

ZACC Conference

Abstracts

Blank Park Zoo 2013

The Little Fireface Project: using media to save the slow loris locally and globally - Anna Nekaris, E.J. Rode, Oxford Brookes University

*Slow lorises, nocturnal primates found throughout Southeast Asia, are prized both locally and globally for their medicinal value and cuddly looks. Popular in the tourist photo prop industry and as exotic pets and considered the Indochinese animal that can cure 100 diseases, it is no wonder that all eight species of slow loris are globally threatened, and that the Javan slow loris (*Nycticebus javanicus*) is considered amongst the top 25 most endangered primates in the world. Their popularity as pets is further exacerbated by a series of globally viral internet videos that fuel the notion that lorises make suitable pets. The Little Fireface Project was launched in 2011 to address the slow loris conservation crisis through ecological studies, education programmes and empathy building programmes leading to empowerment of people to care for lorises both locally and globally. Here we present data gathered between December 2011-November 2012 from a social networking campaign targeted at North American and European consumers of loris pets, and an education programme targeted at actual or potential Javanese consumers and hunters. Our aim was to use imagery, information, and solidarity to drive both groups towards a common goal – to conduct actions to save the slow loris rather than keep it as pet or hunt it.*

For the social networking aspect, we launched five web-based sites on the following formats: Twitter, Facebook, WordPress blog, CarePetitions and YouTube. We updated the first two on a daily basis, the third at least on a weekly basis, the fourth three times, with the latter on a monthly basis. We used webometrics tools to analyse: preferred topic, preferred photos, country of users, sex and ages of users, and overall weekly and monthly hit rates. We also looked at virility of posts (e.g. how many times they had been shared, reposted). For the Javanese study, we used participant observatory methods focussing on Cipaganti, Garut District, West Java, reaching ~800 villagers. We produced a series of education and socialisation materials, gave four talks, provided film nights, weekly lessons, and made available a village library. We assessed these programmes through idea boards, free listing of ideas during group meetings, and through blended analysis of children's work produced during class times. We also quantified hunting and loris pet keeping in the village, and during general participant observatory approaches gained people's attitudes towards keeping lorises as a pet. Social networking success was high on our Facebook pages, with nearly 2300 'likes', with ~500 follows on Twitter. On average 220 people per week wrote a unique and positive comment about lorises on their own Facebook pages. On average at least 4500 users saw our posts on their friends' walls, increasing 'reach.' Most popular posts were of stories from the field, or wittily written facts about loris behaviour. Most popular pictures were artistically drawn lorises, baby lorises, lorises in cages or children in education sessions, showing that

people want to see the real side of conservation but also be heartened by 'cute' pictures. Petitions were popular, and gained up to 5000 signatures in one week. In the village, we produced a leaflet describing our project, accompanied with a sticker, wall calendar, t-shirt, bandana, and showed a film that had been made in the village. Local people's responses about the loris included the word 'innocent' and 'shy' and 90% of respondents did not know much about it. 80% agreed it was interesting to learn more about it. Three informants said the project was valuable to the village as it specifically brought international pride about the loris to the village. Many simply liked the free gifts and interaction with foreign people. Only two lorises were caught in the one year in the village and these were released back to the forest. As the area was reported to be a heavy hunting area before our arrival, we consider this a success. Of 19 study animals, none have been lost to poaching. When asked to draw their favourite animal, 19% of children now choose the loris or other local species rather than livestock. Our next stage in the project is to introduce a Junior Reporters scheme whereby teenagers in the village will make their own films about the project and introduce them to our social networking sites. This will also be done by project partners in Cambodia and India. Through this manner, we hope that our western audience will continue to support loris conservation through their enthusiastic posting and that local people will feel empowered to conserve the lorises.

Act for Wildlife: Increasing the ability to promote conservation activities, influence behaviour change and encourage fundraising for field conservation - Catherine Barton, Chester Zoo

Conservation organisations are constantly looking for new ways to communicate their conservation activities to wider audiences. In recent years, social media has become an effective and powerful source for communicating stories. Social media communication tools allow the public to instantly and regularly receive news from the field, and interact with a like-minded community, thus engaging them with conservation activities. By promoting empathy and understanding for projects this can result in direct donations to conservation projects. Chester Zoo runs ten flagship conservation programmes around the world, with direct technical involvement from skilled zoo staff, significant financial investment and partnering with various conservation organisations and Government bodies. We also financially support around 60 projects a year through our Conservation and Research Grants. However a 2009 attitude survey looking at people's perception of the zoo found that only 35% of non-Chester Zoo visitors in the UK agreed that we support conservation projects around the world, as opposed to 73% of Chester Zoo visitors. Promoting our conservation message to a wider audience than zoo visitors is often a challenge as is the continued battle to change public perception that zoos are more than just a tourist attraction. Financially, zoos are dependent upon visitors and thus effective branding as a tourist attraction is essential. Yet the modern zoo also wants, and needs, to be recognised as a conservation organisation.

To meet this challenge, in June 2011 Chester Zoo launched a new initiative 'Act for Wildlife', which specifically aims to promote our field conservation work, influence public attitudes and individual behaviour and financially sustain our field conservation activities by removing some of its dependence on Chester Zoo gate income. A new website was launched alongside associated social media pages such as Facebook, Twitter and YouTube. In 2012, the first full year in operation, the website received 192,411 page views compared to the conservation pages of the well-established Chester Zoo website which

received 193,474 page views. Act for Wildlife now has nearly 8000 fans on Facebook; this number is continually growing. The Act for Wildlife initiative has allowed us to showcase the zoo's field work and influence a wider audience who may be outside of the normal zoo visitor demographic. The website highlights field staff from the projects, and blogs received directly from the projects have been a useful tool in connecting the public with conservationists on the ground. Despite reaching many of the initial targets, as with every new initiative, lessons have been learnt along the way. Ensuring that there was a clear link between Chester Zoo and Act for Wildlife was an important part of the strategy; a survey in 2010 found that people would be more willing to donate to a trusted and known organisation such as Chester Zoo.

However, achieving recognition for Act for Wildlife as Chester Zoo's conservation banner has taken longer than initially anticipated. Receiving news and updates from field projects is also often challenging due to the amount of time spent away from communication links when in the field. Organisations on the ground are also often limited in funds and staff time and promotion of activities can come second to delivering project objectives. Keeping a constant flow of information running through the various social media channels has therefore proved to be a time consuming job. Initial financial targets have been changed in order to compensate for these various challenges; however over time donations have increased and so far an extra £20,000 has been raised for our conservation activities. Due to the nature of social media, an online community is created through 'word of mouth' and as followers have increased, so have the donations. In the future, we hope to not only build upon the online community we have already formed, but also encourage more people to get directly involved through awareness campaigns, organising their own fundraising activities and to change their behaviour to positively impact upon biodiversity conservation.

A new approach to conservation education films - Michelle Slavin, Richard Bergl, John Tinka North Carolina Zoo

The North Carolina Zoo's UNITE for the Environment Program (UNITE) in Uganda has taken the lead on a collaborative effort between three organizations active in conservation and research in Uganda (UNITE, the Kasiisi Project and the Max Planck Institute for Evolutionary Anthropology) and the Dutch NGO Nature for Kids, to educate children about the threats to great apes in Uganda in a new and innovative way. The Great Ape Education Project (GAEP) began in 2012 with the goal of developing a series of three great ape-focused conservation films, a range of supporting educational materials, teacher training programs and using these to conduct extensive educational outreach. The films and associated material are designed to be accessible to local people and sensitive to cultural beliefs and traditions. The films were produced in both English and Runyakitara (the primary language where the three organizations work) and were filmed on location in Uganda using local actors in order to develop a sense of ownership within the communities we work. A French version is also being produced for use in Francophone Africa. Each film tells the story of two young Ugandan children working together to save great apes that face real life conservation issues: habitat loss, snaring and bushmeat. The films emphasize the similarities between gorillas, chimpanzees and humans—an important factor when working to develop empathy for and a deeper understanding about great apes. The Great Ape Education Project is designed to work within the existing framework of each NGO's activities and impacts

communities surrounding two-thirds of Uganda's chimpanzee population and half of the world's mountain gorillas.

The focus of this project is educational outreach relevant to the conservation of the great apes. Our outreach activities include film showings, art projects, radio programs, service projects, and more, which are designed to fundamentally change the way ape conservation is presented and discussed in rural schools and communities which border chimpanzee and mountain gorilla habitats in Uganda. Providing students and teachers with an effective and compelling way to learn more about great apes allows them to better understand how their behavior, the survival of great apes, and the environment which they share are closely linked. Through extensive educational outreach, and by providing conservation solutions that individual rural people can undertake, our project promotes both attitudinal and behavioral change to secure the survival of great apes in Uganda. By targeting children, GAEP seeks to shape life-long attitudes towards these unique animals. Through fostering positive attitudes towards apes and ape conservation we help to ensure the long term survival of these critically endangered species. The diverse range of approaches taken by the GAEP, in combination with the variety of languages the educational materials were produced in and our desire to make them freely available, make us hopeful that this approach can be a model for great ape conservation education in other great ape range countries in Africa.

Animals in the media: how to get your conservation stories told right - Jeremy Hance Mongabay

Getting your stories told to the public can help conservationists obtain financial support, change policy locally and internationally, and make your work matter to a global audience. But it's not always easy to get environmental stories covered in the media, let alone covered well. Environment journalist, Jeremy Hance with mongabay.com, will give a presentation on how scientists and conservationists can increase their chances of having their wildlife stories covered by the media in a thoughtful and productive way, including tips on communicating with journalists, providing usable and memorable quotes, and publicizing a story once it's published. In addition, Hance will address how to help news organizations address complex issues in wildlife stories and point to wider themes, such as climate change and biodiversity decline.

Value-based conservation dialogues: How asking the right question can lead to success - Chris Overdorf, ASLA

Conservation-based non-governmental organizations (NGO's) working in rural communities often struggle to develop productive working relationships with stakeholders. Zoological institutions, land trusts, government agencies, and habitat protection groups are often perceived to be "outsiders" telling local citizens how to live and what they can/cannot do with their land. Conservation and habitat protection efforts, designed to minimize the impacts caused by rapid growth and competition over resources, become ineffective because of the sour relationships between the involved stakeholders at all levels. Even at the local level, typical "top-down," or the "outsider coming in," land-use planning processes often create a caustic and ineffective framework for action. In an ever increasingly troubled world, where immediate action is needed on many conservation and habitat protection fronts, a more

transparent and engaging “bottom-up” planning process can be an effective way to achieve success with conservation projects. In this presentation, a value-based approach will be discussed that has proven to create stronger, more effective working relationships that transcend the local, regional, and national scales. This approach is based on understanding how people value the landscapes they live in and how these values can be the foundation for effective conservation, preservation and habitat protection policies. Proper early dialogue around a community’s history with their landscape can bridge political and ideological divisions. As part of this presentation, a GIS-based tool will also be demonstrated that informed a new conservation tourism strategy helping to create stronger partnerships in rural Montana. With stronger and more willing partnerships as the foundation, more effective and quicker conservation successes can be realized.

What do AZA-accredited zoos and aquariums contribute to conservation? - Shelly Grow, Senior Conservation Biologist, Association of Zoos and Aquariums (AZA), Deborah Colbert, Ph.D., Vice President, Conservation & Science, AZA, Paul Boyle, Ph.D., Senior V.P, Conservation & Education, AZA

What do AZA-accredited zoos and aquariums contribute to conservation?

Zoos and aquariums worldwide have been credited as making an appreciable contribution, particularly financial, to global biodiversity conservation (Gusset and Dick 2010). However, until recently the magnitude of this contribution by zoos and aquariums accredited by the Association of Zoos and Aquariums (AZA) has only been estimated. While AZA had surveyed members about their conservation activities since 1990, the term “conservation” was loosely defined and interpretation varied by facility. Importantly, only one person submitted a response per facility, and it was apparent that they did not always receive input from all relevant stakeholders. In 2010, AZA conservation staff worked in conjunction with its Field Conservation Committee to narrow the focus of the survey so that only conservation actions having a direct impact on animals in the wild were included. AZA’s definition of “Field Conservation” was refined to meet this focus and applied across all facilities. This survey has now collected detailed information about field conservation action that took place in 2010 and 2011, indicating that approximately \$130 and \$160 million was spent by AZA-accredited and certified related facilities on field conservation in 2010 and 2011, respectively. Conservation actions have been biased towards mammals, but across all taxonomic groups, efforts are generally focused on species of conservation concern, when compared to the IUCN Red List.

Moving forward, AZA’s Field Conservation Committee and staff will continue to improve the survey process, share the results, and use the results to encourage continued growth of the AZA community’s contribution to field conservation. In addition, AZA will collect data within the next 24 months for three other areas of conservation where the impacts on wildlife may be more indirect. These include basic and applied research, conservation education programming, and the implementation of operating practices designed to mitigate the impacts of climate change (i.e., sustainable or green practices). The AZA conservation staff and a variety of its committees and advisory groups are currently engaged in defining each area and developing the survey tools that will be used to quantify member institutions’ engagement in these related actions. These data will be summarized on an annual basis to describe the different dimensions of conservation contributions among the AZA community.

