

# ENGAGE

Summer 2017  
Volume 4



photo by: Ken Bohn

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# WHAT IS ABMA?

The Animal Behavior Management Alliance, (ABMA) is a not-for-profit corporation with a membership comprised of animal care professionals and other individuals interested in enhancing animal care through training and enrichment. The ABMA is intended to be nurturing and informative, and was created to serve trainers, handlers, and keepers of animals, irrespective of species, with information and assistance in the behavior management of their charges.

## OUR MISSION

The Animal Behavior Management Alliance (ABMA) continually strives to advance intentional and enlightened behavior management to improve the lives and welfare of all animals.

## OUR VISION

To be a global leader dedicated to advancing animal welfare through excellence in behavior management.

## OUR CORE VALUES

1. Behavior management is an essential component of animal welfare.
2. Environmental enrichment and positive reinforcement training are highly effective strategies for managing and modifying behavior.
3. Goal-based enrichment, designed to offer animals behavioral opportunities, is an essential component of all animal programs.
4. Positive reinforcement training is our most effective and ethical method of behavior modification.
5. Human and animal safety must be at the core of an animal behavior management program.
6. Learning should be conducted in a nurturing and non-threatening environment for both animals and people.
7. Science-based methods of assessment are a valuable tool for evaluating, refining, and advancing behavior management strategies.
8. Behavior management can advance conservation by helping to mitigate human-animal conflict in wild populations, facilitating in-situ conservation efforts, and maintaining behaviorally and physically healthy captive populations.
9. Pro-active behavior management is an essential component of responsible animal care since learning is always occurring.
10. The sharing of knowledge and new ideas is fundamental to advancing animal behavior management.

# EVENT CALENDER

## Canid and Hyaenid TAG Husbandry Course AAZK

September 5-7, 2017  
Cincinnati, OH  
*Hosted by Cincinnati Zoo*

## 2017 Annual AZA Conference

September 9-13, 2017  
Indianapolis, IN  
*Hosted by Indianapolis Zoo*

## New World Primate Husbandry Workshop AAZK

September 26-30, 2017  
Colorado Springs, CO  
*Hosted by Cheyenne Mountain Zoo*

## Principles of Aquarium Husbandry, Design, and Leadership AZA Course

October 1-6, 2017  
*Hosted by the Shedd Aquarium in Chicago, IL*

## Coraciiformes Husbandry Workshop AAZK

October 4-5, 2017  
Nashville, TN  
*Hosted by Nashville Zoo*

## Animal Training Applications in Zoo & Aquarium Settings AZA Course

October 8 - 13 2017  
*Hosted by the Denver Zoo, in Denver, CO*

## Managing Animal Enrichment & Training Programs AZA Course

October 8 - 13 2017  
*Hosted by the Denver Zoo, in Denver, CO*

## Principles of Elephant Management II AZA Course

October 24-27, 2017  
*Hosted by the Houston Zoo in Houston, TX*

## Creating Successful Exhibits, Population Management II, Principles of Program Animal Management AZA Courses

November 13 - 18, 2017  
*Hosted by Clayton Plaza in St. Louis, MO*

## Avian Management, Biology and Conservation, Conservation Education: Effective Program Design, Institutional Records Keeping, Managing for Success: Career Development, Managing for Success: Organizational Development, Principles of Elephant Management I AZA Courses

February 12 - 17, 2018  
*Hosted by Oglebay Resort in Wheeling, WV*

## Animal Transport for Animal Care Professional AZA Course

March 6 - 9, 2018  
*Hosted by Zoo Miami in Miami, FL*

## Crocodylian Biology and Captive Management AZA Course

March 16 - 23/24, 2018  
*Hosted by St. Augustine Alligator Farm in St. Augustine, FL*

## 2018 Mid-Year AZA Meeting

March 24-29, 2018  
*Jacksonville, FL*

## Animal Welfare: Evidence-Based Management AZA Course

May 6 - 11, 2018  
*Hosted by Chicago Zoological Society - Brookfield Zoo, in Chicago, IL*

## 2018 Annual AZA Conference

September 23-27, 2018  
*Seattle, WA*

# 2017 HONORS AND AWARDS

**Travel Scholarship Winner:** This scholarship is awarded to an ABMA member whose institution is unable to give them financial support. The Travel Scholarship will help the award recipient by giving them the ability to present their work and it will help the organization by giving ABMA members the opportunity to hear presentations that the membership otherwise would not have the opportunity to hear and as such, the Travel Scholarship supports the ABMA Core Value of “Sharing the Knowledge”.

**Improve Animal Welfare in Alouatta Caraya From Illegal Traffic**

*Maria Florencia Presa, Temaikèn Foundation*

**Behavioral Management Achievement Award:** Recognizes an outstanding achievement in the application of behavior management techniques.

**Thinking Outside the Shell For Conservation: Inspiring Zoo Guests By Training Behaviors In Tortoises For Public Encounters**

*Lauren Etzkorn, Columbus Zoo*

**Behavioral Management Innovation Award:** Recognizes outstanding application of novel, unusual or original behavior management technique.

**Polar Bear Conservation Training At the Oregon Zoo**

*Sara Morgan, Amy Cutting, Nicole Nicassio, Amy Hash, Robert Draughon, Jen DeGroot; Oregon Zoo*

**Animal Welfare Advancement Award:** Recognizes achievements that enhance animal welfare through specific environmental enrichment/conditioning techniques or programs.

**Let's Get Physical: Physical Therapy Training For Two Otters With Metabolic Bone Disease**

*Christine Montgomery, Downtown Aquarium Denver*

**Sharing the Knowledge Award:** Recognizes achievements in behavior management education to enhance the knowledge of professionals and/or the public to the benefit of animals in human care.

**Building Expertise: Something To Aspire To**  
*Steve Martin, Natural Encounters, Inc.*

**Poster Presentation Award:** Recognizes the best poster that represents an achievement in any of the above categories in this format.

**Training 0.2 Ostrich For An Annual Exam**  
*Dan Turoczi, Cincinnati Zoo & Botanical Garden*

**Engage Award:** The best article submitted for the year from the quarterly Animal Behavior Management Alliance magazine, *Engage*.

