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ABSTRACTS

Paper Sessions

A comparative study on message delivery effectiveness in Snorkelling and Overnight Camp in Grand Aquarium of Ocean Park

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This presentation is to compare two education programmes – Snorkelling and Overnight camp in Ocean Park Grand Aquarium. The Grand Aquarium was opened in January 2011. It is one of the biggest stand-alone aquariums in the world. Ocean Park Education Department offers a variety of education programmes in this Aquarium, aiming to deliver various conservation messages towards different audiences. Two signature programmes in Grand Aquarium were selected for this study. The snorkelling programme has duration of 2 hours, whilst the overnight camp consists of 4 hours activities and an overnight stay in the Grand Aquarium. Participants were invited to take part in written survey before and after programme. The data collected for each programme were compared to determine the message delivery effectiveness based on the answers provided by the participants. This study provides a reference on the effectiveness of message delivery towards target audiences, in terms of conservation and animal knowledge, through different approaches. The result provides an indication on the strength and weakness between the two programmes and how we could apply the findings for various audiences when developing future programmes. It is also beneficial towards zoo educators and allows them to select appropriate message delivery method when targeting specific audience in aquarium setting.

Francis Tsang graduated from the University of Hong Kong with a major in Biotechnology. She was a Certified Interpretive Guide by the National Association of Interpretation. She has presented Ocean Park's education work in the South East Asian Zoos Association (SEAZA) 2007 conference at Kuala Lumpur Malaysia, The International Aquarium Congress (IAC) 2008 in Shanghai, China and SEAZA 2010 in Bali, Indonesia. She was also the conference chairperson of the 2nd Asian Zoo Educator's Conference (AZEC) 2009 hosted, and participated in the AZEC 2011 in Taipei, Taiwan.

Animal Talks: Planning, development and the factors that influence visitor attendance

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The increasing drive for measurable quality in zoo education has led to programmes that are meticulously planned, developed, implemented and evaluated. The animal talks programme at Chester Zoo uses a clear evidenced-based model for decision making at all stages, from species selection right through to delivery. This model is based on an Action Research framework - where evaluation findings are directly used to improve programme performance – allowing us to move away from anecdote and utilising more valid forms of evidence. Each animal talk was evaluated based on the numbers of visitors that choose to attend. Species performance was evaluated using a scoring system relating to visibility, proximity and activity. Findings suggest that visitor popularity of talks was significantly related to good animal visibility, increasing animal activity, decreasing animal proximity as well as whether the animal in question was fed or not during a talk. This presentation will look at how this cyclical model has been shaped and improved to inform best practise with regards to Animal Talks at Chester Zoo.

Sarah Bazley is the Presenter Team Manager at Chester Zoo and has responsibility for delivering various forms of informal learning in the Zoo, for example animal talks, first person interpretation at exhibits and exhibitions, and exclusive animal encounters. She has worked at the zoo for 10 years.

Zoo talk- the starting point for conservation education

Dr Sue Dale Tunnicliffe – University of London, UK

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Strategic Importance: To be effective in helping visitors scaffold their further knowledge and understanding about the essential elements of conservation biology education, it is necessary to have a baseline overview of the entry knowledge and understanding that visitors bring to their visit through knowing their dialogue generated at exhibits. *Aim:* To present tried and successful methods of eliciting such entry knowledge and interpretation. *Objective(s):* to present an overview of successful methods used in conservation education research. **Method of Delivery:** illustrated talk showing systemic network analysis and simplified techniques developed for quick and easy data collection using simple counts to compile overview and other simple methodologies. *Evaluation:* such techniques have been tried successfully in zoos in the USA and England. *Conclusion:* Data reveal that the conversational style is act three levels ranging from nothing to do with the exhibit through everyday interpretation to a pedagogic /science form of dialogue. First level is social, unrelated to animals. The second level is of observations, interpreted with everyday experience. The third level is of a pedagogical science nature where one person tries to disseminate and inform others and is subdivided into three - ostensive dialogue which is drawing attention to something; directed commentary- didactic or declarative information linked with the object and logical discourse, involving the visitor, child or adult, in abstract thought and in justifying the statements that s/he makes. Visitors seldom discuss conservation because they have such a basic understanding of animals and their needs that understanding the issues of biological conservation contain concepts too advanced to link with their entry knowledge. Hence Biological conservation education needs to be aware of the entry understanding and agenda of these visitors and create strategies to scaffold further understanding and develop a conservation biology ethic.