Zoos and Aquariums Committed to Saving Species Extinct in the Wild - Markus Gusset, World Association of Zoos and Aquariums (WAZA)

Breeding animals in human care followed by reintroducing them back into the wild was one of the most frequently cited conservation actions that led to improvements in conservation status on the IUCN Red List of Threatened Species. Species previously classified as Extinct in the Wild on the IUCN Red List that have improved in conservation status thanks to the reintroduction of captive-bred animals include the Arabian oryx (Oryx leucoryx), black-footed ferret (Mustela nigripes), California condor (Gymnogyps californianus), European bison (Bison bonasus), Przewalski's horse (Equus ferus przewalskii) and red wolf (Canis rufus). Currently there are 33 animal species classified as Extinct in the Wild on the IUCN Red List. Thirty-one of these species are actively bred in zoos, aquariums and other animal propagation facilities, which prevent their outright extinction; 17 species are managed in a studbook-based breeding programme. Zoological institutions are uniquely placed to contribute to the conservation of species that are no longer found in the wild, with reintroduction efforts using captive-bred animals already being implemented for six species classified as Extinct in the Wild. All these species provide powerful conservation success stories as well as examples of how to connect zoos and the wild.

Conflict transformation: untangling wildlife conservation conflicts in contemporary society - Francine Madden, Human-Wildlife Conflict Collaboration

Human-wildlife conflicts are more often conflicts between people about wildlife, than they are conflicts between people and wildlife. In fact, human-wildlife conflicts (HWC) are often microcosms of the larger social system-level conflicts that exist in society, with the intensity of HWC being better measured by the underlying social conflict than the tangible amount of crops or livestock lost. Unfortunately, our current practices – our failure to address the social drivers of wildlife conflicts among diverse; our habit of discounting “irrational” actors or actions as important indicators of wildlife-relevant social conflict; our hasty push for urgent solutions that can fracture the relationships needed to sustain coexistence; and our addictive reliance on practices and solutions which are comfortable and familiar – have resulted in narrowly drawn lines around what it means “to do” wildlife conservation that has, at best, dramatically curtailed our rate of success. Further, while efforts may succeed initially to address the social, cultural and economic factors impacting wildlife conservation efforts, they often fail to continually provide broader cycles of engagement and system-level feedback that, sadly, often greatly inhibits the success of well-intentioned efforts. Thus, one can argue that many of today's HWC failures are often a result of yesterday's solutions – especially those with too little emphasis on understanding the role of underlying and identity conflict and subsequently failing to create equitable, iterative decision-making processes that would ultimately reconcile the relationships needed to sustain and evolve them.

The Human-Wildlife Conflict Collaboration (HWCC) transforms this conflict to create sustainable solutions for people and wildlife. To do so, HWCC uses and shares innovations and best practices from the conflict transformation field, a niche within the peace-building discipline. Since 2006, HWCC has worked behind the scenes with over 400 stakeholders and practitioners in wildlife conservation to build their capacity to address the social drivers of conservation conflicts. HWCC's work seeks to reconcile the human conflicts underpinning management disagreements around numerous wildlife species – including

tigers, polar bears, wolves, cheetahs, elephants and gorillas – to ensure that conservation solutions are socially, ecologically, economically and politically robust and sustainable. HWCC's capacity building work results in significant impacts. By sharing five vibrant stories that illustrate the impacts of this approach in multi-stakeholder conflict situations, the author will make a case for our field's need to adopt a different analytical lens and practical, yet innovative, approach through which we can create more sustained success in wildlife conservation. These cases further illustrate the positive impact that can result from a broadened set of skills, capacities and tools to effectively transform these seemingly intractable human conflicts into opportunities for positive, durable, system-level change. And delightfully, several of these success stories resulted from the collaboration and support of five US zoos – Denver Zoo, Columbus Zoo, Houston Zoo, Cleveland Metroparks Zoo and Bronx Zoo/Wildlife Conservation Society -- that came together at ZACC 2011 to support HWCC's efforts to build capacity among practitioners in Africa to transform conflict.

Conservation Fusion: creating diverse partnerships to help endangered species... a ZACC inspired story of success - Susie McGuire, Conservation Fusion

Established in September 2010, our mission is "Educating to Build and Strengthen Our World" At Conservation Fusion, we are dedicated to engaging kids and communities in education about their unique biodiversity to instill knowledge, understanding, and ownership, ultimately leading to responsible actions for a sustainable future. To spread a global conservation message, we are connecting kids living in areas of high biodiversity with youth in the United States: we are all connected, sharing one world. To achieve conservation objectives, we must think outside the box, forming collaborative alliances on a local and global scale to find solutions to conservation challenges. Building multidisciplinary teams that include diverse professions and backgrounds allows us to envision creative, innovative solutions from new perspectives. To date, we have partnered with the University of Nebraska, Omaha afterschool programs, high school engineering students, the Kauffman Foundation (world's largest foundation for entrepreneurs) The Malagasy government, The Madagascar Biodiversity Partnership and even MIT (Massachusetts Institute of Technology) to create tangible solutions to conservation challenges. In 2012, we connected thousands of middle school youth from Omaha, Nebraska with kids in Kianjavato, Madagascar through a global service learning program. The University's Service Learning department has helped us maximize our time and resources through more than 10,000 volunteer hours. These projects include youth creating educational tools to provide interactive, hands-on, fun ways to engage Malagasy teachers and students to learn about clean water, alternatives to habitat destruction and the economic benefits of protecting local biodiversity. These projects create awareness amongst US students and empower them to educate their peers, parents and teachers and take action locally. Local people in Madagascar depend upon the forest for fuelwood to cook their meals. To address this, CF enlisted high school engineering students to research and modify fuel efficient stoves for the Malagasy communities to provide alternatives to habitat destruction and empower local people to create economic engines through sustainable biofuel enterprise. The project was funded by MIT and the team of students was chosen as one of four schools in the nation to present their project at MIT in July 2011.

Our education programs in Madagascar focus on four main sites throughout the island and compliment the research endeavors of the Omaha Zoo's Madagascar Biodiversity Partnership (MBP).

*These regions each harbor critically endangered lemurs and/or tortoises at the brink of extinction. CF education programs include teacher workshops and in-class activities that have culminated in community celebrations known as Rano-O-Rama, Sokake-O-Rama and Hazo-O-Rama in 2010 and 2011. Rano means water, Sokake is tortoise and hazo means tree; therefore, these learning bonanzas focused on clean water, endangered biodiversity and healthy forests. Parades and student presentations help us evaluate what has been learned and transform the kids into conservation leaders. We have coordinated the planting of more than 20,000 native trees by local school children, hosted "Ampanjaka" or village elder workshops to discuss reforestation, land management and new agricultural practices and the formation of a Single Mom's club, "Vey Vavy Voana" which translates into strong and ready women. These ladies work part-time in the MBP tree nurseries and hope to save enough money to pay school fees for their children. Groups of local children accompany us into the forest reserve, equipped with field guides, binoculars and excitement for Conservation Camp and a chance to explore the biodiversity in their own backyard. In the evenings we hold "movie nights" in the villages highlighting the conservation and education programs so parents and other community members can see what the children are learning and help reinforce conservation messages. We have supported planting school vegetable gardens at each primary school starting lunch programs to address basic needs and improve school attendance and performance. The Kianjavato Classified forest in southeastern Madagascar harbors eight lemur species and according to the IUCN Red List the greater bamboo lemur (*Prolemur simus*) was listed as one of the world's most critically endangered. Recently, the greater bamboo lemur was removed from the world's top 25 most endangered primates list by IUCN members after hearing of the growing populations and community support in Kianjavato. Considering just four years ago it was listed as the world's number one priority in primate conservation, this is an incredible feat. It is important to note that the largest population of these lemurs is in Kianjavato, the pilot site for Conservation Fusion's community based programs. Additionally, two Malagasy students who participated in our ZACC sponsored education program "saved" more than 250 critically endangered Radiated tortoises from poachers because of what they learned!*

Working with local stakeholders to develop a model protected area in Mongolia - Richard Reading, Ganchimeg Wingard & Erin Stotz, Denver Zoo

Denver Zoo began working with the Mongolian Academy of Sciences (MAS) on conservation efforts in Ikh Nart Nature Reserve (hereafter Ikh Nart) in 2000. At the time, the reserve existed as a so-called "paper park" – a park that existed on paper, but not in reality. In 2002 we decided to initiate a larger project to develop Ikh Nart as a model program for nature reserves in Mongolia. That interdisciplinary work continued to expand each year, such that by 2010, the United Nations Development Programme included Ikh Nart as one of 2 model protected areas in a new \$4.8 million Special Protected Areas Network (SPAN) project. In this presentation we will discuss how we capitalized on local expertise and stakeholder support to move Ikh Nart from a paper park to a model protected area in just under a decade. We also will briefly discuss the significant challenges that remain.

In 2000 we could find no indication that Ikh Nart formally existed, other than a legal description and the enabling legislation. Local people did not know about the reserve and the local governments, legally responsible for managing the reserve, only vaguely knew of its existence. Our work began in

several phases, starting with the wildlife conservation and research project we began that year. We soon realized the need for law enforcement to stop poaching and illegal mining and so hired the reserve's first ranger. From that modest beginning we acquired grants to expand our research, initiate park management, and begin conservation education and outreach. Along the way we developed strong local and international partnerships to bring in expertise that we did not possess. Today we support a staff of 11 Mongolians in a conservation program that includes several interrelated components. We formed a strong partnership with the 2 local counties and 1 province charged with managing Ikh Nart, but woefully short of the expertise and resources for doing so. We established a year round field research camp in collaboration with MAS and several Mongolian universities and run projects on everything from plants to invertebrates and Argali sheep to Daurian hedgehogs. We elicited the support of the Anza-Borrego Desert State Park in California and its partner organization, the Anza-Borrego Foundation and Institute, to help with park management. Anza-Borrego is now a sister park to Ikh Nart. Together, we formed a volunteer ranger corps that now includes paid Mongolian rangers. Boundary markers and signs now surround the reserve and we provide periodic training in first aid, law enforcement, visitor interactions, park management, and more. And, we recently completed our second management plan for the reserve. We simultaneously developed education and outreach programs in cooperation with a local Mongolian NGO that provides conservation education to communities in and around protected areas in Mongolia. Denver Zoo also runs an Ikh Nart Education School Pairing Program with secondary school teachers and students in rural and urban areas of the United States and Mongolia. We also work to enhance livelihoods and develop a sustainable income for the reserve. We helped a local women's cooperative get started with training and a micro-loan. That cooperative has grown to over 30 members and now sells products to tourists and to Denver Zoo to market in the States. In addition, we helped establish a high end tourism camp to bring in revenue for the reserve and offer jobs to local people. Although challenges remain, we could have accomplished none of our work without strong local partnerships, including the incredibly supportive local people, local and state governments, NGOs, universities, and MAS.

Combating the illegal wildlife trade in Vietnam - Quyen Vu, Director of Education for Nature, Vietnam - Quyen Vu, Director of Education for Nature, Vietnam

The illegal hunting and trade of wildlife constitute the greatest threat to Vietnam's biodiversity. Every day, hundreds of animals are hunted, traded and consumed domestically or shipped to China and other countries. Historically Vietnam has been a source state for the international wildlife trade but it now also becomes as a consumer and transit state. Animals and their products are often temporarily imported into Vietnam from neighboring countries like Laos and Cambodia, and from further afield countries such as South Africa and Kenya, then exported again to China and elsewhere. Vietnam's recent economic development also means that an increasing amount of imported wildlife is consumed in Vietnam.

Education for Nature-Vietnam is a Vietnamese NGO. Our mission is to protect the country's unique biodiversity through an integrated strategy to combat the illegal hunting and trade of wildlife. ENV focuses on three critical areas: demand reduction, strengthening of law enforcement and legislation.

Since 2005, ENV has been administering a toll-free wildlife crime hotline, providing the public a trusted mechanism through which they can report wildlife crime. ENV has also been working closely with local law enforcement to investigate crime, provide necessary support such as species identification and placement of confiscated wildlife, and promote appropriate actions taken by authorities. ENV partners with different branches and levels of law enforcement throughout the country such as rangers, environmental police, customs officers and Peoples Committees to promote strong punishments for criminals and appropriate solutions for confiscated animals. So far, ENV has documented more than 4600 crimes, many of which were reported by the public.

To increase the support and participation of the public, ENV has also been running a National Wildlife Protection Network of volunteers. Currently, the network has more than three thousand registered volunteers and seven volunteer clubs in major cities. Volunteers act as ENV's eyes and ears in their local areas. Many of them have been actively involved in a range of activities including reporting wildlife crime, carrying out compliance monitoring, and joining others to carry out surveys and awareness activities. So far, hundreds of endangered animals, such as gibbons, langurs, bears, turtles and otters, have been saved thanks to the support of the public and volunteers.

Another important aspect of ENV's efforts to stop the illegal wildlife trade focuses on consumer demand. ENV has been carrying out an intensive public awareness campaign since 2005 including public exhibits, university seminars, TV public service announcements, monthly radio shows and advertisements, banners at markets and websites encouraging Vietnamese not to consume wildlife and to seek alternatives. ENV has also been working with a network of approximately 50 journalists to deliver important messages to the public and decision makers through media.

As part of its strategy, ENV has developed a policy program aimed at strengthening wildlife protection laws in Vietnam. ENV works with relevant ministries and law makers including the Ministry of Agriculture and Rural Development, Ministry of Natural Resources and the Environment, Ministry of Justice and members of the National Assembly. Since 2008, ENV has had significant influence in the process of developing new wildlife protection legislation such as the new biodiversity law, enforcing bans on the use of dead tigers as a form of traditional medicine, and strengthening regulations on management of captive bears.

After a decade of operation, ENV is proud to have had a very positive impact on wildlife protection in Vietnam at many levels. Increased public participation in combating wildlife crime, greater transparency of law enforcement in dealing with crimes, an ever-increasing social consciousness, particularly amongst younger people supporting wildlife protection, and growing support and intervention by decision-makers on behalf of wildlife all seem to suggest that Vietnam is on its way to becoming a much better place for wildlife. However, unless we reach this point soon, our victory may come too late

The Role of Tibetan Monks in Conserving China's Snow Leopards -Tom McCarthy, Panthera - Tom McCarthy, Dr. Li Juan, Panthera

Snow leopards are one of the most iconic of wild cats. They live and travel in solitude over vast distances of isolated and rugged mountains in central Asia. Supremely adapted to some of the harshest

conditions on the planet, they remain understudied and misunderstood. Seldom observed in the wild, they have earned the title 'Ghost of the mountains'.

