a new behavior; a general distraction is used and only established behaviors are trained. Greater magnitudes of reinforcement are given when an animal returns its focus to the trainer or completely ignores the distraction. Over time, as the animal's focus remains with the trainer, multiple distractions can be used simultaneously.

Search Dogs

Search and rescue (SAR) utilizes many assets to locate missing people, one of which is canines. Within the realm of SAR are several canine specialties; these include air scent, trailing, disaster, and human remains detection. Greater Houston Search Dogs (GHSD) is a volunteer organization with novice to advanced canines and handlers of all specialties. As the canines advance within their specialty, their handlers are always trying to come up with unique problems, to keep their canines stimulated and proficient. After awhile, new scenarios are difficult to devise and implement. As the training coordinator of GHSD, I am responsible for motivating and educating handlers and canines with new problems, places to train, and operant conditioning fundamentals; it is a bit overwhelming at times!

Using distractions in SAR work is fairly common, even with our team, but I had yet to make the connection that they could be crossed over with the exotics at work- such an epiphany when I did! I could incorporate the detailed distraction

logs from MG into the GHSD trainings and use many of the current distractions with SAR work with the rainforest animals. Before I brought this fabulous idea to GHSD, I did some trials with my dog (the cutest trailing dog ever) and examined the MG distraction list to see if any modifications needed to be made for SAR work. I created and modified a trailing data collection form, from which I identified specific distractions in SAR work; only one modification was needed from the MG list- exhibit flaw/maintenance was replaced with environment. By identifying general and specific distractions, I could incorporate the problematic ones into training sessions with the exotics and canines.

Distractions in Action

For each general category, a variety of specifics can be applied. Each category will be defined and specific examples with exotics and canines will be listed. Also important to note is the guesswork involved in identifying a distraction that disrupts an animal's training session. It is up to the trainer to interpret the body language of the animal and identify changes in the environment to conclude what distraction disrupted the training session. There can also be multiple distractions that occur in a single session. The interpretation is biased and may not be the correct reason for the training disruption.

So, let's start with another animal disrupting a training session. This distraction is the presence of an animal that is detected by any sense of the animal being trained. This is prevalent in multi and mixed species exhibits. For example, the smaller free flight birds in the rainforest exhibit were often displaced by the

larger birds; territory or breeding disputes amongst male doves were also popular around recall stations. For the search dogs, instinct is hard to break- herding and hunting dogs easily lost focus when squirrels, birds, or even other dogs walking with owners crossed their path. With some desensitization, these scenarios are not a major issue anymore.

Exhibit flaw/maintenance is specifically for captive animals. This distraction is noted if there is a design flaw with the exhibit, the exhibit is undergoing regular maintenance, or the exhibit is being remodeled. As keepers, we usually have no voice in how an exhibit is designed. What looks captivating to an architect and director may have useless value to training the animals inhabiting the exhibit.

The result is an exhibit flaw, such as with our ocelot shift- it is a long, dark, low, narrow, curving chute that is completely next to the public. Backwashing, draining, and filling pools are popular with our marine animal and fish exhibits and fall under the category of maintenance. During remodeling, sometimes there is no other place to move animals, except off exhibit, which can be for lengthy periods of time and stressful on the animals and keeper/training staff.

Environment relates to search work and the different areas we train our canines, such as wooded versus urban, grass versus water, and new versus frequent. Some dogs excel in a specific type of environment and need more exposure in others. Air scent dogs are utilized more in open and wooded areas, while trailing dogs are utilized more in urban environments. However, both are trained to search in all types of environments- fields, woods, concrete, gravel, dirt, mud, and water since we

never know what type of task will be given to us at a search.

Noise is the addition or lack of sound, unless related to an exhibit flaw/ maintenance. Several frequencies are out of human range but well within an animal's range. Higher frequencies can be heard by canines, lower frequencies by sharks and elephants. That perk of the ears or individual movement of them is a good indication they hear something you do not. The lack of background noise can be a different sound also. During our evacuation procedures for Hurricane Rita, several birds in the rainforest appeared confused by the lack of noise from guests, waterfalls, and background music; it was eerily quiet.

Olfactory pertains to a different smell in the air, on the environment, or on the trainer. For the search dogs, new environments have lots of markings from wild animals that smell very interesting. For animals trained outside, scents carried by the air, such as smoke from a fire or burn off from a chemical plant, can cause strange reactions. Even lingering odors from disinfectants can be disturbing. How many times have you trained an animal after closely interacting with another? The second animal may smell the first one on your clothes and be very curious about your clothing instead of the reinforcement you possess.

Physical ailment is when the animal is not 100% healthy. The animal may have or may be recuperating from an injury, may be on medication, may have weight issues, or may be undergoing physical changes. When female dogs are in heat, we have noticed their behavior dramatically changes and we have to alter their training to shorter, more positive interactions. If an animal has an injury, it may be housed off exhibit

or in another building to recuperate. While this can be stressful on an animal, training some basic behaviors with someone it trusts can be quite beneficial in the short and long term. Other changes in performance include remaining on medication long after a wound appears healed and weight fluctuations.

Tactile refers to anything on or touching an animal. Examples include disaster dogs crawling under rebar or mesh, mosquitoes or flies being a nuisance, something stuck on a paw or part of the body difficult to reach, wearing an uncomfortable item, and training in extreme temperatures.

Visual distractions are probably the most common reason an animal loses focus during a training session. This is anything an animal sees, except another animal, since there is already a category for this one. Due to the amount of variety, this distraction has the potential to be quite an effective training tool. A few examples include a new person, a familiar person, a crowd of people, a large object, a small object, close proximity, and color variations.

For SAR work, many visual distractions are applied- utilizing decoys on a sidewalk for trailing dogs, having subjects hide in different positions (lying, sitting, standing, leaning, and crouching), and training tools such as bark boxes or barrels. In the rainforest, several animals were affected by a variety of visual distracters before desensitization was used. The douroucoulis love to people watch, which creates a difficult environment to train in when crowds are present; we slowly worked our way up to small groups of people with new and established behaviors. The ocelot learned to shift next to large crowds of people. The free flight birds were extremely

skittish around the daily maintenance of our gardens department, which included hosing, sweeping, and vacuuming and usually resulted in the animal quickly fleeing. Now, even the shyest ground birds will stay close-by when the vacuum passes and training can resume practically uninterrupted.

By creating a variable environment, animals do not become as fearful or lose focus as quickly during a training session just because the environment is somehow different. By identifying distractions and incorporating them into sessions with desensitization, trainers have more control over keeping an animal's focus when any type of unforeseeable distraction might arise. All in all, there appear to be no bad side effects for utilizing distraction training. The hard part is identifying them for animals at your facility then identifying trends. Once that is done, your imagination becomes the tool for success.

Record Keeping

Observations are the key to utilizing distractions successfully. Whether you are training or observing, there is a lot of behavior to watch. Make a detailed list of distractions you have observed or believe may be problematic for the animals you train. Prioritize the distractions and create a training plan for each utilizing desensitization and/or acclimation. Distraction sessions can be planned into your training schedule as you see fit. As animals progress through your distraction list, continue to utilize ones that have already been completed. Incorporating multiple distractions is the next step and where the creativity begins. For search dogs, training

inside a new school with boy scouts they have never met or training next to an airport or busy street are some examples. For MG animals, a vet check on exhibit with a loud, large school group watching and painters within the rainforest with their appropriate sights, sounds, and smells are examples.

Distractions occur at each training session, but distraction training is planned once a month for the search dogs. For those canines that need a bit longer to work through a specific distraction, desensitization in the appropriate category is suggested to a handler and a training plan is discussed. By using a specific distraction several times in many different environments, handlers are able to better read and interpret their canine's behavior. Distraction training creates more realistic environments for the canines to search in and they become more confident and effective search dogs.

Closing

There are several positive impacts distraction training has done for the exotics, canines, and even the trainers. Animals are better listeners around a known distracter and are more curious and confident around new ones. Trainers are more observant of their animal's behavior, able to keep track of general distracters, able to progress or regress productively, and are able to see where their animal excels and lacks, which is great to know going into a search with known distractions or when planning behaviors for a show.

By creating a unique training record for Moody Gardens, trainers are able to easily record established behaviors, working behaviors, and distractions that disrupt sessions. We

can identify recurring distractions and use desensitization to improve an animal's focus when a general or specific distraction arises. These distractions can be documented and used, not only on exotics, but a variety of animals. The outcome is positive for both the trainer and the animal. There are too many variables not to utilize for your animal's success and with a little time and planning, everyone can achieve great results.

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Acknowledgements

This paper would not have been possible without the help from the handlers and canines of Greater Houston Search Dogs, the trainers and animals at the Rainforest at Moody Gardens, and the editorial skills of Linda Samper.

THE GENERALITY OF LEADERSHIP

Beth Nelson M.Ed* and Ann Weaver, Ph.D., Argosy University



The similarities between animal training techniques and leadership techniques were examined and compared. Information collected from interviews with animal trainers was compared with the current literature regarding effective leadership techniques. The results indicated that many of the techniques used with training animals are easily transferred into the human arena and parallel great leadership skills. Both animals and humans respond well to positive reinforcement. Both animals and humans can be motivated through positive reinforcement to achieve extra-ordinary results. Perhaps the importance of studying animal training techniques is that it can give us a greater understanding of the process of learning and provide potential insights into techniques that produce positive results when dealing with humans as well as animals.

Leadership has been described as many things. Most descriptions include characteristics such as patience, ability to build cohesion and unity, creating a vision, being visible, taking responsibility when things go wrong, building loyal relationships, giving credit to the team, listening, encouraging, having a positive attitude, reinforcing wanted behaviors, respect, communication, empowerment, and clear reasonable goals and expectations (Peters & Waterman, 1982). Leaders must set the example, empower and act in

ways that develop trust from their followers. Leaders need to tune in to the environment, keep an open-minded perspective, communicate, build positive coalitions/relationships, empower the people, acknowledge others, be persistent and reward accomplishments (Kanter, 2004).

Human leadership training focuses on building communication skills, developing a vision and strategies, being flexible, inspiring, curious, knowing your followers and being able to motivate them. Trust and authenticity are also important factors. In order to achieve a goal, followers must be motivated to produce or perform. Leaders must be able to motivate others to complete assigned tasks. Leaders make changes. Leaders reward and/or discipline behaviors.

One way to increase our understanding of leadership is to examine the feedback loop between strategies of human management and strategies of animal training. A person's ability to shape people's behavior is a determinate of one's ability to become a leader. Both leaders and trainers have to engage another entity to accomplish a task that the entity may not want to do. Both leaders and trainers affect change.

Psychologists have long studied the effects of various kinds of behaviors on animals and have consistently been able to transfer the information learned into the human world. Much of what has been learned

through animal behavioral research is used in the mental health field and is currently being applied in the business world as well. If one examines the trends in animal behavior management and the trends in leadership, one finds that there are striking parallels. Parallels that can, perhaps, provide clues to as to how leaders can efficiently enlist the aid of their followers and achieve greater performance than ever.

In his book, *Whale Done!* (2002), Ken Blanchard shares what he learned from animal trainers at Sea World and compares the information with his knowledge of training people in the workplace. He found that the same principles could be applied in either situation. This parallel suggests exploration of several questions: Are animal training rules easily transferable into the business world? Is there a relationship between leadership in human groups and animal training? Does knowledge of the methods of animal training contribute to the greater understanding of managing humans in organizations? Do leaders shape followers like trainers shape animals?

Importance of Understanding Leadership

Contrary to the leadership model of the past which included domination, arrogance, elimination of those who resist and resistance to new ways (Finkelstein, 2003), the newer

leadership models focus more on building a positive relationship with followers and empowering them as much as possible.

Ironically, this seemingly kinder, gentler model of leadership actually is more ancient than most people realize. Sun Tzu, a Chinese general who lived around 500 B.C., ascribed to a number of the principles that are the foundation of the current trend in leadership. He believed that it was important to know when to fight and when not to fight and that it was better to win without fighting. He understood that it was important to have knowledge of human nature, integrity, listening skills, flexibility, develop harmonious relationships, courage, discipline, creativity, high standards and be willing to ask for counsel. Sun Tzu believed in setting people up for success (Michaelson, 2003).

The Importance of Understanding Animal Training

Many animal trainers work with animals that are large, wild and potentially lethal to humans if not managed properly. Animals that are too large or dangerous to physically force to perform must, somehow, be led to perform a behavior or set of behaviors that are determined by the trainer. The trainers are able to cause these animals to perform these behaviors safely and voluntarily. Through communication and behavior, trainers create situations where the animal receives more satisfactions from cooperation than from avoiding the unusual or unnatural conditions. Since violence is a potential danger whenever there is dominance, choice and positive reinforcement are used as tools to avoid potential aggression (Roberts, 2001).

Historically, managers have regarded employees as replaceable or the enemy that needs to be controlled at all times. People were treated as if they had no desire to grow or be challenged. Punishment was seen as the main method of motivation. The corporate world is gradually changing to realize that people are treated with respect will provide amazing levels of performance. Choice and trust are being realized as being critical in the ability to create successful relationships and open communication, which are, in turn, fundamentals to successful business (Roberts, 2001).

Positive Reinforcement

In order to achieve a goal, followers must be motivated to produce or perform. There are increasing numbers of businesses who are recognizing that the traditional forms of motivation are no longer working as well as in previous years. Those who use dominance and force end up losing the respect of the employees (Peters, 2003).

Animal trainers have found that coercion and force do not work well. There is a limit to how far you can go with domination with animals before you will get aggressive behavior. A 600 pound animal cannot truly be dominated. If the animal becomes aware of that fact, aggression can occur very quickly (verbal communication from Carlee S. Robinson, San Diego Zoo 2004). Traditional elephant training has been mostly negative reinforcement. With the transition to positive reinforcement trainers are seeing amazing results. The Zoological Society of San Diego adopted a positive reinforcement training plan with their elephants and ceased using

physical discipline in training in 1991. During the almost 2000 training sessions that took place that year, there were only seven times that an elephant refused to participate and those refusals occurred in the early phase of the program. Since the program began, elephant aggression toward keepers has disappeared (Priest, 1994).

Forcing or dominating an animal leads to aggression from the animal. Therefore, trainer must entice the animal to want to change. A specific behavior is rarely taught in one step. When beginning to train a specific behavior, the trainer watches for an approximation of the correct response and reinforces it immediately. The animal learns that there is a reward for behaving in a certain way and starts to repeat the behavior in order to earn the rewards. Soon the goal behavior is achieved and the animal gets reinforcement. The short-term wins keep the animal focused and energized towards achieving the goal of the trainer (Pryor, 1999).

Like the animals, humans do not react well when faced with domination. Hurt feelings, anger, lack of productivity, and aggression are often the results of such treatment (Matejka, 1991). Leaders need to affirm their workers. People need to see positive action happening and rarely will work for long without seeing some progress. Short-term wins (positive reinforcement) should be visible, unambiguous and clearly connected to the change process. They show that progress is being made and can provide helpful feedback. Short-term wins can help gain and keep support from those who are reluctant to go along with change (Kotter, 1996). Thus, it is important to have measurable milestones to help build the confidence and moti-

vation of those who are working for a goal.

Positive Relationships

Relationships are a cornerstone of leadership and success. In the process of building and maintaining positive relationships, leaders need to consistently provide positive reinforcement for employees. Genuinely listening, acknowledging, thanking, appreciating, caring, and interacting with employees has been shown to improve the relationship which, in turn, builds alliances and improves performance (Fitz-Enz, 2000).

George Washington advocated the need for positive relationships and positive reinforcement. He believed in listening to his troops, communicating, turning negatives into positives, building strong relationships and understanding human nature (Phillips, 1997). Abraham Lincoln also advocated building strong, positive relationships, persuasion rather than coercion and knowing one's followers (Phillips, 1992).

Companies like Proctor & Gamble (2005) and Johnson & Johnson (2005) are openly stating that their company values include trust-based relationships and have active programs to develop those relationships. Perfect Courier, an Inc. 500 company, started building positive, trusting relationships with its employees and subsequently was able to save over \$38,000 per year due, in part, to the loyalty that developed (Brodsky, 2004). American Express, BMW, Disney, Sun Microsystems, Volkswagen, NASA, and the CIA are organizations who are working to improve relationships and productivity in the workplace. In fact, these industry leaders have implemented principles used in ani-

mal training in order to learn how to develop positive, trust-based relationships and strong leadership as steps to success (Roberts, 2005).

Know Your Followers

Animal trainers need to know their animals. While the basic principles of training may be applicable to all animals, there can be differences needed in specific interactions various species or even specific animals within a species. Trainers must have realistic expectation for each animal and understand that an owl has different capabilities than a parrot and a cat has different capabilities than a monkey. While they may all be motivated by some sort of food, each one has its own preferences. (verbal communication from Kim Caldwell, San Diego Wild Animal Park 2004). Leaders must understand what is important to each person; what they hope for, what they value and what they appreciate (Kouzes & Posner, 2003). What may motivate one person, may have no impact on another. Because of this variance in goals and values, it is important for leaders to know what is important to the individual follower and make adjustments accordingly (Irwin, 2001). While one employee may be extremely motivated by monetary bonuses, another may be more interested in extra time off to spend with family, or educational opportunities.

During the summer of 2004, eleven interviews were conducted with eleven animal trainers. While some trainers provided more detailed information than others, all eleven trainers answers were similar and in agreement with each other. The information provided shows a fascinating parallel with working with humans.

The trainers described the general principles of animal training as being the same and can be applied to all animals. However, specifics can vary by species or individual animals. The principles of training include the following: Set the animal up to succeed, build a positive relationship, make it a partnership, make training a positive experience, have realistic expectations, find what is motivating for the animal and use it to reinforce the animal, take baby steps, use positive reinforcement, do not use force, make it fun; make it an easy, clear choice for the animal to participate, have clear goals, be consistent, continually build trust, be competent, do what you say, communicate clearly, know the animal, and know yourself.

When engaging cooperation of the animals, first one must build trust. Make the animal feel safe and comfortable. Find what is reinforcing to the animal and use it to reward the animal. Stay ahead of them, intellectually, especially the smarter ones. The duller animals need more patience. Both need realistic expectations. The brighter animals need more challenge and change. The duller animals need more routine. It is very important to reward the animals. That is what motivates them. Trainers have to find the right reinforcer. Find what they want or what interests them. That will be what motivates them.

When the animal complies or cooperates, bridge the behavior and reinforce it! Reinforce it with something that the animal likes and wants. Animals cannot be ordered to change. The behavior wanted must be reinforced. People are the same way. They require some sort of motivation or reinforcement in order to change.

Non-compliant behavior is dealt

with by ignoring the behavior if possible. Redirecting the animal is another option. Have the animal do something incompatible with the non-compliant behavior. Use timeouts. Find the problem and remove it. Say "No". The word "no" means "stop". Bridge and reinforce when they comply. Stop the session, if necessary. Physical dominance, force and punishment do not work in the long term.

Some of the most important things learned from working with animals are: patience, consistency, how to take responsibility, how to take ego out of it, communication, the importance of having realistic expectations, the importance of knowing and being aware of one's self, being willing to fail, knowing personal limitations, bringing positive reinforcement into the human world by catching people doing things right. It works on people as well as it does animals.

Excellent trainers are distinguished by characteristics such as patience, honesty, awareness, setting ego aside, communication, detail oriented, good social skills, responsibility, team player, respect, humility, willing to ask for help, passionate about what they are doing, consistently looks at the bigger picture, and flexibility.

When working with animals or people, once the right motivation is found either can be caused to change their behavior. Animals don't understand as much as humans but both respond to reinforcement and appropriate motivations. People understand the future. Both learn when having fun. Set them up to succeed, have positive attitude, communicate clearly, start small and simple and work up to more complex behaviors. The principles are the same, but animals don't play mind games or have

hidden agendas. People are more complex and sometimes take more ingenuity.

Summary

It appears that there is a strong correlation between animal training and great leadership. Both emphasize the importance of having relationships and positive reinforcement for achievements. What does that mean for those aspiring to great leadership? Are humans simply overgrown animals? Should we treat everyone as an animal and reward them with treats for good behavior? People are more complicated and often have hidden agendas. People can communicate in a similar language and can potentially comprehend messages quicker and accomplish goals with greater understanding. Perhaps the importance of studying animal training techniques is that it can give us a greater understanding of the process of learning. It can provide potential insights as to techniques that produce positive results when dealing with humans as well.

Leadership is a challenge. It is a process of having a vision, a goal and communicating that clearly to followers. It is a process of enlisting the support and commitment of those followers to achieve the goal. This is done through communication, interaction, motivation, rewards, small-wins, respect, trust and empowerment (Kouzes & Posner, 2003).

Ultimately, all of this information points to the importance of relationship-based interactions, with patience, trust and respect producing high performance, while fear produces low and/or negative performance. More research is needed to

show the impact of utilization of animal training principles in the business world, as well as to determine if there is benefit to exposing leaders to the animals themselves. With more interest in relationship-based leadership and the increased need for higher productivity, this is an excellent time for leaders to realize that often, animals are treated better than employees and it is time to change how employees are treated.

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Table 1

Animal Trainers Interviewed in 2004

Kim Caldwell	Lead Animal Trainer	San Diego Wild Animal Park
Jennifer Shields	Lead Animal Trainer	San Diego Wild Animal Park
John Puffer	Animal Trainer	San Diego Wild Animal Park
Janet Ramsay	Animal Trainer	San Diego Wild Animal Park
Kim Lemier	Animal Trainer	San Diego Wild Animal Park
Susie Ekard	Animal Training Manager	San Diego Wild Animal Park
Gary Priest	Curator	Zoological Society of San Diego
Carol Otjens	Animal Trainer	San Diego Zoo
Kristi Dovich	Manager	San Diego Zoo
Carlee S. Robinson	Sr. Animal Trainer	San Diego Zoo
Rickey Kinley	Animal Trainer	Cincinnati Zoo

THE GAMES PEOPLE PLAY: ACTIVITY-BASED LEARNING TO ENHANCE BEHAVIORAL HUSBANDRY SKILLS

Michelle Skurski¹ and Angi Millwood², Disney's Animal Kingdom¹ and Natural Encounters², Inc.



Staff Training

The significance of staff training cannot be overstated; it is one of the most important components in the growth and development of a successful behavioral husbandry program. As behavioral husbandry programs develop and grow throughout zoological facilities, as they become an integral part of animal welfare and care, the need for appropriate staff training in this evolving field will escalate. It is then our responsibility to meet this new challenge.

Many zoos and aquariums have implemented or begun to implement animal training and/or enrichment into their daily routines. How do these institutions formally train their staff for these additional responsibilities? Often, for those institutions that have made the effort to better educate their staff, employee training consists of a short lecture on animal training and enrichment basics, limited one-on-one coaching, and perhaps the use of a mentor for more consistent guidance. For many institutions, the only behavioral husbandry education provided is through on-the-job learning due to time constraints and lack of expertise available in the areas of animal training and enrichment management. We would like to suggest a few additional supplements to these more traditional staff training methods. When combined, these educational components can create an

experience that is both entertaining and informative.

With this in mind, the Behavioral Husbandry Activity Guide was conceived. It is our hope that the activities contained within this guide (attached) will provide an ongoing resource for individuals and institutions to use in a variety of capacities with regard to enhancing their skills in the subjects of animal training and enrichment.

Adult Learners

An important factor we had to consider in creating an educational tool for zoological staff is how adults learn. Educating adults, as compared to children, can be a challenging undertaking. Too often, we take for granted that our subjects want to learn, that they are eager for our assistance, and that they feel comfortable with the changes to their routine that we are asking of or imposing upon them. That is not necessarily the case. It's important to recognize, however, that what looks like resistance might actually be fear or discomfort with learning a new skill.

Sometimes, asking an adult who has been performing well at their job for a number of years, to step outside of their comfort zone to learn to do their job in a new way, can be quite intimidating. It's possible that the person's perception or response to being asked to do their job in a new

way may seem dismissive of their current contribution or work ethic. It can lead to anxiety, lack of confidence, and in extreme cases, severe apathy at work. To add to a learner's frustration, much of the terminology and jargon in animal training can seem impossible to grasp and with little practical application to back it up, can be even more challenging to retain.

Behavioral Husbandry Activity Guide

Discussing subjects like animal training is difficult for some people. Egos can get involved and people can become uptight or defensive. The Behavioral Husbandry Activity Guide is a compilation of activities centered on animal training and enrichment with the following goals in mind:

- Encourage better discussions and clearer communication among team members around the subjects of animal training and enrichment,
- Improve retention of learning theories and basic terminology,
- Increase motivation and new ideas for your animal training and enrichment programs,
- Improve employee relations through effective team building, and
- Create an environment where people are open to learn.

The guide is comprised of eighteen activities. These activities are drawn from a variety of resources.

They consist of "old standards" such as the basic training game, new and innovative versions of the training game, new renditions of the familiar bingo and trivial pursuit games, as well as some entirely new creations.

At most zoological facilities, time expenditure is an ongoing concern. It is up to each institution to determine the time allotment for staff educational activities. With this variety in mind, the Behavioral Husbandry Activity Guide contains diverse options that can be undertaken by one person, a few people, or an entire team. It also provides options that can be accomplished within a few minutes to options with a time commitment of many weeks.

Following is a complete list of the activities located within the guide. Please see attached Behavioral Husbandry Activity Guide for full descriptions.

- The Dingo Game
- The Training Challenge
- "Don't Know Much About History" Game
- The Training Game (submitted by Karen Pryor)
- The Table Training Game (submitted by Ken Ramirez)
- "Train that Behavior" (submitted by Marty Sevenich MacPhee)
- The Team Training Game
- The Animal Training Competencies
- Force Feed: Giving and Receiving Feedback After a Training Session
- "Trivial Pursuit"
- Enrichment Goal-Setting Tool
- Switching Hats Enrichment Activity
- A Movie and Popcorn
- Problem Solving Activity
- Learning to Learn Activity
- Behavioral Husbandry Awards and Contests
- Sniffy the Virtual Rat

- "You Don't Say!"

Conclusion

Excellence in behavioral husbandry takes effort. It requires educated skill just as every other facet of a keeper's responsibilities demand purposeful learning to accomplish. Imagine trying to physically restrain an oryx before being taught the proper techniques and safety guidelines or being asked to prepare a diet for a raven without knowing anything about that species' nutritional needs. Or, to take it a step further, imagine accomplishing either of those two tasks after having only read how to accomplish it, but without having any physical practice or guidance. It is the responsibility of the animal care staff, at all levels, to ensure that the needs of the animals are being met at the highest possible level. That being said, education does not have to be boring or time-intensive to be effective.

These activities have been tested in both large and small facilities including Disney's Animal Kingdom and Natural Encounters, Inc. Several of the activities have been conducted in non-US facilities as well. These activities can be especially beneficial in situations where language barriers are present. For example, playing the training game with staff that is primarily Danish speaking can help to solidify the concepts that were still hazy based solely on explanation.

In our experience, these activities provide an outstanding compliment to the more traditional method of teaching via lecture. Through these activities, adults become more engaged in the process and therefore gain a better understanding of animal training and enrichment. It is our

hope that in providing this guide to other zoos and aquariums as a reference, others will be inspired to improve the understanding of behavioral husbandry in their own zoos and aquariums and perhaps be inspired to add their own activity contributions to the list.

SETTING THEM UP TO SUCCEED: TRAINING THE TRAINER

Deana Walz and Dawn Neptune, Utah's Hogle Zoo

The application of animal training has accelerated at an extraordinary pace over the past few years. We are seeing trends at all levels, with a wide variety of animals by staff with a diverse range of training knowledge, background and experience. Over the past 5 years, we have developed a formalized Zoo-wide animal training program at Utah's Hogle Zoo. This evolution has been a learning process for keepers and animals alike.

Although training has historically been a component in a few animal areas (i.e. elephants), our hope was to develop a program that provided our entire animal care staff, from reptile to primate keeper, a greater

sense of training confidence. Our hope was to utilize a protocol that gave staff a solid, self-sustaining foundation to build upon. We recognized the need to impart new trainers with not only the technical information but the practical and problem solving skills that are essential to a proactive and successful program as well.

To accomplish this task, we developed the "New Trainer 10-Step". This process includes classroom courses, workshops, evaluation methods and most importantly, a training peer mentor program. This "10-step" process now gives new trainers a greater sense of preparedness and support to pursue their own

training goals.

This paper will discuss in detail our efforts to develop, implement, evaluate and maintain this program using the "10-step" tools, as well as future objectives for the program.

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To accomplish this task, we developed the 'New Trainer 10-Step' program. The goal of this instructional roadmap was to provide new trainers



Photo by Tim Sullivan



with a greater sense of preparedness and a supportive foundation.

Policies and Procedures

A formalized training program should start with some basic guidelines, outlining institutional policy and expectations. At UHZ, our training program addresses:

- Course requirements
- Documentation
- Communication

In addition to a specified protocol, there are a few more procedures that provide supplemental support to training staff:

- Safe training policies
- Workshop and meeting attendance
- Knowledge of animal
- Evaluation methods

THE NEW TRAINER 10 STEP

Course Requirements Orientation - Step 1:

Every new keeper is required to attend a day long New Staff Orientation. This introduces staff to a wide variety of zoo policies, including a behavioral program overview. Attendees are provided a brief review of training basics, the training protocol, resources, expectations, and an introduction to the 10-step process.

Training 101 - Step 2

It is in our Training 101 course that we expand and explore the finer details of training and operant conditioning. This instructional course is offered as a 3-part series.

In part 1, we discuss the applications and benefits of positive reinforcement based training, including but not limited to: management, enhanced husbandry and health care, staff and institutional benefits. But

the primary focus of part 1 is training terminology. We feel it is essential that prior to hands on training, we must all begin by speaking the same language.

In Part 2, we again review UHZ's training protocol highlighting our methods of documentation. We also provide trainers with a variety of beneficial resources, including recommended readings, professional organizations, websites, and listserves. The "meat" portion of this Training 101 sandwich concentrates on the how to basics of animal training. The development of a shaping plan, record keeping, consistency, and teamwork are emphasized. Additional course materials include the beneficial "10 Laws of Shaping" and motivational training tips to getting started and maintaining momentum.



Part 3 focuses on problem solving and some interactive exercises, including writing mock shaping plans and the famous training game.

Behavioral Management workshops - Step 3

As a part of our continuing education for all trainers, we offer

Behavioral Management workshops. These hands-on, practical learning opportunities help trainers fine tune their technique, expand on their developing skills and provide fun ways to refresh on terminology. We have offered a wide variety of workshops.

- Training Jeopardy and Training Bingo

Focuses primarily on terminology, promotes teamwork and can even sharpen bridge timing.

- Logging Training Sessions

Trainers watch a videotaped training session and are supplied with the shaping plan of the behavior they are observing in the session. Once the session is over, we ask staff to log the session as if they were the trainer. This opportunity encourages observational objectivity and stresses the importance of consistent crite-

ria and detailed log entries.

- P.B. & J. and Sundae Building
- Participants are asked to write up shaping plans, describing how to make a sandwich or sundae. Plans are exchanged and implemented. The resulting, entertaining errors emphasize the need for small approximations and clear, descrip-

tive steps.

Qualifying Exam - Step 4

Once keepers have completed the Training 101 courses, they are required to take a qualifying exam prior to proceeding to the next step. The purpose for the exam is to get an idea of how well they grasp the basic training concepts or if there are any portions that might need more attention or explanation. The exam consists of terminology, training concepts and methods of implementation.