**Breeding or Education: Why not both?**  
*Cathy Schlott, National Aviary*

**Impact Award:** 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.

**Working Dogs for Conservation**  
*Dr. Megan Parker*

**Behavioral Management Fund Scholarship:**

**Improve Animal Welfare in Alouatta Caraya from Illegal Traffic**  
*Maria Florencia Presa, Temaiken Foundation*

### **President**

The Animal Behavior Management Alliance presents this award to  
*Cathy Schlott*  
In recognition of her distinguished service as President  
2016-2017

### **First Vice President**

The Animal Behavior Management Alliance presents this award to  
*Kelly Elkins*  
In recognition of her distinguished service as 1st Vice President  
2016-2017

### **3 Years on the Board**

The Animal Behavior Management Alliance presents this award to  
*Nicki Boyd*  
In recognition of her 3 years of exemplary service on the Board of Directors  
2014-2017

### **3 Years on the Board**

The Animal Behavior Management Alliance presents this award to  
*Susie Eckard*  
In recognition of her 3 years of exemplary service on the Board of Directors  
2014-2017

### **3 Years on the Board**

The Animal Behavior Management Alliance presents this award to  
*Scott Trauger*  
In recognition of his 3 years of exemplary service on the Board of Directors  
2014-2017

### **3 Years on the Board**

The Animal Behavior Management Alliance presents this award to  
*Jay Tracy*  
In recognition of his 3 years of exemplary service on the Board of Directors  
2014-2017

### **KeyNote Speaker**

The Animal Behavior Management Alliance presents this award to (comments)  
*Megan Parker, PhD*  
Working Dogs for Conservation

### **Workshops**

**Shape of Enrichment:** Mark Kingston, Chris Hales, Valerie Hare, and Karen Worley

**Enrichment Safety Workshop:** Heidi Hellmuth (St. Louis Zoo)

### **Panels**

**Media Training Panel - Dealing with Couch Conservationists**

Nicki Boyd (San Diego Zoo Global), Thane Maynard (Cincinnati Zoo and Botanical Garden), Cody Showers (Cincinnati Zoo and Botanical Garden),  
Cindy Wilson (Moorpark College), Suzi Rapp (Columbus Zoo and Aquarium),  
Tim Sullivan (Brookfield Zoo)

### **Non plaque/certificate Sponsors**

**Break Sponsors:** Mazuri, My Training Store, Triple T Studios,  
Dolphin Research Center Training Institute

**Ice Breaker:** Newport Aquarium

### **Plaque Sponsors**

Cincinnati Zoo: Alicia Sampson and Linda Castaneda  
Columbus Zoo

### **Conference Committee**

Alicia Sampson and Linda Castaneda

### **Judges**

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Shannon College

*Assistant Supervisor of Outreach and Cheetah Programs at Dallas Zoo in Texas*

Leslie Storer

*Zoological Manager at Oakland Zoo in California*

# LETTERS TO THE EDITOR

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At ABMA, we want to encourage all of our animal caretakers to feel comfortable to discuss anything with our members.

Recently, we have received some letters to the editor that discuss some more controversial matters.

These letters do not represent what the ABMA stands for as an organization,  
but does provide a forum for animal professionals to share any and all personal thoughts.

## THE KEEPERS

Hi.

I hear you don't think animals should be in zoos. I was wondering if I could have a moment of your time?

Have you ever heard of the California condor? Have you heard of black-footed ferret?

Those are two animals that were saved by zoos. Every single condor you see is because of the success the zoos had in breeding them and releasing them out to the wild. Now, is that what you would want to do with all the animals at zoos now? That's not that easy. The zoos took meticulous steps to teach the birds, from hatchling, how to eat, how to hide, how to survive.

The animals you see at zoos have been born there, as with their parents. These animals receive better care than most people in assisted living, getting round the clock medical care, the finest food, and the luxury of not having to deal with all the events animals in the wild do today.

Those events being not just predators, but all of the things we as humans have done to the wild. Pollution in the water. Trash along the highway. Air unbreathable. Fences fragmenting habitats.

I could go on, but hopefully you understand this: the wild is not a joyride for any animals out there.

Luckily, zoos in the United States alone contribute close to \$70 million each year to conservation efforts. Without zoos, animals will go extinct in the wild.

Then, the only place to see a lion, tiger, or polar bear, all of which are endangered and can go extinct in less than twenty years, will be the zoo.

So those are the facts, but more than anything, please know how much the animals at zoos are loved. The people who work for them are some of the most empathetic, hard-working, devoted people on the planet. And they wouldn't do the job for a second if they thought the animals were not giving anything but the best care.

There, we feel so much better. Thank you for listening, and have a great day!

The Keepers Who Can't Post Online But Would



## **I WISH I COULD FEEL THIS WAY ALL YEAR.**

I wish I could feel this way all year. After just returning from the 2017 ABMA Conference in Cincinnati, I feel so rejuvenated to change the world and make the animals we care for have even better lives! The energy conferences spark is always uplifting, as well as being around people in the field and meeting new friends. Conferences are also a safe place for us, and in this day and age, that type of atmosphere that allows me to put my guard down is much appreciated.

Each day, a theme kept hitting me: we need to go back to the science of what we do. We need to assess animal welfare in a fact based system that can deter people who do not appreciate what we do. We have tried over the decades to make people as passionate about animals as we are. We succeeded.

We succeeded so much that it has almost backfired on us. I hear time and time again that the millennial population is unsure of animals in the care of man. But, if we have science behind us to show how important our work is, I know that people would understand and support the significance of animals in human care in order to preserve the world around us. Doug Cress, the new CEO of the World Association of Zoos and Aquariums, reiterated my thoughts a few weeks later. He said, "They (zoos and aquariums) feel guilty about the 20th century, carrying around this tradition of iron bars and imprisonment and punishment. In fact if you look at the record, they are the ones who have saved species from extinction and who reintroduced species to the wild."

Behavioral management and enrichment is so vital to us in order to take care of our animals, and I know that ABMA is much more than zoos and aquariums. I think our keynote speaker, Dr. Megan Parker, illustrates my whole message perfectly. Her training of dogs using positive reinforcement, which was developed originally in marine parks and has since spread to animal facilities in all capacities, is working to protect animals all over the globe. Working Dogs for Conservation showcases how behavioral management is truly helping save wildlife and wild places.

So, please keep up the good work, and keep the energy you get from the conference and from this magazine. Most importantly, keep your head high. Your passion is making a positive impact for animals.

Guns Up,  
Tricia Dees

## **CINCINNATI HERE I COME, THERE I GO**

ABMA Conference April 23-28, 2017

Ann Lablans, Kingston ON

Well, in my great wisdom I decided I would drive to Cincinnati, Ohio from Kingston, Ontario, Canada to the 2017 ABMA conference. It had been a while since I did a 12 hour drive so this was good for me. I started off on Saturday April 22, a little later than I planned, which meant that I only made it to Chatham, Ontario before I had to stop for the night. I was up early and on my way. Oh my gosh, I feel like such a small town gal, I have never been on a bridge as high as the Ambassador bridge to enter the USA at Detroit, Michigan. I am lucky I didn't cause an accident crossing the bridge as I stared out the window at the harbour below.

