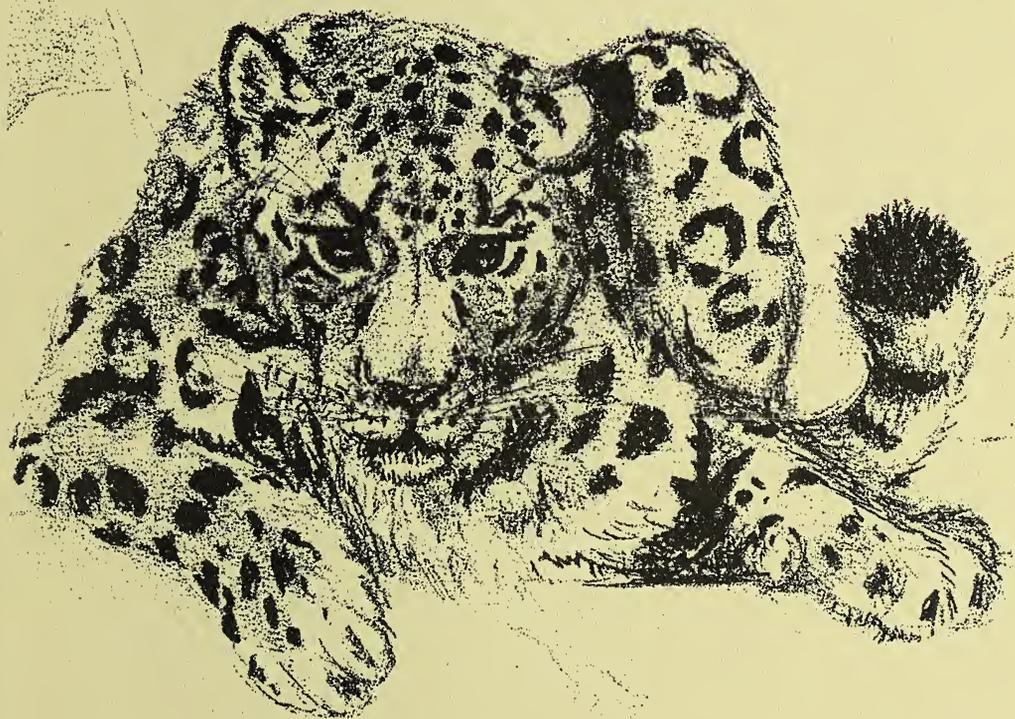


ANIMAL KEEPERS' FORUM



DECEMBER 2009

The Journal of the American Association of Zoo Keepers, Inc.

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35th Anniversary - 1974 - 2009

MISSION STATEMENT

(Revised April 2009)

American Association of Zoo Keepers, Inc.

The mission of the American Association of Zoo Keepers, Inc. is to advance excellence in the animal keeping profession, foster effective communication beneficial to animal care, support deserving conservation projects, and promote the preservation of our natural resources and animal life.

This month's cover features a drawing of a Snow Leopard (Uncia uncia) drawn by Kim Lovich of the Curator's Office at the San Diego Zoological Society. The Snow Leopard inhabits remote alpine and sub-alpine zones in Afghanistan, Uzbekistan, Tajikistan, Kazakhstan, Kyrgyz Republic, Bhutan, China, India, Mongolia, Nepal, Pakistan and Russia. The species is currently fragmented in its distribution, which consists of long, narrow mountain systems and scattered island habitat. It prefers steep, dry, rocky terrain with cliffs and rocky outcrops between 3,000 and 4,500 meters (9,800-14,800 feet) high. It may go higher or lower in different parts of its range. It is an excellent climber and prefers traveling along major ridgelines, gullies and broken cliffs. Snow leopards are rarely sighted because of their remote habitat and shy and elusive character. Solitary snow leopards (and researchers) use claw scrapes and rakings, feces, and scent sprays to identify snow leopards in an area. Snow leopards are solitary unless mating or raising cubs. Depending on location, they are most active at dawn and dusk or at night. They are opportunistic feeders, but prey mostly on wild goats and sheep (including ibex (Capra siberica) and blue sheep (Pseudios nayaur). They also feed on small prey items such as marmots, hares and birds, and may take livestock if they are encountered in their range. Sexual maturity is reached at two to three years. Mating occurs between early January and mid-March. Male vocalizations can be heard at this time. One to five (usually two or three) cubs are born 98 to 104 days later, in May or June. Cubs remain with their mother until they are 18 – 22 months old. Littermates may remain together briefly after they disperse from where they were born. The Snow Leopard was hunted for fur and as a trophy and was already rare by 1970. Today, the Snow Leopard is threatened by illegal hunting for fur, as well as for body parts and bones for traditional medicine. They are threatened by loss and fragmentation of habitat due to the encroachment of humans and livestock, loss or displacement of prey (including the effects of large-scale marmot and pika poisoning programs), and lack of adequate protection. Snow leopards are also killed for preying on livestock. They are listed as Critically Endangered by the International Union for the Conservation of Nature and Natural Resources (IUCN) and listed as Endangered on the U.S. Endangered Species Act (ESA). This species is also listed on Appendix I of the Convention on the Trade in Endangered Species of Fauna and Flora (CITES). Thanks, Kim!

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or email contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone 785-273-9149; FAX (785) 273-1980; email is akfeditor@zk.kscsoxmail.com< If you have questions about submission guidelines, please contact the Editor.

**Deadline for each regular issue is the 10th of the preceding month.
Dedicated issues may have separate deadline dates and will be noted by the editor.**

Articles printed do not necessarily reflect the opinions of the *AKF* staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

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BFR Website: <http://aazkbfr.org>**

Scoops & Scuttlebutt



Reminder of Dues Increase

All members are reminded that dues for all membership categories except Institutional and Commercial will increase effective 1 January 2010. The Association has always tried to keep individual membership dues as affordable as possible and has only raised fees three times in the past 25 years. Costs to administer the Association and produce *Animal Keepers' Forum*, as well as postage to deliver the *AKF*, have continued to rise making this increase necessary.

The new fee structure is as follows:

US and Canadian Professional Members	\$45.00	U.S. and Canadian Individual Contributing	\$70.00
US and Canadian Affiliate	\$40.00	University/Zoo Libraries	\$45.00
U.S. and Canadian Student	\$30.00	International Memberships	\$60.00

Commercial and Institutional Memberships will remain at \$150.00 per year.

We appreciate your understanding and continued support of AAZK as we move forward to improve our services, publications, conservation programs and professional development opportunities for our members.

“Bowling For Rhinos-sponsored by Blue Rhino” 2010

Our #1 BFR goal for 2010 is to have all 80 AAZK Chapters participate in “Bowling For Rhinos”. Any type of fundraiser is welcome. Some Chapters have been very successful with “Wii bowling”, “Run/Race For Rhinos”, “Rummage For Rhinos”, “Rock n’ For Rhinos”, “Sailing For Rhinos”...and the list goes on. All donations of course are always welcome and count as participation. Remember, it takes about five consecutive years for a fundraising event to catch on in your community so it is important to keep rolling with BFR in order to be successful.



Our #2 BFR Goal is to raise \$400,000 in 2010. If we increase the overall size of the “conservation pie” each of the organizations we support will receive a larger amount of money. It will be tough in this economy but all three organizations are also feeling the effect of the economy and are in need of extra support more than ever. During tough times, poaching pressure increases and the cost of protecting wildlife increases.

Please let me know the **date of your 2010 event and your contact information ASAP** so I can update the website. All three organizations who receive BFR funding (International Rhino Foundation, Lewa Wildlife Conservancy and Action For Cheetah) would like to help you “grow” your event, but we need this information to do so. If you plan to make a donation rather than hold an event, please let me know. The sooner we know your event date, the better our chances of helping to “grow” your event. Please contact Patty Pearthree: ppear3@pear3.org

Reminder to All Chapters on Recharter Process for 2010

All AAZK Chapters are reminded that the rechartering of all Chapters will begin in January 2010. Rechartering packet information will be sent electronically via email to the email address your Chapter has provided to the Administrative Office in 2009. These emails will be sent the first week in January. **NOTE:** If your Chapter has changed its email contact address since you completed your 2009 recharter forms, you need to notify Barbara Manspeaker immediately (aazkoffice@zk.kscoxmail.com) so that your recharter materials are properly received. Recharter Packets for 2010 are due back at Administrative Offices **by 15 February 2010** (with a late fee penalty of \$250 after **1 March 2010**).

If you do not receive your recharter packet materials by early January, you need to contact Barbara at the email address above or by calling 785-273-9149. If you have questions about filling out the required information, give Barbara a call and she will be glad to help you out. Receipt of rechartering information from **every** AAZK Chapter is required as AAZK, Inc. needs to submit certain information to the Internal Revenue Service in order to protect and maintain the Association's 501(c)(3) nonprofit status. Your prompt attention to this matter is greatly appreciated.

AAZK Thanks Commercial Members

The Association would like to take this opportunity to thank those companies who are Commercial Members of AAZK, Inc. A number of these members are also advertisers in *Animal Keepers' Forum*. We appreciate their support and encourage our members and their institutions to utilize their products and services.

ABC Training Systems, Freeland, MD
Blue Rhino® Corporation, Winston-Salem, NC
The Caplen Company, Jefferson, MD
Desert Plastics, LLC, Albuquerque, NM
Finney Creek Advanced Nutrition, Jensen Beach, FL

The Gourmet Rodent, Jonesville, FL
Mazuri Diets/Purina Mills, St. Louis, MO
Nebraska Brand, North Platte, NE
PetAg, Inc., Hampshire, IL
Premium Nutritional Products, Mission, KS

2010 Conference/First Call For Papers

The Greater Philadelphia Chapter of AAZK invites you to submit abstracts relevant to our theme "Now and Then: A Return to our Roots for the Growth of our Future" for the 2010 National AAZK Conference. Abstracts will be accepted for one of three categories:

Papers

Authors will give a 15-minute presentation with a five-minute Q&A session immediately following. Papers should discuss techniques, achievements, or innovative approaches to animal care and husbandry, welfare, conservation, education or research.

Posters

Posters will be on display throughout the conference and presenters must be available for discussion with other conference delegates during the designated poster presentation session.

Workshops

Those interested in running a professional workshop should submit an abstract, a list of group leaders, format of discussion, expected number of participants, and length of workshop.

Guidelines for Abstracts:

Abstracts should be no longer than 300 words and should be submitted in Microsoft Word via email to conference@philadelphiaaazk.org. Be sure to include the following information:

- Title of paper, poster or workshop (specify which type of presentation)
- Full name of presenter and authors
- Institution/Affiliation
- Position/Title
- Short bio of yourself for introduction
- A/V needs
- Contact information, including email address

Deadline for abstracts is 1 May 2010. Presenters will be notified regarding acceptance by 1 June 2010. All final and complete papers must be received by 15 July 2010 in order to be included in the program.

For more information, please visit our website at www.philadelphiaaazk.org or contact us at conference@philadelphiaaazk.org.



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From the President

Union Confusion

It has come to my attention that there is some concern over an exhibit table that was operated at the recent AAZK National Conference by the Teamsters Local that represents the collective bargaining unit at Woodland Park Zoo. To address the concerns, let me emphasize that AAZK, Inc. is NOT endorsing unions. To do so would jeopardize our incorporation as a 501(c)(3) non-profit association. AAZK, Inc. is neither for nor against unions.

Originally, the Teamsters Local in Seattle purchased an exhibit table at the conference as a way of financially supporting the Puget Sound Chapter of AAZK, hosts of the 2009 AAZK National Conference. In addition to financial support, the purpose of the exhibit table was for information sharing. The Chapter gave the Local specific parameters for operating the table. Unfortunately, it appears an overzealous union representative chose to ignore the parameters and began circulating a petition. Once the Chapter learned that the union representative was operating outside of the parameters, the situation was addressed. AAZK, Inc., the Puget Sound Chapter, and the Conference Planning Committee were unaware of the union representative's intentions, and AAZK, Inc. was certainly not endorsing the actions of this union representative. The Conference Planning Committee and Puget Sound Chapter handled the situation effectively and professionally.

Apparently, word through the grapevine had some zoo managers worried that AAZK, Inc. was endorsing unions. As I stated before, that is NOT the case. Overall, the joint conference of the AAZK and International Congress of Zookeeping (ICZ) was quite possibly the most educational and diverse gathering of animal care professionals ever assembled. It is unfortunate that the act of one individual took the focus away from the excellent job the conference hosts did of putting this historic event together.