Staff Support Peer Mentor Program - Step 5

Having completed the exam with an overall score of 80% or better, new trainers are paired up with a training mentor. The mentors are selected based on the following criteria:

1. Have been training at UHZ for one year or more
2. Have trained at least 3 behaviors through to establishment
3. Scored a 90% or better on the qualifying exam
4. Has supervisor's approval

Mentors and new trainers are paired according to animal experience and interest, personality, and communication styles as well as logistical convenience (scheduling, zoo area, etc.). This portion of the 10-step, modeled after Disney's Animal



Kingdom's 'New Trainer Integration Plan', is the most essential portion of trainer preparation. This comprehensive program requires training video observation, review of Zoo training documents, session observation, safety, situational problem solving, trust building, working established behaviors, and completing log entries. New trainers are given regular support and interaction throughout this process with both their mentor and their assigned Behavioral Enrichment Coordinator. Depending on how motivated the new trainer is, the process should take 3-6 months to complete. Once the Peer Mentor Program is complete, the new trainer is signed off and approved for individual training...but we're only getting started!

Documentation & Accountability Submit Paperwork - Step 6

The Behavioral Management Proposal form outlines designated species/individual animal program, specified training goals, time resources available, reinforcers and tools needed as well as any expected challenges. This document is a formalized approval process that also

aids in on-going program tracking.

The 'New Behavior Worksheet' documents the individual behavior; contact trainer, behavioral goal, bridge, reinforcement, cues criteria, and most importantly, the shaping plan. To aid in the learning process as well as insure institutional consistency, trainers are given the following guidelines:

1. Complete the plan in pencil or as a word processor document
We ask that shaping plans be prepared in this way so they can easily be changed if needed during the process.

2. Bullet point shaping steps
We implemented a behavior tracking system by assigning percentages to each step of the shaping process. This keeps the trainer more consistent in the tracking of the progress of a new behavior and provides motivational milestones of progress.

3. Clearly define outline with good description at every step

4. Specify criteria
This is also an invaluable tool in maintaining behavior quality once the behavior is established and will be worked by multiple trainers.



Follow-up and Review - Step 7

This step is the primary responsibility of the Behavioral Enrichment Coordinators. It is a compilation of various tracking methods that can serve as potential red flags, enabling proactive problem solving.

It targets:

- Shaping plan review and maintenance
- Log entry completion
- Videotaped sessions
- 1:1 consultation

This is also a required deadline when peer mentors must check in for a final follow-up with the new trainer (3 weeks after sign off). The hope is to convey an on-going support system and keep the lines of communication consistently open.

Our Animal Care Supervisors also assist in the review process by checking in with their team trainers, observing sessions and providing beneficial feedback. As some of our supervisors do not have an elaborate background in training, we have developed a helpful "Session Review Reference Sheet" for their use. This concise document targets a top 20 of common training errors



and methods of improving technique.

Progress Report - Step 8

The progress report is utilized by the Behavioral Enrichment Coordinators to track progress and or problems in each individual training program. It also allows us the opportunity to make sure that the required paperwork has been completed to the standard that is expected from our trainers. The report tracks the amount of sessions completed during a specific time frame, an average session rating, and how

far along the trainer is in the shaping process. (This is where the shaping plan percentage breakdown comes into play.) This report is given to the trainer's Animal Care Supervisor as well for additional insight on how the program or trainer is progressing. We strive to complete these reports quarterly for every trainer.

Behavioral Enrichment Checklist - Step 9

Every year, the Behavioral Enrichment Coordinators are asked to complete a Behavioral Enrichment Checklist at the time of the keepers' annual performance evaluation. The checklist reviews both enrichment and training. In the training section, we document if the keeper has completed the New Trainer 10-step, if the keeper is utilizing operant conditioning techniques appropriately and effectively, that all required paperwork set forth by the Zoo's protocol are complete and if they have attended any Behavioral Management Workshops during the year. The checklist is given to the Animal Care Supervisor and is utilized to assist in evaluation of their performance with regard to enrichment and training.



Continuing Education Advanced Training Courses - Step 10

The advanced training courses are designed for our training mentors with the intent to offer progressive learning opportunities. These trainers have been training for well over a year and have played the training game numerous times. We had to develop more complex training game scenarios as well as give them the opportunity to further develop and fine tune their training and mentoring skills. The courses we have offered are:

- Training Game: shaping chains of behaviors
- Training Game: training using capture, mimicry, baiting or successive approximation
- Communication skills: how to give/receive constructive critique and maintain professionalism
- Communication skills: styles, personalities and how to be a good listener

Future Goals

In developing this self-sustaining program, we came to the realization that the best way to learn how to train is simply by doing it. Therefore, we would like to develop more hands-on, practical training opportunities for new trainers prior to initiating their own programs. We are considering assigning new trainers to one of our free ranging chickens, turkeys or peafowl or perhaps an education rat to offer more applied training experience. This would enable work on delivery, timing and real time problem solving.

To continue this initial success of our training program, we want to offer each trainer more one on one consultation time with their assigned Behavioral Enrichment Coordinator. We also hope to involve the Animal Care Supervisors and Staff Veterinarians more in observing sessions, providing guidance, feedback and of course, reinforcement!



Conclusion

In conclusion, our goal of developing an institutional training program that provides new trainers with a greater sense of confidence and support has been realized through the use of this 10 step tool. It has provided trainers with an instructional roadmap, supportive foundation and some defined expectations. It also offers supervisory staff the means of facilitating trainer development as well as measuring trainer status and progress. As with all training, it is a fluid and ever-evolving process. We look forward to the continued progression of its growth and refinement.



DEVELOPMENT AND APPLICATION OF A BEHAVIOR PROGRAM AT A HIGH VOLUME ANIMAL SHELTER

Kelsey Williams CPDT, CABG, CDBC, Houston SPCA



The mission of the Houston SPCA is to promote commitment to and respect for all animals and to free them from suffering, abuse and exploitation. We are a large, non-profit animal shelter that admits an average of 35,000 animals annually.

The Houston SPCA is an open door shelter, accepting all animals, and we have been saving animals for over eighty years. The Houston SPCA can comfortably house six hundred small companion animals and fifty horses. We are also the only animal shelter in the gulf coast area capable of housing large exotics such as big cats, bears, and primates. A significant number of animals in shelters have a behavior that the original owners were not able to tolerate or change. Many animals find the typical shelter environment to be stressful.

Tension from other animals, noise, lower contact levels, and less exercise and attention all contribute to the behavior of the animal. The inappropriate behaviors the animals displayed prior to admission may become worse while in the shelter. A major goal of our shelter is to place animals into life long, loving homes. However, many adopters are hesi-

tant to adopt an animal with established problem behaviors. In 2004, the Houston SPCA decided that changes needed to be made to the animal behavior program in order to better accomplish our goals.



INCORPORATING TRAINING INTO HUSBANDRY IMPROVED ABYSSINIAN COLOBUS WELFARE

Dr. Vicky Melfi, Paignton Zoo Environmental Park



Zoo primate welfare is affected by many variables; these can be viewed as factors which affect the individual and those which affect the group. During this longitudinal study (> 4 years) multiple indices have been recorded on Abyssinian colobus (6.2; ranging from 18 months to 21 years old, at the beginning of the study) to investigate their welfare.

Multiple indices have been measured to study welfare issues associated with housing primates in zoos, which included an assessment of the implications of training for husbandry/veterinary tasks. Behavioural data were collected, during several observation periods (12 days) from 0800-1600, to establish activity budgets, social dominance hierarchies and colobus-human interactions. Parasite burden (*Trichuris trichuria*) was estimated as the number of eggs per gram of faeces using the

McMasters technique on individually identified faecal samples, collected daily where possible ($N > 500$).

The following was established that training, as part of husbandry, i) reduced human-animal interactions (Doubly repeated measures MANOVA: $\eta^2 = 0.3$, $F[3, 2] = 16.6$, $p < 0.001$); ii) did not significantly affect activity budget or social interactions between the colobus; iii) did enable the individual versus social administration of the antihelmintic drugs, which proved to significantly increase the



(matched pairs *t*-test, $t[7] = 3.033$, $p < 0.05$).

This study will hopefully illustrate how overlapping studies using multiple indices can improve our understanding of the zoo primate welfare.

Full paper can be found at:

Melfi V. and Thomas, S. (2005) Can training zoo-housed primates compromise their conservation? A case study using Abyssinian colobus monkey (*Colobus guereza*). *Anthrozoos*, 18(3), 304-317.



amount of drug consumed by each colobus and also lead to significantly more worms being shed post-worming

THE FEMININE SIDE OF ELEPHANT TRAINING

Shelly Nagy, Jodi Linvill and Otto Fad, Busch Gardens Tampa



Photo by Tim Sullivan

Since Busch Gardens Tampa instituted a positive-reinforcement, protected-contact elephant handling program in the summer of 2004, a herd of six Asian elephants has learned to voluntarily participate in a variety of husbandry procedures including blood draws, trunk washes, weights and foot care. Three potential breeding candidates have been conditioned to allow unrestrained and un-sedated rectal ultrasounds for reproductive assessments. Among other behaviors trained are gate desensitization and solo and group separations. All of this has been

accomplished by a predominantly female training staff. In this presentation, we will present behavior successes achieved by the uniquely female BGT elephant team in a field traditionally dominated by males.



Photo by Ricky Kinley

POSITIVE REINFORCEMENT TRAINING AND ITS IMPLICATIONS ON PHYSIOLOGICAL AND BEHAVIORAL PARAMETERS IN SQUIRREL MONKEY

A.D. Sorrells*, K. Corcoran-Gomez, R. Young, E.J. Lau, T. Owen, L. Carbone
and C.R. Roberts, University of California San Francisco

Training laboratory animals to voluntarily cooperate with research and husbandry procedures has the potential to reduce stress, improve research data and improve animal welfare. A training protocol was implemented for a basic husbandry behavior (weighing) using operant conditioning, specifically positive reinforcement techniques (PRT), in a squirrel monkey colony at UCSF. Salivary cortisol was measured to determine the physiological stress response following capture and handling for weighing under the standard operational practices and the trained procedure. Baseline values were also obtained. Vocalizations and behavioral responses were recorded and analyzed in conjunction with cortisol values. All stress related behaviors were observed during the Standard weighing procedure only, which was statistically significant compared to Baseline and the Trained procedure ($p < .0001$). Although not statistically significant, the average Standard cortisol value was higher than average Baseline and Trained values ($p > 0.05$). Dominant animals had a lower average Baseline value compared to the average value of their submissive counterparts ($p > 0.05$). The data also reflect a relationship between social rank and activation of the hypothalamic-pituitary-adrenal axis, and further suggest that social rank may influence responses to varying degrees of stimuli. Behavioral findings and average

salivary cortisol values suggest that Standard weighing procedures tend to be more stressful than Trained weighing procedures. Therefore, PRT techniques can facilitate efficient husbandry management, enhance animal welfare, and provide more reliable research models.

Promoting and improving the psychological well-being of captive animals has become more widely recognized as an integral part of daily colony management. Enrichment imparts a complex and diverse environment that provides captive animals with more behavioral opportunities, thus enhancing their lives (Carlstead, 1996; Mellen & MacPhee, 2001; Mellen & Sevenich, 1998). Husbandry training is a form of behavioral enrichment that provides cognitive stimulation to reduce boredom and increase the animals' control over their environment (Coleman, Tully, & McMillan, 2005; Laule, Bloomsmith, & Schapiro 2003; Shepherdson, 1998). Training captive animals to voluntarily participate in husbandry or veterinary procedures can decrease stress and its physiological effects (Lambeth, Hau, Perlman, & Martino, 2006; Laule et al., 2003; Reinhardt, V. 2003). This is especially important in biomedical facilities where utilizing a reliable research model is crucial, and the confounding effects of stress could reduce the validity of the research (Lambeth et al., 2006).



Animal training is a type of learning that we influence, and operant conditioning is a type of training with which the behavior is highly dependent on the consequences that follow (Laule et. al., 2003; Mellen & Ellis 1996). Operant conditioning includes two methods of reinforcement, positive and negative, to increase the probability that the target behavior will occur again (Pryor, 1999). Positive reinforcement training (PRT) rewards the animals when they perform the target behaviors, thereby promoting voluntary participation in a number of husbandry and veterinary procedures. Negative reinforcement training uses escape/avoidance of a negative stimulus (i.e. a net, hose, forced restraint) to reinforce the desired behavior, which can result in stress (Laule, et al.; McCallister, Smith, & Elwood, 2004; Pryor, 1999; Reinhardt, 2003). Negative reinforcement training was commonly used in conventional husbandry procedures due to a lack of information on the alternatives and its effectiveness. Conventional husbandry procedures for laboratory animals often require restraint, and may result in a stressful experience for both the animal and handler involved. In fact, restraint is often used to induce stress in subjects of stress physiology research (Watts & Stookey, 1999). By implementing a training program using PRT, such procedures could be performed in a less stressful manner using voluntary cooperation from the animals. This

study measured the physiological and behavioral responses to handling, an acute stressor, during routine weighing procedures by measuring salivary cortisol, and documenting vocalizations and behavior during restraint.

Exposure to a physical or social stressor will result in a cascade of biological events, including increased activity of the hypothalamic-pituitary-adrenal (HPA) axis. Cortisol is the end product that is released by the activation of the HPA axis (Moberg, 2000), which makes cortisol a useful marker for stress (McCallister, Smith, & Elwood, 2004). Plasma cortisol is typically collected to quantify the stress response in primates (Coe, et al., 1978; Reinhardt et al., 1990; Saltzman, Schults-Darken, Scheffler, Wegner, & Abbott, 1994.). However, blood collection in itself can induce the stress response and mask the HPA activity generated by the treatment investigated (Whitten, Brockmen, & Stavisky, 1998). Salivary cortisol reflects the unbound fraction of the hormone found in the blood (Fuchs, Kirschbaum, Benisch, & Bieser, 1997; Kirschbaum & Hellhammer, 1994). Salivary cortisol has become a popular measure of quantifying stress as a non-invasive alternative, and has been noted as being a more satisfactory replacement for blood and urine due to its frequency and ease of collection (McKinley, Buchanan-Smith, Bassett, & Morris, 2003). Salivary free cortisol levels have been investigated in squirrel monkeys with great success, indicating its viability in cortisol determination using repeated sampling (Fuchs, et al., 1997; Lutz, Tiefenbacher, Jorgensen, Meyer, & Novak, 2000; Tiefenbacher, Lee, Meyer, & Speelman, 2003).

Ultimately, the main objective of this study was to refine husbandry techniques for animals used in biomedical research, reducing stress to animals and handlers and making animals more reliable research models.

Methods

Subjects

The subjects of this study were 7 captive bred squirrel monkeys, Gothic arch type (*Saimiri sciureus*), comprised of 2 males and 5 females. Their ages range from 5 to 10 years old. The animals were not participating in a study at the time of data collection. Each animal served as its own control. Dominance ranking was determined utilizing behavioral tests described by Coe, Smith, & Levine, (1985), which included food competition and vertical height occupancy.

Housing

The animals were pair or trio housed in isosexual caging. All animals coexisted in the same room. The dimensions of each wire mesh cage were 7'x2'x2'. These cages were composed of two individual cages connected by a plexi-glass tunnel. Cages were fitted with various hanging toys, feeders and perches.

Saliva Collection

The saliva collection device was a braided cotton dental rope. A previous study indicated that cotton materials had no interference effects on salivary cortisol results (Shirtcliff, Granger, Schwartz, & Curran 2001). A clicker was used as the conditioned reinforcer, and the rewards included a variety of unsalted nut or seed pieces. Sweet or acidic foods were not used because they could compromise assay per-

formance (Salimetrics LLC, 2006). All saliva samples were collected between 14:00 and 15:00 hours to reduce significant diurnal variations (Coe & Levine 1995), and to accommodate personnel constraints. Baseline values were obtained once the subjects reliably performed the goal behavior (chewing on rope for extended period). Saliva was collected using the methods stated below 15 minutes after the animal was returned to the home cage. This time frame was used to reflect the peak HPA axis activation following the acute stressor when measuring salivary cortisol (Cross, Pines, & Rogers 2003; Salimetrics LLC, 2006). Saturated dental ropes were placed in centrifuge tubes and frozen until the day of the assay.

Standard Weighing

Standard handling procedures for routine weighing was performed. Using a net and leather gloves, this method requires hand catching the animals in the home cage, putting the animal inside a lidded plastic weighing container (nest box), placing the container on scale for weight, and then releasing the animal back into the home cage. Animals receive a peanut following this procedure. Vocalizations and behavioral responses were recorded through direct observations, including bites to gloved handler, defecation, and struggle attempts. Struggling while restrained in hand was scored 1-5, with 5 being the hardest and 1 equivalent to not struggling at all. Defecating and producing distress calls were given a 0 for absence and 1 for being present during the procedure. The number of bites to handler's glove was also recorded. Saliva was collected 15 minutes after the animal was returned to their home cage.

Positive Reinforcement Techniques (PRT)

Cotton Rope Acclimation/Saliva Collection

The subjects were acclimated to the cotton rope and trained to relinquish saliva using successive approximations. The shaping plan is as follows:

- Acclimation to novel item: Cotton rope positioned at the front of the cage and the subjects were reinforced for any cotton rope contact.
- Peanut butter was smeared on the end of the cotton rope to encourage only oral contact. They were then reinforced for any oral contact without the use of peanut butter on rope.
- Reinforced for increasing period of time chewing/sucking on cotton rope.

Target Training

The subjects were target trained using the following shaping plan:

- Specific targets (children's toys) were used for each individual, hung on the front of the cage, and the subjects were encouraged to move to the target.
- Reinforced for staying and touching the target for increasing period of time.

Nestbox/Weight Training

The shaping plan for nestbox training is as follows:

- Individual's target was used to encourage the animal to the nestbox.
- Reinforced for calmly sitting in

nestbox for increasing period of time.

- Slowly closed the sliding door in small increments and reinforced for staying in nestbox.
- Increased the advancement of the door until the door was closed and reinforced for calmly staying in the closed nestbox.
- Slowly removed the nestbox from home cage in small increments and reinforced for calmly sitting in nestbox.
- Placed nestbox on scale for weighing, large reward for achievement.

Assay

The assays were performed using a Salimetrics LLC (Pennsylvania, USA) High Sensitivity Expanded Range Salivary Cortisol Enzyme Immunoassay kit. The correlation between saliva and serum was highly significant ($p < .0001$). On the day of the assay, the saliva samples were thawed, vortexed and centrifuged. The clear portion of the sample was transferred to cryogenic vials and diluted to allow for duplicity.

Optical density was read on a standard plate reader at 450 nm. The cortisol concentrations of the controls and

unknowns were determined using interpolation.

Procedure

First the animals were acclimated to the cotton rope and trained to relinquish saliva reliably. Next, a

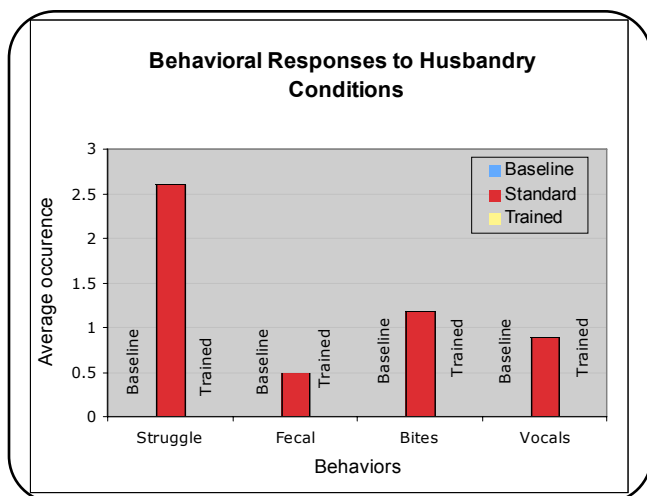
saliva sample was collected for each animal to establish individual baseline cortisol values. Each animal was then weighed using the Standard Weighing method after which the behavioral data and a saliva sample was collected. Finally, a weight was obtained for each animal using the trained behaviors (Nestbox/Weight Training) after which behavioral data and a saliva sample was collected.

Results

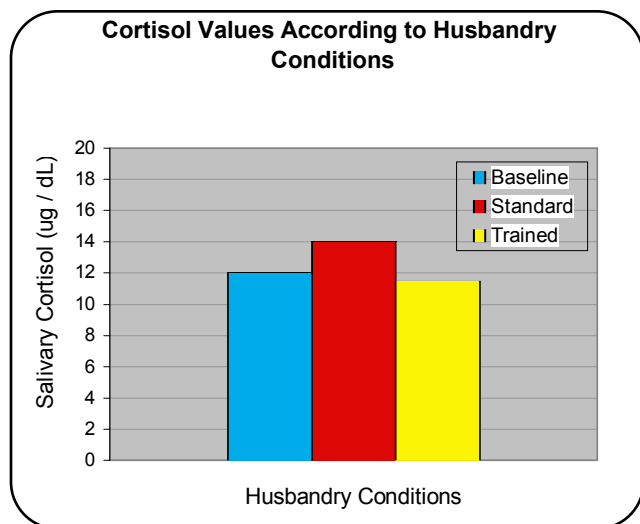
Data were analyzed using a repeated measures design in Mixed Models of SAS.

All stress related behaviors were observed during the Standard weighing procedure only, which was statistically significant compared to Baseline and the Trained procedure (Figure 1, $p < .0001$). These behaviors were also directly correlated with cortisol, that is, as cortisol increased, the frequency or presence of stress-related behaviors tended to increase. Handling time averaged 10 minutes for each animal. This duration appears long because it averages the time spent capturing animals who escaped during the process. The average number of escapes per weighing sessions was 0.75.

Although not statistically significant, the average Standard cortisol value was higher than Baseline and Trained values (Figure 2, $p > .05$). Dominant animals tended to hold lower Baseline values on average than their submissive counterparts (Figure 3, $p > .05$). The dominant male produced a higher Trained value when compared to the Standard value ($p > .05$). Alternatively, dominant females did not exhibit a similar trend. In the dyadic group (Group A), both



females had a decrease in Trained cortisol values when compared to their Standard and Baseline values. In the triadic group (Group B), the pattern of the dominant female's values resemble those observed in Group A, whereas the beta and subordinate females' values do not reflect the same pattern.



Discussion

Repeated exposure to conventional husbandry techniques may intensify the physiological effects of acute stress, thereby affecting the reliability and validity of scientific results (Coleman, et al., 2005; Lambeth, et al., 2003; Reinhardt, 2003). By using PRT techniques, the monkeys in this study were weighed voluntarily and exhibited no overt signs of distress. Although not statistically significant, the average Standard weigh cortisol value was higher than both Baseline and Trained values. Behaviors were also directly correlated with cortisol, meaning that as cortisol increased, so did frequency and presence of stress related behaviors.

A study conducted by Mendoza, Coe, Lowe., and Levine (1979) reported that baseline plasma corti-

sol values in dyadic groups of male squirrel monkeys were higher in subordinate males than the dominant males. Females were then introduced to the group, which subsequently elicited an increase in plasma cortisol by the dominant male, and a decrease in plasma cortisol, by the subordinate male. Our study showed a similar response in relation to training. The dominant male

showed an increase in trained cortisol, and the subordinate male showed a decrease in trained cortisol, when compared to their own baseline and standard cortisol levels. The AZA (2003)

lists food,

warmth, water and sex as being primary reinforcers. Since this PRT technique utilized primary reinforcers as rewards, it is possible that the males in both studies were anticipating a reinforcing event, thus similar HPA responses were elicited. Similar results were observed in the preliminary phase of this project (unpublished data). Baseline values were lost in the preliminary phase; however dominant males in a dyadic group also showed an increase in trained salivary cortisol levels when compared to standard salivary cortisol levels. The salivary cortisol levels of the females in this study did not reflect a similar pattern. The dyadic females (Group A) in this study both showed similar trends to those observed with the subordinate male. This could have been a result of frequent social challenges unique to this pair. Both females were often

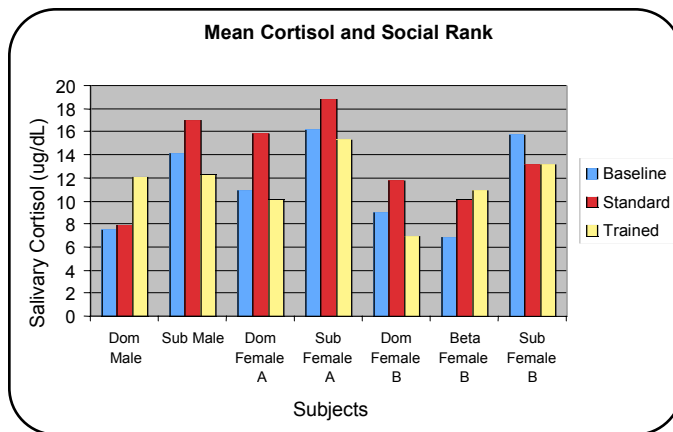
observed actively pursuing dominant status (displacements, grabs, food competition, vertical positioning), suggesting the structure was no longer stable. Such social stress could have exacerbated the stress response in the Standard condition. Alternatively, the triadic group (Group B) showed trends similar to the female group in the preliminary phase (unpublished data). In both phases, the dominant female showed a decrease in trained cortisol when compared to standard, and the subordinate females showed either an increase or no change in trained cortisol. These findings differ from data published by Gonzalez, Coe C.L., & Levine (1982), which indicated that in group housed female squirrel monkeys, higher ranking females have higher hormone levels; however, both studies demonstrate that there is a relationship between social rank and cortisol.

There was high intra and inter-variability amongst individuals in both the preliminary phase and the subsequent phase of the project reported here; however, both phases did show similar patterns in response to the acute stressor (standard weighing procedures) and training. The values obtained in this study reflect similar concentrations of salivary cortisol in squirrel monkeys from other laboratories (Tiefenbacher, et al., 2003). In both phases, standard cortisol levels were not statistically significantly higher than baseline or trained. This could be attributed to the squirrel monkeys not perceiving the standard weighing procedure as stressful as their behavior suggested. The subjects had been weighed on a monthly basis using the standard weighing procedure for 2 years prior to data collection. Although their behaviors were consistent with continued stress reac-

tions, the animals may have been acclimating physiologically to the standard procedure during that time. In our study, the average standard cortisol was 14 (ug/dl), when challenged with ACTH in Tiefenbacher et al., (2003), cortisol increased to approximately 40 (ug/dl) at 15 minutes post-treatment. Further investigation using a larger sample size and longer study duration is needed. Likewise, sampling past 15 minutes post-stressor should be performed. In conclusion, this study demonstrates that salivary cortisol can be used to monitor acute changes in free cortisol levels, including responses to a variety of environmental stimuli. Similar responses to stimuli have been observed using plasma cortisol, however, salivary cortisol provides a non-invasive alternative that can be collected at regular intervals and is easily trained. These data also reflect a relationship between social rank and HPA activity, and further suggest that social rank may influence responses to varying degrees of stimuli. Behavioral findings and average salivary cortisol values indicate that Standard weighing procedures tend to be more stressful than the Trained weighing procedures. Therefore, PRT techniques can facilitate efficient husbandry management and enhance animal welfare, thereby providing more reliable research models.

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SO YOU RUN A CHUTE, WHAT NEXT? TRAINING GROUP- HOUSED MACAQUES

Cathryn S Coke* and Don Bradford, Panther Tracks Learning Center- Primate Products, Inc. Immokalee, FL

The main tenet of training is that one trained behavior builds upon the next in succession. This principle was applied to the group-housed macaques (Macaca mulatta & M. fascicularis) at Panther Tracks Learning Center in southwest Florida. We began by training the macaques to run a chute with the end point of creating 'willing workers' that would perform a variety of behaviors on cue, besides entering the chute for routine husbandry procedures. Once the macaques were chute trained we shaped them to participate in various husbandry and veterinary procedures including presenting a body part for injection, sitting on a scale, and entering a carrier. The possible behaviors that can be trained are only limited by the chute design. We designed our chutes with the ability to create several smaller compartments within the chute with removable opaque guillotine doors, so the macaques can then be trained one-on-one as they would be if they were single-housed, while still receiving the benefits of being group-housed. Utilizing chutes in this manner creates 'willing workers' that actively participate in their environment, therefore increasing their physiological and psychological well-being.

At Primate Products, Inc. and Panther Tracks Learning Center, training is an integral part of our applied behavior program, which

integrates enrichment and behavioral management with training. And upon our latest annual review last year we decided to increase our formal training program by including more of our group-housed animals by chute training all of the groups at PTLC- about 88 pens (or 1500 individual animals). At the start of the project we randomly chose which groups got the first chutes- with no goal other than to have the animals reliably run the chutes for routine husbandry and veterinary procedures. But once we got started we realized what an amazing opportunity we had. We could now more easily train out group-housed macaques to be 'willing workers'. We have since begun creating long-term training plans for our long-term boarding animals along with breeding and donated and/or retired research groups.

Background

Panther Tracks Learning Center is located in southwest Florida in a subtropical climate that most closely mimics that of the country of origin (SE Asia) of the two macaque species we hold (Macaca mulatta and M. fascicularis). All animals are group-housed outdoors year-round. Currently our population is around 1500 animals which are assembled into approximately 88 groups. The group size ranges from 4-30 animals per pen and most groups are same



sex, same age class, although we do have several breeding groups.

Our chutes are designed to be permanently attached to the animals' pens. They are 18" deep X 24" high X 24' long and were constructed from chain link fencing attached to a pipe frame. There are 2-3 'workstations' per chute, where animals can be removed from the chute. In the areas directly before each 'workstation', there is room for a scale to be slid in place. It is at these 'workstations' where a majority of the training occurs, as an animal can be separated from its group temporarily for a one-on-one training session. The 'workstations' are created by sliding in an opaque guillotine door on either side on the animal. This all offers the animal some privacy from the rest of its group during the training session. The 'workstations' can also be employed to separate animals within the chute, to reduce aggression.

When we embarked upon our mission to chute train all group-housed macaques at Panther Tracks Learning Center, we created a formal training plan that was based on positive reinforcement training (PRT) techniques. We began to train our first group using only PRT, but soon found it was too costly labor and time wise. So we decided to employ negative reinforcement training (NRT) techniques to assist in the chute training process for the beginning stages and finish with PRT techniques. Our chute training

plan requires 2 extra husbandry staff members to assist in the training process along with the trainer and the pair assigned to the group. We begin by opening the chute entry door and giving the cue (banging lock), and the animals are reinforced for entering the chute with a high commodity reinforcer. If the animals do not enter the chute after 1 minute, the 'helpers' enter the pen wearing leather catch gloves and carrying nets (negative reinforcers) and slowly herd the group into the chute. The exit door is open so that the animals are run through the chute to become desensitized to it. We repeat this process at least 5 times and on the final run, we leave the animals in the chute while the assigned husbandry staff person cleans and feeds the pen. The group is released from the pen when the husbandry is finished and the animals receive a 'jackpot' in their pen. The opaque guillotine doors may be inserted in the chute to separate animals when there is aggression during the final stage of the chute training.

Training in Progress... case studies:

Currently we are working with four groups; 2 breeding groups (rhesus and long-tailed macaque) and 2 same sex groups (long-tailed macaque female and rhesus adult male). Training sessions occur 2-3 times per week and last about 30-45 minutes per group, not individual. All of this training is on-going.

