

Animal Behavior Management Alliance
848 North Rainbow Blvd. #5285
Las Vegas, NV 89107



ENGAGE

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Volume 2



Michael Faix Photography



The Animal Behavior Management Alliance.



Presidents Column

by
Nicki Boyd

Greetings, from sunny California, yes it's February and in the 80's, if you don't live in a warm climate and want to defrost then head to our 2016 Tampa Conference in April of course. The conference line-up promises to be a great chance to learn, network and share your knowledge. We all want to continue to push ourselves to improve our training skills and the animal's welfare in all of our care and this is a great opportunity to bring ideas and take ideas back to keep yourselves and your coworkers moving forward. We are at a pivotal point in the world of zoos, aquariums, and other animal management situations. I am confident that through educating ourselves and our guests on conservation, welfare and sustainability improvements, the importance of animal training and enrichment applications we can continue to prove why zoo's matter. In social media you see both sides, it's up to us to bridge the gap and have intelligent conversations in a professional, educated manner.

This newsletter is another way to share that knowledge. Thanks to the support of our membership we were able to re-launch our newsletter with a new look and a new name, Engage! As we all work to give our animals opportunities to thrive we engage them with training, enrichment and create empathy with our guests to the plight of animals all over the world. This engages our guests to support conservation and our efforts to provide the best care in our facilities and continue to support in-situ work. As a united front we are a powerful, intelligent, engaged group of animal care professionals. We hope to see as many of you as possible at the annual conference in Tampa as we continue to move our profession forward together as a united force, breaking down barriers and creating new possibilities in animal welfare.

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Upcoming ABMA Conference 2016

By: Scott Trauger, 1st VP ABMA

The time is nearly upon us for another great annual conference. I have talked with many people about why they find the annual conference such a benefit. Some will say it is because of the wonderful networking opportunities. Others mention that they love the presentations on topics ranging from innovative behavior management techniques to enrichment, personal achievements, and animal welfare. Some of my favorites happen to be the special guests and workshops that we have presented to our delegates each year.

As the current 1st VP for ABMA, I get to enjoy the task of working closely with both the Conference Committee and the Conference Content Advisory committee. This allows me to see the conference develop before my very eyes. I'm not going to ruin the big reveal by telling you everything, but I did want to give you a glimpse as to what you might expect from some of our special programming for this year.

We have some very timely speakers this year in regard to some of the most pressing issues in the animal world today. Marc Simmons, author of the book *Killing Keiko*, and principal behaviorist of the team that handled the release of Keiko the Killer Whale, will discuss the true story of Keiko's journey and will show why it is more important now than ever before. Dr. Nicole Dorey will be leading a workshop with both a lecture and practical based application and analysis on preference assessment in regards to environmental enrichment. Precision Behavior's Thad Lacinak and Angie Millwood will be leading our advanced training discussion focusing on advanced reinforcement concepts. Dr. Ray Ball DVM will dive into the integration of operant conditioning and veterinary care in managed wildlife. Even our keynote speaker, Dr. Susie Ellis of the International Rhino Foundation will be discussing such pressing issues as the role we play in the conservation of species.

While I am excited about these special speakers, we have a wonderful assortment of delegates speaker on a variety of topics with taxa ranging from Domestics to Exotics and everything you could imagine between that spectrum.

The final teaser for this year is something we feel captures our organization at its very core. During lunches on Monday, Wednesday, and Friday, we are collaborating with both of our host Zoos, ABMA, and a company based out of Texas called Mutts with Manners. This will be a live-feed demonstration of actual training of dogs from Guardian Angel Dog Rescue. Mutts with Manners will be training these animals on site at the hotel and answering questions about the sessions for our delegates. With the help of advertising through our host facilities' social media, our goal is to find these newly trained dogs forever homes by the end of the week.