Shane Good, AAZK President
Cleveland Metroparks Zoo

AAZK Announces New Members

New Professional Members

Vicki Hodge, **Buffalo Zoo (NY)**; Josianne Romasco, **Pittsburgh Zoo (PA)**; Chris Crowe, **National Zoo's Conservation and Research Center (DC)**; Jeff Owen, **North Carolina Zoo (NC)**; Tom Benner, **Toledo Zoo (OH)**; Tom Granberry, **Indianapolis Zoo (IN)**; Kimberly Schmaeman, **Children's Zoo at Celebration Square (MI)**; Kara Delanty, **Milwaukee County Zoo (WI)**; Sarah Armstrong, **Omaha's Henry Doorly Zoo (NE)**; Victoria Edel, **Audubon Zoo (LA)**; April Yoder, **Little Rock Zoo (AR)**; Amy Pierce, **Tulsa Zoo (OK)**; Randy Wesson, **Ft. Worth Zoo (TX)**; Lucy Dee Anderson, **Houston Zoo (TX)**; Lois Davis, **Houston Arboretum & Nature Center (TX)**; Andrew Rowan, **Denver Zoo (CO)**; Judy Hudgins, **Wildlife West Nature Park NM**; Piper Dwight, **The Gorilla Foundation (CA)**; Kimberly Schreiner, **The Oakland Zoo (CA)**; Bev Bailey, Nikki Smith, Megan Brown and Marie Moreno, **Safari West Wildlife Preserve (CA)**; Rob Bledsoe, **Sacramento Zoo (CA)**; Derek Woodie, **Pt. Defiance Zoo & Aquarium (WA)**; Stephanie Hartmen, **Alaska Zoo (AK)**; Lynda Bongello, **Toronto Zoo (Ont., Canada)**; Shelley Brown, **Assiniboine Park Zoo (MB, Canada)**; Cindy Peacock, **Calgary Zoo (AB, Canada)**; and Anders Kristensen, **Scandinavian Wildlife Park (Denmark)**. *We do not publish the names of new members who do not list their facility on their membership application/renewal (There are two this month.)*

New Institutional Members

Ft. Wayne Children's Zoo
Ft. Wayne, IN
Jim Anderson, Zoo Director

Renewing Institutional Members

Columbian Park Zoo
Lafayette, IN
Claudia Laufman, Director

Lake Superior Zoo
Duluth, MN
Sam Maida, CEO

Turpentine Creek Wildlife Refuge
Eureka Springs, AR
Hilda Jackson, Curator

Dickinson Park Zoo
Springfield, MO
Mike Crocker, Zoo Superintendent

Houston Zoo
Houston, TX
Rick Barongi, Director

Santa Barbara Zoo
Santa Barbara, CA
Rich Block, Director

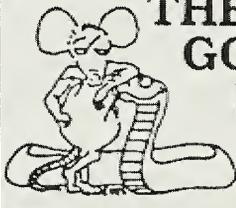
Renewing Contributing Members

Mark Hofting
Bronx Zoo, Bronx, NY

Charlene C. McKee
Thornton, CO

Gloria K. Kahn, LA Zoo Volunteer
Camarillo, CA

Ann Bissell
Washington, DC



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Coming Events

Post Your Coming Events Here
email to: akfeditor@zk.kscocmail.com

February 21-24, 2010 – Giraffe Professionals Conference to be held in Phoenix, AZ. The International Association of Giraffe Care Professionals is pleased to announce the first-ever conference “All of the Above” devoted to all aspects of giraffe care in captivity. All individuals interested in giraffe and the advancement of their care are invited to join us for this groundbreaking event. Conference is being hosted by the Phoenix Zoo with sponsorship from the Oakland Zoo. For more information, registration or for those who may be interested in presenting at the conference, please visit <http://www.giraffecare.org/>

March 3-6, 2010 - International Association of Avian Trainers and Educators (IAATE) Conference held in Albuquerque, NM. It's not too early to start planning to attend the 2010 IAATE Conference hosted by Avian Ambassadors in Albuquerque, New Mexico. The 2010 IAATE Conference will provide a wonderful opportunity to learn more about avian training, show content, educational messaging, enrichment ideas, avian health and welfare from the leading authorities in the industry. Get ready for Conference Trips, Workshops, Visit the Rio Grande Zoo and Aquarium, and we are bringing back the Training Panel. **Stephen J. Bodio** is our Keynote Speaker. Steve was born and educated in Boston and has lived in Magdalena, New Mexico, for over twenty years. He has traveled extensively in Europe, Africa, and especially Asia. His book *Eagle Dreams* is about the Kazakh horsemen of Mongolia. It is the journey to and in writing this book that Steve will talk about with his slide presentation. We also have **Susan G. Friedman, Ph.D** with a featured paper on Saturday morning! Dr. Friedman is a psychology professor at Utah State University with a special interest in applied behavior analysis (ABA), the technology of behavior change so effective with human learners. Over the last decade, she has pioneered the dissemination of ABA principles, procedures and ethical standards to improve the quality of life for animals. For more information visit www.IAATE.org and start planning today!

This year, Online Registration is available! Go to www.IAATE.org for all registration and conference details. Online registrations must be submitted and Mail-in registrations must be postmarked by February 6, 2010. Walk-in registrations will be accepted at the conference.

Hotel Reservations must be made by February 14, 2010 to get the special IAATE rate.

April 15 –18, 2010 - 4th Otter Keeper Workshop - the Cincinnati Zoo in Cincinnati, Ohio will host. This year the focus of the workshop will be expanded to include all of the otters managed under the Otter SSP® North American river otters, Asian small-clawed otters, African clawless, African spotted-necked and giant otters. Keepers working with any of the species are welcome to attend. Topics will include: captive management issues, enrichment,

training, water quality, health care, nutrition, diet, hand-raising, exhibit design, lots of sharing of information between keepers.

Registration will be \$75 and the deadline is December 15, 2009. Spots fill up fast so please register early. A waiting list will be maintained once the workshop is filled. Due to the popularity of the workshop, priority will be given to first time attendees. Please just one registrant per institution. No refunds after January 15, 2010. Accommodations: A hotel near the Cincinnati Zoo or the Newport Aquarium. Room negotiations are ongoing. Roommates are encouraged. You will be matched if you indicate that you wish to have a roommate. Information can be found on: www.OtterSpotter.com

For more information contact: David Hamilton at Seneca Park Zoo, 2222 St. Paul St., Rochester, NY 14617; phone: 585-336-2502; 585-266-5775 fax dhamilton@monroecounty.gov

April 25-30, 2010 - Animal Behavior Management Alliance (ABMA) Annual Conference - In Pittsburgh, PA. The theme of this 10th Anniversary Conference is “Defining a Decade: Animal Management - Past, Present, and Future”.

Conference programming includes: Dr. Vint Virga, a Veterinary Behaviorist as keynote speaker, formal presentations, numerous workshops and seminars, a poster session, and site visits to animal facilities. All conference details can be found at www.theabma.org. The conference will be held at the Hilton Pittsburgh located in downtown Pittsburgh. Mention that you are with the ABMA and receive a special room rate of \$119/night. Reservations must be made by March 23, 2010 at 412-391-4600. Contact Nicole Begley at nicole.begley@aviary.org or 412-323-7235 ext 216 with questions.

May 11-15, 2010 - International Gorilla Workshop – 2010 - Oklahoma City Zoo is excited to host the 2010 International Gorilla Workshop. We hope you'll join us for these informative sessions. Our keynote speakers who are confirmed are Dave Morgan and Charlene Jendry. We are in final confirmation stage to get Dr. Ilana Kutinsky here as our third keynote. The Gorilla Workshop was created to promote and improve husbandry, management and conservation of gorillas. It is necessary to collaborate with colleagues to better provide for and understand gorillas in our care. The 2010 Gorilla Workshop will include a number of topics with an emphasis on multi-male and bachelor groups, as well as innovative and best practices in gorilla husbandry. The deadline for abstracts is 10 February 2010.

Abstracts must contain the following:

- Author's name, affiliation, address, e-mail address and phone number
- Title of paper
- Concise description of paper not to exceed 500 words (single space)
- On a separate page please provide a concise bio of the author/presenter

Suggested Topics (1 full day will be devoted to each main topic): Innovations and best practices in gorilla husbandry: Retro-fitting existing cages; Innovations in exhibit and holding design to facilitate husbandry; Philosophy driven husbandry programs - What's yours and why does it work for your facility?; How to promote mother-rearing; Surrogate programs; Behavioral husbandry - What is working to promote innovations in gorilla management?; Multi-male and bachelor groups: Best practices - What's working at your facility? What's not and how can we learn from it?; Research Updates; Complexities such as holding/exhibit design; Introduction strategies; Management strategies; Field Work and Conservation: Ape Sanctuaries/Updates from the Field; Fundraisers to support in situ work; and In or Ex-situ conservation education programs.

Please send via e-mail or CD (in Word format) to: Laura Bottaro OR Donna Mobbs, OKC Zoo, 2101 NE 50th St., Okla. City, OK 73111 Emails: LBottaro@okczoo.com DMobbs@okczoo.com

Registration fees of \$195 are due by 10 February 2010. A late fee of \$30 will be assessed after 10 February. Ten dollars from each registration will be combined to benefit one or more in situ conservation project(s). If you have other general question about the workshop, OKC, etc, please contact Brian Aucone, BrianA@okczoo.com, 405-425-0283.

August 30 - September 3, 2010 - 7th International Penguin Conference - in Boston, MA. Hosted by The New England Aquarium. For info email ipcbboston@neaq.org

September 7-12, 2010 - National AZAD Conference Hosted by Brookfield Zoo, Brookfield, IL USA. Call for Papers--Share your ideas by presenting a paper addressing ways people can work to conserve our Earth and all the gifts it gives us - Abstracts must be submitted by January 15, 2010; Notification of Acceptance is February 15, 2010; Completed papers are due April 1, 2010. Presentations should be 45 minutes in length, including 10 minutes for Q&A. Please email abstracts to AZAD2010info@gmail.com with the subject line being "Abstract". Include name and contact info, title of paper, abstract, audio-visual equipment needed, your zoo/aquarium affiliation and AZAD membership category

September 28-October 2, 2010 - 20th International Zoo Educators' (IZE) Biennial Conference - at Disney's Animal Kingdom, Orlando, FL. For more information, please visit <http://www.izea.net>

Upcoming AAZK National Conferences

2010 - Philadelphia, PA - August 22-26

2011 - San Diego, CA - August 24-28

2012 - Syracuse, NY - September 23-27

For information on upcoming AAZK conferences, watch the AAZK website at www.aazk.org

Upcoming AZA National Conferences

September 11-16, 2010 - AZA 2010 Annual Conference - Hosted by Houston Zoo, Houston, TX.

September 12-17, 2011 - AZA 2011 Annual Conference - Hosted by Zoo Atlanta, Atlanta, GA

September 8-13, 2012 - AZA 2012 Annual Conference - Hosted by Phoenix Zoo, Phoenix, AZ

September 7-12, 2013 - AZA 2013 Annual Conference - Hosted by the Kansas City Zoo, Kansas City, MO

For info on AZA Conferences, see http://aza.org/ConfWork/AC_Intro/index.html

MOVING?

If you are changing your mailing address, please let us know ASAP. Be aware that since *Animal Keepers' Forum* is sent under a nonprofit, bulk rate postal permit, it is **NOT** automatically forwarded to your new address. So, if you don't want to miss any issues of *AKF*, inform us as soon as you have a new mailing address. Call the Administrative Office at 785-273-9149 or you can email change of address/email information to:

aazkoffice@zk.kscoxmail.com

Please put "Address/Email Change" in the subject line.

Thanks for helping keep your membership information up-to-date.

SPOTLIGHT on AAZK COMMITTEES

Professional Development Committee Update! *Fall 2010*

Did you know that there is a group of your colleagues committed to strengthening your skills as a zookeeper? Well there is. We are the Professional Development Committee! We are a relatively new committee and have been extremely busy. Here is a look at what we have done and where we are going.

2009

This past year the Professional Development Committee put together two workshops for the 2009 AAZK National Conference/ICZ in Seattle, WA. The Body Condition Scoring Workshop and the Capture and Restraint Workshop were both presented by the Professional Development Committee. These two workshops were well received and zoo keepers who attended were able to take new and strengthened skills back to their facilities.

The Body Condition Scoring (BCS) Workshop took place on Zoo Day at Woodland Park Zoo. Participants learned how to use BCS as a way to objectively communicate the overall health of animals under our care. Dr. Mark Edwards, from California Polytechnic State University, instructed the course and proved to be a wonderful resource for the workshop attendees. The course also took keepers out into the “field” where keepers were able to assess animals at Woodland Park Zoo with their new found BCS skills. This workshop was generously supported by Marion Zoological and Nebraska Brand Meat Company.



Dr. Mark Edward instructs zoo keepers in the correct use of the BCS system at Woodland Park Zoo

(Photo by Kelly Wilson)

The Capture and Restraint Workshop was instructed Dr. Mark Johnson and Bob Cisneros from the San Diego Zoo. Dr. Mark Johnson has an incredible amount of experience performing capture and restraint in both zoo and field settings. Dr. Johnson taught workshop attendees how to be an effective participant in any form of animal restraint, while Bob Cisneros went over basic fundamentals on restraining various forms of animal species. Whether a keeper must utilize a Y-pole with canids or how to be a useful participant during a chemical immobilization, keepers were taught skills to aid in all aspects of animal restraint. This workshop was generously supported by Dan-Inject.



Dr. Mark Johnson and Bob Cisneros go over restraint techniques
(Photo by Kelly Wilson)

The Future

Over the course of the next year, the impact of the Professional Development Committee will only increase! We are currently working with the conference committee at Philadelphia AAZK to finalize the workshops for the 2010 National Conference in Philadelphia. We continue to search out experts to bring conference delegates the most current technologies and innovations in animal care. We are also already looking ahead at the 2011 National Conference in San Diego where we will continue to host skill strengthening workshops as well as a specialized workshop on venomous animal husbandry. The Professional Development Committee is also working with the Board of Directors and members of the Association of Zoos and Aquariums on a keeper certification process.

The Professional Development Committee will remain committed to strengthening the skills and leadership qualities of all AAZK members in 2010 and for years to come!

If you have ideas or interests for future workshops please contact Melaina Wallace at Melaina.G.Wallace@aazk.org.

Want to Help?

The Professional Development Committee is currently seeking new members! We want to continue to provide to the highest quality workshops possible and we need your help! If you are interested in joining the Professional Development team please contact Melaina Wallace at Melaina.G.Wallace@aazk.org.

2009 Sponsors

We would like to acknowledge the following companies for their support of the Professional Development Committee in 2009:

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North Carolina Zoo

(Editor's Note: Watch upcoming issues of Animal Keepers' Forum for updates from other AAZK Committees that are working hard to fulfill the Association's goals and projects.)

Call for Papers for AKF Dedicated Issue on Avian Husbandry and Breeding

Zoo and aquarium animal collections are experiencing a crisis in sustainability. Without successful husbandry and breeding we stand to lose the diversity that is vital to great collections. This is being strongly felt in the avian world. In **April of 2010** there will be a dedicated issue to avian husbandry and breeding. We are seeking articles pertaining to what has worked, and often more importantly, what has not worked in the art and science of avian husbandry and breeding. By sharing information we can begin to make collaborations and work towards building stronger and sustainable populations.

Papers should be submitted electronically in MS Word **only** to akfeditor@zkscoxml.com. Please put Avian Special Issue in your subject line. Papers should be no more than 10 pages in length. Any charts or graphs should be submitted as separate jpg or tif files along with the manuscript. We would encourage photos of your animals to include and these should also be submitted electronically as either jpg or tif files. Please make certain all photos are high resolution (300 dpi)

If you cannot submit your materials electronically, you may send them on a disk or CD to: Dedicated Issue, AAZK, Inc., 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. If you cannot submit your photos electronically, you may also send 3x4 inch prints. Be sure to include proper photo credit and suggested captions for each photo are appreciated.

You should also include your complete contact information including address, email and daytime phone number where you may be reached if we have questions concerning your submission.

Deadline for receipt of articles for consideration is

****January 5, 2010****



Internet Searching for a Cause

What if AAZK earned a penny every time you searched the Internet? Or how about if a percentage of every purchase you made online went to support our cause? Well, now you can! GoodSearch.com is a Yahoo-powered search engine that donates half of its advertising revenue, about a penny per search, to the charities its users designate. Use it just as you would any search engine, get quality search results from Yahoo, and watch the donations add up! Each search generates a penny for AAZK - and that can add up quickly!