The first group began training is a rhesus breeding group (n= 9). We are using PRT techniques to train the animals to complete the following behaviors: target, rest on scale, cooperative feeding of medications, present for an injections and a voluntary

blood draw (only 2 animals). There are two animals in this group that are on a protocol that requires a monthly blood draw. Our long term goal is allow inspection of pregnant females and their resulting offspring, the treatment of animals with chronic conditions while they remain group-housed, and finally, to allow a monthly voluntary blood draw. These goals aid in both routine and non-routine colony management and veterinary procedures.

The second group we are currently training is an all female group of long-tailed macaques (n= 11). This group is a mixed age group- juveniles to adults. We are using PRT techniques to train the following behaviors: target, rest on scale, present for injection and cooperative feeding of medications. The long-term goal for this group is to allow the treatment of individual animals for chronic conditions and to aid in semi-annual testing and physicals. There are two females in this group the require doses of Pepto-Bismol to help control their bouts of diarrhea. The third group we are actively working with is a rhesus adult male group (n= 7). This group is being trained using PRT techniques to aid in routine husbandry and veterinary procedures along with a research protocol where the animals are bled monthly. Unfortunately due to the need for the blood to be drawn aseptically, we can not train for voluntary samples. Further, this male rhesus group also has a history of behavioral problems with the husbandry staff. The group will not allow the removal of their structural enrichment items for rotation, so the training allows the husbandry to remove and rotate the enrichment items.

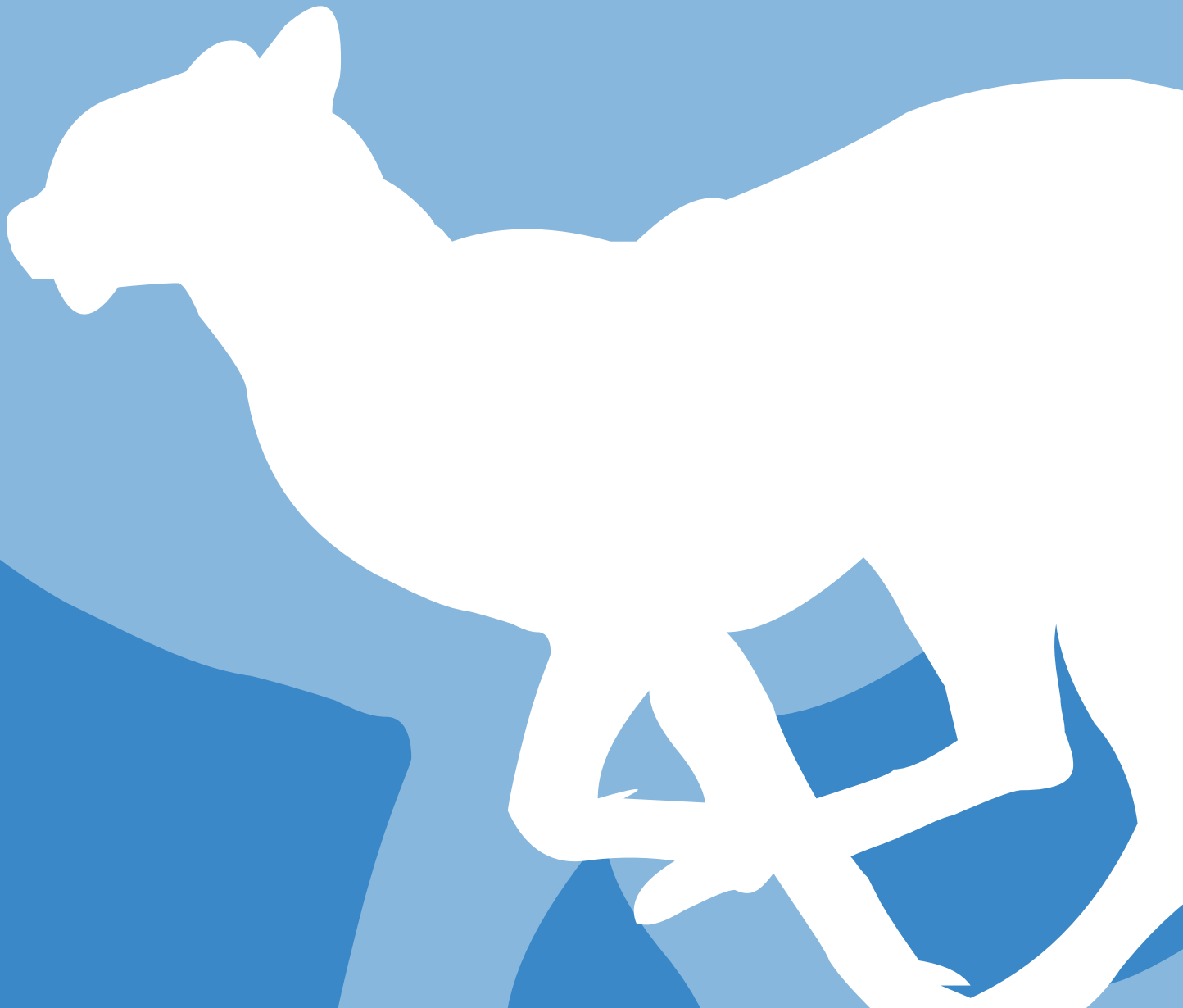
The final group we are training consists of a Long-tailed macaque breeding group (n= 15). We are

working to get all group members to target, rest on a scale, present body parts when asked, allow manipulation of body part i.e.- palpating the uterus, and finally, to present for injection. The early stages are to help the staff observe the pregnant females and the resulting offspring-sexing and doing health checks. We are hoping as the offspring mature they will learn by observation to run the chute. We have not progressed to palpating the pregnant females yet, but we are getting more positive human interactions which are allowing the mothers and infants to become more comfortable with us, so we can more closely inspect them. We also are working with the alpha male to allow "his females" to participate in the training through cooperative feeding techniques.

Conclusions and Where we go from here

In the end our training goals have expanded from basic chute training to more complex and long-ranging goals. We want to decrease the physical and chemical restraint of non-human primates and continue with our usage of formal training plans for our long-term boarding animals. Also, we want to encourage other facilities to take advantage of chutes or tunnels as more than a way to shift animals; think of them as a "building block behavior". This project along with future projects aims to increase the slowly growing number of animals group-housed in biomedical research and dispel the myth that you can't group-housed animals on research protocols. And finally we want to increase the psychological and physical well-being of captive non-human primates. And how is all of this possible....through training.

Posters



ANIMAL ENRICHMENT = GUEST ENRICHMENT

Kirstin Anderson Hansen¹, Lene Gilberg¹,
Katharine V. H. Petersen² and Charlotte Bie Thøstesen²
Odense Zoo¹ University of Southern Denmark²

As keepers and trainers, we know that behaviour management and training is enriching and motivating for the animals under our care and improves their quality of life. We know also that it is enriching for the keepers, but what about the guests? What about the visitors that come to our parks and facilities everyday? Do they get anything from it? What is their impression of animal training? What is their perception? Is it good or bad for the animals? At Odense Zoo, we decided to ask our guests what they thought of animal training and any effect it may have had on their visit. A survey was conducted in October 2005 asking our guests these questions, and the results were surprising.

Methods

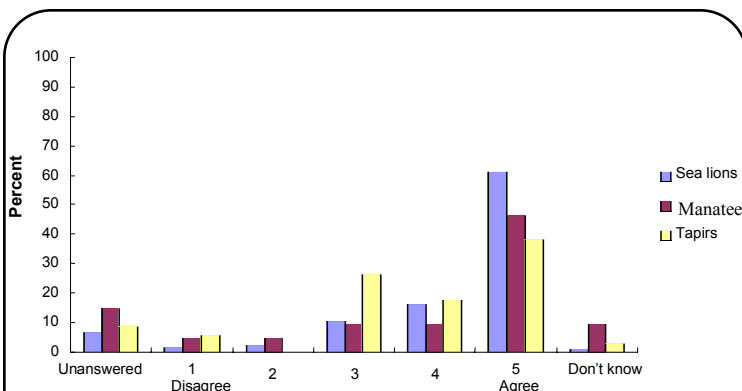
The survey took place from October 17 -21, 2005, a Danish autumn holiday week, and occurred during public training presentations. During these training sessions, a narrator introduces the animal, along with general information on training methods, and the purpose and importance of it. Immediately following the presentation, guests were asked to fill out a questionnaire with a series of questions ranging from personal information to what did they learn from the training presentations. There was also the possibility to give personal comments (some of which can be seen

here in this paper).

A total of 196 questionnaires were completed; 121 for sea lion training presentations, 34 for tapir training presentations and 41 for manatee training presentations. The sea lion training presentation is always a popular attraction at the zoo, which can explain the higher number of surveys filled out in comparison with the number of surveys for tapir and manatee presentations. The tapir training was a first-time attraction during these dates and even though manatee training has existed for a while, there is very limited guest visibility.

Results

1. Do you perceive training as a form of entertainment for the guests?



Graph 1 indicates that the public does perceive training as a form of entertainment, especially with the sea lions. This could be attributed to the guest's expectations and assumptions when seeing sea lions in connection with the behaviours they see, for example jumps, playing catch, etc. It should also be noted that there is a tendency to not perceive tapir and manatee presentations as a form of entertainment.

2. Do you perceive training as a form of education for the guests?

3. Do you perceive training as enrichment for the animals?

4. Do you perceive training as a form of fun for the keepers?

5. Do you perceive training as a better/easier means of taking care of the animals?

6. How important do you feel it is to train the animals in Odense Zoo?

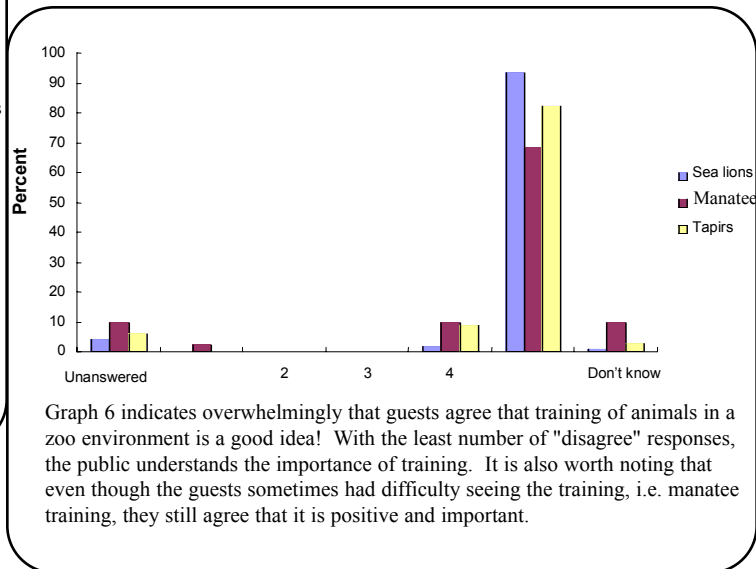
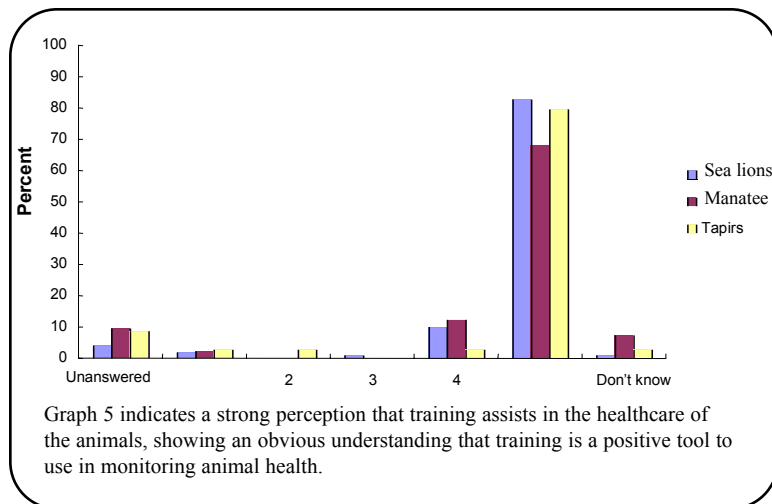
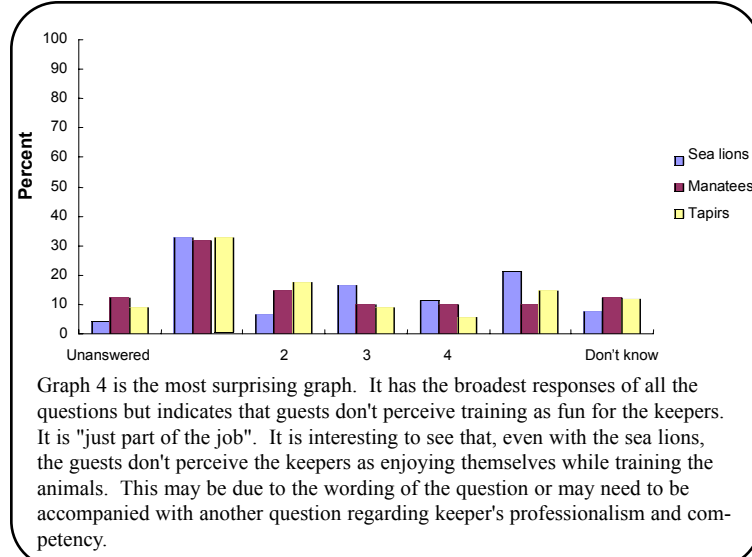
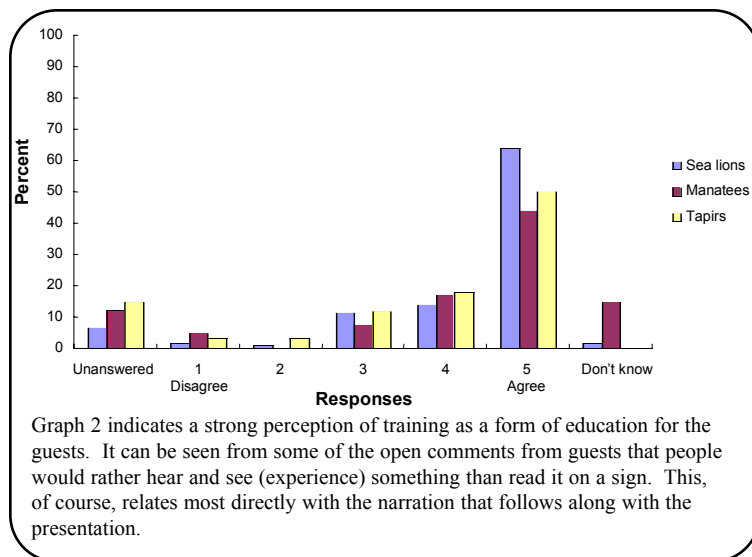
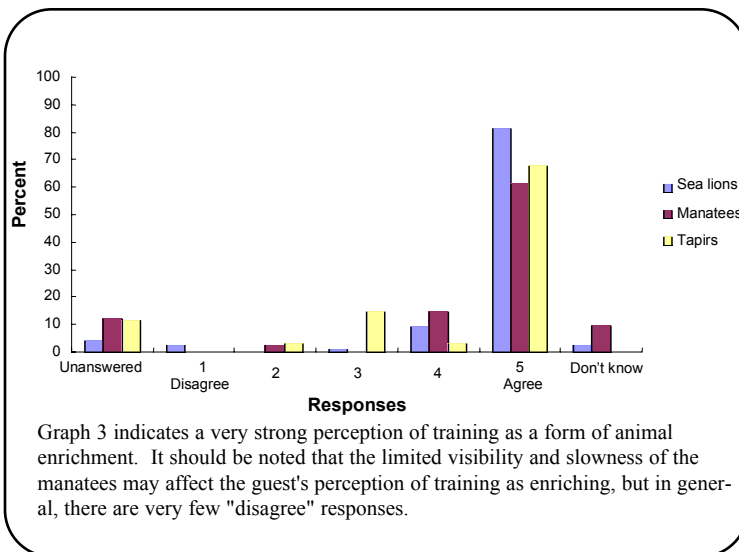
Conclusion

This survey demonstrates that the public recognizes animal training as an advantage for both the animals and the keepers. Many guests found

it interesting to see the trust that exists between the keeper and the animal and the benefit that results from it. We could also see that we need to work on having a stronger educational message, especially in our sea lion presentation. It doesn't hurt that the guests are enter-

tained as long as they leave understanding the importance and purpose of training. Overall the guests receive a total experience in observing and learning about training: it's entertaining, it's educational, they observe animal enrichment, they view a part of the keeper's day, and they leave with a stronger connection with animals.

In the future, Odense Zoo would like to conduct a similar guest survey with the focus on smaller animals; for example, coatis and red pandas, to see if the "cute" factor affects people's perception of training and of the animal.



A NEW ENCLOSURE AS ENRICHMENT FOR TWO SNOW LEPARDS (*Uncia uncia*)

Donata Grassi, Caterina Spiezio and Nicola Gaiga, Parco Natura Viva- Garda Zoological Park

*When developing enrichment programs and designing a new enriched environment it is important to look at the natural history of each species: social structure, habitat use, feeding strategy, diet, primary senses and activity cycles. Two young snow leopards (*Uncia uncia*) hosted at Parco Natura Viva-Garda Zoological Park (Italy) were moved to a new bigger and more naturalistic enclosure*

with complexity in the exhibit, which allows for climbing, leaping and jumping behaviors. The aim of this study was to evaluate how the new enclosure

could promote activity and decrease the stereotypic or abnormal behaviors. Data collection was done in two different periods: the 1st period (April - August 2003) during which the animals were in the old enclosure and the 2nd period (September - December 2003) during which the leopards were in the new enclosure. Our results show that the two subjects were significantly more active in the new enclosure by showing more foraging, exploratory and play behaviors than in the old one. Furthermore the stereotypic

behaviors such as overactivity, inactivity, pacing, head swinging and over-grooming significantly decreased in the new enclosure. In conclusion, our study underlines the importance of the environmental enrichment for the welfare of the captive animals. In particular, bigger enclosures with more naturalistic stimuli allow the individuals to show natural behaviors.



photo by Tim Sullivan

GETTING PERSONAL WITH YOUR PIGS

Cindy Gunther, Denver Zoological Foundation

Like most pig species, Red River hogs (Potamochoerus porcus) often have a violent reaction to immobilizations. Typically they will run around at the onset of the procedure, which results in scratches, abrasions, and other bodily injury. They will also flail and struggle when waking from a procedure. This has made pig immobilizations extremely stressful and dangerous for all involved. Many facilities that house this species either do not have an extensive training program for them, and/or have chosen to adopt a protected contact protocol. At the Denver zoo, we have decided to use a hands-on approach. During the presentation, we will demonstrate many of the benefits we have found using this method, including the use of tactile reinforcement to train injections and blood draw behaviors. We have now been able to conduct entire physical examinations without the use of anesthetic drugs. The success of this approach eliminated the need for most immobilizations, and has increased the level of trust between animals and keepers. It has also improved the wellbeing of our sounder by making examinations much safer and less stressful for veterinarian, keeper and animal.

At the Denver Zoological Gardens our sounder consists of 7.4 Red River Hogs (*Potamochoerus porcus*): the parents and three sets of offspring. All were housed as one

large sounder until the oldest males became sexually mature. Our sounder was separated into two groups of 3.4 and 4.0. We have two barns available with a total of seven separate stalls. One barn houses the four males in separate stalls. The family sounder has three stalls for 3.4 pigs. We have a free contact program with the Red River Hogs and have found many benefits with this program. For example, we began a pre-shipment training program because we knew most of the offspring would be sent to other institutions. We have also been able to supplement the runt of a litter. Lastly, we are able to perform routine exams on the pigs.

The keepers began training the pigs that were the most tractable. We started by touching them with a blunted needle and slowly increased the pressure. The pigs would also be pinched on their front leg or back leg where the blood draw would be taken. Each pig has a preference to either the front or the back leg. Some even had a side preference to what side they laid down on. When the behavior became routine, we introduced the veterinarian. Once the pigs were comfortable with her, we began with a blood draw. Initially a numbing cream was used, but we found that the pigs did just as well without it. Our first try was with Roux, a male from the 4.0 group. We began by asking Roux to lie down. Although three injection attempts were required, Roux

remained positioned and we were able to draw enough blood for the pre-shipment tests. The veterinarian then held off his leg until the bleeding stopped, Roux was continuously rubbed by the keeper throughout the entire procedure. After about four minutes, we finally released Roux from his position and rewarded him with mixed nuts.

For the pre-shipment exam, the pigs needed three separate shots. Using our technique, we were able to give Roux all of them. First, Roux got into the down position. Then, one keeper gave continuous tactile reinforcement, while the veterinarian gave the injection. We learned that some of the pigs would jerk at the initial prick, but did not get up. The veterinarian tried to inject as the pig jerked, the needle broke; thus we found that if inserted the needle, let the pig calm down, then inject the shot, we decreased the occurrence of needles breaking, which was a major breakthrough. Because our pigs did not get up during an injection, there was no need to rush. Roux accepted all three of his shots this way which meant that he did not need to have a pre-shipment immobilization.

The biggest problem we had was the length of time the pig would stay in the down position. They never had a problem with being poked with a needle. If they didn't stay down, we could not finish the behavior. If our pigs stayed down until released, they received mixed nuts, which is the only time they received

them. One time we gave a pig mixed nuts for accepting a shot, but we had not released him. After that he would get up in the middle of the procedure. We eventually fixed our mistake, but it was a tough lesson to learn.

There are many other benefits of a free contact program. We are able to supplement the runt of a litter with formula while keeping him in with the litter which worked out great. He did not become imprinted on people but rather his own species. With our program we are also able to regularly get weights, temperatures and ultrasounds. Another benefit is that we are able to thoroughly examine the Red River Hogs for any cuts or wounds. We crate train our pigs everyday as well. Lastly, we have a keeper demonstration for the public where we interact with the pigs. This gives us the opportunity to educate the public in a positive way on our training program.

Our Red River Hog program has really been a positive experience for both the pigs and the keepers. The pigs have been very tolerant of all the poking and prodding that is done. In fact, they really enjoy the time we spend with them. They often have a group play session after we have finished our training session. We have reduced the stress on the pigs (and us) for pre-shipment exams. Before this program the pigs would have stressful immobilizations. They would be struggling when they went down and also when they came out of it. Now, most of the pigs do not even have to be immobilized and those that do, have a much more relaxed immobilization. We feel that we have been able to enrich the lives of our animals. Our program is no where near perfect and we are still continuously learning new things. We like to think of it as a work in

progress but are proud of the progress we've made so far.



THE SHAPE OF ENRICHMENT: A VALUABLE RESOURCE FOR ANIMAL CARE PROFESSIONALS

THE
SHAPE
OF ENRICHMENT

Beth Hammond, The Shape of Enrichment

The Shape of Enrichment is a private, not-for-profit educational organization dedicated to encouraging environmental enrichment for all captive animals. To achieve our goals, we publish The Shape of Enrichment, a quarterly newsletter focused on the exchange of enrichment ideas for animal caretakers. Anyone may write and submit an article. There is a review process and usually almost every article is accepted. The subscription price is \$16.00 USD per year. We also maintain, with the support of AAZK, enrichment and training video libraries on 5 continents. The available titles are published in the Shape of Enrichment and an abbreviated list is on the Shape of Enrichment website, www.enrichment.org. Anyone can request to borrow up to three titles at one time free of charge. The videos are mailed out and the borrower can keep them up to 1 month. The only cost to the borrower is to mail the videos back to the library. The Shape of Enrichment team also conducts environmental enrichment and husbandry training workshops. We have traveled to Asia, South America and Africa to engage and encourage keepers to create, administer and evaluate environmental enrichment. We volunteer our time since we all feel strongly committed to sharing and encouraging environmental enrichment. The Shape of Enrichment has many resources available for animal care professionals who want to

learn, share and encourage others to strive for high quality animal welfare.

The Shape of Enrichment, Inc. was founded in 1991 by Valerie Hare and Karen Worley with the belief that enrichment is a key component to high-quality animal care. They realized there was no forum for keepers to exchange ideas, so they founded The Shape of Enrichment, Inc. Since 1992, The Shape of Enrichment has produced a quarterly publication focusing on environmental enrichment for captive animals. This international forum includes feature articles as well as regular columns on browse, feeding programs, behavior, and enclosure design. The Challenges column allows readers to consult subject experts as needed.

A subscription is \$16.00 USD per year. English speaking professionals in developing countries are eligible to receive a complimentary subscription upon request. To subscribe, go to: <http://www.enrichment.org/subscribe.html>. This publication has a worldwide circulation reaching over 40 countries!

The Shape of Enrichment and The American Association of Zoo Keepers jointly maintain an enrichment and training video library, <http://www.enrichment.org/video.html>. Anyone can request to borrow up to three tapes at a time free of charge. Titles range from enrichment for bats to elephants and even

octopus! There are also tapes on training for primates, carnivores and birds. The Shape of Enrichment also supports four satellite video libraries, one in Europe, Australia, South America and the newest library in South Africa!

The Shape of Enrichment offers Enrichment and Training Workshops free of charge in developing countries. Our experienced workshop instructors donate their time to reduce workshop costs. We ask that the host institution cover the "on the ground" expenses: lodging, food, and transportation while at the workshop. If needed, The Shape of Enrichment can assist with these costs as well. The content and duration of the workshops are tailored to an institution's individual needs. From the basics of enrichment to practicals to encouraging empathy, a Shape workshop is fun, memorable and effective.

A MIND OF A MOLLUSK: BEHAVIORAL MANAGEMENT OF GIANT PACIFIC OCTOPUS AT THE NATIONAL AQUARIUM IN BALTIMORE

Heidi Hellmuth* and Jaime Ramsay
National Aquarium in Baltimore

The National Aquarium in Baltimore (Aquarium) has exhibited the giant Pacific octopus (Enteroctopus dofleini) since its opening in 1981. Behavior management through environmental enrichment and training husbandry behaviors has been a part of the care of this species for many years. However, the lack of a documented behavior management plan has resulted in some information and knowledge about these animals' behavior being lost when staff members leave or change assignments. In late 2005, two wild-caught, female giant Pacific octopuses arrived at the Aquarium, giving staff the opportunity to develop and implement a systematic and documented behavior management plan. Behavioral differences between the two octopuses, and the fact that one is housed on-exhibit and the other behind-the-scenes, provides the chance to learn about the similarities and differences in how the animals respond and react to the training and enrichment programs and strategies.

What is an Octopus?

Octopuses are mollusks, in the same phylum as snails, mussels, and clams. They are in the class Cephalopoda, which includes squid, cuttlefish, and nautilus. The giant Pacific octopus is the largest of all octopuses. Cephalopods are reputed to be the most intelligent invertebrates.

History of Giant Pacific Octopus (GPO) at the National Aquarium in Baltimore (Aquarium)

enrichment and the training of husbandry behaviors, has been a part of the care of this species for many years. However, due to the lack of a written behavior management plan and consistent record-keeping, some of the knowledge learned about the behavior of these animals has been lost as staff members have left or changed assignments. As we are always striving to enhance the lives of the animals in our collection, an updated and documented training and enrichment program is being developed for each of the GPO at the Aquarium to both improve the quality of life of the

current animals, and to provide records and information on the animals' behavior for future use and reference.

Octopus Intelligence

"Cephalopods are widely acknowledged as the most intelligent invertebrates. They have well developed senses, brains with distinct lobes,

very mobile and manipulative arms, and are active and capable of rapidly moving through and adjusting to their environment." (Wood, 1999).



Channing with a food puzzle

Since the Aquarium opened in 1981, the collection has regularly included GPO. Behavior management, through environmental

"Octopuses who live in near-shore environments have to deal with a constantly changing environ-



ment, affected by storms, pollution, seasonal changes, tidal extremes, and temporary abundances of predator species. For this reason they are highly dependant on learning in order to deal with these variations in their environment." (Mather and Anderson, 1993).

"The octopus has a large brain with vertical and sub-frontal lobes dedicated just to storing learned information: it has the anatomy for a robust, built-in intelligence." (Mather and Anderson, 2000).

"Mather (2000) proposes a 'foraging theory of intelligence'. She says that animals like octopuses (or humans) that pursue varied food sources in changeable, perilous habitats must develop a wide range of hunting and defensive strategies. That takes brainpower. Temperamental variation - call it personality - also helps a species survive in a volatile, supercompetitive milieu, by ensuring that different individuals respond differently to changing conditions, so some will thrive." (Scigliano, 2003).

Behavior Management Plan

Goals

In late 2005, the Aquarium acquired two new, wild-caught, female GPO.

With the acquisition of these animals, Aquarist and Animal Programs staff met to create a plan for the behavior management of this species and these individuals.

Program goals include:

- Developing a written, comprehensive plan for the training and enrichment of these animals
- Implementing a detailed, record-keeping system to track progress and provide information for future reference
- Utilizing enrichment to offer the animals opportunities for species-typical behavior and mental stimulation
- Instituting a training plan to facilitate regular husbandry and veterinary care
- Evaluating the similarities and differences in the responses of the two individuals, one is housed on exhibit, the other is not

Training Program

- Goal behaviors include using enrichment, utilizing food puzzles, training a recall behavior, going into a laundry basket for weights and medical exams, and desensitization to flashlights and flash cameras
- Training plans are written for all behaviors
- The training team is

comprised of a behaviorist and an

aquarist, and a training schedule was developed

- Training records are kept of each session to facilitate communication, track progress, and for future use and reference

Enrichment Program

- Goals include offering variety and novelty, allowing opportunities for foraging behavior, encouraging activity and exploratory behavior, and increasing visibility and the animals' comfort in the environment
- A wide variety of safe, approved enrichment items are clearly labeled and available for each animal
- Other Biological Programs staff are utilized to offer the GPO more opportunities for enrichment and interaction
- Enrichment records are kept to document the activities and animals' responses and for future use and reference

Giant Pacific Octopuses Currently at NAIB

Channing

- Female
- Approximately 2-3 years old



Lokiweight

Weight about 25-30 pounds

- Housed on exhibit in a 50°F, 600-gallon tank with naturalistic rock décor, with several sea stars
- High level of visitor traffic and interaction at exhibit window

Loki

- Female
- Approximately 1½-2 years old
- Weight 9 pounds
- Housed behind the scenes in a 50°F, 600-gallon tank with pipes and other artificial décor
- Minimal level of staff activity in front of her viewing window

GPO Behavior Management Survey

In February 2006, a survey was sent out on the Aquatic Info listserv. Seven institutions responded with information about their training and enrichment programs for GPO:

- Two institutions actively train their GPO, as well as offering them enrichment items several times a

week

- Two additional institutions train their GPO but did not mention an enrichment program
- Three of the institutions have active enrichment programs, but do not have a training program for their GPO

Training Ratings

- 1 = Extremely poor session; little or no acceptable behavior, attention, progress
- 2 = Below average session; worse than usual behavior, attention, progress
- 3 = Normal session; average behavior, attention, progress
- 4 = Above average session; better than usual behavior, attention, progress
- 5 = Exceptional session; behavior, attention, progress at higher criteria

Enrichment Ratings

- 1 = Octopus flees from enrichment
- 2 = Octopus appears to ignore enrichment
- 3 = Octopus orients to, looks at, but does not physically contact enrichment
- 4 = Octopus makes brief contact (i.e. physical contact less than one minute)
- 5 = Octopus makes substantial or repeated contact with enrichment

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DON'T FORGET THE LITTLE GUYS: SMALL MAMMAL TRAINING AT UTAH'S HOGLE ZOO

Amanda Ista, Utah's Hogle Zoo

Starting small mammal training programs can be a challenging, frustrating but extremely rewarding experience. This poster highlights some of these obstacles encountered when initiating training programs for the mammals in the Small Animal Building at Utah's Hogle Zoo and focuses on the solutions found to overcome these obstacles. It describes programs with black-footed cat, Patagonian cavies, prehensile-tailed porcupines, Prevost's squirrels, red kangaroos, rock hyrax, tree shrews, and white-naped weasels. The benefits of training small animals such as stress reduction and psychological stimulation are also emphasized. It describes how animals once deemed too shy and skittish to be trained will now willingly crate, shift, and allow hands-on manipulation. Hopes are that the successes of these programs will spur other keepers to pursue training small animals and remind keepers that training is beneficial to all animals whether it be a six ton elephant or a two ounce shrew.

