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In This Issue

101 ABOUT THE COVER
102 FROM THE PRESIDENT
103 COMING EVENTS
104 ANNOUNCEMENTS
106 BOOK REVIEW
106 CHAPTER NEWS
108 BOWLING FOR RHINOS
CONSERVATION RESEARCH GRANT
109 BOWLING FOR RHINOS
TIPS FOR A SUCCESSFUL EVENT

FEATURED ARTICLES

110-113 The End of the Game, Or Is It?
114-116 Management of a 4.0 Bachelor Group of
Western Lowland Gorillas

FINAL CALL FOR PAPERS
117 The 41st Annual AAZK National Conference

CONSERVATION STATION
118-119 Giraffe: The Forgotten Megafauna

ENRICHMENT OPTIONS
120-122 Can't touch this? Siamangs Can — Computerized
Cognitive Task as a Form of Enrichment
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This month's cover photo was taken by Dawn Neptune of Utah’s Hogle Zoo while on safari at Lewa Wildlife Conservancy, one of the beneficiaries of Bowling for Rhinos. Dawn describes the photo: "Taken in March of 2012 on the Masai Mara, Kenya. It was late morning, warming up fast and my hopes of seeing a leopard (Panthera pardus) were diminishing by the moment. Then this gorgeous, large adult male casually made his appearance. "My" chui (Swahili for leopard) at last, walking slowly across a grassy ravine towards us. He stopped for a moment for a drink at a small waterhole and then made his way even closer to us, moving toward the bush for some shade. He disappeared for a moment. And then there he was again, pecking out. So close. So calm. So regal. Those rare moments of wildlife connection. This one made possible in part due to my involvement with AAZK.*

Last year, AAZK set an all-time record by raising $481,449 for Bowling for Rhinos, and would like your Chapter’s assistance in reaching our goal of $500,000 in 2014. Everyone knows that Bowling for Rhinos helps critically endangered species of rhinos, but by conserving rhino habitat, we help countless endangered species. Species like the leopard in Dawn’s photo, and other endangered species like Grey’s zebra, sianangs, white-winged wood ducks, Javan torrent frogs, king cobras, and even endangered flora. Whether your specialty is hoofstock, primates, birds, reptiles, amphibians, or horticulture, Bowling for Rhinos is about so much more than just rhinos, and it is protecting the species that you are so passionate about. Join us in 2014 and make it another record-breaking year!

* (*Dawn Neptune*)

**MISSION STATEMENT**
American Association of Zoo Keepers, Inc.

The American Association of Zoo Keepers, Inc. exists 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.

**About the Cover**

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 e-mail contributions of late-breaking news or last-minute insertions are accepted as space allows.

Phone: (330) 483-1104; Fax: (330) 483-1444; e-mail: shahe_good@aazk.org. If you have questions about submission guidelines, please contact the Editor. Submission guidelines are also found at: aazk.org/akf-submission-guidelines/.

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**ANIMAL KEEPERS’ FORUM**

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FROM THE PRESIDENT

Networking in the Collaborative Learning Environment

When AAZK rolled out its collaborative learning environment last year (AAZK Online), it was the first time that this Association had ever combined distance learning, networking and online resources in one package. While it certainly does not take on the magnitude of the invention of the wheel, it still has many promising attributes just waiting to be explored. For those of you who are currently using AAZK Online, you have already discovered the many discussion groups covering a wide variety of topics. Presently, four Chapters have established discussion groups and my hope is that these Chapters will ascertain how efficiently they can create event calendars, share resources and build subgroups within their Chapter groups. We plan on touching base with Chapter leaders in the near future to discuss ways that AAZK Online can benefit your local Chapter and its operations. As a former Chapter President, I can’t think of a more efficient way to streamline Chapter operations.

For the individual user, subscribers will be able to access husbandry, training, and welfare discussion groups. They will be able to exchange ideas, resources and shape their own discussions. The old discussion page, now defunct, has been given a modern look and function. But AAZK Online will be more than just a networking tool, it will become a 21st Century learning portal where individuals can access distance learning modules and expand their professional development.

There are currently four AAZK learning modules available. These are adaptations from conference workshops:

- Animal Welfare
- Hoofstock Hands-On Tamer
- Keys to a Successful Chapter
- Reptor Workshop

We are finalizing six more past conference workshops that should appear as learning modules for AAZK Online users this spring:


Moving forward, at the completion of the Orlando Conference in September, AAZK Online will become the testing place for those who take our certification workshops. Attendees who complete the coursework will be directed to testing modules where their progress will be recorded and tracked.

This program is in motion and while the wheels may not be breaking any land records, the baby steps that we are taking are meaningful, carving the path for more opportunities for the Association to communicate effectively and advance excellence in animal care. That’s our mission and our goal is to provide these opportunities to all of our membership.

To some of you, it may appear as though the collaborative learning environment has become my soapbox lately, having promoted this program here and at the conference setting. I believe that opportunities to learn and network should be available to all of our members, not just to conference attendees. And if this is my soapbox, it is one which I stand proudly upon, looking into the future of distance learning, certification and modern communication and networking; in short, the modernization of our Association. Our Association however, is not alone in our vision. Zoos across the United States, AZA and EAZA are adapting to this style of modernizing the way we learn, communicate, and share.

As always, I welcome your thoughts and input. E-mail me at bob.cisneros@aazk.org, I would love to hear from you.

Bob Cisneros

American Association of Zoo Keepers, Inc.
COMING EVENTS

June 20-26, 2014
International Gorilla Workshop
Atlanta, GA
Sponsored by Zoo Atlanta
For more information go to: www.igw2014.wordpress.com.

August 4-7, 2014
12th Annual Symposium on
the Conservation and
Biology of Tortoises and
Freshwater Turtles sponsored
by Zoo Med Laboratories, Inc.
Orlando, Florida
For more information, go to
turtlesurvival.org.

September 8-12, 2014
AAZK National Conference
Orlando, FL
Hosted by
Disney’s Animal Kingdom
For more information go to: greaterorlandoaazk.org.

September 10-15, 2014
International Wild Waterfowl
Association Conference
Salt Lake City, UT
For more information go to: http://www.wildwaterfowl.org.

September 12-18, 2014
AZA National Conference
Orlando, FL
Floated by:
Disney’s Animal Kingdom,
The Seas, and SeaWorld
Orlando. For more information
go to: aza.org.

October 6-8, 2014
3rd International
Flamingo Symposium
San Diego, CA
Hosted by SeaWorld San Diego
For more information contact:
laurie.conrad@SeaWorld.com.

October 8-11, 2014
Advancing Bear Care 2014
Brasov, Romania
For more information go to:
bearcaregroup.org.

November 10-13, 2014
ZAA National Conference
Gulf Breeze, FL
Hosted by Gulf Breeze Zoo
For more information go to:
zaa.org.

