Zoos and Aquariums Committing to Conservation
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Allen, Harriet
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(Harriet Allen, Cheryl Hummon, Lisa Dabek and David Shepherdson)

Partnering For Species Conservation in Washington and the Northwest

The Washington Department of Fish and Wildlife (WDFW) is partnering with the Northwest Zoo and Aquarium Alliance (Alliance) to conserve and recover imperiled species in the state of Washington. From the state's perspective, the zoos and aquariums have expertise in husbandry, captive rearing, and many other areas that are needed to implement successful recovery programs for critically endangered and threatened species. The Alliance is a partnership of eight AZA-accredited zoos and aquariums in British Columbia, Washington, Oregon and Idaho that works collaboratively on local conservation projects. The use of multiple institutions for conservation projects has increased the security of captive populations by spreading the risk of catastrophic failures, and has benefited from the sharing of resources and expertise for common goals. Alliance institutions also have a collective audience of almost six million visitors annually, so they can deliver consistent conservation messages and reach a much larger audience than the WDFW alone.

Alliance zoos and aquariums have developed a funding strategy to hire a Conservation Director and to provide small grants for approved projects. The WDFW partners with the Alliance, other state and federal fish and wildlife agencies, the US Department of Defense, universities, and non-governmental organizations to conduct species conservation and recovery projects that include: head-starting and releasing western pond turtles; captive breeding, rearing and reintroduction of the pygmy rabbit, Oregon silverspot butterfly, mardon skipper butterfly and Oregon spotted frog; research and recovery activities for sea otter, sixgill shark, Pacific Giant octopus, and rockfish; and education and outreach programs.

The WDFW regularly attends Alliance meetings and is a member of the Species Recovery Group. Together, we have developed and are implementing four priority projects: (1) butterfly conservation in the Pacific Northwest; (2) development of a sea otter oil spill response plan; (3) amphibian conservation; and (4) predator conservation outreach. The conservation benefits of the WDFW-Alliance partnership are beginning to be realized. Collaboration has greatly increased our effectiveness in conserving local species and ecosystems; and with this partnership, the WDFW has been able to significantly expand endangered species recovery programs in the state. We look forward to continuing this partnership to achieve mutual conservation goals.

Allen, Louise
Boston University

(Louise C. Allen, Nickolay I. Hristov and Thomas H. Kunz)

Under the Bridge: Bat Bridges as Models for Integrating Research, Conservation and Education

A commitment to conservation is an integral part of the mission statement of any zoo or aquarium. While conservation initiatives geared towards exotic, charismatic macro-fauna are attractive and important, countless local opportunities exist for zoo conservationists. I present the case study of a conservation project that deals with local urban wildlife. I discuss key aspects that make this system an excellent candidate for zoo involvement, and what we can learn from this project to facilitate successful local conservation programs. Over the past two decades, bats, including the Brazilian free-tailed bat (*Tadarida brasiliensis*), have increasingly used bridges as roosts in the southern United States. To date, however, the health of individuals living in these largely unintended man-made roosts has been largely unstudied. Roosts are likely to differ in quality due to variation in temperature or thermal stability, colony size and levels of disturbance. Stress hormone levels, immune function and reproductive success were measured in both cave-dwelling and bridge-dwelling Brazilian free-tailed bats in Central Texas to assess overall health in rural and urban colonies. Our results indicate that bats living in bridges are in better body condition, have lower baseline stress levels, give birth to larger, faster growing pups and have lower ecto-parasitic loads. In addition to the scientific implications, bridges provide an excellent public education opportunity. Nowhere else can the public experience such a remarkable concentration of urban and suburban wildlife than at a bridge colony, as well as witness conservation field research in action. Zoological institutions have a unique opportunity to assist local conservation scientists (especially students who may have limited funds and resources) with grants, volunteer/staff commitments or a combination of both. Multi-institutional collaboration in such local research projects benefits not only the zoo and the researchers involved but also the science and the organisms being studied.

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Louise Allen is a Ph.D. candidate at the Center for Ecology and Conservation Biology at Boston University. She received a BS in Zoology with a concentration in Zoo and Aquarium Science from Michigan State University and an MA in Biology from Boston University. She has worked as a senior bird keeper at the Detroit Zoological Institute and is deeply committed to expanding the role of zoos in conservation. Her research focuses on conservation physiology: the physiological responses of organisms to human alteration of the environment that may contribute to population declines. Her focus is on vertebrate taxa, specifically mammals and birds. Louise is currently examining the effect of anthropogenic disturbance on bats roosting in human-made structures, such as bridges. Comparing individuals living in both natural and anthropogenic sites, her dissertation research assesses stress endocrinology, reproductive biology and immunology with reference to roost choice and health in the Brazilian free-tailed bat (*Tadarida braziliensis*).

Ancrenaz, Marc
Hutan-Kinabatangan Orangutan Conservation Project
Sabah, Malaysia

Biodiversity Conservation Outside of Protected Areas in Borneo: A Forgotten Battle?

In Sabah (Malaysian Borneo), 12% of the land mass is officially protected. However protected forests are mostly located in the highlands, they are fragmented, prone to biodiversity erosion (edge effects) and catastrophes from human origin (fire, encroachment, etc). Until recently, conservation efforts have mostly targeted protected forests while the situation in non-protected areas has been overlooked by the conservation community.

Recent surveys in Sabah indicate that significant wildlife populations (e.g., more than 60% of the orangutans and Bornean elephants) currently occur outside of the protected area network. It is thus doubtful that protected forests alone will secure the island's incredible biodiversity in the long-term. We have come to realize that a conservation landscape approach that embraces both protected areas and non-protected lands is the best possible way to achieve long-lasting conservation results. It thus becomes urgent to design and implement new approaches that will ensure wildlife survival in multiple-use landscapes. In this paper, we investigate the potential value of new approaches being developed in Sabah to address biodiversity conservation outside of protected forests. Strengthening the role and participation of community members, involving key private players and developing mechanisms such as certification, carbon sequestration or biodiversity bank credits have the potential to become major venues for saving many endangered species in Borneo.

People, Projects, and Poverty: The Human Element in Conservation

Moderator: Beth Armstrong, Brevard Zoo

Tammie Bettinger, Disney's Animal Kingdom; Charlene Jendry Columbus Zoo; Anne Warner, Oregon Zoo

While the effectiveness of Integrated Conservation and Development Programs (ICDPs) continues to be debated, the importance of working with the people living around conservation areas remains unquestioned. Determining the best way to involve local people and improve livelihoods, while at the same time promoting a conservation agenda is challenging. Best practices in this area are not well documented, yet many conservation programs are striving to include a "human component" in their conservation initiatives. Conservation programs may incorporate the human element from a variety of perspectives including: education programs, capacity building, ecotourism, economic development/poverty alleviation, and human and animal health programs, to name a few. This roundtable will serve as a forum for conservation professionals to discuss the benefits and challenges of melding conservation goals directed at saving species and habitats with the need to assist people living in close proximity to wildlife. Presentations will be given by Tammie Bettinger of Disney's Animal Kingdom®, Doug Cress of the Pan African Sanctuary Alliance, Anne Savage of Disney's Animal Kingdom®, Charlene Jendry of the Columbus Zoo and Beth Armstrong of Brevard Zoo. Presentations will focus on initiatives that combine conserving species and habitat with empowering local people. The presentations will be followed by group discussion on best practices and lessons learned as we move forward in developing holistic conservation programs.

Bairrão Ruivo, Eric
Zoo Parc de Beauval, France

(Eric Bairrão Ruivo, J. Bryan Carroll and Alba Lucia Morales Jimenez)

The Silvery Brown Tamarin Conservation Program

The silvery brown, or white-footed tamarin, *Saguinus leucopus,* is a Colombian endemic species, threatened by the pet trade and loss of habitat. Levels of protection for this little known species are low throughout its extremely limited range – the smallest of any *Saguinus* species. Local authorities confiscate about one tamarin per week, placing these animals in rescue centers and zoos. These confiscated animals, however, often present husbandry problems and the results of captive breeding efforts to date have been dismal.

The Silvery Brown Tamarin Conservation Program was launched in 2005 and is coordinated by Portugal's Lisbon Zoo. It represents a partnership of 17 European zoos and conservation organizations, as well as nine Colombian zoos, regional conservation authorities, non-goverrnmental organizations, universities and biological researchers. The project combines *ex situ*, *in situ* and education components in an effort to protect this diminutive monkey, which is considered Endangered according to the IUCN Red List of Threatened Species.

Bent, Mark
President, SunNight Solar

SunNight Solar: The Gift of Light

SunNight Solar is leading a new movement to deliver products to the consumer, focusing on what is being called a 'triple bottom line' or a 3P approach – people, planet and profits. All of our operations and programs contain all three of these elements – we have integrated social and environmental benefits into every aspect of our company, while earning the profits which allow us to grow, develop new products via dedicated research and development and provide a return to our employees and investors. We just do not operate in any other fashion – if we can't ensure we provide triple value, we just don't do it – it really is that simple.

SunNight Solar also makes the best flashlight in the world – pretty much by accident. The founder, Mark Bent, lived in Africa for more than 20 years, first as an American diplomat, then as an oil executive for a French firm. While living in Eritrea in 2005, he wanted to provide lights to some of his friends, employees, and a number of children he had befriended who survived by scavenging in the local dump. When he could not find anything suitable, he created SNS, and manufactured a light that is now the leader in off-grid lighting products in Africa, parts of south and Central America. We also anticipate this light – the SunLight series – will quickly become the flashlight of choice in the rest of the developing world.

SunNight Solar is based in Houston, Texas. The senior management team, which represents a variety of skills, backgrounds and areas of concentration, is augmented by a team of research scientists, engineers and specialists, some based in the US, as well as a number from Europe, China, New Zealand and elsewhere. The company is also working to develop product lines in addition to flashlights, including water treatment products, hydroponics, and a solar-powered device that will kill, repel or sterilize female mosquitoes.

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Mark Bent served as a US Marine, Naval officer and American diplomat prior to starting SunNight Solar in late 2005. He spent the majority of his government service in Africa and the Middle East, where he gained an appreciation for the lack of available energy and its impact on people and development.

Blankstein, Gordon
Founder/Director
Mountain View Conservation Centre

The Recovery of the Vancouver Island Marmot (*Marmota vancouverensis)*

The Vancouver Island marmot is a uniquely Canadian species, found only on Vancouver Island in British Columbia. In 2000, its wild population had crashed to fewer than 30 animals. Captive breeding and eventual re-introduction was the only solution for the Vancouver Island marmot recovery team. The Mountain View Conservation Society, Metro Toronto Zoo, Calgary Zoo and a newly-constructed facility on Mt. Washington offered immediate help.

As a result, today, approximately 130 Vancouver Island marmots exist in the wild and 185 are housed in captivity.

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Gordon Blankstein is the founder and director of Mountain View Conservation Society. He is a member of both the Vancouver Island Marmot Recovery Team and the captive breeding group. His ideas and concepts continue to push the envelope in captive breeding, husbandry practices, and release strategies for this critically endangered species.

Blumer, Terry
Store Manager
Woodland Park Zoo
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Vetting Conservation Commerce: The Good, the Bad and the Ugly

A moderated panel discussion with Terry Blumer (Woodland Park Zoo, Zoo Store Manager), Dr. Lisa Dabek (Director of Field Conservation, Woodland Park Zoo), Jennifer Snell Rullman (Program Director, Snow Leopard Trust)
Session Moderator: Delfi Messinger (Jacksonville Zoo and Gardens).

The combined philosophies that drive "Conservation Commerce" have helped raise awareness of *in situ* conservation issues while providing an opportunity for an individual call to action coupled with revenue generation. As the concept has taken root and customer awareness has grown, issues and questions have begun to emerge. Increasing awareness among the general public has demonstrated that the audience is willing and able, *if* they are comfortable that the institution has properly vetted the information. Questions such as "How do I know this product is truly sustainable?" or "How much of the money actually makes it back to the project in question?" or, "How do I really know the money is being spent as indicated?" are asked by an increasingly savvy consumer/guest/visitor. Some of these questions have simple answers and some are more complex, requiring scrutiny both internally and externally. How does an institution decide which conservation commerce programs will be supported? How will the general public receive the messaging? Will it conflict with existing programs? Is there room for more than one program's product? The criteria used to answer these questions are subjective to a large degree. This session will address how WPZ has decided to address them and create a process for review and direction that involves several organizational viewpoints.

Boyer, Kelly
Iowa State University

Neighbor Apes: Ensuring a Future for the Chimpanzees of Fongoli, Senegal

The West African chimpanzees (*Pan troglodytes verus*) of Fongoli need help. This now famous group of chimpanzees, known internationally for such unique behaviors as cave use and spear hunting, suffer from an unfortunately common problem: human competition and encroachment. As local human populations have increased and encroached upon neighboring chimpanzee populations, conflict between the species has also increased. Chimpanzees have historically lived alongside humans of the Malinke, Diahanke, Bedik, Bassari and Fulani groups, all sharing resources of the local bush. In recent years, conflicts over water sources, crops, beehives and livestock have increased, such that land-clearing by humans and crop-raiding by chimpanzees are having disastrous effects on our inter-specific relationship. With West African chimpanzees nearing extinction and the local communities lacking the knowledge or direction to change unsustainable practices, immediate action is needed to save the chimpanzees of Fongoli.

Having studied the Fongoli chimpanzee group for seven years, Dr. Jill Pruetz of Iowa State University has witnessed the effects of increasing human – chimpanzee conflicts at her study site and the deleterious impact that humans are having on the chimpanzees' habitat. In order to protect the chimpanzees and the forest, while taking into account the lives and well-being of the local communities, Dr. Pruetz has created the non-profit program 'Neighbor Apes'. The program will employ local individuals as conservation stewards and rangers to help regulate the detrimental habitat destruction that currently threatens the Fongoli chimpanzees, as well as increase education and the standard of living in the communities. By opening lines of communication, increasing education, and encouraging locals to be proactive in protecting their neighbors, the apes, Neighbor Apes will not only save the chimpanzees of Fongoli but improve the lives of all involved.

Brennan, Jean
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(Jean Brennan , Aimee Delach and Shelly Grow)

Addressing Wildlife Adaptation to Climate Change through a Collaborative Partnership: How Amphibian Monitoring can Pave the Way for Biodiversity Conservation at Large

Climate change is one of the most critical threats facing wildlife today, to the degree that innovative collaborations between scientists, managers and policy-makers are needed to help wildlife adapt. The Intergovernmental Panel on Climate Change (IPCC) estimates that a temperature increase of between 2.7 and 4.5 degrees Fahrenheit over today's global average will result in an increased risk of extinction for 20 to 30 percent of species worldwide. Amphibians, already severely affected by other stressors, may be especially vulnerable to climate change. Given their physiological sensitivity, their ability to track subtle environmental change and the relative ease of monitoring their populations, wild amphibians can also serve as biological indicators of climate change and an "early warning system" that signals the need for more proactive responses to manage other wildlife populations. This proposal outlines a collaborative pilot program that should be established to: 1) monitor wildlife's responses to climate change using a sensitive biological indicator species (amphibians); 2) identify gaps in the policy framework and management response to assist wildlife adaptation; and 3) based on the degree of change in the indicator species, propose proactive management responses – perhaps in anticipation of more severe or rapidly changing climatic conditions.