Panthera's Snow Leopard Program aims to vastly expand scientific knowledge of this magnificent species, improve tools used to monitor their numbers, and convert scientific knowledge into conservation action, thus ensuring the long-term survival of the species.

China is home to perhaps half of the world's remaining wild snow leopards. Here, Panthera partners with Shan Shui, a prominent national conservation organization, to jointly undertake mapping of occupied snow leopard range, interviewing local communities to assess threats to snow leopards, and establishing community based conservation projects at key sites. Our program, focused on snow leopard habitat on the Tibetan Plateau, takes a novel approach—building conservation projects around Buddhist monasteries. Monks encourage local residents to conserve snow leopards and their prey, and then monitor results to confirm that cat numbers increase under their care.

In this presentation we will introduce our work in Yushu Prefecture, the core of Sanjiangyuan National Nature Reserve (SNNR). Located in Qinghai Province, SNNR is the second largest nature reserve in the world, contains the headwaters of three great rivers - the Yangtze, Yellow and Mekong, and is rich in snow leopards. Approximately 200,000 people, many of them nomadic herders dependent on animal husbandry for their livelihoods, dwell within the 152,300 km² reserve. Snow leopards are one of several predators resident in the reserve and conflicts with pastoralists are common. Our objectives there are to estimate the abundance of snow leopards and their prey using camera traps and genetic fecal analysis; ameliorate the primary threats to snow leopards; and institute a monastery/community-based monitoring network for snow leopards and other wildlife in Qinghai.

We will briefly describe the research and its outcomes, but mainly in terms of how science informs our monastery-based conservation actions. The crux of our presentation will be the partnerships we have established with three monasteries to further snow leopard conservation and the steps they take to monitor their own progress. From GPS mapping to undertaking a scientifically valid camera trapping program, Tibetan monks are playing the role of citizen scientists. Through their teachings they also impart conservation awareness and a respect for snow leopards to the local nomadic herding families. We provide details of a companion livestock insurance program that is helping to offset the economic losses from predators, and we share our plan for taking this unique monastery-based conservation model to other important snow leopard strongholds of the Tibetan Plateau.

Little Zoo: Big Commitment - Jessie Lowry, Blank Park Zoo

Since 1997, Blank Park Zoo has raised thousands of dollars for conservation projects both globally and locally. As a small zoo, we have had to learn to stretch our dollars and look for ways to have the greatest impact. As conservation coordinator, I had the opportunity to attend the ZACC conference in 2011 where I met many zoo professionals and field researchers from around the world. Specifically, I was introduced to Lilly Ajarova from CSWCT and we immediately formed a partnership that has benefited both our organizations in a variety of ways. I want to tell the story about how our Zoo's commitment to conservation has grown over the years, how we have managed to make a meaningful and lasting impact with limited resources, and also highlight the power of ZACC in forging new relationships for our shared mission: wildlife conservation.

“Funding,” “Doing,” and “Making Connections” - Kristen Lukas & Kym Gopp, Cleveland Metroparks Zoo & Cleveland Zoological Society’s Conservation Program

The conservation program at Cleveland Metroparks Zoo (CMZ) was formally established in 1995 in partnership with the Cleveland Zoological Society (CZS) by the Zoo’s Director, General Curator, and Curator of Conservation & Science. The original conservation program consisted primarily of a small grants program funded by the Cleveland Zoological Society and direct staff involvement in three signature projects in Asia (turtles), Africa (chimpanzees), and Latin America (Andean condors). Over the years and for a variety of reasons the program evolved to consist primarily of funding projects in Asia, Africa, and Latin America through diverse programs and funding sources including the CZS Conservation Fund, CZS Zoo Futures Fund including Asia and Africa Seed Grants program, CMZ Quarters for Conservation, Scott Neotropical Fund, and outside grants. Since 1997, the Zoo’s financial commitment to field conservation has quadrupled because the CMZ and CZS leadership is committed to the Zoo’s conservation mission. In 2012, the Zoo contributed more than \$550,000 to field conservation as defined by the Association of Zoos and Aquariums, which brings us closer to the industry-wide goal of zoos dedicating 3% of their organization’s operating budgets on field conservation.

In an effort to balance the “funding” and “doing” of field conservation, while all the while making connections for guests between what they experience at the Zoo and what is happening in the field, we have been working to identify new ways to involve staff, volunteers, guests, and donors in field conservation. In 2012, the Zoo’s mission expanded to include “...creating compelling experiences that connect people with wildlife and inspire personal responsibility for conserving the natural world.” The Zoo’s longstanding partnership with our umbrella organization, Cleveland Metroparks, currently provides the bulk of opportunities for engaging staff, volunteers, and visitors in regional conservation initiatives such as head-starting Plains Garter snakes for reintroduction in Ohio, citizen science initiatives such as FrogWatch and NestWatch, and habitat improvement initiatives such as Big Creek cleanup and invasive species pulls. The Zoo also maintains a strong relationship with Miami University’s Advanced Inquiry Program and Global Field Program to provide graduate training in conservation education that includes on-site training with some of the Zoo’s long-standing conservation partners. The Zoo strives to find ways to use animal care and research resources to inform or support field conservation and is developing new ways to fund increased staff involvement in conservation initiatives.

All staff members embrace the Zoo’s mission to connect people with wildlife in a range of ways, from education to research to field conservation but, of course, resources are limited. We view increasing staff involvement as our next area for growth and seek opportunities to strengthen this aspect of the CMZ/CZS conservation program. Our efforts to increase support for conservation have involved improving internal and external communication about what the Zoo already does for conservation. In 2011, we developed a taxa-focused approach that elucidated not only field conservation focus areas but the additional research, population sustainability, education, and resource sustainability efforts that complemented our field conservation projects to work towards creating more comprehensive and integrated program. This matrix is helping the Zoo to streamline communication and package programs in a way that simplifies the complexity of what we do and increases understanding of needs. Next steps include revisiting our Institutional Conservation Strategy, strategic and business planning for the next 3-5

years, launching an endowment to increase funding for conservation, and branding to create an identity and framework for the Zoo and Zoo Society conservation program.

The role of zoos in the conservation of the critically endangered Tonkin snub-nosed monkey in northern Vietnam - Herbert Covert, Le Khac Quyet, Amy Harrison-Levine University of Colorado, Boulder

*In this presentation we discuss how partnerships between university scientists, local community leaders and government officials, and zoos are working to protect the Tonkin snub-nosed monkey (*Rhinopithecus avunculus*), a critically endangered primate that is endemic to northern most Vietnam. Its global population is estimated to be approximately 250 individuals and it is confirmed to be present in only four isolated forest blocks in Tuyen Quang and Ha Giang Provinces. The subpopulations at Cham Chu and Na Hang have seen significant declines during the past decade whereas the one at Khau Ca has nearly doubled in size during the same time period. The fourth location is Tung Vai and we lack sufficient information on this subpopulation to suggest if it is declining, stable or growing. At present it appears that the Tonkin snub-nosed monkeys at Khau Ca are likely the only viable subpopulation remaining for this species. We have been studying these monkeys at Khau Ca since their presence was confirmed by one of us in early 2002 and have been directly engaged with a number of local stakeholders to develop conservation strategies at this location. In partnership with local government officials and community leaders we initially developed agreements to preserve the remaining 1,000 ha forest that is home to the Tonkin snub-nosed monkeys. This was followed by initiating field work to study the ecology of these animals and to document the structure of the forest. Since 2006 we have partnered with the San Diego Zoo, Singapore Zoo, Denver Zoo and most recently the Blank Park Zoo to support a range of conservation activities. For example, the San Diego Zoo has helped support population monitor work and land use activities of local peoples; the Singapore Zoo has supported local research assistants and population census surveys; the Denver Zoo has supported primary education conservation awareness programs and research on potential resource use overlap between the Tonkin snub-nosed monkeys and local human communities; and the Blank Park Zoo has supported local research assistants. In addition, the Denver Zoo, San Diego Zoo, and Blank Park Zoo have partnered with the University of Colorado Boulder to distribute at least 3,000 calendars to local households and other stakeholders annually that promote biodiversity conservation using the Tonkin snub-nosed monkey as a flagship species. These partnerships have and continue to provide essential support to the conservation of this critically endangered species and its habitat and are directly contributing to the growth of this subpopulation. Moreover, we believe that zoos can benefit from such activities by sharing information in exhibits that provide conservation awareness raising to their visitors.*

Direct links between field projects and the zoo: a model for enhancing conservation success - Richard Bergl, PhD, North Carolina Zoo

The North Carolina Zoo has been actively involved with field conservation for almost 20 years. During this time our program has expanded and we have steadily increased the extent of our conservation actions. The zoo is actively involved in conservation projects across Africa and in North America, working to conserve a diverse range of species, from gorillas and elephants to salamanders and

polar bears. Our conservation work takes a wide variety of approaches, including conservation-relevant research, capacity building for law enforcement, conservation education, and land acquisition. While our projects are diverse, our conservation program has been guided by a core set of guiding principles since its inception. Primary among these is the belief that a significant commitment to the conservation of wildlife in situ is fundamental to the mission of a modern zoo. Additionally, we 1) focus on regions of the world and species represented in the zoo's collection; 2) engage with projects that have direct staff involvement; 3) commit to long term engagement with/support of projects; 4) work in partnership with other organizations; 5) involve local residents of project sites in our conservation work; 6) emphasize projects that contribute directly to the conservation of wildlife. These organizing principles allow the North Carolina Zoo to create direct links between our field projects and the zoo itself and increase the effectiveness of our conservation work. The success of our program has depended on close links to zoo operations, careful selection of the right projects, staff with relevant expertise, a holistic approach to fund-raising, and constantly adapting to new challenges and opportunities. Our approach combines financial support of field conservation with active involvement of zoo staff, providing a way that zoos can create concrete connections with in situ conservation while also having meaningful positive impacts on wildlife populations.

Developing a conservation program during a recession - Liz Larsen, Utah's Hogle Zoo

In the last four years, Utah's Hogle Zoo like many other institutions has weathered a financial storm with the global recession. Growing our conservation programs in the midst of the recession presented us with a challenge. Combined with other driving forces, the Zoo recognized it was the opportune time to further develop our regional conservation efforts. Through this effort we have been able to support a diverse collection of conservation efforts while exposing staff and volunteers to regional conservation issues. Our work has resulted in a network of strong partnerships that continue provide positive but unexpected outcomes. The poster will discuss the development of these programs including:

- *the approach we took to establishing partnerships with state and federal agencies, local ngo's, etc.; with various examples*
- *scope, staff and costs associated with projects*
- *results and outcomes*

Andean Bear Conservation Alliance: from a dream to a reality - Isaac Goldstein, Wildlife Conservation Society & Kym Gopp, Cleveland Metroparks Zoo

Since the start of Andean bear research and conservation efforts in the late 1970's, many local, regional and global NGO's have supported research and conservation initiatives for this species. Most support has been through small grants of less than \$5000, localized in space and time and with very minor impact in the conservation of the species.

The first global, large scale initiative regarding Andean bear conservation was the II International Symposium on the Andean Bear in 2008. This symposium brought together a large group of

stakeholders and consolidated the financial and institutional support of a number of institutions resulting in an attendance of more than 100 people.

The Wildlife Conservation Society (WCS) and Cleveland Metroparks Zoo (CMZ) have been among the institutions supporting Andean bear conservation, being partners in several conservation initiatives in the first decade of the XXI century. Both institutions have been discussing for several years how to develop a way to make small amounts of funding have an important impact on the conservation of the Andean bear.

The II International Symposium on the Andean Bear gave us a clue of how to proceed. It became clear that the solution is an alliance of many institutions consolidating efforts around a common plan for the conservation of the species. Each institution of the alliance will contribute with the same amount of funds that is usually devoted to Andean bear conservation but will be part of a much larger effort with many projects developed and executed. The partner institutions will discuss the goals and lines of actions of a five year plan, and focus its funds to particular projects of their interest. WCS and CMZ started the alliance with the IUCN Bear Specialist Group as its main consulting body. The goal in relation to partners was to have, at the end of its first five year plan, a group of 7 partner institution and a budget of between \$70,000 and \$90,000 annually.

The goal of the first Five Year Action Plan of the alliance (2011 – 2015) is to build the tools and human capacity to produce an accurate and updated assessment of the distribution and status of the remaining Andean bear population, and well as analyze the state and trends of the remaining wilderness areas regarding size, fragmentation and degradation. This will be done by developing and using inexpensive, effective, rapid and replicable techniques. The 2011 – 2015 plan has 2 main lines of action: research and capacity building & exploration.

From 2011 to mid-2013 the activities are centered in the research and capacity building, with the development of monitoring techniques using relative abundance and occupancy estimators (Abundance & Camera Trapping Monitoring Pilot PNN, Colombia, 2010, Camera Trapping Pilot PNN, Colombia, 201), the development of the “Workshop and Manual for the Assessment of the Presence and Distribution of Andean Bear Populations”, and the “Manual for the Monitoring Andean Bear Populations at the Natural National Parks of Colombia”. The above developed tools were shared in 2011 and 2012 with the Colombia National Park system during three workshops with the assistance of personnel from the Oriental, Occidental, Caribe and Amazonia Colombian National Park System Territorial Directions.