Post your upcoming events here.
E-mail
shane.good@aazk.org.
AAZK Announces New Communication Committee Chair

AAZK's Board of Directors is proud to announce the appointment of Bethany Bingham as the Chair of the new Communication Committee. Bethany works as a Veterinary Technician at Utah's Hogle Zoo and has had many different leadership roles for the Association. The American Association of Zoo Keepers strives to foster effective communication beneficial to the enhancement of animal care. Communication within the Association takes place in a multitude of directions. Because of this, a Communication Committee has been developed to facilitate effective communication throughout the Association. The Communication Committee assumes responsibility for the following forms of communication: Social Media, monitors info@aazk.org e-mails, manages an AAZK event calendar, disseminates newsworthy information to the Association, maintains an online meeting schedule for all AAZK committees and the BOD, coordinates AAZK committee updates, coordinates AAZK Chapter contact information, website coordination with the CEO, and responds to inquiries into the zoo keeping profession. We are excited about the new committee and wish Bethany great success.

2014 AAZK AWARDS NOMINATIONS OPENED

The American Association of Zoo Keepers AAZK Awards Committee is accepting nominations for:

- Lifetime Achievement Award
- Jean M. Hromadka AAZK Excellence in Animal Care Award
- The Lutz Ruhe Meritorious Achievement — AAZK Professional of the Year Award
- Lee Houts Enrichment Excellence Award
- Certificate of Merit for Zoo Keeper Education
- Certificate of Excellence in Exhibit Renovation
- Certificate of Merit in Conservation
- Mazuri Animal Nutrition Award

Awards will be presented at the 2014 AAZK Conference in Orlando, Florida. The deadline for nominations is 1 May 2014. Information concerning the qualifications, nomination procedure, selection procedure and an explanation of the awards may be obtained at janet.mccoy@aazk.org.

MEMBERSHIP
American Association of Zoo Keepers

Membership with AAZK includes a subscription to Animal Keepers' Forum and free or discounted admission to many zoos and aquariums in the U.S. and Canada.

To download an application or to apply online, please visit AAZK.ORG.

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The International Congress of Zookeepers (ICZ) regularly receives requests from zoological facilities around the world seeking teaching and training materials for their new and/or under-experienced keepers.

Finally, in one volume, the solution has arrived.

*Zookeeping: An Introduction to the Science and Technology* is a collaborative effort, with 73 contributing authors and seven contributing artists, a diverse group of experts from varying backgrounds and regions of the world. Contact information for these experts is conveniently included in the appendix.

The 66 major chapters discuss an impressive range of topics, from Animal Welfare and Ethics to Wildlife Rehabilitation; taxon-specific husbandry guidelines to Nutrition; Preventive Medicine to Behavioral Husbandry; Enrichment to Emergency Preparedness and Crisis Management. The comprehensive array of content covers every aspect of successfully running a modern zoo.

Ostensibly a handbook for new zookeepers, this book is in fact a resource which will prove useful to even the most seasoned zoo professional. Irwin states, “Surprisingly, there is little consistency in how keepers are trained and credentialed, and there has been few foundational textbooks targeted to entry-level keeper training”.

Considering the fact that there are thousands of zookeepers worldwide—an estimated 6,000 just in ICZ-related associations—educational opportunities for these professionals is very limited. The number of schools which offer curriculum for prospective zookeepers is quite limited (a complete list is thoughtfully included in the appendix). This is especially true in developing countries.

Irwin considers zookeepers “an under-utilized resource”. He states, “When fully utilized, a professional, well-rounded, and properly trained keeper will be one of a facility’s greatest assets”.

By producing this wealth of information covering hundreds of best practices unique to the zoo field, Irwin has filled a huge void in our profession. It seems fair to say that the future of zookeeping will be greatly improved by Irwin’s work. He proposes, “effective zoo operation will increasingly depend on having and effective team of skilled, trained, professional keepers”.

Providing a copy of this book to every zoological institution would make great strides in achieving the mission of the ICZ, which reads in part: “... knowledge will improve the professionalism of zookeepers for the benefit of the animals under their care and promote awareness and actions that will contribute to the preservation of wildlife everywhere.”

Thank you, Mark Irwin, for providing a solid foundation for zookeepers everywhere!

Norah Farnham, ICZ Steering Committee
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American Association of Zoo Keepers, Inc.
Bowling for Rhinos Conservation Resource Grant

The American Association of Zoo Keepers, Inc. (AAZK) is pleased to announce the Call for Proposals for the 2014 Bowling for Rhinos Conservation Resource Grant. This competitive grant is designed to fund projects focused on rhino conservation and research. The total amount of funds available in 2014 is $4,784.48. Successful proposals will reflect AAZK values and meet award criteria in one of four categories:

- **Category 1 — In situ Rhino Conservation and Research**
  Short-term (less than one year), specific, field research projects on African or Asian rhino species conducted by an individual or organized group of individuals working under the auspices of a zoological facility, educational entity or AAZK Conservation Partner.

- **Category 2 — In situ Community, Educational or Medical Programs (Africa or Asia)**
  Community education, school support or medical programs developed or administrated by an individual working under the auspices of a zoological facility, educational entity or AAZK Conservation Partner restricted to the continents of Africa or Asia. Preference may be given to local programs established and/or administrated by LWC (Lewa Wildlife Conservancy), IRF (International Rhino Foundation) or ACK (Action for Cheetahs in Kenya) endorsed partners.

- **Category 3 — In situ Species Conservation**
  Short-term (less than one year), specific, field research projects on any species that shares the exact same ecosystem as: Asian, Javan, Sumatran, and African Black or White rhino.

- **Category 4 — Ex situ Rhino Conservation and Research**
  Short-term (less than one year), specific, zoological research projects on African or Asian rhino species conducted by an individual or organized group of individuals working under the auspices of a zoological facility, educational entity or AAZK Conservation Partner. Researcher(s) must be able to demonstrate evidence of partnership with a rhino conservation entity operating in Asia or Africa combined with a tangible benefit to an in-situ conservation project.

**Eligibility**
Affiliation or partnership with AAZK is not required, but preference may be given to AAZK Members or Conservation Partners.

**Applications are due no later than June 1st, 2014.** Award announcements will be made on July 1, 2014.

Please visit www.aazk.org or contact Christy Poelker, Conservation Committee Chair at christy.poelker@aazk.org for application or more information.
I hope everyone will be able to join us and hold a Bowling For Rhinos event in 2014 for our 25th anniversary year!

We hope to surpass last year’s record of $481,000 & this should be the year we surpass the $5,000,000 mark.

So please join us to make this our most successful year yet! Remember, if you don’t have time to organize an event, a donation is always welcome and lets you count as a participant in BFR 2014 (then you get to vote on who wins the conservation grant).

You need not bowl. You can always do Wii for Rhinos, Rummage for Rhinos, Sailing for Rhinos, etc. It all counts as BFR.

Please mail checks payable to: “AAZK BFR” to: Patty Pearthree c/o BFR 318 Montibello Dr. Cary, NC 27513 919-678-0448 ppear3@gmail.com (note new e-mail since 2013)

All funds can be included in 2014 IF THEY ARE RECEIVED PRIOR TO DECEMBER 1st.

Remember if you want to win a trip, funds must be received by Sept. 1st.

Please let me know the contact information for your event ASAP: Name, phone number, e-mail address + website for your Chapter and Facebook if you have one.

Date of event (if you know it and if not, please send it along when you know) and type of event.

Please see aazkbfr.org for information (tips for success, videos, etc.) or aazk.org.

REMINDER:

There is a $25 Administrative fee for BFR events. This allows AAZK to operate this fundraiser so that 100% of donations are sent to conservation and zero to administrative costs.