As you can imagine, the ABMA cares about the conservation of all species of animals and how we can use behavior management to better their lives. Just as we believe in empowering our animals that we work with, we have decided this year to empower our delegates. Every year, a portion of the registration goes to help a conservation project in the wild. This year, upon completion of your registration, you will notice a poll on the right hand side of the conference page. You will have the option of voting to help with one of three species. You can help donate lands to the Florida Panther, Protect Gopher Tortoises, or support Guardian Angel Dog Rescue. You personally will be able to see where these funds will be heading to this year and each of these projects will benefit thanks to all of you.

We look forward to seeing you all in Tampa this April!

2016 EVENT CALENDAR

April 10-15, 2016

AZA Professional Training Courses

Animal Welfare: Evidence-Based Management

Brookfield Zoo

Animal Welfare: Evidence-Based Management is a facility based course that includes hands-on experience learning about the science of animal welfare and the application of skills and knowledge for an evidence-based animal welfare management program. This course will expand upon the entry level online animal welfare course developed by the AZA Animal Welfare Committee by offering students hands-on experiences in order to learn and build the skills necessary to implement an evidence-based management program to ensure high levels of animal welfare.

For more information go to: aza.org/AWEBM.aspx

April 17-22, 2016

ABMA National Conference

Breaking Down Barriers: New Possibilities in Animal Welfare

Tampa, FL

Hosted by Lowry Park Zoo and Busch Gardens Tampa

For more information go to: theabma.org/abma-annual-conference/

May 12-17, 2016

AZA Professional Training Courses

Best Practices in Animal Keeping Course

Best Practices in Animal Keeping (formerly Advances in Animal Keeping) covers the essentials of animal keeping across all taxa. The course focuses on the very highest standards in animal husbandry, in combination with problem solving, team building and interpersonal skills. You will engage with professional colleagues and apply what you learn back at your home institution. The goal of this course is to motivate and retain animal care professionals within our industry and to elevate the standards of animal care in AZA zoos and aquariums. In-class discussion, exchange of ideas with animal care colleagues, small group activities, and question-and-answer sessions all enable students to analyze trends, to think critically, to evaluate problems and propose solutions, and to communicate effectively with other members of their organization.

Buffalo, NY

Hosted by AZA and Buffalo Zoo

For more information go to: aza.org/BPAK.aspx

June 12-16, 2016

International Animal Training Conference

Animal Training – The Journey

Hosted by Twycross Zoo

For more information go to: twycrosszoo.org/animal-training-conference/

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September 7-11, 2016

AZA National Conference

San Diego, CA

Hosted by San Diego Zoo Global and SeaWorld San Diego

For more information go to: aza.org/annualconference/

September 19-23, 2016

AAZK Annual Conference

Creating Harmony with Wildlife

Hosted by Memphis Zoo

For more information go to: www.memphiszoo.org/aazk-conference

September 25-30, 2016

AZA Professional Training Courses

Animal Training Applications in Zoo & Aquarium Settings

Animal Training Applications provides zoo and aquarium staff with a background in training theory and an understanding of the skills necessary to train animals. It includes a historical perspective of animal training as well as terminology and an overview of training techniques. Selected training concepts and skills will be taught via animal demonstrations, group activities and individual skill development opportunities.

Managing Animal Enrichment & Training Programs

Managing Animal Enrichment and Training Programs provides students with the tools and skills needed to set up and manage a successful enrichment and training program that meets AZA accreditation standards.

While some time will be spent on the concepts of training and enrichment, this course is not a workshop to develop enrichment ideas or learn animal training skills. This course focuses on developing the components of a successful program and learning the leadership skills needed to successfully implement that program.

Denver, CO

Hosted by Denver Zoo

For more information go to: www.aza.org/ATA.aspx or www.aza.org/MAETP.aspx

Nov. 13 – Nov. 18, 2016

IMATA Annual Conference

Educating Today, Conserving Tomorrow

San Diego, California

For more information go to: sandiego2016.imata.org

Breeding or Education: Why not both?