Introduction

The first training programs in the Temperate Zone of the Small Animal Building at Utah's Hogle Zoo began in the spring of 2003. After completing a basic introductory course on operant conditioning techniques, watching hours worth of videos on animal training, and observing as a

mentor trained large felines, I felt confident that I could get all of the sometimes flighty, sometimes aggressive and sometimes just plain unpredictable mammals in the Temperate Zone crate and scale trained in the matter of months. After all, the concepts are simple. Just establish a bridge and bridge for desired behavior and the animal can be trained to do just about anything. Obviously, it was not that simple. Trial and error proved to be the rule and the constant with all the programs. Many lessons were

learned and applied to each new program making the latest programs much easier to initiate than the first program attempted.

I will share some of the obstacles I encountered, many of which may or may not have a solution and most which are not reserved just for training small mammals. I would also like to offer some solutions and tips I feel may be helpful in training not only small mammals, but that can be applied hopefully to training all animals. I hope to stress that the bene-

fits of training small mammals are more than worth the time and effort involved. Finally, I will give a brief overview of some of the training programs I am involved in and where those programs will lead in the future.

Obstacles

Challenges abound when implementing small mammal training programs. Initially, simply the diversity of the group provides the initial challenge. Temperate Zone training programs include animals from rodents to carnivores and insectivores to marsupials. Differences in basic biology and natural history ensure that

every species will present different behaviors and reactions that need to be addressed. Then on top of the diversity between species, there is diversity between individuals of a species. Similar to humans, every animal has a different personality and therefore may react to situations completely opposite of a sibling or exhibit mate. For example, our male rock hyrax is extremely aggressive and wants to be near the keeper while the female is shy and hides from the keeper. The next challenge that presents itself is lack



of information. There is not a plethora of documented training programs with porcupines or kangaroos. The next challenge and usually the most difficult to conquer is individual temperament. Almost as a rule, many small mammals are shy and flighty. Many would rather hide, run away, or freeze rather than take their

treat
from
their
keeper.

Then
there are
the more
individualized
obstacles.

Number one on the list for the small mammals in Temperate Zone is the reward crisis. What food exists that would compel an animal to overcome its fears, reservations, and/or aggressiveness just to get a taste? And then how can that reward be given when the animal refuses to come anywhere in the vicinity of the trainer? Once these obstacles are overcome, a new set of challenges presents itself all based on fear. First, the fear is towards the trainer. Then towards the bridge. Once that is overcome, the fear switches to the target or the station or the crate or any minute noise that may occur during a session. Finally, once the reward and fear obstacles are overcome there is the challenge of figuring out what to do next. Once baseline behaviors are established, how can the program grow? What other behaviors are possible to teach these small mammals?

Solutions

First of all: Research. Knowing

basic natural history about the animal or similar animals is invaluable when beginning a training program. Natural social systems can give insight into dominance issues that come up when training a group and even basic bone structure can tell how possible it is for certain animals to present certain appendages.



Next go back to the basics. Applying basic training practices and learning by trial and error have proven to be the best solution in overcoming many obstacles. Even though there may not be documentation on crate training a hyrax, remember the same

practices used in scale training a four hundred-pound tiger can be directly applied to scale training a two-ounce tree shrew with a slight bit of tweaking involved. After that, the key is patience and persistence. First patience in discovering what to reward the animal with. I tried numerous fruits, vegetables, nuts, and seeds before discovering the Patagonian caviar will train for mouse chow, the hyrax will train for lettuce, and the kangaroos will do just about anything for bread. Then comes persistence. Just because an animal enjoys a specific treat does not mean they will eat it in the presence of the trainer. I learned with many of the small mammals would rather wait for a keeper to leave or turn away before picking up the reward and many are scared of the reward coming near them. But with short sessions every day and some times twice a day, eventually the animal will learn to overcome these fears.

Especially important in small

mammals is trust. These animals have to learn to trust the trainer. Once the animal begins to associate that trusting the trainer means rewards for them, progress in training programs increases exponentially. Trust building sessions are invaluable at the beginning of a training program and also at various times throughout the program. Also remember that every interaction with an animal can be viewed as a training session to that animal. The animal will learn to be scared and hide much easier than it will learn to trust. With many of our shy animal we began trust building by leaving a treat in a particular spot in the exhibit after cleaning. Eventually, the animal learns to expect that treat and will usually begin trying to elicit it from the keeper before the keeper leaves the exhibit.

Finally, once trust is achieved, bridge is established, and baseline behaviors are worked, look to natural behaviors for ideas on what to work on next. For example, kangaroos and hyrax are natural jumpers in the wild while prehensile-tailed porcupines naturally raise their quills to threaten enemies.

Also remember: NEVER GIVE UP! Working with any animal takes patience and time, sometimes a lot of time! Consistency does work eventually. Nearly everyday for the past two years, we have thrown a grape

half at each
a g o u t i .
Now each
will pick
up the
grape in
front of us;
only one
will eat it



right away but we are progressing!

Getting Started

Now that the initial obstacles are overcome, official training can begin. The first step and the most important is establishing the bridge. Many times with small mammals it is difficult to tell if the animal understands what the bridge means. I have found it is important to work a few more sessions or even weeks to make sure the animal understands that the whistle signifies a rewardable action. Next go back to basics again. Start with simple behaviors and work up so there is always something to fall back on. These simple behaviors include:

- Target - ask the animal to touch a target with a desired appendage or body part (many times the nose)
- Hold - start with asking the animal to hold on target and later applying the hold command to other behaviors
- Station - ask the animal to go to a specific location or object, usually away from the trainer
- Up - ask the animal to stand up on its hind legs if possible
- Down - ask the animal to go down on all fours or to sit down depending on its body structure and natural behavior

From these baseline behaviors, more complicated behaviors can be worked and many times will come easier if the above behaviors are well established. These behaviors include:

- Crate - ask the animal to enter a crate and allow itself to be shut inside
- Scale - ask the animal to stand on a scale and hold until a weight is recorded
- Paw/foot - ask the animal to pres-

ent appendage or allow appendage to be handled

- Body manipulation - animal will allow trainer to touch certain body parts and/or manipulate the animal into position
- Other natural behavior related behaviors such as jumping, mock threaten, open mouth, etc

Benefits



Although these challenges seem difficult to overcome, the benefits greatly outweigh the time and patience required to conquer the obstacles when training small mammals. The number one benefit to training small mammals is assistance in basic husbandry practices. Even though most of our small mammals are cared for in free contact, many times keepers are not able to get near the animals for close-up visual inspection let alone catch them up for weighing and medical procedures. Training allows keepers to encourage the animal to approach them voluntarily for examination. This simple behavior is extremely beneficial as it allows a keeper to see a small scratch on the nose of the Prevost's squirrel or a quill from the prehensile-tailed porcupine stuck in a Weid's marmoset. Obtaining weights is especially important for small mammals. The loss of even a fourth of an ounce in a tree shrew

can be a symptom of disease whereas a gradual increase in weight can show that the diet may need to be adjusted for the black-footed cat. Crate training is an invaluable behavior which all animals in the Temperate Zone have been trained or in the process of being trained. By training the maras to enter a crate for their annual exam, we avoided potential broken legs, cut lips, or keepers being kicked during catch-up. Another important benefit of training small mammals is enrichment. Training exercises not only the mind but also the body as most animals are trained to target around their whole exhibit. It also reduces boredom and stress. Since initiating training programs in the Temperate Zone, we have seen more interactions with enrichment devices from the animals. For example, the kangaroos, maras and hyrax are no longer scared of everything new in their exhibit; instead they come to investigate.

Training Programs in the Temperate Zone of the Small Animal Building at Utah's Hogle Zoo

Nearly every animal in the Temperate Zone is currently involved in a training program. We are continually growing and evolving to meet the needs of these unique animals. The following is an overview of animals and behaviors currently trained.

- Rock hyrax - shift, target, hold, crate, stay, come, harness
- White-naped Weasel - crate, target
- Prevost's squirrel - target, hold, sta-

TRAINING GOELDI'S MONKEYS (*Callimico goeldii*) FOR WEIGHING AND CRATING

Nicky Jago¹, Nicole Dorey^{1,2} and Dr Vicky Melfi¹
Paignton Zoo Environmental Park¹ and University of Exeter²



*Paignton Zoo Environmental Park houses a group of 1.3 Goeldi's monkeys (*Callimico goeldii*). The staff used positive reinforcement techniques to target train the animals for visual inspections and regular*



Photo 1 - Training set-up

weighing. Each Goeldi's monkey was trained to use a different coloured Lego™ brick as a target to position (station) the monkeys. Behavioural data were also collected before training commenced and during the initial months of training. These data were used to establish if training had any effect on behaviour.

This paper outlines the steps involved in the training programme, the implications training the group may have on their behaviour and considers how the programme succeeded. The paper also describes plans for further study involving the use of this technique for crate training; this could significantly reduce the stress induced during catch-ups and transfers, hence further aiding and improving the husbandry and welfare of this group of monkeys.

The only species in the genus *Callimico*, Goeldi's monkeys are small, neotropical callitrichids, originating from the rainforests of South America. Paignton Zoo houses 1.3 of these primates.

Goeldi's monkeys are entirely covered in long, black fur, with an average head-body length of 222mm and a weight of 400-535g (Rowe, 1996). In such small captive primates, changes in weight can be an indication of health and can be diagnostic of health problems such as wasting syndrome (Montali and Bush, 1999). As such it is important to monitor changes in weight of these species.

Callitrichids are particularly susceptible to stress, and regular catch-ups have the potential to result in stress-induced health problems. Positive reinforcement training has been used successfully with many callitrichid species for a variety of purposes, such as urinating on command

(Smith et al., 2004), taking medication and crate training (Savastano et al., 2003) and various other husbandry procedures (Bassett et al., 2003). Staff wanted to eliminate the need for catch-ups for routine weighing, so it was decided to attempt to use positive reinforcement methods to train the Goeldi's monkeys at Paignton Zoo to step onto scales. All new training programmes are seen at the zoo as an opportunity to quantify the effect of this husbandry tool. So staff planned to collect data to establish the impact of training the Goeldi's on their general behaviour, outside of the training session.

This project set out to test two hypotheses:

Hypothesis 1: Goeldi's monkeys can be target trained using positive reinforcement techniques and can be trained to step onto scales.

Hypothesis 2: Training a nonhuman primate species affects the general behaviour of those individuals outside the training session.

The efficacy of the training programme was also evaluated, to assess its potential for use in training other behaviours and other species.

Method

Participants, housing and husbandry 1.3 Goeldi's monkeys housed together were part of this study.



Photo 2 - 'Kink' training on scales

Procedure

Shaping using positive reinforcement was used, with a conditioned reinforcer (clicker) and a primary reinforcer (banana). Training sessions were 10 mins long and involved all monkeys. Each monkey was assigned a different coloured Lego brick as a target (see photo 1). The targets were connected to metal clips and suspended in a row from the outside mesh of the enclosure, adjacent to a wooden shelf inside where the monkeys could sit during training sessions. Each correct approximation to the target was immediately reinforced with the "click" and the food reward.

Once all subjects were target trained, two further consecutive steps were trained. Targeting and the second step were given commands:

1. "'Name', target" - subject approaches station/ target.
2. "Hold" - subject stays at station for up to 5 seconds.

To achieve the third training step

The number of training sessions required to successfully achieve the 3 training steps was noted. Activity budgets, created from state behaviours (social, moving, resting, feeding and foraging) were generated from data collected using instantaneous scan sampling every 30 minutes from 0900-1630, for periods of 10 days before this training started and then x months after, while training was still in progress.

Results

As all 4 monkeys learn various steps of the training programme, we can confidently say that the first hypothesis was supported; Goeldi's

monkeys can be target trained using positive reinforcement techniques and can be trained to step onto scales.

There were individual differences in the number of sessions required for the Goeldi's to achieve each step (Figure 1), and it

took between 13 and 21 sessions for all four subjects to achieve steps 1 and 2. At the time of writing Kink is the only monkey to have achieved all 3 steps and she accomplished this in 28 sessions.

Hypothesis 2 was also supported

by the data collected in this study; training a nonhuman primate species

can affect the general behaviour of those individuals outside of training. A paired T test was undertaken

to compare

the mean time spent performing behaviours before and after training was initiated (Figure 2). It was found that training the Goeldi's monkeys caused a significant increase in social behaviour ($t(3)=-6.845$, $p<0.05$) and locomotion ($t(3)=-4.700$, $p<0.05$) and a significant decrease in resting behaviour ($t(3)=7.570$, $p<0.05$).

Discussion

This study has shown that Goeldi's monkeys can be trained to individual targets and station on a scale for weighing. Although only one of the monkeys is regularly training on the scales, the authors are optimistic that the remaining three monkeys will soon attain this final goal. Once all the group are fully trained to step onto the scales, the study will be extended for crate training.

A training crate has been specially designed and built (see figure photo 3) to allow the Goeldi's monkeys to enter the crate through an entrance on one side, and reach/train at their target through a mesh panel at the front end of the crate. When a monkey has entered the box and is positioned at the target, the side



Photo 3 - The training crate.

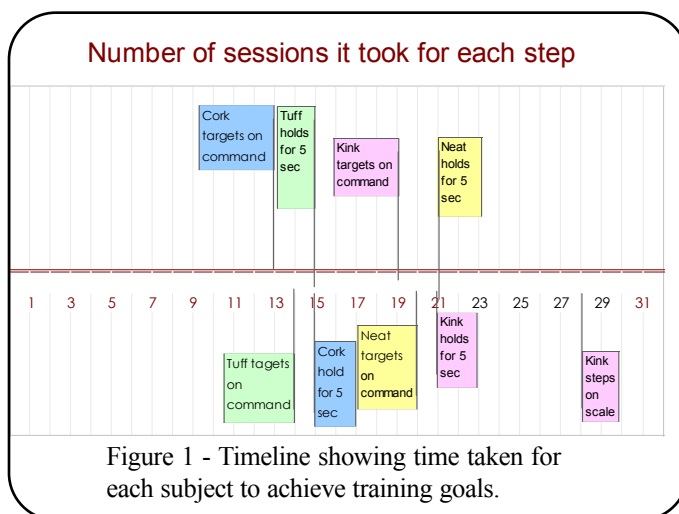


Figure 1 - Timeline showing time taken for each subject to achieve training goals.

the scales were positioned on the shelf underneath the targets:

3. Subject carries out steps 1 and 2 on scales at station (Photo 2).

Data collection

entrance can be closed from outside the enclosure by pushing a handle which closes a sliding panel. This method of crating should reduce the stress caused to these small primates during future catch-ups.

Analysis of the behavioural data collected indicates that the incorporation of training increased activity outside of training sessions. These data are preliminary and we are currently exploring other factors which may have influenced these data e.g. season (change in temperature).

Efficacy of the Training Programme

Although the training goals are being reached, the Goeldi's took longer than expected to progress from target training on a wooden shelf, to target training on metal scales. There were a number of reasons for this delay but one important factor was that they took a long time to become properly desensitised to the presence of the scales. In future such training programmes the scales will be positioned under the target from day 1 of target training. It should also be noted that Goeldi's monkey are notoriously neophobic; they are very sensitive and nervous around new things.

This study has provided an opportunity for novice trainers at Paignton Zoo to become familiar with positive reinforcement techniques, and to gain training experience. Aside from regular weight values the training programme has provided an oppor-

tunity for keeping staff to regularly spend time observing the animals involved at close-hand, noting changes in health (such as teeth, claws and coat condition) and also changes in social interaction and hierarchy within the group.

Staff are now using this same methodology with other small primates species, including pied tamarins (*Saguinus bicolor*) which are currently being target trained for weighing.

221-233.

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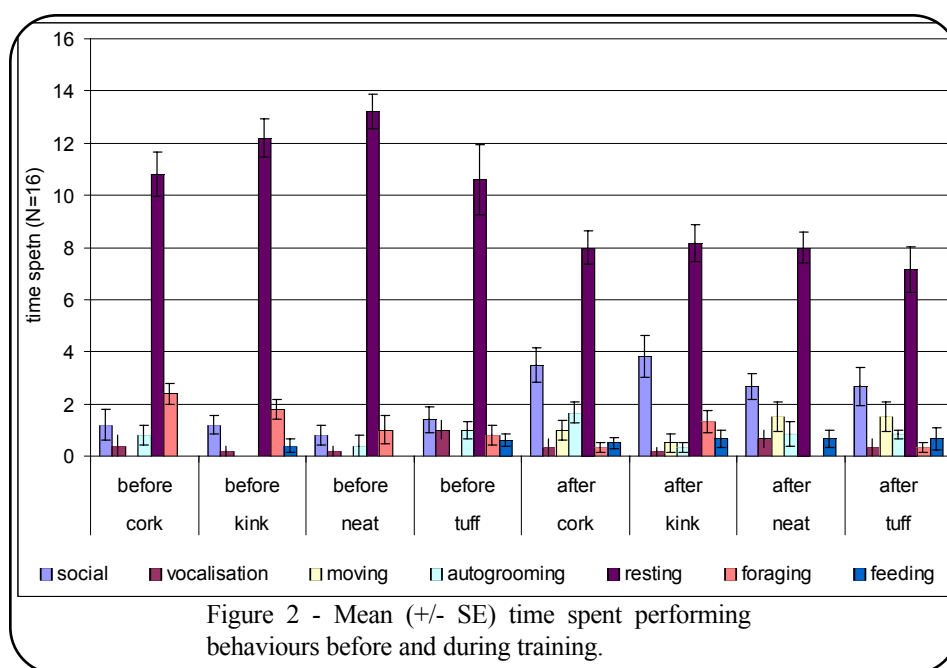
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Acknowledgements

Lisa Doran, Tony Dobbs, Andy Fry, Gillian Davies, Kathy Knight, Chloe McGregor, Julian Chapman, Neil Bemment and the graphics team at Paignton Zoo.

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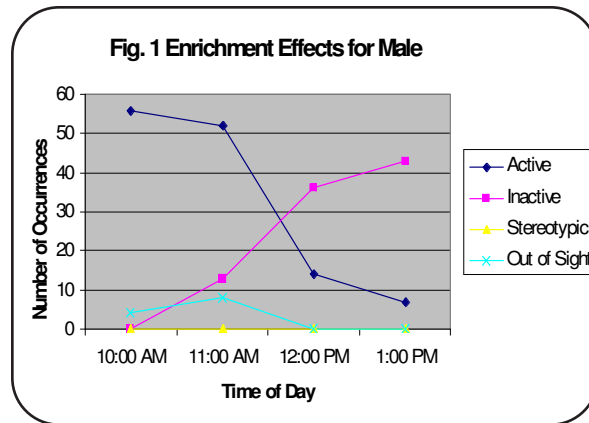
ARE ENRICHMENT ITEMS REALLY ENRICHING?

Katie Kalafut and Dr. Jesus Ruiz-Rosales, University of North Texas

Many captive animal institutions have taken notice to the unnatural and stereotypic activities exhibited by many of their species. While there is research being done on the various variables impacting these behaviors, one common remedy is various forms of enrichment, which is loosely defined as an animal husbandry principle that seeks to enhance the quality of captive care by identifying and providing environmental stimuli necessary for optimal psychological and physiological wellbeing (Shepherdson, 1998). Although, many animal settings have implemented such "enrichment", there is no formalized systematic way of quantifying its effects. The presented research seeks to develop an observational system including a detailed ethogram, and an instantaneous time sampling method that is easily implemented by zoo keepers. In this way enrichment items may be evaluated in a small time frame with minimal interference with daily animal care. This knowledge will allow captive animal institutions to implement only the items that are enriching for the specific species.

Stereotypic behavior is characterized by repetitive behavior patterns

that serve no apparent goal or function and is often observed in many species of animal in captive settings



(Mason, 1991). There are many theories as to why these behaviors arise, such as boredom, foraging loops and physical or psychological stress. One way to reduce stereotypic behaviors in captive animals is through environmental enrichment.

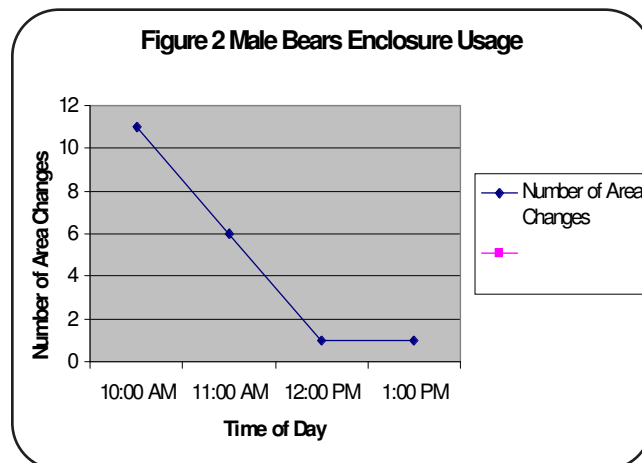
Environmental enrichment can consist of food, puzzle feeders or toys, and is commonly used in the efforts to eliminate or reduce stereotypes in many of today's captive settings. Although enrichment has been proven effective in some situations, it remains difficult to evaluate

its effects in the captive environment. The goal of this research is to test and evaluate a systematic method of evaluating enrichment items that could be used easily and effectively implemented by personnel and across species.

Method

Two American Black Bears (*Ursus americanus*), one male and one female, residing in the Fort Worth Zoo were used for this experiment. A detailed ethogram was used to observe and record different kinds of behavior including: body position, concurrent activities, interaction, attention and location in enclosure. Behavior was recorded every 15 s for a 15 minute period every hour the species was on exhibit (in the presence of the enrichment item). The enrichment in place during this evaluation was the presence of various

scents rubbed throughout the enclosure prior to the bears release into the yard. Data was collected over 5 days.



Results

The behaviors recorded were graphed under the titles: active, inactive, out of sight, and stereotypic. The male bear's behavior (Figure 1) shows that his behavior begins in the morning with high activity then rapidly drops in the afternoon with an increase in inactive behaviors. The male bears enclosure use (Figure 2) shows he uses a majority of the enclosure when the enrichment is novel, but quickly drops to using only one area of the enclosure. The data related to the areas of the enclosure that were used in

the 15 minute time-period (Figure 3) show that during the first time-period areas two through 5 were visited, but during the last two hours the areas used dropped to one.

The effects of enrichment items on the female bear's behavior (Figure 4) show that in the morning, when the enrichment was novel, the bear's behavior was stereotypic. This was true for most of the day except for the last hour of data collection where inactive behaviors became prominent. The number of area changes made by the female bear (Figure 5), like the male bear, decreased dramatically throughout the day. The female bear uses areas one through three primarily during the morning but eventually remains in one area of the enclosure (Figure

6).

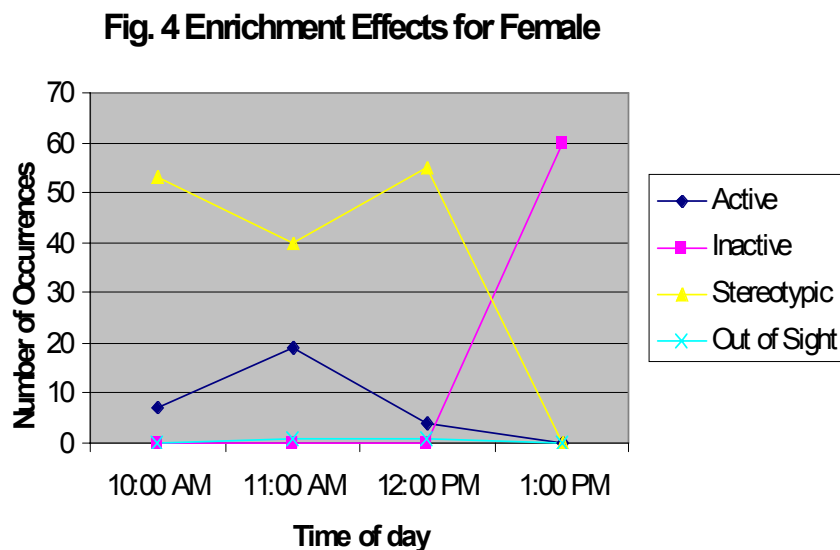
Discussion

The high activity levels in the morning exhibited by the male bear, followed by the gradual decrease into inactive behaviors, may very well be typical in captive settings. Enrichment is most effective when it

same area of the enclosure at the same time. The females pace, or lack there of, may be dependent on the male bears location and actions.

Knowing how enrichment items affect each animal in an exhibit will allow specific decisions to be made regarding the timing and combination of certain enrichment items. If an enrichment item elicits movement throughout the enclosure, the next enrichment item may be one that necessitates more localized manipulation. If there is indeed a dominance issue between the male and female bear, an enrichment item that the male bear has shown interest in necessitating localized manipulation may allow the female to move throughout the enclosure investigating another form of enrichment that has been shown to keep her interest. By knowing exactly when and how certain enrichment items are successful (or unsuccessful) in

eliciting active behaviors and decreasing stereotypic or inactive behaviors, one could truly use a system of enrichment to its full potential. With this knowledge, enrichment that has already been bought or approved for use may prove to be more effective by pairing it with others or by changing the timing of its delivery. What works for one animal



is novel. The male bear uses the most of the enclosure and exhibits a wide range of behaviors early in the day, but this decreases and is almost all the afternoon is spent inactive.

The female bears behavior, on the other hand, shows no indication that the enrichment had any effect. She begins the day pacing and does not let up until later the day when stereotypic behaviors are replaced by inactive behaviors. The enclosure usage is high during her stereotypic stages because her pace tends to cover three enclosure areas. While she is using most of the enclosure during these times, she is doing an invariant, stereotypic pace. It is also clear that the animals are rarely occupying the

Figure 3.

Area 1				X
Area 2	X	X		
Area 3	X	X		
Area 4	X	X		
Area 5	X	X	X	
	Hr. 1	Hr. 2	Hr. 3	Hr. 4

or species, may not work for another. It is critical that all animals are being enriched and the institution

knows exactly what behaviors enrichment items are or are not eliciting.

Acknowledgments

I would like to thank the Fort Worth Zoo for their past and current help and support of this research. I would also like to thank Dr. Jesus Rosales-Ruiz at the University of North Texas and the student organization ORCA for their constant help and advisement.

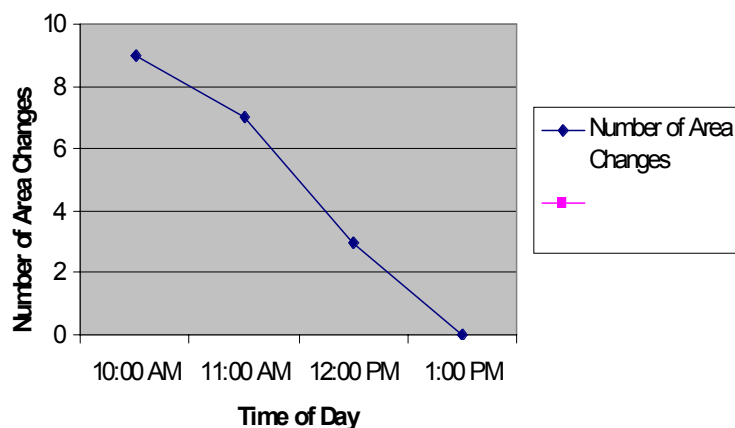
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Figure 6.

Area 1	X	X	X	X
Area 2	X	X	X	
Area 3	X	X		
Area 4				
Area 5		X		
	Hr. 1	Hr. 2	Hr. 3	Hr. 4

Figure 5 Female Bears Enclosure Usage



TRAINING A SOLITARY MACROPOD TO BE SOCIAL

Becky McKeel and Rob Yordi, Busch Gardens Williamsburg

*At Busch Gardens Williamsburg, our animal care and training teams are working together to train our first macropod, a 1.0 Common Wallaroo (*Macropus robustus*). He was a challenging addition to our collection and a training plan was not drawn out prior to obtaining him. There was latency in pulling the joey from the pouch, which added more complications and created a more time intensive socialization process. Our goals included socialization, enrichment, and a hands-on educational program for our guests. The staff encountered numerous challenges while learning to train the wallaroo. We applied operant conditioning to leash train the wallaroo for enrichment and educational programs. The team's progress thus far has been slower than anticipated; however, successful. In the 2005 season, he progressed to make appearances in numerous shows both in the park and on the road. After each step is successful, we continue to reach for more challenges and triumphs with our young macropod.*

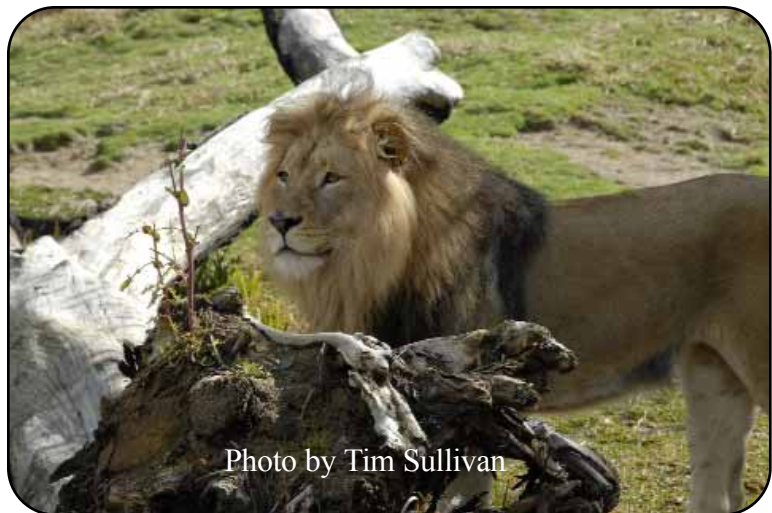


Photo by Tim Sullivan

TRUST BY ASSOCIATION: CRATE TRAINING WITH YELLOW-BACKED DUIKERS

Samantha Moorehead, Houston Zoo, Inc.

Yellow-backed Duikers (Cephalophus silvicultor) in the collection had been notoriously skittish during training sessions. In May of 2005, a female duiker known for being docile gave birth to a female calf. Keepers wanted to start habituating the calf to humans as soon as possible in the



hopes it would help alleviate the unpredictable behavior and aid in the transfer of all the duikers for the new Forests of Africa exhibit. This poster illustrates using the rapport with the dam to gain trust of the calf and her subsequent crate training. Due to the calf's reluctance to accept treats from trainers, the dam was trained with the calf in the barn watching. The calf then began to mimic the dam's behaviors to the trainer's cues. A bridge was easily established from that point. Also illustrated is the ensuing problem of redirecting the calf from the adult crate to a smaller kennel. The calf had been following the dam into the larger adult crate and would not be big enough for it when the time to move came. Trainers re-directed the crate behavior to a smaller kennel

until the calf entered either on cue.