This sets us apart from most organizations so use it as a selling point to donors!

Please send the $25 administrative fee payable to “AAZK, Inc.” TO: Patty Pearthree c/o BFR 318 Montibello Dr. Cary, NC 27513

Please write “BFR Admin Fee” in memo on check

Good luck and let’s get rolling!

Patty Pearthree
National BFR Program Manager

Tips for Success

BFR EVENT FACILITY PLANNING

• Set a Date – Early so that it can be advertised in as many newsletters and fliers as possible. Info should be placed in zoo newsletters (at least four times), facility volunteer newsletters, Society communications, facility maps or advertisement fliers.

• Chamber of Commerce – Check with Chamber (or other Community Association) prior to setting date to find out events that could conflict. Once you choose the date, inform your Chamber of Commerce and ask to be placed on their Calendar of Events.

• Facility Management – Set up a meeting with your facility director and/or management. If a facility needs some coaxing, reference a “Memorandum of Agreement” between AAZK/BFR & AZA signed at the 1996 Honolulu conference. AAZK will assist AAZK’s BFR event through their resources such as Public Relations (PR) Graphics Departments. You may remind them, the better your event does, the better it looks for the zoo in the eyes of the public. A successful BFR event gives your facility “bragging rights”.

• Volunteer Coordinator – Set up a meeting with the Coordinator. Talk to your zoo volunteers at an organized luncheon to let them know they can join the event or sponsor someone (have your forms ready) or work at the event.

• Society Director – Set up a meeting with the Director or Coordinator of the entity that supports your facility. Promoting the BFR event promotes the facilities involved.

BFR EVENT PRE-PLANNING

• Collect door prizes. Seek the big airline prizes 4-6 months in advance (write thank you notes – helps build a base for next year!) Hint: Restaurants are easy to get prizes from. Visit a potential donor in person, with formal letter of donation request. The letter should detail the successful history of the event on the local and national levels.

• Fliers – Put registration fliers in an area where volunteers may see them— in their “check-in” area. Have fliers that you can hand out so they can be completed later.

• Invite Bowlers from Previous Events (addresses listed on sponsor forms from prior year)

• Blue Rhino Gas – These folks are the primary event sponsor and should be included in all local events. (They may even underwrite your event!)

• Rhino Linings – After asking Blue Rhino, try to get a commitment from these folks in your area to join your event. If Blue Rhino cannot commit Rhino Linings may be an event sponsor.

• BFR is Open to the public – Make sure this fact is well advertised.

• Invite Boy Scouts or Girl Scout troops to join your event.

• Create a T-shirt – Look for sponsors for the event shirt

• A Day off Work? – See if your zoo will offer a day off work for the team who raises the most $ (ex. Graphics team, Maint, Team, etc)

• Special Events – Your facility may have a department that can lend a hand – hey, these people do this for a living! Seek help to get the word out.

• Prizes – It pays to advertise. Once you have a list of Door prizes or other giveaways, raffle prizes, etc. Publicize the list to attract bowlers and sell raffle tickets.

• Invite Celebrities to bowl at your event (especially TV/radio = free advertising).

• Advertising – post info next to rhino/elephant exhibits about your upcoming event and how to join!

• Trip Winner – The person that raises the most money wins a trip. Don’t be shy, let your potential donors know this fact.

• Friends and Family – The most important donors of all, and usually, the softest targets!

• See http://aazkbfr.org or http://AAZK.org

• EACH YEAR SEND INFO TO PATTY. Please send your BFR contact person’s name & contact info (e-mail/phone) & your Chapter’s website/Facebook info for your event date info ASAP.

• There is a $25 administrative fee for BFR events. This allows AAZK to send 100% of donations to conservation rather than taking some for Administrative costs. Please send checks payable to “AAZK, Inc” to Patty Pearthree 318 Montibello Dr Cary, NC 27513 & write in memo “BFR Admin Fee”

If your Chapter would like a “Leuwa Promo” DVD free of charge or other Leuwa info, please contact Ginger Thomson: gingeratlewa.org or 415-990-3311.

If your Chapter would like Rhino info, flyers, etc. for events, contact Bill Konstant/IRF: b.konstant@rhinos.org .

For additional BFR Event information or assistance - Contact Patty Pearthree, AAZK BFR Coordinator: ppear3@gmail.com.
THE END OF THE GAME, OR IS IT?

Robert Berghaier
Tour Consultant, Premier Tours
& Ex-Keeper and Keeper Foreman, Philadelphia Zoo
This article is based on impressions and insights gained on numerous trips to wildlife areas worldwide, including 27 trips to Africa along with 24+ years of zoo keeping experience.

“The End of the Game, the Last Word from Paradise” by Peter H. Beard is one of the more influential books written about African wildlife. Originally published in 1965, the book deals primarily with the destruction of Africa’s great herds of elephants. However, it also covers the end of the African wild as it was back when Africa’s sub-Saharan human population was one-third the size it is now. This human population growth has caused wildlife areas on much of the Continent to become small islands of natural habitat surrounded by farms or grazing lands devoid of large mammals and larger birds. Many African wildlife conservation organizations report declining numbers of big cats, elephants, rhinos, zebras, giraffes and once-common antelope species. Now larger birds such as raptors and even numbers of once common vulture species are declining. This human population increase is affecting all of West Africa’s conservation areas, Kenya’s parks and reserves and Tanzania’s northern reserves such as the Serengeti, Ngorongoro, Manyara & Tarangire. This pressure on wildlife and wild areas is not Continent-wide, however. Southern Tanzania still has vast little-known areas packed with wildlife such as the Selous and Ruaha/Rungwa. Zambia has large areas set aside for reserves, however, effective protection for most of these areas has been lacking until recently. Zimbabwe (Zim), until its recent political issues involving land ownership, had expanding wildlife areas and game populations. A few days in Zim on my most recent trip to Africa in October showed me that for wildlife and ecotourism the country is on the rebound. Both Botswana and Namibia, both under-populated countries, have had large increases in protected areas for wildlife. Botswana’s elephant population, now the largest in Africa, finally appears to be stabilizing at over 100,000 and Namibia’s black rhino population is the fastest growing in Africa. Another country that has seen an increase in both large mammal numbers and habitat is South Africa. When I mention this many people, including expat-South Africans now living in the USA, express surprise. South Africa is the most modern and developed nation in sub-Saharan Africa and their method of expanding areas for wildlife is a good model not only for Africa but, in my opinion, the rest of world as well.

**Madikwe & Pilanesberg Game Reserves**

In August of 2012, I spent two nights each in Madikwe and Pilanesberg Game Reserves. Although Pilanesberg was once a South Africa National Park, both areas are now Northwest Province Reserves. Both Madikwe (749 square kilometers) & Pilanesberg (552 kilometers) have electric fenced boundaries. Since both were previously agricultural areas, both had to be completely restocked with wildlife, Pilanesberg in 1979 and Madikwe in 1991.