Forward I go until the Garmin and I have a disagreement. It turns out highway I-75 south was mostly under construction so I toured the countryside thanks to my Garmin. I traveled Hwy 85 to Rockwood Michigan then on to Monroe where I found the Raisin River battlefield, very interesting. Finally I arrived in Cincinnati, Ohio around 7:00 PM. A small hint to my fellow conference travelers in the future, read the information on the website carefully about transportation and opening night activities. After registering at the Hilton Cincinnati Netherland Plaza (An amazing historic hotel, it was worth reading the hotel's walking tour booklet), I went looking for the ice breaker. I got on the wrong "TANK" which went to Covington, Kentucky instead of Newport, oops. To say the least I missed the icebreaker but I met some great Cincinnatians, wonderful people to visit with on the bus.

I did attend to rest of the conference. I followed the masses and didn't get lost. Some highlights for me was my roommate Jennifer Hennessy of Roger Williams Park Zoo, what a lovely person and easy roommate, thank you; Rickey Kinley's Cincinnati zoo penguins, these cute little critters seem to sing to you; Kristen, Nora & Sam were my site seeing/dance buddies; Heidi Hellmuth's enrichment wisdom "every time you enter a pen – take something out, put something in, move something around", what an interesting world this would create for the animals in our care if we followed this simple phase; and The Shape of Enrichment workshop, so much fun learning and creating enrichment devices (we even left the hotel carpets undamaged).

My (very) small whine is to help plan future behind-the-scenes tours. Show off your skills! Please don't tell us about what great things you are doing at your zoo then on the behind-the-scenes tour show us empty cages. I've seen empty cages and the only thing it shows me is that you know how to show a clean cage. Ok, I'm done, no more whining. We had a wonderful banquet in the Hall of Mirrors; I'm sure I was close to the same spot that a picture of John F. Kennedy was taken in the early 1960s. I enjoy ABMA conferences so much: great people, great locations, and hands on learning – who could ask for more. The drive back to Canada was a little faster because hwy I-75 north was open with no construction. The worst part of the return trip was going through Toronto, Ontario at 10:30 at night, the traffic was stopped! Who would believe they would have a traffic jam at 10:30PM!

Thank you once again ABMA for a wonderful learning adventure.



## WILDLIFE

My name is Kelsey Worth and I am the Senior Keeper of Training and Conditioning at WILDLIFE Sydney Zoo in Sydney, Australia. The zoo I work at is home to only Australian fauna and needless to say the creatures found there are extremely unique. We have the well known koalas and kangaroos but also less known animals like spotted tailed quolls, bilbies and yellow bellied gliders. I am lucky enough to be able to work with and train these animals everyday. We do a variety of guest interactive programs and in addition to this we train these animals to participate in their own medical care. I'd love to share with you some of the things we do with our animals. I have added the stories of 2 of our animals, both rescued from the wild and unique Australian species, that I would like to share with the ABMA community.

In the last few months we have also welcomed a few new animals to our collection, the most exciting being two yellow bellied gliders that are now part of the nocturnal section. Yellow bellied gliders are a threatened species in New South Wales (NSW) where our zoo is located so they have an important conservation message. This species is a new one for the Training & Conditioning team at WILDLIFE Sydney Zoo being that they have never been held at the zoo before nor have any of the members ever worked with this species. The father and son duo arrived from another zoo at the end of last year and have settled in nicely since. Jiemba, the son, has a very cheeky personality and is very good at the gliding aspect of his training. Boydie, the father, is a bit more cautious and unfortunately can't glide like his son due to an injury years back that deemed him unrealisable. These two adorable creatures have soon become everyone's favourite and are currently being trained to be used for animal encounters educating our visitors about one of Australia's threatened species gliders.

In middle 2015 we acquired a wild born spotted-tailed quoll named Inala. Spotted tailed quolls are the largest carnivorous marsupial on mainland Australia and are a threatened species through out Australia. Inala was unfortunately orphaned after her mother was found dead in the Sydney area. She came to us when she was roughly a year old and at first was quiet shy by nature. In early 2016 we established a training plan with her with the goal being confidence building and basic husbandry behaviours such as scale training. Inala was quick to catch on and we quickly found out she is very clever. For the first few months we worked on her confidence by introducing her to lots of new enrichment items and feeding her any time we entered the exhibit and she didn't shy away. After a few months of hard work she quickly got the hang of targeting and scale training. Now a year on we are proud to say she participates voluntarily in most aspects of her medical care; she is trained to stand up when asked and accepts tactile examinations from our vet. In addition to this she is pet pack trained. In the last few weeks we have begun training Inala for a voluntary pouch check which is extremely important because she is reaching sexual maturity. We conduct all of Inala's training in her exhibit, on display so that guests have the opportunity to learn about why training is so important in the zoo community and that training isn't just for show but for the health of the animals as well. The goal now for Inala is to get her solid with all aspects of her husbandry training and to educate the public about this incredible lesser known species. The Training and Conditioning team is extremely proud of how far this little lady has come!

# Social Abilities of Parrots: A Review of Conservation, Cognition and Animal Welfare Literature

by  
Joanna Berger, MSc

## Background

Parrots are the fourth most popular companion animal in the world after fish, cats and dogs (AVMA cited in Hoppes and Gray, 2010). Parrots provide social companionship to their owners (Anderson, 2003). Despite knowledge of their abilities to interact with humans (Pepperberg, 2006), little is known about how parrots communicate within their own species. Conservation, cognition and animal welfare studies reveal elements of the social behaviour of various species within the large order Psittaciformes. Unfortunately, due to the difficulties of studying parrots which include harsh field conditions, low visibility in natural habitats, and the expense of maintaining exotic birds in captivity, there is not yet a comprehensive body of literature describing the social behaviour of any single parrot species. There are differences in morphology and behaviour between parrot species. Despite these differences, it is necessary to draw from studies of several species to build a foundational understanding of parrot sociality.

## Welfare

Many companion parrots are singly housed. This likely compromises their welfare (Engebretson, 2006). Garner et al. (2006) found that social housing reduced fearfulness of orange-winged amazon parrots (*Amazona amazonica*). Similarly, socially housed budgerigars (*Melopsittacus undulates*) were more active, weighed and ate more, and stretched more than budgerigars housed in isolation (Nicol and Pope, 1993). Socially housed birds were also less fearful and had shorter latency to approach novel conspecifics. The authors argue that this demonstrates that housing budgerigars singly compromises their welfare. Unfortunately, no measures of stress hormones were taken which could have given a more complete picture of welfare; regardless, the study showed that budgerigars are social. Schmid et al. (2006) found that African grey parrots (*Psittacus erithacus*) reared by their parents tended to have fewer problems as adults than those which were quickly separated from conspecifics and hand-reared by humans. In a survey of pet parrot owners, Gaskins and Bergman (2011) found that aggression was the primary behavioural concern of parrot owners. This illustrates that highly agonistic behaviour occurs between companion parrots and their human owners and illustrates the complexity of the social requirements of parrots.