Scientists, wildlife managers and policy makers can greatly benefit from the management, biological expertise and extensive outreach potential represented in the zoo and aquarium community. This proposal seeks to forge a strategic partnership with the Association of Zoos and Aquariums (AZA), representatives from federal and state agencies, non-governmental organizations and other relevant stakeholders to assist with monitoring and implementing adaptation-related work within communities or regions. Through the collaborative effort, we propose to pursue a pilot program based on the three-pronged approach outlined above, with initial focus on establishing a monitoring program for amphibian populations with assistance from the AZA community at large.

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The Mbeli Bai Gorilla Study and Club Ebobo: Conservation Research and Environmental Education in Northern Congo

Given the dramatic decline of lowland gorilla and other mammal populations throughout Western Equatorial Africa, detailed demographic data is required to further assess the status of these species and activities are needed to ensure their survival. The Mbeli Bai is a large forest clearing in the south-west portion of the Nouabalé-Ndoki National Park where mineral-rich soil, plants and clay attract large numbers of different mammalian species. This presentation provides new information regarding the important impacts of forest clearings on gorilla and forest elephant behavior, demography, socio-ecology, and life history. Western lowland gorillas appear to develop much more slowly than their counterparts in the Virunga Mountains, information that is particularly helpful in planning for population recovery. In addition, visiting patterns of forest elephants to the bai help increase our understanding of their fission-fusion social organisation and association patterns. Bais offer opportunities to collect demographic data on many different mammalian groups in a rapid and cost effective way.

The presentation finishes with a discussion of how training Congolese assistants and local educators, facilitating ecotourism, collaborations between zoos with long-term studies and working with media can help conserve western lowland gorillas and other large mammals.

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Thomas Breuer has been studying the social organization and behavior of western lowland gorillas for the Wildlife Conservation Society (WCS) at Mbeli Bai, northern Congo since 2002. Mbeli Bai is a large forest clearing in the Noubalalé-Ndoki National Park that attracts more than 130 different gorillas and provides the most complete set of demographic data for this species. Thomas also leads the local conservation education program, Club Ebobo, in villages surrounding the park. He has worked in several Central African countries since 1998 and is currently writing up his results on sexual selection in western lowland gorillas for his PhD dissertation at the Max Planck Institute for Evolutionary Anthropology, Germany.

Burkhalter, Angela
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Fund in the Field: Madagascar Expedition

Worlds of Discovery, better known as SeaWorld, Busch Gardens and Discovery Cove, have a core purpose. That purpose is to inspire people to celebrate, connect and care for the natural world we share through the power of entertainment. Worlds of Discovery are committed to education and conservation. Through the SeaWorld-Busch Gardens Conservation Fund, employees have the opportunity to participate in EarthWatch fellowships across the planet. The benefits of these programs are endless. They allow staff to be immersed in the natural environment of the animals with which they are privileged to interact on a daily basis. This program provides experience and increases knowledge, allowing our staff to better educate the public regarding the ways they can help conserve our planet and protect its valuable resources. This year six people were chosen to participate in Earthwatch fellowships around the world. One focus of EarthWatch was to research the 13 different species of lemurs located in the Ranomafana National Park. As a chosen participant, my expedition began November 2008 in Antananarivo, Madagascar.

Cress, Doug
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Developing Future Conservation Heroes

The Pan African Sanctuary Alliance (PASA) is most often noted for the large number of endangered primates in the care of its 18 member sanctuaries across Africa – namely, more than 790 chimpanzees, 85 gorillas, 57 bonobos and literally thousands of drills, baboons and other monkeys. But PASA sanctuaries are increasingly known for the dedicated men and women who commit themselves to the conservation of African primates and their forest homes. In Sierra Leone, Moses Kapai battled river blindness and ran rebel checkpoints to funnel food to the chimpanzees at the Tacugama sanctuary during the civil war, while Stany Nyandwi left his family behind in Burundi to accompany an airlift of chimpanzees fleeing the fighting in the 1990s to help set up the Sweetwaters sanctuary in Kenya. Nyandwi did not see his family for three years, and by the time he did, he had helped establish another sanctuary in Uganda. In Cameroon, Jonathan Kang began as a volunteer at the Limbe Wildlife Center, but dedicated himself to his studies and ultimately attained a university degree. Now, he is regarded as one of the foremost African primate experts. In Nigeria, CERCOPAN educator Jerry Akparawa single-handedly stages Earth Day celebrations each year that attract more than 3,000 participants and are staged inside a football stadium. These sanctuary workers – and so many others like them – have developed through the PASA sanctuary system, attending workshops and seminars and seizing every opportunity for advancement. As a result, they discover that their commitment goes far beyond the animals in their care – it extends to a holistic regard for wildlife and wild spaces across the continent, and allows them to serve as role models for future generations.

Paul Crump
Amphibian Conservation Manager
Houston Zoo
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The Last, and next, decade of Amphibian Conservation in Panama

Panama has been a battleground for amphibian conservation over the last ten years. Proactive and reactive *ex situ* programs have been implemented, largely by organizations and institutions from the United States, on separate but complementary occasions. The future of both *in* and *ex situ* amphibian conservation moves to a new level of coordination with the developing Panamanian Amphibian Conservation Action Plan.

Paul Crump, Amphibian Conservation Program Manager, Houston Zoo: Paul has been working with amphibians since he completed an internship in the Cincinnati Zoo's Amphibian department in 2001. Paul serves on the AZA's Amphibian Taxonomic Advisory Group, an organization that is specifically dedicated to *ex situ* North American amphibian conservation. He has helped pioneer the creation of an ex situ amphibian conservation center in Panama. His skills in amphibian ex situ conservation, including disease awareness, genetic management, husbandry and reproductive protocols, and project management are key to the day-to-day success of the project. Paul also holds a seat on the USFWS Houston Toad Recovery Team.

Dr. Susie Ellis, Ph.D.
Executive Director
International Rhino Foundation
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Out of Harm's Way: Helping Rhinos Survive through Translocation

Four out of the five species of rhino face extinction in the next 20-50 years. As part of its mission to ensure the survival of rhinos through conservation and research, the International Rhino Foundation (IRF) operates programs both in Africa and Asia. In partnership with numerous zoos, IRF focuses expertise and resources in areas where rhinos are in the most need of attention and where conservation efforts will have the most significant impact. In some cases, the most effective conservation action is to move animals to more secure areas. As part of the ambitious Indian Rhino Vision 2020, the first rhino translocations of Indian rhinos took place in Assam this past year. In Zimbabwe, IRF teams regularly move black rhinos to safer areas when threats from well-organized and determined poaching operations become too great. This paper highlights recent successes with translocations in Africa and Asia, as well as plans for future work.

Flocken, Jeff
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Emerging Wildlife Conservation Leaders

This presentation discussies opportunities for training leadership available to wildlife conservationists and environmental advocates, focusing on the Emerging Wildlife Conservation Leaders initiative -- a collaborative effort sponsored by U.S. Fish & Wildlife Service, the White Oak Conservation Center, the Wildlife Conservation Network, Defenders of Wildlife, and the International Fund for Animal Welfare. This initiative brings together approximately 20 wildlife conservationists flagged by current leaders for a two-year training effort. The course focuses on three benefits to participants: 1) providing networking and career mentoring opportunities; 2) training in leadership and wildlife conservation campaign skills; and 3) offering participants the opportunity to plan, implement and evaluate a real wildlife conservation campaign benefiting an international species. Also discussed are the Environmental Leadership Program, the US Fish and Wildlife Service's Wildlife Without Borders - Africa Mentorship Program, and other leadership opportunities in the field of wildlife conservation.

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Jeff Flocken is the DC Office Director for the International Fund for Animal Welfare, where he leads the organization's team of legislative professionals advocating for U.S. policy initiatives on behalf of wildlife conservation and animal welfare. Before this appointment, Mr. Flocken worked for five years as an International Affairs Specialist in the U.S. Fish & Wildlife Service's Division of International Conservation, where he focused on international species conservation policy, outreach, and global conservation grant programs. Prior to joining the Service, he worked as an Education, Policy and Outreach Director for Conservation International. He has a law degree from Wayne State University, and graduated with honors from the University of Michigan. Before working at Conservation International, Mr. Flocken created and managed the leading national endangered species conservation campaign for the United States' largest conservation organization, National Wildlife Federation. Mr. Flocken currently serves on the Board of Directors of the Jaguar Conservation Fund, and the Steering Committee for the IUCN Tapir Specialist Group. Mr. Flocken is also the founder and Board Chair of the Emerging Wildlife Conservation Leaders initiative which mentors and provides campaign training for up-and-coming leaders in the wildlife field.

Foley, Charles
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Conservation Easements as a Tool to Protect Large Ungulate Migration Routes in Tanzania, Africa

Tarangire National Park in northern Tanzania is one of the country's premier national parks and a major revenue earner for the government. The park has a high diversity of mammal species (over 100 species recorded) and one of the highest densities of elephant in Africa. Most of the large ungulates disperse out of the park during the wet season to calving grounds on village land. Ten years ago this migration was the third largest in East Africa, with over 55,000 large mammals moving seasonally. A combination of poaching and land loss to agriculture has reduced the migration to less than 15,000 animals and the number continues to decline. With the financial support of several US Zoos, the Tarangire Elephant Project has worked with local tour operators and a Maasai community to establish the first conservation easement in Tanzania to protect the main zebra and wildebeest calving grounds in the Simanjiro plains to the east of the Park. Village game scouts monitor wildlife movement in the area and report incidents of poaching to local authorities, which has led to a number of successful arrests. The conservation easement has been popular with the village and we intend to expand this model to neighboring local communities.

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Charles Foley has been studying the elephant population of Tarangire National Park in northern Tanzania since 1993. Tarangire is home to some 3,000 elephants and has become one of the best parks in Africa to see large herds. His elephant research has covered a variety of different topics including demography, behavior, genetics, and conservation, and over the years the project has individually recognized and named over 1,000 individuals. The conservation work has expanded beyond the national park boundary to identify migration corridors and work with local communities to insure their long-term protection. Charles earned his undergraduate degree in zoology at Oxford University and his PhD at Princeton University, studying the long-term effects of poaching on elephant social systems. Charles works for the Wildlife Conservation Society as Director of the Tarangire Elephant Project and Assistant Director to the WCS-Tanzania Program. The project's main funding has always been from American zoos and has been featured in several wildlife documentaries, news programs, and popular wildlife magazines including *BBC Wildlife* and *Wildlife Conservation*.

Ford, Jamie
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Student Conservation Association Interns: Building Capacity in Your Organization

Most organizations and agencies don't lack for projects, research or programs. What they so often need is funding or time, or both. The Student Conservation Association (SCA) fills that gap with our Conservation Intern Program. SCA's Conservation Internship Program offers flexibility, cost-effectiveness and motivated young adults for our host-site partners.

SCA has been a trusted solution provider to resource managers since 1957. We offer a conservation force that has the knowledge, skills, abilities and passion needed to meet the partners' objectives in the field. From basic trail work to advanced research, our highly motivated interns and crews can be the answer to challenges, doing the work that needs to be done. Our proven services are easy to access, effective and affordable. SCA Interns work in over 50 disciplines, assisting an array of agencies and organizations. Interns are undergraduates or graduate students seeking practical career experience, and adult professionals exploring alternate career options.

SCA partners include AmeriCorps, the Bureau of Land Management, National Park Service, The Nature Conservancy, US Fish and Wildlife Service, US Forest Service, state agencies, cities, and other non-profit organizations. In 2007, interns serving with SCA numbered approximately 2,000 and logged 1.25 million hours of conservation service.

In this presentation, participants will be introduced to SCA's program and the steps needed to apply for interns. Handouts will include a breakdown of benefits to partnering organizations, as well as cost-sharing details and funding resources.

About SCA
The Student Conservation Association (SCA) is a non-profit organization that offers conservation internships and summer trail crew opportunities to more than 3,000 people each year. SCA is focused on developing conservation and community leaders while getting important work done on the land.

SCA's mission is to build the next generation of conservation leaders and inspire lifelong stewardship of our environment and communities by engaging young people in hands-on service to the land.

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Jamie Ford received her undergraduate degree in Animal Science from Tarleton State University in Stephenville, Texas. Shortly after, she served as an SCA intern with the Florida Marine Research Institute conducting population surveys of the spiny lobster and queen conch. Jamie has ten years of experience in informal education from the Fort Worth Zoo, Smithsonian's National Zoo, and Houston Zoo. Jamie is the Texas Program Manager for the Student Conservation Association. Her duties include facilitating the Dallas and Houston high school crew programs, regional intern programs, and assisting with national programs in the Gulf region.

Goossens, Benoit
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Benoît Goossens, Nurzhafarina Othman, Rosdi Sakong, Marc Ancrenaz, Laurentius Ambu and Michael W. Bruford

Conservation Genetics and Management of the Bornean Elephant in Sabah

The Bornean elephant has recently been described as an evolutionary significant unit due to its unique mitochondrial DNA pattern, making it one of the highest priority populations for Asian elephant conservation. From 2005 to 2007, 800 dung samples have been collected in Sabah, mainly in the Lower Kinabatangan floodplain, Tabin Wildlife Reserve, Maliau Basin, and the forest reserves of Deramakot, Ulu Segama-Malua, Kalabakan and Gunung Rara. DNA has been extracted from 90% of the samples, more than 115 of which have been sequenced using the same fragment of mitochondrial DNA previously used in a study by Columbia University, Sabah Wildlife Department and WWF-Malaysia. Our research found the same unique haplotype described previously in all samples analyzed, confirming earlier results, but it does not exclude another origin, such as an extinct mainland population or one from Java. Our research also determined the genotypes of more than 250 samples, using 18 nuclear markers, identifying individuals and characterizing the genetic diversity within and the genetic differentiation between sub-populations in Sabah. Very low genetic diversity was found in the Bornean elephant population, with a mean number of alleles per locus of 2.4, a mean expected heterozygosity of 0.30 and a mean observed heterozygosity of 0.21. These results are discussed within the broader context of population management and conservation. In addition, outcomes of the recent International Workshop on the Conservation of the Bornean Elephant in Sabah (May 21-23, 2008, Kota Kinabalu) are presented.