Madikwe is a four-hour drive from Johannesburg, the last two hours on gravel roads traversing through local Tshwane communities, very reminiscent for me of road travel I have done in rural areas of Kenya. I spent two nights at the incredible Mateya Safari Lodge, a very high-end accommodation limited to ten guests with an amazing collection of African art. As for wildlife, I saw several lone bulls and two nursery herds of elephants, zebras, greater kudu, blue wildebeest, impala, red hartebeest, tsessebe, steenbok, common duikers, waterbuck, warthogs, giraffe, African buffalo, six white rhino including a large male that blocked our vehicle from getting close to two females and a calf (very interesting behavior that I had not seen before), 12+ lions, black-backed jackal, and a couple of slender mongoose. The highlight for me was my only life mammal on this trip, two six-month-old brown hyena cubs in a cave den waiting for their mother’s return. An exciting bird for me was the first Cape vulture I have seen in the wild. Compared to other South Africa wildlife areas that I have visited, Madikwe struck me as an area with a good variety and numbers of plains game. On my initial drive into the reserve I saw more plains game within one half hour than I had seen in five full days in the better known Timbavati and Sabi Sand Private Reserves located adjacent to Kruger National Park. On my way out of Madikwe I rode past a waterhole where a pride of lions had made a kill and were keeping over a hundred thirsty impala, wildebeest, zebra and red hartebeest from drinking. That sighting was the largest concentration of plains game that I have seen anywhere in South Africa. Although I did not see them, Madikwe is also one of the best places on the continent to see African wild dogs. Six De Wildt’s Cheetah Center rescued wild dogs were translocated to Madikwe in 1994 after a rabies outbreak killed the previous pack. Eighteen years later their population continues in leaps and bounds with more than 27 at the last count with 13 pups born in 2012.

From Madikwe it was a two-hour drive to Pilanesberg. Unlike Madikwe, Pilanesberg allows self-drives within the Reserve. Those along with the Reserve lodge’s vehicles, combined with game vehicles of Sun City resorts located outside the Reserve, can result in Pilanesberg being as crowded as Kruger National Park during South Africa holidays. On my first night I stayed at Ivory Tree Lodge which was a more traditional South Africa lodge based on accommodation, food service and overall style. The next night I spent at Shepherd’s Tree Lodge, very different in style and service and looking more like an exclusive high-end property. At both, the rangers were young but very good. Both lodges have 4 x 4 open vehicles that have a max capacity of nine guests and both allow night drives. The adjacent Sun City Resorts also have night drives with the difference being that the accommodations outside the Reserve use 4 x 4 tractors pulling trailers carrying over 20 passengers. If you can afford the cost, the accommodations within the Reserve offer the better game viewing option.

Pilanesberg is a scenically stunning and ecologically diverse
area, enclosed within the remnants of an ancient collapsed volcano with several dammed lakes and waterholes. I was also very impressed by the numbers and variety of wildlife found there. I have not seen anything in all of South Africa and Zimbabwe National Parks to compare with the numbers of large game I saw in Pilanesberg. Reminiscent of many East African reserves I have visited there was game in view nearly all the time – mostly small herds of blue wildebeest, zebra, impala and springbok. What I saw along with the aforementioned species – small groups of hippo in each lake, six white rhino, a large herd of 100+ African buffalo, three mountain reebuck, a small group of tsessebe, common duiker and steenbok, scattered giraffe, waterbuck, greater kudu and warthog, lone males and one breeding herd of elephants, a troop of chacma baboons on the Reserve boundary and a troop of vervet monkeys that stole the sugar for our morning tea/coffee break and three male cheetah.

Night drives unexpectedly turned up a caracal, two African wild cats, brown hyena and a honey badger (now my wife’s favorite African animal thanks to YouTube) as well as scrub hare, red vlei rat and yellow house bat. A total of 26 different species of mammals were seen on my four game drives. On my last game drive I just missed seeing lion and black rhino. Like Madikwe, Pilanesberg also has a small pack of reintroduced wild dogs. There are serious plans to join up the Pilanesberg and Madikwe game reserves via a 2,750 square kilometer corridor. This is a great undertaking and may take 20 years to reach fruition. Once the corridor is established the boundary fences will encompass over 4,000 sq. kilometers allowing wildlife free movement over the area for the first time in over 150 years.

Some people may have reservations about considering fenced reserves as being true natural areas and may regard them as large zoos. I am not among them. In my opinion, if the reserve’s predators are killing their own prey without supplemental feeding these areas are not zoos but true natural areas. Since they are smaller areas they do have some aspects of wildlife management, some of which would be very familiar to zoo professionals. As zoos move animals from one facility to another to avoid inbreeding and to diversify species gene pools (SSP Plans), these small South African Reserves have the same goals but use different methods. For example, South Africa’s private game reserves now have more than 700 of the country’s free-roaming lions. On some reserves lion numbers have grown to such an extent that reserve wildlife managers have had to intervene to keep the large cats’ populations down. Madikwe recently had to lower its lion population from 120 to 60 since the Reserve’s ungulate population and cheetahs had experienced excessive predation from the large cats. The lion population was lowered by sending most to other Southern African reserves, including two to Malawi, as well as selling legal hunting licenses to high-end hunters. The hunters targeted the dominant male lions on Madikwe who had been monopolizing breeding on the Reserve. All funds from both options were put back into Madikwe’s operating budget that includes payment of staff, maintenance of roads and anti-poaching patrols. During my stay I saw the restocking of dozens of zebras and antelopes, and several thousand more along with cheetahs and some new male lions are on the way.

Unfortunately, both Pilanesberg and Madikwe have experienced some of the rhino poaching that has reached disturbing numbers in South Africa with Madikwe, losing over a dozen rhinos in the past two years, including a white rhino male that was killed the week before my arrival. The poacher scaled the reserve fence, killed a lion he encountered and got away with the rhino’s horns. I saw the dead rhino which was being fed on by a lioinx and two male lions that were once a coalition trio with the male lion killed by the poacher. Rhinos are better protected at Madikwe versus some of the other small South Africa private reserves due to a protected perimeter fence along the Botswana border patrolled by the Botswana Defense Force, as well as good local intelligence. As a precaution, all staff at Madikwe, including the lodge owners, undergo periodic polygraph testing. That an area so well protected can still have rhino poaching on its property shows how sophisticated and deadly to rhinos this recent unprecedented wave of poaching has become.

**Dubai Desert Conservation Reserve**

Can the South African concept of small managed reserves be exported to other areas of the world? In October I had the opportunity to return to Africa for my 27th visit. This trip was business related; a travel industry educational tour to see new lodges and newly established air routes into South Central Africa via Dubai. Dubai is located in the Arab Emirates on the Persian Gulf in the Middle East. I decided to arrive in Dubai the day before the rest of my group of fellow travel professionals specifically to spend an afternoon, evening and the next morning at the Al Maha Resort located within the Dubai Desert Conservation Reserve. The Reserve was created in 1999 and is currently 225 sq. km. but started as the 27 sq. km. Al Maha Reserve. This part of the reserve is now managed by the Al Maha Resort. Al Maha was developed by the same South African team that created the Shamwari and several other private game reserves in South Africa, all of which are managed with sound wildlife management policies. What attracted me to Al Maha was the chance to see free-ranging Arabian oryx. Al Mahan was originally a camel farm and in 1999 domestic animals were removed and 117 captive born Arabian oryx, some Arabian gazelles (Gazella gazella cora) and sand gazelles (Gazella subgutturosa marica) were introduced and 6,000 indigenous trees and shrubs were planted. Initially, supplemental feed was provided for the oryx and the gazelles to allow the reserve’s natural vegetation to recover from years of livestock grazing. By 2008 there were 270 free-ranging oryx along with numerous Arabian and fewer numbers of sand gazelles with all three species breeding. Supplemental feeding for the three species is being phased out and in time Al Maha will be a restored Arabian Desert ecosystem.