Here is an example of how much AAZK can earn:

100 supporters search 4x a day = \$1460/year

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The AAZK Behavioral Husbandry Committee Presents

Training Tales...



Where you can share your training experiences!

Training Tales Editors – Jay Pratte, Zoo Atlanta; Kim Kezer, Zoo New England; and Angela Binney, Disney's Animal Kingdom

Successful Use of Operant Conditioning to Treat Vitamin D Deficiency in an Infant Western Lowland Gorilla (*Gorilla gorilla gorilla*)

By

*Brandi Baitchman, Senior Keeper and Marty Dearie, Zoo Keeper
Zoo New England, Boston, Massachusetts*



Western lowland gorilla, Kimani
Photo by Christina Demetrio

Kimani, a female Western lowland gorilla (*Gorilla gorilla gorilla*), was born on 24 November 2004, at Zoo New England's Franklin Park Zoo, Boston, MA. A couple months after her birth, zookeepers noticed Kimani behaving lethargically on exhibit with an inability to hold on to her mother, Kiki. Kimani was seen being dragged on exhibit by Kiki. On 13 May 2005, the keepers observed that Kimani was no longer nursing. On 14 May 2005, Kiki was immobilized and Kimani was physically restrained for a physical evaluation. Kimani received a full medical workup including blood sampling, radiographs, and body measurements. Preliminary blood results revealed very low calcium levels (hypocalcemia) and further laboratory results confirmed metabolic bone disease caused by vitamin D deficiency. The treatment plan was to place Kimani back with Kiki and continue daily calcium (Tums® suspension twice a day) and weekly vitamin D supplementation orally. Kiki and Kimani's behavior was monitored closely and the zoo was prepared to pull the infant for hand rearing if zookeepers were unable to administer sufficient supplementation.

The success of Kimani's treatment was directly dependent on the behavioral conditioning of Kiki. The goal was to use Kiki's previously established behaviors to have her present Kimani in such a way as to assist keepers in getting supplements to the infant. Since Kimani was usually held on Kiki's chest while sitting, the established behaviors of "station" and "present belly" allowed better access to Kimani. Kiki was conditioned to place her hands on the bars about shoulder width and height and hold them there until released. A belly command was then given, which meant that Kiki will push her belly up next to the mesh. With the infant on her chest, this gave the keepers the best presentation of Kimani to allow for administration of the supplements. Once the positioning of the baby was obtained, Kiki was desensitized to allow two keepers to be present during a training session. One keeper would give the cues and reinforcement to Kiki, while the second would hold the calcium suspension in a large syringe with a catheter attached. The second keeper was then able to inject the suspension into Kimani's mouth. After each successful treatment, Kiki was immediately

reinforced with an exciting “jackpot” of several banana pieces. After a number of banana “jackpots” were given following each treatment, Kiki quickly learned to hold Kimani up to the mesh and wait for her reward. This behavior was established after eight sessions.

Kimani’s strength, activity, and coordination significantly improved immediately following the initial dose of vitamin D. Subsequent medical exams over the following two years confirmed normal calcium and improving vitamin D levels and normal growth and bone development. Eventually, calcium supplementation was discontinued and frequency of vitamin D was decreased. Once Kimani was more independent, at age one year, syringe dosing was discontinued and the supplement was added to her diet.

Currently, Kimani still receives a vitamin D supplement weekly. The veterinary staff is pleased with the results of her treatment protocol to date. During future physical exams, vitamin D levels will be evaluated and determined if vitamin D supplementation is still necessary. Kimani is now actively participating in her own training program and is learning the same behaviors as the other members of the gorilla troop. This case is the first reported successful treatment of metabolic bone disease in an infant while continuing to allow dam rearing. This demonstrates the value of behavioral training to accomplish medical treatments that might have otherwise required hand-rearing.



Kimani and Kiki at Zoo New England

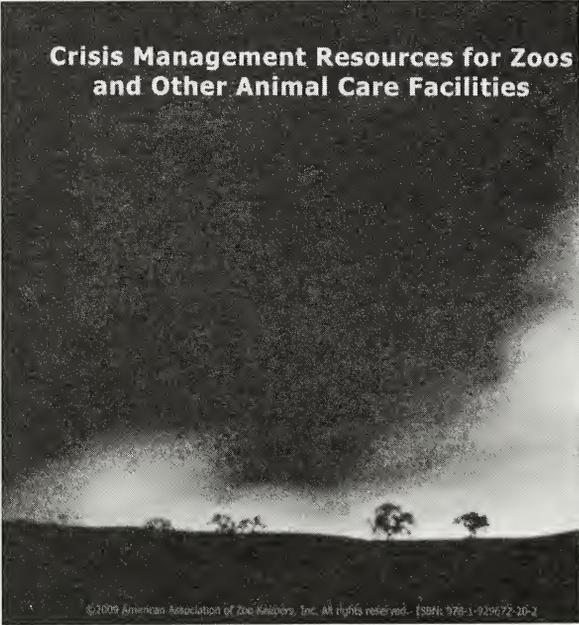
Photo by Christina Demetrio

Editors Note: *The project was presented at the 2008 Gorilla Workshop hosted by Disney’s Animal Kingdom and Brevard Zoo, Orlando, Florida.*

BHC COMMENTS (By Jay Pratte):

One of the many great answers a trainer can give to another person asking “Why train?” is that training has the unlimited potential of minimizing stress (for both animals and keepers) in captive management situations. Picture the above scenario with a dam that was reticent to cooperate, or worse, fearful of staff members. This Training Tale illustrates the benefits of utilizing all possible resources, including training programs, to help treat medical conditions. By expanding on the behaviors that the dam already knew and keepers had previously conditioned, a potentially difficult situation was averted. A stronger bond was developed between the dam and keepers, and secondarily, the infant will be raised already trusting keeper staff and comprehending the basics of reinforcement-for-participation scenarios.

On another note, this paper illustrates the importance of training any animal, and establishing a set of behaviors that can transfer environments. If an animal is transferred to a different facility, even though there are new keepers, surroundings, etc, the familiarity of known behaviors and expectations of rewards can help alleviate the stress of a new home. Likewise, known cues can be expanded or modified/shaped into new behaviors as the need arises. Like the “belly” command to have the infant gorilla presented, injections could be administered by altering a “turn” behavior, or perform nail trims when you ask for “paw”. Having an animal understand the basics of training and rewards, and then maintaining even basic behaviors, can evolve into situations like the one in this month’s Tale where emergency circumstances suddenly present little or no stress, to the staff or the animals.

The image shows the cover of a CD case. The top half is dark with the title 'Crisis Management Resources for Zoos and Other Animal Care Facilities' in white text. The bottom half features a landscape photograph of a field with trees under a cloudy sky. At the very bottom, there is a small copyright notice: '© 2009 American Association of Zoo Keepers, Inc. All rights reserved. ISBN: 078-1-929672-20-2'.

**Crisis Management Resources for Zoos
and Other Animal Care Facilities**

***New Resource CD
Available from
AAZK, Inc.***

*This CD includes - in searchable PDF format - all of the papers, resource lists, and species protocols originally published in the 400+ page book, Resources for Crisis Management in Zoos and Other Animal Care Facilities (1999), as well as all the manuscripts published in the November/December 2007 issue of *Animal Keepers' Forum* dedicated to crisis management in zoos. The original 1999 book has been out of print for some time and is no longer available for purchase.*

The CD is searchable by author, title or word. Chapter Titles from the original Crisis Management Book include: Factors That Influence Crisis Management in a Zoological Setting, Developing an Emergency Preparedness Plan, Emergency Response and Crisis Management Teams, Public Relations and the Crisis Situation, Animal Restraint and Animal Identification Techniques, Dealing with a Crisis Situation: Case Studies/Zoological Crisis, Case Studies/Natural Disasters, Case Studies/Manmade Disaster, Case Studies/Injury or Death at the Zoo, and Taxon-Specific Crisis Management Protocols. The Appendices includes Resource Lists, Sample Forms and a list of Vendors with products useful in crisis situations. Included papers from the dedicated issue of *AKF* include: Crisis Management Planning in Zoological Institutions, Disease Risk Communication and Highly Pathogenic Avian Influenza, Developing a Weapons Team for Dangerous Animal Emergencies, Who's Afraid of the Big Bad Wolf?, Chemical Restraint of Exotic Animals in a Emergency Situation, The Veterinary Role of First Responders to a Medical Emergency in a Crisis Management Situation, Critical Incident Stress Management: A Proven Tool for Addressing Staff Needs After a Traumatic Event, Developing a Program for Dangerous Animal Emergencies: Procedures for Animal Escapes, Unauthorized Person in with Dangerous Animals, Dive Safety in Zoos and Aquariums, Wildlife! One Facility's Response and Lessons Learned, Keeping Communications Equipment Powered in an Emergency, The Terrorist Threat to Zoological Institutions, Hurricane Preparedness: Lessons Learned from Hurricane Katrina, Training Dangerous Animals Safely is No Accident, Firearms Use and Training in AZA Institutions, and Aspects of a Safety Program for Zoos and Aquariums.

Cost of this resource CD is \$25.00 for AAZK Members and \$50.00 for nonmembers. First class postage is included. This CD may be ordered online at the AAZK website (www.aazk.org) under "Publications" or you may order by calling the AAZK Office at 785-273-9149 and making your purchase with a Mastercard or Visa.

Living with the Polar Bears of Churchill During Keeper Leadership Camp

By

Angela Johnson, Keeper, Louisville Zoo, Louisville, KY

and

Josie Romasco, Keeper, Pittsburgh Zoo, Pittsburgh, PA

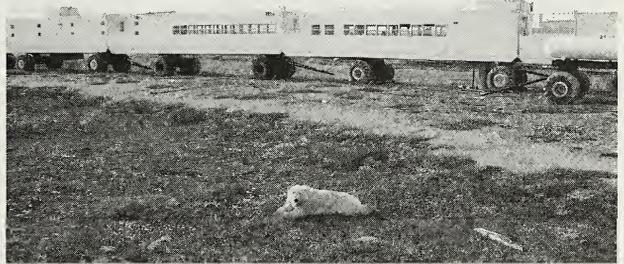
On Sunday, 4 October 2009 zookeepers from Canada, Denmark, and the United States gathered together for the first time in a hotel in Winnipeg, Canada. They traveled there to be part of the first “Arctic Ambassador Keeper Leadership Camp” sponsored by Polar Bears International [PBI] and AAZK. Most of us had never met before this day. The following morning we met in the lobby of the hotel, crossed the street to the airport, and boarded an airplane to Churchill, Manitoba, Canada. None of us had any idea what to expect on our journey, nor did we realize that this trip would later change our lives forever.

Upon arriving in Churchill, we took a tour of the small town of about 850 people on the Tundra Buggy™. First, we drove to the site of an old landfill which had been turned into a recycling plant. The townspeople of Churchill had found that bears would often feed off the waste materials in the landfill, thus bringing them close to town on a regular basis. So in an effort to reduce their presence, the dumping ground then became a recycling plant. However, while it did serve its purpose by attracting fewer polar bears, a new issue arose: what to do with all of the recyclables! Quite frankly, it costs too much to take the recycled materials to be processed because of the town’s remote location, and not enough people are buying recycled materials to fit the demand. Unfortunately, this most likely means that the recycling center will be decommissioned, the landfill will soon return, and so will the hungry polar bears.

Next, we went to a cabin and met local trappers and learned about their livelihoods. These were three individuals who have lived off the land and have the utmost respect for it. To them, nature is all about balance, and as long as they take

only what they need, they feel they are sustaining the arctic species. Should they discontinue their ways, from their experience, Mother Nature will take it upon herself to control wildlife populations by spreading disease—leaving valuable fur and meat wasted and unused. At least by trapping in a conscientious manner, every part of the animal is utilized.

We then traveled to D20 which is also known as polar bear “jail.” Jail implies that the bears have done something wrong. Wandering into town, possibly looking for food, while waiting for the ice on the Hudson Bay to freeze in order to hunt is hardly a crime. D20 is a holding facility for polar bears. A Polar Bear Alert Program is in effect in the town of Churchill. There are three main goals of the Polar Bear Alert Program (1) The safety of the people (2) The safety of the bears and (3) Decreasing habituation of the bears to people. When a bear wanders into town for the first time, an effort is made to deter the bear. Hazing by using loud sounds such as gunfire, will sometimes deter the bears. Bears that will not depart town or bears that continue to come into town are caught in a live trap. The bears are then transported to the holding facility where they will live, having no interaction with



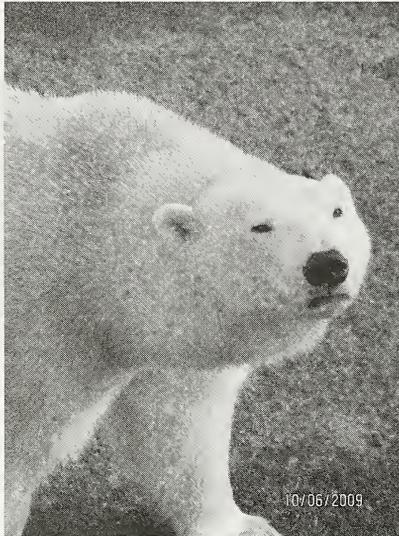
Those attending the Arctic Ambassador Leadership Camp frequently saw polar bears outside their Tundra Buggy® classroom. (Photo by Josie Romasco)

people. They are usually kept there a maximum of 30 days or until the ice on the Bay starts to freeze. At this time, they are released away from town, free to start their journey on the frozen bay and to hunt the ringed seals that they have anxiously awaited for months.

After spending much of the day touring town, we then rode about two hours on the Tundra Buggy™ out to the Tundra Buggy Lodge™. This would be our home for the next week. We would make new connections and become part of the Polar Bears International family.

On our first evening at the lodge, 17 zookeepers from three different countries gave presentations about their institutions. We learned quite a bit about each other and the zoos we represented. All of this in just one day! Little did we know this was an indication of the long, productive days that were ahead---for some, the days started before 5am (O Canada!) and didn't end until 11pm. Even at that point, we all slept with one eye open! Like a child on Christmas Eve waiting to catch a glimpse of Santa sliding down the chimney or hear the pitter-patter of reindeer paws on the roof, we lay in our bunk beds hoping that a polar bear would find its way outside our Tundra Lodge windows in the middle of the night.