From mid-2013 to 2015, the developed tools will be applied in at least 5 natural national parks and their surrounding landscapes in Colombia. By 2015 we will have updated information about the distribution and conservation state of 3 of the 7 Andean bear priority conservation landscapes in Colombia, and the institutional capacity to apply the tools at all the natural national parks with Andean bear populations in Colombia. The knowledge and tools will be presented to undergraduate and graduate students at the biology departments at the main universities in Colombia, Ecuador, Peru and Bolivia. At least 12 universities will be visited with the goal of recruiting students to apply the developed tools in their undergraduate and graduate works. Three small grants will also be given annually to students working on the distribution and status of Andean bear populations using these techniques. Now in the third year of the Action Plan, there are four institutions in the alliance, with the addition of the Saint Louis Zoo and Global Conservation Connections in 2012. The goal is to add two more partners by the end of 2013.

The Andean Bear Conservation Alliance has developed the tools and started the capacity building to have updated assessment of the distribution and conservation state of Andean bear population throughout its range. By developing and using inexpensive, effective, rapid and replicable techniques through both research and capacity building & exploration projects, the Alliance is well in its way to meeting the goals of its first Five Year Action Plan.

Building a culture of conservation at the Denver zoo: involving staff in field conservation - Richard Reading, Amy Levine, Matt Herbert & Erin Stotz, Denver Zoo

Zoos and aquariums increasingly refer to themselves as conservation organizations. We argue that a true conservation organization requires that all (or at least most) staff embrace that designation. At Denver Zoo we have developed a unique approach to conservation by working to involve as many staff as possible from departments throughout the organization in field conservation efforts. We further argue that this approach has helped our organization develop and embrace a culture of conservation that contributed to other significant advances, such as our award winning green practices.

At Denver Zoo we believe that all staff members have something to contribute to field conservation efforts. To that end we capitalize on the skills of staff in all departments and in 2012 involved 75 staff outside of the Conservation Biology Department in one or more field conservation projects. While the majority of staff members work in the Animal, Animal Health, and Education Departments, we have also involved staff from Horticulture, Maintenance, Accounting, Development, Planning, and our Marketing and Public Relations Departments. To facilitate involvement, we developed one major and a few minor field projects locally to both train and test staff in a field setting before sending them out of state or overseas. Most staff members participate at this level, but increasingly those staff “graduate” to other projects, often projects that they design and develop in cooperation with staff from the Department of Conservation Biology. In other cases, we actively recruit staff with special expertise to assist on projects. For example, we recruited assistance from our Maintenance Department to help construct enrichment items in Indonesia for orangutans we hope to train for reintroduction. Similarly, we hope to use our public relations staff to assist with a marketing campaign to try to convince Peruvians to stop drinking Lake Titicaca Frog shakes (that people believe have medicinal and aphrodisiac properties). To succeed, we believe that conservation programs require interdisciplinary approaches to complex problems. Zoos and aquariums have staff members with expertise in several of these disciplines that they can bring to bear on these problems. And, as involvement in field conservation efforts grows, so does the culture of conservation within the organization, permitting further expansion of our conservation efforts. However, as staff participation in field conservation has grown we have also faced some significant challenges, such as the significant loss of staff time for people’s primary jobs that we are currently struggling to address. Still, today the boundaries between the Conservation Biology Department and other departments at Denver Zoo are blurry, just as we believe they should be.

Wildlife Conservation through Education and Participation - Amy Reaume, Brevard Zoo

Brevard Zoo has been committed to conservation since 2000, raising over \$427,724.00 for local and international conservation projects. With a mission of Wildlife Conservation through Education and

Participation, Brevard Zoo has expanded efforts with local conservation projects to enable Zoo guests, staff, volunteers and community members the opportunity to get involved in hands-on conservation. Many of Brevard Zoo's local conservation programs have a strong outreach and education component. By involving the community in conservation, Brevard Zoo not only helps wildlife but also educates and inspires community members and the next generation to become more involved and aware of environmental issues. Brevard Zoo's local conservation projects include the Perdido Key Beach Mouse Captive Breeding and Reintroduction Program, the Florida Scrub-Jay Translocation and Monitoring Program, FrogWatch USA, the Shoreline Restoration Program, the Oyster Reef Restoration Program and the Atala Butterfly Captive Breeding and Research Program.

Partnerships are essential to Brevard Zoo's conservation projects. The Zoo's partners include government agencies, universities and other zoos. Funding for Brevard Zoo's conservation projects comes from outside sources and the zoo's Quarters for Conservation program. In addition, Brevard Zoo's animal keepers and zoo teens use innovative fundraising methods including bake sales, face painting and special events, as well as coin boxes, which are located around the Zoo to support conservation projects.

Furthering its mission of Wildlife Conservation through Education and Participation, Brevard Zoo annually holds "Conservation Conversations," presentations by scientists and field conservationists provided free to the public. The presentations are informal and questions and conversation between the audience and presenters is highly encouraged. Conservation Conversations have grown over the years and now attract a large, diverse audience who help spread important conservation messages throughout our community.

Future goals for Brevard Zoo's conservation department include securing sponsors for conservation programs, broadening our reach through additional collaborations, and increasing research partnerships with local universities.

Flying with the Northern Bald Ibis: The adventure story of a conservation project - Regina Pfistermuller, Zoo Vienna

*In 2002 a letter written by Austrian biologist Johannes Fritz who had just received his PhD reached Vienna Zoo. The scientist's ambitious aim: to bring back the locally extinct and critically endangered Northern Bald Ibis (*Geronticus eremita*) to its former breeding grounds within central Europe. The biological problem: the Northern Bald Ibis (NBI) is a highly social migratory species who needs to learn its migration route during the first year of its life. The creative solution: imprinting nestlings on human foster parents who are able to fly with ultralite paraplanes and guide the chicks to a wintering ground in the Tuscany. The REAL problem: finding support for his idea to develop it into a successfully progressing conservation project.*

Zoo Vienna turned out to be one of the first brave and substantial partners for Johannes Fritz and his Waldrappteam, an Austrian association dedicated to the conservation of Northern Bald Ibis worldwide. Already involved in several NBI conservation activities before, Zoo Vienna welcomed this innovative initiative and enabled Johannes to purchase his first paraplane and obtain his pilot license. Since then the partnership between the Waldrappteam and Vienna Zoo became manifold, combined both institutions strengths and attracted numerous other partners and supporters. Whereas the Waldrappteam was responsible for the scientific development and the implementation of the annual

human lead migrations, Vienna Zoo provided scientific and logistic advice and support and became part of the steering committee for the Waldrappteam. It provided regular financial and in-kind contributions, made chicks available for hand-raising, but was also location for public hand-rearing. Through the presence of the hand-rearing team and additional regular public events as well as the progress of the project itself media coverage and visitor interest became increasingly larger – and persists already over a decade! In a recent article NBI was even named as the Number 1 reason to visit Zoo Vienna, a result of engaging in NBI conservation activities and the partnership with the Waldrappteam.

Flying with birds must be one of men's oldest dreams. The story of biologist Johannes Fritz, who dreamed this dream, not only for the mere excitement but paired with the motive of bringing back a locally extinct species to its former habitat – a story with ups and downs, adventure and drama - sets an example of how a combination of a conservationist's enthusiasm and a zoo's strong believe can form a partnership in conservation.

The success 10 years after the initial founding of the Waldrappteam: the first small population of NBI has returned to their breeding grounds in central Europe, raised offspring and took them along across the Alps towards their wintering grounds. The project's REAL success: an adventurous, credible and powerful conservation story that people want to be part of, want to believe in and contribute to a happy ending.

Our Partnerships with Zoos to Save the Sloth Bears of India - Nikki Sharp, Wildlife SOS, India

Wildlife SOS (WSOS) is an NGO that is best known for solving the 'dancing bear' problem that had persisted for centuries in India. Although WSOS is not a zoo, we do run the largest captive bear sanctuary in the world, and it would not have been possible to solve this problem without the support of zoos both from within India and abroad. Ending the 'dancing bear' problem took a holistic approach and entailed utilizing all interested parties. The energy that solved this problem has made it possible to take the campaign to the next level to focus on sloth bear conservation in the wild.

For hundreds of years, sloth bears cubs were poached from the wild and sold on the black market to a group of people known as 'Kalandars' who turned the bears into 'dancing bears' to make money by collecting tips from tourists. In 1996, Wildlife SOS undertook an undercover investigation to discover where the cubs were coming from and utilized the data to demonstrate that the 'dancing bear' issue was devastating the wild sloth bear populations. This information allowed a strategic plan to be created that would 1.) Rescue and rehabilitate the bears off the streets 2.) Prevent further bears from entering the system by helping the Kalandar people 3.) Develop anti-poaching programs to add additional protection in the wild 4.) Develop protection for bears in key habitats.

On Christmas Day of 2002, the first 'dancing bear' Rani was rescued. Between then and December 18, 2009 over 600 bears were rescued in India and the 'dancing bear' problem came to an end. The 600 bears were placed into one of the 4 sloth bear rescue facilities run by WSOS. The ability to provide appropriate enrichment, veterinary care and nourishment to the rescued bears would not have been possible without the support from zoos around the world that provided resources and training in multiple different skill sets. This collaboration continues today as new challenges arise in caring for an aging bear population.

In continuing the collaborative efforts with zoos, WSOS is now working closely with American zoos and bear interest groups within the zoos like the Bear TAG group to further advance efforts to help sloth bears in India. Wildlife SOS is currently in discussions with the Bear TAG group to determine if we can unify efforts among the different zoos that have an interest in sloth bear conservation. WSOS is also working closely with individual zoos like 'Zoo Boise' in efforts train forest officials to be better prepared in the field for preventing poaching.

WSOS is also moving forward to improve the educational and interactive experiences to visitors at our rescue centers and is relying heavily on experts in the zoo world who have a strong background in developing these exhibits. Ultimately, zoos have an expertise in this area that a non-profit like WSOS does not have. Therefore, collaboration with zoos to share this information makes it possible to develop good quality educational experiences that will benefit the local people.

Partnering with zoos has helped WSOS bring an end to the 'dancing bear' problem in India. Thankfully collaborations are now continuing with the zoos to protect sloth bears in the wild.

Citizen Science; a tool to empower volunteers for conservation - Carolina Roa, Tracy Aviary, Utah Division of Wildlife Resources and Salt Lake City Utilities

Citizen science started around the 1900s; it refers to the collaboration between stakeholders, originally researchers in the biological and physical sciences, and volunteers, and arose as a way to expand the reach of research spatially and temporally. The contributions of thousands of citizen scientists have revealed important patterns: from trends in species distribution to effects from global climate change. It is a powerful tool to support research and conservation, but an often-overlooked secondary benefit is the engagement and empowerment of the public. Tracy Aviary considers citizen science as a tool to articulate research, education, and management with the main objective of bridging the gap between science and citizens. One way to do this is to generate spaces for the local community to participate in research projects that allow them to expand their knowledge of birds and habitats. The ultimate goal is to produce useful data that will allow managers and volunteers to make informed environmental decisions.

In 2011, Tracy Aviary, in partnership with the Utah Division of Wildlife Resources and Salt Lake Public Utilities, started a citizen science project to monitor birds — specifically, using birds as indicators to determine the impact of forest management. Since then, Tracy Aviary has conducted field research in forests along bodies of water (riparian forests), because of the ecosystem services that these offer, their ecological importance in sustaining wildlife species, and birds in particular. Also, these are the forests in most need of conservation in Utah, with only <0.4% of their original cover remaining in the state. Fourteen volunteers signed up at the beginning of the project; fifty percent of them have contributed throughout the two years of the project. Their motivations to engage in this project were improving their birding skills and contributing as stewards of the environment. Using 6-minute point-count data, 62 bird species were found during breeding surveys conducted in spring–summer of 2011 – 2012; including transects during non-breeding months, the current number of bird species recorded is 94. Based on the results two years after forest management took place, there were no significant impacts of the management on the overall avian community, although responses at the species level were found — Black-capped Chickadee and Warbling Vireo. In the near future, the focus for the volunteer component

will be directed towards increasing volunteer recruitment and retention, measuring and monitoring Tracy Aviary's impact, as well as gauging the effect of the volunteer involvement in research projects. In the research component, a closer look at bird-habitat relationships will be pursued by the inclusion of a nest-monitoring project.

Using unmanned aerial vehicles for conservation - Serge Wich & Lian Pin Koh, Liverpool John Moores University

Globally biodiversity continues to decline. An urgent need of conservation workers is to have timely data available on habitat changes, the presence and density of animals, and on threats. Currently conservationists use a mixture of ground and manned aerial surveys for this in combination with satellite images. Some of this data collection is costly and therefore cannot be collected at the frequency needed to properly monitor changes to be able to react in a timely fashion. We present a new tool for the conservationist toolbox to collect such data, the unmanned aerial vehicle (UAV). We developed and tested low-cost UAV's (dubbed ConservationDrones) to be easy to operate and fly fully autonomously to take high-resolution photos and video. Photos from these flights have a resolution that is much higher (2cm/pixel) than high-resolution satellite images (50cm/pixel) and can be used to detect wildlife directly or indirectly by detecting nests (such as from orangutans) for instance. Photos can also be stitched together into high-resolution georeferenced mosaics or into 3D models, which both can be used to assess land-use type and structure in high detail. HD video can also be used to detect land use changes, wildlife, fires, logging, and other threats. These low-cost drones can thus be used to collect a wealth of relevant data for conservationists, researchers, ecologist, and others. In this presentation we provide an overview of the conservationdrones, data that have been collected with these in Indonesia, Malaysia and Nepal, and discuss some future developments and applications.