I arrived in Dubai on an Emirates Airlines direct flight from New York’s JFK Airport. In the Arrivals Hall I met my contacts, was taken to my car and driver and was quickly on my way to Al Maha. The drive took about an hour from the airport on excellent roads. Once outside the City one passes by large camel breeding farms which in themselves could make an interesting day excursion. The Resort is spectacular but pricey; one can however, arrange daytrips from Dubai directly with Al Maha. I decided to splurge and pay for the cost of one night. The first wildlife I saw when I entered the Reserve were several male Arabian gazelles. This species is also common on the Resort grounds and you can approach them easily. Interesting birds that I saw during my stay included southern grey shrike, white-eared bulbul, European bee eater, purple sunbird & grey francolin. Houbara bustards are also said to be found within the Reserve. For each full night at the resort you have the choice of two complementary activities which include a desert safari on the nearby sand dunes, camel trekking, horse riding, falconry or archery. I picked the most nature-oriented activities: an afternoon wildlife drive and a morning nature walk. I was the only one on the drive with my ranger who was a South African-
trained Zimbabwean who gave a brief review of desert ecology, the history of the Reserve and the wildlife found there and showed me the oryx and both species of gazelles, including a small group of sand gazelles and the very interesting Leptien's spiny-tailed lizard. He also took me to the captive species holding facility which had a breeding herd of scimitar oryx and showed me the male of a breeding pair of Ruppell's fox. This was the first time I had seen this species and was surprised at how similar they are to fennec fox, being a sort of long-legged version of the smaller species. Afterwards I returned to the Resort and its bar balcony and while having a few glasses of a nice South African red, watched the sun set behind the Omani Mountains while small groups of Arabian oryx visited the adjacent water hole; overall a very idyllic experience. While walking to my room after sunset to get ready for dinner I tried to pass by a male oryx who made a slow motion bluff charge towards me. Having been charged more than a few times by male antelopes in my zoo career, on my return I left the path and made sure I had a good-sized bush between me and the annoyed oryx before walking past him again.

The next morning my walk was led by a South African-trained Swiss ranger. She showed me numerous animal tracks including desert red fox, lesser jerboa, gerbil, horned viper and sand boa. We also found the desiccated body of an adult Arabian oryx that had died of old age or perhaps a poisonous snake bite. Based on my zoo experience, finding this animal dead of a natural cause was an indication to me that Al Maha's oryx population is truly free-ranging. In a captive situation this animal would have had a field necropsy so its exact cause of death could be determined. I also asked the ranger if any Resort guests had ever been gored by an oryx and I told her about my experience the night before. She said that no one had ever been gored but guests have hurt themselves running from the bluff charges into trees, bushes or falling on the path. I left the Al Maha at noon and returned to Dubai to spend the night before continuing on to Zambia the next morning. Surprisingly, besides Al Maha, Dubai has a couple of other interesting natural attractions. The Ras Al Khor Wildlife Sanctuary has resident greater flamingos as well as other birds. Dolphin & dugong viewing tours can also be arranged on the coast.

In my opinion with much of the world's wildlife habitat disappearing rapidly, the South African model of small, enclosed reserves may be the only chance that wildlife will have to survive in many areas of the planet. These reserves have to be managed to keep wildlife numbers in line with available habitat along with policies maintaining genetic diversity to prevent inbreeding. Zoos have been doing this on a much smaller scale for the past 50 years. Is this method of conservation ideal? No, but using this model can prevent the loss of numerous species of ungulates, medium to large-sized carnivores and primates from many individual countries and for some species complete extinction in the wild.

Photo by Carol Welsh
Management of a 4.0 Bachelor Group of Western Lowland Gorillas

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Louisville Zoo • Louisville, KY

The Louisville Zoo Gorilla Forest currently houses 5.5 Western Lowland Gorillas, 1.4 Patas Monkeys and 1.1 Pygmy Hippos. The gorillas are divided into three separate groups. One group is a 0.2 geriatric group. One group is a 1.3 family group. The third group is a 4.0 bachelor group. All three gorilla groups and the patas group rotate throughout the building on a daily basis. We do not separate our groups at night, including our bachelor group. The age range of the 4.0 bachelor group is 14-16 years-old.

HISTORY
The 4.0 bachelor group is made up of two pre-existing familial pairs. Two are half brothers that came to the Louisville Zoo together, and the other two are a nephew/uncle pair that arrived together as well. The 4.0 were introduced together and housed with an older silverback that was known to be tolerant of juveniles. At the time of group formation, the age range was 5-7 years of age. Initially, the group consisted of a silverback, two young males and two young females. The second pair of young males was added to form a group of 5.2 gorillas. Several months later the 0.2 were removed from the group and transferred to another zoo. After stabilization of the bachelor group, the adult silverback was removed.

HOUSING
The Louisville Zoo Gorilla Forest is comprised of two outside exhibit yards, three indoor exhibit dayrooms, seven off-exhibit holding stalls, and one off-exhibit holding yard. The building is set up in a circular fashion, so groups can be shifted in more than one direction. When housing the bachelor group, we take the size of the space they are occupying into consideration. If they are housed off-exhibit in holding stalls, they are given 3-4 stalls. The stalls are different sizes, so it depends on which ones they have access to as to how many they occupy. When the temperatures are high enough, we also allow them access to an outdoor space. If they are occupying a dayroom, they will also have access to additional space, whether it is a yard, holding stall, or a second dayroom. By giving them this extra space, it allows the gorillas to spread out as much or as little as they want. Extra spacing decreases the risk of
conflict within the group. The Louisville Zoo also houses a 1.3 family group in the same building. Proximity of the bachelor group to the family group is also taken into account. Due to the building being set up in a circular fashion, the groups are almost always in sight of each other. As of now, there have been very few issues with the proximity of the groups to each other. The age of the bachelors has much to do with that. They are just recently becoming sexually interested in females. Two of the bachelors will stare at the family group and “call” to the females. Currently, we have not had to adjust our group housing to keep spaces between the groups. This is something that may change in the future, and something we are monitoring closely.

**TRAINING**

As stated before, we do not separate our bachelor group. This can make individual training a challenge. We do 2-3 training sessions each day. During each session, all four bachelors are engaged. Each gorilla in our care is trained to “hold.” If we do not have enough keepers present to work each gorilla at the same time, one keeper can ask a gorilla to “hold” and the gorilla knows to stay where they are. The keeper can then train another member of the group. Upon returning to the gorilla that was placed in a “hold,” the keeper releases the behavior and rewards the gorilla for remaining in place. Then that gorilla can be trained as well. The dominant gorilla in the group is the last to be released from the training session so there is no displacement of lower ranking gorillas. During these sessions, keepers communicate with each other so as to ensure a successful session.