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Benoît Goossens is a Senior Research Associate at Cardiff University and a Research Fellow at Universiti Malaysia Sabah. He is also the Director of the Danau Girang Field Centre, recently established in Lot 6 of the Lower Kinabatangan Wildlife Sanctuary, a joint-initiative by Sabah Wildlife Department and Cardiff University. Dr. Goosens has run two Darwin Initiative projects, on the orangutan and Bornean elephant, and has been working in Sabah for the last nine years. Previous studies include research on population genetic structure, mating systems and conservation genetics in a number of endangered mammal species, including chimpanzees and African forest elephant in Congo and Gabon and giant pandas in China.

Grow, Shelly
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Outcomes of AZA's Regional Year of the Frog Campaign and Outlook for Sustaining Momentum

The Association of Zoos and Aquariums (AZA) participated in a 2008: Year of the Frog campaign organized by the World Association of Zoos and Aquariums (WAZA) and the World Conservation Union's (IUCN) Conservation Breeding Specialist Group (CBSG) and implemented by regional zoological associations around the world. This integrated conservation, public education, and fundraising initiative resulted in new amphibian programs at zoos and aquariums and raised public awareness about amphibians and their conservation plight: approximately one-third of the 6,000 known amphibian species are threatened by extinction. The campaign resulted in the creation of a new AZA grant program dedicated to amphibian conservation; a strategic plan for the development of new *ex situ* amphibian programs; numerous conservation breeding successes; and new exhibits, head-starting programs, and citizen science monitoring programs led by AZA-accredited zoos and aquariums. The campaign also provided the momentum to sustain and expand these and other amphibian conservation projects at zoos and aquariums well into the future, resulting in new opportunities for local, regional, and international partnerships and engagement. The threats facing amphibians will not disappear on their own and the AZA community is committed to doing their part to save species from extinction and help overcome conservation challenges.

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Shelly Grow is a conservation biologist at the Association of Zoos and Aquariums. Her primary responsibility is to help AZA members respond to amphibian population declines. She works closely with AZA's Amphibian Taxon Advisory Group, Year of the Frog task force, members, and other nonprofit, governmental, and global partners. She also serves on the steering committee for Amphibian Ark. Prior to her focus on amphibian conservation at AZA, Shelly was the program coordinator for the Butterfly Conservation Initiative and has worked on organic and sustainable agriculture research and policy at the U.S. Department of Agriculture and the Wallace Center for Agriculture and the Environment at Winrock International. Shelly received a B.A. in environmental studies from Grinnell College and an M.S. in sustainable development and conservation biology from the University of Maryland.

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(Rosamira Guillen and Dr. Anne Savage)

Connecting With Cotton-tops: Working with Local Communities in Colombia to Promote Cotton-top Tamarin Conservation Efforts

Cotton-top tamarins are highly charismatic, mini-vertebrates that are the focus of a long-term conservation program in Colombia. The threat of diminishing habitat presents a critical problem for the survival of this species. Efforts to protect cotton-top tamarins have focused on understanding their social and reproductive ecology, working with local communities to increase public awareness, developing economic alternatives for habitat destruction, and reducing the illegal pet trade.

Developing conservation programs that address the needs of the species and the local communities that impact their survival are of urgent global concern. We present information that demonstrates the effectiveness of international and national partnerships on disseminating information, influencing behavioral change, and providing economic alternatives that make conserving cotton-top tamarins and their habitat a viable option for individuals that contribute to the future survival of this species in the wild.

Such efforts provide opportunities for conservationists to reach both traditional and non-traditional audiences that have a potential to positively impact conservation efforts for endangered species and their habitats. Through the efforts of Proyecto Tití, we highlight our successful eco-mochila programs that has recycled more than 1.5 million plastic bags and created a stable source of income for local communities, our bindes program that has significantly reduced the amount of trees consumed as firewood, and our long-term efforts to protect cotton-top tamarins and their habitat for future generations of Colombians.

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Rosamira Guillen received a B.A. in Architecture in 1987 from the Universidad Autónoma del Caribe in Barranquilla, Colombia. She worked as an architect for three years, was granted a Fulbright Scholarship in 1993 and received a Masters Degree in Landscape Architecture from the State University of New York – Environmental Science and Forestry in Syracuse in 1993. Upon her return to Colombia in 1995, she began work at the Barranquilla Zoo, re-designing the master plan. In 2001 she became the zoo director. The following year she received a degree in environmental management and began work for Proyecto Titi. In 2004, Fundación Proyecto Tití was created as a Colombian non-profit organization to help promote cotton-top tamarin conservation efforts, and Rosamira now serves as the foundation's executive director.

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Reintroduction of the red-necked ostrich into Niger Sara Hallager, Smithsonian National Zoological Park

The large mammal and bird fauna of the Sahara is one of the most threatened on earth, with species like the addax, dama gazelle and cheetah having disappeared from over 95% of their former ranges. The Saharan race of the ostrich, *Struthio camelus camelus*, is amongst these critically endangered species. Once widespread across Northern Africa, its numbers have rapidly declined during the 20th century and today only a handful is left in the wild.

The Saharan race of red-necked ostrich is uniquely adapted to survive in the harsh conditions of the Sahara. Once widespread throughout western and northern Africa, the race is now extinct in Niger, Algeria, Mali, Burkina Faso, Tunisia, Morocco, Mauritania, Libya, Egypt and possibly Senegal. A small number survive in northern Cameroon and Central African Republic while the most sizeable populations reside in southern Chad and Sudan. The captive populations residing in Morocco and Tunisia are introduced birds of Chad origin.

Up until 1990, the area in and around what is now Niger's Aïr-Ténéré National Nature Reserve (a UNESCO World Heritage site) was the last stronghold of some 1,500 birds. In 1992, civil uprising centered in this region all but eradicated the ostrich population. Luckily, a small number of young ostriches was captured by members of a local grassroots NGO (GAGE-Azihar) to form a breeding nucleus for a reintroduction program.

In 2004, the Sahara Conservation Fund (SCF), in response to a request for assistance from GAGE-Azihar, started an emergency support program to help care for the ostriches, including an inventory of captive ostrich in Niger to identify birds to strengthen the breeding pool. Project goals are to 1) bolster current breeding stock with genetically suitable birds; 2) increase existing local capacity for ostrich captive management; 3) help raise awareness about ongoing efforts to save Saharan wildlife through programs like this ostrich recovery project; 4) improve captive breeding; and 5) release ostrich back into the wild.

In 2008, a grant awarded by the Association of Zoos and Aquariums enabled a team to travel to Niger and begin genetic sampling of captive-held ostrich previously identified in a 2006 report by Bishop & Newby. The team collected freshly plucked feathers, fresh fecal samples and/or blood samples from 44 birds of privately held stock in southern Niger. Birds were marked with transponders for permanent identification purposes. In order for these birds to be part of a future breeding program and future reintroduction efforts, it is essential that they be representatives of *Struthio camelus camelus*. To ensure that genetically compatible stock is used for breeding efforts, DNA analysis of the samples collected will be carried out by the Center for Conservation and Evolutionary Genetics of the Smithsonian National Zoological Park, Washington DC. Once DNA analysis and health screens are completed, genetically suitable birds will be moved into a breeding center in the small town of Gadabeji. The town is on the edge of a gazetted protected area, the Réserve de Faune de Gadabeji. The site offers excellent ostrich habitat and is accessible to a variety of reintroduction sites throughout Niger.

Sara Hallager is a Biologist at the National Zoo. She received her Bachelors degree in Zoology from the University of Maryland and has been employed at the National Zoo since 1987, where she is responsible for over-seeing the bird collection. Ms. Hallager chairs the AZA's Kori Bustard SSP and Ratite Taxon Advisory Group. She is an active member of the AZA Animal Welfare Committee and the AZA Avian Scientific Advisory Group and manages several AZA studbooks.

Hamisi, Kakuta Ole Maimai
Maasai Association and Woodland Park Zoo

Wildlife and People: The Waterholes Project

The Waterhole Restoration Project is spearheaded by the Maasai Association in Kajiado Central District of Kenya. This project will provide water to over 2,000 people, 5,000 livestock, and over 2,000 wildlife. It is unique for the fact that it is the only waterhole restoration project in the region and is the first project designed and implemented by the Maasai people for their local wildlife conservation effort and economic development. This project is run in an all-inclusive and participatory manner between the Maasai Association, community elders, women, and youth.

Kakuta Ole Maimai Hamisi is the Managing Director of the Maasai Association and a Program Coordinator at Woodland Park Zoo in the education department's cultural interpreter program.

Kakuta holds a Bachelors of Arts Degree in Political Economy, as well as a Masters Degree in Sustainable Development. He has spearheaded development projects in the Maasai region of southern Kenya for over 10 years. Through these efforts, his community saw the construction of an all Maasai High School, a Primary School, a 10 kilometer Water Pipeline Project, the Merrueshi Health Centre and the Waterhole Restoration Project - a conservation initiative funded by Woodland Park Zoo.

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Elephant Care International: ECI Elephant TB Initiative Project Update

This is an update of Elephant Care International's TB Initiative (a range-country program to manage TB in endangered Asian elephants) announced at the last ZACC meeting. It is also an acknowledgement of support generated by that meeting, showcasing zoos and the US Fish and Wildlife Service: over $68,000 has been raised to support Elephant Care International initiatives.

The project addresses the long-neglected problem of TB in Asian elephants. We seek to avoid consequences such as occurred in South Africa where, in a 15-year period, bovine TB in African buffalo spread to affect most herds and 10 other mammalian species. Mortalities due to advanced TB occur at an annual rate of 11%.

In India, we have concluded the TB-testing of more than 350 captive elephants. Project results have been presented to the Indian Government's Project Elephant in an attempt to expand testing and begin control of TB in this, the largest extant population of Asian elephants. In Nepal, project partner WWF-Nepal has completed the testing of 99 Chitwan National Park elephant handlers and all have tested negative for TB. However, we continue to find TB-infected elephants in Nepal. Government-owned elephants patrol Chitwan National Park (a World Heritage Site) protecting wild elephants, single-horned Asian rhinos, Bengal tigers, gaur, and critically endangered gharials. Controlling TB in captive elephants in areas where wild and captive populations interface is an important and achievable first step to improve the health of captive elephants and to protect wild elephants from becoming infected.

Segregation facilities for infected elephants are being finalized and treatment will begin shortly on 14 vital patrol elephants. Drug sourcing was slow but we have now successfully reduced the costs of drugs (alone) for treatment of one elephant from the $50,000 (£25,700) typically incurred in the United States to less than $2,500 (£1,284) per elephant. Additional funding is required to meet the needs of all infected elephants.

Not unexpectedly, diagnostic obstacles have been encountered in Nepal. To help surmount these, ECI has established a professional Elephant TB Scientific Advisory Board, including some of the leading human medicine experts. Among these are David Moore, British pioneer of the MODS system for detecting TB in resource-poor environments and Richard Chaisson, Director of the Johns Hopkins University Center for Tuberculosis Research. Plans are to establish a MODS lab in Nepal.

An informational meeting of project partners and all private elephant owners is scheduled in June. Project partners are also preparing for an Asian elephant range-country meeting in 2009.

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Hank Hammatt is co-founder and Executive Director of Elephant Care International (ECI), dedicated to the healthcare & conservation of elephants. With fellow co-founder Dr. Susan Mikota, ECI directs field programs in India, Nepal, and Sri Lanka, always investing in and developing local veterinarians and conservation professionals. Hammatt designed and manages www.elephantcare.org, the largest open source repository of elephant healthcare information.

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Wild Carbon™: Changing the Climate for Wildlife Conservation

What do carbon footprints have to do with wildlife conservation? Can you really quantify the reduction in your carbon footprint outside of relying on dime-a-dozen internet calculations? What if you could directly show how you, your zoo or your project benefited a particular species in the wild – and made a measurable reduction in your net greenhouse gas emissions? Presenting examples from Australia's voluntary carbon offset programs and the anticipated regulated carbon trading market, this presentation shows how the growing awareness of personal and organizational impacts on climate change can be used to benefit threatened and endangered wildlife. This presentation showcases the example of a large-scale carbon offset incentive scheme for farmers in southeastern Australia designed to benefit the red-tailed black cockatoo *Calyptorhynchus banksii graptogyne*, an endangered species threatened by severe habitat loss and in much need of a non-traditional approach to secure its future. This session will highlight how the two environmental issues of CO_2 reduction and habitat loss can actually help each other, and will offer zoos and aquariums practical, meaningful opportunities to connect themselves and their visitors to this very public, very practical approach to on-ground conservation work.

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Julie Childers Henry is a well-respected member of the zoo and aquarium community, with considerable experience in zoological, marine and educational disciplines at Busch Gardens Tampa Bay, Cincinnati Zoo and Botanical Gardens, John G. Shedd Aquarium, and Mote Marine Laboratory and Aquarium. A communicator by nature, she has also worked as an independent advisor and trainer in management consulting, as a science education consultant, and through a competitive exchange program to Australia, as a cultural ambassador. Julie's commitment to the cause has earned her close associations with many significant conservation players, including the World Wildlife Fund and the Association of Zoos and Aquariums. She earned her Postgraduate degree in Outdoor Education and Tourism at the University of Otago in New Zealand and her Masters degree in Communication at the University of South Florida.

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Elephant Endotheliotrophic Herpesvirus (EEHV): An Emerging Threat to Wild Asian Elephants?

A novel herpesvirus called elephant endotheliotrophic herpesvirus (EEHV) was first identified as the cause of acute death in a young Asian elephant (*Elephas maximus*) in a North American zoo in 1995. Since that time, at least 47 cases of this disease have been confirmed in zoos across North America and Europe. The majority of EEHV mortalities are in juvenile Asian elephants between the ages of 4 months and 8 years. Importantly, veterinarians in Kerala, India have recently confirmed 8 cases of EEHV mortality since 2005, with half these deaths in captive elephants and half in wild elephants. The identification of this fatal virus in wild elephants has world wide implications for the health and survival of captive and wild elephants throughout range countries. Current research has uncovered at least 5 different EEHV strains, several of which have also been identified in skin and lung lesions of healthy African elephants (*Loxodonta africana*). The epidemiology, mechanism of transmission, function of latency, and predisposing factors to susceptibility and death are currently unknown but are under investigation. The EEHV virus attacks capillary endothelial cells and creates a vasculopathy, causing capillary leakage and widespread hemorrhage throughout the body. Clinical signs resulting from these lesions are visible as edema of the head, cyanosis of the tongue, oral ulceration, and lethargy. Often once an elephant shows clinical signs of illness, death is imminent. Gross lesions on necropsy include pericardial effusion and extensive petechial to ecchymotic hemorrhages of the heart, viscera, and peritoneal surfaces. Diagnosis can preliminarily based on the presence of the gross lesions described above, as well as intra-nuclear viral inclusions in capillary endothelial cells in the myocardium, tongue, muscle and liver, but should be confirmed by PCR testing of properly preserved tissues or whole blood. The current recommended treatment is to administer an antiviral drug famciclovir (Famvir, Novartis Pharmaceuticals) orally or rectally at the first sign of clinical disease, at a dose of 12 mg/kg PO QID on the first day and then 12 mg/kg PO BID for up to 3 weeks. Treatment is not always effective and ongoing research is investigating other antiviral medications, methods of supportive care, and development of a vaccine.