A Case Study of Eurasian Eagle Owls

by Cathy Schlott
National Aviary



Historically, in traditional animal management plans, education animals were rarely used for breeding because they needed to be available to work for programs. Trainers also worried that they would not be trainable again or, conversely, that trained show birds would not be suited for breeding because of their comfort with people. While temporarily removing birds from shows for breeding purposes can be a challenge, it is vital that the education and show community begin to do so. The number of bird species available for education programs today compared to ten years ago shows an obvious decline in the number of species available. Species that were previously common are now scarce because most of the animals are being managed individually, housed separately for programming, and are not being bred. Combined with changes in importation laws and aging populations of some species, the overall result is a loss of diversity as well as a decline in the number of individuals available for future programming. Species managed through AZA Species Survival Plans are often bred primarily for exhibits while program animals are being overlooked. It falls to the education departments themselves to look out for the future of their collections – unless education departments and shows progress with breeding animals for demonstrations, they will slowly disappear from our presentations and collections.

Breeding education birds is not always straightforward or simple, but there are many benefits to breeding trained collections. Birds housed together during show season do not need a long introduction period to breed. Not only are they more comfortable with each other, these program birds are also more comfortable with their trainers working around them when sitting on eggs and checking up on their chicks, which can result in lower mortality rates for eggs and chicks. Additionally, show birds have a proven track record of being “good” birds to work with, and it makes sense to breed from reliable stock. Just as dog breeders breed for certain traits, temperaments, and reliability, so can zoological institutions. Breeding our educational program animals ensures that these species remain available for similar programming and shows in the future.

The National Aviary has had great success working and training Eurasian eagle Owls (*Bubo bubo*). The education collection had 2.1 Eurasian eagle owls in 2011 and 2012. The female “X” is unrelated to the two male owls, while the males, “Gandalf” and “Dumbledore,” are siblings. All three owls are scale and crate trained. They sit on a glove or free fly indoors and outdoors. All three owls had been hand raised. They have 8-10 years of show experience.

In late 2011, Gandalf and X were put into two enclosures with only cage wire in between them so they could see and hear each other for a few weeks. They were then introduced into a single large enclosure with a breeding platform. There was no courtship or breeding behavior observed over a four month period, after which they were returned to their individual enclosures and used again for shows.

In November of 2012, X and Dumbledore, the other male, were introduced in the same way. Within one week, courtship behavior was observed. On February 7, 2013, trainers discovered that there were three eggs on the nesting platform. Eurasian eagle owl eggs are generally laid every other day and the eggs were candled after two weeks of being parent incubated. Two eggs were viable and one was infertile. X was sitting on the nest and Dumbledore was observed feeding her, but trainers also tossed her additional food to ensure she was receiving enough. On March 9, the trainers found one dead chick on the ground under the nest platform. A necropsy was performed and results indicated that death was due to trauma. The third egg was pulled and placed in an incubator. The chick hatched successfully on March 13, 2013 and was hand raised by trainers. “Pumpkin” was the first Eurasian Eagle Owl chick hatched in an AZA facility in the last five years. She currently flies in shows and educational programs. After the breeding season, X and Dumbledore were back performing in shows by April 10.



In October of 2013, X and Dumbledore were once again put into an enclosure together, this time without the initial period of being in adjoining enclosures. There was no aggression and courtship behavior was observed within a few days. This year the owls abandoned the nest platform and chose to nest on the ground. When checked on December 27, there were again a total of three eggs in the nest. The eggs were candled and all three were fertile. A few weeks later, the eggs were candled again because of the extreme weather conditions associated with the polar vortex. We gave the owls supplemental heat but had to be careful that we did not disturb X to the point that it could cause her to abandon the nest. At that time, two of the three eggs perished. Trainers speculate the loss was due to the cold temperatures of -7 F with wind chill factors of -20. These temperature extremes were unusual for the Pittsburgh region. Again, just as in the previous breeding season, the third egg was pulled and put into an incubator. It hatched on January 29, 2014, and was hand raised. This youngest owl, called “Tootsie,” was shipped to another facility for use in education programs. X and Dumbledore were back in shows in March. Even though two Eurasian eagle owls were unavailable for shows for a few months, the benefits far outweighed the inconvenience. The addition of the first chick in 2013 added an additional owl to the collection without the costs of acquisition, shipping and quarantine. The second chick allowed the educational show department to trade for a new bird to add to the collection, which helps the acquisition budget. The hatching of an owlet was big news and the marketing department was able to host media events surrounding this occasion. Tootsie was also put into a window that allowed for public viewing for a few hours a day, which helped to increase attendance during the slow winter season. The breeding of the Eurasian eagle owls was such a success for The National Aviary that we are planning on breeding more in the future with several other potential species such as Black Kites, Silver Gulls, Hamerkops, Palm Nut Vultures, and Lanner Falcons. The parrots in the collection are fairly young, long-lived, and very readily available, so there are no plans to breed them at this time.