All of our bachelors know basic behaviors that allow us to be able to monitor their health. Behaviors such as opening their mouth, and showing us their hands, feet, and back allow us to look over for injuries and monitor any known injuries. We also train veterinary behaviors such as hand-injection and ultrasound. These behaviors allow us to administer vaccinations and monitor heart issues. There are also behaviors that are just fun for the gorillas. Behaviors such as clap, chest beat, and jump are behaviors that the gorillas do naturally and we have captured on cue. Performing a variety of these behaviors keeps the training sessions fun for the gorillas as well as functional for us.

Even though we do not separate our bachelor group, we do separation training. On a regular basis, we will separate the bachelors into sub-pairs, or into individual spaces. By doing this, the bachelors are conditioned to be separated so if the need arises, we can separate. One reason we separate for brief periods is to obtain weights. This allows the gorilla to sit on the scale without concern of displacement by a more dominant group member. We also separate for veterinary procedures. When the group is separated, they are still within sight of each other, which reduces the stress of being separated.

**ENRICHMENT**

Many types of enrichment are offered to keep our gorillas occupied. One type of enrichment we utilize is habitat enrichment. Our gorillas occupy a different space each day. The circular set up of the building allows us to offer many different options of spacing. They may occupy four holding stalls one day and four different holding stalls the next day. They may occupy two dayrooms, or one dayroom and one holding stall. Higher temperatures also add in the usage of yards for additional space. We also change the “furniture” in the stalls and dayrooms regularly. Ropes, fire hoses, and logs get moved around to change the “landscape” of the stall or exhibit.

**DIET**

Feeding at Gorilla Forest occurs several times daily. There are 2-3 hand-feedings each day, which assist in training sessions. There is also a bulk diet that is spread for the group to forage through. The bulk diet is often separated and fed at different times depending on shifting. Some days the bachelor group may be shifted through several different spaces, so they get part of the bulk diet in each area.

Bulk diets consist of two types of greens, two types of vegetables, a forage item, and browse biscuits. Greens consist of items such as iceberg, romaine, endive, celery, kale, and leaf lettuce. Vegetables offered are carrots, green peppers, cucumbers, tomatoes, onions, and broccoli. Occasionally other greens or vegetables are substituted based on cost of produce. Mazuri® browse biscuits are offered due to the lack of browse year-round. Forage items are offered in small amounts and include nuts, dried fruit, cereal, rice cakes, cooked brown rice, and popcorn.

Hand-feedings occur 2-3 times daily and allow us to hold training sessions with the gorillas and get up close looks at each individual. Morning feeds include either, oranges or grapefruit, a small amount of oatmeal, and a juice/water/chamomile tea mix. We offer the drink and the oatmeal to aide in administering medications to individuals. Often there are two separate afternoon hand-feedings. One consists of fruit, and the other consists of starch. Fruits that are offered may include apple, pear, kiwi, strawberries, bananas, pineapple, and melons. Starches offered are sweet or white potatoes, corn, and hard-boiled eggs. The last hand-feeding of the day also includes the drink mix and oatmeal for medication purposes.

Two of our bachelors are currently on twice a day medications. The medications are mixed into their “drinks” and their oatmeal. The medicated food items are given first to ensure they receive the proper amounts. One of the gorillas is being medicated for a heart condition, the other for reactive arthritis.
Another type of enrichment we use is sensory enrichment. Scents and objects are rotated for the gorillas to manipulate. Objects such as plastic barrels, milk crates, puzzle feeders, blankets, and Boomer Balls® allow the gorillas to manipulate the items as they desire. Occasionally we will hang an object so it is more stationary and the gorillas are forced to manipulate it differently. We also offer different substrates for enrichment. Dayroom floors are covered in mulch. We offer wood wool for bedding in all occupied spaces. Occasionally we will offer wood shavings or straw for enrichment.

A third type of enrichment we use is food enrichment. As stated above, we will offer different food items as part of their bulk diet or hand-feedings. Use of puzzle feeders is common practice as well. Rather than just spreading items throughout the enclosure, we will place food items into barrels, balls, paper sacks, or cardboard boxes so the gorillas have to manipulate the objects to obtain the food items.

The final type of enrichment we use is behavioral enrichment. Multiple training sessions each day keep our gorillas engaged. The layout of the building also lends to behavioral enrichment. The gorillas are constantly close to staff as the daily work is completed. Staff talks to the gorillas and engages them at random times throughout the day.

Social enrichment is also a big part of our gorillas' lives. At times when staff is not engaging the group, individuals may play together in pairs or as a larger group. With all the enrichment options available, there is always something the gorillas can do to stay occupied.

When enrichment is given to the bachelor group, we offer a higher quantity than we do for our other groups. Instead of offering one puzzle feeder per gorilla, we will offer extra so there is a reduced chance of fighting over the objects. This ensures that even if one gorilla grabs more than one object, each gorilla will have a chance to interact with the enrichment provided.

FIGHTS

While our bachelor group gets along well together, they do still have an occasional fight. Sometimes these fights are nothing more than bluff charging and chasing. Occasionally, the fights are more physical and injuries occur. Many times these injuries are superficial, but every once in a while they are a bit more serious. Cuts on hands and feet are the most common, but there have also been wounds other places. The majority of wounds are monitored by staff for infection. Antibiotics are only administered if there is a sign of infection. Gorillas are proficient at keeping wounds clean, and this is often not necessary. If it appears the gorilla is in pain, limping or not using a body part, then pain medications will be administered.

When a fight occurs, staff will observe the fight. Most times the gorillas will end the fight on their own. In the rare occasion that the fight continues, staff will intervene with hoses. Spraying the aggressor with water from a hose will cause them to discontinue the aggression.

Staff will then identify any possible injuries and determine if additional assistance is necessary.

CONCLUSION

We believe that our success is multileveled. Forming the group at a young age with a silverback to "guide" the group, taking advantage of familial bonds within the group, utilizing the spaces we have available, implementing many enrichment options, and a consistent training program, have all led us to successfully keeping this bachelor group intact.

While housing our 4.0 bachelor group together works now, we are prepared to separate them if necessary. Contingency plans are in place if the need arises. Behavioral studies are in progress to determine if there is any correlation between estrous cycles in the family group and fights in the bachelor group, and whether proximity of the groups to each other is a factor.
Final Call for Papers

We are pleased to host the 2014 National AAZK Conference. Our theme “Keepers Making a World of Difference” will highlight how zoo and aquarium professionals work to advance animal care and conservation.

Papers:
Authors will be allowed 15 minutes for a presentation with five minutes of Q & A immediately following. Abstracts should focus on the conference theme including innovative approaches and best practices in the areas of husbandry, animal welfare, conservation, education, enrichment and training.

Posters:
Posters will be on display throughout the conference in the Vera Cruz C Exhibit Hall with a scheduled Q & A session with the presenter to be determined.

Deadline for Abstracts is 01 May 2014

Guidelines for Abstracts:

• Deadline for Abstracts is 01 May 2014.
• Authors will be notified, regarding acceptance, by 01 June 2014.
• All papers, PowerPoints and posters (pdf or PPT slide) must be received by 07 July 2014 to be included in the conference proceedings.
• Abstracts should be no more than 250 words and submitted as a Microsoft Word® document via e-mail to: pdc@aazk.org

Please include the following information:

• Name of the authors and presenter
• Institution/Affiliation
• Position/Title
• Title of Work (please specify poster or paper)
• AV requirements
• Contact information (please include e-mail)
So what do you really know about giraffe? Tall – yes. Africa – yes. Endangered – No...hold it right there! I think we all might be a little surprised how little we really know if that is the case.