The second day at the lodge, we went out on the Tundra Buggy™ and sited our first polar bear. She



A curious polar bear looks up at the Tundra Buggy® (Photo by Angela Johnson)

was a healthy, gorgeous, female bear that had obviously eaten well earlier in the year and had built up her fat reserves. We were told by the president of Polar Bears International, Robert Buchanan, that she was the prettiest bear that he had ever seen—and we unanimously agreed. What an emotional experience to see an animal that we all cared so much about, in its natural environment! The moment was silent except for some snuffles due to the emotional overload and the clicking of our cameras. Tears ran down our cheeks. Men cried in front of women and it was okay. She was our inspiration...she was the reason we were in Churchill. Her future depends on us and the burden of knowing this was part of the emotional rollercoaster we were all experiencing at that moment. After seeing our first polar bear, we zookeepers were ready to face the challenges of the week ahead of us.

While at the Tundra Buggy Lodge™, we felt as if we were in the middle of nowhere—and we were! There was no cell phone reception and no television to watch. No ringing phones and no vehicles other than the Tundra Buggy™ for the next few days. However, the unique

aspect of what PBI can do is to pull amazing resources even out to the desolate arctic tundra! We had computer access with Internet service which allowed us to blog and “tweet” our daily experiences to the rest of the world, and each day we had a live webcast speaker to talk to us about various subjects. Topics included: sea ice and its importance to the bears, toxins in the environment and their effects on bears, using social media to our advantage (i.e.: You Tube, Facebook, Twitter, etc.), and creating effective strategies for getting our message out via the media.



Problem polar bears are caught in live traps and then released away from the Churchill community. (Photo by Josie Romasco)

In addition to having live webcasts, each evening after dinner we had a guest speaker join us at the Tundra Lodge. John Gunther with Frontiers North Adventures™ and Tundra Buggy Tours™ spoke to us about the importance of tourism in Churchill. This company donates the use of their lodge and buggy two weeks out of the year for Teen and Zookeeper Leadership Camps. As keepers at the leadership camp, we greatly appreciate this generous donation. Other speakers included Mike Goodyear, executive director of the Churchill Northern Studies Centre and Kevin Burke, a park officer for Wapusk National Park. This week, in addition to observing polar bears, we were fortunate enough to encounter other arctic wildlife such as Ptarmigans, Snow Buntings, Ravens, Canadian Geese, Swans, Arctic Fox, Arctic Hare and a Bald Eagle. To help us locate and appreciate these creatures, Bill Watkins, Conservation Biologist for Manitoba spent the week with us at the Tundra Lodge™ and on our Tundra Buggy™ excursions. His knowledge gave us a better understanding of what the world stands to lose, should we not increase our efforts to reduce global warming and needless to say,



A polar bear relaxes amid the wildflowers that were still in bloom during the Leadership Camp session in October. (Photo by Josie Romasco)

he was a resource that had been used by each of us at one time or another throughout the week. Finally, our facilitators were eight team leaders with diverse backgrounds who provided us with a foundation of information, enabling us to function as one cohesive team. Their task was daunting, but thanks to them, we were able to create a forward action plan to initiate at our home institutions. What a challenge it must have been for the facilitators to keep 17 zookeepers focused for hours on class work, when a polar bear is sitting right outside the lodge, distracting us all!



Zookeepers who attended the Arctic Ambassador Keeper Leadership Camp in Canada gathered for a group photo before departing. (Photo by Jeff Owen)

The final two days spent on the Tundra Lodge™ were intense, to say the least. We had spent the days prior getting to know one another, understanding life and culture in the Arctic tundra, digesting information from every possible resource available to us, and now it was our turn to show why we were chosen as leaders to bear the title of “Arctic Ambassadors.” And so we began the grueling process of developing a collective “forward action plan” to reduce CO₂ emissions, in the hopes that we can initiate change to reverse the effect of

global warming to save polar bear habitat within the next five years. Our challenge was two-fold; we needed to develop initiatives to both actively reduce emissions *and* sequester the carbon that causes global warming. From this, “Acres for the Atmosphere” was created—a project which focuses on increasing green space on large tracts of land, not just through the planting of individual trees, but where all aspects of “greening” are considered (city/county brown zones, saving existing forest from unsustainable harvest, local parks and plots of land, etc.). Our goal is to “green” at least one acre of land for every zoo that had been represented at the Leadership Camp by October 2010.

Additionally, within that same year, we will also work in developing outside partnerships to engage in the reduction of CO₂ emissions through energy conservation practices, utilizing recycled goods and stewardship, to name a few.

We zoo keepers have all become ambassadors of the Arctic, leaving Churchill nothing less than inspired. We *will* make a change, and we invite you to join us in helping to save polar bear habitat by planting an "Acre for the Atmosphere." For every acre that is planted, we have the potential to slow the Arctic ice melt and ensure that future generations may continue to appreciate polar bears in their natural habitat.

Robert Buchanan, his wife Carolyn, as well as the rest of the PBI family is completely devoted to saving polar bear habitat. Several times throughout our week together, Robert mentioned that zookeepers are some of the most passionate people that he has ever met in his life. Well, we zookeepers happen to think that the Buchanans are the most passionate individuals that we have ever met! They have, and continue to, invest so much of their time, energy and resources into zookeepers and teen leaders to give us the tools and encouragement to realize our own potential, not only as individuals, but as a team. Perhaps the greatest lesson learned from our experience on the tundra is that by working together, the sky is the limit.



Polar bears and their ultimate survival against the threat of global warming was the theme of the Leadership Camp. (Photo by Angela Johnson)

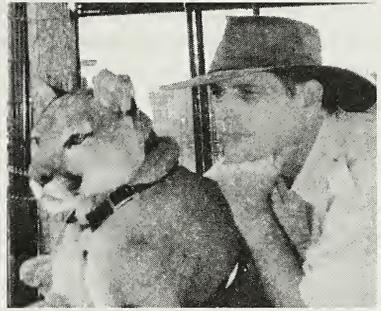


Attendees at the 2009 Leadership Camp and their institutions are: **Zoo Keepers** - Tom Benner, Toledo Zoo; Lynda Bongelli and Heather Kalka, Toronto Zoo; Kara Delanty, Milwaukee County Zoo; Tom Granberry, Indianapolis Zoo; Stephanie Hartman, Alaska Zoo; Vicki Hodge, Buffalo Zoo; Anders Kristensen, Scandinavian Wildlife Park; Marissa Krouse and Jeff Owen, North Carolina Zoo; Amy Pierce, Tulsa Zoo; Rebecca Prewitt, Kansas City Zoo; Josianne Romasco, Pittsburgh Zoo; Tanya White, Maryland Zoo; Derek Woodie, Pt. Defiance Zoo & Aquarium; and Rick Yazzolino, Oregon Zoo; **Facilitators** - Julie Christie, Oregon Zoo; Kathryn Foat and Rebecca Gullot, Maryland Zoo; Shane Good, Cleveland Metroparks Zoo/AAZK, Inc.; Chris Hitchener, Roger Williams Park Zoo; Kristen Lewis-Waldron and Chris Waldron, Philadelphia Zoo; and Bill Watkins, Manitoba Conservation; **Polar Bear International** - Carolyn and Robert Buchanan, BJ Kirschhoffer, KC Lewis and Krista Wright.

REACTIONS

A Question and Answer Forum for the Zoo Professional on Crisis Management

By William K. Baker, Jr., Director
Abilene Zoo, Abilene, TX



Question

What is meant by directed routes of containment?

Comments

A directed route of containment can best be described as using the existing pathways, buildings, and landscape features of a facility to your advantage when attempting to redirect or herd escaped animals. In addition, this can be enhanced by using shields, partitions, fence panels, vehicles, and even rolled black plastic or burlap to establish perimeters.

Knowing which barrier or method to use is based on knowing the species, specific animal, associated risks, and a total familiarity with the facility's layout. Experience is the best guideline for attempting this strategy and unfortunately, the only way you can have a basis is by actually doing it. Still, it is possible to practice in emergency drills to get a feel for this approach.

While fast action is important in an escape, so too is common sense in this type of situation; it is imperative that you can read an animal's body language instantly, or better yet have the ability to anticipate what an animal will do. This is the time when a "feeling" or "gut instinct" for a specific animal is not to be underestimated in an experienced animal professional.

Another method utilized in conjunction with directed routes is to use nets, dart rifles, fire extinguishers, air horns, bright lights, etc. as a negative stimulus to encourage animal movement in a specific direction. Conversely, positive stimuli can be effective as well such as food, familiar surroundings, odors and sounds or even the voice of a familiar primary Zoo Keeper.

Probably one of the best papers ever written on this topic was by George Rabb, Robert Horwich, Benjamin Beck, and Gilbert Boese of the Brookfield Zoo titled "The Problem of Animal Escapes", which is available in the AAZK book Resources for Crisis Management in Zoos and Other Animal Care Facilities (now available on searchable CD/see ad this issue of *AKF*). Many of their concepts have influenced the development of crisis management policies at zoological institutions.

To illustrate this point in more detail and by way of explanation, what follows is a Partial Excerpt (1-7) from AZG Policies & Procedures, Section IV. Crisis Management; (Abilene Zoo credit):

1. Every animal has a "FLIGHT DISTANCE" that must be respected. This is the distance in which an animal will flee from a pursuer. This can work to your advantage if you manipulate this behavior rationally. Flight distance can be altered by obstacles and barriers such as walls, moats, shrubs, fences, etc. Keep in mind that in open terrain invasion of an animal's "flight distance" will cause the animal to take off for open country and may make your recovery attempt futile. Animals tend to have a tolerance for vehicles and thus may have a shorter flight distance from

a vehicle. When appropriate, use a vehicle. Any attempt at manipulation of flight distance should be done SLOWLY and using forethought on where the animal is likely to go.

2. Escaped animals are confused and frightened. Given the opportunity, it will move towards familiar surroundings. To make the animal move, methodically violate the animal's flight distance. Use the animal's evasion of you to your advantage by slowly and carefully moving slightly into the animal's flight distance space and working it towards a secure area. However, if you are simply trying to contain an animal, DO NOT INVADE ITS FLIGHT DISTANCE SPACE AND CAUSE IT TO LEAVE THE AREA.
3. Each animal also has a FIGHT DISTANCE, or a perceived space in which an animal will cross that instinctual line to defend itself from an apparent threat. NEVER violate an animal's fight distance unless absolutely necessary and you are fully prepared to deal head on with that animal. Every animal will have a different "fight distance" both as a species, and as an individual. Keep in mind that even the most passive animals in captivity may react explosively and unpredictably in an escape situation. Even the most laid back of animals have their "personal space".
4. As stated before, an animal will normally have a strong bond for its home enclosure. Give the animal ample opportunity to make its way back into the enclosure on its own accord. Keep gates and doors open and be sure that the animal can see these are ports back into their home territory. The use of food, light, dark, a mate, or other may persuade the animal back in. Give the animal every chance to return on its own when possible.
5. If needed the animal can be herded or otherwise manipulated back into its enclosure by using fire extinguishers, lights, loud noise, multiple keepers, careful violation of its flight distance, etc. Use these methods carefully and selectively.
6. Items like nets, dart guns, hoses and the like are usually associated with negative consequences for these animals. These can be used either to your advantage or to your disadvantage. For instance, a net may be presented to a monkey and cause it to scramble right back into its shift door. On the other hand, a zebra may see you with a dart gun and break into a full run across the zoo and you'll lose control of the situation again. These items are usually well-known by the animals and must be concealed unless they are to be used for a direct purpose at that very moment.
7. Keys for recovering an animal are through Positive Stimuli, e.g. things that are calming to the animal. Some of these are being near a familiar area, sensing familiar people, sensing familiar animals, food or the coaxing voice of a familiar keeper. Watch the animal's actions and response. Constantly be evaluating the animal's expression, stance, and other attitudes. Watch for changes in the animal's actions that indicate flight, attack, anxiety, calm, etc. Act accordingly, carefully, and above all, use common sense. The safety of the public and staff is imperative. The safety of the animal is secondary to this.

Next Column: Does the ratios of weapons to responders play a significant role in ERT practice?

**If you would like to submit a question for this column or have comments on previously published materials, please send them to AAZK, Inc., 3601 S.W. 29th St., Suite 133, Topeka, KS 66614
Attn: Reactions/AKF**

(About the Author: Since 1985 Bill has been active in the fields of science, zoology, and wildlife management. His education and experience include a B.S. in wildlife management and post-graduate studies in zoology, Lab and Museum Assistant, Shoot Team Leader, ERT Member, Large Mammal Keeper, Senior Keeper, and Zoo Curator at various zoological facilities. His area of research is crisis management in zoological institutions, which draws upon practical experience and training as a Rescue Diver, Hunter Safety Instructor, NRA Firearms Instructor, and Red Cross CPR/First Aid Instructor. Away from work he operates Panthera Research, and may be contacted at puma_cat@hotmail.com.)

GPS Enabled Zoo iPhone Application Launched at Houston Zoo

By Brian Hill in Zoo & Aquarium Visitor News 10/13/09

The Houston Zoo is opening a new dimension in guest services with the launch of a GPS-enabled Zoo iPhone application, one of only two zoos in the world, along with the Woodland Park Zoo in Seattle, to offer such a service. The Houston Zoo's new free iPhone application displays guests' location on Zoo grounds using real-time GPS coordinates and allows visitors to access photos and videos of Zoo exhibits and animals and access daily Meet the Keeper Talks and presentations.

"We designed this application with the guest experience foremost in our minds," said Houston Zoo Director of Interactive Marketing Kelly Russo. "We wanted the application to be a personalized guide for our guests, giving our visitors instant information about all the Zoo has to offer so they can make the most of their visit," added Russo.

The Houston Zoo's new free application for the iPhone or iPod Touch features: A GPS-enabled map displaying guest's locations and a "Friend Finder" feature allowing users to connect with their friends while at the Zoo. A "Near Me" button lists all the Zoo's animal exhibits as well as the location of concession stands, food courts and restrooms in proximity to the guest's location. The "Today" button features a continually updated list of Meet the Keeper Talks, presentations and activities, allowing guests to create a personalized schedule and identify each item on the list on an interactive map. The application's homepage includes a live Twitter stream (twitter.com/houstonzoo). The "Animals" button provides guests with photos, videos, names and facts about Houston Zoo animals. The application's "More" page will keep guests informed with frequently updated Houston Zoo news including parking information, new animals and birth announcements, upcoming special events, guest surveys and the latest video/photo galleries.