Many education collections face challenges in the form of holding space, time constraints, high program demand, and limited staffing. While these will always factor into collection planning, there are a number of benefits to thinking about the future of your bird species and the potential benefits of breeding them. Thinking creatively about where and how you house your birds may open up new opportunities, especially if you can potentially breed some of these dwindling species. Not only is it enriching and natural for many social species to live together, but breeding birds is critical for long term sustainability. The work that education and show birds do is invaluable – and creative collection planning now can help to ensure these species are around for future generations to enjoy.



Training Terms

Schedule of Reinforcement - Refers to the conditions under which reinforcement is delivered. Continuous and variable reinforcement schedules are most important to animal training.

Continuous Schedule - A schedule of reinforcement in which each correct response is followed by a primary reinforcer.

Every time the tortoise touches the target, he receives a bite of sweet potato.

Variable-Interval Schedule - A schedule of reinforcement in which reinforcement is delivered after a period of time that is random and varied. Reinforcement is independent of correct responses. A variable interval schedule produces a uniform rate of responding and is useful in providing a benchmark to test the effects of various factors such as reward size on behavioral performance.

Gorilla receives food reinforcer after 10 seconds, 1 minute, 5 minutes, 45 seconds, etc. or at random time intervals during a training session

Variable-Ratio Schedule - A schedule of reinforcement in which reinforcement is delivered after a random and variable number of non-reinforced but correct responses. A schedule in which reinforcement occurs irregularly after a number of responses. Similar to Variable- Interval, but based on responses rather than a time frame.

Gorilla receives food reinforcer after every other, 3rd, 5th, 10th, 4th, 7th, 2nd, etc. correct response.

Fixed-Interval Schedule - A schedule of reinforcement in which organisms are reinforced for the first correct response that occurs after a fixed period of time has elapsed since the previous reinforced response. This schedule of reinforcement produces a scalloped response curve and is a poor motivator.

The crocodile works for 5 minutes during a training session and is reinforced every 30 seconds.

Fixed-Ratio Schedule - A schedule of reinforcement in which the organism is reinforced after a set number of non-reinforced correct responses.

The crocodile is reinforced after every 5th correct behavioral response.

CHEETAH



ENCOUNTER

By: Linda Castaneda

Introduction

Suddenly her purring stops. As she sees the trainer approach, Nia, a 5 year old cheetah, knows it is her turn. She grows very still, crouches down and the lure (a fluffy dog toy) is her only focus. Her enclosure door opens and 39 kg of spotted female fury fly past the trainer onto the encounter yard. The crowd gasps as Nia gives them what they have been waiting for- the opportunity to watch a cheetah fly.

Running at top speeds for a cheetah is natural behavior, a physical adaptation that all cheetah are born with to catch prey in the African savanna. Captive cheetahs do not need to chase down prey, but the instinct to run is still present. Most zoo cheetahs never have the opportunity to exercise their natural instinct, mostly due to lack of space and resources at zoological facilities. At the Cincinnati Zoo & Botanical Garden the cheetah in the Cat Ambassador Program not only get the opportunity to exercise their natural behavior, but also share the experience with the zoo visitor.