Despite being iconically African, the giraffe remains largely understudied in the wild—unlike most of the continent’s other large megafauna. In part, this is because giraffe were not heavily hunted until recently—they don’t produce tusks or horns that are coveted as trophies or medicine (although areas in Tanzania are now using giraffe bones to ‘cure’ HIV/AIDS), and they are not generally an aggressive species—although do not get on their bad side! Sadly, we at the Giraffe Conservation Foundation (GCF) now estimate that giraffe numbers have plummeted across Africa by 40% in the last 15 years to less than 80,000 individuals: an impact of increasing habitat fragmentation and habitat loss, and a surge in illegal hunting (poaching) driven by human population growth, economics and war. Despite this precipitous decline, giraffe are not high on the conservation agenda of most countries or NGOs—let alone much conservation action to help save them before it is too late!

The lack of numbers, distribution and taxonomic information on the giraffe is an impediment to its conservation. Most of what we know about giraffe comes from research conducted entirely within protected areas such as national parks, and even that is sometimes a few decades old and scant. Meanwhile, most of the giraffe’s historical range—which once encompassed all savanna habitats south of the Sahara Desert—is unprotected and increasingly fragmented. Disconnected giraffe populations are now sprinkled across the African continent, from Niger in the west, through the northern savannas of Central Africa, east into Ethiopia, Kenya, and Tanzania, and down throughout Southern Africa. Nearly all of these populations are in decline.

So what are we doing? Conservation scientists from GCF and geneticists at the LOEWE Biodiversity and Climate Research Centre in Germany are working to unravel giraffe taxonomy as a way to inform conservation, management and policy decisions for giraffe conservation in the wild. Giraffe taxonomy has been confusing, and sometimes contradictory, for more than 100 years as debate has raged over whether populations were members of the same species, subspecies or hybrids. The IUCN SSC Giraffe & Okapi Specialist Group (GOSG) currently recognizes nine subspecies within the species Giraffa camelopardalis, although some researchers have proposed that as many as eight of these should be recognized as distinct species. Recent efforts using molecular genetics techniques with the support of zoos and others are providing valuable insight into the evolutionary history of the species and may soon settle the debate – so stay tuned!

If giraffe subspecies become recognized as separate species, the most at-risk among them would enjoy stronger protection. Currently, the giraffe is designated a species of “Least Concern” on the International Union for the Conservation of Nature’s (IUCN) Red List. Several subspecies are at greater risk than the species as a whole, but it is unusual for subspecies to achieve a higher conservation status than the species itself. In 2008 and 2010, the GCF and the IUCN SSC ASG International Giraffe Working Group (now GOSG) overcame the odds by getting two giraffe subspecies listed as “Endangered”—the West African (G. c. peralta) and Rothschild’s (G. c. rothschildi), respectively.
It was the end-result of enormous effort to gather and analyze demographic data, conduct baseline taxonomic research, and hold discussions with all stakeholders. The Government of Niger, home to the West African subspecies, has now produced the first-ever national giraffe conservation strategy for the country. A conservation strategy for Kenya, which is home to some Rothschild’s giraffe populations as well as Masai and reticulated giraffe, is in process. Other countries will hopefully follow suit as more results and findings come to the fore.

If taxonomic research concludes that giraffe are indeed one species, the challenges facing different subspecies may continue to be masked. However, even as a single species, giraffe are obviously in trouble. In comparison with another charismatic mega-herbivore, the >500,000 remaining African elephant vastly outnumber the <80,000 giraffe. And yet, the African elephant’s Red List designation as “Vulnerable” garners it massive global attention while giraffe research and conservation remain underfunded and unknown. With our ongoing efforts it is likely that many, if not all, subspecies will soon be listed as threatened – a hollow victory!

A host of conservation field projects are being undertaken by GCF and partners across Africa to help safeguard the future of giraffe – from Rothschild’s to reticulated, Angolan to West African. Zoo engagement in these projects to date has been invaluable but for a major part limited in comparison to other charismatic species. Auckland, Blank Park, Berlin Tierpark, Brookfield, Chester, Denver, Fort Wayne, Hogle, Naples, Oakland and Sea World & Busch Gardens zoo’s are but a few who have supported to date. However, some zoos have provided regular year-on-year support which is critical to help giraffe conservation efforts grow. Developing links between GCF and zoo keeper associations, AZA, EAZA, and more is critical to undertaken sustainable efforts in the wild. Imagine this…GCF could host the first ever full-time giraffe conservationist in 2014 if we all pool together and put this species future at the fore. Let’s make a difference together and not wonder ‘what if’ in the future because we have a chance to be pro-active and save one of the world’s most amazing animals before it is too late. Let’s act now.

Much remains to be done to safeguard a future for giraffe in Africa. Our limited knowledge regarding the current status of the species and its various subspecies poses a threat to their long-term sustainability. To strengthen efforts towards fundamental research, the IUCN SSC formed GOSG in March 2013, which is co-chaired by myself and Dr. Noelle Kumpel (Zoological Society of London). The group aims to attract international support for the giraffe and okapi by improving knowledge of the species’ distribution, abundance, ecology, habitats, the threat posed by hunting and human conflict and by assessing connectivity and relatedness of populations and the importance of habitat fragmentation. Another goal is to provide an official forum to support implementation of much-needed conservation strategies across the African continent by providing advice on conservation issues of giraffe and okapi to interested parties, including international bodies such as CITES, African governments and management authorities. In November 2013, the group assessed the okapi as ‘Endangered’ – its major first success.

At the continental level, GCF’s Africa-wide assessment is working to evaluate the status of all giraffe populations and subspecies throughout Africa in order to inform giraffe conservation and management. The GCF collaborates with African governments, NGOs, universities and researchers to gather data across the species’s range. The project has produced the first-ever giraffe Country Profiles which are available free online (http://www.giraffeconservation.org) and its end-goal is to publish a comprehensive analysis of census and anecdotal data on the giraffe including individual country profiles, conservation recommendations, and recommendations for future research.

So…when you next think about giraffe, hopefully you will know that they are ‘endangered’ and support is needed now. Whether it be Quarters for Conservation or a cake sale, convince the CEO or Conservation Manager, or get direct support from the giraffe feeding deck at your zoo to help its cousins in the wild, I dare you, ‘Stick your Neck out’ for giraffe and let’s work together to save them before it is too late! And of course – drop me a line any time – happy to chat and talk giraffe!

World Giraffe Day – 21 June 2014

Yes, another celebration of yet another species...oh no! Seriously though, we want to make a difference. We want to bring the managed zoo community and field conservation partners together, as one: One Plan Approach. Saving giraffe is not an individual or organisational goal, it is something we as ‘conservationists’ whether it be keepers, researchers, managers, etc. need to do together. World Giraffe Day on 21 June 2014 will help to kick off what hopes to be long-term engaged and collaborative sharing of information, education and awareness with people all over the globe. Simply put, celebrating all things tall on the longest day of the year in the northern hemisphere – makes sense doesn’t it!