Spears, cell phones & conservation: reducing human-carnivore conflict in Tanzania's Ruaha landscape - Amy Dickman, Ruaha Carnivore Project, Tanzania

Tanzania's vast, remote Ruaha landscape is a globally important area for large carnivore conservation (holding 10% of all Africa's remaining lions as well as vital cheetah and wild dog populations) yet has received very little conservation attention to date. The Ruaha Carnivore Project was established there in 2009, and found extremely intense human-carnivore conflict in this area, with the highest recorded rate of lion killing anywhere in East Africa. The majority of killings were done by the Barabaig – a little-known, fearsome and extremely secretive tribe – but conflict mitigation efforts were hampered by the hostility of the Barabaig towards outsiders in general and conservationists in particular.

This talk describes how the Ruaha Carnivore Project slowly built trust with the local Barabaig around Ruaha, a process which involved cattle, cell phones and open communication between both groups. Despite significant fears on both sides – often centred around things such as murder and witchcraft – the Barabaig and the Ruaha Carnivore Project have now formed a strong partnership in the Ruaha landscape, with the assistance of international zoos and other funders. This project is still young and there is a long way to go, but the Carnivore Project and the Barabaig are now working together to create effective conservation strategies for large carnivores. This collaboration is already significantly reducing lion killing in this vitally important landscape, and the lessons learned here could help inform

conservation in the many other areas where conflict with local people poses a highly significant threat to wildlife populations.

Developing an experimental methodology for testing the effectiveness of payment for ecosystem services to enhance conservation in productive landscapes in Uganda - Lilly Ajarova, Chimpanzee Sanctuary and Wildlife Conservation Trust (CSWCT), Uganda

The Albertine Rift Eco-Region is the most important forest system in Africa for biodiversity, extending across the Great Lakes Region of East and Central Africa (DRC, Uganda, Tanzania, Rwanda, and Burundi). Unfortunately, the forests in the Albertine Rift in Uganda are under threat due to various factors leading to loss of biodiversity. The forests are under increasing threat from growing commercial demands and from rural communities whose high levels of poverty make them dependent on forest resources. With conservation agencies at national and decentralized levels not yet fully equipped to address the threats and the local people just beginning to participate in participatory forest management, the project will provide another building block to finding a sustainable financing future.

Project proponents (NEMA and CSWCT) with support of UNEP/GEF and Darwin initiative through IIED are implementing a pilot payment for ecosystem services scheme to incentivize local landholders to conserve and restore forest habitats in order to protect chimpanzees and other wildlife corridors. By making forest conservation a livelihood opportunity, a payment scheme can provide social benefits as well as meeting environmental objectives.

The project considers a randomized evaluation approach where treatment and comparison communities are identified from a sample of 140 villages in Hoima and Kibaale districts based on ecological and social parameters. The participants are separated into treatment and control villages after which a PES scheme is implemented in half of the sample. A mixture of cash and in-kind payment is offered to individual landholders in return for contractually agreed activities such as maintaining forest cover and reforestation with indigenous tree species. The scheme then involves rigorous monitoring and evaluation analysis to determine its performance.

So far 334 forest owners have signed contracts to conserve and restore a total of 1,437ha attracting annual payment level of \$60,000. Results from analysis of project results will be used by GEF and national agencies to demonstrate whether PES works and the best practices for replication of PES at international and national levels.

From orphanage to freedom: the road to rehabilitating confiscated wildlife in Peten, Guatemala - Alejandro Morales, Wildlife Rescue and Conservation Association (ARCAS), Guatemala

ARCAS is a Guatemalan nonprofit NGO founded in 1989 committed to preserving wildlife and its habitat. Its initial and still largest project is a wildlife rescue center in the Maya Biosphere Reserve in the northern Peten region of the country which rehabilitates between 300 and 600 animals per year of 40+ species, the majority the result of confiscations from smugglers operating in the reserve. Because it is the officially designated destination for all confiscations in this region, it cannot turn down any animal, whether it reptile, bird or mammal. Most of these illegally trafficked animals are young, injured, traumatized, and usually dehydrated and malnourished endangered species. They have to undergo a

long period of quarantine and rehabilitation, a complex process that can last up to 6 years (in the case of the monkeys) with release back into the tropical forests of Peten being the ultimate goal.

From solitary animals such as Morelet's crocodiles, to the more socially oriented red-fronted and mealy parrots, to the very intelligent spider and howler monkeys, ARCAS has gained 20 years of real-life experience in complex process of reintroducing wildlife into the Guatemalan jungle, experiencing its ups and downs, successes and failures and lessons learned. These have all served to allow ARCAS to continue perfecting its methodologies and protocols that guide the treatment of the animals received at the Rescue Center. It has also led ARCAS to its latest, most ambitious and complex project: the first-ever release of scarlet macaws reproduced in captivity into the Maya Biosphere Reserve. The scarlet macaw is a flagship species for the Mayan Forest, a charismatic but highly endangered species that numbers under 200 individuals in the wild in Guatemala. ARCAS is initiating a long-term, population reinforcement program of scarlet macaws in the Sierra Lacandon National Park in order to insure that these spectacular birds survive for future generations in the Maya Biosphere Reserve. ARCAS's 20+ years of experience in wildlife research, rescue, rehabilitation and release, is coming together, to see that this species shines in nature where it belongs.

Studying a living fossil: conservation & ecology of the Giant armadillo in the Brazilian Pantanal - Arnaud Desbiez & Danilo Kluyber, Royal Zoological Society of Scotland (RZSS) & Institute for Ecological Research (IPE)

*The giant armadillo (*Priodontes maximus*) is the largest of the armadillo species and can reach up to 150 cm and weigh up to 50 kilograms. Although giant armadillos range over much of South America almost nothing is known about them and most information is anecdotal. Due to its cryptic behavior and low population densities, this animal is very rarely seen. The giant armadillo is threatened with extinction and is currently classified as Vulnerable (A2cd) by the IUCN/SSC Red List of Threatened Species. We simply know nothing about giant armadillos and may lose the species before we can understand its basic natural history and ecological role. No one had ever seen a giant armadillo in our study area before the project started!*

*This project aims to establish the first long-term ecological study of giant armadillos in the Brazilian Pantanal wetland. The main goal of the project is to investigate the ecology and biology of the species and understand its function in the ecosystem using radio transmitters, camera traps, burrow surveys, resource monitoring, resource mapping and interviews. The project was initiated in June 2011. Project methodologies have been tested successfully, staff trained and many excellent preliminary results obtained. Eight (8) individuals have been captured and at the moment (October 2012) three giant armadillos are being monitored. We have also discovered the important role of giant armadillos as ecosystem engineers and documented 23 other vertebrates using their burrows. The project has recently expanded to other rare Xenarthrans and Southern naked tailed armadillo (*Cabassous unicinctus*), six-banded armadillos (*Euphractus sexcinctus*), Southern tamandua (*Tamandua tetradactyla*) and giant anteaters (*Myrmecophaga tridactyla*) are also being investigated by the project.*

Giant armadillos have great potential for education and outreach. Giant armadillos have a fascinating evolutionary history (Xenarthrans can be traced back to the Early Tertiary), exhibit distinctive adaptations (fore claws, armor), play an interesting role in the ecosystem (Ecosystem Engineers), have an

intriguing appearance, and most of all in general people have never heard of them. For all these reasons, the giant armadillo is a great species to engage the public in biodiversity conservation issues. Information generated by the project is being used to substantiate education, outreach and habitat conservation initiatives, as well as policy measures for the Pantanal and other areas throughout the species distribution. Information campaigns on topics such as deforestation, habitat degradation and the practice of poisoning termite mounds are being launched using data collected from the project. Information from the project is used to promote biodiversity conservation through constant dissemination of results, workshops, publications, presentations in conferences, and, whenever possible, media appearances.

This project is a partnership between a Scottish Charity (the Royal Zoological Society of Scotland) a Brazilian NGO (IPE- Institute for Ecological Research) and a private cattle ranch Baía das Pedras. The project depends entirely on Conservation grants mostly from zoos and include: Association Beauval Recherche et Conservation (France) ; l'Association Jean-Marc Vichard pour la Conservation (France); Bergen County Zoo (USA) ; Cerza Zoo (France) ; Chester zoo (UK); Columbus Zoo (USA); Conservation des Espèces et des Populations Animales (CEPA) (France) ; Idea Wild; Oklahoma City Zoo (USA); Prins Bernhard fund for Nature (Holland); Phoenix Zoo (USA); Sea World Busch Gardens (USA); Taronga Zoo (Australia); Taiwan Forestry Bureau (Taiwan); Zoo Conservation Outreach Group (ZCOG) and its partners, the Chattanooga Zoo, Jacksonville Zoo, Salisbury Zoo-Chesapeake AAZK, and the San Antonio Zoo and Aquarium.

Club de Protectores de Anfibios Amazonicos (Amazon Amphibian Protectors Club) - Marcy Sieggreen, Detroit Zoological Society

The Detroit Zoological Society has been working in Amazonia Peru for nearly 2 decades, conducting primate field surveys, supporting education programs in local schools and investigating amphibian population characteristics and abundance. We began amphibian surveys by working in areas around schools we were supporting and visiting each year. By interacting with students in the schools and communities, we learned that Amazonian kids had little interest in and generally negative attitudes toward frogs, but they were obviously intrigued by our interest in them. Although it is too soon in our amphibian survey work to fully understand amphibian population issues and to begin looking for strategies to improve them, we began to explore ways to engage kids in amphibian awareness as a means of improving natural science education in the schools we support. Research conducted by nonprofessional scientists, known as citizen science, is a beneficial way to gather data, stimulate interest and promote awareness. Using this approach, we asked students to make visual observations, provide written records on their findings and submit to the zoo twice a year. Persistence paid off as we built a relationship with one instructor and 15 students in the village of Llachapa. This is how "Club de Protectores de Anfibios Amazonicos" was created.

Fundación Temaikèn`s Endangered Species Conservation Program - Paula Gonzalez Ciccía & Carina Righi, Fundación Temaikèn

Fundación Temaikèn is a nongovernmental organization of Argentina which mission is to protect nature educating to change attitudes and behaviors, researching on the flora and fauna and preserving

species and ecosystems, giving priority to the local ones. To achieve the mission Fundación Temaikèn is based on 6 pillars: a biopark, a natural reserve, a breeding center, educative programs, research projects and conservation programs (Protected Areas, Marine biodiversity and Endangered Species Conservation Programs).

The Endangered Species Conservation Program works on the conservation of key species, which are in danger of extinction, through the recovery of their populations and natural environment. This program involves three Conservation projects that develop strategies to conserve maned wolf (*Chrysocyon brachyurus*), lowland tapirs (*Tapirus terrestris*) and native endangered species with high value of conservation.

Maned Wolf conservation projects` goals are: to rescue and rehabilitate animals and return them to their natural environment; to preserve the wild population in Mar Chiquita, Córdoba through field research and working with the community and to develop a National Action Plan for the species. Through a national rescue network, specimens that are affected by different problems are referred to the Rehabilitation Center in Temaikèn. The animals that are suitable are returned to their environment where they are monitored to evaluate the success in the rehabilitation. On the other hand, the registration of fingerprints and feces in the field allows us to estimate the abundance of specimens and to analyze the way they use their habitat. We also conduct genetic studies through feces to confirm their presence and amount of animals in the region. We carry out interviews with local people to gather information about the opinions and knowledge that the community has about the species to draw up the conservation strategies. We constantly work with the schools and rural populations to decrease the impact of threats.

Tapir conservation project`s goals are: to keep a viable ex situ population; to preserve the existing tapir populations in at least one region with high conservation value and to implement integrated actions, on a national level, included in the action plan. In order to manage the ex situ population we perform health studies, specific treatments and genetic studies with all the captive specimens kept in Argentina. This way, we can guarantee a healthy genetic population. We have a genealogical registry and we recommend the optimum crosses based on the genetic information. In the field we started studies to estimate the abundance and distribution of the species in places with high survival possibilities, such as Bañado La Estrella in Formosa and Pampa del Indio in Chaco. Since 2008 we carry out initiatives with different social actors of the community, to engage them in the conservation of the specie. We also work on proposals from the schools, based on diagnosis through interviews.

Threatened species conservation project: The conservation objects of this projects are mash deer, anteater and night monkey. This project pretends to recover high conservation value representatives of native wildlife; to reintroduce healthy animals in their habitat and to elaborate protocols for interdisciplinary work. To achieve these goals we have established a rehabilitation center in Fundación Temaikèn. We research and generate valuable information about these animals and we work with government agencies and other institutions to return them to their habitat.

All these projects have very strengths strategies researching populations in situ, developing breeding plans ex situ, and managing regional actions plans with local communities, NGOs and governments. We are convinced that this is the way to conserve not only endangered species but their natural habitats as well.

Building relationships beyond dollars to advance conservation - Claire Martin, Disney Worldwide Conservation Fund

As zoos and aquariums explore opportunities to drive more support for field conservation, competing priorities and limited resources can cause barriers to financial contributions. Developing a different strategy to source support and further the objectives of field conservation may be a solution that becomes more viable by building stronger relationships with such institutions. Whether it is working with a corporate funder or an AZA accredited institution, there are opportunities to source resources beyond dollars and often mechanisms in place to advance such collaborations. These collaborations may include various in-kind opportunities such as professional expertise in areas like veterinary medicine, conservation education, marketing/public relations, technology development and many others. Stronger relationships can lead to opportunities to broaden awareness for a project through different audiences, develop conservation materials and strategies and make connections with new donors among other benefits.