A zoologist specialising in science education, ex ZSL head of education, interested in children's understanding of animals Has published widely internationally particularly on children's understanding of animals and is widely cited. Recent relevant papers 2007 Conservation and education: Prominent themes in zoo mission statements, Journal of Environmental Education, 2011 Using a Field Trip Inventory to Determine If Listening to Elementary School Students' Conversations, While on a Zoo Field Trip, Enhances Preservice Teachers, International Journal of Science Education. A founder editor Journal of Emergent Science, Associate editor for Journal of Biological Education, on the board of several international journals.

Creating Early Connections

Sean Coleman – Melbourne Zoo, Australia

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Strategic Importance: Creating connections between children and wildlife is of prime importance in the early years of development. Children are fascinated by the world around them, yet Nature Deficit Disorder is becoming increasingly prevalent. Melbourne Zoo aims to change the hearts and minds of young children by immersing them in two exciting new zones, designed to connect hearts and minds to animals and zoo-based occupations. *Aim:* *Keeper Kids*, an indoor play-based experiential zone for predominantly public use, and *Growing Wild*, an outdoor exploration precinct for combined public and school use, were designed for the early childhood (0-8) market from inception. Scott and Sean aim to share how connections created at this early age, and in this unique way, can influence the perception of animals and zoos. *Objective(s):* Scott and Sean will discuss the process of planning for a unique audience set, animal collection planning, and how space and loose materials form an integral part of play-based learning. There will also be discussion on the use of zoo professions as inspiration for play, discovery and learning. *Method of Delivery:* Talk and accompanying visuals (PowerPoint or Keynote) *Evaluation:* Solid evaluation of the first zone to open, *Keeper Kids*, will occur prior to the conference. *Conclusion:* Much work has been done in Zoos worldwide to ensure understanding (ie. Curriculum) is delivered effectively. *Keeper Kids* and *Growing Wild* will ensure connection is the focus.

As Learning Experiences Manager at Melbourne Zoo, Sean Coleman's department of nine educators teaches around 60% of the 110,000 students that visit the Zoo each year. Sean has been working with his team to ensure all students, regardless of age, leave the Zoo feeling connected with the world around them, have a greater understanding of threatening processes, and are inspired and empowered to take action. Sean is the Australia/New Zealand regional representative of IZE.

What every conservation educator should know about the (social) science of 'changing hearts, minds and ultimately behaviour': Key insights from sociology, psychology and science and technology studies

Dr Eric Jensen – University of Warwick, UK

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Strategic Importance: The social sciences hold key insights that could offer conservation educators the opportunity to bypass past mistakes in other fields and contribute to social change around climate change and conservation. However, these insights are distributed across multiple disciplines and research on different (but relevant) domains of social life. This presentation distills some of the most essential insights from social scientific research in sociology, psychology and science and technology studies for the benefit of zoo educators. In addition, these insights are presented through the lens of empirical research conducted at ZSL London Zoo on the impacts of zoo visits on schoolchildren's thinking and attitudes towards animals. Some additional zoo-based examples are drawn from research conducted at Durrell Wildlife Park on the needs, interests and views of zoo visitors. Thus, by drawing upon existing research outside of zoo contexts, as well as recent studies conducted at ZSL London Zoo and Durrell Wildlife Park, this presentation aims to contribute to zoo educators understanding of the underlying processes involved in seeking to change hearts, minds and behaviour. The objective is also to contribute to theoretical knowledge about how change in hearts, minds and behaviour can be most effectively achieved by synthesizing the above mix of disciplinary and empirical perspectives.