We now want all you to engage and encourage your zoos and community to support World Giraffe Day. Visit our website (www.worldgiraffeday.org) or ‘Like’ on Facebook (worldgiraffeday) where you will find how to sign up. Let’s make this an opportunity for all to come together, raise some profile and funds for giraffe in the wild.

Africa’s Giraffe: A Conservation Guide

GCF recently produced an easy-to-read 32-page booklet that gives up-to-date information about the distribution, statistics and conservation status of the nine giraffe (sub)species currently recognised, as well as the threats facing them.

Released in conjunction with a series of educational posters, the easy-to-read guide was launched at the Giraffe Indaba II in Nairobi, 25-30 August 2013 (see other stories in Girafid). The purpose of these materials is to:

- Raise awareness of the current status of Africa’s wild giraffe populations to as wide an audience as possible.
- Promote and distribute the most up-to-date information on giraffe status, while at the same time updating existing, outdated and often misleading or false information currently in circulation.
- Provide an easy-to-read guide suitable for readers of all ages and backgrounds. The booklet includes historical and factual information, summarises current status of (sub)species and among other things outlines the giraffe’s conservation significance and the threats they face.

GCF is providing an exciting opportunity for organisations, institutions and companies to partner with GCF in producing personalised special editions of the Conservation Guide and/or the posters. The Conservation Guide and posters are available in PDF format as a free download from the GCF website at: www.giraffeconservation.org

For further information about this collaboration and how to obtain a tailored version of the material for your organisation, institution or company, please contact me!
Can’t touch this?
Siamangs can — Computerized Cognitive Task as a Form of Enrichment

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Penny and Keeper L. Monte positioned at the cognition computer. Image taken backstage at Disney’s Animal Kingdom.
In April 2013, the Primate Team at Disney’s Animal Kingdom began using a touchscreen-based cognitive task as a form of enrichment with a mother-daughter pair of siamangs (Symphalangus syndactylus). Penny, 34-years-old, and Bahiyah, 6-years-old. This computer program tests shape and photo recognition by requiring the apes to use a touchscreen to match various colored shapes and photo images. This system was previously used with some of our mandrills (Mandrillus sphinx) as part of a scientific study with strict parameters (Leighty et al. 2011). The keepers decided to present the touchscreen task to these animals while they were being housed in an off-exhibit holding area due to recent changes in the social dynamics of their group that required temporarily separating these particular animals. The keepers were curious to see if these siamangs would engage with the task if they would be as successful as the mandrills in matching the shapes and photo images.

The cognitive program has various phases which train the animals how to touch and follow the objects and eventually learn to select matching images. In the matching task, a blue square, for example, would be centered on the screen. Once the animal touched this square, the next screen would show a blue square and another shape such as a green triangle. The animal needed to touch the blue square to correctly make the match. When they did this correctly, a tone sounded and the keeper delivered a food reward. If the incorrect object was chosen, no tone sounded, no food was delivered, and the screen went black for a few seconds prior to the next trial. Each session lasted for 25 trials, which were randomly produced from a large catalog of colored shapes. Once the last trial was answered correctly, the screen went blue indicating the session was over. The same parameters were true of the photo image matching task.

Originally, keepers encouraged the siamangs to touch the computer screen by drizzling a fruit smoothie on the screen and having them wipe it off with their fingers. Once the siamangs were comfortable reaching through the mesh and touching the screen, keepers then placed mashed sweet potato or banana on the touchscreen to localize their touch to the target shape.

While Penny and Bahiyah exhibited different learning styles with the shape tasks, both seemed to grasp the concept immediately and enjoyed working with the computer program. Bahiyah was quick to touch the screen appropriately and navigate through the tasks. Initially, Penny used the back of her fingers to touch the objects which was frequently not recognized by the program. This inapt touching technique occasionally caused the computer to register incorrect responses even when she tried to select the correct object. This resulted in her becoming frustrated on a few occasions and she would grab at the screen or leave the area, but she was easily refocused on the task following participation in a brief training session that included behaviors she already know, such as body part presentations. Since engagement with the computer program was for enrichment purposes, the keepers wanted to make sure the siamangs had fun with it and did not get too frustrated. Verbal praise and magnitude reinforcement helped Penny work through her challenges in touching the screen and she now touches more adeptly with her fingertips. By offering a variety of food rewards and jackpots in the initial sessions, Penny learned the appropriate behavior to complete the tasks. Jackpots were phased out once she touched the screen correctly on a consistent basis.

The first time Penny and Bahiyah were shown the photo matching

Bahiyah with the photo image screen. Image taken backstage at Disney’s Animal Kingdom.
task, they were very interested in the images and both were quick to touch the photos. The number of correct matches also improved with the photo task as compared to the shape task. The siamangs have come along rapidly in the months that they have been using the programs and keepers will continue to present it as long as they actively participate. The shape and photo tasks are currently offered on a randomized schedule to hold the siamangs' interest. Keepers have made a few interesting behavioral observations of the animals while using these touchscreen-based tasks. The mandrills would only use their dominant hand to touch the screen while the siamangs use both hands equally, often times putting both through the mesh and waiting to see which hand was closer to the correct object before touching it. Both the mandrills and siamangs were very interested in the shape and photo tasks and would typically be waiting for the computer to be rolled up to them prior to the start of a session.

With iPads* and other tablets readily available, this form of enrichment is becoming increasingly accessible to the zoo community. Along with cognition programs, there are a number of other visual, auditory, and tactile applications that are appealing to primates. Initially, keepers were not sure if the cognition tasks would interest the siamangs as an enrichment activity, how the siamangs would react to the touchscreen, or if they could focus their attention long enough to participate. We were pleasantly surprised at their willingness to take part and quick aptitude for the program. Our most significant learning from this endeavor was that it is beneficial to utilize all resources that you have available even if their original purpose was not for enrichment, because you never know what your animals may like.

For additional information about the touchscreen or cognitive program, please contact pilar.m.hicks@disney.com.


Editor's comments by Ric Kotarsky:
Cognition programs in this type of application show us just how technology is merging with almost everything we do in our lives. As technology becomes available and applicable to animal husbandry, this merger will continue, similar to the past five years or so, when training and enrichment began to overlap and merge with each other. Training and enrichment together are now used to shape a behavior or find a creative solution to a husbandry issue. It seems sort of funny to me that fifteen years ago, enrichment was only deemed effective, or in some cases appropriate, if it fell into the realm of the species' innate behaviors and it had to look natural. I think back then we were sort of missing the point about enrichment, which to me is providing stimulation and at the same time allowing the animal to make choices. This paper shows that you can achieve a desired stimulation and provide a platform to allow the animal to make its own choices to participate while, at the same time, allow it cognitively to make decisions that will ultimately result in a desirable outcome, the treat! It is also to be commended that the technology was repurposed from a prior study and that it allowed the keepers to learn something about level of cognition of a siamang. If others out there have data or stories related to technology & enrichment and want to share with their peers via the EO column, please e-mail us at bhc@aazk.org and shane.good@aazk.org, and we will share your creativity and accomplishments with everyone.

Bahtiyah with the shape image matching screen. Image taken backstage at Disney's Animal Kingdom.
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