Background/History

The Cincinnati Zoo & Botanical Garden's Cat Ambassador Program (CAP) began in 1980 with a cheetah named Angel. The program focused on educational outreach with various cat species during the school year and performed a small show on zoo grounds in the summer. The CAP began running their cheetah in the early 1990's to increase the animals physical and mental health. During a public appearance on a national talk show, program founder Cathryn Hilker was sitting with a young cheetah, Kenya when another guest, Robert Kennedy, leaned over and asked if she "intended to run that cheetah". Cathryn was interested but unsure how a human would teach a cheetah to run. Robert Kennedy referred her to a falconer, who showed her how to modify a bicycle to pull a lure in front of a cheetah to chase. Today, the cheetahs run using a more sophisticated machine, a lure coursing wheel traditionally used to exercise saluki dogs. Over the course of 20 years Cathryn taught each cheetah in the program to run and exercised them often, mostly at the zoo's off-site breeding facility, the Mast Farm. During the early years, VIP visitors would be invited to view the run but it was mostly for the enrichment and health of the cats. Wanting to share the run with the everyday zoo visitor, Cathryn Hilker continued to lobby for a cheetah running yard on zoo grounds. In 2007, inspiration came from an unlikely place. Wings of Wonder head bird trainer Gary Denzler had a vision, and with the support of zoo donors Kris and Carl Kalnow, the zoo converted a portion of the education parking lot into a running yard for a cheetah encounter. In its first year of encounters, the cheetahs ran for approximately 50,000 zoo visitors. Last year, with the increased seated capacity and longer show season, an estimated 115,000 visitors were able to experience a cheetah run.

Today

The Cheetah Encounter opened in 2007. In 2010, the facility underwent renovation and in 2015 additional seating was added. The newly remodeled area consists of a football field sized yard and an upgraded 750 seat bleacher area for visitors to enjoy the speed and agility of a cheetah. In addition to cheetah runs, the show also features other animal species, including a red river hog, a warthog, an African serval, a domestic housecat, an African crested porcupine and an Anatolian shepherd dog. The encounter script varies yearly but themes highlight the adaptations each animal species has for survival in its environment as well as conservation efforts underway to help protect species populations. Visitors can see the Cheetah Encounter five days a week from April 1st to the end of October.

Challenges

Despite the continued success of the Cheetah Encounter, it is not without challenges. In the wild, cheetah prey is not predictable and it is an evolutionary adaptation of any predator to expend the least amount of energy to catch prey. The cheetah are often seen “cheating” in the encounter yard, predicting where the lure will turn and attempting to cut off the run pattern set up daily by the CAP trainers. The constant challenge that the CAP trainers face is changing the lure course so that the cheetah do not begin to predict the runs or get bored by running in the same pattern. Learning from the first two years of encounters, the CAP trainers built the second yard with better strategies. Mounds, grasses and release areas were strategically placed to try to prevent the cheetah from cutting off the lure pattern and forcing them to be honest when chasing their “prey”. Since the cheetah spend their winter months doing less active school programs, they must be conditioned before beginning the running season, starting off slow and building endurance and distance, just like a human runner would. To avoid boredom and unmotivated behavior, the cheetahs are also run off-site at the zoo’s Mast Farm property year-round. Though only seen by the visitors for 7 months, the cheetah running program is a year round training commitment to maintain the optimum health and interest of each cheetah.

Conclusion

Giving a captive animal an opportunity to hone in their natural instincts is a thrill. Being able to share this skill with an audience is an added bonus. The Cheetah Encounter is in its ninth year of amazing and inspiring the visitors of the Cincinnati Zoo & Botanical Garden. As the popularity of cheetah exhibits increase across AZA facilities, hopefully more visitors will get to experience the thrill of watching the fastest animal on land fly before their eyes.



BIRTH ANNOUNCEMENTS



National Aviary

Eurasian Eagle Owl Chicks

Two male Eagle Owls were hatched at the National Aviary on February 11 and 13th.



Chuckwalla

Adam Fink

Oakland Zoo



Green Mantella

Adam Fink

Oakland Zoo



Eastern Spotted Turtle

Adam Fink

Oakland Zoo



Discovery Cove in Orlando has a whole new reason to celebrate dolphin awareness month this March with the birth of Skye – a 52-pound newborn dolphin.

On February 23rd, 2016 at approximately 5:36 a.m., 32-year old dolphin, Astra gave birth to this flippered bundle of joy. The newborn is a healthy 4-foot long calf that is nursing and bonding with her mother.