The application, designed in collaboration with the Austin-based Avai Mobile Solutions is available now for free download at the iTunes App Store. Search for "Houston Zoo" to download. To subscribe to the monthly free e-newsletter from Zoo & Aquarium Visitor see <http://www.zandavisitor.com/ewssubscription>

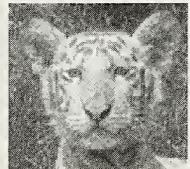
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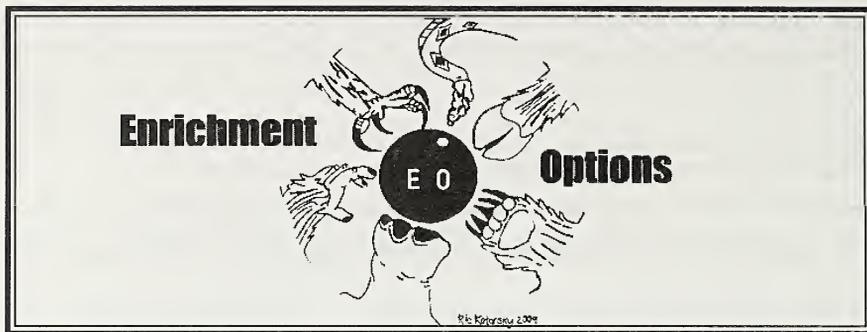
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EO Editors -

Julie Hartell-DeNardo, Oakland Zoo and Ric Kotarsky, Tulsa Zoo & Living Museum

Creation of a PVC Feeder for Giant Pandas (*Ailuropoda melanolueca*) Using Scrap Material

*By Joseph T. Svoke, Carnivore Keeper III
Zoo Atlanta, Atlanta, GA*

Tight budgets are a common issue in most zoos, and with the current economic situation, conditions are even tighter. Unfortunately, having money set aside to create or obtain new enrichment items is likely to be one thing that ends up getting cut from the annual budget. Who ever said that keepers aren't resourceful, though? Now it's just the time that we need to bring out that skill even more. As with most keepers I know, when we are presented with a problem, we always seem to find a way to make do so that the animals are not affected.

Some materials that are used for enrichment are typically free, and only require your time to obtain them. Items like cardboard boxes, phone books, water to freeze, plant material that your horticulture department could provide, for example, are normally readily available. But these are very basic items. Items that are a little more challenging can be made with materials such as fire hose that can normally be donated from your local fire department. What can you do to make enrichment devices that are more complex to create? Although this question may be a little more challenging to answer, it doesn't have to be.

All that is required is that you keep your eyes open to what is around you, and see how the materials that you have can be altered into something useful. This seems to be an innate quality that I possess, as I have always been somewhat of a scavenger. I'm always looking at things to see if I can use it for an alternative purpose. I do this in my own life, as well as for work; if I can save money that makes it even better. Whenever I think of a new idea, I record it (by making a drawing and notes on materials needed) in a binder that I keep, and start to look for essential items with which to build. Luckily, I have a locker at work in which I am able to store materials, so when I find something, I know it won't vanish when I am not around.

Below is an idea that I had and built for giant pandas (*Ailuropoda melanolueca*) at Zoo Atlanta, that was created using material that were almost completely scavenged and free. A co-worker, Jay Pratte, ordained it a "Bell Feeder" and the name has stuck. The PVC pipe and Lexan® material were left over from another project and were just sitting around the building collecting dust. The rope was made from braiding twine that originally tied off hay bales that the elephant department had saved. The wood blocks were taken out of the discard barrel at the maintenance shop, one of my favorite places

to always look for materials. The chain was cut from a pre-existing piece that was too long anyway, while the screws were found amongst other hardware in the building. The only thing that had to be purchased was the carabineers, which cost under \$5 for both.

This is just one idea of a “complex” item, that I have created using scavenged material. The “Bell Feeder” is often the one item that is most-liked by people who have seen it. Also, the pandas really like it, which is even more satisfying.

PVC Bell Feeder:

Materials:

- (1) 6” diameter PVC Pipe of length 12”
- (4) Hard plastic circles 4 1/2” in diameter (I used pieces that were 1/4” thick)
- (6) Wood blocks 9”L x 3/4”W x 3/4”D
- (18) 1/2” screws
- (1) 4 ft length of rope
- (1) 12” length of chain
- (2) Carabineers

Steps:

- 1) Cut approximately 1” off one end of the circles.
- 2) Cut 4 evenly spaced notches into each wood block to a depth of 5/16”, to a width equal to the piece of hard plastic that you are using.

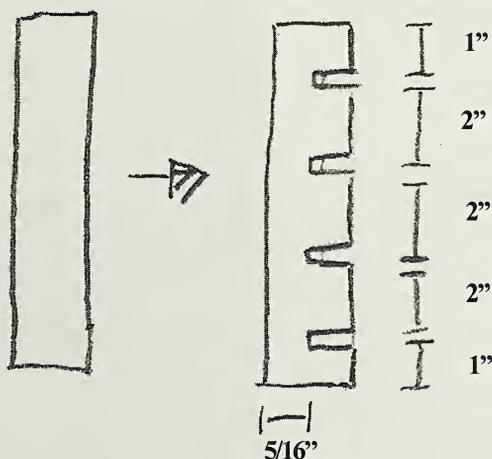


Fig 1 Wood Block Before and After Cutting

- 3) Set the plastic into the wood blocks, alternating the cut ends, so that each piece is supported by three of the wood blocks.
- 4) Slide the PVC pipe over the wood/plastic set up leaving about a 2" gap at the top and 1" bottom.
- 5) Evenly space wood blocks, at every 60°, about 2 1/4" apart.



Fig 2 Bottom View of Bell Feeder

- 6) Screw the wood blocks into place, with three screws per block. (You can pre-drill the PVC ahead of time)
- 7) Drill a hole in the bottom of PVC, for the rope to go through, opposite the cut end of the bottom shelf. Knot both ends of the rope (I did not knot the rope in place to add another level of difficulty as the rope will move when grabbed).
- 8) Drill two holes, opposite each other, at the top of the PVC to slide the carabineers through.
- 9) Attach chain to the carabineers, and hang.

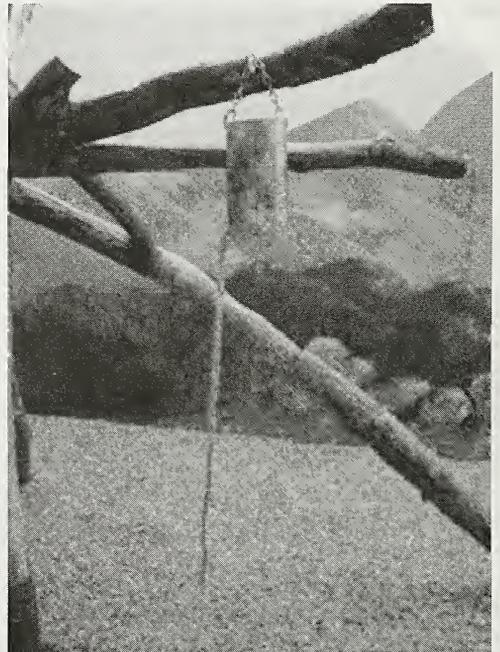


Fig 3 Hanging Bell Feeder

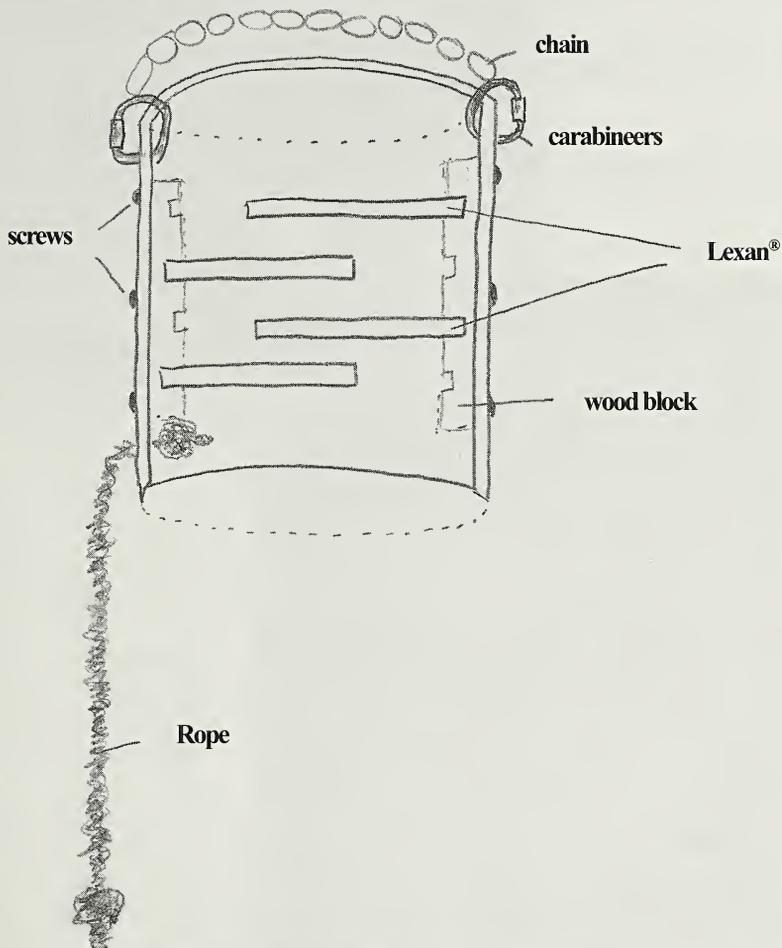


Fig 4 Sliced View of Completed Feeder

(Ideas appearing in this column have not necessarily been tested by the editors for safety considerations. Always think ahead and use good judgement when trying new ideas. You are invited to submit material for the Enrichment Options Column. Drawings and photos for enrichment featured in a submission are encouraged. Photos should be submitted as high resolution (300 dpi) jpg or tif files to the editor at akfeditor@zk.kscoxmail.com. You may also mail your submission on CD to: AKF/Enrichment Options, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054, USA. Eds.)

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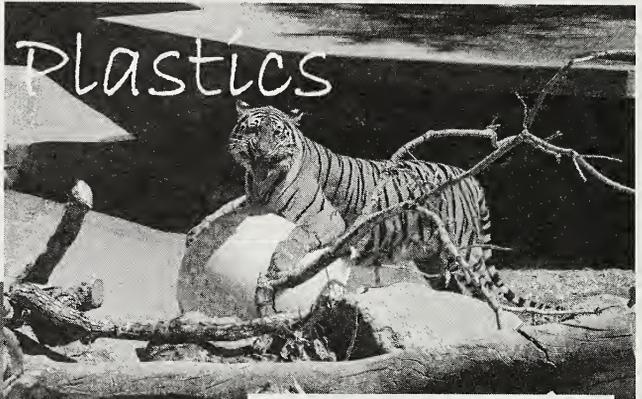


Photo courtesy of Rio Grande Biological Park

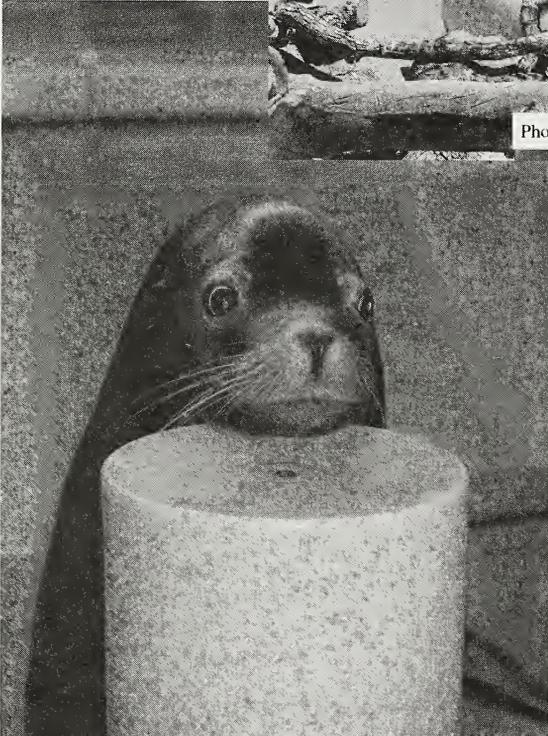


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Radiograph Training a Bonobo (*Pan paniscus*)

By Nancy Kitchen-Senior Mammal Keeper
Jacksonville Zoo and Gardens
Jacksonville, FL

Female bonobo 'Lily' was born on 26 December 1997. Prior to arriving at the Jacksonville Zoo and Gardens on 26 March 1998, Lily was being hand-reared by personnel at Yerkes Primate Research Center due to maternal neglect. This process continued at the Jacksonville Zoo while staff worked on reintroducing Lily to her natal group beginning in October 1998. Reintroduction was completed and successful by February 1999. Social skill challenges Lily displayed later in life may be a result of her rearing history and/ or comparatively prolonged separation from her natal group.

In June of 2007, it was discovered that Lily sustained an injury to her right hand, 4th digit. It was suspected that Lily may have sustained the injury from rough play or a possible altercation within the group, but exact cause was unknown. Although the injury seemed minimal at the time it was later observed that the finger could no longer bend. On 30 June 2007, it was decided that we needed a radiograph of the digit. Based on Lily's calm demeanor and eagerness to participate in operant conditioning, along with the non-critical nature of the injury, staff chose to shape the behavior through operant conditioning rather than risk immobilization to gather the same information.

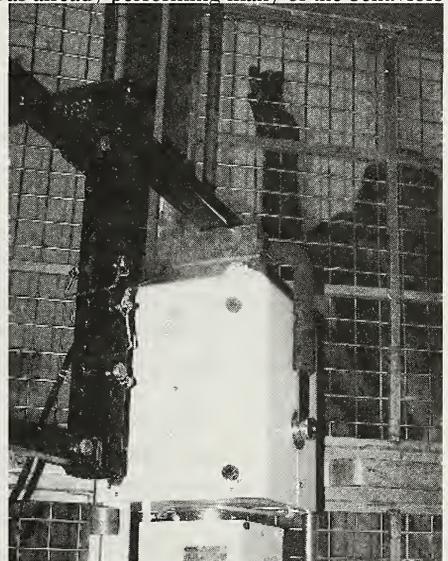
In order to shape this behavior I had to consider what behaviors the animal already knew, what I felt she was capable of, and how I was going to accomplish it. Since Lily had actively participated in a formal operant conditioning program since 2000, she was already performing many of the behaviors I was going to need from her.