Dr. Howard is a graduate of the Virginia Maryland Regional College of Veterinary Medicine. She completed a residency in zoological medicine in a joint program through the University of California Davis and the San Diego Zoo, and was accredited by the American College of Zoo Medicine in 2005. She has been an associate veterinarian at the Houston Zoo for the past 4 years. Dr. Howard has participated in several EEHV international workshops and is working with researchers and veterinarians in Houston and throughout the US and Europe on finding ways to understand and manage this deadly virus.

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Building Sustainable Community Stewardship Programs for Snow Leopards

Most snow leopards reside in areas occupied by subsistence farmers and pastoralists, more than 40% of whom live below national poverty levels with average per capita annual incomes of $250-$400. Poaching of the natural prey base along with retributive killing by shepherds following livestock losses represent the major threats to this iconic species.

Since protected areas are generally too small to support more than a few dozen cats, local people are critical to the snow leopard's long-term future. Here we explore several low-cost, indigenously driven mechanisms and economic incentives that enable local people to become effective stewards in protecting the endangered snow leopard and its associated mountain biodiversity. We present examples from India, Nepal, Pakistan, Tajikistan and Mongolia – including traditional homestays for tourists (under the award-winning *Himalayan Homestays*), predator-proofing of livestock enclosures, community-operated and co-financed livestock insurance programs. These are being implemented by local professionals and registered partner organizations. Local people play a leading role in project design and monitoring, including identifying mechanisms for ensuring long-term sustainability. Program growth is fostered through a combination of model community outreach and strategic small grants offered by the Snow Leopard Conservancy to communities meeting five "Best Practices" criteria considered fundamental to effective community-driven conservation. The Snow Leopard Conservancy invites zoo participation in programs like those described in the June 2008 issue of National Geographic magazine.

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Rodney Jackson, Director of the Snow Leopard Conservancy (SLC), conducted the first radio-telemetry study of wild snow leopards in the 1980s and is widely acknowledged as the world's leading expert on the species. SLC grew out of his twenty years' experience working closely with rural herders and farmers whose lives are directly impacted when snow leopards prey upon their livestock. Rodney is a Fellow of the Wildlife Conservation Network (WCN), and a 1981 Rolex Laureate. Most recently, he was named as a finalist ifor the 2008 Indianapolis Zoo Prize. His work has been funded by the National Geographic Society, Smithsonian Institution, U.S. Fish and Wildlife Service, U.S. Agency for International Development, Wildlife Conservation Society, WWF, Wildlife Conservation Network, Shared Earth Foundation, and the Disney Wildlife Conservation Fund, among others.

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Community-based Ecosystem Conservation Approach (CBECA) – A New Concept Used for Sea Turtle Conservation in Sri Lanka

Five out of seven endangered sea turtle species nest in Sri Lanka, including Critically Endangered leatherback turtles and hawksbill turtles. Destruction of coastal ecosystems by coastal communities is a substantial problem in Sri Lanka. Coastal communities depend on their surrounding natural resources for survival. As a result, very important habitats and fauna such as the coral reefs, sea grass beds, mangroves, marine turtles and other coastal vegetation are under serious threat of extinction.

The Turtle Conservation Project (TCP), established in 1993 with the aim of protecting marine turtle populations, realized the connection between coastal communities and the coastal resources upon which they depend. As a solution, TCP developed the 'Community Based Ecosystem Conservation Approach' (CBECA) to address the problem described above.

The community of Rekawa (a small fishing village located in southern Sri Lanka), was heavily exploiting marine and coastal resources due to poverty and lack of awareness. TCP has implemented an innovative concept which is referred as the 'Community Based Ecosystem Conservation Approach' (CBECA) in the conservation of marine and coastal resources and poverty alleviation, a multi-pronged approach with seven main components: 1) community livelihood development, 2) community infrastructure development, 3) environmental restoration and management, 4) community awareness/capacity development, 5) partnership building/networking, 6) knowledge management & sharing (current & traditional knowledge), and 7) utilization of local culture.

TCP has formed CBOs such as Batik, fish breeding, sewing, coir mat, bee keeping, and agro-farming groups, and provided training in alternative livelihood skills for CBO members. TCP also provided the equipment, stocks of raw material, and capital through a revolving fund scheme. TCP has implemented road repair programs to facilitate tourism and local business, established a public library, public bus stops and drinking water facilities, and developed primary school programs, English language and computer classes, swimming training and disaster preparedness training. Children's clubs involve young people in coastal ecosystem conservation practices. TCP has also implemented community health programs such as medical clinics, free herbal drinks for school children, community welfare services and first aid training.

Multiple partnerships are essential to this project's success. CBOs are networked in an umbrella consortium, which has been linked to government institutions, local business organizations, and international organizations such as the Marine Conservation Society (MCS), UN Volunteer Program, SCOTIA- USAID, UNDP GEF SGP, and MercyCorps. The Wildlife Conservation Department is expected to declare the Rakawa beach as Sri Lanka's first Marine Turtle Sanctuary.

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Strategic Planning for Species Conservation: New Guidelines from the IUCN Species Survival Commission

Over the past two decades, the Specialist Groups of the IUCN's Species Survival Commission have produced a number of Conservation & Action Plans for various groups of species. These plans have often been the most definitive summaries of species status and conservation needs, but have not always led to conservation action. A Species Conservation Planning Task Force has reviewed approaches to species conservation planning and has developed new guidelines on strategic planning for species-focused conservation. The new framework identifies the importance of involving the full array of stakeholders in all aspects of strategic planning, the need to develop a plan that is centered on a vision that all stakeholders embrace, and the need to develop objectives and specific actions that are sufficient to respond to threats and achieve the vision. The inclusive approach to strategic planning opens up opportunities for zoos to contribute more to species conservation, as providers of data and conservation methods, as facilitators and conveners of diverse groups, and as organizations that can support and sometimes directly implement actions needed to save species.

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Robert Lacy has been a Conservation Scientist for the Chicago Zoological Society since 1985. As of 2003, he took on the role of Chair of the IUCN/SSC Conservation Breeding Specialist Group. He also serves as Chair of the IUCN Species Conservation Planning Task Force. He has published papers in evolutionary theory, genetics, population ecology, taxonomy, behavior, physiology, conservation, and wildlife management. Together with other colleagues, Lacy helped to develop the theory and pedigree analysis protocols used for the management of captive populations, and he developed the software now used in countries around the world to guide the genetic management of breeding programs in zoos and aquariums. The Vortex population viability analysis software that he developed is used by conservationists, wildlife managers, researchers, and students in governmental agencies, NGOs, and universities throughout the world to help guide species conservation planning.

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Planting the Seed: Conservation and Education Supporting Growth in Madagascar

The Henry Doorly Zoo's Madagascar Biodiversity and Biogeography Project (MBP-HDZ) first planted the seed in Madagascar with the initiation of a novel reintroduction program to bring back two locally extinct lemur species (*Propithecus diadema* and *Varecia variegata*) into a protected forest. Education is a key component to the success, which grew into the development of a conservation-based coloring and activity book entitled "*Lemurs: Your National Treasure".* The book was created and distributed to 15,000 Malagasy primary school children, creating an opportunity to educate and influence the next generation of Malagasy leaders.

Branching out further was the initiation of Education Promoting Reforestation Project (EPRP), a small-scale reforestation project. The two family groups were monitored daily and fecal samples were collected to obtain baseline reproductive data. Studies of *V. variegata* have shown that this lemur's diet consists of large quantities of fruit, thus it is a vital seed disperser. The seeds from the *Varecia* were planted to facilitate the regeneration of vital species of fruit trees. This project recruited local elementary students to contribute towards the replanting of their own forests. The school-based nurseries will allow the students to be responsible for the care of the seedlings and the eventual transplanting of the saplings into the forest, a direct way for children to influence their parents' awareness, resulting in an increased desire to implement environmentally conscious actions.

Our hope is to once again, unite the forests, wildlife and the Malagasy people. As the children watch the EPRP seeds take root and grow for future generations of these endangered lemurs, we hope that a sense of pride in the unique biodiversity within their country takes root in their hearts and grows into a future of conservation-minded individuals.

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The Big Bang (for the Buck) Theory: Introducing the Ape TAG Conservation Initiative

A recent review (Stoinski, et al. 2008) revealed that although certainly earnest in intent, zoo support for in situ gorilla conservation has been largely piecemeal in nature. For example, zoo support for projects tends to be short-term rather than long-term, independently coordinated by individual institutions, and biased toward basic research projects over community development, park infrastructure, habitat protection, and conservation education. With more than 100 zoos housing apes, it is time to coordinate AZA support for in situ conservation of apes and, by doing so, to obtain more "bang for the buck". In an effort to increase the level of support within AZA for in situ conservation of apes, the Ape TAG has developed a strategy for cooperative planning, support, and fundraising for ape conservation. The TAG strategy involves working with the field conservation community to identify and select a suite of priority projects that are of strategic importance for conservation and have a high probability of success. Each TAG member institution will have the opportunity to contribute at one of three membership levels and members will receive benefits commensurate with the level of investment such as field updates, financial reports, and publications. The potential to double the conservation impact through challenge grants will help AZA and its member institutions to increase and strengthen our long-term commitment to ape conservation.

Authors: Tara Stoinski (Manager of Conservation Partnerships, Zoo Atlanta and McGrath Chair of Conservation and Science, The Dian Fossey Gorilla Fund International) & Kristen Lukas (Curator of Conservation & Science, Cleveland Metroparks Zoo)
Presenter: Kristen Lukas

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Human-Wildlife Conflict: A Case for Global Collaboration

Human-wildlife conflict is a serious obstacle to conservation worldwide and is becoming increasingly prevalent as human populations increase, development expands, the global climate changes, and human and environmental factors put people and wildlife in greater direct competition for a shrinking resource base. Overlaying these factors, human-wildlife conflict is typically not just a conflict between humans and wildlife, but more so a conflict between humans about wildlife. This means that, in order to be more successful in achieving results, conservation professionals need to become more proficient at analyzing and addressing conflict on every level, as many wildlife issues at the center of conversation conflicts often serve as symbols for other conflicts that do not involve conservation directly, like struggles for group recognition, identity, and status.

Consequently, successfully addressing human-wildlife conflict requires greater interaction among disciplines and sectors not traditionally integrated in conservation programs, as well as among wildlife professionals from different disciplines, locations and institutions. As conservation is impacted by many variables in society, economic and social development organizations, land-use planners, agri-business, and other key decision-makers need to take account of conservation's agenda. Further, we realize that neutrality is a key pillar of success in our ability to bring together diverse and sometimes adversarial stakeholders in our efforts to address conservation and wildlife management conflicts. Finally, although typical academic research efforts and conservation practices have had less emphasis on the benefits of collaboration, we realize that collaboration is a cornerstone of success both in improving the effectiveness and efficiency of our work, as well as in reducing the current duplication of efforts.

The Human-Wildlife Conflict Collaboration (HWCC) is two years into addressing the practical, urgent needs in human-wildlife conflict, on both the local and global scale, through a global partnership that supports greater collaboration on human-wildlife conflict across disciplines, sites, institutions and policy areas. This presentation will focus on the motivation for creating HWCC, HWCC's history, approach and activities, and the benefits of taking a collaborative, inter-disciplinary and global approach to addressing this pervasive challenge.

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Namibian Cheetah Conservation – A model for the Future

Namibia has the largest remaining population of free-ranging cheetahs in the world (approximately 3,000), 90% of which are found on commercial livestock and game farms. The management of predators on private land is a complex, difficult issue especially when an endangered species is involved. The primary problem is conflict with livestock farming, to which there are solutions other than traditional lethal predator control. To be compatible with the survival of wildlife, new methods and policies of farm management, wildlife management and predator control urgently need to be incorporated into land management, as well as economic incentives.

Since 1991, the Cheetah Conservation Fund (CCF), a Namibia-based research and educational foundation, has been conducting integrated and multi-disciplinary research to provide baseline knowledge on the biology and ecology of the cheetah in an effort to conserve the species. In addition, CCF is spearheading commercial projects to prove that conservation can be profitable. An over-view of CCF's conservation research and education programs will be discussed.

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The 90-Second Naturalist

Since August 1987 the Cincinnati Zoo has produced a daily public radio feature on wildlife and conservation. What started as a public education program, *"The 90-Second Naturalist"* has grown over two decades into a labor of love, providing "bite size portions of the big picture of wildlife." Syndicated on 187 public radio stations across America and broadcast internationally via American Forces Radio, the show uses a minute and a half format to convey a surprising amount of information about the current state of wildlife discovery and conservation.

This presentation will explore ups & downs of using radio & television to help tell the story of wildlife.

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Scientific Tourism: Contributing to the Financial Sustainability of the Lowland Tapir Conservation Initiative in Brazil

After 11 years of conservation work with tapirs in the Atlantic Forests of São Paulo State, Brazil, we are in the process of expanding our tapir conservation efforts through a country-wide Lowland Tapir Conservation Initiative (LTCI) by establishing tapir projects in other key Brazilian biomes (Pantanal, Amazon and Cerrado). The first biome selected is the Pantanal wetland, where no tapir research has ever been conducted. Once again, our team is collecting ecological, epidemiological, and genetic data on tapirs and identifying the specific threats, conservation demands and priorities. As in the Atlantic Forest, results will substantiate the design and implementation of a specific set of conservation recommendations that will benefit tapirs, other wildlife, local communities, and the Pantanal biome. Tapirs will be used as ambassadors for conservation, catalyzing habitat conservation efforts, environmental education campaigns, capacity-building, community involvement, and scientific tourism initiatives. The scientific tourism component of the Pantanal project will create opportunities for visitors to have a once-in-a-lifetime experience, working hand-in-hand with a wildlife research team and learning about tapirs, other wildlife and the conservation challenges faced in the Pantanal. Four different scientific tourism models are proposed, offering different levels of involvement, time and experience within the LTCI. The first model - Tapirwatch in the Pantanal – is focused principally on providing zookeepers and undergraduate students with opportunities to participate actively in the Pantanal component of the LTCI by experiencing field work, scientific research, and the life and routine of a research team. The second model - Conservation Tour - will take participants to visit three Brazilian biomes (Amazon, Atlantic Forest, and Pantanal) and provide them with a firsthand look at conservation issues and the diversity of challenges that face some of Brazil's key biomes and wildlife species, especially tapirs. These first two models will focus on staff from American and European zoological institutions that provide funding for the LTCI's Pantanal Program. The third model includes zoo group visits to one of the two study areas of the Pantanal Program, both eco-tourism facilities. The LTCI research team will make a presentation about the LTCI during the group's stay and group members will spend half a day with the team in the field. The rest of the time, the group will spend with guides from the eco-tourism facilities. The fourth model will focus on guests at the eco-tourism facilities where the LTCI's Pantanal Program is operating, providing them with an evening presentation about tapirs and the opportunity to participate in the research activities for half a day. We expect this scientific tourism program to operate as a source of education and training to different segments of the public, to contribute to the financial sustainability of the Pantanal Program and last, but definitely not least, to help us establish an "army" of educators and fundraisers for tapir conservation efforts.