## Wild Nesting Territoriality

African grey parrots forage and fly in large groups in the wild (Amuno et al., 2007). Another African member of the psittacinae genus, the Rüppell's parrot (*Poicephalus ruepelli*), also eat and drink in groups (Selman et al., 2004, 2002). Despite foraging and flying in large groups, mated Rüppell's parrots nest away from conspecifics. Most parrots species, excepting monk parakeets (*Myiopsitta monachus*), are secondary cavity nesters, laying eggs in holes, usually in tree trunks (Robles et al., 2012; Salinas- 3 Melgoza et al., 2009). Field studies in which nest sites were counted found that Tucuman (*Amazona tucumana*) (Rivera et al., 2012) and black-billed (*Amazona agilis*) parrots (Koenig, 2001) do not utilize all possible nest sites. Instead, nest sites are dispersed so that nesting pairs are away from conspecifics. Territoriality of nesting adults has also been described in yellow-naped amazons (*Amazona auropalliata*) (Dahlin and Wright, 2012) and lilac-crowned parrots (*Amazona finschi*) (SalinasMelgoza et al., 2009). These conservation studies primarily counted nest sites to estimate parrot populations and did not record specific territorial behaviours; however, Selman et al. (2004) noted that Rüppell's parrots consistently approach their nest sites from the same direction and avoid passing near other nesting pairs. This could indicate the existence of social rules which allow parrots to avoid fighting if studied more systematically.

## Cooperation

African greys are capable of working cooperatively to gain rewards, but cooperation is only seen between certain conspecifics (Péron et al., 2011). Péron et al. (2011) found that there were differences in cooperation when a female grey was paired with two different males during a problem solving task. The female worked cooperatively with only one individual. The sample size in this study was very small and may not be representative of other parrots; however, it shows that relationships between individual parrots vary. Similarly, only mated pairs of orange-fronted parakeets (*Eupsittula canicularis*) cooperated to excavate nest sites and to chase away conspecifics intruding nest sites in a research aviary (Power 1967). This nest-site cooperation in the aviary is reminiscent of nest-territoriality in the wild.

## Vocal Communication

Field studies have shown the existence of local vocal dialects in yellow-naped amazon parrots (Salinas-Melgoza and Wright, 2012; Wright et al., 2005). Wright et al. (2005) found that these dialects are learned, not inherited genetically. Dialects are learned by juveniles, but adult amazons retain their original dialects when translocated to an area with a foreign dialect (Salinas-Melgoza and Wright, 2012). Amazons are territorial. When a recording of vocalizations was played within a pair's territory, the territory-owners aggressively approached the speakers (Dahlin and Wright, 2012). Parrot vocalizations appear to communicate social and territorial information.

Brown-throated conures (*Aratinga pertinax*) call selectively to precise groups of conspecifics whilst flying over foraging sites (Buhrman-Deever et al., 2008). A feedback experiment showed that these conures preferentially called to social partners (Buhrman-Deever et al., 2008). This suggests that conures call their partners to forage with them on the ground; however, this was an uncontrolled observational study, so other explanations are possible. The finding that monk parakeets don't share foraging information (Hobson et al., 2014) contrasts with this study of conures. Possible explanations for this are that social communication of foraging information varies between species or during different seasons. Female green-rumped parrotlets (*Forpus passerines*) recognize the unique calls of their mates when they are incubating eggs in nest sites (Berg et al., 2011) and young learn unique contact calls from their parents while in the nest (Berg et al., 2012). Berg et al. (2012) argue that this is evidence of parrot social learning which seems reasonable when compared with studies of dialect learning in amazons (Salinas-Melgoza and Wright 2012). Vocal communication studies only provide a limited insight into social communication because they don't include body postures. Nonverbal body postures communicate a great deal of social information between conspecifics of many species, including humans (de Waal, 2016, p.101; Holland et al., 2016), but it is difficult to observe body postures of wild parrots due to limited visibility of arboreal birds.

## Intelligence

Parrots capably solve cognitive puzzle tasks in the laboratory (Auersperg et al., 2013, 2011; O'Hara et al., 2015; Péron et al., 2011). Pepperberg (2007) found that one African grey, Alex, recognized pieces of vocalizations and re-combined words or chunks of words to create new labels for items. This demonstrates the cognitive capacities of parrots, but Pepperberg has not replicated this study with other African greys. Results from a single individual in an artificial setting may not be generalizable to a larger parrot population, however, the Alex case studies demonstrate that at one African grey had a remarkable cognitive ability. The potential for intelligence within this species likely evolved in response to ecological pressures. African greys exhibit social learning when human demonstrators are present, but not from videos of these demonstrators (Pepperberg et al., 1998). This could indicate that the greys in this study had difficulty perceiving video footage or that that three dimensional behaviour is necessary for parrot social learning. By observing conspecifics manipulate sticks to access food, Goffin cockatoos (*Cacatua goffini*) and Keas (*Nestor notabilis*) learned to use sticks as tools (Auersperg et al., 2014, 2011) These parrots did not copy exact motions of the demonstrator birds, so this was not social facilitation, but social learning (Auersperg et al., 2014, 2011).

Cockatoos have also exhibited inferential reasoning and the ability to discern complex rules (O'Hara et al. 2015). Pinon jays (*Gymnorhinus cyanocephalus*) predict social dominance using inferential reasoning (Paz-y-Miño et al., 2004), so inferential reasoning may help parrots determine and remember social rules. Péron et al. (2013) found that dominance status affects social interaction. Hobson and DeDeo (2015) found that monk parakeets observe interaction patterns to determine the relative rank of conspecifics, then focus aggression on those nearby in rank. Some individuals in this study did not interact with each other. These findings provide evidence of the formation of social rules within parrot groups. A limitation of extrapolating from studies of monk parakeets is that they are unique among parrots in their nesting behaviour. Nesting behaviour was not assessed by Hobson and DeDeo (2015), but monk parakeets are one of the only parrot species to weave nests. This limits generalizability to the majority of other parrot species that nest in tree cavities, some of whom exhibit territoriality at nest sites.

Intelligence may have evolved to help parrots recognize and remember conspecifics in the wild. Synthesising findings from laboratory and field studies led to the 'social intelligence



hypothesis' that social cognition evolved in response to ecological pressures (Seyfarth & Cheney). The social intelligence hypothesis predicts that brains evolved to be larger in species living in larger social groups (Barrett & Henzi). Brain size and group size correlate within primates, but this does not explain avian social abilities (Shultz and Dunbar, 2007). Recent neuroscience research provides evidence of 'parallel evolution' (Güntürkün and Bugnyar, 2016). Similar ecological pressures may have caused parrots to develop neuroanatomic features that facilitate ape-like social intelligence without a large brain (Güntürkün and Bugnyar, 2016).