Skye is the 30th dolphin to be born at Discovery Cove since it opened in 2000, along with mom, she will also be joining her sisters Amara and Aries who also call Discovery Cove home.

The Discovery Cove Team is excited to welcome this new addition and is providing around-the-clock care for Astra and her new calf. The veterinary and animal care team has been observing the progress of the baby 24 hours a day, ensuring the highest level of care is being provided by monitoring her behavior, respirations and nursing. Just this past week, the SeaWorld and Discovery Cove Veterinary Team performed their first neonatal wellness exam on the calf with mother, Astra by her side. These neonatal examinations are a crucial part of the general health care given to all animals at SeaWorld, Aquatica and Discovery Cove.

Team Training a “Lean-in” Behavior for Injections in Tigers at Oakland Zoo

Authors: Alicia Powers, Erica Calcagno, and Darren Minier

Training Aim: Train 4 female tigers to voluntarily participate in a set of routine vaccinations by leaning their shoulder on the chain link fence.

Training Goal: Tiger leans shoulder into chain link fence and allows palpitation or injection.

Unique Plan: To maximize training time, we had a team of trainers working in different positions to build the “lean-in” behavior with all 4 tigers.

Novel Tools: cologne to elicit lean-in behavior, cob web duster, wooden log parallel to fence line to encourage ideal positioning

Routine Training Tools: target (fly swatter), spray bottle with goat’s milk, whistle bridge, kabob skewer, blunt needle



Step 1: Lure body contact on fence by encouraging their natural rubbing behavior with the duster scented with cologne.



Step 2: Transition from duster as a lure, to duster as a prompt (incorporating verbal “lean” cue), to hand cue.



Step 3: Desensitize to touch by first using a kabob skewer.



Step 4: Palpating shoulder muscle with finger to find optimal intramuscular injection site.



Step 5: Exposure to [capped] syringe then finished with actual injection.



Acknowledgements: Oakland Zoo Tiger Training Team – Darren Minier,
Erica Calcagno, Jason Loy, Jessica Real, Maria Trenary, RVT.



**Scan QR Code for
video of training
and injections:**



ZARI ZEBRA: *Equus burchellii boehmi*

THE POWER OF POSITIVE REINFORCEMENT

A SUCCESS STORY

Charmaine Hook*, Krista Perry and Kelly Elkins
San Diego Zoo Global



Zari is a six year old, 240kg, female Grants Zebra, *Equus burchellii boehmi*. She is part of the Backstage Pass collection of trained animals who participate daily in our 1.5 hr long interactive program or special behind the scenes presentations. Zebras are notorious for being an aggressive and flighty prey species, so safety is always paramount. Special modifications have been made to her enclosure and her training program to allow trainers to safely work with her husbandry behaviors, and to allow guests to safely touch her in a semi- protected contact area.



This area is called the “crib”, it is a small clam shaped gate that is made of strong pipe and mesh and attached to her slider door. When the slider is open she steps into this small clam shaped area and the slider door is always left open to allow for choice to participate. We will demonstrate these easy modifications and the confidence with which she participates in her own husbandry behaviors using operant conditioning techniques that focus on positive reinforcement. No restraint is used when working with husbandry behaviors, we only halter her when guests interact with her. Zari participates in a repertoire of husbandry behaviors including: rectal temperature, hoof work, teeth floatation, mouth inspections, blood draws, injections, ear cleaning and stomach palpitations and getting into and out of a horse trailer. No traditional horse training equipment or methods have been applied. Training has progressed to on exhibit husbandry behaviors in a free contact scenario. She is trained to stand with her front hooves on a small wooden stump which acts as her mark, no halter or other restraints, whilst we work her husbandry behaviors. Zari can step off the mark at any time, we allow her the “opportunity for choice and control” of her own session; one of the five freedoms of the Animal Welfare Act. Very rarely will she step down, she always comes back to finish her session. A session can last for up to 15 minutes. She has progressed to a variable –ratio schedule of reinforcement which is proving very successful. SD’S are vocal or visual and the bridge is a vocal “good”. Primary reinforcers include: chopped up yams and horse pellets. Training is done within full view of the guests, offering another opportunity for guests to become engaged.