Lily already had been taught to present her hand on the mesh, which meant I was only going to have to teach her to give it on the floor and then under the door. On 30 June 2007, I began asking Lily to present her hand in different places than she typically did. By the end of the first session she had figured out what I was asking and she was putting her hand under the door up to her wrist. For the next few days I worked on getting Lily to reach her hand further out.

On 4 July 2007, I introduced the radiograph plate to the session. She began by examining it for approximately one minute. I asked for her hand and she stuck her hand out and placed it directly on top of the plate, palm side up. I then worked on getting her to reach out even further so that we would be able to get a radiograph of her entire hand.

The next step was to bring up the portable x-ray machine to desensitize her to the equipment. On 5 July 2007, I introduced the stand to the session. This was the most difficult thing for Lily to get used to, but after a few minutes she seemed to ignore it.

Since Lily appeared comfortable with the behavior to this point, I asked my supervisor, with whom



Lily checking out the radiograph machine.
(Photo by Nancy Kitchen)

Lily was already familiar, to participate in a session on 6 July 2007. The goal was to desensitize Lily to additional staff being present. She was not affected by an additional person. I then had a vet tech participate, since they would be taking the radiographs. Lily initially became excited about the presence of the tech, but did eventually participate in the session.

It was decided that Lily's hand would need to be placed on the plate palm down in order to get the best quality radiograph. This meant that some modification had to be made to the way I initially trained the behavior. The first time I modeled Lily into the correct position by physically turning her hand over. After that she immediately presented her hand on the plate palm down each time the cue was given. By 10 July 2007, Lily was performing the required behavior reliably.

On 11 July 2007, the radiograph machine was introduced to Lily for desensitization. She looked at it, but did not pay much attention despite its bright yellow appearance. Since she was so comfortable with the machine, a radiograph apron was introduced during the same session. She remained unaffected by this as well.

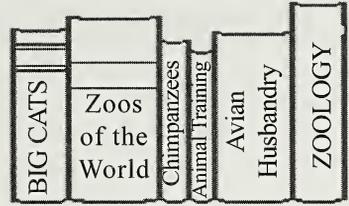


Radiograph of Lily's hand with the wooden rod. (Photo by Brian Price)

The next day, 12 July 2007, all equipment was set up for taking the radiograph. This was only the second time that the vet tech was present, so we were unsure if Lily would cooperate. Lily immediately participated and the procedure was successful! The vet tech processed the radiograph and saw that it was too dark. Settings were adjusted and a second radiograph was taken. This one had perfect clarity, but we needed to change the hand positioning. In order for the radiograph to be diagnostic quality, we would have to get Lily to hold her hand further out and flatter. A dowel rod was introduced to be used as a target to get her to reach farther out. She learned this quickly and we were able to get another radiograph.

Upon vet analysis it was decided that different film should be used to improve the quality and detail. On 15 July 2007, Lily was hesitant to come into the isolation den where the radiographs had been taken. Two days later, we took the final radiograph and got an image that was diagnostic quality. This radiograph was reviewed by the Zoo veterinarians who decided that the injury did not need immediate attention since it did not affect her mobility.

On 15 May 2008, Lily was immobilized for a routine exam and to transfer her so that she could act as a companion to 1.0 bonobo who would be in quarantine. Following that exam an orthopedic specialist from the Mayo Clinic reviewed the radiographs of her finger and came to assess her mobility. It was found that Lily's injury to her fourth digit was on her first interphalangeal joint. With advice from the specialist, the Jacksonville Zoo veterinarians determined that it was unlikely that surgery would reduce pain or improve function in that finger. It was still worthwhile to establish this behavior in this manner. Lily was able to choose to participate and we were able to gain valuable medical information without the stress of an immobilization. By conditioning the animals in both this and similar situations, we have found that the animals are more willing to participate if it is their choice. We continue to try alternatives to immobilization with our animals whenever possible.



Herpetological History of the Zoo And Aquarium World

By James B. Murphy

Orig. Edition 2007

Krieger Publishing Company, P. O. Box 9542, Melbourne, FL 32902-9542

ISBN Cloth/Paper 1-57524-285-0

Pages 344 Price \$79.50

In this elegant volume, Jim Murphy follows the changes in zoo and aquarium communities by looking at the development and expansion of the discipline of herpetoculture, the evolution of ideas which led to greater conservation awareness and activity, vignettes of interesting historical moments, and pioneers in zoo herpetoculture. Portraits of a selected number of zoos and aquariums throughout the world are presented to show the chronology of herpetocultural discovery, people who worked at those places, and the breadth of the programs that were put in place.

Veterinary Disaster Response

Edited by Wayne E. Wingfield DVM and Sally B. Palmer DVM

Wiley-Blackwell/John Wiley & Sons, Inc. (2009)

In conjunction with the

Veterinary Emergency & Critical Care Society (VECCS)

Soft cover edition; 4 sections, 39 papers; 26 contributors; 569 pages

ISBN 978-0-8138-1014-0

Price: \$85.00

*Review by W.K. Baker, Director
Abilene Zoo, Abilene, TX*

This is probably the most comprehensive book that I have ever encountered for veterinary professionals when it comes to a crisis management response. It is written in common language that is easy to follow and implement, yet it has the technical details that make it a complete piece of work. Whenever possible the text has been supported with flow charts, diagrams, photographs that accent the written word for an even stronger delivery. The book starts with the basics of incident command then flows effortlessly into leadership and then onto map, compass, and GPS basics.

Topics essential to disaster management such as recordkeeping and identification, risk assessment, media communications, Biosecurity, triage, Weapons of Mass Destruction (WMD's), zoonotic diseases, hazardous materials, Personal Protective Equipment (PPE), decontamination, wildlife handling, domestic animal handling, animal first aid, small animal vitals, large animal first aid, equine sheltering, disinfection of animal facilities, pain management, and even euthanasia.

Advance planning for state, federal, and military levels of response are covered as well. Probably the most surprising paper was the "Care for the Caregiver: Psychological and Emotional Factors in Veterinary Disaster Response" an often overlooked area in my experience as a crisis manager; but one that is vital to responder well-being when considering that natural disasters such as floods and wildfires often can take weeks to fight and fatigue is as much an enemy as the event.

The short version is that if you believe that you will be encountering animals in distress in the course of disaster management either at the veterinary, administrative, zoological, wildlife, or field response level, you need to run, not walk and purchase this book. It is a superior work for quick reference, training personnel, logistics, or to carry into the field to the command post. It will have a permanent place in my book collection and the authors and editors deserve the highest praise for producing this work.

Snakebit. Confessions of a Herpetologist

by Leslie Anthony, 2009

Publisher: Greystone Books, Vancouver/Toronto

ISBN 978-1-55365-236-6

xi + 292 pages

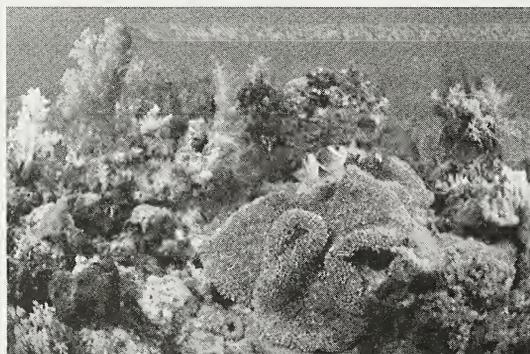
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“Snakebit” traces author Leslie Anthony’s journey from a childhood fascination with snakes and amphibians through academic flirtation to professional association with some of the world’s greatest herpetologists. In this book, he leads the reader on a rollicking ride through desert, swamp, jungle -- and a few laboratories -- to reveal the strange world of these cryptic creatures and the often-stranger fraternity that pursues them. Detailing his travels to New Orleans, Mexico, Fiji, Vietnam, Armenia, and Canada, Anthony offers a headlong, fun-for-all read packed with personalities, history, geography, culture, and adventure. Along the way, readers are served a generous helping of saccharine-free science, from modern evolutionary theory to unisexuality and biodiversity, always seasoned with more than a dash of humor.

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National Zoo Creates Frozen Coral Repository

Scientists at the National Zoo have created the world’s first coral genome repository to help prevent endangered coral species from going extinct.



Zoo officials said that research scientist Mary Hagedorn is pioneering the freezing and storing of coral sperm and eggs.

In collaboration the Hawaii Institute of Marine Biology and SECORE project, scientists have frozen the sperm of 450 individuals from the endangered Elkhorn coral in the Caribbean. That could allow scientists to reseed the oceans with coral in the future. The zoo also is working to grow Elkhorn coral in captivity that could be reintroduced to the wild.

Coral reefs are prime ocean nurseries and feeding grounds. They’re threatened by rising water temperatures and CO₂ levels. *Source: ABCNews.com 11/10/09*

Different Stripes: Training a Herd of Plains Zebra

By Jonnie Capiro, Zookeeper
The Maryland Zoo in Baltimore, MD

This paper was originally presented at the 2009 ABMA conference and is published in the ABMA conference proceedings (see www.theabma.org for details).

Abstract

The Maryland Zoo in Baltimore's animal keepers recognized a need to train the zebras to enhance their daily management, be able to introduce enrichment items, and reduce anxiety involved during veterinary procedures. This group of 1.3 plains zebras (*Equus burchelli*) has a history of species-typical nervous behaviors and occasional reluctance to move between stalls or onto exhibit. The keepers developed an operant conditioning program to manage them more efficiently and effectively. In collaboration with veterinary and animal management staff, keepers determined training priorities. Beginning with a basic target behavior, keepers built upon it to include advanced behaviors that provided stimulation and assistance with routine examinations. Establishing basic behaviors also included integrating a retired circus zebra into a protected contact program. It was important to consider each animal as an individual; each zebra required different approaches and expectations due to history, affinity to keeper interaction, and husbandry priorities. The keepers found that this method of management resulted in focused, less anxious zebras that were motivated to participate in training sessions. One female, Ayanna, was consistent with target and accepted food from keepers, while the male, Tyler, was particularly motivated and held position for a sedative administration via hand injection, as preparation for anesthetization. In this program, each zebra had the opportunity to achieve goals that enhanced their care. The keepers maintained realistic expectations based upon each zebra's prior achievements. This differentiation enabled the success of the training program.

The Maryland Zoo in Baltimore manages a herd of 1.3 plains zebra (*Equus burchelli*) in a protected contact environment. The zebras are housed separately overnight, re-introduced each morning into a dynamic hierarchical social structure, and are part of a mixed-species exhibit. The African Watering Hole exhibit includes: 1.1 southern white rhinoceros (*Ceratotherium simum simum*) and 0.2 ostrich (*Struthio camelus*). During the past two years, the management routine has changed frequently due to breeding opportunities and limitations, estrous cycles, convalescence, and the introduction of an additional adult zebra, previously managed in a free contact environment. The keepers recognized a need for: more efficient management of these group dynamics, the introduction of enrichment items, and stress reduction prior to veterinary procedures. Keepers developed a unique operant conditioning program, as dynamic as the group, to address these requirements.



The African Watering Hole exhibit: Southern White Rhinoceros, Plains Zebra, and Ostrich. (Photo by Jonnie Capiro)

Zebras can be challenging to manage due to species-typical nervous behaviors, such as reluctance to move from one stall to another, to shift onto exhibit, and to voluntarily participate in interactions with keepers. There is a social hierarchy that contributes to this group characterized by rank when the zebra joins the harem (Estes, 1991, p. 236). A social group that includes both male and female zebras introduces the element of reproductive activity, including, but not limited to mounting, biting, kicking, and extended periods of pursuit (Estes, 1991, p. 244). Finally, the zebras are just one element

of the African Watering Hole exhibit, which requires careful behavioral observations due to potential interspecies interactions. Mixed-species exhibits are “an excellent way to teach,” but contribute to elevated level of careful animal management (Partridge, 1990, p. 13).

The zebras’ unique requirements contribute to their often time-consuming management plan that can interrupt the daily keeper routine. These challenges can become obstacles, or they can be the catalyst for much needed opportunities to enhance the efficiency of their daily care. The challenges include: daily changes in their social management, coordinating care management by several keepers, and species typical nervous behaviors, such as anxiety and prey instincts. The potential opportunities are: creating a more efficient daily management routine, developing a more cohesive team of keepers, and reducing the amount of anxiety prior to medical procedures.

The zebras have individual histories, as well as unique needs and levels of interest in learning cooperative behaviors in an operant conditioning program. Tyler, an eight-year-old dominant male is food-motivated and highly interested in interactions with keepers, such as accepting pieces of carrot or apple by hand through the stall mesh. Blue, a 16-year-old dominant female shows moderate interest in keeper interaction and is highly food-motivated. Ayanna, a 13-year-old subordinate female, recovered from a fractured pelvis during parturition in 2007. She rarely demonstrates an interest in interacting with keepers. Finally, Trixie, an eight-year-old subordinate female is highly interested in keeper interactions and is the recent addition to the herd in April 2008 when she was retired from the circus. These individual backgrounds contribute to the challenges of daily management, but provide opportunities for advanced behaviors that were once thought unattainable. The training program began by determining behaviors and goals that could increase the efficiency of the zebras’ management.

Each animal is visually examined in the morning and keepers note any unusual physical or behavioral observations. The zebras reside in separate stalls overnight and are re-introduced as a group each morning at approximately 0900hrs. During the introduction, keepers manually operate pulley-style stall doors to provide zebras physical access to one another. After this initial introductory period, they are observed for any reproductive or aggressive behaviors to determine the plan for the day. If a zebra is in estrous, keepers have the option of separating the herd and putting only two zebras out on exhibit and keeping the other two in holding yards for the day. Once the plan is established, keepers open a motorized door to reveal a covered path leading to the exhibit. This transfer onto exhibit, although part of the routine, can often become stressful, since zebra are nervous in new environments and may not choose to walk through it. Typically, they will go onto exhibit immediately, but often, they will resist and keepers have to wait for them to walk through or make another attempt at a later time.

Training Methods

Due to unpredictable animal behavior, it was often time-consuming to separate the group, move zebras from one stall to the next, or even shift them onto exhibit. “Ungulates are often difficult to manage because of their ‘flighty’ disposition and/or large size” (Mellen and Ellis, 1996, p. 90). The complex social structure contributes to these challenges and must be understood thoroughly before attempting to introduce training techniques (Ramirez, 1999, p. 214). Keepers believed that operant conditioning could alleviate some of these issues by providing focus and motivational tools for each zebra to earn positive rewards.