## Conclusion

Studies of wild and captive parrots reveal the social and cognitive abilities of these birds. (Selman et al., 2004). Parrot welfare improves when parrots are housed near conspecifics (Garner et al., 2006; Meehan et al., 2003; Nicol and Pope, 1993), but there are complex social interactions, both agonistic and affiliative when parrots are group-housed in aviaries (Hobson and DeDeo, 2015; Hobson et al., 2014). Parrots forage in large social groups (Amuno et al., 2007), but most species are territorial when nesting (Dahlin and Wright, 2012; Rivera et al., 2012; Salinas-melgoza et al., 2009; Selman et al., 2004). Inferential reasoning (Auersperg et al., 2013; O'Hara et al., 2015) might allow parrots to approach their nests while avoiding territorial conspecifics. Grey parrots can cooperate to solve problems, but don't cooperate with all conspecifics (Péron et al. 2011). There is evidence of social complexity in parrot groups and parrot intelligence. This suggests that parrots may possess 'social intelligence' (Seyfarth and Cheney, 2015). Parrot social learning occurs between conspecifics (Auersperg et al., 2013; O'Hara et al., 2015) and with human (Pepperberg 1998) demonstrators, and companion parrots are often highly aggressive to humans (Gaskins and Bergman 2011). A deeper understanding of their social abilities and requirements may improve parrot welfare.

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photo by: Mike Faix

## BIRTH ANNOUNCEMENT

### **X and Dumbledore are parents...again!**

These Eurasian Eagle Owls have been an established breeding pair at the National Aviary for many years now and this time around, they had more successful offspring than they have ever had in one season before.

Three Eurasian Eagle Owl chicks were raised at the aviary this year and all were dispersed to other zoos throughout the country. The only chick to successfully be raised from the first clutch, Carson, now resides at the Virginia Zoo. The second two chicks of the season, from a different clutch, now have homes at St. Louis Zoo and Cleveland Metroparks Zoo. This makes a total of seven chicks for this pair over the years and the National Aviary is excited to welcome any more chicks that may come in the future.



# Working with a Mother Reared Ambassador Serval

by  
*Kim Janke, Lead Keeper*  
Children's Zoo: San Diego Zoo

The relationship between a trainer and an animal ambassador is one of the most important factors of a successful ambassador program. This relationship allows a lot of the operant conditioning we rely on to take place. Because of this, animal ambassadors have traditionally been hand raised by their human care takers. While zoological institutions have dedicated much research and expertise to developing and refining formula composition and hand rearing techniques, many animal care professionals have questioned if welfare could be improved by allowing the ambassadors to be raised by their mother.

It is quite common for ambassador animals to find their home in educational programs through rehabilitation facilities that have deemed them non-releasable. These animals are clearly parent-reared yet still play a crucial role in our conservation messaging and engage with trainers during programs. Typically this is seen with smaller animals and, for obvious reasons, almost always with native species. How would allowing a carnivore to be mother-raised impact our training program and its suitability to work safely as a program animal? African servals are a common felid seen in ambassador programs and one where a positive relationship is imperative for the safety of the handler as well as zoo guests. I have worked with a large variety of felid ambassadors in the past ranging from lynx to tigers and in all cases these animals were hand-raised. San Diego Zoo has a long history of working with ambassador servals and although the cats do still have their “moments”, trainers are usually greeted with purrs and head-butts. We are able to shape behaviours through direct physical contact and we are able to provide a sense of confidence and security to the cats through the trainer-animal relationship.

In May 2015, 1.1 serval kittens were born at the San Diego Zoo and it was decided that they would be raised with the intent of becoming animal ambassadors. Rather than moving the kittens to the zoo's nursery they would remain with their mother and a team of two keepers, the animal care supervisor of the Children's Zoo, San Diego Zoo's Behavioral Husbandry Manager and I began the process of co-rearing. Animal trainers from another of the zoo's program animal units had successfully co-reared a serval kitten from the same mother the previous year. He was a singleton and so this time around things would prove to be a little different since the kittens had each other to take comfort from and to play with. We did, however, learn a lot from this initial training and co-rearing experience and were ready to repeat and refine the process.

From the very beginning both kittens had their own personalities and attitudes. Visits began when the kittens were just 12 days old and at first they only lasted for a couple minutes, just enough time for us to pick them up and sit for a minute. Upon our arrival to the serval enclosure their mother would be asked to move to another holding area for a tasty treat and so she allowed visits most days. As the kittens grew we began to initiate play with a variety of cat toys and were able to hold their interest in us for longer periods of time up to about 45min. Eventually at about 2 months of age we began twice daily visits and as they





became interested in solid foods we used this to further help build a positive relationship with the kittens. Although their mother would still save some of her food for them the majority of their meat consumption came during the trainers' visits where we worked on bridge conditioning and name recognition. By the time the kittens were three months old it was becoming increasingly obvious that the female, whom we had named Mkali, was not nearly as interested in our interactions as was her brother, Cheka. The decision was made to focus our efforts on Cheka and we began training him to enter a crate and be moved around eventually leading to being transported across the zoo for daily daycare with the Children's Zoo team. Once he was weaned at about 6 months of age he made the move to the Children's Zoo permanently to really begin his training to become a program serval.

Working with Cheka is very different than any of the other cats I have trained. Despite being handled from such a young age he still moved away from human contact (we later conditioned him to a "touch" cue which we generalized all over his body) and sees his trainers more as food dispensers than companions. Bridge conditioning and a strong training foundation are vital since we cannot rely on our relationship to help us. Many of the behaviours Cheka has learned were captured and then shaped since we could not do any physical manipulation. Cheka is however, one of the most confident cats I have ever worked with. He is keyed in to his surroundings and adapts to new situations easily. This can be a blessing and a curse! He has never paused coming out of his crate in a new area, he doesn't need any reassurances, and new experiences such as video cameras, crowds or props do not faze him at all. On the flip side because he is so tuned into his environment and does not rely on trainers for confidence or direction he has a habit of zoning into one particular environmental variable and it can be very difficult to regain his attention and focus. Training is always in competition with squirrels, or people talking, or shadows, or really anything other than us! The Children's Zoo features a private presentation area that is surrounded by vegetation and while most of our ambassadors seem to prefer this privacy it is one of the most difficult areas to work with Cheka. Being able to hear zoo guests and see movement through the bushes seems to be fascinating to him.



Being as he is so content to sit and take in his surroundings he will often choose to pay little attention to his trainers. While conventional training theory would suggest that in moments such as this we wait for him to look to us again before asking another behaviour this has resulted in a 10 min session being extended to an hour long session! We can reposition ourselves, move the crate, call his name and still get no response. We have had to bait far more behaviours with Cheka than I have with any hand reared cat but in these instances of environmental stimulation sometimes even a fish in front of his face is not enough to re-engage him in the training session. Our solution is that training sessions with Cheka are much more structured than with our other serval. There is not much down time in a session so his appearances often do not last as long as other cats.