Dr Eric Jensen is a social scientist at the University of Warwick, who has extensive experience conducting impact evaluation studies in settings such as zoos, museums and science festivals. He teaches research methods at the undergraduate and doctoral levels at Warwick, and leads a Master of Science programme in Science, Media and Public Policy. He has numerous publications in peer-reviewed journals such as Public Understanding of Science and Visitor Studies, and a recently published book on social change. He is currently running a seminar series on the topic of 'Evaluating the Impacts of Public Engagement and Non-Formal Learning'.

Changing attitude towards action! The project of summer school in Parco Natura Viva (Bussolengo, Verona), Italy

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Since a few years in Parco Natura Viva (Verona, Italy) we have been setting up a project of a summer school. Each week a group of 15-25 children spent the most of their days at the zoo. A typical day starts at 8:30 am when parents take their children to the zoo and ends at 5:00 pm when they come back to pick the children up. Each week has a specific theme that characterizes it so that if some children are attending the summer school for more weeks they won't get bored. In 2011 we decided to give each week a "conservation" theme: so each week was dedicated to a EAZA or WAZA Conservation Campaign. For example we had a "bat week", a "tiger campaign" week and so on. Each week was full of activities, games, role playing, actions in creating environmental enrichment for animals of the weeks and also there were times to reflect about how it is possible to take action in conservation. To evaluate the project we focused on three different levels. On the first level we investigated if there was a change in children's knowledge about a specific theme and to do so we decided to use drawings. We were also very interested in what children and their parents thought about the project. This point is very important to us because we needed their feedback to eventually make some changes or to improve something. So we produced a questionnaire for children and one for their parent (in and out data collected). Results in all areas are encouraging: children were happy and seemed to have conquered a better knowledge about animals. Parents were also very happy about the experience. We are currently looking forward to develop a better way to evaluate this project even in the long time.

Katia Dell'Aira, Biologist. She began in 1989 with Parco Natura Viva as a keeper and as a guide. In the years she also worked as a guide in the Natural History Museum of Verona. She completed her thesis on primates in Parco Natura Viva. Thereafter, she organized the Educational Department of the Park, of which, she has been director since 1993. She's a member of IZE since 1999. She also is a certified naturalistic guide for Veneto (the Italian region where she lives).

Changing Minds through Experience – encouraging students to pick science

Claire Pipe – Twycross Zoo, UK

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The Royal Society reported that the number of students choosing to study science in England is falling. It highlighted issues including lack of specialist teaching through to careers advisors that could not provide information on the vast array of science careers. Following this Twycross Zoo aimed to develop a programme that would inspire students around science by providing the specialist knowledge and careers information that was lacking. The aim of the programme was to inspire young people to continue with science studies, to inspire young people to consider ambitious careers such as veterinary surgery and to provide insight into a broad range of animal career options. Sessions were designed to include different learning styles. For example, talks to appeal to auditory learners, group activities using diagrams for visual learners and hands-on activities for kinaesthetic learners. By including different learning styles and teaching strategies the content would be accessible to more students. Days were organised to provide experience of zoo-based careers. Each student was provided with a workbook and access to resources not available in school such as veterinary equipment and species data. Over the evaluated period 80 students took part from various East Midlands' schools. To assess the success a full pre- and post-visit evaluation was conducted. Questionnaires were used to evaluate the impact on the students, teachers provided feedback and course tutors evaluated sessions post-delivery. Results showed that all participants enjoyed the experience and felt more inspired to continue with their science studies. In addition, there were a number of individuals now seriously considering a veterinary or other animal-related career as a result of attending. Since it began over 100 students have experienced the

programme and its success was recognised last year when it received the BIAZA award for Best Education Programme: Schools and Institutions.

Claire began teaching in 2000. She holds a degree in Environmental Biology and began at Twycross Zoo in 2003 volunteering in various departments and was employed in the Education Department in 2004. During the next few years she completed her teaching qualifications and transferred to be the Conservation and Sustainability Officer. In 2009 she became a Senior Environmental Consultant for Leicester City Council, involved in developing and delivering training sessions on environmental sustainability and city-wide environmental campaigns. She returned to the zoo as Head of Education in June 2011.