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poster illustrates using the rapport with the dam to gain trust of the calf and her subsequent crate training.

Due to the calf's reluctance to accept treats from trainers, the dam was trained with the calf in the barn watching.

The calf then began to mimic the dam's behaviors to the trainer's cues. A separate bridge for the calf was established from that point.

Both dam and calf began crate training together with the calf following the dam into the crate.

The calf began to separate herself



from the dam during training sessions and followed cues independently.

The adult crate was too large for her and it was decided a smaller kennel would be brought in. The behavior would then be directed towards both.

Behavior can now be reliably achieved with either crate. The trust between the calf and trainer can be used to help attain new behaviors.



OPERANT CONDITIONING AT RCAA

Jill Moyse and Sandra Palencia-Whiting, Lincoln Park Zoo

The Regenstein Center for African Apes (RCAA) at Lincoln Park Zoo opened its state-of-the-art facility in July of 2004. After spending nearly 2 years on loan to other zoos, the apes returned to a brand new building with much larger enclosures and yards with much more flexibility for animals and keepers. It currently houses two gorilla groups (4.8) and two chimpanzee groups (4.8). Operant Conditioning training is a main focus in the design of the building to manage the great apes.

Training is incorporated into our daily routine and is part of our regular schedule, not something we have to find extra time for. Training demonstrations for the public are conducted daily during the busy season.

Husbandry training includes behaviors for veterinary procedures, daily care, diagnostic testing, routine shifting, and weight management. This poster will describe RCAA's great ape training program and how the building was designed with training as a primary focus.

TRAINING SCHEDULE

All apes are trained daily. In the morning the apes are shifted from their exhibits into holding areas downstairs where they participate in their morning training session. Exhibits are then cleaned and the animals are shifted back up to the dayrooms where they will remain until the next morning. Throughout the day training can take place for individual animals (ie, dominant sil-verbacks) via mesh panels in the dayrooms and outside mesh panels



the yards. In the afternoons one group is trained on exhibit while another group will shift down to the holding areas for scatter feeds in exhibits.

SHIFTING

RCAA gives us the flexibility to shift animals using different chute systems. For example, if one animal does not shift down one chute we have the ability to give them the option to shift down another route.



This is also useful when shifting dominant and subordinate animals in one social group by shifting them via different chutes and avoiding the potential for aggression. Apes shift voluntarily and are never forced.

SEPERATION TRAINING

Holdings areas are designed to separate one individual from the rest. Each holding area contains seven cubicles with shift doors in between to allow for separation of individual animals. This allows for one-on-one training, the ability to "time out" an animal when needed and for an animal to consume their morning ration of fruit, produce and chow. This also allows for dominant animals to be separated from subordinate animals and again prevent aggression.

BLOOD SLEEVE, COGNITIVE WINDOW, SCALES

These devices are built in and connected to our holdings. A large and a small cuff blood sleeve are in each holding area allowing for size differences between species and gender. Apes are involved in cognitive research in which they use an infrared touch screen and sit on a shelf to participate. The height of the shelf that animals sit on for cognitive sessions can be adjusted for height differences among individu-

als. We have the ability to weigh our animals on scales that are built into our chute systems.

TRAINING AREAS

All of our exhibits have multiple mesh panels that give us the ability to station each individual for training while animals are on public display. Training demonstrations are conducted daily during the busy season.



The public can observe training sessions in two ways: a wall panel is lifted pre-session and a camera is mounted in the training demo area displays the training session on a television that is located on the public floor. With the different mesh panels and outside bobcat panels (weather permitting) we are able to implement an exercise program that allows us to move individuals between panels not just on a horizontal scale but vertical too.

BODY PART PRESENTATIONS AND PROPS

We train our apes for husbandry and veterinary purposes. They are trained to present different body parts for inspection, manipulation

and the use of props such as: stethoscope, injections, toothbrush, ear thermometer, nail clippers, swabs, vet staff and medications such as nolvasan, bag balm and alcohol. Training is extremely important; it reduces stress during veterinary procedures, provides mental stimulation, allows for better health monitoring of an animal and is used in weight management. It is also beneficial in building a relationship between keepers and animals. In addition to fruit as a primary reinforcer we are able to extend our sessions with the usage of desirable produce items and diluted juice.



EXPRESSION AND DISTRIBUTION OF BEHAVIORAL PATTERNS IN CAPTIVE VERVET MONKEYS (*Cercopithecus aethiops*)

Gerardo Ortiz*¹; Eduardo Cañedo² and Carlos Rosario².

Universidad de Guadalajara-México¹

Instituto Tecnológico y de Estudios Superiores de Occidente-México²

The presence-absence of Zoo's visitors might be meaningful stimuli for the expression of behavioral patterns and the differential use of the enclosure space by vervet monkeys (Cercopithecus aethiops pygerythrus). In order to assess this hypothesis, one group of five vervet monkeys was videotaped during four 60 min sessions in which the affluence of visitors varied at the Guadalajara Zoo-Mexico. A continuous animal focal sampling was used to analyze behavioral patterns and the different locations of monkeys inside their enclosure. Results show differential patterns of behavior and space use as a function of the presence-absence of visitors-audience. The relevance of this kind of studies is discussed into a general purpose of the establishment of environmental enrichment programs for animals in captivity.

One of the characteristics of the monkeys related to the cercopithecine (i.e. vervet monkeys) that has called the attention of researchers is their social organization. This primate species typically lives in groups formed by 15 to 30 individuals, being predominantly more females than males, in a reason of up to seven females per male (Melnick & Pearl, 1986).

The fact that the group is dominated by females is mostly caused by the migration of males at mature age to other groups, and the females

staying in their original groups. This allows the establishment of stable relation ties between the females, specially the ones in the same family, and that the hierarchical rank in the organization is related to the position of the mother (Cheney & Seyfarth, 1998; Melnick & Pearl, 1986).

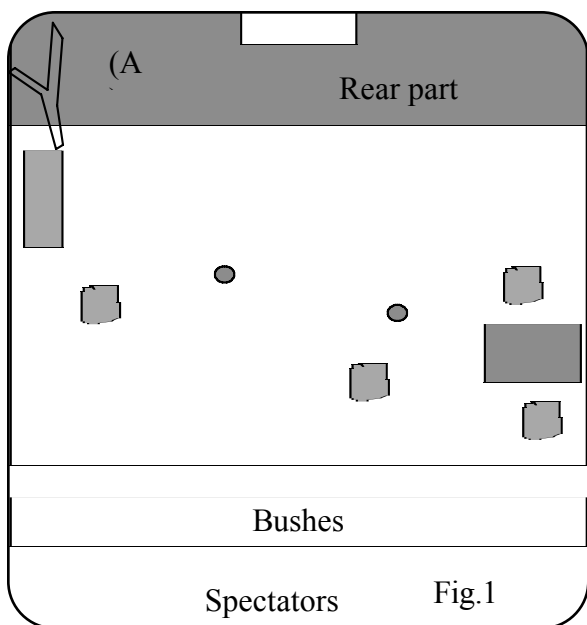
Vervet monkeys (*Cercopithecus aethiops*) naturally inhabit semi deserted areas and the African savannah of the Sahara, occupying a wide variety of trees found in these places; they are also considered semi terrestrial given that there is not much of a high density in tree populations and have to move on land from one place to the other. It is evident that for the animals of this species that remain in captivity, these conditions have drastically changed compared to what might be found in their natural environment, as in the case of primates kept in zoos. Given that the usual function of a zoo in a city is recreation and tourism, the decision for the structuring of enclosures is mainly given by matters such as zoo image or accessibility to observing the animals by the spectators and not the behavioral or habitat characteristics of each different animal. The zoo's recreational function does not represent an obstacle for research to be made in it, on the contrary it facilitates the study of many aspects that in the wild would not be possible to observe, at the same time, it would be possible to improve the environment in which

the animals live, with the corresponding improvement in time and quality of the animal's life span (i.e. Guerrero, 1997; Krause, et al, 1999). The named research made in some zoos, has mainly been made in the veterinary and biological areas (Caba-Vinagre, et al, 1993; Guichard-Romero, 1994), but in the study of animal behavior, there has not been the interest that should (Crockett, 1996).

With this, one of the goals of a zoo should be to provide an exhibition of animals in a way that they are visible and appealing to the spectator, besides offering an educational aspect in regard to the habitat and behavior displayed by each one of them, diffusing, in one way or another, elements for the conservation of wildlife areas. In this case an aspect that has to be studied is precisely the behavior of animals interacting with this environment created and modified by humans. In other words, it is important to study the organism as an entity that behaves and not only as a receptor of its new environment (Gibson, 1986).

For example, Cheney & Seyfarth (1998) observed that vervet monkeys have a very high skill to recognize signals emitted by other monkeys (sounds and facial expressions), and by other predators, but lack a good generalization capacity in certain visual signals outside the context in which they would be pertinent, in other words, in captive conditions. This aspect of influence

of certain visual and auditory stimuli, and of the interaction of monkeys with their new habitat inside a zoo, coincides with one of the topics



that have been of highest interest for behavior analysis: identification of certain stimuli that control the behavior of organisms.

These stimuli are part of the organism's environment and could be proximal signals that control mainly terminal behavior, like taking and ingesting some meals, copulation, etc. other stimuli are signals far from the individual, but control diverse behaviors like the direction of their movement, and other relevant behaviors for their spatial location (Honig, 1987; Menzel, 1987).

It is also known that certain stimuli work as unleashing signals of instinctive behavior and allow a deployment of behavior characteristic to the species, and other signals that are learned by organisms given their interaction with their current environment (Tinbergen, 1975, 1981; Lorenz, 1979; Eibl-Eibesfeldt, 1979). Although this type of behavior is yet to be studied in captivity conditions (i.e. Zoos).

One of the characteristics of zoos is

that spectators are part of the interactive environment of the animals, and the presence - absence of these spectators can be a stimuli compound that modifies the behavior of animals in their artificial environment. The studies focused on detecting the behavioral catalogue of captive animals and their possible relevant stimuli, may be a beginning to develop environmental enrichment projects that agree with the specie's characteristic patterns.

In the present study, a systematic observation of displayed behaviors by vervet monkeys (*Cercopithecus aethiops pygerythrus*), to detect temporality and spatiality of the behavioral catalogues in their captive state, and register the influence that spectators have as potential stimuli over these behaviors.

METHOD

Subjects and environment

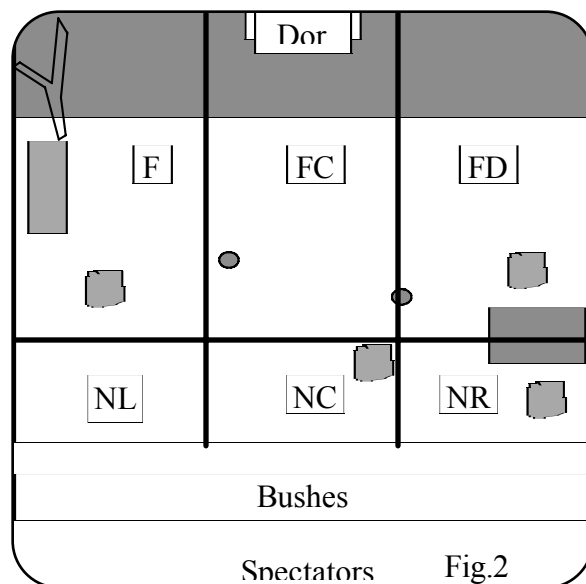
The observations were made on a captive group of the species *Cercopithecus Aethiops Pygerythrus* (n=5); belonging to the Guadalajara zoo, located in the city of Guadalajara, Jalisco, México. The group was conformed by an adult male, an adult female, two juveniles and an infant. During the day, these primates are located in an enclosure area about 5mts long, 4mts Wide, and 2 mts high, approximately; with a down slope of 3 degrees towards the front of the

enclosure. The area was limited by three concrete walls and a metallic grill fence with short bushes about 50 cm high on the spectators' side, as well as a top closing area made by the same material as the fence in the front.

In figure 1, a schematic of the enclosure is displayed. Inside of it, a "Y" shaped log rests on the floor and against the wall on the far to the fence side of the enclosure (A). The floor on the rear part of the enclosure (1m, approx. in width) is made of concrete, mean while the rest of the enclosure's floor is made of compacted dirt. On this dirt part at about 1 mt from the fence, there's a concrete "island" on the right hand of the spectators, as well as 2 rocks (F y G). On the back of the enclosure in the central area, the access to the animal's quarters can be found.

Materials

A Sony minidv TRV-18 camcorder, was used to record the behavior of the subjects during an hour each day over a seven different day spam. For the registration of behaviors, The Observer 5.0 by Noldus, was installed and used in two laptop computers, a Toshiba Pentium IV, and a Sony with the same character-



istics.

Procedure

The behavioral patterns and spatial use of the male and female in the enclosure were registered during the recording time (Monday thru Sunday from 15:00 to 16:00 hours). To register the behavior of the subjects and their location, a focal animal observation method, with a continuous registration was used (Altmann, 1974). For the studies means, the enclosure was divided in 6 sections, resulting from the combination of sectors near (up to 1m from the fence) and far, as well as the right, centre and left sectors, resulting in seven sections: near left (NL), centre (NC), and right (NR), and those considered as far left (FL), centre (FC), and right (FD), as well as the dormitory zone (Dor). A schematic of the division made in the enclosure is shown in figure 2.

On Saturday, the recording was made with the camera in hand due to the need of movement caused by the interference of spectators in the visual field of the camera on the observed subjects, trying to keep each one in this field.

The days with less affluence of visitors (Monday and Tuesday, days on which the zoo is closed, and Wednesday, Thursday, Friday, and Sunday) the camera was placed on a tripod stand, trying to keep in focus as much of the space as possible in the enclosure. At this time, the observers moved out of the visual field of the subjects by placing themselves at about 10m to the right of the enclosure to avoid causing influence over the behavior of the observed subjects. Due to this, an ad libitum registry about the subjects' behavior could not be made.

Definition of the behavioral catalogue:

The behavioral patterns considered relevant to the study (locomotion, agonistic behavior, resting, grooming, allogrooming, and playing), were defined based on the behavioral catalogue presented by Carrera (1994).

- Locomotion (Loc): Moving from one place to another.
- Resting (Res): Sedentary behavior in which the individual maintains a posture.
- Agonistic behavior (Ag): Group of behaviors which constitute a proximal competition mechanism. May imply hand swings (an individual with arms slightly extended hits the body, or facing, of a second animal), showing teeth (the transmitter directs its eyes to a co-specific while opening its mouth, showing teeth and gums), and/or displacement (the transmitter moves to a place where the receiver is located, forcing it to move out of the place leaving it free for the transmitter).
- Grooming (Gr): self care of the body surface that may implicate scratching (rapid ascending-descending movement of the hand's fingers placing the nails against a specific part of the body) and/or licking (the animal runs its tongue over fingers or lips).
- Playing (Pl): Acts that allow to practice and perfect fight and subjection techniques to each subject, similar to agonistic behavior but longer lasting and ending when one of the individuals retrieves.

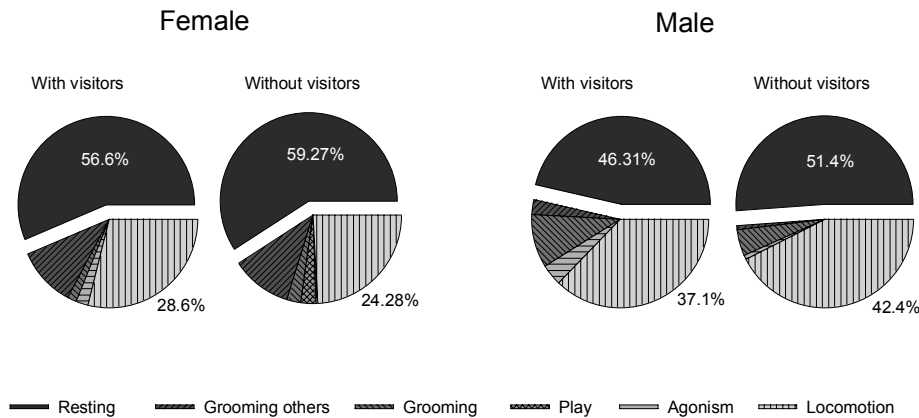
Discussion

As it could be observed, there is an existing change in both the expressed behaviors by the subjects

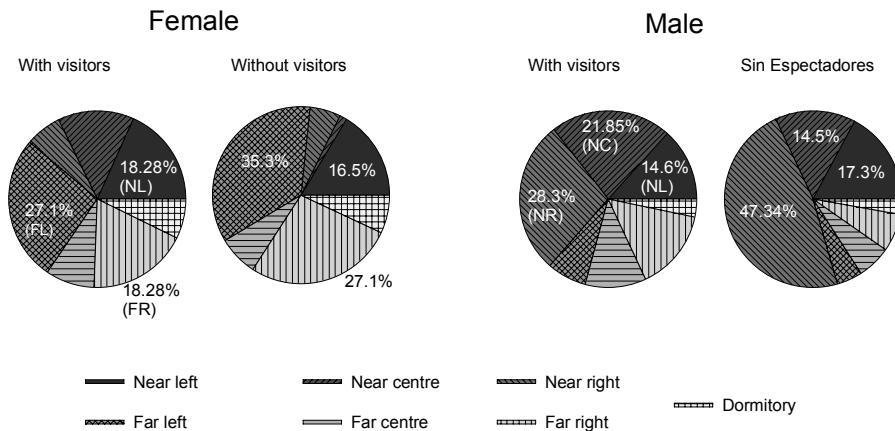
in study and, and the spatial location inside the enclosure. This seems to indicate that spectators have a relevant stimuli function for captive vervet monkeys; one of the possible reasons is that spectators are usually associated with food grants, as it was observed in an anecdotic way during the recording of the observations. This was also observed in a contiguous enclosure, in which another species of monkeys were kept, this type of behavior was observed at the time the monkeys stretched out their hand to receive food from spectators. This could explain the constant use of the space near the enclosure that separates them from the spectators by the male. On the days the zoo was open to the public, the female was usually located on the log that lies against the wall in the back of the enclosure, or sites that kept her with a large enough distance from spectators. At the same time, a preference for the log was observed during the days without spectators. This could be explained by studies made in natural habitats in which it is mentioned that this species tends to be semi-terrestrial although they most likely accomplish their activities on tree branches (Melnick & Pearl, 1986). Another aspect to consider is the age of the infant, and the activities displayed by each of the members of the group, as well as the use of space. As the infant Grows the male tends to distance himself from the spectators, this could be related to protection and surveillance patterns of some kind displayed by the male (Ortiz & Cabrera, 2002). A situation to be considered in further studies, in which behavioral changes could be more specifically identified (in what to pattern expression and spatial distribution concerns) produced by the birth of an infant, which implicates the introduction of a new member to

RESULTS

Behavioural Patterns



Location



the group, that as a consequence has a reduction of space and access to food.

Finally, it is important to comment on the fact that the highest activity frequency is centered on resting; in female it may not be so relevant, because of the infant's age, and this could considerably limit her activities even in natural conditions. It would be important to carry on with more comparative studies between the behavioral patterns expressed in captive and natural conditions, as well as the relevant stimulation for such patterns, to be able

to identify, define, and in a given moment, modify the conditions of the enclosure in which not only this species of primates but all the captive animals live in. Maybe what we are doing is limiting and placing barriers to the expression of characteristic behavioral patterns of the species, causing with it, a lower quality of life to the captive individuals, although we may extend slightly or considerably their life span, or to say, we could be affecting the psychological wellbeing, that could be defined as related to the emission of typical behavioral patterns of a

species and the emission of abnormal, pathological or stereotyped behavior caused by chronic sub-stimulation (Commission on Life Sciences, 1998). According to the Commission on Life Sciences (1998), if well focused on non-human primates, the so called psychological wellbeing is a critical aspect and of vital importance in the maintaining of captive organisms.

With this, we consider important this type of research that can give us a wider vision about the kind of patterns expressed, as well as the spatial location in either natural or captivity conditions, so that we can plan and build enclosures in the most rational and effective manner possible. In fact, many of the studies and efforts on environmental enrichment are carried out and directed to accomplish this objective (i.e. Adams, et al, 1992; Anderson, et al, 1992; Shefferly, et al, 1993; Glick-Bauer, 1997; Ostrower & Brent, 1997; Boccia & Hijazi, 1998; Cardinal & Kent, 1998), although most of the efforts to provide enrichment have focused on foraging behaviors, a predominant activity in natural conditions but virtually absent in captive animals (Reinhardt, 1993).

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PROPOSAL FOR A METHODOLOGY OF CLASSIFICATION, IDENTIFICATION AND MANIPULATION OF RELEVANT FACTORS TO ADAPTATION

Gerado Ortiz, Laura Correa, and Maria Fernanda Gallardo, Universidad De Guadalajara-Mexico

There are different species which adaptation to new conditions (i.e. captivity) is easier than others; actually, for some species the adaptation is very difficult or even impossible. The adaptation capacity to captivity conditions is a basic element for the development of conservationist strategies (i.e. translocation, introduction and reintroduction) and can be measured through different variables related with the animal's psychological well-being. Our main objective is to propose, from a psychological point of view, a methodology that allow us the classification, identification and manipulation of relevant factors for adaptation to different conditions (i.e. freedom and captivity), and a more rational handling of the organisms and their life conditions. The main areas of this methodology are: a) adaptive and survival circumstances, b) description of ecological milieu, c) interactive processes (i.e. intra-individual, inter-individual, and inter-individual dependence), and d) interaction situation relationship.

The basis of different conservationist tactics is captivity that can last from a few days when we talk about translocation, to several years when we talk about introduction (e.g. Rodríguez-Luna et al. 1993). In this type of environment, the conditions under which the individuals or groups of different species live differ considerably from those who live in

their natural environment; such modifications go from the space they live in and the population density (i.e. the territory is delimited, the social groups are more or less stable and structured, generally there are no predators to avoid, meanwhile there is few -not to mention none- possibility of intra and inter-specific competition), to nutrition aspects and search for food (i.e. water and food are given in specific time and places, besides not counting with the same nutrimental sources) (i.e. Caldecot, 1986; Boinski, 1998; Boccia & Hijazi, 1998).

There are species to which adapting to captivity conditions is relatively easy (i.e. Abeles Geoffrey or spider monkey), and there different species which hasn't been possible to keep under this conditions for a long time (i.e. Allocate epigram or black howling monkey). Problems related to feeding are commonly attributed to be one the principal factors that cause this effect (Seri-Silva, personal communication 2000).

This problem can be called "captivity resistance" and it would implicate the difficulty of the subjects to survive these conditions; the close relationship between "captivity resistance" and the facility or difficulty that different species have to adapt or not to changes and/or drastic and fast perturbations in their habitat is clear. This ability to adapt to captivity is an element of vital importance for the adequate development of common conservationist

strategies used with animals (translocation, introduction and reintroduction).

For its psychological characteristics, each species (and each individual) keeps an unique relation with the environment and other organisms; in this way, they are adapted anatomic, physiologic and behaviourally to their environment, developing behavioural modifications that are not only necessary for their survival (Maier, 1998) but to keep a sustainable maintenance of the ecosystem dynamic in which its in.

From a psychological point of view, one of the first steps to study the adaptation ability (specifically the so named captivity resistance) is the identification of the stimulus and environmental events that are relevant to different species and the effect that its modification would have in the individual's behaviour. This asseveration comes from the following assumptions:

- 1) the environment can be analized as a series of stimuli,
- 2) the organism must be studied as a being that behaves (interacts with its environment) and no only as a being that perceives its environment (Gibson, 1986),
- 3) if one of the interaction elements is changed (organism and/or environment) the interaction changes (the form in which the organism behaves), and
- 4) some species can adapt in a fastest way that others to changes in their environment.

Therefore, it is important to elaborate a general methodology that should be able to categorize and manipulate in a simple and general way those environmental elements relevant for the organism behaviour, independently of the specie under study.

To achieve this objective, the application of the following particular objectives is proposed:

- a. Creation of description of forms and categories of the ecological environment.
- b. Identification and classification of the adaptative and survival circumstances, interactive processes and interaction-situation relationship implied.
- c. Adaptation of observation techniques for each case.
- d. Evaluation of the relevant variables for the adaptation to conditions.
- e. Elaboration of experimental or quasi experimental techniques of manipulation of the relevant variables.
- f. Manipulation of the variables that, theoretical or empirically (i.e. with systematic observations), have proven to be relevant.

In this paper, we will focus in the description of points a and b, which means the creation of description of forms and categories of the ecological environment identification as well as the identification and classification of the adaptative and survival circumstances, interactive processes and interaction-situation relationship implied.

We can analyze and describe the ecological milieu using three general categories:

- a) Geophysical factors: physical-chemical elements of the environment as scents, colors, or flavours.
- b) Geocological factors: geo-

graphical distribution elements as type of land or enclosure, location and size of feeding, resting and protection zones.

- c) Intra-interspecific interaction factors: presence or absence of other species or individuals; for example, we can describe the number of individuals/groups of other species with sympatric or competition relationships with our target group or subject.

An adaptative and survival circumstance is defined as the form-situation in which an individual-group-specie interacts with another individual-group-specie increasing or decreasing, as last resort, their reproductive aptitude (basis of evolution by natural selection). In the behavioural study on animals in natural environments literature, it has been considered as diverse critics. Adaptation and survival circumstances, Klopfer (1974) considers relevant, among others, the social organization (i.e. territoriality, individual distance, domination relations, leadership, parental care), mutual stimulation (i.e. help, grooming others, visual and auditory reciprocal deployment, observational learning).

On the other side, Maier (1998) suggests that activities such as feeding (i.e. intra and interspecific competition), defense against predation (techniques and strategies such as detection, confusion effect, dilution effect, resources unity, escape, defensive aggression, advertising strategies), attraction, courtship and mating, parental care, migration and navigation, emigration, habitat selection and regulation of population, intraspecific social behaviour (i.e. cooperation, communication, competition, aggression, pacification) and interspecific social behaviour (parasitism, commensalism, and mutu-

alism) are relevant.

In general, we can observe that the principal consideration for the acceptance of an event as relevant for a particular circumstance is its constitution as a discrete moment of temporary-spatial occurrence, for example, that a certain organism presents a determined coloration during a sexual activity period or well, that shows its teeth as part of a ritualized aggression act. This fact has as a consequence the logic exclusion of any element that a) does not constitute a discrete occurrence event (i.e. any type of shown trends by the studied organism) and b) its inclusion in the direct causal sequence of which we talk about is not proven (i.e. occurrence of events during moments different to the target one).

Due to the intent of including in the analysis the contextual variables, nonpresent events as well as trends, within the ones that frame the descriptions of historic transitions and interactions of the specie and/or individual, we can describe the different adaptation and survival circumstances based on three different interactive processes: interindividual, intraindividual and interindividual dependence. The difference between inter and intraindividual processes lies in the participation or not of subjects different to the target individual in a particular adaptation circumstance.

The interindividual dependence process, if well considers the participation of other subjects in the adaptation and survival circumstances, it also constitutes a different process because of the supeditation of the process to the interaction with other individual, without whom the probability of adaptation and survival decreases considerably, so much that without the presence of the "other", the individual could die. It should be

mentioned that this process is not restricted to sociable species because the relevant dependence can be given from the presence or behaviour of individuals of other species.

An example of the interindividual dependence process is the so called parental care, independently of the par-

titive relations between them, forming an interaction web; the particular direction of those relations give shape to a particular situation. In this sense, different situations can be formed of the same kind of elements and variables, but will differentiate because the peculiar relationships

therefore in a same adaptation and survival circumstance that may be included in three categories. An example of this can be taken from one of the adaptation circumstances that have been widely studied in the literature of animal behaviour, the search of food (also known as forag-

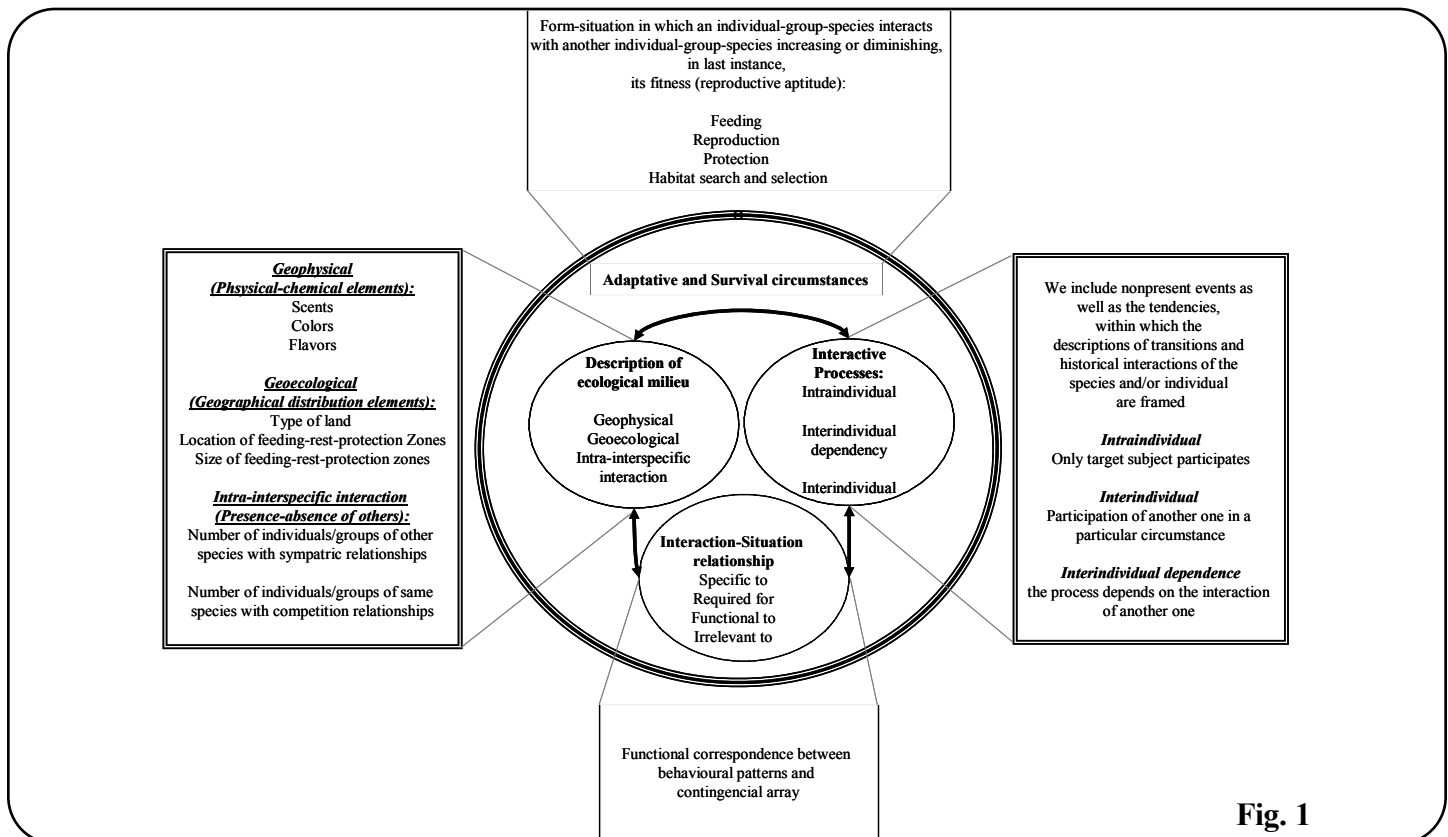


Fig. 1

ticular morphologies that show in each specie. Without minding the specie we refer to, if this parental care occurs, its of vital importance for the infant's survival and in species considered superior (possibly in an exclusive manner in mammals) it often represents, besides, the unique opportunity of learning specific forms of interaction before particular environment conditions.