Despite the challenge of keeping him engaged, working with him has been a great experience. Everything he does is deliberate and his energy levels are generally low when he is with us. He is offered choice and control over his participation in a session by asking him to jump up on a stump and sit while the collar is put on. Should he not want to come out he can refuse to go to the station, although he never has. Since he is much less forgiving than a hand raised cat working with him has helped to improve my bridge timing and caused his trainers to brainstorm for new ways to train common behaviours. At one and a half years old he has settled into his role as an ambassador for conservation and for his species. He holds behaviours better than most hand raised cats I have worked with and relies on a terminal bridge for communication. He now will move about to different pieces of furniture when asked, sit, target and come when asked, and walks well on the leash. He is learning to jump on cue, will climb a tree on cue and is learning an open mouth. He will voluntarily enter a squeeze crate and allow himself to be positioned for vaccinations without any protest. As trainers we still have to try and stay one step ahead of him on the direction of a session but he always exhibits a calm demeanor and is a good learner.

Friends and colleagues working at different facilities will ask what I prefer; hand raised or mother raised? There is no clear answer since it has been such a different experience! While I am sure that every trainer would miss the affection that comes with a mother raised cat, his attitude and confidence leads me to believe that there are some lessons only a mother can teach.

# Training Term of the Quarter

**Contiguity** – Nearness of events in time (temporal contiguity) or space (spatial contiguity).



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Cooper is a resident North American river otter at the Clearwater Marine Aquarium. He arrived at the aquarium in 2001 after suffering partial paralysis from a car strike. Cooper has been trained to voluntarily participate in cold laser physical therapy. He is lined up alongside his trainers, and taught to sit for duration as he receives the laser treatment. Laser treatment is used to stimulate blood flow and new cell growth to affected areas.

by: *Brie Cordier*



CLEARWATER MARINE  
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Walle is a rescued North American river otter at the Clearwater Marine Aquarium. Walle arrived at the aquarium after being kept as a pet on a man's house boat. He became dependent on the man, and no longer emitted the necessary skills to survive in the wild. At the aquarium we have trained Walle, through positive reinforcement, to voluntarily participate in an x-ray behavior.



# Enrichment Team, Activate!

## Inspiring Guests, Enriching Animals and Challenging Keepers

By

*T<sup>2</sup>Noya Gonzales, Senior Biologist and Assistant Behavior Management Coordinator of the Rainforest*

*Sasha Francis, Biologist II Penguins and Pinnipeds*

*Moody Gardens, Galveston, TX*

### WHO WE ARE

The Enrichment Team (ET) at Moody Gardens was established in 2014 as part of the evolving enrichment program. The team has set a mission to not only enrich the lives of animals in human care, but also to proactively spark conservation initiatives through educational events. The enrichment program adopted the Disney's Animal Kingdom S.P.I.D.E.R. model and divided the responsibility into two groups: the Enrichment Committee (EC) and the ET. The ET takes charge of the S.P.I. which is setting goals, planning and implementation. The ET is currently comprised of one coordinator and four biologists. The EC is in charge of the D.E.R. which is the documentation, evaluation and re-evaluation portion of the program. The EC consists of three senior biologists. This union provides a unique opportunity and challenge for the staff. The first priority in our enrichment program is the safety and welfare of the animals and second to engage the public while providing that enrichment in hopes of motivating conservation awareness. The team began by planning small enrichment themed events that would actively educate and engage the visitors. By hosting these themed events, we also broadened our enrichment program while at the same time challenging staff.

### ENRICHMENT TEAM, ACTIVATE! HOW WE GET STARTED

The members of the ET never have a shortage of conservation messages we want to share with guests. The biggest challenge is choosing which topic or theme we want to focus on for each event. The team will often plan the events to take place around holidays or approaching seasons. For example, a Valentine's Day event concentrated on courtship in the animal kingdom, and an Easter event focused on foraging. This creates a platform to connect guests to our animals and the conservation message. We prefer to choose topics that relate to species we have in our collection. This way, we are able to put a face or name to the conservation concern and are more likely to inspire guests to act. Once we decide on a theme, we all brainstorm relevant enrichment and conservation concerns for our respective species. Team members from different animal departments are usually responsible for enrichment selection, creation, and implementation for their area. Other responsibilities like conservation details, keeper chat topics and schedule, signage creation, and interdepartmental coordination are also discussed and then divided among team members. The ET coordinator will then create a realistic timeline and meeting schedule. We also make an effort to identify local environmental or student organizations that can assist with creating enrichment for the events to help reduce the time required by staff for preparation.

### HOW WE ASSEMBLE

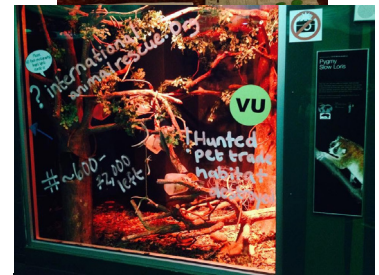
The ET meets once a month and when an event is close, much more frequently. During this time the theme, conservation message, and enrichment focus is discussed and established. Once a proposal is approved by management, several meetings with all involved will occur to streamline duties. This usually involves working alongside our marketing department to advertise the event to our members and general public. As a team, we concentrate on sharing high-impact facts paired with real solutions. The ET will compile the information for signage and talking points during keeper presentations. Staff members outside of the enrichment team are given talking points and signage ahead of time to prepare for themed presentations. Signage is either printed by the graphics department or made by the team to help give the event a uniform look. We aim to make signs that can be reused for future purposes or recycled. For each event, we choose whether we will focus on a few species or a wide variety of taxa. It is important that we offer safe, goal-oriented enrichment for the species that will be highlighted. Once we decide on the species-specific behaviors that we are hoping to elicit, we construct our enrichment plan. Again, we want to create enrichment that is both sustainable and interactive for animals to engage the guests. It takes approximately two to four weeks to plan, make, and arrange enrichment. If food is used, it is usually done a few days prior and frozen or assembled the day of. This does require extra effort from the ET as well as the biologists in the area. The staff is then instructed when to implement the enrichment. Most of the time, we allow the staff to be inventive and encourage additional creativity in the implementation.