Changing Hearts, Minds and Ultimately Behaviours: Formulating Community Engagement with Youth Volunteers

Jennifer L.M. Whitener – Oregon Zoo, USA

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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.

Jennifer Whitener is currently the conservation camps and classes manager at the Oregon Zoo where she has worked since 2008. At the Oregon Zoo, Jennifer has worked in several capacities including youth volunteer coordinator and education coordinator, and has piloted several conservation awareness campaigns, citizen science programs and climate change education initiatives. With a Bachelors degree and English and Environmental Studies from the University of Michigan, she is currently pursuing her Masters in Zoology in the Global Field Program through Miami University.

Experiencing Polar Bears in the Zoo: Feelings and Cognitions in Relation to a Visitor's Conservation Attitude

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Strategic Importance: Studying zoo animal experiences, from a visitor perspective, will contribute to our understanding of such experiences and how they possibly relate to conservation attitude. Stimulating positive relationships is one of the objectives of the modern zoo. Aim: To explore which feelings and cognitions are involved in visitor experiences of zoo polar bears and how this experience relates to a visitor's conservation attitude. Data were collected through qualitative interviews with 30 visitors in two Dutch zoos. Most respondents believed that a polar bear belongs in the wild but also acknowledged the conservation function of zoos. A typology of zoo visitor experiences of polar bears was derived and

consists of (a) ecological (multiple feelings, connection with wild polar bear, and climate change awareness), (b) emotional (multiple feelings, connections with captive, and wild polar bear), (c) factual (limited feelings, connection with captive polar bear), (d) preservation (few feelings, connections with wild polar bear, and climate change awareness) and (e) indifferent (limited feelings, no connection). Results showed that visitors with an ecological experience had the strongest conservation attitude, and visitors with an indifferent experience had the weakest conservation attitude.

Mirko Marseille works as an executive coordinator for both the Dutch Zoo Association (NVD) and the European Association for Zoos and Aquaria (EAZA) in Amsterdam. He has a Masters degree in Forest and Nature Conservation Policy from Wageningen University. The NVD is a membership-based umbrella organization that coordinates and facilitates zoo-related activities and events on behalf of its 15 member zoos. At EAZA Mirko Marseille is mostly involved with the coordination of the annual conservation campaigns in terms of administration and communication. Mirko Marseille is interested in the human dimensions of wildlife conservation, more specifically animal-human relationships in a zoo-setting and its relation to conservation. When time allows him Mirko Marseille is working on the further development of a conceptual framework that he hopes to use when studying zoo animal-visitor relationships.

Listen First, Influence Later: The Challenge of Interpreting Climate Change for the Public

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Strategic Importance: This presentation will discuss how to evaluate exhibitions and visitor programming. More specifically, we will examine how to determine the extent to which visitors receive and process primary messages and whether these experiences increase people's intention to take meaningful action to slow climate change. **Aim:** In March 2010, the Monterey Bay Aquarium opened an exhibition about climate change and the oceans, titled *Hot Pink Flamingos: Stories of Hope in a Changing Sea* (HPF). A comprehensive evaluation was undertaken to assess visitor behaviour within the exhibition and the respective take-home messages garnered by visitors from the exhibition and associated climate change programming. **Objective(s):** A cautionary tale that may serve as a guide for other institutions deciding to develop future projects of a similarly controversial nature. **Method of Delivery:** The HPF special exhibition incorporated live aquatic animals to tell the stories of how climate change affects ocean life and how communities are working together to solve the climate crisis. This 5,000 square foot space also offered recommendations of small changes we could make in our personal lives to help the oceans. To support the HPF exhibition, the Aquarium also premiered an integrated suite of onsite programming: a multimedia auditorium program, *Whales to Windmills: Inventions Inspired by the Sea*, and two outdoor theatrical presentations, *Enough Stuff* and *Watt a Waste*. **Evaluation:** Methodologies included a timing and tracking study, in-depth exit interviews, unobtrusive observations of guide-visitor interactions, and post-visit in-depth telephone interviews. **Conclusion:** Visitors clearly understood the exhibition was about climate change, but few explicitly talked about the relationship between climate change and the oceans. In marked contrast to the exhibition, many more visitors who interacted with Aquarium staff through personal conversations with a guide or by attending a live-action presentation (auditorium or theatrical) said they learned something new about climate change and understood the connection to oceans.