Finally, but not less relevant, we need to analyze specific interaction in terms of its relationships with the situation or contingencial array. A contingencial array can be defined as a group of elements, factors and/or variables that keep peculiar interac-

tions between those elements. According with Torres (2005), we can identify at least four kinds of functional correspondence between behavioural patterns and the contingencial array: a) interaction or behaviour specific to the contingency, b) interaction or behaviour required for the contingency, c) interaction or behaviour functional to the contingency, and d) interaction or behaviour irrelevant to the contingencial array.

For a schematic representation of the described system, see Figure 1.

The performance of a classification based on the criteria mentioned before would allow the reconceptualization of the organisms' activity,

ing). The search for food can be defined as the accumulation of food, including food collection (i.e. presented in a food box) or the recollection of food items that have no direct access (i.e. presented in a food dispenser). It does not include feeding behaviour, such as putting food in the mouth, storing food in the cheek pouches, taking food from the cheek pouches or chewing and swallowing the food.

The search for food, as an intraindividual process consists in the search, identification, selection, and recollection of food on behalf of an individual. However, it may also be considered as an interindividual process

because the actions that includes can be modified or presented with different rate depending on the presence of other individuals of the same or different species, even though the subject "target" belongs or not to a species considered sociable.

Finally, the search for food as a process of interindividual dependence would identify the need of the presence of other organism so that the "target" individual can develop the behaviors related to food collection. Like this, for example, it would be feasible to find in a species that the presence of, and interaction with, other organism can be a condition sine qua non of foraging, being parasitism the extreme case.

In the same sense, behavioural patterns linked to foraging in a specific situation can be qualified depending of its functional correspondence with the contingential array; thus, for example, a behavior like to clap just before food is delivered can be identified as irrelevant to or required for the situation, depending on the necessity of this behaviour to obtain food.

Identification of the interactive processes implicated in adaptative circumstances, description of ecological milieu, and functional correspondence behaviour-situation will allow a more precise identification and manipulation of the relevant factors in the adaptation of each species; at the same time, this would allow, a more rational management of the organisms and their life conditions. With it, there is possibilities of reducing, for example, the resistance to captivity, the manipulation of factors that put in danger different species and/or the prediction, with a high degree of certainty, of threat of extinction that any species could face if the identified factors are or are not modified, precisising even the kind of

variables that will be necessarily modified.

The next step consists in the definition of all the adaptation and survival circumstances, just as they are studied in the pertinent literature, to make the corresponding classification in terms of the process and factors before mentioned. At the same time, it will be necessary to identify the commonly used techniques for observation of each case, analyzing their pertinence under the classification proposed (intra and interindividual and interindividual dependence processes).

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PREDATOR VS. PREDATOR - AND THE ROLE OF OPERANT CONDITIONING IN THE RECOVERY



Janet Ramsay, San Diego Zoo's Wild Animal Park

This poster will outline via text and photographs:

1)The situation by which our trained ambassador "Kasten" (an adult, male African caracal), during a public presentation, was bitten by a southern pacific coast rattlesnake.

2)The ability to utilize conditioned reinforcers to aid the animal amidst the instinctive "fight or flight response".

3)Document the amazing Veterinary care that carried him through the doubtful recovery; including: 24 hour monitoring, 5 anti-venin treatments and a full blood transfusion (which included the involvement of the San Diego Zoo, Keepers and Asiatic caracals).

4)Approximating the caracal back to his previous environment while adjusting to definite short term as well as possible long term side affects apparent after the incident.

5)Re-desensitization to a once positive, now aversive, environment and objects.

6)The unexpected full recovery of this beloved ambassador. His triumphant return to all programs and venues.



WHO'S GOT THE TIME? WHO'S GOT THE MONEY

Erica Calcagno and Kasturi Mukherjee-Kahol, The Oakland Zoo



Despite the challenges of time management and available funds, a successful enrichment program is not only of utmost importance to the wellness of animals but is also a powerful tool that educates zoo guests about natural behaviors.

The Animal Enrichment Program at the Oakland Zoo provides a wide spectrum of choices for its recipients and continually increases public awareness about the zoo's animal species through its many organized enrichment events. This poster illustrates our leave no resource untapped approach to create a successful enrichment program that involves alliances with both internal and external partners.

The Animals' Fund Boutique (AFB) is a group of volunteers, docents, and keepers dedicated to providing the funds needed to pay for the variety of enrichment and training supplies. They create and sell hand-crafted items, stuffed animals, pet supplies, and refreshments to the zoo guests raising enough money for special purchases and for monthly \$100.00 allotments to the animals. While the AFB participates in most scheduled events at the zoo

it was they that initiated Enrichment Day and Spotlight On the (Animal) Days. These special events include a docent station with the AFB table that provides the visitor with hands-on artifacts and information about the highlighted animal species. At events such as these, announced feedings and enrichment activities enhance visitor experience and give the staff an opportunity to inform them about enrichment and its goals. The local AAZK chapter and



Docent council support the Enrichment Program by donating their time for Keeper Talks, and a variety of kid's activity stations. Animal Face Painting, Be The Animal, Polaroid Photos, and Help Make An Enrichment Item stations are just a few of these popular activities. At regularly scheduled events, these stations generate additional donations and promote

greater public interest throughout the year. Photos with Santa are a very successful fundraiser, raising enough money for a spectacular holiday party for the animals where many of their enrichment wishes come true!

Festival of Enrichment, co-sponsored by the Docent Council and Enrichment Committee, initiated in 2005, was a popular event where volunteers and their friends pay \$10.00 per person to meet for five hours after work to create enrichment

devices. 125 enrichment projects (31 types) were completed by teams led by keepers. A video showing of the zoo's enrichment program and a few others from the Shape of Enrichment library included in the event was another effective way of raising awareness and enthusiasm among docents

and other departments of the zoo. The event not only made money, enrichment devices, and developed team cohesiveness, but also gave the volunteers a fuller understanding of the importance of behavioral enrichment.

Developing a network of diverse community partners is an essential part of the program. A designated keeper contacts supermarkets, local

vendors, tree companies, state highway and fire departments, seasonal item suppliers, car wash services, and other interested groups. A reward of free passes and the occasional behind-the-scenes tour further strengthens these partnerships.

Combining our creative thinking with their contributions we increase the effectiveness and scope of the program.

State highways, City of Oakland Park Services and tree companies regularly bring truck loads of plum, elm, acacia and a variety of browse plants which otherwise would have been difficult and time consuming for keepers to obtain.

Grocers' donations provide us with a seasonal variety of produce which would otherwise be cost prohibitive. A local smokehouse donates dressed-out deer carcasses providing the carnivores with novel tastes unavailable in their daily diet. Other donations for carnivores include eggs, fish heads, and live carp, pork, and beef bones. Seasonal items like pumpkins and Christmas trees are easy to get and distribute to all animal species. This holiday enrichment is very popular with zoo guests and the media, providing good publicity for the zoo.

While it would be ideal if every enrichment device could be as natural-looking as possible so not to distract from a naturalistic exhibit, we think it is a loftier and more achievable goal for the device to elicit natural, species-specific behaviors.

This latitude, although monitored, frees the keeper to use enrichment items that are not natural in appearance, but does create a wild experience for their animals in their limited, captive environment. Car wash

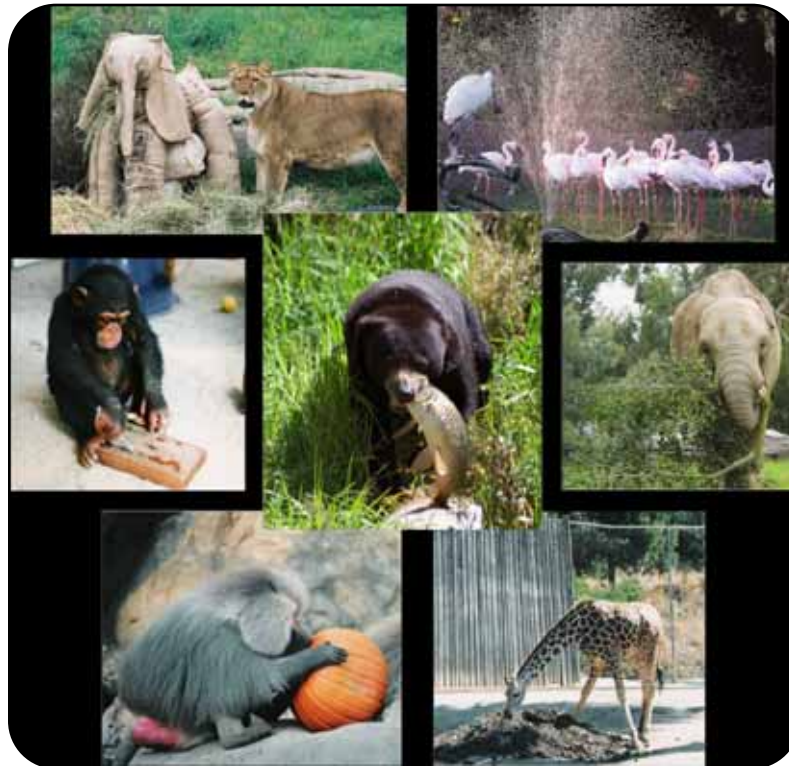
Zoo Teens and Roots and Shoots members provide energy and much needed youth power for many time-consuming and labor-intensive projects such as changing exhibit perching, and moving bramble piles.

These groups also make enrichment items such as popsicles, piñatas, and bird chew-toys in bulk for the keepers to use at their convenience.

Volunteers and interns of the animal management department are a huge asset to the enrichment program. Training classes, covering operant conditioning, enrichment safety issues, novelty items, proper approval procedures, species-specific projects and other topics crucial to the welfare of animals, are required for interns and recommended for

volunteers. Trained volunteers and interns help in many different ways, from helping in exhibit management and daily cleaning routines to maintaining small gardens of herbs and edible plants which provide tasty treats for many species. A required enrichment project as part of the zoo's intern curriculum ensures an influx of new ideas and the means to observe and document the effectiveness of the enrichment. The use of volunteers increases time available for researching new enrichment ideas and animal training programs. Volunteer help, user-friendly enrichment calendars, and simple documentation forms allow the keepers to maximize the time spent on enrichment.

Creative use of available resources and optimizing community support has enabled the Oakland



barrels and brushes, carpet tubes, sheets, towels, perfumes, horse hair, dirt, fire hose, bowling pins are just some of the items that evolve into enrichment.

Internally, by building interest and enthusiasm for enrichment, we get tremendous support from other zoo departments such as Horticulture which supplies us with an array of edible weeds and flowers and Grounds which helps with substrate rotation in exhibits. Collaboration with the Education department is particularly useful to both outreach and the time management aspects of the program. Keeper-assisted enrichment workshops led by the Education department are very popular among younger groups and once again provide the animals with a variety of carefully made enrichment items.

Zoo's staff to overcome the challenges of time and money associated with enrichment and thus increased time available to enjoy its many benefits. We raise the money! We make the time!

Acknowledgements

We would like to thank all our partners in this adventure called enrichment. Providing the animals at the Oakland Zoo with the highest possible quality of care can only be achieved with the cooperation and enthusiasm of a community. We are grateful for the many hours, supplies, and money donated to the animals in our care. We appreciate and honor our association with these diverse groups. It is through their commitment that we meet the challenges of having the time and raising the money.



USING INTRADEPARTMENTAL COOPERATION AND A SURROGATE MOTHER, TO REINTRODUCE AN AFRICAN LION CUB BACK INTO ITS PRIDE

Emily Insalaco, Denver Zoological Gardens

On November 23, 2005, "Mtoto," one of the Denver Zoo's 3.3 African lions gave birth to her first cub, "Asali," a single female. This was the 2nd birth for the pride, made up of 1.3 animals. In addition, another female, "Natal," was pregnant with what would be her first litter of cubs. As we awaited the next birth, we began to notice continuously declining interest in the first cub by its mother. Daily weights and visual observations also showed loss of weight and lethargy in the cub, despite the addition of supplemental feedings by the keepers. The decision was made to pull the cub and manage her in the hospital. In the meantime, "Natal" gave birth to 3.0 stillborn cubs. At this point, we decided to temporarily hand-rear "Asali," and then attempt an introduction between her and "Natal." This poster will outline the animal care challenges we faced, and the roles played by the different groups

making up the Biological Programs Department, including the keepers, veterinarians and managers. It will outline the importance of having a strong training and enrichment program, and how the flexibility it provided contributed to the success of this plan. It will also stress the importance of taking advantage of the diverse expertise available in order to accomplish a common goal.

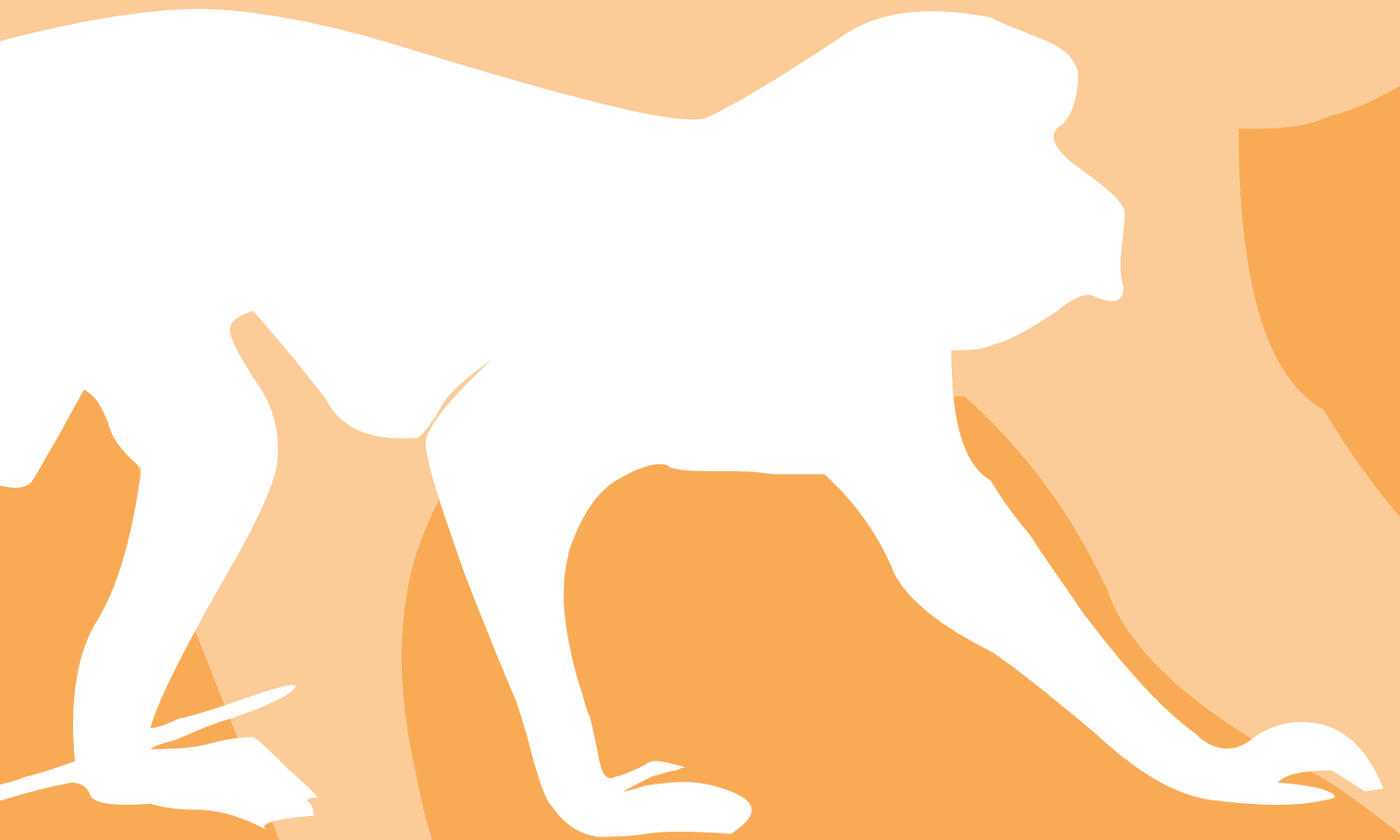


Photo by Gary Wilson



Photo by Tim Sullivan

Events



Workshops



Photo by Bob Bailey



Photo by Sue Rubino



Photo by Gary Wilson



Photo by Bob Bailey



Photo by Bob Bailey



Photo by Gary Wilson

Enrichment Workshop: Module 1

Cindy Wilson, Moorepark College

The Basic Six of Behavioral Enrichment

Presented by
Cindy Wilson
America's Teaching Zoo
Moorpark College

Behavioral Enrichment

- o Enrichment is a process for improving or enhancing an animal's environment.

- o Enrichment comes in many forms, from simple to complex

- o Use your imagination - think outside the box!!!

Safety First! (from AAZK Enrichment Notebook, 2nd Ed. 1999)

- o Enrichment should be evaluated on three levels:

- o Whether the enrichment item itself poses an unacceptable risk to the animals;

- o What benefit the animals will derive from the enrichment;

- o Whether the manner of enrichment delivery is apt to lead to problems.

Goal setting

- o Gather baseline data
- o Set goal of enrichment
- o Design and implement enrichment

- o Evaluate

The Basic Six

- o Tactile

- o Visual

- o Auditory

- o Olfactory

- o Stimulation of Natural Behaviors

- o Mental Stimulation

Tactile

- o Materials such as brushes or fabrics

- o Trainers, can give an animal tactile interaction

Visual

- o Mirrors

- o Plants

- o Other animals

- o Television

- o Object (Boomer Ball)

Auditory

- o Music

- o Wind chimes

- o Recorded sounds

Olfactory

- o Scents of different animals

- o Spices and herbs

- o Flowers

- o Perfumes

Stimulation of Natural Behaviors

- o Cage complexity

- o climbing

- o swinging

- o fishing

- o digging

- o foraging

Mental Stimulation

- o Training

- o husbandry

- o natural behaviors

- o fun

Workshop Participation

- o We have stations representing the different types of enrichment

- o Spread yourselves out to the different stations

- o My students will divide you into small groups; try to work with people you don't know

- o The students will distribute worksheets

- o You have about five minutes to complete the worksheet

- o When the music plays, the students will collect the worksheets and bring you another station

GO TO THE ATTACHED PDF TO
VIEW THE WORKSHEET
FILLED OUT DURING THE
WORKSHOP.



WORKSHOP: THE ART OF TRAINING

Steve Martin, Natural Encounters, Inc.

What is it that enables some people to venture beyond traditional perspectives and practices to pioneer new methods and achieve new levels of performance? Some people just have a propensity for functioning at levels beyond many other people's comfort zones or abilities. When you consider the areas we have come to call "the arts," you find painters, sculptors, musicians, and even sports figures, etc., all practicing their craft at levels beyond the limits of us mortals. These are the people with talent, insights and skills that allow them to perform at extraordinary levels and earn them the status, or reputation, of artists.

I have been around animal trainers for most of my life and have seen a few people who I would call animal training artists. These people have remarkable ability to work with their animals and create behaviors and routines that are outside most people's ability or comfort zone. For instance, Luri Ova, a dolphin trainer at ZooMarine in Portugal, performs some amazing behaviors in the dolphin show. I have seen many dolphin shows all around the world, but in this show there were two behaviors that really stood out. Above the pool were three rings suspended from lines. Of course, I and the rest of the audience suspected that the three dolphins in the show would at some point jump through the hoops. But, to our surprise, the behavior went a bit differently. Luri led the two dolphins on a foot push to the bottom of

the pool. Moments later, he broke the surface of the water and was propelled through one of the rings by the two dolphins. The behavior was spontaneously unpredictable and way beyond my imagination. A few minutes later, he followed with another unique behavior. Again from a dolphin foot-push, he came high out of the water toward a ball suspended from a line overhead. At the last moment, he arched backward to kick the ball with his foot, something most of us would have been extremely impressed to see a dolphin do. To see a trainer do this was incredible. To put these two behaviors into a show requires creativity, perseverance, and an extremely high level of skill...all qualities found in the most artistic of trainers.

There are other artists in the animal training field whom I have admired and had the good fortune to have learned from. These lessons and experiences have stuck with me and hopefully made me a better trainer. Today, I'll share with you some of the most important lessons I have learned from some of the most artistic animal trainers in the business. Many or most of these things are not found in psychology books or animal training books. However, they are strategies and techniques that have been helpful to me and will hopefully be to you as well.

Take Responsibility

The first step toward becoming the best animal trainer possible is to take responsibility for the animals' undesirable behavior as well as the behavior you like. Too often animal trainers make up excuses for their inability to train an animal. These excuses include things like: "He's hormonal," "He's phobic," "He was abused," "He is messing with my mind," "He is pushing my buttons," "He is abstinent," "He is in a bad mood," and lastly, "He is training me." With the exception of the last one, all of these labels are little more than anthropomorphic interpretations that have nothing to do with the real motivation behind the animal's behavior. "He's training me," may be the closest to an accurate interpretation, but it is still not a valid excuse for the trainer's inability to train the animal. Animals are always scanning their environment for opportunities to earn reinforcement and opportunities to avoid things they don't like. Of course a trained animal will look for ways to get you to give him or her reinforcement, or in a sense, train you.

The animal trainers I admire most are the ones who accept responsibility for the poor behavior their animal exhibits. Accepting this responsibility inspires and empowers them to develop more productive training plans and relationships with their animals. There is no question that an animal is capable of learning behaviors. The only real question concerns a trainer's ability to teach the animal.

The best animal trainers I have known avoid blaming their animals for their inability to train them.

Two-way Communication

The most productive learning occurs when there is a clear exchange of information between trainer and animal. This exchange of information begins with understanding the animal's natural communication methods, which is usually body language and vocalizations. The best animal trainers have developed a keen eye for the subtlest body language in their animals. I have seen animal trainers interpret body language in their animals that is completely imperceptible to me. These incredible observational skills, almost more of an empathy than a skill, is what enables them to gain insights into what an animal is thinking, just by reading its body language. Armed with this information, an animal trainer can attack even the most difficult training challenge with the most positive approach possible. People who lack the sensitivity and skill to read subtle body language have more trouble making progress in training sessions are more likely to resort to more heavy-handed and negative means of motivating animals.

The second half of the two-way communication involves the trainer's delivery of information to the animal. These messages usually come in the forms of cues, bridges, and prompts. A cue, sometimes called an SD (Discriminative Stimulus), is a sound or action that tells the animal what a trainer wants it to do. Once the trainer has conditioned the cue in association with a specific behavior, the trainer delivers the cue to the animal and the animal chooses to

respond or not. If the animal responds correctly, the trainer reinforces the animal. Skilled animal trainers work hard to insure that their cues are clear communications to the animal, and are delivered only when the animal is ready to "listen to," or receive the cue. Giving a cue repeatedly to an inattentive animal may allow it to learn to perform the behavior any time it wants, instead of performing the behavior quickly in response to the cue.

Also important in the communication process is the Bridge, or Bridging Stimulus. This is a sound or an action that tells the animal that it just did something right. The bridge got its name because it bridges the gap in time from when the behavior was performed and when the reinforcement was presented to the animal. Clickers, whistles, and voice bridges are the most common bridging stimuli used in the animal training field. The most important aspect of clickers and whistles lie in their novelty to the animal. They are sounds that the animal never hears outside of training sessions, unlike our voice. This is the main reason clickers and whistles are such good markers for performance of proper behavior. However, skilled animal trainers know there is no magic in the clicker...the magic is in the trainer and his or her ability to communicate with the animal. Clickers and whistles are simply communication tools that help in the learning process.

Animals often communicate with each other in the subtlest body language imaginable. With that in mind, the animals we train are capable of understanding our slightest body language as bridges and cues. I have seen sea lion shows where the trainers use an incredibly small foot movement to cue an animal to per-

form a behavior. I have seen other shows where the same behavior is cued with a huge movement of a waving arm. Similarly, I have seen shows where animals are bridged with loud, obvious clickers and whistles, and other shows where the trainers bridge the same behaviors with very subtle movements of the body, even as small as eye movements. When used properly, subtle cues and bridges, such as body language and voice, are just as effective as loud, obvious communications. However, it usually takes an artistic trainer to develop this level of communication with an animal.

Prompts are anything, except cues and bridges, which an animal trainer uses to help their animal learn a behavior. Prompts are things like body language, voice encouragement, baiting or luring strategies, etc. For instance, to get a jaguar to step up on a bench, a trainer might use a finger point cue and a verbal cue, "Bench." Everything else the trainer does to encourage the animal, like moving toward the bench, putting a piece of food on the bench, bending down toward the bench, and any words of encouragement, might be prompts. To get a bear to come into the holding area the cue might be opening the door and the prompts might be calling the animal by name, clanging the food bowl on the bars of the cage, showing the animal the food, moving toward the food chute, standing out of sight of the bear, etc. Anything other than the cue is considered a prompt.

Prompts are often overused in training situations, which can result in animals becoming dependent on the presence of the prompt before they perform the behavior. Perhaps the most common problem with prompts involves animals learning to ignore the offering of a piece of food

only to hold out for the trainer to offer a larger or more desirable morsel before they will perform the behavior. The best animal trainers understand that prompts should be eliminated as early as possible in the training plan. If you use a baiting or luring strategy to teach a lion to shift from one enclosure to another, it is best to only show the animal the food for one or two repetitions. If you continue to show the lion the food, it can decide if the type and quantity of food warrants a quick response or any response at all. If you eliminate the bait, teach the animal to respond immediately to the cue, and vary the type and quantity of the reinforcement, the behavior will become more reliable. Also, if you want your wolf to come into the holding area every time you open the access door, it is best to evolve your training plan to eliminate all prompts and only rely on the open door cue. You can use prompts such as calling the animal's name, moving toward the food chute, showing the food, etc., to train the behavior. But, if you do not eliminate all these prompts early in the training plan the animal may come to rely on them for performance of the behavior.

Short Window of Opportunity

Another communication strategy that encourages quick performance of behavior is what I call giving an animal a short window of opportunity to perform the behavior. A bear in the wild knows that if it does not chase the salmon as it passes upstream it will lose its window of opportunity to catch that fish. This same concept applies to a hawk sitting in a tree watching a mouse walking in the meadow. If it does not fly down to attempt to catch the

mouse while it is away from its hole, it will lose its opportunity to eat the mouse.

When training animals to perform behaviors, it is often best to help the animal understand that it has a short window of opportunity to perform the behavior before the reinforcement disappears. If you cue a cheetah to come into the holding area by opening the door and the cheetah chooses to ignore the cue and stay outside, closing the door after a few seconds will help the animal understand it just lost its opportunity to earn the reinforcement. Conversely, if you leave the door open and allow the animal to come inside whenever it decides, you are really teaching the cheetah that it can perform the behavior anytime and still receive reinforcement. In effect, you are training in latency, or slow performance of the behavior. Wild animals fully understand the value of quick performance of behavior. Highly skilled animal trainers take advantage of this hard-wired behavior and teach animals to respond quickly to cues by closing the window of opportunity for the animal to earn the reinforcement. Some animal trainers call this a time-out. Technically, it is negative punishment. Whatever you call it, when you allow the animal to understand that it may lose its chance to earn reinforcement unless it performs quickly, the performance of the behavior will likely improve.

Honesty

Honesty is another aspect of communication with animals that is important to world-class trainers. They know that in order to have the best relationship possible with their animals, they should use clear, hon-

est communication when working with them. They avoid deceiving animals into performing behaviors by doing things like showing a large piece of food to get the animal to go through a door and then only giving the animal a small piece of food when it performs the behavior. I have seen bird trainers offer a peanut to a parrot to encourage it to fly to their hand only to withhold the peanut and not give it to the bird when it landed because it did not respond quickly to the cue. My strategy is "if you show it to him, give it to him." I have also seen trainers trick animals to go inside a holding area for a tasty treat then close the door and lock them inside over night, or lure an animal's head into a collar with a piece of food only to quickly close the collar around its neck. Artistic trainers understand the best way to train an animal is through small approximations and positive experiences to build trust and confidence. The last thing they would do is trick an animal into performing a behavior that it might later associate with something negative. The trust that is lost when trainers are dishonest with their animals is difficult to recoup.

Power

When I think of my relationship with animals I am training, I often consider the partnership I have formed with that animal. To me, this relationship is as important as anything I do in the training arena. To establish the best relationship possible, I have to be a good listener and develop observational skills that allow me to understand what is going on in the animal's mind. I can never read an animal's mind, but I can read its body language to help

me gain some insights into that animal's state of mind.

Once I have learned to read the body language, the next step is to give the animal a strong voice in our relationship. To me, this means allowing the animal to shape my behavior. If an animal shows me through its body language that it does not want me around, I leave. I know some people will say that I am teaching that animal to use its body language to make me leave. That could be true. If an animal shows me aggression, I leave. Yes, this may encourage the animal to be aggressive in the future if it wants me to leave. But, as soon as I leave the first time I see aggression, I make a plan to build a better relationship with that animal through positive experiences so it wants me to be around. The alternative is to stand in front of the animal and ignore the aggression. Some trainers say that you should show the animal you are not scared of it and that you are the boss. I say, I am scared of aggressive animals and I do not want to be the boss of any animal I am training. I want to develop partner relationships with animals that are based on positive experiences, not dominance and aggression. Besides, any animal that rehearses aggression is likely to get better at it. So, at the first sign of aggression, I acknowledge the animal's body language and leave. I then make a plan to reinforce good body language in the animal, which in turn creates a relationship built on trust instead of fear.

I also give animals power to escape almost any situation that I put them in. At Givskud Zoo in Denmark, we were training chimpanzees to enter a shift cage, or chute, where we would later begin training husbandry and medical behaviors. The chute was long, nar-

row and short, just high enough for a chimp to move through on all four legs. As the first chimp came into the shift and came to sit at the training station, we made an action toward the access door. She immediately ran outside. She returned in a few seconds and we reinforced her for coming back. Again, as we started to close the door, she bolted outside. Gradually, through several repetitions of us reinforcing her anytime we touched the door, she became comfortable with us moving the door mechanism. However, she still bolted outside anytime she saw the door begin to close. We gradually progressed to the point where she understood reinforcement was contingent on the door moving. But, she would not sit still if the door closed too far. We then adopted the strategy that she would control the opening of the door. Anytime she looked at the door, we would stop closing it and open it all the way. Soon her confidence built to the point that she would allow the door to close all the way to receive reinforcement, knowing that she had the power to cause us to open the door just by looking at it. The entire process took two or three days for her to become completely comfortable with being locked away from the other animals in the training area. The key to building this confidence was giving her the power to cause us to open the door anytime she looked at it.