## ACTIVATION! THE DAY OF ONE EARTH, ONE CHOICE

The day of our event, ET members arrived early to place signage and decorations throughout the rainforest and aquarium, including signs with a schedule of keeper chats and demonstrations during the event. With so much important information to pass on, we developed a cohesive theme or “story” throughout the rainforest and aquarium so guests wouldn’t be overwhelmed. Links for conservation organizations, as well as simple ways guests could help, were offered on signage as well. Important conservation issues were highlighted throughout the day via keeper chats. In the rainforest, these focused on the effects of mining operations on Asian wildlife, the decimation of amphibian populations by the chytrid fungus, the effects of air pollution on butterflies, and the exotic pet trade. The first gallery guests encountered contained an introduction to our event and our mission, an explanation of our recycled signage, and a brief history of Earth Day. The next section conveyed the importance of the intact rainforest as a resource and the consequences of deforestation. Then came an overview of the IUCN and what different conservation statuses mean, followed by a key for these statuses and other important information guests would see on signage at each exhibit. In the aquarium, we focused on the plastic pollution in oceans, the effects of oil spills on penguins, reef conservation, and how pollution alters water quality. Prior to Earth Day, biologists had participated in a recent local beach clean-up. This allowed the opportunity to set up a station with findings that guests could investigate. One of the powerful items collected included two melted plastic bags that looked like seaweed and coral. This was a high-impact demonstration, especially for locals who frequent these same beaches.

To further encourage guests to stay at exhibits long enough to learn and to provide novel stimulation for our animals, recycled-themed enrichment was used throughout the weekend. Approved recycled items that had been identified during planning were placed in exhibits for enrichment each morning and trash decals were placed along the water line on window panels to demonstrate how their environment looks when “trashed” with pollution. Signs were created to accompany the “trashed” exhibits, asking guests “which would you rather see, animals or trash?”

All biologist presentations and signage included what Moody Gardens as a facility and the staff do each day to assist these issues, as well as what guests could do to make a difference. During Earth Day weekend, educational demonstrations and tutorials were offered in our visitor’s center to show guests how to collect rainwater, how to compost, and how to live a greener life. All together, we created a complete learning experience for our guests to help them make a difference.



## CONCLUSION

The average guest today does not gather information simply by standing in front of an exhibit with signage (Jensen, 2014). Encouraging positive encounters that leave lasting impressions is a beneficial to conservation education (Clayton, Fraser & Saunders, 2008). It is our hope that the ET will continue to grow all of our events so that we can not only educate patrons but also to inspire action and change from them. In turn, these events also benefit the staff by challenging them to think outside of the box, literally and figuratively. Finally, this effort supports and enhances the welfare of the animals in our care. Over a decade ago Rabb et al. (2005) stated that it was evident that zoos needed to transition to more innovative ways to be effective with conservation messages to save species. Zoos and aquariums connect people with the opportunity to connect with species, science and conservation (Jensen, 2014). Implementation of interactive and immersive events through zoos and aquariums could possibly be the key to staying ahead of the plight against species and the environment. We feel as a team that it is time to use all we know and continue to activate, thus inspiring change that benefits animals in our care and their wild counterparts.

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# A BREAKTHROUGH IN BREEDING GUAM KINGFISHERS



Mike Faix

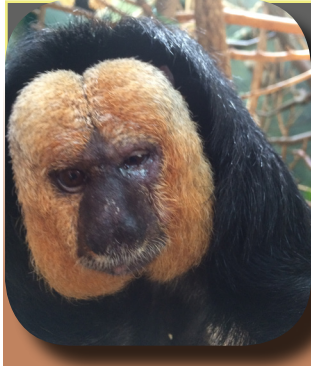
For the first time ever, the National Aviary not only has two pairs of Guam Kingfishers, but each pair has produced a chick! Extinct in the wild, the Guam Kingfisher's survival depends upon successful breeding in zoos.

As Vice Chair of the Guam Kingfisher Species Survival Plan™ (SSP) program, the National Aviary's Director of Animal Collections, Kurt Hundgen, has been working in partnership with 25 North American zoos to promote the husbandry of the species. Initially, we hoped to breed kingfishers on exhibit, but after 18 months, our established pair had not successfully mated.

After several months on exhibit without breeding, Hundgen decided to move our bonded kingfisher pair off exhibit to the breeding center in hopes that the privacy would encourage them to mate. Sure enough, in May the pair successfully hatched and parent-raised their first chick. Not only was this the first Guam Kingfisher chick for the National Aviary, but it was an extremely important milestone for a species for which just under 150 birds remain! Hatching and rearing require skills that don't come naturally to all birds. Often, it can take two to three years of trial-and-error for birds to successfully lay fertile eggs, hatch the eggs, and rear chicks.

The second chick hatched in July to another set of new parents. During the spring, a female kingfisher came to the National Aviary for our bachelor male. It was a great match, as they began courting shortly after introduction. Despite the parents' successful brooding and hatching, the chick is now being hand-reared after taking a tumble from the nest.

Since both pairs are bonded and continue to mate, we will keep them in the breeding center so they may produce more offspring. Thanks to careful management, as well as some good matchmaking, the National Aviary is helping to secure the future of this endangered species.



# A SINGLE TEAR.

## USING OPERANT CONDITIONING TO ADMINISTER OCULAR MEDICATION IN A WHITE-FACED SAKI MONKEY PITHECIA PITHECIA

by  
Jennifer Hennessy  
Roger Williams Park Zoo

Gauguin is a male white-faced saki monkey, *Pithecia pithecia*, who was born May 16, 1988. He is currently the oldest Saki in AZA. On January 30, 2015, a single clear tear was observed in the corner of his left eye. This condition persisted on and off for months. Eventually on occasion, mucoid discharge would be observed in his left eye. This would change back to a clear tear within an hour. The presence of the clear tear occurred the vast majority of the time compared to the thicker discharge. Gauguin's behavior was consistently normal. His weight remained the same, he ate well, he didn't appear to be in pain, squint or rub his affected eye. Since he appeared healthy in all other regards, we made a decision that no veterinary intervention would occur at this time. We would wait until October to get a better look at his eye during his normal scheduled annual exam. In the meantime, a training plan was created to administer eye drops in case the condition of his eye changed or became worse and medication would need to be applied.



The finalized training plan is listed below. Modifications were made when my approximations were too large. Initially, after he was solid with the position to receive the eye drop, I immediately dropped saline into his eye. He regressed considerably and would no longer participate. A smaller step of me brushing his nose with my finger was introduced, then the saline was dropped on his nose, and finally his eye.