Ava Ferguson has over 25 years of experience developing and evaluating educational media and exhibitions for a variety of museums, aquariums, zoos and other informal learning settings. She holds a bachelors' degree in biology, a graduate certificate in science communication and a master's degree in education. She spent more than 10 years as a senior exhibition developer at the Monterey Bay Aquarium before taking on her current position as Visitor Research Manager.

Awareness to Action – Connecting Onsite and Online Experiences

Susan Kevin – Monterey Bay Aquarium, USA

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Strategic Importance: This presentation will cover the range of methodologies utilized by the Monterey Bay Aquarium to assess the consumption of online climate change content and whether online

platforms (including social media) are able to extend the onsite experience and encourage visitors to adopt personal conservation actions. **Aim:** In March 2010, the Monterey Bay Aquarium opened an exhibition about climate change and the oceans, titled *Hot Pink Flamingos: Stories of Hope in a Changing Sea* (HPF). A comprehensive evaluation was undertaken to assess the extent to which onsite visitors and online users receive and process program messages and media and whether this experience increased people's intention to take meaningful action. **Objective(s):** The Aquarium sought to address whether our website could be used to extend the onsite visitor experience. We were also interested in evaluating the effectiveness of social media in motivating users to access and explore the Aquarium's climate change web pages. **Method of Delivery:** An exhibition interactive allowed visitors to create a personalized video of themselves performing a conservation action that could be later viewed online at home or electronically shared with friends and family. In addition, climate change content was integrated into the Aquarium's website, and postings were distributed via Facebook and Twitter that linked directly to these HPF web pages. **Evaluation:** Methodologies included tracking user consumption of electronic content, in-depth exit interviews, unobtrusive observations and post-visit in-depth telephone interviews. **Conclusion:** Our studies indicated that interacting with the exhibit was a memorable experience and a powerful mechanism to reinforce personal conservation commitments. Social media users, in particular, demonstrated an interest in linking to and learning about climate change issues, but also displayed distinct web browsing behaviour as compared with users referred to the Aquarium website from other sources.

Susan Kevin is the Senior Visitor Researcher at the Monterey Bay Aquarium where she is responsible for overseeing and conducting a variety of evaluation projects, ranging from exhibition and program studies to marketing surveys to online analyses. She holds a bachelor's degree in zoology and a master's degree in marine ecology.

A study on effectiveness of using Drama in Education (D.I.E.) technique in delivering rainforest conservation message to primary students

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This presentation is to compare the effectiveness between two different teaching techniques- Drama in Education and Conventional Presentation, in delivering message on Rainforest conservation to primary students in Hong Kong. Rainforest deforestation is a global issue which sounds distant towards Hong Kong society. Ocean Park has developed the first Drama In Education (D.I.E.) programme, named Rainforest Treasures, targeting primary students, to deliver the importance of consumer's choice on conservation. The main objective of this programme is to stimulate students to identify the real destructor of the rainforest. We aimed at using D.I.E. technique to raise Hong Kong students' awareness on rainforest related issues, such as how our daily lives are related to rainforest. Then, students could recognize consumer power and change their behavior locally. Teacher-in-role is the major method in encouraging students to think about the impact of their lifestyles on rainforest. To identify the effectiveness of message delivery through D.I.E., a programme using conventional presentation on the same message were conducted on students in same age group. Students submit writings at the end of the programme which are to be analyzed on the message delivery effectiveness. This result was compared with the Rainforest Treasures programme which uses D.I.E. technique to deliver same message. The result of this study would identify the strengths and weaknesses in using D.I.E. technique in message delivering when compared with conventional presentation method.