As an animal ambassador Zari has become extremely reliable. We attribute her success to good communications between trainers and the use of positive reinforcement. Giving her an opportunity for choice and control has greatly helped build her trust and confidence. Having started her husbandry training in a semi protected area has given trainers confidence which has definitely influenced the animal’s confidence too. Since moving from semi protected contact to free contact on exhibit she appears to be a little more eager and with more behaviors being elicited, and still eager to work at the end of a session – clearly demonstrating to us her willingness to participate. It is also interesting to note that she can be worked with her hay accessible at any given time during her session. She does not wander off to eat it.

How and that stimulate!

Searching for food in Condor (*Vultur gryphus*)

Alexis Inchazu¹, Matias Cufre², Maria Florencia Presa³

¹ Senior Zookeeper, ² Zookeeper, ³ Responsible for environmental enrichment
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Environmental enrichment plays a key role in the incorporation of environmental stimulates that allow animals to develop new behaviors and increase behaviors of each species. Knowledge of the biology of the species, such as feeding ecology, social life and environmental performance allows us to approach the success of enrichments applied.

The enrichment must be a proactive program; this means that active made observations about species we care and notions of biology allow us to apply the enrichment according to their behavioral needs and not randomly according to a list of materials. This means that first we need to knowledge behavioral needs and then develop a list of materials that respond to those needs.

Regarding condors, they are scavengers that feed themselves from carcasses of domestic animals such as cow, sheep, guanaco, deer, etc, which have been observed feeding from donkeys, goats, sea lions and sea birds found on the shores (Andean Condor Care Manual, AZA). In captivity it is essential for them to consume the prey with its visors and bones which provide them the calcium needed. They have a sharp view that allows to locate their prey hundreds of kilometers away. Vision is principle foraging tool. Most of the day they can be found posing, sometimes sunning or preening. Condors are social birds, they often engage in play between them or with feathers, sticks, grass and different objects.

A preliminary behavioral study was carried out with an ethogram, which, together with the biological study of the species, allowed the different enrichments to take place.

Taking into account the behavioral characteristics of the condors feeding, foraging was applied. Finding food heavily depends on sight and the use of materials that stimulate the tear by using the strong beak, similar to a hook that allows ripping the prey.

Enrichment: PVC coated objects with rope with food inside.

Enrichment Type: Foraging / Physical

Behaviors developed to related feeding behaviors:

- Search within the object
- Use of the beak to break the rope
- Forcing with their legs against the object and tug back to tear the rope to break it.
- Locomotion, due to the fall of the object between the rocks.



Enrichment: Cartapesta animals placed in height on the rocks with food inside.

Enrichment Type: Foraging /Physical Manipulation

Behaviors developed to related feeding behaviors:

- Tear of the material using the beak.
- Physical stimulation through jumps, balance, and use of the beak and leg's strength to hold the animal that was falling and due to the irregular environment the condors had to scroll through the rocks.



Enrichment: Attached frozen blood

Enrichment Type: Sensorial (test)/ Physical

Behaviors developed to related feeding behaviors:

- Force by pulling the body back to start the frozen.
- novelty food to feed from a different form.



Enrichment: Palm trunk with food inside.

Enrichment Type: Sensorial (test)/ Foraging

Behaviors developed to related feeding behaviors:

- Tear the palm using the beak.
- Physical stimulation: After eating the meat they use the beak and legs for destroying the palm.



Enrichment: Perforated cardboard tubes with food inside

Enrichment Type: Foraging / Manipulation / physical

Behaviors developed to related feeding behaviors:

- Locomotion, animals move tubes using the beak through the environmental
- Destroy the tube using beak and leg's strength to hold the tube.



Enrichment: Carcass

Enrichment Type: Foraging /Manipulation Vision

Behaviors developed to related feeding behaviors:

- Move prey using beak
- Use the beak, move the head (tug-of-war)
- Visual exploration towards the prey





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