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Snow Leopards, Conflicts and Conservation

Conflicts with humans over livestock predation pose a serious challenge to endangered carnivore conservation worldwide and have already resulted in two carnivore species extinctions. Livestock predation conflicts are the primary threat to the survival of the endangered snow leopard. Levels of livestock predation by snow leopard are high and this translates to substantial financial setbacks for the livestock-based local economies that characterize most of this species' range.

Conflicts are characterized by complex interactions between carnivore and livestock behavioral ecology, animal husbandry, human psyche, culture, world views, and the socio-economic and education levels of affected peoples. Effective conflict-mitigation measures, therefore, need to be sensitive to these various dimensions, and need to be founded on sound research and community participation. Conflict management often requires a suite of measures that can simultaneously reduce livestock losses, efficiently share or off-set the costs of livestock depredation, and increase the tolerance of local communities towards wild carnivores.

The Snow Leopard Trust – India has developed a pilot community-based program to manage human-snow leopard conflicts, employing a combination of measures that include wild prey recovery, improvements in herding practices and community-based livestock insurance and conservation education initiatives. The insurance initiative becomes financially self-sustaining in four years. Ongoing research and monitoring of interventions allow for innovation, site specificity, and course corrections. This multi-pronged strategy has proven to be effective in managing human-snow leopard conflicts, and needs to be supported and expanded.

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Dr. Charudutt Mishra is a wildlife conservation scientist based in India. Charu has a Ph.D. in Ecology and Natural Resource Conservation from the Resource Ecology Group, Wageningen University (The Netherlands), MSc degree with distinction in Wildlife Sciences from the Wildlife Institute of India, and BSc. in Zoology from the University of Delhi. He is one of the founders of the Nature Conservation Foundation, established in 1996 to promote science-based, socially-responsible wildlife conservation in India. Between 2002 and 2008, he served as the Foundation's Executive Director and also headed the India Program of the Snow Leopard Trust. Charu's chief academic interests are an understanding of pastoralism and resource use, human impacts on wildlife, ecology of human-wildlife conflicts, large herbivore community ecology and carnivore ecology. He serves on the editorial board of the journal Animal Conservation. Charu is a recipient of the Whitley Gold Award in 2005 and the Golden Ark Award in 2008.

Charu dedicates time and effort to extend conservation science for societal welfare, on-ground conservation, and policy. His recent work involves setting up community-based wildlife conservation and conflict-resolution programs, conducting research and exploration, teaching and guiding Ph.D. students, and working with governments to set up wildlife reserves and formulating conservation policy. He was also involved in post-conflict wildlife assessments in Afghanistan on behalf of the United Nations. Expeditions led by him in Arunachal Pradesh led to the discovery of the Arunachal macaque *M. munzala*, a primate new to science.

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Macaws Without Borders

For the past eight years, ARCAS has been working under a loose coalition called Macaws Without Borders to protect the last remaining scarlet macaws in the Maya Biosphere Reserve. The coalition is tri-national (Mexico, Belize and Guatemala), though most of the birds and nesting sites remain in Guatemala. There are an estimated 300 scarlet macaws remaining in the wild in Guatemala and another 300 in Mexico and Belize. Roughly one month ago, ARCAS conducted a workshop with the Wildlife Conservation Society and the National Council of Protected Areas in Peten, trying to develop a strategy for saving the macaws. The resulting strategy focuses first on protecting wild nests (third chick withdrawal, predator control, etc), and then, if necessary, wild population reinforcement using captive-bred birds.

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SEE Turtles: Promoting Sea Turtle Protection Through Conservation Tourism

The joy of seeing a sea turtle in the wild leads to inspiration and the desire to help. Sadly, six out of seven species of sea turtles around the world are in danger of extinction due to poaching (meat, eggs, and shells), entanglement in fishing gear, coastal development, pollution and other threats. In many places, people depend on these activities to earn income from the sale of meat and eggs or fishing in turtle hotspots. Around the world, sea turtle conservationists are working to find viable economic alternatives to poaching and destructive fishing practices. One of the most promising alternatives for these communities is bringing visitors to turtle sites to participate in conservation efforts.

If properly managed, a modest conservation tourism program can provide a significant boost to local efforts. Tourism jobs such as tour guiding are replacing income from the sale of turtle eggs and meat or fishing in many places. Income from tourist fees helps to diversify funding for small-budget conservation projects. Tourist volunteers provide a critical source of manpower to many projects and can help monitor areas with high rates of poaching. Tourism is often used as a tool in efforts to designate protected areas, as in the case of a loggerhead turtle refuge currently proposed in Baja California Sur, Mexico. In addition, seeing turtles in the wild inspires many people to become more involved in conservation efforts.

SEE Turtles, a new Ocean Conservancy project, is connecting travelers with unique opportunities to directly reduce threats to turtles through participation in Latin America and Caribbean conservation efforts. Through a comprehensive selection process, our team has identified turtle sites that are critical to conservation efforts, where a modest increase in tourism can reduce poaching and by-catch of sea turtles. At these sites, conservation tourism provides an economic alternative to poaching and fishing, provides income to small-budget projects, and builds a constituency for ocean conservation efforts.

The affinity travel market is growing in size and importance, and an increasing number of zoos and aquariums offer travel opportunities for their members. Through partnerships with local and regional conservation groups and tour operators in Costa Rica, Baja California, and Trinidad and Tobago, SEE Turtles can help travel programs craft visits that will result in concrete benefits for local efforts, while providing unique and unforgettable experiences for members. Our staff can either make introductions to high quality tour operators with reputations for sustainability in each region or work with operators to include our partner sites in existing itineraries. We can also provide support in marketing and best practices for turtle viewing.

This presentation features community-based sea turtle conservation efforts in each site that requires financial support to build capacity, expand fieldwork, and engage more members of the community.

Brad Nahill has a B.S. in Environmental Economics from Pennsylvania State University. He is manager of the SEE Turtles project as well as Foundation Relations Manager for Ocean Conservancy. Previously, Brad worked with RARE, an international conservation organization, on a project that created community-based ecotourism enterprises in World Heritage sites around the world. He spent several years in Costa Rica, working at four nesting beach protection sites and with several ecotourism companies, including EcoTeach and Costa Rican Adventures. In addition, Brad has worked as a teacher/naturalist at the Academy of Natural Sciences and Riverbend Nature Center, both located in Philadelphia.

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Overview of the Sahara Conservation Fund

The Sahara Conservation Fund (SCF) was established for the charitable, scientific and educational purposes of conserving the wildlife, habitats and other natural resources of the Sahara desert and bordering Sahelian grasslands. SCF works toward a vision of a Sahara that is well conserved and managed, in which ecological processes function naturally, with plants and animals existing in healthy numbers across their historical range; a Sahara that benefits all its inhabitants and where support for its conservation comes from stakeholders across all sectors of society.

To implement its mission, SCF forges partnerships between people, governments, the world zoo and scientific communities, international conventions, non-governmental organizations and donor agencies –a powerful network with a common goal: the conservation of deserts and their unique natural and cultural heritage. Established in 2005 and incorporated in the State of Missouri in 2007, SCF has small operational bases in Europe and the United States. The St. Louis Zoo Friends Association acts as custodians for donations and grants received in the US. Our current sponsors and partners come from a broad cross-section of institutions that includes zoos, international organizations, technical agencies and NGOs. Collectively, we firmly believe that this is likely to be the last chance we have to save an entire assemblage of desert-adapted species from extinction.

In what many are calling a "silent extinction", the large birds and mammals of the Sahara are facing an unprecedented crisis. To address this, SCF's programme is based on three interrelated themes: 1) conservation of existing wildlife populations in Africa; 2) captive-breeding and subsequent reintroduction of key species; and 3) communicating the value of deserts and the crisis facing their natural resources. The number one threat to Saharan wildlife is over-hunting. Decades of unsustainable use have brought many species to the brink of extinction. One, the scimitar-horned oryx, is already gone, with others sure to follow if nothing is done. SCF's top priority is saving and protecting what remains.

SCF believes that conservation should be of tangible benefit to people and also be within their power to implement. To succeed, conservation must meet human aspirations, be they spiritual, aesthetic or more down-to-earth, such as the need for food or income. Whilst campaigning vigorously against unsustainable use, SCF strives to find solutions that will allow people to draw benefit from their natural resources while ensuring that their long-term survival does not suffer. For desert dwellers, especially, the continued existence of healthy populations of wild plants and animals is an integral part of their finely-balanced livelihoods. Desert antelopes and gazelles are highly productive on rangelands which are too sparse for livestock on a permanent basis. Restoring healthy wildlife populations has major ecological benefits whilst contributing to the diversification and strengthening of pastoral economies.

In a world where tourism is a growing fast, deserts also have significant potential due to their unparalleled scenic grandeur and cultural diversity. SCF is striving to ensure that the world's deserts are indeed 'living deserts', with a rich mix of wild plants and animals and that through tourism, local people can access and benefit from the economic potential that it represents.

<u>What SCF does</u>

- implements projects on the ground to save and conserve wildlife
- carries out wildlife inventories, conservation assessments and censuses

- helps countries to plan and prioritize conservation action
- trains local conservation staff and students in conservation methodology
- develops community support for conservation
- lobbies governments for the sustainable use of wildlife
- communicates the value of deserts and fundraises to implement its mission and projects
- contributes actively to international efforts and conventions in favor of deserts
- builds networks, partnerships and information-sharing on desert conservation
- conducts research on desert wildlife and conservation biology

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Health In Harmony: Using Healthcare Incentives to Promote Conservation of Bornean Orangutans

Health In Harmony is testing a novel and promising approach to conservation through its *Alam Sehat Lestari* program in West Kalimantan, Indonesia. The goal of the program is to protect Gunung Palung National Park, the home to a natural population of orangutans representing 5-10% of the species, a conservation area for a rich diversity of lowland hardwood tree species and peat swamps, and a vital watershed for surrounding communities. Despite the park's undisputed conservation value, local poverty, poor health, and environmental destruction comprise a continuous cycle that threatens orangutans and Gunung Palung's other biological riches. Over 40% of the park's lowlands have been lost to illegal logging in the last two decades, as the park bureau is understaffed to protect it. It is imperative that local communities, whose health and livelihoods are also dependent on the protection of the national park, be encouraged and enabled to help conserve it. This project attempts to accomplish that goal by two means. First, a high standard healthcare clinic has been established in a village bordering the park. All villagers are welcome at the clinic, but communities that are protecting their borders with the national park from illegal logging are given extra healthcare rewards, including discounts at the clinic, monthly mobile clinic visits, and discounted ambulance service. Second, healthcare patients or their families can pay for medical services at the clinic with work on conservation-promoting projects, like an organic farm, seedling nursery, and reforestation activities in damaged parts of Gunung Palung. In its first year, the program has treated 4,000 patients and met with communities bordering the park to enlist their participation in building the conservation incentive system. The local response has been extremely positive. The *Alam Sehat Lestari* program has great potential to break the cycle that links poverty, sickness, and forest destruction in and around Gunung Palung.

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Dr. Hotlin is the Program Manager and Dentist. Dr. Hotlin comes originally from Sumatra. She has four years experience working for the Indonesian government in a rural part of Sumatra, she coordinated medical and dental teams after the Tsunami in Aceh, and lived in England for one year doing a Diploma in community development and higher education. Before working with us she was the director of a mobile clinic on a boat in Southern Sumatra for two years as well as working as a dentist on this boat. She feels that her role in life should be to assist the poor and is excited to be part of a project where she is doing community development as well as practicing dentistry.

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Carbon Offsetting: New Territory for Zoos and for Wildlife

Sabah, located in northern Borneo, is one of 13 states in the Federation of Malaysia. The Kinabatangan River, the largest river in Sabah, flows from the Crocker Mountain Range to the Sulu Sea, supporting diverse habitats such as riverine forest, mangrove swamps and oxbow lakes along the way. Most wildlife species that occur in Borneo are found in Sabah, including 170 species of mammals, 550 species of birds, and hundreds of reptiles, amphibians and invertebrates. Currently, primary forests in the state of Sabah represent less than 10% of the land area. Forest conversion to agriculture (mainly oil palm plantations) has been the major cause of deforestation during the past few decades. In 2005, ten lots of highly degraded forest along the Lower Kinabatangan River became the Lower Kinabatangan Wildlife Sanctuary (LKWS), the first protected area managed by the Sabah Wildlife Department. It is within LKWS that the Kinabatangan Forest Restoration project is based.

As governments, corporations and individuals around the world work to address the impacts of climate change, zoos and aquariums find themselves uniquely positioned to offer solutions that are mutually beneficial to people and wildlife.

Footprints, an environmental program recently launched by the Philadelphia Zoo, is a three-pronged approach to sustainability designed to allow the Zoo to lead by example in wildlife conservation and greening initiatives. Included in the Footprints program is a portfolio of reforestation-based carbon offset projects, the largest of which has been developed in Borneo with the Philadelphia Zoo's conservation partner, Hutan. Trees planted in the initial phase of the "Kinabatangan Forest Restoration Project" will sequester more than 5,000 tons of carbon dioxide over the course of their lifetime, while providing critical habitat for the endangered Bornean orangutan, pygmy elephant and other indigenous species. In addition, the project provides a valuable source of income for local community members in exchange for tree-tending services; thus seeding a livelihood that depends upon the health of the forest and fostering long-term project sustainability. The carbon offset strategy utilized in Borneo represents a new capacity-building tool that is also useful in educating zoo and aquarium audiences about the importance of reducing global warming. By offering tangible *in situ* and *ex situ* opportunities for action that are effective and relevant, this model unites the needs of people and wildlife, creating an umbrella under which both are served.

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Establishing Invertebrate Colonies in Response to the Global Amphibian Crisis: Partnerships in Conservation

Responding to a drastic decline in amphibians, AZA institutions and conservation organizations are actively sending staff and volunteers to Panama where a fatal fungal disease is wiping out entire populations of frogs and toads. Volunteers and local biologist have begun to set up in-country, *ex situ* amphibian breeding programs. As the numbers of rescued amphibians grow, biologist are spending more of their time capturing the hundreds of insects needed to feed their expanding colonies. With little or no knowledge of invertebrate husbandry available locally, Panama project personnel eagerly accepted an offer from the Roger Williams Park Zoo to help establish captive insect colonies using local species and share invertebrate husbandry techniques.