Rose Chung studied Geography and Resource Management in The Chinese University of Hong Kong. She has been working in Ocean Park Education Department since 2010 and it's now the Assistant Education Officer. She was involved in the programme development for local school education programmes. Her recent project was on using Drama In Education techniques for rainforest themed school education programme.

Why climate change is our most urgent public engagement challenge

Paul Pearce-Kelly – Zoological Society of London, UK

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Strategic Importance: Highest level of importance; Aim: The 2010 World Association of Zoos and Aquariums (WAZA) climate change position statement and supporting resolution 65.1 details the key threat and response issues facing humanity. They also call upon the WAZA community to engage with these challenges as fully as possible. A recent review of climate change related work our community's involved in highlights the many significant efforts already underway. However, recent confirmation of much greater observed warming impacts on major natural systems such as Arctic sea ice and permafrost means that we have much less time than was generally assumed in which to avoid disastrous consequences for biodiversity and humanity alike. The implications for life on earth could scarcely be more serious and yet, as we're all too aware, there's still very little formal recognition of the true severity of the situation, let alone implementation of the essential policy measures necessary for pulling the climate system back to a relatively safe state in the fast closing window of opportunity remaining to us. This desperate situation puts a tremendous pressure on our community to mobilise as effectively as possible, especially in the critically important area of alerting and rallying our visitors and wider audiences to demand the essential policy actions from our political leaders. Our extensive communication reach gives us great potential in this regard but the much increased threat and reduced response time demands appropriate urgent action on our part. Public engagement opportunities such as the IZE **Push the Button** initiative are a good example of the kind of key public engagement actions we need but the critical question is how can we rapidly alert and engage our millions of visitors for their policy influencing potential to be realised in time? This presentation will summarise the threat and response issues, available resources and suggest engagement actions. Objective(s): To summarise the threat and response issues, available resources and discuss how IZE might best respond to the engagement challenge. Method of Delivery: Powerpoint presentation, briefing materials and discussion. Evaluation: For IZE colleagues to decide. Conclusion: Agreed way forward by end of meeting.

Paul Pearce-Kelly has been with ZSL for nearly 30 years. In addition to his senior curatorial focus, Paul coordinates the Zoological Department's research work and serves on five IUCN Species Survival Specialist Groups (including its recently formed Climate Change group) He specialises in species conservation but in recent years has focused on helping to clarify the climate change threats to biodiversity and the response imperatives. In this capacity he chairs the World Association of Zoos and Aquariums (WAZA) and the Conservation Breeding Specialist Group (CBSG) Climate Change Task Force.

Internship for the students of Secondary School of Information Science and Services at Dvur Kralove Zoo

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In the 2009-2010 school year, there was an internship for students of Secondary School of Information Science and Services. Underway at Dvur Kralove Zoo, the activity was managed by the author of this paper and by a school teacher, with 30 students involved. They were split in two groups attending the zoo every other Tuesday between 8.00 a.m. and 2.00 p.m. The main aim of the internship for the students was to gain basic experience as guides. The Darwin's Centre became the base grounds for the students to meet live programme animals and use educational items such as taxidermy specimens, skeletons, skins, feathers, skulls, eggs etc. The teaching facility is well equipped and we can demonstrate a range of phenomena using multimedia presentations and video records. The students were guided how to gain practical knowledge of the communication with the visitor including the use of audio-video systems. During the presentations, the students were also taught how to use visual aids. The students were encouraged to work on their own or in groups almost at every training session. While in the zoo grounds, they were studying specific animal species and then presenting the

knowledge gained to the remainder of the class. To visualize their progress, Zdenek Cermak was recording their presentations using a camcorder, this being done twice, with the students then able to see how they do as they were learning. The first recording was made on launching the course at the Darwin's Centre when the students were talking about animals for the first time, whilst the second footage was taken during their final exam. This way each student was able to see themselves during their presentation on a large screen and study their flaws and errors to improve. The jury included teachers as well as other students. During the internship, the students gained knowledge as regards the zoo, its operations and animal facts necessary for the work of a zoo guide.