At Disney, conservation is a priority and through the Disney Worldwide Conservation Fund we have been able to direct a total of \$20 million to conservation programs in 112 countries. These grants are distributed annually and even in that short time frame some organizations stand out because of their ability to communicate their accomplishments and engage us in their work beyond the dollars we contribute. In some cases these relationships have progressed to involve various members of our Disney team, advancing the programs through special expertise or additional resources. From gorilla projects in the Democratic Republic of Congo, to sea turtle education campaigns in Florida our staff has helped to advance research, broaden awareness, create materials, provide equipment and prove that such connections can have benefits for conservationists and the wildlife and habitats they are working to protect. I plan to highlight how these relationships have worked and the benefits of these collaborations and how they can drive funds and create shared value for the organizations and institutions involved.

Two Foundations that Support Species Conservation - Bill Konstant, Margot Marsh, Biodiversity Foundation

The Margot Marsh Biodiversity Foundation was established in 1996. Its mission is to contribute to global biodiversity conservation by providing strategically targeted, catalytic support for the conservation of endangered nonhuman primates and their natural habitats. The Mohamed bin Zayed Species Conservation Fund was established in 2008 to provide grants to individual species conservation initiatives, recognize leaders in this field, and elevate the importance of species in the broader conservation debate.

Since the first grant applications were submitted, the Margot Marsh Biodiversity Foundation has awarded more than \$9 million in grants to projects worldwide, including nearly one hundred grants (over \$1.5 million) to more than a dozen North American zoos. Grants to zoos have helped support primate field studies, captive breeding and reintroduction efforts, laboratory research, education programs, ecotourism initiatives, conferences, and scientific publications.

The Mohamed bin Zayed Species Conservation Fund currently accepts grant applications for projects that focus on fungi, plants, invertebrates, amphibians, reptiles, birds and mammals. Grants are made in support of grass-roots initiatives; of individuals whose passion, dedication and knowledge are

key to saving species; for in situ projects; to elevate awareness of species conservation; and to help attract further contributions to species conservation. Presently, the Fund awards \$1.5 million in grants each year.

Both funding institutions welcome requests from AZA institutions. This presentation walks potential applicants through the project development and proposal processes.

One Million Dollars, One Year, One Big Idea - Quarters for Conservation - Della Garelle, Cheyenne Mountain Zoo

Just think, the first thing that guests DO at your zoo is a conservation action. It's fun, family-friendly and empowering. It's stealth learning at its best. You don't need to convince people that your zoo helps wildlife – they just took part in it.

The big idea – raise the price of admission by a quarter, devote the funds to field conservation projects, and allow guests to distribute the funds by voting for the wildlife project that inspires them.

Contribute 3% to Field Conservation Easily

The spirit of Quarters for Conservation (Q4C) is to devote at least 50% of your new income to expand or start new field conservation initiatives, not to replace budgeted conservation or operations expenses. Q4C programs can help meet the AZA's Field Conservation Committee's challenge to spend 3% of your annual budget on field conservation. More than a dozen zoos have used Q4C to significantly expand their contribution to field conservation, at no additional cost to the zoo.

The sheer act of voting propels people to read our graphics and learn what issues are endangering wildlife and their habitats. And, voila – their awareness is raised. Make it fun, and they will vote many times, with many quarters.

These quarters have added up to over \$1 million raised annually for wildlife conservation at all zoos that currently have Q4C programs.

The objectives for Quarters for Conservation are:

- *raise significant funds for additional in situ conservation projects,*
- *make it clear that each zoo visit helps wildlife conservation,*
- *encourage guests to take everyday conservation actions by showing how they are connected to wildlife survival and*
- *empower zoo staff to support field projects for species they are passionate about.*

One Zoo's Success

Inspired by Zoo Boise's conservation initiatives, Cheyenne Mountain Zoo took Steve Burns' idea and ran with it. In 2008, the zoo launched their Quarters for Conservation program, complete with a snazzy voting station in the entry plaza.

It is surprising how a 25-cent increase for each admission results in over \$130,000 annually for wildlife conservation projects. Guests have not objected to the minor increase – they love it!

Guests get one vote with the token they receive with admission, but can vote as many times as they like with actual quarters. There are six field projects at the voting station, which also feature

displays of the votes-to-date. Project proposals are accepted from zoo staff, who champion projects or species they are passionate about. Q4C has enabled zoo staff to participate in field work and bring back exciting stories to share with guests.

Some criteria for Q4C projects at Cheyenne Mountain Zoo are: 1) there are simple conservation actions or behavior changes our guests can take to benefit each species; 2) the Zoo can make a significant contribution with our unique strengths; and 3) the staff Champion is passionate and can be a liaison to the project.

Quarters for Conservation energizes staff, raises significant funds to support imperiled wildlife in the field and celebrates the wildlife hero in us all.

Zoos with Quarters for Conservation Programs

There are currently at least twelve AZA zoos running full Q4C programs, complete with the admission surcharge and a variety of voting stations. Other zoos such as Oregon Zoo, Sedgwick County Zoo, Zoo Miami and Zoo New England have alternate Quarters for Conservation programs that also raise significant funds for wildlife conservation.

To help zoos create successful programs, there is an AZA Q4C listserv, where questions are answered and advice freely shared. Learn more about Quarters for Conservation on these zoo's websites, or contact Della Garelle at dgarelle@cmzoo.org.

1. *Blank Park Zoo*
2. *Brevard Zoo*
3. *Cheyenne Mountain Zoo*
4. *Cleveland MetroParks Zoo*
5. *Greater Vancouver Zoo*
6. *Greenville Zoo*
7. *Knoxville Zoo*
8. *Oakland Zoo*
9. *Sacramento Zoo*
10. *The Living Desert*
11. *Woodland Park Zoo*
12. *Zoo Boise*

Zoo Wild: Rotterdam Zoo's Conservation Festival - Angela Glatston, Rotterdam Zoo

Rotterdam Zoo launched ZOOWILD in 2011 in order to combine several small scale conservation activities under a single, larger umbrella event. The name ZOOWild was chosen to indicate the link between the zoo and the natural environment; this name also had the advantage that also means "Sooo wild" in Dutch, which is a good name for a festival. ZOOWild takes place in the autumn vacation, this timing may seem counter intuitive; autumn is often seen as the precursor to winter so it might be seen as giving our festival a negative image. However, it is also the season where life prepares itself for the next

spring and this is how we see our conservation efforts, the preparation for a brighter future. We use the festival to explain our conservation vision to the public in a positive and fun way.

After only two years, the ZOOWild festival is still a work in progress. However, we are learning, and the high point of the event, our conservation (and sustainability) market, is positively received. The 30+ conservation organizations and companies with sustainability products are given the opportunity to tell our visitors about their work, to sell their products and to raise money. We have a broad range of market stall holders from relatively local NGO's such as Zuid Hollands Landschap and Elementree to well known international ones such as Greenpeace and the WWF and from eco-travel agents to eco-friendly beauty products and recycled Tupperware. This market is important for us:

- *It allows us to demonstrate our support of conservation and sustainability to our visitors*
- *It allows the participating organization the opportunity to fund-raise, to address a new audience with their activities and products, and also to come in contact and discussion with other organizations and*
- *It offers our visitors a chance to learn more about conservation and sustainability in a friendly, welcoming and interactive environment.*

Innovative Fundraisers - Beth Armstrong, Conservation Consult, Conservation Initiatives

Although most zoos feel a responsibility to support fieldwork as it is implicitly implied in their mission statement, there must be money in the coffer in order to implement these intentions. This presentation will explore and highlight how a number of zoos have raised money to support and increase their respective institution's commitment to field research and conservation projects. Some larger zoos already have substantial conservation budgets while smaller zoos may have limited resources. Through innovative practices and staff/volunteer involvement both small and large zoos have been able to build and increase their conservation commitment over time. It is hoped that this presentation will prompt more ideas and discussion about creative methods of increasing support for fieldwork.

Kinabatangan River Spirit: contributing to freshwater conservation & sustainable livelihoods in northern Borneo - Tun-Min Poh, Kinabatangan River Spirit Initiative

Although well known for its terrestrial biodiversity, Borneo Island is also a hotspot for aquatic diversity, with almost 40% of its freshwater fish species endemic to the island. The most isolated among the island's watersheds, the Kinabatangan River has the highest levels of freshwater endemism on the island. The river's catchment has experienced drastic landscape changes and today, more than 50% of the river basin continues to be actively logged, while at least 25% is covered in agricultural lands. Despite heavy human disturbance, the Kinabatangan still supports an enormous amount of biodiversity and endemism. Although iconic species such as the Orang-utan and Bornean elephant have been catalysts for forest protection in the Kinabatangan catchment, terrestrial protection does not guarantee the protection of freshwater biodiversity. This is evidenced by the degradation of the river experienced by local communities. Water critical for rural and urban populations is polluted and highly sedimented; and freshwater fish important for livelihoods have become scarce. Although river dwellers recognize the changes in the river, nothing has been done to document the loss in fish diversity or change in overall

river health. Communities have had little role in the future of their river, and have been left to adapt to the seemingly inevitable.

The Kinabatangan River Spirit Initiative was conceived on the basis that community participation in research and management is critical for achieving a healthy river, and developed based on the needs identified by the local Kinabatangan community. The project envisages a healthy Kinabatangan river, which supports robust freshwater biodiversity, persistence of local culture, and sustainable development. To initiate this project, a two-year pilot study is in progress to establish baseline information on freshwater fish biodiversity and engage community in freshwater fish monitoring. It will assess the health of the Lower Kinabatangan catchment using fish as a surrogate to identify changes in diversity and community composition; threats to fish biodiversity; and actions that improve sustainability of fish populations and livelihoods at the local level. The outputs of this pilot include providing a baseline for fish diversity, gathering information on locally and globally threatened species, and strengthening the argument for sustainable development practices in the Kinabatangan catchment.

Where should we go to find great seafood? Supporting marine conservation by empowering the public to make choices for a healthy ocean - Maggie Ostdahl, Aquarium of the Bay, San Francisco

Everyday decisions lead to actions in support of conservation of land and sea. We make decisions about what to eat every day. What seafood decisions have you made recently, and what relevance do they have to thousands of fishery conservation projects taking place around the globe? Why should you know where the seafood in that fish stick/ crab cake/ tuna fish sandwich came from, and how it was caught or farmed? "Sustainable seafood" and all that term implies is an important national and international conversation, and aquariums and zoos have a key role to play. Aquarium of the Bay partners with the Monterey Bay Aquarium Seafood Watch program, and together with other organizational partners in the San Francisco Bay Area, we have formed the Seafood Watch Alliance. This presentation will provide an overview of the program and what we do. I'll also go through some case studies on popular seafood we consume in the US, and what about them is sustainable or not. It just might be more than you ever thought you wanted to know about seafood!

Seafood is a multibillion dollar global industry. In 2011, Americans ate about 15 pounds of fish and shellfish per capita, and spent more than US\$ 80 billion on seafood products. The United States recently surpassed Japan to become the second largest consumer of seafood in the world behind China. 90% of the seafood we consume is imported. The most-consumed seafoods in this country are shrimp, canned tuna, and salmon – and the actual fish and shellfish come from many wild and farmed sources. Some of those sources are more sustainable than others, and improved sustainability requires many people and projects working throughout the seafood supply chain.

No portion of the global ocean is unaffected by human activity – and fishing is one of the oldest human activities. Over 80% of global fisheries are fully or overexploited. Overfishing is one issue; other concerns associated with wild-caught seafood include bycatch and ecosystem damage. We are increasingly turning to aquaculture, but management of "fish farming" generally lags behind industry development. Some of the concerns associated with aquaculture are use of marine resources for stocking and feed, and pollution impacts of fish farms. There are a variety of solutions or at least

mitigations for these problems. We consumers need to know what questions to ask and what information to look for, so we can make choices for a healthy ocean.

Rebuilding islands in the Chesapeake Bay: Unique partnerships in environmental restoration of important habitats - Laura Bankey & Charmaine Dahlenburg, National Aquarium

The National Aquarium has been working with various partners to provide community-based habitat restoration opportunities within the Chesapeake Bay watershed since 1999. Since that time, we have helped restore more than 160 acres of vital habitat by planting more than 1.5 million native plants and removing invasive species and debris from project sites. In 2005, we hosted our first restoration project on Poplar Island, returning with additional volunteers in 2009 and again in 2011. In total, we hosted 659 volunteers, installed more than 233,000 native tidal wetland grasses and restored close to eleven acres on this unique restoration site. While only partially finished, wildlife is already beginning to return. To date, more than 170 bird species have been identified on the partially restored island and 30 species are nesting in the new habitat. Birds are not the only animals that have chosen to nest there. A thriving population of diamondback terrapins now nests on the sandy beaches and restored marshes of the island. In addition to the habitat restoration project, the Aquarium also participates in a diamondback terrapin head start project developed by researchers studying the terrapin populations at the restoration site.

When Captain John Smith sailed the Chesapeake in 1607, Poplar Island was estimated to be 1400 acres. In the centuries that followed, the island was home to farms, sawmills, schools and at one time almost 100 inhabitants. For a variety of reasons Poplar Island, like many other islands in the Chesapeake Bay was beginning to undergo serious erosion. It is estimated that by the 1990s, no more than 5 acres remained of the original island footprint. Parallel to the loss of these local islands, the Port of Baltimore was increasingly expanding and becoming one of the most influential economic drivers in the state of Maryland. The approach channel to Baltimore's harbor had to be constantly dredged to provide access to larger and larger ships making their way up to the port. The excess dredged material had to go somewhere. The original partners in the Poplar Island project, the Maryland Port Administration, U.S. Army Corps of Engineers and the Maryland Environmental Service developed a plan to restore Poplar Island to a 1710 acre footprint using the excess dredged material from the shipping lanes – termed “beneficial reuse.” In 1996 and again in 2007, a total of \$667M was committed to rebuilding the island and creating habitat for wildlife - mainly upland forests and tidal wetlands. A retaining wall was built, smaller island compartments designed and the island began accepting dredged material in 2001. Almost immediately, wildlife began to make regular visits to the island – even as it was an active construction site. As the tidal wetland cells came online, additional partners were invited to participate in this unique project. NOAA is helping to monitor wildlife, the U.S. Fish and Wildlife Service is helping to manage the restored sections, researchers from Ohio University are studying the diamondback terrapin populations now using the island, scientists from the University of Maryland Center for Environmental Science are monitoring the wetland to determine restoration success and the National Aquarium is creating community connections by facilitating stewardship opportunities on the site and helping citizens understand the scientific value of this restoration site.