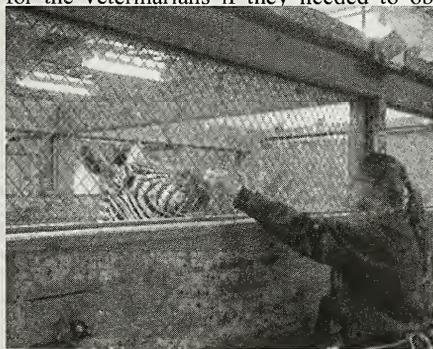
The initial goal of the program was to introduce a hand target and motivate each zebra to touch the target with his nose and receive a piece of apple, carrot, or alfalfa cube reward, using a clicker as the bridging stimulus. The zebras quickly made the association and it became easier to move them between stalls. The re-introduction period each morning gradually became easier to facilitate, and if separations were required, the target behavior could assist with this process. Keepers realized the potential of this program and explored other opportunities to use training as a resource.

On exhibit, the zebras can be concealed from the public view by standing in the covered path that leads to the barn. Often in the afternoon, when they anticipate returning to the barn for their hay diets, or if the herd is separated into pairs for the day, the zebras will spend extended periods of time not visible from the public viewing area. Keepers recognized this pattern and researched methods of encouraging them to spend more time visible to the zoo guests. Guests anticipate viewing animals in their exhibits as a main component of their visit and when they cannot see the animals, there is a negative effect on the overall experience (Rust, 2008, p. 58). As keepers, considering guest satisfaction is not always a priority, however, guest experience is an integral aspect of the Zoo's success. We can be more aware of how often the animals are concealed from the guests' view and offer methods of encouraging them to remain visible longer. This simple adjustment could have a positive effect on guest experience.



Trainer Robyn Johnson and Trixie demonstrating open mouth behavior. (Photo by Jonnie Capiro)

Keepers determined that a variable food offering schedule could initiate increased foraging behaviors and encourage afternoon activity on exhibit. After many failed attempts of offering food in the afternoon without the zebras realizing it was available, keepers introduced an auditory cue to announce that food was being offered. The trainer would ring a distinct bell three consecutive times, and then bridge the zebras immediately when they appeared from the concealed area. Tyler made the association within a few days, and could be called out from this area on cue to receive food rewards. The females followed his lead and learned the command by observing his actions. Keepers maintained consistency with this new resource in a positive manner to strengthen the association and transform the conditioned response into a routine behavior (Training Staff at National Zoo as cited in Ramirez, 1999, p. 341). Keepers used this resource upon occasion for the veterinarians if they needed to observe the zebras walking on exhibit, or to encourage their afternoon visibility. Informal observations demonstrated that on-exhibit visibility increased after the introduction of this cue. Also, the introduction of a new zebra, enriched the social structure and increased the time the zebras spend together visible to the public. Currently, all four zebras are visible to the public for the majority of the day.



Trainer Robyn Johnson and Ayanna demonstrating target behavior.

(Photo by Jonnie Capiro)

After the initial goals of establishing a target command and on-exhibit recall, keepers devised a strategy for advanced behavior based upon each zebra's specific medical requirements. The zebras progressed with these initial goals more quickly than expected, so keepers anticipated what they could accomplish with this training program.

Each zebra was evaluated based on medical priorities, affinity to keeper interaction, interest in learning cooperative behaviors, and the probability of achievement.

Tyler's success proved him to be the most appropriate candidate for advanced behaviors. He has abnormal swelling over the upper left third incisor that has been present for several years prior to his arrival at the Zoo. Dental radiographs revealed that it is either a split root or a compound odontoma, a benign slow-growing tumor of dental tissue. To distinguish between the two, monitoring for change in size and appearance is important. A change in the growth indicates an odontoma, which requires

further medical treatment. The visual monitoring, previously accomplished biannually during sedation can be replaced by monthly observations using training. Keepers determined an open mouth behavior would allow veterinarians to perform examinations. Using the capture, or scanning technique, this behavior was trained on cue in just a few weeks.

Blue often exerted dominance behaviors at the end of the day when keepers attempted to separate the zebras into their assigned stalls for the night. Keepers used a station, or hold position behavior to provide an object for her to focus on while separating the group.

Ayanna was recovering from a fractured pelvis and likely due to her rank in the social hierarchy, was not as interested in training as the other zebras. Keepers wanted to encourage her to continue to participate in sessions and did not expect many advanced behaviors. Keepers aimed to simply maintain the relationship and look for long-term future opportunities.

Finally, Trixie's introduction to the group in 2008 required a transition from free contact training to protected contact techniques and gradual physical access to the other zebras. She was accustomed to tactile interactions and qualified as a candidate for intramuscular injection training. Keepers progressed steadily focusing on each zebra as an individual. No two zebras had the same goals or expectations, which resulted in a clear process and successful outcomes.



Trainer Johnnie Capiro and Blue demonstrating target at the howdy door, manufactured by Frey Brothers, Inc.

(Photo by Robyn Johnson)

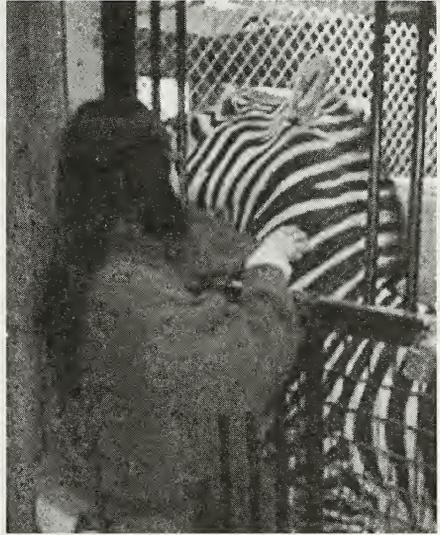
Concurrent with this training program, keepers were managing social introductions between the most recent addition, Trixie and the females, followed by, the male, Tyler. The installation of a howdy door, manufactured by Frey Brothers, Inc. facilitated this introduction process. The howdy door is a typical horse stall metal mesh door with a hinged opening at the top. Zebras can stand on opposite sides of the door and display greeting behaviors, such as nose to nose contact, without being susceptible to aggressive dominance behaviors. Despite its original intention, this door became a valuable training resource. The hinged opening allowed keepers to provide tactile interactions while remaining safely behind the door.

The door provided a tool for injection training and tactile desensitization.

The training door became a daily aspect of the zebra training program. Zebras had overnight access to it on a rotating basis to gradually begin the desensitization process. Once zebras had ample time to become accustomed to its presence, keepers conducted training sessions at the door, incorporating the target behavior as the first step. The zebras had varying comfort levels with the door, ranging from Tyler being the most willing to target, to Ayanna, who took months to even approach it. Keepers took this aspect of the program into consideration when devising individual goals and placed much higher expectations on Tyler than Ayanna.

Another aspect of Tyler's plan included tactile neck desensitization as a foundation for a potential intramuscular injection for an upcoming anesthetization. Each zebra was routinely immobilized biannually, and Tyler was an excellent candidate to accept an intramuscular injection in the neck via hand administration. Keepers and a veterinary technician collaborated on this intensive training

regimen and delivered a 1-cc dose of saline within two weeks of initially training this behavior. Tyler focused on the target behavior, and did not show a reaction to the injection. Upon the successful completion of a preliminary saline injection to evaluate his response, the veterinary technician delivered a 1-cc dose of detomidine the following week for a routine anesthetization. Intramuscular injection by hand is the most accurate and suitable method of anesthetic delivery when possible (Bush, 1996, p. 30). This training tool reduced the usual amount of anxiety involved with a dart administration of chemical immobilization. Tyler was more calm and willing to participate in the voluntary receipt of a hand injection compared to previous sedation procedures. The subsequent administration of etomidate was more accurate and did not invoke the usual amount of stress. This stage of training created the opportunity to involve other keepers as trainers and develop two-trainer procedures.



Veterinary technician Nadia Bischof administering an intramuscular injection to Tyler. (Photo by Robyn Johnson)

This program evolved rapidly from the initial goal of establishing a target behavior to include the other keepers as trainers. Managing multiple zebras, with varying goals, while monitoring multiple trainers with their own separate goals proved challenging. It was imperative to establish clear goals for all involved. Keepers used an excel spreadsheet to organize the program. The primary trainer evaluated each zebra monthly, based on: established behaviors, behaviors in progress, medical priorities, short and long-term goals, keeper's monthly goals, and completion of keeper goals. The primary trainer evaluated and updated documents monthly, and made adjustments for unforeseen circumstances. Keeper goals are realistic and achievable, such as 'train maintenance behaviors two times per week,' or 'work with one other trainer on injection training procedure.' This process also required continuous dialogue between keepers due to the number of training sessions that may occur.

Results

The development of this program satisfied the original goals of providing psychological stimulation and focus for a dynamic group of zebras. The target behavior assisted shifting response times; prior to the implementation of the training program, it could take up to 20 minutes to get the zebras separated from one another at the end of the day or for a breeding management restriction. Target training shifted the focus from nervous behavior to the keeper; zebras would often anticipate training sessions and eagerly offer behaviors. In general, the zebras were easier to manage with regard to daily introductions and separations.

The on-exhibit audio recall and the successful introduction of the fourth zebra to the group improved the zebras' visibility to the public. Keepers used the audio recall behavior as a Keeper Chat demonstration if zebras were not visible to the public during the designated time. Keepers stressed to the zoo guests the importance of how training commands are used to provide instructions for animals to contribute to their overall care. The addition of a fourth zebra, created a larger, more naturalistic social grouping that better reflects species typical behaviors while on exhibit. This natural social group "recreates for the zoo visitors a picture of how they might find these animals were they able to travel to see them in their natural habitat" (Partridge, 1990, p. 13).

Discussion

This program shows further promise as The Maryland Zoo anticipates the installation of a zebra

Tamer[®] by Fauna Research Inc. This addition to the zebra barn will include major renovations and require the zebras to be adaptable and to be introduced to an entirely new aspect of management. The Tamer[®], a chute through which animals walk to provide temporary restraint, will provide hands-on interactions to assist with medical procedures, such as vaccinations and closer visual examinations. However, the zebras will initially require a gradual desensitization process. Incorporating a restraint device can be advantageous to captive animal care (MacNamara, 2009, p. 114). The success of a manual restraint device requires collaboration with a consistent operant conditioning program. The established behaviors offer a foundation for the introduction to the Tamer[®] to offset the zebras' innate wariness of any new elements incorporated into their routine. Keepers anticipate maintaining current behaviors while developing tactile desensitization opportunities to prepare them for this transformation.

The training door continues to provide an environment for tactile interactions to prepare the zebras for intramuscular injection training. This cooperative behavior has the potential to improve the reliable delivery of sedatives and reduce typical nervous behaviors demonstrated prior to anesthetization that may complicate induction. All zebras are immobilized at least biannually for routine hoof care, physical examinations, and vaccinations. Trixie and Ayanna also receive contraceptive boosters approximately every eight months. These injections have the potential to be delivered more effectively through the use of a diligently maintained conditioning program. Considering the zebras' individual requirements and expectations, it is possible to achieve such goals, but the time frame for each one may differ considerably. The keepers have been impressed by the zebra's participation levels and look forward to achieving these advanced goals to continue to provide quality care.

The Maryland Zoo's zebras have shown remarkable progress in an operant conditioning program initially introduced to create a more efficient daily routine. Keepers attribute much of the success to communication among involved participants, individual animal assessments and expectations, and thorough documentation. In this program, each zebra had the opportunity to achieve goals that enhanced their care. The keepers maintained realistic expectations based upon each zebra's prior achievements. This differentiation enabled the success of the training program.

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Conservation/Legislative Update

Column Coordinators: *Becky Richendollar, North Carolina Zoo*
and *Greg McKinney, Philadelphia PA*

This month's column was put together by
column co-coordinator *Becky Richendollar*



Mutt in Pittsburgh Surrogate for Wild Dogs - Keepers at the Pittsburgh Zoo had to intervene and help raise a litter of nine African Wild Dog (*Lycaon pictus*) pups that were born in late October. The pups' mother, Vega, unfortunately died of a ruptured uterus shortly after giving birth.

In order to help care for the pups, zoo officials located a mixed-breed female dog in one of the city's shelters. The dog, Honey, had just given birth to her own litter and was able to nurse the endangered pups.



Surrogate mom, Honey, nurses a litter of nine African wild dogs whose mother died shortly after giving birth.

Photo by Steve Mellon, Pittsburgh Post Gazette

“Latching onto nipples is huge for them, much better than latching onto a bottle,” said Dr. Stephanie James, one of the veterinarians at the zoo. “Raising African painted dogs on a domestic dog has not been done before. We’re breaking the mold.”

Zoo officials call Honey “perfect, an absolutely fabulous mom” and report that all of the pups are gaining weight.

Source: Associated Press, 11/05/09

Man Found Not Guilty in Grizzly Case - In late September, 21-year-old Kenneth Herron climbed into the grizzly bear exhibit at the San Francisco Zoo. The exhibit held two six-year-old female grizzlies but officials at the zoo were able to shift the bears inside before Herron was harmed in any way.

Herron has been found not guilty of both of the charges he was faced with following the incident – trespassing and disturbing dangerous animals. Superior Court Judge Wallace Douglass announced that, in order to be convicted, prosecutors would have to prove that Herron knew he was entering a dangerous animal enclosure at the time of the incident.

Herron, who has a history of mental illness, told authorities that he heard the voice of model Tyson Beckford in his head, telling him to rescue a girl in distress from the exhibit. The defense argued that Herron did not know he was entering an animal enclosure.

One jury member said, “A lot of people felt that because the bear didn’t immediately get up when he went in, it wasn’t ‘disturbing’ to the bear”.

In the end, Herron was found not guilty and released because there wasn’t enough evidence to prove that, because of his mental illness, he knew he was entering an enclosure with the grizzlies. *Source: The San Francisco Chronicle, 11/04/09*

FWS Announces Proposal to List Salmon-Crested Cockatoo - The Fish and Wildlife Service announced in early November a proposal to list the Salmon-crested Cockatoo (*Cacatua moluccensis*) as Threatened under the Endangered Species Act. If the proposal is made final, it would extend Endangered Species Act protection to the bird.

The listing of an animal from a foreign country places restrictions on the importation of that animal and its parts. It also sends a message to foreign governments about the importance of the species and its habitat.

The salmon-crested cockatoo (also known as the Seram, Moluccan, pink-crested, or rose-crested cockatoo) is one of a number of species that are found only on Indonesia's islands. Deforestation, illegal logging, and the parrot pet trade have all contributed to the bird's declining population.