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Wattled Crane Recovery Program: An Example of a Successful South African Conservation Partnership

The wattled crane (*Grus carunculatus*) is a strictly African species with three main populations found in south-central Africa, Ethiopia and South Africa respectively. Although globally classified as Vulnerable the South African population is currently listed as Critically Endangered. In 1996 the total *in situ* population of wattled cranes was estimated at between 13,000 and 15,000; however more recent surveys now estimate the total wild population at roughly 7,700 individuals. Some of the greatest losses of wattled cranes have occurred in South Africa where a 38% decline in just two decades has left the South African population facing an extremely high risk of extinction in the wild. Historically, wattled cranes once flourished throughout South Africa, however, a crane census conducted in 2004, found only 235 individuals remaining in a vastly restricted range; with the main concentrations occurring in KwaZulu-Natal and the Mpumalanga Highlands. Recent genetic studies indicate that the South African wattled crane population is genetically unique, different from populations that occur in other African regions. All relevant conservancies now recommend that South African wattled cranes be managed as a distinct population.

The creation of the Wattled Crane Recovery Programme (WCRP) was one of the priority actions identified at an IUCN Population and Habitat Viability Assessment workshop conducted in July, 2000. The aims of the WCRP is to prevent the local extinction of the wattled crane in South Africa through two main objectives: 1) the maintenance of a captive breeding flock to serve as a genetic reservoir in the case of catastrophic extinction of birds in the wild; and 2) supplementation of the wild population through the release of captive-reared fledglings into existing wild flocks. The Wattled Crane Recovery Programme is a member of the IUCN/SSC Re-introduction Specialist Group and is a branded conservation project of the World Association of Zoos and Aquariums (WAZA). Four main partners drive the program including the Johannesburg Zoo, The Endangered Wildlife Trust, the African Association of Zoos and Aquaria (PAAZAB), and the Ezemvelo KwaZulu-Natal Wildlife (eKZNW). Additionally, ten captive management facilities participate in the *ex situ* breeding program.

Ex situ population management, financial support and administrative management for the program are provided by the Johannesburg Zoo. The Endangered Wildlife Trust's South African Crane Working Group (a South African conservation NGO), addresses all the *in situ* aspects of the program including, monitoring the wild population, marking power lines to prevent crane collisions, working with local people to promote crane conservation and lobbying for legal protection of the species and the wetlands upon which it depends. Ezemvelo KwaZulu-Natal Wildlife, the local conservation authority, facilitates the regulatory process for the programm and retains full ownership of the breeding stock. The African Association of Zoos and Aquaria provides management and conservation ethic for the participating facilities. Ten captive management facilities throughout South Africa house and care for the breeding stock including; Amazona Endangered Parrot Breeding Facility, Hlatikulu Crane and Wetland Sanctuary, Johannesburg Zoo, Mitchell's Park Zoo, Montecasino Bird Gardens, National Zoological Gardens, Treehaven Waterfowl Trust, Tygerberg Zoo, Umgeni River Bird Park and Zeb-dy-El Farms and are comprised of zoos, wildlife sanctuaries, bird parks, wildlife trusts and private avian breeders. Further affiliations have been developed with the International Crane Foundation, the African Cranes, Wetlands & Communities Programme, the Mpumalanga Parks Board, Chester Zoo and the Henry Doorly Zoo.

This paper will discuss all aspects of the Wattled Crane Recovery Programme including the collection of abandoned eggs from the wild, puppet-rearing to ensure appropriate imprinting, *ex situ* population management and supplementation of captive-reared fledglings into existing wild populations, with a strong focus on the roles and successful collaboration of all the parties including zoos, zoological associations, governmental agencies, non-governmental organizations, field biologists, sanctuaries, and private avian breeders.

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Jeanne Marie Pittman is a certified veterinary nurse residing in South Africa and employed by the Johannesburg Zoo as the coordinator for the Wattled Crane Recovery Programme, a conservation partnership aimed at preventing local extinction of the critically endangered wattled crane through the release of captive-reared fledglings into existing wild populations. Jeanne Marie's long-standing interest in conservation medicine led to her involvement with a number of African conservation projects including the Okavango Delta Crocodile Research Project, the Mabula Ground Hornbill Project, the Endangered Wildlife Trust's, South African Crane Working Group and the South African Vulture Study Group. Jeanne Marie spent nearly 30 years gaining experience in conservation and wildlife medicine in private practice, sanctuaries, endangered species breeding centers and zoological institutions throughout the United States. Prior to moving to Africa in 2003, Jeanne Marie was employed by the International Crane Foundation in Baraboo Wisconsin as part of the support team for the Whooping Crane Eastern Partnership's Ultralight Migration Project. In 2008, Jeanne Marie Pittman was the first ever recipient of the Bernard Harrison Conservation Award for Best Professional Practice for her efforts toward preventing the local extinction of South Africa's Wattled Crane.

Ransom, Chris and Celine Devos
Zoological Society of London

Mikongo Conservation Centre: a responsible approach to conservation through ecotourism in Gabon

Mikongo Conservation Centre was founded in Lopé National Park in 1999 and has been managed by the Zoological Society of London (ZSL) since 2005. The project aims to develop ecotourism to benefit park management and local communities through employment, park fees and capacity building. Concurrently, the project's experienced team of local trackers is habituating western lowland gorillas in the hope that gorilla-based tourism will ultimately generate high revenues to benefit conservation. Though pressures from park authorities and tour operators are high, a responsible approach to this type of tourism is necessary. Monitoring of gorilla behaviour and gorilla and human health to evaluate and minimise the impact of repetitive habituation trials is therefore an integral part of the project. We will demonstrate how conservation organisations can play an important role in helping protected area ecotourism projects meet their conservation and social goals.

Dr. Gay E. Reinartz
Zoological Society of Milwaukee

Bonobo and Congo Biodiversity Initiative

Wild bonobos (or pygmy chimpanzees) are found in the heart of Africa – only within the country of the Democratic Republic of Congo. Because they live deep in the rain forest and because of their elusive nature, no one knows exactly how many bonobos once existed in the wild, but scientists now estimate that between 20,000 and 50,000 are all that remain. Their populations have been ravaged by war, poaching and the black market pet trade. Bonobos are currently listed as Endangered on the IUCN Red List.

Their home, the Democratic Republic of Congo, is a country of vast differences - rich in biodiversity and natural beauty but poor in infrastructure, government and economy. Within this volatile environment, everything is inter-connected: the bonobos share their space deep in the rain forest not only with a myriad of other wildlife species but also with the local people. The local struggle for food and stability has an enormous impact on the bonobos' struggle for survival.

In response to the growing need for conservation of the bonobo, Dr. Reinartz and the Zoological Society of Milwaukee created the Bonobo and Congo Biodiversity Initiative (BCBI) in 1997. Eleven years later, the BCBI has grown into a multi-faceted conservation program that addresses the many sides of conservation and seeks to treat causes rather than symptoms. The BCBI now incorporates activities such as guard patrols, agricultural cooperatives and literacy programs in order to help reduce threats to the remaining bonobo populations and to help conserve the species for future generations. Dr. Reinartz spends six months out of every year conducting field research, surveys, and conservation activities in the Salonga National Park.

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Partnering to Save a Species: The Amphibian Project Team Experience

Emerging Wildlife Conservation Leaders is a two-year program designed to provide participants with the experience of implementing a conservation project. Through this program, five young professionals from the private, public and non-profit sectors were brought together to work with the Amphibian Ark in their efforts to save the 500 most endangered amphibians. Our project was designed to raise awareness in the United States of the amphibian extinction crisis with a web-based distribution of educational materials to schools (www.helpafrog.org). Simultaneously, we intended to raise funds for one range-country institution to develop an *ex situ* conservation program for a critically endangered species. This project is intended to serve as an example for AZA institutions, a successful partnership with a range-country institution to provide the necessary resources and support if the Amphibian Ark is to achieve its goals. This presentation describes our experience, successes and failures, and will hopefully inspire the development of future partnerships in amphibian conservation.

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Carol Rizkalla is a research fellow in wildlife biology at Disney's Animal Kingdom.

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North American Zoos and the Cell Phone Recycling Program

By the end of 2008, it is estimated that 130 million cell phones will be discarded annually in the United States, with 75% ending up in landfills where toxins like lead and arsenic can leach into groundwater. This number is in addition to the estimated 700 million cell phones that are currently stockpiled in American homes. In addition to the toxins, the manufacturing of cell phones contributes to the decline of wildlife. An ore called Coltan (columbite-tantalum) is a source of the element tantalum, an essential coating for cell phone components. This ore is most readily mined in the Congo, often within endangered gorilla and elephant habitats. These animals are routinely killed by rebel bands operating in the mining regions. The United Nations reports that, in the past five years alone, the eastern lowland gorilla population in the Congo has declined 90%. Reducing the demand for Coltan will help save these animals and their habitats.

ECO-CELL made North American zoos the focus of its program for two reasons:

1. Public Impact: Zoos and Aquariums are in the best possible position to collect large quantities of cell phones given their incredible volume of visitors drawing 134 million visitors each year, more than the NFL, NBA and major league baseball combined!

2. Conservation and Education: The idea is to provide our Zoo partners with a program that enables their visitors to recycle old cell phones, learn about the connection between consumerism and wildlife conservation, and generate funds for the protection of species like gorillas.

The response to this recycling effort has been tremendous. To date, ECO-CELL has partnered with over 100 zoos and aquariums, estimating that the zoo program has already recycled over 100,000 phones and raised well over $100,000. Most of the money raised has been for conservation programs. ECO-CELL has a strict no landfill recycling policy. All types of phones are accepted, regardless of age or condition, along with the accessories and extra batteries that accompany them. UMICORE (www.umicore.com) recycles the end of life phones that ECO-CELL receives.

Rossignol, Terry
Refuge Manager
Attwater Prairie Chicken National Wildlife Refuge

The Attwater's Prairie Chicken – The Return of a Native

Numbering up to an estimated million individuals over a century ago, the Attwater's prairie chicken (*Tympanuchus cupido attwaterii*) is one of the most endangered birds of North America with less than 75 individuals estimated in the wild in 2008. Destruction of its coastal prairie habitat has been the primary cause for this grouse's decline. The Attwater's once roamed 7 million acres of coastal prairie from the Nueces River in Texas to Bayou Teche in southwestern Louisiana. Today, less than 1% of this unique habitat remains, much of it highly fragmented. Recovery of this bird is dependent on coastal prairie habitat management, enhancement, and protection and a successful captive breeding and release program that were initiated during the 1990s. Although the U. S. Fish and Wildlife Service has ultimate responsibility for recovery of this grouse, it is only through a continued spirit of cooperation and partnership from state and federal agencies, conservation organizations, private landowners, academia, corporate entities, zoological groups, and concerned citizens that recovery of the Attwater's will be realized.

Terry Rossignol – A 25-year employee with the U. S. Fish and Wildlife Service, Terry has served at 7 national wildlife refuges throughout the southwest and is currently Refuge Manager at the Attwater Prairie Chicken National Wildlife Refuge (60 miles west of Houston) and Team Leader for the Attwater's Prairie Chicken Recovery Team since 1996. Terry received a Bachelor of Science degree in Wildlife Ecology from Texas A&M University in 1985.

Russell, Samantha
African Conservation Centre
South Rift Association of Land Owners

(Samantha Russell and John Kamanga)

Collaborative Community-Based Research for Conservation in the Southern Rift Valley, Kenya

For centuries the nomadic Maasai pastoralists have lived in relative harmony with their environment. Traditional seasonal movements meant that wildlife were free to roam with the livestock in search of water and pasture. Fences and permanency were not part of the culture. The South Rift valley of Kenya is one of the few areas left where strong traditional values still prevail. The main bulk of the area remains communally owned and governed, with mobility still being key to the success of both the wildlife and livestock in the area, and ensuring sustainability of livelihoods of the conservative pastoral community. Despite being outside of any protected area, wildlife is abundant, and the area hosts a particularly high diversity of carnivores.

Recognizing that there was little existing documentation or research on natural resources and wildlife in the area, community leaders in Olkiramatian and Shompole approached the African Conservation Centre (ACC) to help them establish baseline data on biodiversity, resources, and land-use options needed to assist with the future planning and management of the area. In collaboration with the South Rift Association of Land Owners (SORALO), who represents the wider South Rift communities and is overseeing the development of research in the region, ACC has helped establish a uniquely integrated ecological monitoring system, currently implemented in the Olkiramatian and Shompole group ranches. The system simultaneously captures wild ungulate, livestock and carnivore densities, distributions and behavior in relation to critical resources such as vegetation and water, against a backdrop of a variety of land uses. Socio-economic and anthropological investigations also form part of the monitoring. These research efforts are undertaken in close collaboration with the local communities, with much of the effort being undertaken by local community members who have been trained in the various monitoring techniques.

In March 2008, SORALO went a step further to commission a natural resource center in the South Rift, which is in its preliminary stages of development. The center forms the base for the coordination of research efforts and a conduit that renders the results accessible to the local communities, while acting as an income base for the local Maasai women. The South Rift is an impressive example of collaboration and integration between researchers, institutions, communities and disciplines. Well-integrated, community-based research is a vital tool for conservation and the South Rift provides the perfect setting for such an approach.

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(Estelle Sandhause and Joseph Brandt)

A Pilot Year of Nest Guarding Results in Maximizing Nesting Success in a Reintroduced Population of California Condors

Nest failure is a primary limiting factor to population viability in the reintroduced southern California population of California condors, *Gymnogyps californianus*. Many of the factors linked to nest failure were previously only partially documented or are poorly understood as to mechanism and timing. Beginning with the 2007 season, we implemented a multi-institutional nest guarding program in southern California with the goals of: 1) immediately increasing nesting success; and 2) more precisely identifying the stages at which and mechanisms by which nesting attempts are breaking down so that we can ultimately address the factors contributing to failure with long-term solutions. The program consists of: 1) nest monitoring by trained observers, during which quantitative behavioral data are collected; 2) scheduled nest entries, during which morphometric, physiological, and behavioral data are collected; and 3) intervention strategies, which are implemented to prevent nest failure. The increase in nest success from a 6-year mean of 12.5% (range of 0-33%) to 100% in the pilot year of our program suggests that nest guarding is a valid short-term strategy to increase nest success in this critically endangered species, and highlights a successful local partnership between a zoo and a governmental agency.

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Estelle Sandhaus received her B.S. in Animal Physiology and Neuroscience at the University of California at San Diego. Upon completing her degree, Estelle began graduate work at the Center for Conservation and Behavior at the Georgia Institute of Technology. While at the Center, she organized and managed a number of collaborative research projects on endangered and vulnerable animal species at Zoo Atlanta and the Chengdu Research Base of Giant Panda Breeding. She completed her M.S. on captive giant panda feeding behavior and is completing her Ph.D. work on California condor social behavior. Estelle came to the Santa Barbara Zoo in 2006 to develop, implement, and coordinate the zoo's in situ conservation programs and scientific studies involving the animal collection.