From Virginia to Borneo: Following a signature species (*Tomistoma schlegelii*) into field conservation opportunities - Mark Swingle, Virginia Aquarium & Marine Science Center & Rob Stuebing, Indonesia Foundation for Equatorial Conservation (YASIWA)

*In 2009, the Virginia Aquarium opened a newly renovated exhibit gallery, the Restless Planet. For the first time in its history, the Aquarium included major permanent exhibitions of species and habitats from outside the mid-Atlantic region of the United States. Along with the new exhibitions, including several globally endangered species, the Aquarium initiated plans to provide its first significant support for international field conservation efforts. The following information describes the Aquarium's involvement with conservation biologist Rob Stuebing and initial work to understand the ecology and conservation needs of the endangered *Tomistoma* crocodile and its incredibly rich habitat in the Mesangat wetland of Borneo.*

*The landscape of Indonesian Borneo remained mostly forested until the 20th century. Following independence, national development in Indonesia spurred a rush for easily convertible natural resources, primarily in the form of timber extraction. The timber industry formed an ideal precursor for plantation agriculture, as the value of palm oil skyrocketed in export markets. The result has been rapid rates of deforestation and related habitat destruction, especially in the lowland forest zones along the equator. Campaigns against oil palm have had no significant impact so far, while a new emphasis on integrating species conservation into development decisions and plantation operations has shown some promise. The Mesangat wetland in East Kalimantan is one such example. The area was heavily logged beginning in the 1970s, and vast areas burnt during severe El Niño droughts in 1982-83 and again in 1997-98. In 2008, an oil palm plantation company acquired a portion of the Mesangat-Kenuhan Suhuwi wetlands, but after discussions with its own conservation staff, agreed that not only was this deep wetland unsuitable for oil palm, but acknowledged also that there were several Critically Endangered and Endangered species resident in the area. This situation mirrors a larger reality in the disturbed wetlands of East Kalimantan, that stretch over an area of peatlands, freshwater swamps and vast inland lakes, where RTE species persist despite decades of disturbance. In Mesangat, there have been collaborative efforts by the company's conservation department, local and international scientists and students, international zoos and aquariums and a local conservation foundation to ensure that this wetland site of perhaps 1,000km² is maintained for the conservation of at least five RTE species: *Orlitia borneensis*, *Crocodylus siamensis*, *Tomistoma schlegelii*, *Ciconia stormi*, *Prionailurus planiceps* and *Nasalis larvatus*. Efforts by an earlier foundation set up by the oil palm company have resulted in the first detailed accounts of the ecology of *Crocodylus siamensis* and *Tomistoma schlegelii*, and the beginning of an overall conservation management of many more wetland species. Many RTE species currently remain relatively common within these patchy, mixed-use landscapes. The above conservation model can be attractive because it would integrate conservation values within an industry that has ignored all but the most broad-brush conservation efforts (that often die after lunch in five-star hotel discussions), place responsibilities in specific companies at specific sites on readily identifiable RTE species, provide opportunities for conservation engagement with local scientists and economies, and identify specific targets for international institutions eager to achieve solid gains in the conservation of species of their specific interest. This model has bones, i.e., it relies not upon high-level discussions in international*

conferences, but rather direct action on the ground by local and international partners. Participation is invited.

The Kasiisi Project: encouraging environmental stewardship in Uganda's next generation - Dr. Zarin Machanda, Elizabeth Ross, Ph.D. & Sonya Kahlenberg, Ph.D., The Kasiisi Project

The Kasiisi Project works to preserve Kibale National Park (KNP), a rare natural treasure in western Uganda. KNP is home to over 300 bird species and the highest density and diversity of primates in East Africa. It harbors many rare and endangered species, including elephants and chimpanzees. Though gazetted as a National Park in 1994, threats to KNP and its wildlife remain and are increasing. The neighboring human population, an estimated 240,000 people at a density up to 335 people per km² and growing at 3.5% annually, presses hard against the park's boundary. Decreasing crop production and increasing competition over land and resources such as firewood and water has intensified pressures on the forest. Poaching inside the park and human-wildlife conflict outside the park is also common. Conservation in the face of these huge challenges requires both short-term (e.g. law enforcement) and long-term (e.g. educational programs that foster an appreciation of the consequences of environmental degradation, an empathy for threatened animals, and pride in preserving wild places) approaches. The Kasiisi Project, founded in 1997, initially as the community outreach arm of the research-based Kibale Chimpanzee Project. We work collaboratively with governmental and nongovernmental organizations and Kibale researchers. Our focus is on long-term educational strategies, which complements other projects in KNP that work toward shorter-term conservation solutions. We set out to (1) help improve local government primary schools in general to provide the children of subsistence farmers with an education that would enable them to pursue livelihoods that were less impactful on the forest. We work toward this goal by addressing multiple needs of the schools, ranging from investing in new construction to providing free lunch programs, teacher training, and health initiatives that help reduce absenteeism, especially in adolescent girls. We also (2) use conservation education to motivate and empower children – the decision makers of tomorrow – to become a generation of committed rural conservationists. Currently we work with 14 forest-edge primary schools reaching 10,000 children, their teachers, families and communities. Because of large class sizes, we primarily focus our conservation education in already established school Wildlife Clubs. We use fun, hands-on activities for students and teachers, such as wildlife viewing in national parks, conducting research on the quality of area water sources, and a debate competition about local conservation issues. We continuously evaluate our programs to assess their efficacy and to inform future directions. These efforts have paid off. The Kasiisi Project schools are now rated top in the district, and evaluations show that student and teacher participants become better informed about the environment and teachers become more motivated to teach about conservation. Additionally, schools are now teaching sustainable agricultural practices and are involved in cutting-edge sustainability projects, such as using fuel-efficient stoves in cooking and recycled materials in construction and converting human waste into methane for fuel. Surveys also confirm that the local community recognizes our programs and considers our project a benefit for the community.

Changing Hearts, Minds and ultimately Behaviors: formulating community engagement with youth volunteers - Jennifer Whitener, Oregon Zoo - Anne Warner, Conservation Strategies

Maintaining an on-going level of interest and engagement with today's teenagers in any discipline is a challenge. Creating a high level of engagement with the community and the natural world is even more difficult as it requires teen organization, collaboration and leadership. As Educators, we have the unique opportunity to harness teenagers' natural enthusiasm to create conservation conscious citizens. Starting in December 2009 and ending January 2012, a pilot program called the Conservation Corps was launched at the Oregon Zoo to investigate potential impacts of a teen-led conservation group.

The mission behind the Conservation Corps was to create a group of highly engaged youth to investigate a conservation issue within the community, educate and motivate other youth volunteers to respond, and carry out an action plan to address the issue at the community level. In establishing the Conservation Corps, the objectives were to investigate the benefits of a teen led conservation group, identify factors that aided or impeded success and establish a re-creatable formula that could be used to extend teen engagement in the community. Zoo staff provided guided support and resources, but teens made programmatic decisions. Teens had one month to research an issue, assemble a team to coordinate the efforts, and present it to the rest of the Conservation Corps to solicit volunteers to take action within the community. To evaluate the effectiveness of the Conservation Corps, members participated in pre, mid, and post program interviews and completed questionnaires following participation. At completion, participants showed an increase in conservation-related behaviors and indicated continued involvement in related activities. As a result, a successful youth engagement formula was established, with teen self-selection, carefully shaped staff involvement, and the necessity of the teens to choose their community project identified as crucial to the program's success.

Oh look- it's an elephant! - Dr. Maggie Esson, Chester Zoo, North of England Zoological Society

Children with limited opportunity to experience wildlife visit my zoo and see an elephant. Impressive! But there has to be more to it than that. A flagship species in a zoo carries a wider responsibility than that of creating the 'wow' factor. For our Asian elephants this means entry points into the world of living with elephants in the villages of Assam, the rich culture of the region and the way of life of the villagers. In Assam the reality of living with elephants is a complex mixture of fear and reverence. Elephants destroy crops and sometimes lives yet they are honoured by tradition and belief. One of the benefits of zoo educators working on field projects is gaining personal insight and perspective. As a result a fresh and authentic eye can be brought to in-zoo programs. Another benefit is that of being able to mentor colleagues in the field and help make field education programs more robust in their planning, delivery and evaluation. The 'Thinking Big' Elephant Project evolved as a result of this close relationship between zoo and field program.

Children from one of the most socially deprived regions of the UK journeyed through the Assamese story in school with resources provided by the zoo, and with a zoo visit that included interviews with an elephant keeper. The project was built around listening and literacy and by using the elephant as a flagship and the Assam project as a point of cultural reference the children became fully engaged and produced an impressive body of work which was exhibited at the zoo, thus reaching a wider audience. In interviews, teachers reported quite amazing levels of concentration from children with notoriously short attention spans. Children with low levels of self-esteem and no confidence were able to rise above this when the opportunity to question a 'real' elephant keeper was presented to them. Parents reported that

their children were animated in their reporting of their school days in a way never before experienced. Meanwhile in Assam, the complex relationship between elephants and villagers living, or attempting to live alongside raiding elephants, is part of the zoo's 'Haathi' project. School visits are one part of the public education program there too, and include learning to recognise the signs of an angry elephant and when not to tease but to run! The other aspect is to explain the family lives of elephants, the role of the matriarch and the nurturing of the young, and the impact of habitat destruction on wildlife. Here there is a parallel with the discussions we have in our zoo with our school children and a strong point of emotional engagement for both. The evaluation we carry out with the schools in Assam shows this; for example, in pre and post-tests over half the participating children show a positive change in their level of understanding of why habitats should be protected and in personal meaning maps children show an increased understanding of the needs of the elephant family. This is truly a symbiotic relationship, connecting in-zoo and field conservation education using the same flagship species. As a result of in-built evaluation in both projects we gain some perspective on the value of this dual approach to conservation education.

Long-distance love story: from the Prairie to the Rainforest - Susan Lutter, Act for Great Apes

Conservation isn't simple, or quick, or one-dimensional. It is an intricate tapestry of science and culture, of putting knowledge into practice day after day, year after year. And it's fueled by passion, for the animals, the people and the forest.

This paper tells the stories of communities, half a world apart but of one spirit, whose passion inspires others - and each other - to take action for conservation.

Act for Great Apes supports Ape Action Africa, who works on the front lines of conservation in Cameroon where the national park they manage is home to more than 300 gorillas, chimpanzees and other endangered primates rescued from illegal trafficking. They also work with local communities to improve their lives, too, and to help them protect the forest that is their natural heritage.

Amur Tigers in Russia: Adapting Conservation Strategies to Meet Evolving Needs - Jonathan Slaght & Dale Miquelle Wildlife Conservation Society, Russia

The Wildlife Conservation Society's Russia Program (WCS Russia) has been involved in Amur tiger conservation for twenty years. What began as a modest Russian-American biological research program in 1992 has since diversified to address tiger conservation needs as they have evolved. In addition to biological research, WCS Russia programs now include management of an aggressive anti-poaching program, infectious disease monitoring, mitigation of human-tiger conflicts, training young conservation biologists, and collaboration with hunting concessions and logging companies to bolster tiger prey populations. Zoos have proven to be an invaluable source of support for these programs. Here, we provide an overview of the various WCS Russia conservation programs, and describe how North American zoos have directly aided Amur tiger conservation in the wild.

Rescue, Rehabilitation, Reintroduction and Education Outreach - An Integrated Approach to Bonobo (*Pan paniscus*) Conservation in the Democratic Republic of Congo - Claudine Andre & Lisa Pharoah, Friends of Bonobos, DRC

With support provided through Friends of Bonobos, since its establishment in 1994, the Congolese non-profit organization les Amis des Bonobos du Congo (ABC) has expanded its activities into an integrated bonobo conservation program that currently includes the rescue and rehabilitation of orphan bonobos, a multi-faceted environmental education program that reaches more than 50,000 people a year, and the world's first ever reintroduction of bonobos into the wild, which began in 2009.

Prior to the launch of ABC's release program in 2009, bonobos remained the only great ape species for which a method for release of captive individuals into the wild had not been developed. Given the consensus that bonobo populations are declining throughout the species' range, developing new ways to use sanctuaries as dynamic tools in bonobo conservation are ever more important. Over the long-term, the strategic release of sanctuary bonobos may provide an important technique, as it has for other critically endangered mammals (Kleinman 1989), to stabilize remnant wild populations with outside genetic material or to repopulate forests that were emptied of wild bonobos due to previous human activities.

In June 2009, ABC conducted the world's first ever reintroduction of 9 bonobos, who had been orphaned from the bushmeat and pet trades and rehabilitated at ABC's Lola ya Bonobo sanctuary. Then in 2011, ABC released an additional 7 bonobos back into the wild. Both groups were released at Ekolo ya Bonobo, a specially created community reserve located within former bonobo habitat in Equateur Province, DRC.

In order to be sustainable, the reintroduction of any species must be part of an integrated conservation program, which also addresses the main factors that put the species at risk. As such, ABC's pioneering release program employs a holistic approach by working in close collaboration with local, regional and national, and international stakeholders, providing support and direct benefits to the local communities, conducting education awareness and outreach activities, as well as anti-poaching patrols and the tracking and monitoring the released bonobos. Although many of the results of the ABC's release program have been quite encouraging, ABC has also learned a number of important lessons that can be shared to help inform decision-making and planning for any future releases.