Tomas Hajnys graduated The University of Agriculture in Brno, Czech Republic, in 1991 where he studied Animal husbandry. He joined MAST International Program at the University of Minnesota, U.S.A. in 1991 – 1993. He was an Intern at Minnesota Zoo in 1993. Then he worked for the Agency for Nature Conservation and Landscape Protection of the Czech Republic. Since 1995 he has worked as an Education Officer at the Dvůr Králové Zoo, Czech Republic, for 17 years. He also works as IZE Secretary/Treasurer in 2007-2012.

Bringing Beavers Back – A Step Towards Re-wilding Scotland?

Amy Cox – Royal Zoological Society of Scotland, UK

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The Scottish Beaver Trial is the first reintroduction of a mammal (European beavers) to the United Kingdom. The objectives were to (i) establish a group of wild beavers through reintroduction in the Knapdale Forest, Argyll, Scotland; (ii) work in partnership with others - 'managed by RZSS and Scottish Wildlife Trust on Forestry Commission Scotland land, under license from the Scottish Government; (iii) provide evidence of the impact of upon the local ecology and the local community, including educational and economic benefit; (iv) undertake community engagement and education programme. Delivery: A scientific trial reintroduction with a small group of Norwegian born beavers for 5 years, with a process of community consultation prior to release and during the trial, alongside activities to generate public interest, tourism and educational value, and public events and a schools programme, media engagement, particularly in Scotland. Evaluation: the Scottish Beaver Trial is being conducted under license from the Scottish Government and their agency, Scottish Natural Heritage will report in 2014 on their evaluation of the scientific monitoring and evidence of community & education engagement, and economic impact assessment. Conclusion: The Trial has so far seen (a) reintroduction of 3 families of beavers, which have successfully bred and reared offspring; (b) ecological impact - beaver dams creating new wetland habitat and increased biodiversity; (c) community engagement activities both as formal consultation meetings and at social events; (d) a national (Scottish wide) education resource created and circulated to every school in the country; (e) school workshop sessions; (f) teacher professional development workshops; (g) coverage on the UK's leading live wildlife television programme. And overall, a raised profile for the environment and ecology, and the impact of both people and wildlife, positive and negative, opening up the opportunity for other projects in future.

Amy Cox, Acting Senior Education Officer, RZSS, has worked at Edinburgh Zoo for 5 years and is responsible for native species education as well as our schools programme. Amy is involved in the Scottish Beaver Trial and created the Education Pack for the project. She has a background in UK conservation and outdoor education.

Strategic Approaches to Field-Based Conservation Education and Outreach in Nyungwe National Park, Rwanda

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Strategic Importance: This presentation outlines the strategic approach WCS is developing for field conservation education/outreach projects. Conservation threats are linked with audiences and

behavior, attitude and knowledge targets. Aim: The presentation aims to demonstrate theory from Conceptual Models, Results Chains, Theory of Change, and McKenzie-Mohr's approach to behavior change by showing our work in and around Nyungwe National Park (NNP), Rwanda. Participants will follow our strategic approach from initial analysis of conservation threats to sample materials developed for our target audiences. They will learn a framework which they can apply to their own settings and audiences. The aim of our education/outreach work in Rwanda is protection of NNP, in the short and long-term, through promoting human behaviors that support conservation efforts and developing a constituency in support of the conservation of NNP. Objective(s): Sample specific objectives include: Poachers will know the impact of poaching, the laws and punishments related to poaching, and realistic alternative behaviors; Honey collectors will feel it is desirable and possible to stop collecting honey in the forest; Bamboo cutters will stop collecting bamboo in the forest; Students will adopt a positive/supportive attitude to park conservation efforts based on a clear understanding of the multiple values of NNP. Method of Delivery: Community and school-based methods such as drama, competitions, social marketing, film, posters, classroom materials and club packs. Evaluation: Baseline surveys for community members ($N = 390$) and students ($N = 200$) have been conducted around Nyungwe National Park. School survey design is pre-test, post-test, with control and experimental schools where we'll do interventions. Conclusion: Field education/outreach programs must be connected to conservation targets and threats. Individualized analysis of the situation leads to more targeted outreach. Our case study shows links to underlying theory, our process and samples of materials produced.