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Research and Eco-tourism: Mutually Beneficial?

There is little doubt that sound scientific research and monitoring play an important role in the conservation of wildlife populations in natural areas, especially in more confined areas such as private game reserves, which have increased tremendously over the past decade within southern Africa. Private game reserves are, however, often managed with eco-tourism as the main objective and, although some form of research may be conducted on the property, it is generally perceived to be overly expensive and too time consuming, with little or no benefit to the eco-tourism operation. Eco-tourism ventures are therefore inclined to disapprove of, or give little support to, wildlife research if it does not pay its way.

The Mashatu Game Reserve, which covers 25,000 hectares in Botswana's Northern Tuli Game Reserve, is a luxury safari destination that has managed to successfully unite research and eco-tourism. Two wildlife researchers, who work on the Central Limpopo River Valley Elephant Research Project and the Northern Tuli Predator Project, have been integrated with the eco-tourism activities by providing visitors the opportunity to accompany them on 'research-drives', where time is spent in the field with the various study animals. These research-drives are mutually beneficial to both research and eco-tourism: The lodge benefits directly by offering this unique activity, which enhances the wildlife experience of visitors and consequently increases the occupancy, which the lodge enjoys. Indirectly the reserve is provided with recommendations, based on scientific data, on how to conserve and manage its wildlife populations, ensuring the persistence of these populations and therefore the long-term sustainability of the eco-tourism venture. The main benefit to the researcher is lodge support in the form of food, accommodation and logistical assistance, as well as supplementary funding through an additional sum charged for research-drives, which goes directly towards his or her project.

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(David Shepherdson and Michael Illig)

Recovering the Columbia Basin Pygmy Rabbit: It Takes a Warren

The isolated Columbia Basin pygmy rabbit has been endangered in Washington State since 1993. It received emergency federal endangered status in November 2001 and permanent listing as an endangered species on February 20, 2003. Since 2000, the Oregon Zoo has been working with Washington Department of Fish and Wildlife, the United States Fish and Wildlife Service and other partners to develop husbandry techniques and successfully breed pygmy rabbits in captivity for reintroduction to their native habitat. The Zoo bred surrogate Idaho pygmy rabbits in 2000-2001 (the first successful captive breeding of this species in captivity) and received Columbia Basin pygmy rabbits in 2001 to begin a captive breeding program. Using the protocols developed at the Oregon Zoo, the Northwest Trek Zoo and Washington State University subsequently joined the rearing program and an additional 11 rabbits were captured from the wild for a founding population size of 16. Building a large enough captive population to provide a surplus for release has been challenging. The rabbits are difficult to breed and post-natal mortality has been high. In en effort to remedy possibly inbreeding related mortality, the decision was made to hybridize the rabbits with the parent population of Idaho pygmy rabbits. Some hybrid vigor was noted as a result, but the problem of high mortality continues. Twenty-two rabbits were released back into the wild in 2007, but either succumbed to predation or were recaptured due to nutritional stress. Current research focuses on behavioral, environmental and physiological questions. This program has only been possible due to wide ranging collaborations between key state and federal agencies, zoos in the Pacific Northwest, the AZA, Washington State University, Portland State University, the National Zoo, foundations such as the Foley/ Frischkorn Conservation fund and many other governmental and non-governmental organizations. This is a program of the NW Zoo & Aquarium Alliance.

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Dr. David Shepherdson is the Deputy Conservation Division Manager at the Oregon Zoo. He has a Ph.D. in behavioral ecology. In addition to conducting research on behavior and well-being in zoo animals, he has for the last 12 years been responsible for initiating and coordinating the Oregon Zoo's field conservation programs. These include captive breeding programs for the California condor and Colombia Basin pygmy rabbits and captive-rearing and release programs for the western pond turtle and Oregon spotted frog. David is co-chair of the NW Zoo & Aquarium Alliance Species Recovery group.

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Bornean Sun Bear Conservation

The Malayan sun bear *(Helarctos malayanus)* is the smallest of the world's eight species of bear and also one of the least known. Originally found throughout Southeast Asia, its numbers are fast diminishing and Borneo is now one of its last remaining strongholds. However, habitat loss and degradation, along with illegal hunting for food and medicines and poaching for small cubs, has resulted in many orphaned and captive sun bears, which are living in sub-standard conditions with no access to outdoor areas and no hope for returning to the wild. The Borneo Sun Bear Conservation Centre (BSBCC) is an initiative developed jointly by the Sabah Wildlife Department, Sabah Forestry Department and LEAP (Land Empowerment, Animals, People), and will be established adjacent to Sepilok Orangutan Rehabilitation Centre near Sandakan, on Sabah's east coast. The objectives of the BSBCC are to promote sun bear conservation in Sabah by creating the capacity to rehabilitate and release suitable orphaned and ex-captive bears back into the wild; provide an improved long-term living environment for captive bears which cannot be released, and educate the public about this species. The BSBCC will also serve as a base for sun bear research in Sabah. The BSBCC is currently in its development phase and seeking funding for the construction of new bear houses and fencing for natural forest enclosures, as well as for staffing and operation costs. This paper will cover the latest developments on the ground and why it is so important to secure a long-term future for these charismatic jungle-dependent mammals.

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For the last 10 years, Siew Te Wong has been studying sun bear ecology and working toward this species' survival. Wong is one of only a few Malaysian wildlife biologists who has received academic training in western nations. He earned his B.Sc. degree and M.Sc. degree at the University of Montana in Missoula and is pursuing his doctoral degree there as well. Wong is the former co-chair of the Sun Bear Expert Team, under the IUCN/SSC Bear Specialist Group.

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(Michael Stern and Rebecca Goldstone)

Zoo-Funded Community Conservation: A Case Study from Uganda Focusing on Long-Term Sustainability

The Kibale Community Fuel Wood Project has been active in Uganda since June 2006. Its primary goal is to protect the wildlife of Kibale National Park while addressing the needs of villagers living along the protected area's boundary. To this end, comprehensive education, stove building and tree planting campaigns have been established. This presentation examines the first- and second-year evaluations undertaken by the project, comparing data to the baseline information that was collected. The transition from ex-patriot leadership to local leadership is detailed, while also highlighting the differences between the project and other tree planting/stove building programs, and demonstrating why these differences may lead to greater long-term sustainability of the work.

More than 20 zoological organizations have supported this project financially. Long-term success will require not only financial support, but commitment from institutions that can supply volunteers, expert advice, and oversight to assist the dedicated Ugandans that are currently working to protect their natural heritage.

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Michael Stern and Rebecca Goldstone are from Philadelphia, and first traveled to Uganda as undergraduate researchers. In 2001, they founded the Kibale Forest Education Project, which slowly evolved into the current project. They have spent nearly three of the past eight years living in Kibale National Park. Since the local community has taken on greater responsibility for running the Kibale Community Fuel Wood Project, they are now associated with the Apoka Safari Lodge in Uganda.

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Dzanga Forest Elephant Study Central African Republic

Naturally occurring clearings in the forests of the Central African region provide unique settings to study the behavior of animal species for which - until recently - little was known. In 1990 the first long-term study of the forest elephant, *Loxodonta cyclotis*, was initiated at the Dzanga Clearing, located in the Dzanga-Ndoki National Park in southwestern Central African Republic. This clearing, abundant in mineral deposits, attracts high densities of forest elephants where between forty and one hundred elephants are observed on any given day. Other species of forest mammals such as bongo (*Tragelaphus euryceros*), sitatunga (*Tragelaphus spekei*), giant forest hog (*Hylochoerus meinertzhageni)*, red river hog (*Potamochoerus porcus*), forest buffalo (*Syncerus caffer nanus*), western lowland gorilla (*Gorilla gorilla gorilla*), several species of monkey, duikers and numerous bird species are also observed on a regular basis.

This study, now in its eighteenth year, provides full-time monitoring and data collection on several aspects of forest elephant ecology including demographics, social and reproductive behavior, biometrics, genetics and bioacoustics. The basis of this study is the identification of individual elephants whose lives are monitored on a daily basis. At present, more than 4,000 elephants have been identified frequenting Dzanga, more than any other previous study of either savannah or forest elephant. Data on other mammal species observed in the clearing is collected making Dzanga an invaluable tool in the monitoring of forest mammals.

Aside from providing excellent venues for research, forest clearings also serve as powerful protection tools. In the case of Dzanga, the presence or absence of animals is the first indicator of poaching pressure in the area. This information is used in reinforcing protection of sensitive areas around the clearing in the form of intensified guard patrols. Clearings, when monitored on a regular basis, provide the best deterrent to poaching and human disturbance where guard patrols are labor intensive and under funded. Forest clearings also provide opportunities for local employment and revenue generation by development as tourism sites. With unimpeded observation, these are the best areas for game viewing in protected areas. Known internationally, Dzanga attracts clientele from both Europe and the United States.

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Andrea K. Turkalo, an American citizen, has been a resident of the Central African Republic for the last 25 years. She arrived there as a Peace Corps Volunteer, first working as a high school biology teacher and then conducting research on savannah elephants in northern Central African Republic. For the last 18 years she has conducted field studies based on direct observation of forest elephants at the Dzanga Clearing in southwestern Central African Republic. Assisted by two Bayaka (Pygmy) research assistants, the study is based on the identification of individuals of which, to date, more than 4,000 have been identified. The most recent aspect of research at Dzanga is the study of forest elephant communication which is being done in collaboration with the Cornell University Laboratory of Bioacoustics. Turkalo records forest elephant vocalizations for compilation of a forest elephant lexicon to be used in the interpretation of remote recordings.

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(C. Walzer, P. Kaczensky, O. Ganbaatar and C. Stauffer)

Beyond Success – The Next 50 Years for the Przewalski's Horse in the Gobi Region of Mongolia

The Przewalski's horse (*Equus f. przewalskii*) – or "P-horse" - was extinct in the wild by the mid-1960s. The species only survived due to captive breeding from 13 founder individuals. In 1992 a reintroduction program was initiated in the Great Gobi B Strictly Protected Area in southwestern Mongolia. During its initial years, the project concentrated exclusively on P-horses. In the past decade activities have expanded significantly.

The project history can be summed up as follows: 1) species is extinct in the wild; 2) severe bottleneck; 3) practically no ecological data prior to extinction; and 4) released into an extremely harsh, highly variable and poorly understood environment. By the late 1990s, project leadership and management was overhauled, with research and scientific data firmly integrated into the decision-making process. Early scientific input concentrated on determining causes of death and low reproductive rates. Elucidation of the effects of endemic piroplasmosis on the population and subsequent management changes led to remediation of this deadly problem. P-horses have been fitted with ARGOS and GPS-ARGOS collars in order to determine home range and habitat preferences. Simultaneously, the Mongolian wild ass and the wolf have been studied with these methods in shared habitat. Satellite-based technologies provide the backbone for all habitat-related project issues. At the onset, data collection was restricted to the eastern part of the Gobi B. Subsequently, the spatial scale encompasses the entire Gobi Region in Mongolia and Northern Xingjian in China. Research has also focused on the role, needs and possible impacts of local semi-nomadic herders that use the protected area. Capacity building and training workshops (e.g. construction of fuel efficient stoves, felting) have been initiated. In 2007, a trans-boundary project in collaboration with the Xingjian Institute of Ecology and Geography of the Chinese Academy of Sciences was initiated. This project aims to support rural communities of nomadic pastoralists living in the trans-boundary area of the Dzungarian Gobi, in China and Mongolia. Today, this project and the one in Hustain Nuruu (Mongolia) are the only ones that have resulted in free-ranging non-supplemented populations. In the Gobi B area some 120 P-horses are resident.

There is no consensus as to when a reintroduction program is deemed successful. Viewing the self-sustainable re-establishment of a population as a successful end-point is at best a short-term approach, constrained by time. Comprehensive inter-disciplinary monitoring and research was and is the foundation for management strategies and decisions in this project. However, a self-sustaining financial base in conjunction with dedicated training and empowerment of local scientists and residents constitute essential prerequisites for the project's future. Defining success and thereby inferring an end-point can easily lead to complacency that compromises species persistence. As others have stated, the ultimate project objective must be a constantly re-evaluated state of population persistence without intervention.

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The Madagascar Fauna Group – 20 years of Conservation Work

The Madagascar Fauna Group (MFG) was formed in 1988 as a consortium of zoos and other related institutions interested in actively supporting conservation in Madagascar. By pooling resources, members are able to be an effective part of significant conservation projects for a relatively small annual investment. This coordinated conservation effort demonstrates to the Government of Madagascar that foreign zoos can work in a collaborative manner for the protection of native flora and fauna in Madagascar – that their interests extend beyond their own captive collections. Also, because membership dues are structured in three levels, the MFG provides an opportunity for smaller institutions to participate in *in situ* conservation.

The MFG just celebrated its 20th year of conservation work in Madagascar and continues to focus on the projects at Ivoloina and Betampona. In addition to captive programs for endemic species, Ivoloina has elements of environmental education, sustainable agriculture, reforestation, and capacity building. The focus at Betampona is primarily conservation research. The long-term commitment of MFG support of Ivoloina and Betampona has greatly enhanced the impact of the two projects.

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Evolution of a Multi-agency Partnership to Conserve the Chiricahua Leopard Frog

In 1995 the Ramsey Canyon leopard frog, *Rana subaquaqvoalis* (*Lithobates chiricuahuensis*), was described as a distinct species. At that time its numbers were estimated at less that 50 adult frogs living at a site estimated to be 2.5 miles in diameter. In an effort to save this species, a group of agencies and interested parties banded together to form the Ramsey Canyon Leopard Frog Conservation Team. This team consisted of representatives from the US Forest Service, Arizona Game and Fish, Fort Huachuca Army Base, US Fish and Wildlife Service, and a private stakeholder. The group developed a conservation agreement and subsequently asked the Phoenix Zoo and Arizona Sonoran Desert Museum to join in the effort to increase the number of frogs. The plan for doing this was to develop or maintain breeding sites, monitor existing populations, and supplement wild populations with head-started frogs from captive colonies.

Over a decade later this cooperative has evolved into a well run multi-agency partnership. The group now focuses on head-starting and reintroducing Chiricuhua leopard frogs into several field sites and is responsible for rearing and releasing over 7,000 frogs over the past 10 years. The Phoenix Zoo now functions as the primary site for head-starting frogs for release back to the wild. This presentation describes how zoos can play an important role and form lasting partnerships with local state and federal agencies in their efforts to conserve threatened or endangered species and populations.