African ape sanctuaries have evolved as supplemental conservation tools by offering a second level of protection to wild ape populations, when existing frontline conservation strategies have failed to protect individuals from the ever-growing illegal bushmeat and pet trades. With the recognized negative impacts of poaching and other threats on wild populations, it is therefore important to have measures in place to help protect a reserve of individuals who have been taken from the wild. This is one of the primary roles of the sanctuary – to act as a refuge for those bonobos who have been taken from the wild, and to provide them with the necessary care and rehabilitation to ensure their survival.

Red Panda Community Based Monitoring & Conservation - Dirk Kloss, Red Panda Network

*Red Panda Network (RPN) began in 2005 to target the conservation of the threatened red panda (*Ailurus fulgens*) across its entire range in the Eastern Himalayas. RPN's trademark community-based monitoring and conservation method started in 2006 with the main red panda subspecies (*A.f. fulgens*) population along the eastern Nepali-Indian border. Studies of this transboundary region and its red panda population demonstrate threats by habitat fragmentation and deforestation from livestock herding, firewood and fodder collection, and road construction. While poaching has been drastically*

reduced if not eliminated in our areas, it continues to be a major concern in other parts of Nepal and neighboring countries. Conservation depends on work with the remote forest settlements.

This paper demonstrates how RPN's signature program, Project Punde Kundo ("red panda" in a local Nepalese dialect) utilizes local ecological knowledge and the Nepal community forestry framework for conservation of a landscape species. We maximized our ability to collect red panda information by directly involving communities. RPN only has 2 international and 2-3 in-country staff, basing most of our international awareness outreach and fundraising on volunteers, and employing in each of our districts a local conservation organization we helped create or develop. Through these partners RPN hires and trains forest users for their new role as 'Forest Guardians' in long-term population and habitat monitoring, and for awareness generation among their fellow village communities. With this income from forest and species protection begins the process in which communities buy-in and shift their perception of the forest from a source of extractive income to one of sustainable income potential, appreciation and tangible benefits from its inherent aesthetic value. New firewood efficiency and income generation programs further reduce deforestation.

Since the last presentation at ZACC 2011 the new RPN team has introduced closer integration with zoo partners who are funding conservation activities, began construction of a Community Conservation Resource Center high in the Himalayan mountains, tripled the active area in which we work with Eastern Nepal communities, is expanding initial baseline and awareness programs to 6-10 more districts in central and western Nepal, advanced key research through the first ever red panda Population and Habitat Viability Assessments (PHVA) in Nepal and China (India is scheduled for later this year), introduced a scholarship program for Nepali masters students for research in our new districts, and received first investor funding for an innovative pilot project to generate sustainable revenue for decades through carbon offset payments with Reduced Emissions from Deforestation and Degradation (REDD).

RPN funding developed from one-time grants to increasingly longer-term zoo and corporate partners, as well as a diversified small donor base. Small one-time grant applications are still a major but often inefficient source due to time-consuming proposals and follow-up, uncertainty, frequent needs to rewrite or delay activities, etc. The greatest conservation impact is reached by our long-term Zoo partners who fund specific program components that are aligned with their interests, for example research through our community-based monitoring, education programs such as school curricula, information panels along strategic paths and roads, or creating the RPN Community Conservation Resource Center. One reliable zoo partner supports our core conservation program financially long enough so that we can allocate staff to integrate dispatched zoo staff as short-term volunteers in construction, education exhibits, ecotourism, or research activities.

The Conservation Center serves as the base for community-based monitoring and awareness programs in the area. It demonstrates hands-on biodiversity conservation through sustainable building practices, household solid waste management, eco-sanitation toilets, rainwater harvesting, alternative farming and energy practices. It will train the population of surrounding mountain villages in construction and use of fuel efficient woodstoves that can reduce fuelwood consumption, a major driver of red panda habitat deforestation, by over 50%. Better insulation of kitchens, thanks to introduction of chimneys, increases savings even more, and greatly improves respiratory health of women and children. The center will eventually become self-sustaining using income from high-value cash crop nurseries such

as medicinal and aromatic plants, installation of EcoSan toilets, stoves and other renewable energy, handicraft and souvenir production, ecotourism accommodation, guiding, and other services.

We recommend this model for other landscape-level species to develop a conservation ethic and sustainable development capacity within local communities.

Incentivizing community-based reforestation efforts in Madagascar - Edward E.Louis Jr., DVM, Ph.D., Omaha's Henry Doorly Zoo and Aquarium

Omaha's Henry Doorly Zoo and Aquarium (OHDZA) and its Malagasy NGO, the Madagascar Biodiversity Partnership (MBP), have initiated an innovative project in the Kianjavato area of southeastern Madagascar that protects and expands local forests while raising the standard of living for thousands of people. The forests in Kianjavato are home to two critically endangered lemurs; the Black and white ruffed lemur and the Greater bamboo lemur. Six other lemur species also dwell in these forests along with wildlife such as chameleons, bats and tenrecs, amongst a flora unlike anywhere else. In addition, there are approximately 12,000 people that rely on the same forests for firewood, food and construction materials. As a result of more than 50 years of deforestation in the area the landscape has been fragmented, cutting off thoroughfares for wildlife.

The OHDZA-MBP therefore developed a multi-tiered corridor design reforestation and restoration project that takes advantage of Kianjavato's mountainous terrain and does not reduce the area of current farmland. The unique design of this plan allows for half of the regenerated forest to benefit the community through sustainable harvesting and sale of products. The other half of the reforested area will provide a permanent habitat that will support not only the critically endangered lemurs but all wildlife dwelling in Kianjavato's forests. OHDZA-MBP believes that everything is connected, or "Mampifandray ny tontolo", and to make this reforestation and restoration project a success, the involvement of the Kianjavato community is vital. To encourage community participation, a conservation credit program has been instituted that rewards families or individuals with a variety of items for planting trees. Incentive items were selected for the potential of improving the standard of living while concurrently reducing people's burden on local forests. A sample of these items include: fuel-efficient rocket stoves, a water wheelbarrow called a Water Hippo Roller, and ToughStuff solar panels and accessories. The community-wide adoption of this program will have profound positive effects upon the long-term survival of the surrounding forests, benefitting both the people and the local ecosystem.

Ranging patterns of elephant bull in agro-industrial landscape: implications for conserving the species in the lower Kinabatangan floodplain - Nurzhafarina Othman, Marc Ancrenaz, Benoit Goossens, Danau Girang Field Centre, HUTAN

Industrial logging and establishment of large scale oil palm plantations started in Lower Kinabatangan in the early 70's. Rapid and drastic transformations of the landscape have had severe repercussions on the elephant herds living in this region of Borneo. However, the power of adaptation of Bornean elephants and their chances of survival in agro-industrial landscapes remain largely untested to date. This project uses a combination of approaches (direct sightings, radio and satellite telemetry, genetic analyses) to assess how adult male interact with females' herd during their migration along the Kinabatangan River, how elephants use newly developed agro-industrial landscapes (such as oil palm

plantations); where are the new bottlenecks hampering elephant migration and what are the ways to alleviate them, what are the types and the extent of human-elephant conflicts in the area. Managing the herd of about 300 individuals that are living in the Lower Kinabatangan at a landscape level becomes a necessity given the fast rate of habitat fragmentation and reduction encountered in the floodplain.

The Kibale eco-char initiative: partnering with agricultural communities & industry to safeguard wildlife habitat in Uganda - Rebecca Goldstone & Michael Stern, New Nature Foundation

Priding itself as an organization that adapts to local needs and desires in order to better serve wildlife populations, the New Nature Foundation has recently begun a partnership with the local agro-industrial complex that promises to make a long-term and sustainable positive impact for the outstanding wildlife of Kibale National Park in Western Uganda. Gazetted as a national park in 1993, Kibale enjoys the highest level of protection provided by the Ugandan government. Home to Africa's largest population of Eastern Chimpanzees and densest primate population, as well as countless other species commonly kept in AZA institutions, this ecological jewel is truly a haven for biodiversity. However, park guards often turn a blind eye to neighbors trying to find enough firewood to cook their dinners, leading to habitat loss and human-wildlife conflict. Founded in 2006, the Kibale Fuel Wood Project (KFWP) has worked to improve the people-park relationship and increase fuel efficiency by empowering citizens to meet their energy needs in sustainable ways. Tree planting, stove building and environmental education have been the keystones of our work for the past seven years. However, with one of the world's fastest growing populations placing ever-increasing pressure on the park, by 2011 it was clear that the community was prepared to make further changes in their lives that could help safeguard the local wildlife.

The Kibale Eco-Char Initiative (KECI) was founded to compliment the KFWP by manufacturing cooking fuel from agricultural and agro-industrial waste. The process of "briquetting" waste produces fuel of a uniform size and quality and increases the energy contained per unit of volume. Besides protecting habitat, replacing rainforest trees with briquettes also has positive implications in terms of carbon sequestration: Eco-char produced in the manner promoted by the KECI is a carbon neutral fuel source, with 100% of the carbon released by burning having been previously absorbed as the biomass was growing. The KECI follows two operational models: Village members trade farm waste for finished briquettes at our first production center, and we have seen a slow but steady adoption of the technology, with 23 families currently cooking meals with briquettes. But it is our partnership with the McLeod Kiko Tea Estate, a local agro-industrial giant, which promises to raise the KECI to the level needed to protect the few remaining expanses of pristine habitat in Western Uganda. Located on Kibale's boundary, employees often poach firewood in the park. Recently certified by the Rainforest Alliance, the estate was eager to curb this detrimental practice. Producing sawdust and "tea waste" in their regular course of operation, the estate has started briquetting these materials (with guidance and assistance from the KECI) to provide fuel for their more than 500 employees. This paper explores the challenges and opportunities inherent in adapting a grass-roots conservation model to the agro-industrial landscape.

Building bridges across sectors - Bengt Holst, Copenhagen Zoo

Copenhagen Zoo has been active in Malaysia working with Malay Tapir (Tapirus indicus) since 1999. The work focused primarily on ecological research and wildlife management and has resulted in a fruitful cooperation with the Department of Wildlife and National Parks, Malaysia. Since 2009 we expanded our work to include a close cooperation with United Plantations (UP), a Danish owned palm oil company with plantations in West Malaysia and in Kalimantan. Our role in this cooperation is to assist United Plantations in achieving their goal of making their production more environmentally friendly. The cooperation started as an informal assistance, but was formalized in 2010 when the Zoo signed an MOU with United Plantations. According to this MOU Copenhagen Zoo will:

For a period of five (5) years, support UP with the:-

- a) Development and implementation of an environmental masterplan to complement UP's activities with special focus on the company's estates in Kalimantan.*
- b) Development and capacity building of an Environmental Division in accordance with UP's requirement to be located at UP's Kalimantan Properties.*
- c) Operationalization of and mainstreaming of RSPO P&C and UP's environmental policy within the organisation.*
- d) Development and implementation of research and environmental monitoring programmes for UP's estates in Kalimantan.*
- e) Development and implementation of applied ecological research programmes aimed at improving plantation yield in a sustainable manner.*
- f) Development and implementation of rehabilitation and restoration programmes for UP's estates in Kalimantan.*
- g) Development awareness material about sustainable palm oil production.*

The cooperation is considered controversial by many parties, but has proven very productive with a big positive impact, for example an environmental division has been established in the organization of UP, current ecological studies have started and areas of conservation importance are being managed and, if needed, rehabilitated. Both parties benefit from this cooperation, and it's a clear indication of the fact that cooperation is better than "trench digging" which unfortunately still is widespread within parts of the conservation community.

The presentation will provide the background for this cooperation as well as the status and perspectives for the future.

Conservation Coffee in Papua New Guinea: An agricultural livelihood project to support tree kangaroos and biodiversity conservation - Lisa Dabek and Bobbi Miller

The mission of the Woodland Park Zoo's Tree Kangaroo Conservation Program (TKCP) in Papua New Guinea is to foster wildlife and habitat conservation and support local community livelihoods through global partnerships, land protection, and scientific research. The main goal has been to create and sustainably manage a protected area in YUS region in the context of local community. The creation and development of the YUS Conservation Area (YUS CA) represents the work of 16 years of collaboration between TKCP and local communities, a partnership which has grown to include local livelihood programs and improved access to government services such as healthcare and education. It is

this partnership in and around the YUS CA that helps local residents create a connection between their commitment to conservation in YUS and better lives for their families and neighbors.

The YUS Conservation Coffee project began in 2009 and has become a critical piece of TKCP's livelihoods work. YUS village landowners who have set aside land for the YUS CA have access to trainings and guidance on how to increase the profitability and sustainability of their shade-grown, organic coffee. Families grow YUS Conservation Coffee on modest plots which are intentionally kept small and sustainable. Individuals work together as a collective to get their coffee beans to market and, through an existing partnership between Woodland Park Zoo (WPZ) and Seattle-based coffee roaster, Caffé Vita, YUS growers now have direct access to international markets for the first time. Caffé Vita is committed to direct trade of environmentally and socially responsible coffees. YUS growers are receiving a price above the fair-trade premium for their conservation leadership and high-quality coffee. The successful relationship with Caffé Vita demonstrates to the YUS farmers that the assistance associated with the conservation efforts increases the value of the crops, and encourages other nearby villages to consider pledging their land to the YUS CA. More land pledges mean more long-term protection for the unique YUS CA ecosystem, and for endangered species such as the Matschie's tree kangaroo. The YUS Conservation Coffee is a true success story born from the hard work and dedication of the YUS farmers and local TKCP staff in collaboration with Caffé Vita.