I believe most animals have an innate fear of being trapped in unfamiliar areas. It is a survival strategy that serves them well in the wild. In captive environments, these same instincts cause them to be more guarded, less confident, in tight areas. Often, the best place to train animals is in areas where they have plenty of room to escape, like through the fence of the exhibit, or

the bars of the indoor holding area instead of a small shift cage. If an animal has plenty of room to escape, their comfort levels will more than likely increase. We have four Hyacinth Macaws that were housed together in a 10-foot square cage. As we approached the cage, the birds all vocalized loudly and retreated to the back of the cage. When we put these birds in a 50-foot long flight pen, their confidence grew overnight. Instead of flying away from us, they all allowed us to walk up to them and they even began eating treats out of our hands. Within a few days they were flying to our hands for treats knowing that they can leave anytime they wanted to.

Motivation

Animals are always going toward something they like or away from something they dislike. From that perspective, motivation is pretty easy to understand. For every action, the motivation is either to gain pleasure or avoid pain. He either wants to do something or he has to do something to avoid an unpleasant experience. When I think of motivating an animal that I am training, I always try to look at the situation from the animal's perspective. I ask myself, "What's in it for her to perform this behavior?" Actually, "What's in it for me?" is the question we subconsciously ask ourselves anytime we make a decision. From the moment you wake up in the morning until the moment you go to sleep at night, "What's in it for me?" helps you evaluate every decision you make throughout the day. "What's in it for me to wear these pants today?" "What's in it for me to take this route to work today?" "What's in it for me to be on time today?" Everything

you do is evaluated in your subconscious before you actually take action. It is the same with the animals we train. They too are constantly evaluating what they will gain, or avoid, if they perform an action.

The relationship an animal has with a trainer is a huge impact on its motivation to work with that trainer. If an animal has a bad experience with a person, it will probably not want to work with that person in a training environment. However, if an animal's relationship with a person is based on positive experiences, it will have a higher level of motivation to work with the person.

The animal's physical ability to perform a behavior also impacts its motivation. Parrots that had clipped wings when they were young will have poor motivation to fly later in life after their wing feathers have grown in. Early in life, animals learn many skills and coordination associated with survival. If they miss the opportunity to learn these skills at a natural time in their life, it will likely be more difficult for them to acquire these skills later in life. Certainly a parrot can learn to fly later in life, but it is more difficult than it would have been earlier in life. Other influences on motivation are associated with natural influences like breeding states, social groups, comfort, security, environmental distractions, etc.

The last thing I think about when creating motivation in an animal is its hunger state. First, I consider my relationship with the animal, its past experience with this type of behavior and training environment, environmental distractions, the animal's skill and confidence in performing the behavior, and the natural influences on the behavior that I mentioned above. Only after I have ensured myself that I have done all I can to

set the animal up for success, do I consider reducing an animal's diet to create motivation for the animal to eat the rewards. The animal trainers I admire most are the ones who know how to motivate animals without reducing the animal's food.

Relationships

The more productive relationships are the ones built on a solid foundation of trust. Most often, this trust is built slowly, over weeks or even months for some animals. Each time we interact with our animals in a positive way we make a deposit into our "Relationship Bank" to build that trust. As our account grows, our animals become more and more confident in us and more willing to learn from us. Each positive reinforcement is a deposit that feeds our account and strengthens our relationship portfolio.

Conversely, each time we do something the animal dislikes we make a withdrawal from our trust account. Unfortunately, it is too easy to make withdrawals. Spraying a rhino with cold water to get it to go out into the yard is quicker and easier than training it to go out for positive reinforcement. Quickly sliding a parrot back into its cage as you block its escape with your body may be easier than training the bird to go in on its own. The negativity associated with these types of training leads to large withdrawals from the trust account. Make too many withdrawals and you will find yourself in the relationship poorhouse. When this happens, many people end up blaming the animal instead of accepting the responsibility for spending all the trust and bankrupting the account. Deposits are often more work than withdrawals, but

they are investments in the future that produce sound and very rewarding results.

Most animal trainers have become champions of positive reinforcement and in doing so have evolved away from the use of force and aggression, the more traditional animal training tools that have been in use for thousands of years. Fortunately, negative reinforcement and punishment are slowly, often reluctantly, giving way to positive reinforcement in most animal training communities. The increased use of positive reinforcement has created opportunities that are beyond many people's imagination while at the same time creating better working environments for animals.

The scientific community has demonstrated with hundreds of species from cockroaches to whales that the use of aversives, such as in negative reinforcement and punishment training strategies, produce certain detrimental side effects. These side effects include: aggression, escape/avoidance, generalized fear of the environment, and apathy or generalized reduction in behavior. These side effects are not something that might happen once in a while. They are always there along side the aversives, waiting to jump into the mix and eat up the trust you have worked so hard to build.

Fighting the urge to use negative reinforcement and punishment is not always easy. Most people grow up in an environment where negative reinforcement and punishment were the tools that influenced their behavior. This cultural influence was, and still is, evident in a myriad of sources in everyone's lives. Parents, teachers, siblings, schoolmates, etc. all use a multitude of negative reinforcers (the threat of punishment) to force people to comply with wishes, rules

and demands. They also punish people when they do not follow these rules or do not live up to certain expectations. Fear of punishment is a powerful motivator, but plagued with the detrimental side effects I mentioned above.

The most effective motivator is, and has always been, positive reinforcement. But, it takes more than positive reinforcement training to create world-class animal trainers. Many trainers work hard to learn the latest training techniques but still cannot reach their full potential as animal trainers. What might be missing is a healthy trust account in their relationship bank.

Positive Reinforcement

Artistic animal trainers understand the power of positive reinforcement and use it effectively. It is not that they completely avoid negative reinforcement and punishment. It is inevitable that we all use negative reinforcement and punishment in our training relationships with our animals. Even something as simple as stepping in the direction of the door to stop an animal from moving that direction is punishment. The key is to understand that positive reinforcement is almost always the best training tool for the job, even when punishment or negative reinforcement may be easier and produce quicker results. Skilled animal trainers know that if they ever catch themselves stopping a behavior (punishment) they should immediately begin developing a plan for how to avoid using punishment in the future. Often this is accomplished by finding ways to use positive reinforcement to train a desirable behavior to replace the unwanted behavior.

The use of aversives in training is easy and quick, but associated with the detrimental side effects I mentioned earlier. Plus, an animal trained with negative reinforcement or punishment will only perform at the level necessary to avoid the aversives. Whereas an animal trained with positive reinforcement will look forward to the interactions with the trainer, will be more creative about how to earn the reinforcement and will experience far less stress than an animal trained with aversives.

Punishment is a poor training tool for many reasons, including: it is too often associated with retributions and revenge; it is too often associated with anger and aggression; it is all too familiar and often used absentmindedly; it works, therefore it reinforces the person doing the punishing; doesn't tell an animal what it should do, only what it should not do. Punishment should only be used in environments rich with opportunities for the animal to earn positive reinforcement.

Team

The best animal trainers understand the importance of working together as a team. They know they are part of a team of people who share in the responsibilities and the rewards of their work with the animals. This teamwork is as important as any relationship a trainer has with his or her animals. Plus, creating effective teams is surprisingly similar to the work they do with the animals they train.

The human animal is influenced by the same behavioral rules that apply to other animals. If you use negative reinforcement and punishment to motivate your coworkers

you will likely see the detrimental side effects that I mentioned above. Think of these side effects with your staff in mind: aggression (verbal aggression, backstabbing, etc.), escape/avoidance (won't want to be around you), phobia (irrational fear of the work environment), and apathy or reduction in behavior (less motivated to work). The best you can do is use positive reinforcement to shape desirable behavior. For humans, the best reinforcer is not more money, shorter workdays, longer vacations, etc. It is recognition. As the saying goes, "If you really want to help someone succeed, catch them doing something right." A little recognition, especially when handed out in public or in front of peers, is an incredibly powerful training tool for many, if not most, humans.

The most trusting relationships with animals, as well as humans, are built on clear, honest communication. Successful animal trainers are very careful to help their animals understand exactly what they want them to do in order for them to earn reinforcement. However, most trainers rarely practice this level of communication with their staff. Some people need to work on their communication skills, some need to work on their honesty, and most need to work on both. It is sometimes difficult to be completely honest. I have told my staff that if they are honest, and their intentions are right, they cannot fail in their communications. I believe this to be true. I know others will not always like what I have to say, but, if I say what I believe, and do it in the kindest way I can, and my intentions are to help rather than to hurt, then I have done my part. It is then up to the other person to determine how they choose to take my communication. They can

choose to be happy about it or not.

I believe you are the only one responsible for your position in life. No one, not your boss, your spouse, your teachers, your colleagues or your dog is responsible for making you happy. If you rely on other people to make you happy, you are destined to fail. Sure, other people can do or say things you don't like, but you have the power to decide how those things make you feel. If you don't like something, change it. If you can't change it, change the way you look at it. Find something good in it, or forget about it and go on with your day. Why would you give someone else the power to control your happiness? One reason could be the reinforcement you get from your friends when you complain about a situation, or another person. The "poor you's" and comforting hugs serve to reinforce the behavior of complaining and increase the likelihood that you will do it more. The big problem here is complaining doesn't solve the problem. Clear, honest communication solves problems, but it is a bit more difficult than complaining.

Final Thoughts on Training

You get what you reinforce. The behavior you see in your animal is a product of your relationship and history with that animal. The best animal trainers take responsibility for their animals' behavior, both good and bad.

Animals live in the present. An animal's history is important, but it does not define who that animal is today or will be tomorrow. The past does not equal the future. No matter what has happened to an animal in the past, what happens today is the most important experience of its

future life.

Proceed at the animal's pace. Talented animal trainers are the ones who recognize the pace that is most comfortable for the animal they are training. Often, this pace is much faster than trainers might expect. Animals are capable of learning behaviors in seconds and minutes. Some animal trainers expect it will take six months to teach a gorilla to accept an injection in its arm, and as a result, they often take that long to train it. Other trainers move ahead at the gorilla's pace and some might end up training the injection in a few days. My strategy is to move to the next approximation when the animal performs the current step without hesitation. Plus, you should try to move forward with each time you reinforce the animal. If you spend too much time at any one step, you can teach the animal to stay at that step. Animals are always learning, so if you are not teaching the animal to move forward, you are teaching it to stay still.

Repetition builds confidence. There is a lot to be said about magnitude reinforcement or jackpots. However, I believe the best strategy for building behavioral confidence is through repetition. If an animal is hesitant to perform a certain level of behavior, it may help to back up a step and take smaller approximations. These smaller, easier approximations can help build confidence and momentum faster than extraordinary amounts of food for a single performance of a behavior.

Lastly, the most artistic animal trainers understand their opportunity and obligation to provide the best care and management for the animals in their charge as well as the opportunities to influence inspire and empower others. In this relatively young and limited field of animal

training, we are all artists in our own right. Our passions, our skills, our knowledge of training and of our animals are gifts that we can share with others. When we pass them on to other trainers we can improve their performance and ultimately the lives of the animals in their care. When we pass them on to the visitors to our facilities we can spark an interest that might inspire conservation action or even influence a whole new generation of conservation champions.

ICE BREAKER ON BOARD THE WILLIAM D. EVANS STERNWHEELER



Photo by Nicole Dorey



Photo by Gary Wilson



Photo by Gary Wilson

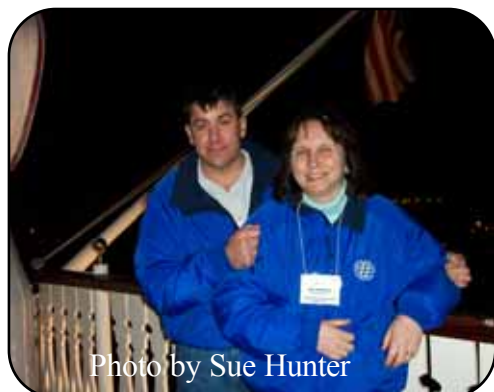


Photo by Sue Hunter

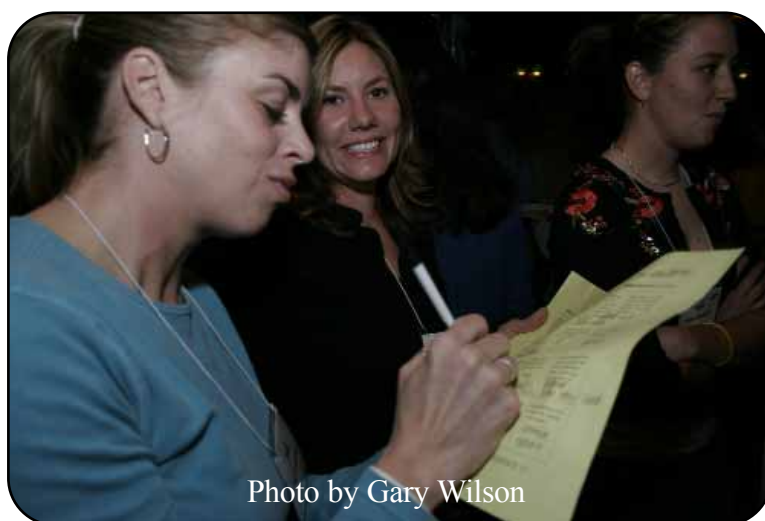


Photo by Gary Wilson



Photo by Tim Sullivan

BEACH PARTY AT BONITA COVE



SAN DIEGO ZOO



SILENT AUCTION



SAN DIEGO ZOO'S WILD ANIMAL PARK



AWARDS BANQUET



Photo by Angi Millwood



Photo by Nicole Dorey



Photo by Thad Lacinak



Photo by Sue Rubino



Photo by Sue Rubino



Photo by Thad Lacinak

Awards

The background is a solid green color. Overlaid on this are several organic, flowing shapes in a lighter shade of green. A prominent white silhouette of a person's head and shoulders is positioned in the lower half of the frame, facing right. The word "Awards" is written in a white, serif font, centered horizontally in the upper half of the image.

HONORS AND AWARDS WINNERS

TRAINING ACHIEVEMENT: Recognizes an outstanding achievement in the application of operant conditioning techniques to create, modify, or extinguish behavior.

An Update on the Training of a Herd of Wild Caught and Naïve African Elephants

Curtis Lehman and Jeff Andrews, San Diego Zoo's Wild Animal Park

BEHAVIORAL HUSBANDRY TECHNIQUES/RESEARCH/CONSERVATION ADVANCEMENTS: Recognizes the use of operant conditioning techniques to create behaviors that enhance animal care and/or increase our knowledge/ conservation of the species.

A Helping Hand: The Evolution of Semen Collection from Two Male Chimpanzees Maureen O'Leary, Tulsa Zoo and Living Museum

ANIMAL WELFARE ADVANCEMENTS: Recognizes achievements that enhance animal welfare through specific environmental enrichment/ conditioning techniques of programs.

Behavioral Modification and Positive Reinforcement Techniques used to Hand Raise a Neonate Killer Whale

Chris Bellows, SeaWorld San Antonio

Development and Application of a Behavior Program at a High Volume Animal Shelter Kelsey Williams CPDT, CABP, CDBC, Houston SPCA

SHARING THE KNOWLEDGE: Recognizes achievements in behavioral management education to enhance the knowledge of professionals and/or the public to the benefit of animals in human care.

Getting Everyone on Board. Encouraging South African Keepers to Perform Environmental Enrichment

Beth Hammond, The Shape of Enrichment and San Diego Zoo's Wild Animal Park

TRAINER'S CHOICE: This award is chosen by all delegates at the end of the last formal presentation. Delegates may cast a vote for any paper, poster, or activity that they feel deserves special recognition.

A Helping Hand: The Evolution of Semen Collection from Two Male Chimpanzees Maureen O'Leary, Tulsa Zoo and Living Museum

POSTER PRESENTATION: Recognizes the best poster that represents an achievement in any of the above categories.

Predator vs. Predator- And the Role of Operant Conditioning in the Recovery

Janet Ramsay, San Diego Zoo's Wild Animal Park



Photo by Thad Lacinak



Photo by Thad Lacinak



Photo by Thad Lacinak



Photo by Thad Lacinak



Photo by Thad Lacinak

Business Meeting



ANNUAL BOARD MEETING MINUTES

MARCH 4, 2006

SAN DIEGO, CALIFORNIA

I. 8:25 Call To Order - The meeting was called to order by M.Farmerie. In attendance: G. Priest, M. Farmerie, L. Nesler, A. Kordowski, S. Rubino, R. Kinley, S. Ekard, H. Hellmuth, S. Hunter, T. Sullivan, T. Frampton, S. Purtell, F. Morrissiey, D. Fahrenbruck, P. Krebs, S. Martin, A. Millwood, L. Pill, N. Begley, M. Rousser

II. Minutes Recorded by: S.Purtell/ S. Rubino

III. Vote for inclusion of 2005 Midyear minutes into the ABMA Corporate Records (having been reviewed in advance). MOTION to accept Midyear minutes as written (with fund as ad hoc) made by Susie Ekard, Second made by Lee Nesler. Passed by unanimous consent.

IV. Accept Officer and Director Reports into the minutes (having been reviewed in advance)

- A. President-M.Farmerie
- B. President-elect - S.Hunter
- C. 1st Vice president - S.Ekard
- D. 2nd Vice president - (Position not held)
- E. Director/ 3rd Vice president - E.Fernandez
- F. Secretary - S.Rubino
- G. Director/ Secretary Elect - S.Purtell
- H. Chief financial officer - A. Kordowski
- I. Director/ Chief financial officer elect - (Position not held)
- J. Past president - T.Lacinak
- K. Directors at large

- i. T.Frampton
- ii. L.Nesler
- iii. N.Begley

V. Accept Committee Reports into the minutes (having been reviewed in advance).

- A. Animal Behavior Management - Sue Hunter/Linda Pill
- B. Animal Behavior Management Fund - Michelle Farmerie
- C. Conference - Gary Priest
- D. Conference Proceedings: Ad-hoc - Tracy Frampton
- E. Education - Lee Nesler
- F. Finance - Flavio Morrissiey
- G. Government Affairs - Jack Grisham - no report submitted
- H. Honors and Awards - Nicole Begley
- I. Membership - Margaret Rousser
- J. Merchandise - Susie Ekard
- K. Nominations and Elections - Thad Lacinak
- L. Public Affairs - Deb Fahrenbruck
- M. Publication - Heidi Hellmuth
- N. Research and Evaluation - Eddie Fernandez / Jessica Moody
- O. Site Selection - Rickey Kinley/ Penny Krebs
- P. Veterinary Advisory - Not Currently Chaired
- Q. Web Site - T. Sullivan

VI. Vote to allow comments during the board meeting from committee chairs and general members.

MOTION made by Sue Rubino to allow committee chairs and general members attending to make a motion and contribute to discussion at this Board meeting. Second made

by Michelle Farmerie.

Passed by unanimous consent.

VII. Old Business

A. Animal Behavior Management Fund Committee as a standing committee (S.Rubino)

MOTION to change Animal Behavior Management Fund from an ad hoc to a standing committee made by Michelle Farmerie. Second made by Penny Krebs.

Passed by unanimous consent.

B. 2006 San Diego Conference (S. Ekard)

i. Session to Advertise the Proceedings (T.Frampton)

It was decided to give time during the conference for this purpose.

ii. Raffle ticket sales/announcements - (M.Farmerie)

Susie Ekard has assigned a person to coordinate 2 other full time volunteers. It was established that the coordinators duties are to make several announcements, daily drawing as incentive and coordinate the volunteers. The coordinator will be a board member.

iii. Refund portion of conference fee when you become a member at the conference (A.Kordowski).

We will follow same procedure as the last conference in Houston. If an individual has pre-registered for the conference and becomes a New member at the conference the following refund will apply: Professional refund \$30 Associate /lower refund \$15. This procedure is

actually a change from the discussion at the midyear meeting. It was discussed that there is a need to make the above procedure the normal refund unless the board decides later to adjust the refund (in case financial situation changes).

Al Kordowski will create a written policy by midyear regarding this refund.

iv. Post-conference Press Release for AZA Communiqué and San Diego Zoo publication. (G.Priest)

Susie Ekard will submit an article to the Communiqué. She will also submit an article to Heidi Hellmuth for publication in the Wellspring.

v. Registration Table Schedule (S.Ekard)

Susie Ekard distributed the Conference schedule at the board meeting.

vi. Set time for conference survey (J.Moody - not in attendance)

Susie has the form and will distribute. Sue Hunter wanted to include (add) a question about leadership workshop and member's interest in that workshop (with comments and rank). These questions will be added to the survey by Rickey. Sue will also make a form for the registration table regarding members involvement in listerves.

vii. Approve money handlers for the conference

a. Jackie Kleinberg for merchandise committee

b. Someone for Animal Behavior Management Fund committee

MOTION to allow the following people to handle money at this conference: #1 Cinnamon Williams (Raffle) #2 Kim Caldwell (Merchandise) #3 Jackie Kleinberg (Merchandise) #4 Katie Springer (Raffle) #5 Mellisa Walter (Raffle)

#6 Alison Holland #7 Carlee Westbrook #8 Heather Gunn #9 Jenny Schafer MADE BY Susie Ekard for this conference. Second made by Sue Rubino

Passed by unanimous consent.

C. Conference 2007

i. Pricing (M.Farmerie)

SEE Attachment 1 for final description of pricing.

ii. Schedule of presenters, keynote speakers (3), workshops discussed (attached sheet for extensive list of information)

SEE Attachment 2 with an extensive list of information regarding the 2007 Conference schedule as well as Cruise conference budget. Conf committee will come up with a plan to advertise to other groups besides zoo & aquariums for the cruise.

MOTION made by M. Farmerie to set pricing for Conference registration (which includes cruise, registration, gift bag, field trips costs) as stated. Second made by S. Ekard

Passed by unanimous consent.

D.Conference 2008 - Discussion of Site (R.Gardner)

SEE Attachment 3 from Raquel Gardner.

Contracts due to be signed by March 22, 2006. S. Rubino, A. Kordowski, S. Hunter, S Purtell, R. Kinley & R. Gardner will have a scheduled conference call in the 3rd week in March to have discussion regarding contract. Credit Application due by March 22, 2006. Deposit tentatively due by February 25, 2008. (Tentatively \$8000)

E. Conference 2009 - Discussion of Site (R.Kinley, P.Krebs) Roger Williams Park and Zoo, Mystic Aquarium and Zoo New England, Brown U for housing.

Penny Krebs gave Power Point

Presentation as a review for the board so she can present this presentation to the members at the Member Business meeting. Penny would like to request using a similar presentation as a template for members to use in order to promote having the ABMA conference at their facility. Tim Sullivan will research adding a site selection place on the website for future reference. Penny Krebs also agree to us the merchandise from Charlene Jendry for the 2010 Conference IF Raquel Gardner cannot use the products for the 2008 Conference.

F. Conference 2010 - Discussion of Site (R.Kinley/M.Farmerie)

Site selection committee needs to contact Lynn Tupa at Albuquerque, NM, Kim Meehan and Karyn Tunwell at Toronto, Brian Smith from the Canadian Pet Dog Trainer Association and Nicole Begley at National Aviary to see if they are interested in organizing the 2010 Conference.

G. Teaching Training Classes through AZA (M. Farmerie)

There is nothing to discuss at this time. May come up in the future but needs to be off old business.

H. Membership Drive/Incentive Program (N.Begley)

Sue Rubino will get in contact with N. Begley to explain the membership database in order to fulfill the task of searching for 5 consecutive year members. N. Begley will need to get numbers to A. Kordowski by midyear meeting.

I. Recognizing outgoing committee chairs (N.Begley)

Nicole Begley will work on a proposal for a certificate - also report on

cost by mid-year.

The result of the research from the Membership Drive/incentive program will determine the progress with this task.

J. Updated protocol for submitting a motion for vote between board meetings (S.Rubino)

Sue Rubino will set up a conference call in order to make a protocol. The board should follow procedure outlined in Powerpoint and/or the bylaws regarding special meetings. If there are issues that need resolution, a special meeting should be called to make a motion and vote. Sue Rubino will propose an official protocol at the mid-year meeting.

K. John Kirtland Award - Nominations Criteria (N.Begley)

Nicole Begley will organize advertisement/notification bulk email, Wellspring and eventual posting criteria on the website (with help of T. Sullivan when the website is ready). Informal consensus of the board was that the registration of the Award winner be waived.

Susie Ekard (1st VP) should add to their conference budget an item to pay for the Award person's registration fee. Update Leadership CD.

L. Change timing of bi-annual post-card renewal reminders to one month post-conference and seven months post-conference (S.Rubino)

MOTION made by S. Rubino to change the timing of bi-annual post-cards for renewals. Second made by M. Farmerie

Passed by unanimous consent.

M. Sponsorship application (F. Morrissiey)

Flavio Morrissiey explained the

refined packages for sponsors. Susan Purtell will forward cruelty free list to F. Morrissiey regarding eco friendly sponsors. Flavio Morrissiey will update the leadership CD regarding final paperwork of sponsors.

MOTION made by S. Ekard to accept the sponsorship packages for the amounts suggested and

allow the finance committee chair as he/she deems appropriate. Second made by N, Begley.

Passed by unanimous consent.

N. Animal Behavior Management (S.Hunter/L.Pill)

i. Discussion of the role of the Animal Behavior Management Committee

a. Description of committee - see leadership CD

The essential functions as listed on the leadership CD are: 1. Work with committee members to suggest lecturers or keynote speakers for the annual conferences in order to educate the attendees about operant conditioning theory and application. 2. Actively participate with the committee members at the annual conferences in educating the attendees through lecture, demonstration, one on one discussion and written documents.

MOTION made by S. Hunter to place the entire responsibility of CEU into the ABM Committee job description instead of the Education Committee. Second made by A. Kordowski

Passed by unanimous consent.

L. Pill and L. Nesler will update their sections in the leadership CD according to the above changes.

b. Discussion of the role of the Education and Conference

Committees and how they interact with the ABM committee.

SEE Attachment 4 for comparison of functions. ABM committee should continue working with the Conference committee and 1st VP as a support for organizing the conferences. L. Pill, E. Fernandez, R. Gardner will have an initial conversation via conference call about some topics for 2008 Conference. (Speakers generated by ABM committee then approved by VP and Conf committee.)

c. Discussion of the role of the board members in selection of speakers etc. for conferences

SEE Attachment 5 for description of function of ABM Committee and 1st VP functions.

Linda Pill will update ABM job description to include (then send to) Susie Ekard who will update 1st VP job description to say that they have direct report from the conf comm. & chair as well as ABM.

ii. Discussion of subject template for conferences. (In Director report p. 39)

Susan Purtell will add discussion of this item to 1st quarter agenda. Research committee will form survey (possibly through "Survey monkey") to see why members did not attend the conference. (To make sure offering the most effective and successful conference for what the members want.)

iii. Review classes being taught outside the ABMA by ABMA members. Lee Nesler will update leadership CD in order to make this a responsibility of the Education committee, and include list of those classes.

iv. Librarian/Historian recommendations (S.Hunter/L.Pill)

Discussed the need to adequately archive old video in order to keep it in good condition.

Linda Pill & Sue Hunter will research into storage and inventory options for the videos.

G. Priest will video workshops & keynote for this conference.

O. New Board Member Welcome Packet (S. Rubino)

Items included in package are mentioned in Sue Rubino's Director report p. 28. Sue Rubino will also write up the formal proposal for the packages by mid-year.

P. Proceedings

i. Building an index for the Proceedings (T. Frampton)

Petra Cunningham Smith interested in organizing index for the Proceedings in an excel file. (Each proceeding would have an index of all conference proceedings.) Possibly post on website and/or Wellspring.

ii. Editor positions - paid or volunteer. (T. Frampton)

MOTION made by T. Frampton to discontinue paying a consultant to produce the proceeding and move the position a volunteer position. Second made by S. Ekard

Passed by unanimous consent.

iii. Cost for duplicating CD's (T. Frampton/N. Dorey)

Steve Martin (Natural Encounters) volunteered to cover all duplication costs (including printing the label on CD) for 2005. Al Kordowski will keep the item of duplicating proceeding in the budget and will update the leadership CD in order to track gift in kind donations for future budget.

Nicole Dorey will send A. Kordowski the document on pricing. 1st VP will update leadership CD in order to yearly send artwork from cover of conf program to Proceedings chair. (Eventually the proceedings will go to S. Martin for

printing/duplicating.)

iv. \$15 price for members and non-members for Proceeding CD (S. Ekard)

Q. Behavior Management Fund

i. Investment Options (F. Morrissiey/A. Kordowski)

MOTION made by A. Kordowski to put existing \$1775 and proceeds from the silent auction designated from for the BM Fund and into money Etrade money market account.

Second made by S. Ekard

Passed by unanimous consent.

ii. Standardized review criteria for evaluating applications (M. Farmerie) Will not be ready for 2007.

Michelle Farmerie will set up conference call with Research & Evaluation committee for brainstorming ideas (include S. Hunter, M. Farmerie, N. Dorey & J. Moody) Nicole Dorey will email example of questions for travel scholarship evaluation questions from Gorilla conference to M. Farmerie & J. Moody. Committee will present more information on the judges (reviewer) material for the board to review at midyear meeting.

R. ASCAP-final recommendations (S. Purtell)

No further action needed due to use of the generic music in the ABMA "commercial" as well as the lack of formal music at the conference.

S. ABMA Conservation Initiatives (M. Farmerie/T. Frampton)

General concept is outlined in midyear 2005 report. No further specific action has been taken at this time. Overall informal consensus of the board is that this should be more of an ethic than a program but the topic will remain open for further

discussion at 2007 Mid Year meeting.

T. Increase rate for international members (A. Kordowski/M. Rousser) Cost Analysis

By reducing the envelope size of the envelopes (as suggested by M. Rousser), the cost of domestic mailings will be cut by 25% thus saving money for the more costly international mailings.

U. Board member expectations (formerly do's and don'ts) for the Leadership CD.

Sue Rubino & Michelle Farmerie will be in contact in order to place new information into CD (to include Parliamentary Procedures).

V. List of ABMA members and the list-serves they subscribe to (E. Fernandez - not in attendance)

Task not completed. We will be able to ask registrants at registration for this information.

W. Student Travel Scholarships (E. Fernandez - not in attendance)

No progress - needs to reorganize protocol and ideas. Board needs to give feedback to Eddie.

X. Agenda Items for Mid-year (Work in progress)

i. Submit nominations for John Kirtland Award if applicable.

Nicole Begley will organize acknowledgment of the award via bulk email, Wellspring and Conference announcement at Member business meeting.

ii. A discussion of refunds on 2006 conference registration fees for board members/ committee chairs

iii. AZA Reciprocal registration (M. Farmerie) No updates - postpone discussion until mid-year

iv. Reciprocal registration at

AAZK Conferences (H. Hellmuth)
Postponed because of hurricane.

v. Joint publication with AAZK (H.Hellmuth) In progress.

vi. Joint Conference with IAATE (M.Farmerie/S.Ekard)

Rickey Kinley will research more.
Nicole Begley will research more

vii. On-line applications for sponsors and vendors - PARKING LOT until new web site is completed. (F.Morrissiey)

viii. Research and Evaluation Workshop (E.Fernandez/J.Moody)
Postponed until 2007 (Outline is in the 2005 mid-year minutes)

VIII. Incomplete Tasks (RETASK for MID YEAR)

A. Compile a list of Labs and College institutions so that brochures can be mailed out (Rubino).

Heidi Hellmuth will send a list to M. Rousser who will evaluate list to proposal for budget item to solicit as new members (and is it worth it). Sue Rubino will also continue to try to compile a list of Labs. Margaret Rousser will get a great list of like-minded organizations from S. Ekard in order to contact with information.