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Coupled Systems Throughout the Sky Island Border Regions of Arizona/New Mexico

The trans-boundary Madrean Archipelago – or Sky Island region - of the southwestern United States and northwest Mexico is a world-renowned biodiversity hotspot, linking the North American continent's temperate and tropical latitudes. Its topographical complexity and location in North America combine to host unparalleled biological diversity, including the highest diversity indices of mammals, birds, reptiles, bees, and ants of any other place in the United States. In addition to having rich biological diversity, the Sky Island region is renowned for its rich culture and history. The famed battles of Apache legends Geronimo and Cochise occurred upon the plains and canyons of the Sky Islands, while Mexico's revolution incubated in Cananea just south of the present border. There are many challenges to protecting and sustaining the human and ecological systems of the Sky Islands, including a changing climate, rapid demographic and economic transformations, unilateral border security and water scarcity. Perhaps the most difficult challenge is overcoming divided management – management is divided between two countries with different institutional frameworks and by prevailing paradigms within both countries that treat the management of human and ecological systems separately.

Through research and practice in coupling human and ecological well-being, we aim to harmonize management currently divided by international and state borders, by complex public and private land ownerships, and by divisions between the ecological and social sciences. Forging broad partnerships across these boundaries, we will organize for resilience and adaptation in the socio-ecological systems of the Sky Islands. We will develop strategies for integrating short-term responses to immediate problems with long-term planning for the region, building options for the future.

We chart an innovative path for the management of coupled natural-human systems in the Sky Islands. We will assemble diverse stakeholders from non-governmental organizations, civil society, universities, and government agencies, on both sides of the US-Mexico border to craft a shared research and practice agenda. To merge science and practice, we will identify key opportunities for advancing resilience and well-being in the region, establish a research agenda to inform policy and action, and develop mechanisms for effective collaboration between landowners, non-governmental organizations, and government agencies. We will communicate across communities of interest, engaging in a solution-based dialogue that is connected with resources and expertise. We will test and share best practices, continually refining our strategies for protecting and promoting the coupled natural-human systems of the Sky Islands. Our ultimate goal is to harmonize the divided management of the Sky Islands and achieve sustainability in the region.

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The Art of Conservation: A New Annual International Exhibit and Tour Benefiting Wildlife Conservation

On September 28th, 2008, on its 10th anniversary, the Artists for Conservation Foundation (AFC) officially launched its first annual juried exhibition - "The Art of Conservation - An International Exhibition of Nature in Art". The exhibit represents an innovative environmental fundraising model and features the nature art of AFC members. A share of the revenues resulting from the sale of artwork in the show benefits a featured globally-oriented conservation organization.

The Art of Conservation show celebrates artistic excellence in the depiction of nature, raises awareness of conservation issues and directly supports organizations dedicated to addressing them. The purpose of the exhibition is three-fold: 1) to support conservation through fundraising and education; 2) to showcase the extraordinary pool of artistic talent in the AFC; and 3) to expose the nature art genre to new prospective collectors in audiences outside the conventional nature/wildlife art collecting circles.

The exhibition was produced by the Artists for Conservation Foundation (AFC) – the world's leading artist collective dedicated to the environment. The show is being hosted by the Hiram Blauvelt Art Museum– one of the world's premiere museums for nature and wildlife art – situated half-an-hour from New York City, in Oradell, New Jersey. The Wildlife Conservation Society (WCS) is the beneficiary for the 2008 show and has been actively involved in promoting the event.

The show represents an important milestone for the AFC as it is being launched in the AFC's 10th anniversary year. The AFC's membership represents a by-invitation-only roster of nearly 500 artists from 27 countries, individuals who focus primarily on nature and wildlife subjects. The exhibition features 112 original artworks selected by an independent jury and includes 96 paintings and 16 sculptures. Most artworks are for sale, ranging in price from $500 to $59,000. A total of 89 artists are represented in the show, representing Australia, Bangladesh, Canada, Iran, Japan, Kenya, Sweden, the United Kingdom and the United States. Many of the exhibiting artists were present to meet collectors and media during a special invitation-only opening reception at the Blauvelt Museum on Sunday, September 28th. The exhibition will be open to the public with no admission charge until December 19, 2008

The HBAM will host the opening leg until December 19th, 2008 and possibly through mid-2009. Following this, approximately half of the artworks will be assembled for a tour through the remainder of 2009. The AFC will be seeking appropriate venues, including Zoos, to host the tour in subsequent year tours. Accompanying the exhibition is a beautiful hardcover coffee-table book, reproducing in color all the works selected for the exhibition. The contents feature not only every single artwork from the show, but also several additional chapters that provide context and information about the show itself, the AFC, the Blauvelt Museum, WCS, the AFC Flag Expeditions program and the Simon Combes Conservation Award.

The revenue model is unique in that it is flexible and under control of the artist to a large degree. The artist can optionally choose how much he/she contributes from their commission to the beneficiary. On any artwork that is sold during the show, 25% is retained by the Museum to offset fixed costs of hosting and promoting the exhibit and for acting as broker. By default, a minimum of 10% commission goes to the beneficiary, with the remainder (up to 65%) being left for the artist. At the time of submission, each artist has the option to pledge a greater portion of the sale price to the beneficiary. Given this, and despite substantial costs borne by the artists (including

framing, shipping, insuring and entry fees), the average pledge was over 19% of the sale price, meaning that artists pledged nearly twice the minimum required. Notably absent from this equation is the AFC, which offsets its fixed expenses (minus labor) through artist entry fees and book sales, and is now seeking corporate sponsorship to enable growth and expansion of the concept.

Information about the show, the book, including slideshow and video streams, is posted on the AFC website at www.natureartists.com.

The Artists for Conservation Foundation (AFC) is a non-profit, international organization dedicated to the celebration and preservation of the natural world. It is the world's leading artist collective dedicated to the environment. Based in Vancouver, Canada, the Foundation has a membership spanning five continents and twenty-seven countries. The AFC's mission is to support wildlife and habitat conservation, biodiversity, sustainability and environmental education through art that celebrates our natural heritage. The AFC fulfills its mission through programs and exhibitions that raise funds for conservation. The AFC also operates a unique fellowship program supporting artistic field study and rendering of unique, threatened habitats, and rare or endangered species in remote parts of the world.

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Zoo Support for Critically Endangered Birds on Mauritius

The islands of Mauritius and Rodrigues are located in the Indian Ocean about 700 km east of Madagascar. They are important in terms of the number of endemic species they hold and as priority sites for conservation. Jersey Zoo – now renamed Durrell after its famous founder - has been the instigator and a major sponsor for the conservation work now managed by the Mauritius Wildlife Foundation (MWF). More recently other zoos and especially Chester Zoo have made important contributions. This talk will focus on the MWF work on three extremely threatened birds that have received financial and staff support from Chester Zoo. These are the Echo Parakeet (formerly CR endangered but now down-listed to EN) and the CR endangered Mauritius Fody and Olive White-eye. The Echo Parakeet Programme through a combination of captive breeding and management of wild nests including the hand-rearing of chicks rescued from wild nests has resulted in an increase of Echos in the wild from a low of 8-12 birds in 1986 to ca 400 today. For both the Mauritius Fody and Olive White-eye the recovery programmes have developed to involve rescuing eggs and chicks from wild nests for translocation to predator free islands. The incubation and hand-rearing skills acquired by zoo bird-keepers when working in their own zoos and the transfer of these skills to Mauritian staff have been critical to the development and success of these programmes.

BIO
Roger is Head of Field Programmes and Research at Chester Zoo, England, managing a small team of six scientific staff. After completing his first degree in Zoology, PhD and a Research Fellowship at Southampton University, UK, he spent six years lecturing/ conducting ornithological research at Bayero University, Kano, Nigeria, His interests are in Conservation Biology, Animal Behaviour, Ecology and Ornithology.(He just loves and seems to still find time for birding !.) Roger joined Chester Zoo in 1983 as Curator of Birds and later became Curator of Higher Vertebrates and Research. Roger manages the zoo's Chinese, Philippines, Mascarenes, and Nigerian Bio-diversity Field Conservation Programmes and the Black Rhino and Orang-utan Field Programmes. He tries to (not always successfully) fit in being Chair EAZA Parrot TAG, Co-chair EAZA Hornbill TAG, Vice President of the West African Ornithological Society, a Vice-president of the Avicultural Society, a trustee of the Polillo Bio-diversity Conservation Foundation (Philippines) and a Council Member of the Mauritius Wildlife Foundation.

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National Distribution of Cheetah in Kenya: Halting the Decline

The cheetah (*Acinonyx jubatus*) is one of several African wildlife species that requires large areas to survive. As human populations encroach on the wild areas of Africa it is believed that the cheetah and the African wild dog (*Lycaon pictus*) are often the first species to disappear. In following recommended steps from the Global Cheetah Forum, the Cheetah Conservation Fund (CCF) program in Kenya embarked on a joint survey of cheetah presence throughout the species' historic range in Kenya. A regional Eastern Africa and a national Kenya cheetah and wild dog strategic plan was drafted in 2007, recognizing that through eastern Africa the status of cheetah in 63% of its historic range was currently unknown. Using current data, it is believed that cheetah have been extirpated in at least 13% of the historical East African range. These areas were rated as non-recoverable by experts participating in the session. This shows the importance of conservation in the remaining range to prevent irretrievably lost or fragmented populations.

A Kenya survey initiated in 2004, in partnership with Kenya Wildlife Service and East African Wildlife Society, was completed in 2007. The resulting distribution map from this survey can help partners in cheetah conservation focus their efforts on areas where it is believed that sustainable and/or unique populations of cheetahs still remain. Following the models of CCF and other carnivore conservation programs, the Kenya Cheetah Conservation Program works in collaboration with the Kenya Wildlife Service and other local partners. Implementation of programs requires the support and participation of new partners in order to ensure that the current declining trend of Kenya's cheetah population is halted.

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Mary Wykstra graduated from Michigan State University in 1987 with a BSc in Zoology. She was a zoo keeper at Binder Park Zoo (1987-89) and the Curator of Exhibits at Utah's Hogle Zoo (1990-2001). She was active in the American Association of Zoo Keepers (AAZK), Association of Zoos and Aquariums (AZA) and Aquarium and Zoo Facilities Association (AZFA) during her zoo employment years and maintains her memberships with them. In 2000 she volunteered with Parc Ivoloina in Madagascar and Cheetah Conservation Fund (CCF) in Namibia. Having visited Kenya several times, she saw the need for cheetah conservation initiatives in Kenya and proposed an affiliated study program with CCF. Currently she coordinates National Kenya Cheetah Survey and studies the impacts of human activities on cheetah livestock losses.

Zoos and Aquariums Committing to Conservation Marketplace

The mission of the ***Zoos and Aquariums: Committing to Conservation*** conference is to promote the greater involvement of zoos and aquariums in support of *in situ* conservation efforts whether on a local, regional and/or international level. The biennial conference continues to focus on how best to provide partnership opportunities between field researchers and zoos and aquariums, provide a useful and positive networking atmosphere and instill a feeling of inspiration to the participants. We feel that the relationships developed between conservation commerce, products developed to support communities involved with surrounding research initiatives, plays an important role in the long-term success of these efforts.

A number of vendors attended the 2007 event and from this, a new initiative was formed: Vendors for Zoos and Aquariums Committing to Conservation (VZACC). Please take a look at their website to find out how to participate and support conservation - http://www.vzacc.org/

Snow Leopard Trust
http://www.snowleopard.org/

Founded in 1981, the Snow Leopard Trust is the largest and oldest organization working solely to protect the endangered snow leopard and its Central Asian habitat. The Snow Leopard Trust and its local partner organizations provide herders living in remote parts of the Kyrgyz Republic, Mongolia, and Pakistan with training and equipment to produce handicrafts from the wool of their sheep and camels. The Trust markets these products at tourist attractions in Mongolia, at retail stores and events in the United States, and through the Snow Leopard Trust online store. As part of this program, participating communities agree not to kill snow leopards or their prey species, and to follow sustainable herding practices.

Proyecto Titi: Conserving Colombia's Wildlife
http://www.proyectotiti.com/

Proyecto Titi is a conservation program that works to study cotton top tamarins in their tropical forest habitat as well as educating local communities about the need to protect the biodiversity of Colombia. To make conservation economically feasible for many local communities, we have developed some innovative strategies to empower local people to get involved and benefit from conservation activities.

Danau Girang Field Centre
http://www.cardiff.ac.uk/biosi/facilities/danaugirangfieldcentre/index.html

A collaborative research and training facility managed by Cardiff University and Sabah Wildlife Department, the field centre is a focus for biodiversity research and training and for field courses in tropical biodiversity assessment. The centre and its research and support staff are available for hire to provide field courses for the higher education sector, for governmental and non-governmental environmental training and for long-term research.

Virunga Artisans: The Art of Gorillas and People Living in Harmony
http://www.virungaart.com/

Survival of the 700 remaining mountain gorillas greatly depends on the well being of the people who live nearby in Rwanda, Uganda & DR Congo. By marketing this unique line of quality crafts, coffee and tea, we enable local artisans to make a living outside the parks, strengthen their communities and help preserve fragile watershed and gorilla habitat.

ECO-CELL
http://www.eco-cell.org/

ECO-CELL is the premiere cell phone recycling program for environmentally minded fundraisers. Our passion is to provide our conservation partners with the most profitable, easy to use and environmentally sound cell phone recycling program possible.

SunNight Solar
http://www.bogolight.com/

SunNight Solar's BOGO Light transforms the night by offering so many people in need a new choice. Generating clean LED light from rechargeable solar-powered batteries, SunNight Solar's BOGO Light can go where other fuel-dependant lights can't: to a poor person in a small village located far away from the electricity grid. And the BOGO Light can do what other lights can't: change a life. SunNight Solar's BOGO Light helps solve the most daunting issues in the developing world: poverty, literacy and education, health and safety, environmental impacts, the empowerment of women, and family security.

Elephant Care International
http://www.ElephantCare.org

Few things make us feel as good as giving. That satisfaction expands when you support hard-working Fair Trade and Women's enterprises. Elephant Care International offers artworks from Nepali artisans near Chitwan National Park (A World Heritage Site). Supporting the communities that interface with wildlife enhances conservation efforts. Your purchases help our Nepali veterinarians care for the elephants that patrol the parks that protect endangered species like the Asian elephant, Indian one-horned rhinoceros, Bengal tiger, and gharial crocodile. Be happy, do good.

Partners in Conservation

Partners In Conservation (PIC) completed its seventeenth year of operation in 2007. Under the auspices of the Columbus Zoo and Aquarium, PIC supports conservation programs and humanitarian projects in East Central Africa and conservation education programs in the United States. Partners In Conservation's central mission is to help preserve wildlife, including the endangered mountain gorillas, and to economically improve the lives of the people living in close proximity to the rainforests. PIC believes in a conservation model that includes the following approach: if you respectfully assist the needs of the local population, the forest will remain intact and the animals will survive.