### New Behavior Training Plan

**Species:** W F Saki

**Name:** Gauguin

**Primary Trainer:** Jen Hennessy

**Behavior:** Eye drops in left eye

**Cue:** visual - target and eye dropper

**Bridge:** Reward - nut pieces

**Final Behavior:** Gauguin will sit still and allow a drop or two of eye drops into his eye

**Assumptions:** Gauguin is not afraid of the eye dropper





## Steps:

- 1) Have Gauguin station on the flat branch in front of the green callitrichid catch cage, reward when he comes over - begin this way every time
- 2) Rest your right elbow on the branch right next to Gauguin with the eye dropper in your right hand. In your left hand you are holding a target. Have Gauguin target his nose/mouth to the end of the target while holding the eye dropper near his head and reward after he targets
- 3) Reward for a longer target duration
- 4) Reward when you move the eye dropper closer to his face and he continues to target
- 5) Reward when the bottle is right over his eye and he targets - continue in this position
- 6) Touch his nose lightly with a finger in the hand that is holding the eye dropper
- 7) Touch his nose with a larger swipe/pressure and reward - continue incrementally
- 8) Dispense one drop from the eye dropper on his nose
- 9) Dispense one drop of liquid closer to his eye incrementally
- 10) Dispense liquid in the eye and reward



During Gauguin's annual veterinary exam in October, conjunctivitis was diagnosed and ofloxacin eye drops were prescribed 2x/day for 14 days. After the two weeks, there was no significant improvement so a steroid drop was prescribed. Before we could start the steroid drops we needed to confirm there were no scratches on his cornea. If he had a scratched cornea the steroids could exacerbate the problem. A stain was performed by the vet on exhibit with his eye drop behavior. It is important to note that the tools were different to perform the stain than his eye drops. Instead of a white eye dropper a syringe filled with orange fluorescein stain was used. In addition, a blue light was focused in his eye to look for any scratches. Gauguin performed the behavior, the stain was successful, and no scratches were found.



Antibiotic, anti-inflammatory, and lubricating eye drops were used from October 2015 through July 2016. None of these resolved the issue however it did seem to reduce the frequency of the thicker mucoid discharge. In late April 2016, his eye started appearing more irritated than usual. On July 1, visible swelling was observed under his affected eye. He was examined under anesthesia for swelling on the left side of his face ventral to his eye. A culture was taken and mycobacterium was found. An antibiotic gel was ordered and was to be placed in the pocket under his eye. Based on the culture results amikacin eye drops and an oral antibiotic were prescribed. Days before the scheduled exam to place the antibiotic gel, Gauguin had been severely injured by one of his cage mates, a cotton top tamarin, *Saguinus oedipus*. The antibiotic gel was put in place at the same time his injuries

were being addressed from his attack. Gauguin was so severely injured, we were not sure he would make it through the night. Eye drops were suspended so we could focus on the more critical aspects of his care. He was housed in a small enclosure in the veterinary hospital for two weeks. He was then transferred to a howdy cage adjacent to his mate. The eye drop behavior was rebuilt and twice daily amikacin drops were administered from the end of August 2016 through November 2016.

Our veterinary staff diagnosed Gauguin with a facial abscess that was caused by a *Mycobacterium* species. They suspect that the conjunctivitis was also caused by *Mycobacterium* that then extended into the tissues below the eye creating the abscess. The eye drop behavior was started well before any diagnosis had been made. A month and a half after seeing the on and off again single tear in his eye, a training plan was put into place. Seven months after his symptoms started the eye drop behavior was implemented. For nine months, we were able to participate actively in the care of Gauguin's eye. In the end the behavior proved extremely useful throughout the duration of his medical care. He has now healed from all his wounds from the altercation with the cotton top and his facial swelling is gone. He has been reunited with his mate Suni, and we are hoping offspring will be in their future. A single tear has reappeared from time to time. We continue to keep his eye drop behavior strong just in case we need to implement it in the future.







# Snow Days in San Diego

by

Jessica Sheftel, Enrichment Supervisor  
San Diego Zoo

Polar bears, pandas, grizzly bears and snow leopards are all adapted to live in cold, windy and wet conditions. They have thick coats and large feet to help them traverse through a snow covered landscape. However, the weather in San Diego only calls for occasional snow in the mountains and rain at the coast. This leaves us to create the cold weather that elicits behavioral responses which allows our collection to use their physical adaptations.

Thanks to modern technology and innovation, we are able to purchase snow for our winter loving residents. A local ice company has equipment to make snow from large blocks of ice. Recently it has become quite popular, at least in southern states, to have a snow scene created at a school or in your front yard for holiday festivities. They can make a snow mound for sledding or give someone the white Christmas they have always wanted. This same equipment can be used at the zoo to create snow-filled enclosures for our animal collection that comes from cold weather climates.

The ice company brings ice blocks that are in excess of 300 pounds on a refrigerated truck. Depending on the exhibit and how much snow we have ordered there will be anywhere from 8 – 20 tons of ice on the trucks. They also bring a large “chipper” specifically designed for processing large blocks of ice, the machine flakes the ice and then it is blown through a long tube into the exhibit. The entire process from start to finish takes around 2 hours and requires 3-4 people. Two people push the ice blocks from the truck into the chipper while a third holds the large hose and directs the snow into the exhibit. The fourth person typically maintains communication and tends to the chipper as needed.



All exhibits are not created equal and some have required us to be more creative with the set up of the machines. The polar exhibit, for example, requires the chipper to be placed inside the exhibit. The ice blocks are moved on pallets by a forklift and loaded into the chipper. From set up to break down this can take up to four and a half hours, it requires 6 people from the ice company and at least 1 zoo employee to operate the fork lift. The extra effort is well worth it as the polars are some of the animals that never disappoint with their sliding and rolling.

Polars, pandas and grizzly bears have received snow at least once a year for quite a while. This year, thanks to the generosity of donors, we were able to provide snow for other animals as well. A long list of animals had the opportunity to experience snow in 2016 including reindeer, lions, jaguars, snow leopards, Tasmanian devils, rhinos, grizzly bears, Andean bears, pandas, polar bears, mountain lions and takin. While some animals were clearly not interested, most of them inspected and interacted with the snow in species-specific fashion.

The most surprising was the reaction from the reindeer. The snow was provided in the adjacent polar yard, minus the polar bears. As the keepers opened the door and allowed the herd to enter the novel space they immediately gravitated to the patches of snow. They pawed at it, rubbed their antlers in it and eventually laid down on it. There was plenty of space without snow but they chose to lay in the snow, which made me realize that it isn't always the amount of enrichment but the way we present it that is truly rewarding for the animals. It is possible if presented with snow in their home exhibit the reaction would not have been the same. Perhaps the novel smells, plants and substrate of the polar yard increased the enrichment value of the snow.

As we present snow to different species we think about how the animals are going to use the snow. What will be the most effective presentation for this individual(s) in the present exhibit? For takin and rhinos we decided to make a large mound for them to climb on while mountain lions and snow leopards received a larger distribution of snow to explore. As the snow is blown into the enclosures keepers also have an opportunity to distribute food, browse or even scents to be covered by the growing mounds of snow. The grizzlies come out sniffing and dig vigorously for the buried treasure providing a more rewarding experience than simply presenting them with a beautiful landscape of snow.

Donors, keepers and local companies have made snow days in San Diego a successful endeavor that continues to enrich the lives of our animal collection.

**Do you have a story to share?**

**An innovative training or  
enrichment idea?**

**Share ideas with other animal professionals  
by submitting an article to:**

**ENGAGE, official newsletter of the ABMA**

**for more information contact Cathy Schlott,  
Publications chair, at [engage@theabma.org](mailto:engage@theabma.org)**