Following a 60-day comment period the Fish and Wildlife Service will make a ruling on the listing of this species. *Source: Fish and Wildlife Service News, 11/03/09*



Salmon-crested cockatoo at the Cincinnati Zoo. (Photo: Wikipedia)

IUCN Releases Updated List - In early November, the International Union for the Conservation of Nature (IUCN) released its updated Red List of Threatened Species. The list shows that 11 new species have now been found to be extinct, or to exist only in captivity.

According to the list, there are now 17,291 species that are in danger of becoming extinct.

"A serious extinction crisis is mounting," said Jane Smart, director of IUCN's Biodiversity Conservation Group, "We're rapidly running out of time."

The list examines the latest data on plant and animal species around the world. The new data shows that 70% of assessed plant species are threatened. Within the animal kingdom, 37% of freshwater fish species, 35% of invertebrates, 30% of amphibians, and 28% of reptiles are threatened. Also, 21% of mammal species and 12% of bird species are threatened.

Officials at IUCN warn that these numbers only represent a fraction of our species, as many species remain understudied. *Source: Worldwatch Institute, 11/03/09*

Top 10 Countries with Greatest Number of Endangered Species - After examining the IUCN data, one researcher compiled the following list. These are the countries, from lowest to highest, that have the greatest number of Endangered Species according to the 2009 IUCN Red List.

- | | |
|-------------------------------|---------------------------------|
| 10. Philippines – 682 species | 4. Indonesia – 1126 species |
| 9. India – 687 species | 3. Malaysia – 1166 species |
| 8. Brazil – 769 species | 2. United States – 1203 species |
| 7. Australia – 804 species | 1. Ecuador – 2211 species |
| 6. China – 841 species | |
| 5. Mexico – 900 species | |

Source: ecoworldly.com, 11/05/09

National Zoo Announces Oryx Deaths - The National Zoo in Washington, DC has announced that two of its scimitar-horned oryx (*Oryx dammah*) died in October. The species is extinct in the wild.

In late October a 17-year-old female died. The animal had been put under anesthesia two days prior for a routine health exam. The zoo reports that the procedure itself went fine. However, during recovery the animal became agitated. The next day zoo staff noticed she was having difficulty using her hind legs. The animal died while being anesthetized for an emergency procedure to try and pinpoint the problem. Preliminary necropsy results show that the oryx died of “exertional myopathy”.

Earlier in the month, a 16-year-old male Scimitar horned oryx died at the zoo’s Conservation and Research Center. The animal was under anesthesia so vets could conduct a reproductive assessment. The animal went into cardiac arrest and could not be revived.

As of November, the zoo has one remaining oryx on exhibit and a herd of 13 animals living at the research center in Fort Royal, VA. *Source: The Washington Post, 11/01/09*

Great White Shark Released by Aquarium - Monterey Bay Aquarium released a great white shark (*Carcharodon carcharias*) in early November. The animal was brought to the aquarium in August. Despite many institutions that have attempted, Monterey Bay continues to be the only facility worldwide that has successfully exhibited white sharks. This is Monterey Bay’s fifth time to release an exhibit shark back to the wild after holding it for a period of time.

Before she was released, the shark was fitted with two tracking devices that will send data to scientists back at the aquarium over the next six months. Data from the other sharks that have been released from the aquarium show that the sharks successfully integrate back into their wild habitat.



Great white shark at the Monterey Bay Aquarium
(Photo courtesy of the Monterey Bay Aquarium)

During her time on exhibit, the most recently released female reached a length of 5 feet 5 inches and approximately 100 lbs. She ate mackerel in quantities up to three percent of her body weight each day. *Source: zoo and aquarium visitor e-newsletter, 11/04/09*



Scimitar-horned Oryx are extinct in the wild. (Photo: Wikipedia)

The decision was made to release the animal after aquarium officials observed aggression between her and the other animals in her enclosure. Vice president of husbandry at the aquarium, Randy Hamilton, said, “I’ve always said that these animals will tell us when it’s time to put them back to the ocean. Now was clearly the time. Her health is excellent, and we learned a lot while she was with us. Based on past experience, we have every expectation that she’ll do well after release.”

Famous Cats Need Reconstructive Surgery - More than 25 big cats at Zion Wildlife Gardens need funds for reconstructive surgery. The cats, previously featured on the hit New Zealand television show "The Lion Man", were declawed during the years that the show aired. Experts that are now caring for the cats say that expensive surgery is now needed to reverse the damage caused by this controversial procedure.

Consultant Tim Husband was brought to the park after a ranger was mauled to death earlier this year. Husband said that if the large cats do not receive treatment the result will be long-term hip and joint problems. A reconstructive surgery performed by Dr. Jennifer Conrad of Paws Project in Santa Monica, CA would help the cats. Explaining the procedure Husband said, "They open up again where the end of the toe was and they pull out the tendons and get the bone to grow back. The claw doesn't grow back – but at least the bones are there so they can support the cat when they are walking."

The procedure, which has been performed by Project Paw on 70 cats in America, takes about six hours. Marketing officials at Zion Wildlife Gardens are seeking funds to help pay for the operations. Source: *Sunday News*, November 1, 2009

Hairless Bears A Mystery - It's a tough time to be a spectacled bear at the zoo in Leipzig, Germany -- at least, it's a tough time to be a female spectacled bear (*Tremarctos ornatus*). Veterinarians are struggling to determine why the zoo's female spectacled bears have suddenly lost nearly all their fur, which is typically shaggy for both females and males of their species. There has been speculation that a genetic defect could be responsible, but beyond the obvious hair loss and its accompanying itchiness, no other symptoms have been noted in the affected bears.

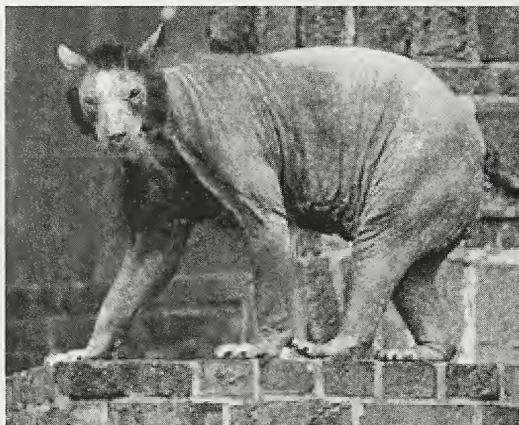


Photo: Jan Woitas/European Pressphoto Agency

The U.K.'s *Daily Mail* reports that zoogoers have turned out in droves to see the bizarre, as-yet-unexplained sight of the balding bears.

Dolores, pictured above and Lolita, another female, have retained tufts of fur around their faces and chests. Meanwhile, according to the *Sun*, keepers have contacted a number of other zoos worldwide to ask for advice on the bizarre malady.

Spectacled bears are native to South America and are sometimes called Andean bears, after the mountain range they occupy. They are South America's only native bear, and they're typically distinguishable by eyeglass-shaped markings on their faces.

Due in part to the species' shyness, it's difficult to get an accurate population count, but estimates range from as low as 2,400 to as many as 20,000 left in the wild. The International Union for Conservation of Nature (IUCN) lists the species as vulnerable to extinction, largely because of human encroachment into their once-remote habitat.

"Thirty percent of its habitat has been lost since the 1990s," Russell Van Horn, an applied animal ecologist with the San Diego Zoo's Institute for Conservation Research, told the San Diego Union-Tribune. "Three [percent] to six percent more habitat is lost each year." Source: *Lindsay Barnett in L.A. Times.com* 11/6/09

UCSC: Scientists Propose ‘Genome Zoo’ of 10,000 Vertebrate Species - The University of California-Santa Cruz could someday house the world’s largest zoo — holding not live animals, but the genetic codes of 10,000 different creatures, many of them exotic or extinct. This ambitious quest, led by some of the nation’s top geneticists would cost \$50 million and take a lifetime to achieve.

But the computer-based conservatory — called the Genome 10K Project — would transform biology, building a digital record of molecular triumphs and stumbles across 500 million years of evolutionary history. Although currently just an unfunded proposal, the global database could eventually help humans by unraveling biological mysteries, such as why we live only eight decades while other creatures, such as the bowhead whale, live for two centuries. Genome comparisons could also change long-held taxonomical assumptions and assist species conservation.

“We can now contemplate reading the genetic heritage of all species, beginning with vertebrates,” said UCSC biomolecular engineer David Haussler, a chief architect of the project. Evoking writer Rudyard Kipling, “We hope to learn how the elephant got its trunk, how the leopard got its spots,” he said.

The 54-page proposal is described in the *Journal of Heredity*. More than 65 other scientists, including some from UC-Berkeley, the federal Laboratory of Genomic Diversity and the San Diego Zoo, have joined the project.

In many ways, the plan is not so far-fetched. Naturalists in jungles, deserts and other far-flung habitats have been busy collecting tissue samples from the animal kingdom — over 16,000 species, at last count. This collection, stored for posterity, spans the diversity of mammals, birds, reptiles, amphibians and fishes.

And Rockefeller University’s Barcode of Life Initiative is also using genetics to inventory creatures, but uses a very short gene sequence to help identify creatures, instead of the full genome. Meanwhile, the cost of sequencing — now \$50,000 to \$100,000 per genome — is plummeting. When it hits \$3,000, “We’ll be good to go,” said Haussler. UC-Santa Cruz is already home to the Genome Browser, which offers free public access to the genetic blueprints of humans and 45 other animals, including the extinct woolly mammoth and Tasmanian tiger. The Genome 10K Project would build upon this existing Browser database and enhance “The Encyclopedia of Life,” a Harvard-Smithsonian collaboration that is creating multimedia wiki-style Web pages for all 1.8 million species. But the project will demand a mind-numbing amount of computational power, far more than currently available. Billions of letters of digital information would be stored, then analyzed.

The project was launched at a three-day meeting at UCSC in April. At this gathering, scientists from 55 major zoos, museums, research centers and universities debated the logistics of the challenge. One of the meeting’s rules: “No one was allowed to argue that ‘My species is better than your species,’” joked Haussler. Another rule: Only vertebrates, those 58,000 species with backbones or spinal columns, would be considered — leaving for future generations the job of decoding the genomes of an estimated 1.8 million species of flowers, fungi and other forms of life.

The Genome 10K Project scientists predict many similarities in the sequences, because all vertebrates share a core repertoire of genes. What they’re interested in are the differences — those mutations that led to the great biological events of the past, such as the development of wings, fins, arms, the four-chambered heart and color vision. The historical record will help answer other questions, as well, such as: When did vertebrates start bearing live offspring, rather than laying eggs? When did vertebrates emerge from water — and why, in four different instances, did they return? How did wings evolve? When did animals gain a pancreas?

“The most challenging intellectual problem in biology for this century will be the reconstruction

of our biological past,” said Nobel laureate Sydney Brenner of the Salk Institute, one of proposal’s authors. “Genomes are molecular fossils.”

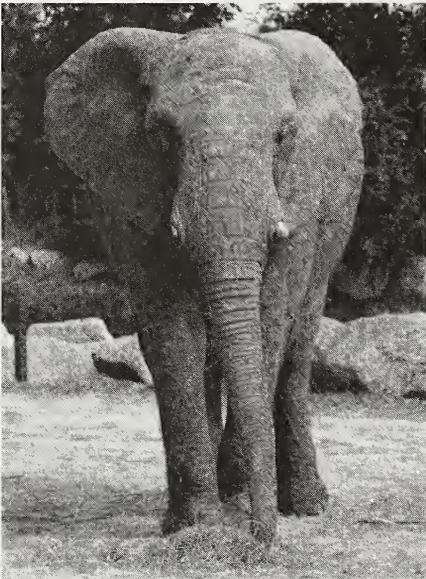
Working backward, it could be possible to reconstruct — at least, within a computer — the common ancestor of all mammals: a shrewlike creature that scurried around with the dinosaurs at the time of the Cambrian explosion of animal life.

Perhaps the information could help with conservation, if genes can predict how an animal will respond to climate change, pollution, invasive competitors and emerging diseases. For instance, perhaps some amphibians carry genes that protect against a deadly fungus, which is now erasing frog populations around the world. It is certain to reveal the shrunken and inbred gene pools of small populations of endangered species.

“The risk of extinction is lessened for species for which we have a genome sequence, because it enables studies,” said Oliver A. Ryder, director of genetics at the San Diego Zoo and a co-author of the proposal.

Genes can’t be used, like Tinker Toys, to build extinct animals from scratch. But scientists believe that sequences could provide a recipe for how re-breed back, using selective techniques, long-gone creatures such as dodo birds, passenger pigeons or the Tasmanian tiger. “Genetic variation has created such stunningly specific and beautiful life-forms,” said Haussler. “How did that happen? We want to understand it.” *Source: By Lisa M. Krieger Silicon Valley MercuryNews.com*

Unrestricted Poaching Could See Extinction of African Elephant in 15 Years - The mighty African elephant (*Loxodonta africana*) could face extinction within 15 years due to the illegal ivory trade. According to a *Sunday Express* report, poachers slaughter 104 elephants every day for their valuable tusks. As a result, conservationists are now demanding an international crackdown on the ivory industry. The worldwide illegal trade in wildlife is third only to drugs and arms, and is worth an estimated 12.5 billion pounds a year.



(Photo: Tom Curtis)

The International Fund for Animal Welfare warned that unless immediate action was taken, elephants would disappear from the wild within a generation. It is calling on the European Union (EU) and CITES members (Convention on International Trade in Endangered Species) to stop supporting occasional supervised ivory sales. Instead, they are urged to back Kenya’s proposal to extend the current “resting period” on elephant and ivory decisions from nine to 20 years at the next CITES meeting in March 2010.

Robbie Marsland, director of the International Fund for Animal Welfare, said: “Most people will be shocked to hear that, 20 years after the ban on the international ivory trade, elephants in Africa are still threatened by commercial poaching.

“The ivory trade must be banned once again, and comprehensively, if we want to prevent the extinction of elephants.” Illegal ivory is now used as currency in East African conflicts in much the same way as “blood diamonds” were in civil wars across West Africa in the Nineties. The demand for ivory in the Far East, particularly China, has reached record levels.

Chad’s Zakouma National Park had 3,885 elephants in 2005 but by 2009 the figure had plummeted to just 617. At least 11 rangers were killed by poachers there over the same period. *Source: ANI on TRACK.in News 10/18/09*

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