B. Get Eddie access to membership database and teach him how to use it. (Rubino)

C. Work with N. Begley on learning how to search the membership database for 5 consecutive year members. (Rubino)

D. Create Q & A document for dealing with PR and press issues concerning ABMA (D.Fahrenbruck)
Debbie Fahrenbruck will send out draft to board regarding letter and this issue will be discussed again at the 1st quarter meeting.

E. Animal Behavior Management (S.Hunter/L.Pill)

i. Forms for signing up speakers
It was stated that we already have procedure so do not need a specific form (was more for permission to video presentations but now only video taping workshops).

Evaluate presenter registration (signature) at check-in for 1st Quarterly meeting. Procedure for signing up workshop speakers for ABMA conferences:

1. Conference committee and ABM committee refer to the conference template (to be developed by the ABM committee-see recommendations) and decide on topics and potential speakers for the upcoming conference.

2. Conference committee chair contact the speakers to determine if they would be willing to do the workshop or lecture.

3. If the speaker agrees to do the workshop or lecture, ABM committee will formulate the content/subject matter and submit that to the President and 1st Vice President for approval.

4. Once approved, the content/subject matter will be given to the speaker so that he/she can formulate their presentation to include the subjects desired to be covered by the ABMA.

5. The speaker must then submit an outline of their presentation to the 1st Vice President and President for approval.

6. When required, the speaker may be asked to sign a waiver or agreement allowing ABMA

to film/document their presentation for future ABMA teaching materials.
ii. Workshop descriptions that will be submitted to the ACPDT for CEU approval - This is now the responsibility of the ABM

Committee.

F. Director's Insurance (A.Kordowski)

Al Kordowski will get information regarding a specific carrier from S. Martin (to be presented to Board at the 1st Quarter meeting).

G. Election Protocol Update (T.Lacinak - not in attendance)

Michelle Farmerie will work with T. Lacinak and S. Hunter to collect information in order to set a formal protocol for elections by mid-year.

H. Finance Committee (F. Morrissiey)

i. Partnering with other similar organizations to get sponsors
Will not be included in the Mid year agenda.

ii. Multi-year sponsors

This issue is already in the leadership CD and will not be included in the Mid year agenda.

iii. Policy on requiring bids for purchases over a certain dollar amount
Flavio Morrissiey will by mid year construct a formal form/policy on specific bid requirements to be included in the Leadership CD.

MOTION made by F. Morrissiey to require 3 bids for any purchase (item or service) over

\$1000. Second made by S. Ekard
Passed by unanimous consent.

(It will be assumed for purchases under \$1000, only Board approval is needed.)

I. AAZK reciprocal registration in 2006 - Susie will contact H.Hellmuth by December 9, 2005 to discuss whether or not we can publish an item in the AAZK publication, and offer reciprocal registration in 2006

Heidi Hellmuth will present more information at the mid-year meeting.

J. Working with the President to create a green policy for the organization (T.Frampton)

This issue was already discussed under old business (S. ABMA Conservation Initiatives). Susie Ekard will include this information in Conference manual.

K. Provide the board with a profit goal for the 2007 Conference (A.Kordowski)

There is a goal \$5300 at this time.

IX. New Business

A. Election of Officers (G. Priest) - Each candidate was interviewed by the Executive Committee to confirm that they are able to take on responsibilities of the position for which they are being considered. For future references it was stated by several individuals that it was very beneficial (regarding returns) to include election material & ballot in Wellspring.

MOTION made by S. Ekard to accept the slate of candidates as indicated below for the newly elected board members.

Sue Rubino - President elect

Flavio Morrissiey - CFO elect

Penny Krebs - 3rd Vice President

Jack Grisham - Director at large

Linda Pill - Director at large

Second made by A. Kordowski.

Passed by unanimous consent.

B. Committees

i. Review of current committees

a. Proceedings committee as standing committee (M.Farmerie)

MOTION made by M. Farmerie to change the proceedings committee from an ad hoc committee to become a standing committee. Seconded made by N. Begley

Passed by unanimous consent.

b. Choose a conference committee

chair (S.Hunter)

Nicole Begley is chosen as Conference Committee chair.

c. Co-Chair for the Education Committee (L.Nesler)

For now, the Education committee will have only one chair person. Angie Millwood would possibly be interested in Co-chair for the Education Committee.

Additionally, Lee Nesler needs more committee members.

ii. Approval of 2006 committee chairs

A. Animal Behavior Management - Linda Pill

B. Animal Behavior Management Fund - Michelle Farmerie

C. Conference - Nicole Begley

D. Conference Proceedings - Nicole Dorey

E. Education - Lee Nesler

F. Finance - Flavio Morrissiey

G. Government Affairs - Jack Grisham

H. Honors and Awards - Nicole Begley

I. Membership - Margaret Rousser

J. Merchandise - Susie Ekard

K. Nominations and Elections - Michelle Farmerie

L. Public Affairs - Deb Fahrenbruck

M. Publication - Heidi Hellmuth

N. Research and Evaluation - Jessica Moody

O. Site Selection - Rickey Kinley

P. Veterinary Advisory - Not Currently Chaired

Q. Web Site - T. Sullivan

MOTION made by M Farmerie to approve the 2006 Committee chairs as presented above with the addition of N. Begley as Conference chair. Second made by S. Ekard

Passed by unanimous consent.

iii. Board oversight of each committee (S.Rubino)

Bylaws state that each committee needs official oversight. This issue

should be discussed further at mid year meeting. Sue Rubino will organize a proposal to describe the appropriate board members who will conduct committee oversight. This proposal will include an organizational chart.

iv. Serving on more than one committee (M.Farmerie)

This is related to members who are sitting on more than one committee. It was discussed by the board that volunteers of this organization could serve in multiple capacities as long as there are no performance issues.

C. Serving on more than one board position (S.Hunter)

Michelle Farmerie will serve as Past President, 1st VP, ABMF committee chair and will now chair Nominations/elections committee due to a special situation.

D. Redefining Program Council (S.Hunter)

See attached Director Report for full description. The board will adopt the changes stated in the report.

E. Quarterly Conference Call Date (S.Hunter)

The date for the 1st quarter meeting is: May 25, 2006 7pm eastern.

Agenda items and/or specific tasks are due May 18, 2006.

F. Mid-year Meeting Date (S.Hunter) Phoenix

Started with a discussion regarding if we are setting a formal precedent having the midyear at the same location as the conference 2 years out. Informal consensus of the board is that the president has the discretion to organize the midyear including the location. The dates available for the 2006 mid-year meeting in Phoenix are July 20-23, 2006. Sue Hunter will investigate

Baltimore as a possible alternative to Phoenix for this year's mid-

year meeting. Tasks will be due on June 24, 2006. A decision will be made by April 17, 2006 on where the mid-year will take place after a review of options in Baltimore.

G. Leadership Training Proposal for 2006 midyear board meeting (M.Farmerie)

Sue Hunter will contact Lynn Komlenic (proposal for the leadership training in Michelle Farmerie's director report) and will eventually write a proposal for possible training at mid year meeting.

H. Agenda for Members' Business Meeting (S.Purtell) - Completed.

I. ABMA Brochure /ABMA Commercial - Needs for 2006

Lee Nesler will research costs for budget line item for yearly production of brochures to increase membership and registration at conference. Distribution of brochure and commercial will be discussed at the mid-year meeting.

J. 2007 Conference

i. Utilize the same personal invitation for the 2007 Conference at Sea to help ensure we get a good turn out. (L.Nesler)

The Program Council will continue to use the personal invitation. Gary Priest will re-write the letter (by April 1) and email the letter to all the Program Council. The personal invitation letters should be sent by May 1.

ii. Commitment from board members for the 2007 annual meeting. (L.Nesler)

Conference coordinators would like to know ahead of time that will be able to attend and commit (through giving \$25 to set pre registration).

iii. Sponsorship or a vendor that might possibly donate items for the

2007 conference. (L.Nesler)

Lee Nesler informally request that the Board check with known vendors for good deals.

Flavio Morrissiey volunteered space for storage in Florida for 2007 Conference.

iv. Flyers for the 2007 Conference at Sea

Lee Nesler will supply stickers for the brochures in order to place them on the conference

info section. Lee Nesler will also get flyers out to the board and program council.

As already stated, Gary Priest will form a new letter to send out to special invitations to the cruise (to utilize the same personal invitation letter as for the 2006 conference).

It was decided that we will need to do heavy advertising ASAP for the 2007 Conference.

There were several great ideas on how to market this conference in various publications.

Sue Hunter will write a letter to send with the Sea info to send to AZA Directors and other institutions. Nicole Begley will form an announcement to put in list serves.

v. Budget and deposit refund policy - It was decided that the \$25 deposit made by members at the 2006 Conference will be refundable. We do not want to discourage any pre-registration.

K. Budget Items

i. Presidential Discretionary Fund (M.Farmerie)

As discussed, the amount of \$1000 will go towards this fund. Al Kordowski will make this amount /fund a line item in the 2007 budget.

ii. \$100 for pens for board member welcome packet (S.Rubino)

This issue was previously discussed and an affirmative vote was recorded.

iii. Program Council Dinner (M.Farmerie)

As previously discussed, a line item will be added to the conference budget.

iv. \$2,000 for CD copier (G.Priest)

This is no longer an issue as Steve Martin volunteered to handle copying CDs for us.

L. ABMA Investments

i. \$1,000 from checking into an E-money market account (A. Kordowski)

ii. Investing Animal Behavior Management Fund Money (M. Farmerie)

iii. ABMA Conservation Initiatives (M.Farmerie/T.Frampton)

The above items previously discussed and/or voted on.

M. Shape of Enrichment Video Library Opportunity (M.Farmerie)

There is an opportunity to give a monetary gift to the organization Shape of Enrichment and be listed as a sponsor (ABMA/Shape of Enrichment Video Library) Michelle Farmerie will further research this issue and Al Kordowski will add \$500 for this item in the draft of the budget for the midyear. The issue will be discussed further at the mid-year.

N. Price for Institutional Membership (T.Frampton /F. Morrissiey)

Tracy Frampton brought up the discussion that the institutional membership is too expensive currently at \$300. Al Kordowski would like to revamp pricing for membership in general.

Margaret Rousser will work with Al Kordowski & Flavio Morrissiey to recommend new guidelines for all membership prices. (also research membership benefits and pricing in other orgs). Margaret Rousser will

compile a report for the 1st quarter meeting.

O. Order of the presidents (M.Farmerie)

It was suggested that we keep contact information of past presidents (if they are willing) to be contacted for advisory capacities. Sue Rubino will create an excel spreadsheet will be made of all past board members and committee chairs and the years they served, for reference.

P. Use of Yahoo for ABMA Communication (R.Kinley)

Advantages and disadvantages were discussed. The web site committee will find an "owner" to be approved by the president and eventually determine the moderator of the web-site. The web site committee will also create a professional code of conduct that will be formed before the implementation and be approval by the president.

MOTION made by Sue Rubino that the Yahoo browser site will be our principal electric mode of communication for the board of directors and program council. Second made by S. Ekard

Passed by unanimous consent.

Q. Wellspring

i. Conservation column (M. Farmerie)

Deleted - no need to discuss.

ii. Wellspring revisions which require board vote (H.Hellmuth)

The requirement of board vote it is difficult to define for items other than budgetary items but if there are issues that affect the image of the ABMA, these issues should certainly require a board vote.

iii. Extra copies of each issue to Heidi (H.Hellmuth)

The request was accepted.

iv. 200 extra issues for next two issues to reach expired members (S.Rubino)

This issue will be discussed again at the Mid year meeting.

v. Site selection announcement (R.Kinley)

The Site selection committee will add an announcement in the Wellspring requesting having future conferences at facility.

vi. Pay outside company to do layout of Wellspring (L.Nesler)

Lee Nesler will research pricing for the formation of a template for the Wellspring.

vii. Review timeline for publication with consideration for delay due to non-profit status (L.Nesler)

Heidi Hellmuth will adjust the wording in her schedule for Wellspring (in order to include "mailed by" certain date).

R. Discuss "Buy out" of 2002 old ABMA computer and purchase of new one. (M.Farmerie)

MOTION made by Susie Ekard that the board submit a budget item to purchase or lease a new computer in future and allow Michelle Farmerie to "buy out" the current ABMA computer at a fair market value. F. Morrissiey will provide 3 quotes for value of used laptop. Second made by S. Rubino.

Passed by unanimous consent.

S. ABMA Workshop at 2006 National Conference (M.Farmerie)

This issue will be placed on mid-year agenda so can be discussed for the following year.

T. CFO (A.Kordowski)

i. Define the position of CFO to taking care of the day-to-day accounting needs of ABMA.

ii. Have a separate Finance

Committee Chair whose focus is on the financial stability for the organization, linked with the accountant and works with the CFO to balance the books.

iii. Sponsorship Committee - as a subcommittee under Finance Chair.

iv. All requests for the 2007 budget should be submitted by the 1st quarter meeting. The mid-year will be used to focus on finalizing the budget for 2007.

Al Kordowski will make the above changes et al for the Leadership CD in conjunction with Lee Nesler & Flavio Morrissiey.

U. "Thanks for Service" Letter (T.Frampton)

It was suggested that a letter be sent to a Director of zoo or other supervisor to outgoing directors & program council chairs under the direction of president who they've served under. President-elect will send letters to incoming directors & pc chairs. Change leadership CD. All incoming board members should send supervisor contact information to Sue Hunter. The outgoing board members will give information (address and other contact info) regarding their individual supervisor or Director to Michelle Farmerie. Change leadership CD.

V. Research Networking Database (Jessica Moody)

This issue will be discussed at the mid-year meeting (explained further in report).

W. Request for motions in writing (S.Rubino)

There was a request for individuals who add an agenda items, they must also have their motion ready. (Motions will be explained in the "Recommendation" section of the report.)

Sue Rubino will adjust the leadership CD to include these changes. Susan Purtell will send a reminder regarding the changes prior to the deadline for reports. Susan Purtell and Sue Rubino also will discuss changes in accepting late reports and ways to positively reinforce those who send in on time.

X. Changes to board meeting minutes/agenda (S.Rubino)

i. Director reports separate from agenda

ii. Tasks - Separate from meeting minutes; combine tasks from annual and first quarter meeting. Combine tasks from mid-year and third quarter meeting. The board informally accepted the above changes in the format of the minutes and the agenda.

Y. New Signature Animal Discussion design.(M.Farmerie)

The board informally decided to keep the signature animal discussion design as a loose template.

Z. Board and Program Council Mentoring Program (M.Farmerie)

Explained fully in director report and enacted informally in 2006.

AA.Thinking ahead and Extending our Organizational Vision

It was suggested that a strategic planning session should be included in a meeting every 5 years.

There is also a need to revisit the 2005 Mid year leadership session which outlined ideas/goals for the future based on current need.

BB. Organizational Membership development as a "Special Task" for a Director at Large. Not tasked to any director at this time.

CC. 2007 Slate of candidates

The board is continuing to research those people interested in coming back or starting to be involved more

deeply in the ABMA. Send interested names to Michelle Farmerie.

DD. Approve register for Merchandise (S. Ekard)

MOTION made by Susie Ekard to approve \$100 to spend on electronic cash register.

Second made by Lee Nesler. Passed by unanimous consent.

EE. Palm Pilot Software Project (E. Fernandez report) - to be discussed at mid-year meeting with formal proposal.

FF. AZA Animal Welfare committee to have a liaison to the AZA (also have to be an ABMA meeting.) IN progress

GG. Submit article in AZA Communiqué in training & enrichment with regard to vet management, primates &/or visitor experience PIA (Professional Interest Association) issue under the membership committee - Sue Hunter, Tim Sullivan, Michelle Farmerie will work with Lee Nesler as part of the Education Committee to draft the articles.

X. Adjournment @ 10:55am March 5, 2006

MOTION made by Sue Rubino to adjourn the 2006 Annual Board Meeting.

Second made by Nicole Begley
Passed by unanimous consent.

ATTACHMENTS

(These items were not included in reports therefore due to their relevance they are included as attachments to the minutes.)

ATTACHMENT 1 - 2007 Conference information (Michelle Farmerie) - Actually from Sue Hunter

From Old business VI. C. (i)

2007 Annual Conference

"Inspiring Conservation through Behavior Management"

The 2007 ABMA Conference will be an extremely unique and educational experience! The conference will take place on board the Carnival Cruise ship "Victory" which provides a rare occasion for innovative programming and conference design. The amount of time available for educational exchange during this conference increases due to the setting. Additionally, this venue decreases the price making the 2007 conference an extraordinary opportunity financially!

Programming:

The current conference schedule includes: three keynote speakers sharing international conservation work with multiple species, formal paper presentations, 7 workshops, 2 panel discussions, a poster session, and site visits to animal facilities.

Keynote Speakers:

Dr Anne Savage, Disney's Animal Kingdom, Proyecto Titi Program (Cotton-top Tamarins)

Fred Burton, Queen Elizabeth II Botanical Park, Blue Iguana Recovery Program

Charlene Jendry, Columbus Zoo and Aquarium, Partners in Conservation (Mountain Gorillas)

7 Conference Workshops:

Why We Do What We Do In The Zoo: The Evolution of Animal Behavior Management from the 1930s to Present Day - Bob Bailey, Animal Behavior Enterprises

From Harvard University and the University of Minnesota in the 1930's came the science behind the

behavior management practices of today's modern zoos and aquariums. From Skinner, through Keller and Marian Breland, to Hal Markowitz, Jesus Rodriguez, and others, behavioral science has evolved into an energetic technology used to improve the lives of captive animals and those charged with their day-to-day care. Descriptions of the humble, but hopeful, beginnings of applied animal psychology on a small Minnesota farm in 1943; and the course of events leading to the worldwide multi-billion-dollars-per-year industries based on the exhibition, training, husbandry, and conservation, of captive live animals. Descriptions of first-person experiences with those who made it happen, as well as documents, photos, video and film footage destined for the Smithsonian Institution archives.

Training 101: The Practical Side of Science - Ken Ramirez, John G. Shedd Aquarium

This seminar will highlight the basic operant conditioning principles that every trainer needs to successfully train any species of animal. Basic shaping techniques and the keys to developing a good shaping plan will be presented. Finally, the seminar will conclude with a practical decision making process that puts the science to its best use for behavioral problem solving.

Enrichment: Taking it to the Next Level - Marty McPhee, Disney's Animal Kingdom

Explore the details and importance of environmental enrichment for animals in a captive setting. Learn how to implement, evaluate, and document the effectiveness of behavioral management programs. Determine the steps to take your program to the next level.

The Art of Training: Beyond the Books - Steve Martin, Natural Encounters

This workshop goes beyond the science books to discover the subtle nuances that are found only in the most artistic trainers. These traits might include reading body language, arranging environments to set animals up to succeed, creating relationships on solid foundations of positive experiences, and establishing two-way communication with animals where their voice is equally as important as the trainer's.

Applying Research and Conservation Components to your Behavior Management Programs - Eduardo Fernandez, Indiana University and Jessica Moody, Wildlife Conservation Society

This workshop will address the importance of behavioral research in facilitating improved animal management, both ex situ (husbandry) and in situ (species protection and reintroduction). In an effort to bridge the gap between behavior theory (academia) and animal husbandry, the workshop aims to make behavioral research more accessible to animal care-takers. The workshop will consist of two parts: the first addressing the need for behavioral research in captivity, and the second addressing the "how to" of behavioral research.

Leadership Development Training: Building Unified Teams - Darlene Temple, On Trak Training

This workshop will show how resolving team conflict and restoring unity starts by learning how to promote: setting clear goals, getting commitment from team members, dealing with problems, mediating disputes and celebrating successes.

At the completion of this workshop participants will have more positive skills to implement in the workplace for successful team development.

Interactive Behavior Workshop: Actions Speak Louder Than Words - Angi Milwood, Natural Encounters, Inc.

This unique and interactive workshop utilizes activities to explore the applications of operant conditioning theory while also examining the importance of effectively assessing human behavior in the workplace. Being aware of human body language and signals is as important to your professional success as knowing the idiosyncrasies of the animals in your care.

Advanced Topics: Applying Techniques and Safety in Animal Training - Thad Lacinak, Busch Entertainment Corporation and Gary Priest, San Diego Zoological Park
Advanced techniques will be examined with an emphasis on human and animal safety. This workshop will include how to implement advanced techniques and illustrate why proactive behavior management provides increased husbandry and veterinary benefits.

Panel Discussions:

"The Role of Behavior Management in Captive Breeding and Management Programs"

Jack Grisham Chair AZA Canid and Hyenid Taxon Advisory Group

Michelle Farmerie Behavioral Husbandry Advisor AZA New World Primate Taxon Advisory Group

Brad Andrews Chair AZA Marine Mammal Taxon Advisory Group

Margaret Whitaker Behavioral

Husbandry Advisor AZA Old World
 Monkey Taxon Advisory Group
 Dr. Don Moore Chair AZA
 Bear Taxon Advisory Group, Chair
 AZA Animal Welfare Committee

"Inspiring Conservation through
 Behavior Management: What is
 your role?"
 Dr. Anne Savage Disney's Animal
 Kingdom
 Charlene Jendry Columbus Zoo and
 Aquarium
 Thad Lacinak Busch Entertainment
 Corporation
 Steve Martin Natural Encounters
 Inc.

Site visits: Blue Iguana Recovery
 Program at Queen Elizabeth II
 Botanical Park. Other sites are pend-
 ing.

Complimentary/Discounted
 Admission prior to or after ABMA
 Conference: Miami Metro Zoo
 **We are working to provide addi-
 tional complimentary/discounted
 admissions to other facilities in
 Florida - check back to this site in
 the future for more information.

2007 All Inclusive Conference Rates

Early Registration Before May 1st
 Early Registration Before May 1st
 Registration May 1st until Aug 1st
 Registration May 1st until Aug 1st
 Member Non-member
 Member Non-member
 Guest * 3rd Child 2 - 12 yr.
 in a suite * 4th Child 2-12 yr.
 in a suite

Inside Double	710	750	745
790	615	377	377

Ocean View	860	900	895
940	765	407	407

Balcony				
Double	960	1000	995	1040
865	437	437		

Single Room I) 1061

O) 1361

B)1561 I) 1096

O) 1396

B) 1596

Conference Registration

154	194	189	234	5	9
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(Covers admission to ABMA recep-
 tions and activities) Cost Cost

Guest rate- Guests will be able to
 join the conference delegates at all
 ABMA social events and site visits
 included with the conference how-
 ever, not the conference sessions.

*3rd and 4th child price does not
 include Blue Iguana recovery
 Program site visit. Trip can be added
 at an additional charge if space
 allows (conference delegates have
 priority).

Registration and Payments:

All payments are due in 2006

1st Payment (Early Registration -
 March 5th - April 30th)

\$25 paid to CruiseOne - locks in the
 early registration rate and reserves
 your cabin.

1st Payment (Late Registration -
 May 1st - August 1st)

\$25 paid to CruiseOne - locks in the
 late registration rate and reserves
 your cabin.

2nd Payment: \$225 - due by August
 1st, paid to CruiseOne - this money
 goes towards your cruise.

3rd Payment: Final balance due by
 October 21 (amount depends on

early/late registration rate, mem-
 ber/nonmember status, and cabin
 class reserved - inside/ocean
 View/balcony) Balance for cruise is
 paid to CruiseOne and conference
 registration payment is due to the
 ABMA.

You will receive a letter each time
 you make a payment letting you
 know what you owe - so no need to
 worry about the details!

Your All Inclusive Conference Rate
 includes: meals, room, taxes and
 port fees, conference sessions and
 ABMA receptions and activities for
 the entire trip!

Call Brad Temple at CruiseOne to
 register: 1-866-669-2789 toll free

Visit the Cruise One web site to learn
 more about the ship "Victory",
 descriptions of room types, and the
 cruise. www.cruiseone.com/btemple
 Then click on "ABMA 2007
 conference cruise"

ATTACHMENT 2 - 2007
 Conference budget information (Lee
 Nesler) - From Old business VI. C.
 (ii)

2007 Draft conference Budget

Conference Costs (estimated for
 150)

Buses 2250 \$ 15 per person (esti-
 mate)

Postage 300

Internet 500

Banquet 8000 ** Buffer/ contin-
 gency

Shipping 500

Printing 500

Name Tags 500

Advertisement 100

Give-a ways 4000

Kirtland award winner 160
AV guy 1000 ** Tim S. cabin
Awards 1000
(18,810) \$125.40/person

Cost per person \$125 at conference
attendance of 150

ATTACHMENT 3 - 2008
Conference information (Raquel
Gardner) - From Old business VI. D.

ABMA Conference - Phoenix 2008
Status Update: March 1, 2006
Conference Site
Contract negotiations went sour
since the mid-year cruise with the
original choice of Pointe South
Mountain. However this may have
been for the best since the Chaparral
has given us better dates and more
for our money.

Chaparral Suites Resort Scottsdale
• Complimentary airport transportation
• Complimentary daily cooked-to-
order breakfast
• Complimentary in room high speed
internet
• Complimentary evening reception
(This is similar to what we had at the
Embassy Suites - Tampa)

Conference Dates
April 27 - May 3, 2008

Room Rate
Single/Double = \$129
Triple/Quad = \$149
Rate available 3 days before and 3
days after conference.
Upgraded VIP Suite and the adjoining
suite will each be reserved at the
\$129 rate for our Hospitality Suite.

Food & Beverage
Revenue Minimum = \$18,000.00
(Baltimore & Houston Minimum =

\$17,500.00)
The hotel will provide a cash sales
lunch area for our lunch breaks for a
set-up cost of \$125.00. All sales will
apply toward our \$18,000.00 mini-
mum.

Audio/Visual
Hotel will allow ABMA to bring in
their own audio/visual equipment.
Hotel has IT service available at
\$45.00/hour
Wireless in the banquet room and
lobby is free.
High speed internet in the meeting
space is \$125.00 per day.

Signed Contract Due
March 22, 2006

Credit Application Due
March 22, 2006

Deposit Requirement
An initial deposit in the amount of
\$8,000.00 will be due February 25,
2008

Room Block Cut-off
March 28, 2008

ATTACHMENT 4 - Role of ABM
vs. Education Committees (Sue
Hunter) - From Old business VI. N
(b) Position: Chair - Conference
Committee

Reports to: 1st Vice President
Committee Members: The
President, the Board of Directors, or
the committee chairperson may
appoint committee members. Any
Professional, Active, Emeritus, or
Associate member in good standing
may serve on committees.

Essential Functions:
1. Working with and for the 1st
VP, act as Program Chair for the
organization's annual conference.
2. The Chair of the Conference
Committee, works with the 1st VP

on the following conference tasks:

- Plan the conference agenda.
- Submit a working budget for conference at the mid-year board meeting.
- Establish a conference checking account at the mid-year board meeting.
- Set up coffee breaks.
- Set up food for ice breaker and poster night.
- Set up food and entertainment for the banquet.
- Coordinate the 1st, 2nd and final call for conference presentations according to conference timeline.
- Working with the President, send out donation letters.
- Arrange for conference giveaways.
- Choose moderators for formal presentations.
- Working with the President, send out thank you letters to donors and abstract submissions.
- Receive all abstracts and pre-registrations.
- Recruit the abstract review committee.
- Send the abstracts to the President for final review.
- Finalize the conference agenda.
- Complete and print the Conference Agenda handout three weeks prior to the conference start date.
- Set up all communications for the conference presentations.
- Serve as the coordinator for the conference or choose a designee.
- Acquire all permissions from local agencies in the annual conference city for conducting raffle. (Some cities may prohibit raffle-type activities).
- Insure that the ABMA has secured appropriate licensing agreements for the playing of music during presentations and banquet. Low cost one-time use licenses are usually granted through ASCAP and BMI.

3. The Conference Committee and its Chair are responsible for working with the 1st Vice President in the continued development and publication of the Conference notebook which provides an archival record for the organization on the best/most efficient way to run an annual conference.

Position: Education Committee
Chair Essential Functions:

1. Work with committee members to create written documents to be mailed or posted on the website in order to educate the membership about operant conditioning theory, application, and the latest developments in the field.

2. Work with committee members to create brochures, flyers, or other advertisements to educate the general public as to the function of the ABMA, operant conditioning theory, application, and developments in the field of animal training and enrichment.

3. Act as a liaison to other professional animal training, husbandry, or medical groups in order to educate them as to the function of the ABMA and how their group may benefit from involvement with or partnership with the ABMA.

ATTACHMENT 5 - Role of Board members in choosing conference items (presenters etc...)
From Old business VI. N (c)

ABM committee:

Forms for signing up speakers

A. Procedure for signing up workshop speakers for ABMA conferences

1. Conference committee and ABM

committee refer to the conference template (to be developed by the ABM committee-see recommendations) and decide on topics and potential speakers for the upcoming conference.

2. Conference committee chair contact the speakers to determine if they would be willing to do the workshop or lecture.

3. If the speaker agrees to do the workshop or lecture, ABM committee will formulate the content/subject matter and submit that to the President and 1st Vice President for approval.

4. Once approved, the content/subject matter will be given to the speaker so that he/she can formulate their presentation to include the subjects desired to be covered by the ABMA.

5. The speaker must then submit an outline of their presentation to the 1st Vice President and President for approval.

6. When required, the speaker may be asked to sign a waiver or agreement allowing ABMA to film/document their presentation for future ABMA teaching materials.

1st VP duties:

Position: 1st Vice President

Reports to: the President

Essential Functions:

1. The 1st Vice President acts as the program chair for the annual conference.

2. The 1st Vice President has oversight of the Conference Committee and/or the Conference Committee Chair

3. The 1st Vice President works closely with the 2nd and 3rd Vice Presidents in a mentoring role for the purpose of teaching them all that is necessary for the coordination and

execution of a successful annual conference. Also making an effort to emphasize necessary innovations and changes with the conference program from year to year to correspond with the changing needs of the ABMA membership.

4. Develops a draft press release to submit to the hosting institution(s) of the annual conference. The host institution(s) can then submit the press release to various local media and to the AZA's Communique for publication.

5. At the conclusion of the annual conference the 1st Vice President reviews the ABMA Annual Conference Preparation Manual for completeness and the inclusion of new ideas. The 1st Vice President is responsible for this Conference Notebook.

6. The 1st Vice President should reside within the host city of the conference that they will oversee if at all possible. Except when there is a very dedicated Conference Committee Chair currently based within the host city.

ABMA conferences are intended to help improve husbandry procedures by presenting information and methods of operant conditioning, enrichment and other behavioral management techniques. Workshops demonstrate actual application of these behavioral principles in a zoological setting. This year's conference theme was: "Behavioral Buffet".

CONFERENCE PROCEEDINGS EDITOR: Nicole Dorey

SPECIAL THANKS TO THE FOLLOWING COMMITTEE MEMBERS FOR ALL THEIR LONG HOURS:

Petra Cunningham-Smith
Dr. Susan Friedman
Katie Kalafut
Jamie Fachler
Jane Franklin
Steve Martin

Michael Boos
Tracy Frampton
Ann Lablans
Lynn Tupa
Angi Millwood

Thank you to the many sponsors, volunteers and presenters who made this years conference a success.

SEE YOU NEXT YEAR ON BOARD THE CARNIVAL "VICTORY"!