Nalini Mohan is Global Education and Outreach Program Manager at the Wildlife Conservation Society (WCS), based at the Bronx Zoo, Bronx, NY, USA. Nalini (B.Sc. Zoology, Master of Education) has also been a zoo educator in Calgary, Canada. She has collaborated with zoos and field programs in in China, Cuba, Costa Rica, Bangladesh, Guatemala, India, Lao PDR, Mexico, Madagascar, Papua New Guinea, Rwanda, among others. She works on education/outreach strategy development, developing materials, training, and evaluation. As a 2011-2012 TogetherGreen Fellow, an Audubon program with support from Toyota, Nalini's project focuses on involving teens in community conservation projects.

Building our environment with my community

Cecilia Perez – Fundacion TEMAIKEN, Argentina

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Fundación TEMAIKEN works for the conservation of endangered species and ecosystems in different places of Argentina and in each of these rural villages educational activities are carried out. In 2011, the proposal "Building our environment with my community" was designed and implemented together with the educational community, allowing to make an assessment of the community of each area where the projects are developed, including the local settlers. To increase knowledge and a positive perception on the species and ecosystems among the local settlers, so as to be able to make action together with the community, which would help decrease the problems in conservation. In each rural village, one or two educational institutions are selected to work together with students and teachers of secondary school. This is developed in four stages. Stage 1-Survey on organization in the area and development of the interview about knowledge, perception and attitude of the local settlers about their environment. Stage 2-Implementation of the interview of the local settlers, analysis of the results, development and selection of proposals to the community. Stage 3-Implementation of the proposals. Stage 4-Supervision and publication. The interviews developed together with the educational community take into account the problems that affect the species or ecosystem according to the conservation project. This methodology generates a great sense of belonging and commitment in the community towards the proposal. We have been able to interview 1033 people in total, making them get involved in a non-invasive way and being protagonists in the search of solutions to the problems that affect them. Today, together with the institutions we interact, we have a diagnosis of each area, which allows us to start proposals with the community to try to reduce the environmental problems together.

Sensitizing local people for Asian elephant conservation by changing their attitude

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South India records high number of elephants in India and in recent time's Human elephant conflict is also in its increasing trend. Mysore, a historical city in Karnataka State, India experienced worst situation of conflict killing innocent people. Peoples' attitude at the time of conflict aggravated the situation. The aim of the project is to bring in positive attitude among the people living in human elephant conflict area towards problem animal and to assess attitudinal change; to teach about the burning issue of conflict and conservation of the species. In 2009, Chester Zoo sponsored a series of education training and awareness programmes in and around Mysore districts promoting human elephant coexistence and as a follow up of it IEF supported funds for further training and also to understand the impact active teaching/learning towards the attitudinal change among the people who live in HEC areas. A survey was conducted after the training programme among the trainees and their audience to assess change in the behavior and attitude of the local people in their daily life towards problem elephant. Details of the survey and results are discussed in the full paper.

Ms. S. Mamatha after graduation in 1991, served as a volunteer educator at Sri Chamarajendra Zoological Gardens, Mysore, Karnataka, India. She assisted to conduct of Zoo education programmes at the zoo. In 2003 she attended educators training organized by Zoo Outreach Organisation and WCS/Bronx zoo. Since then she has been involved in awareness projects. In 2006 she was selected as a Starr Fellow of WCS/Bronx Zoo and attended two weeks training programme at New York. She won Chester Zoo project in 2009 and in 2011 won small grants fund from International Elephant Foundation. In 2010 she won IZE Conference award.

Education Planning and the Challenges of Measuring Outcomes

Dr Maggie Esson – Chester Zoo, UK
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Strategic Importance: WAZA members are charged with committing to *insitu* conservation and developing outstanding education programmes. Developing *insitu* education is a relatively new area of activity for zoo educators and from early beginnings we need to learn for one another. Aim: This presentation will illustrate a strategic approach to *insitu* education planning and evaluation outcomes by reviewing three case studies in China, India and Tanzania. Objective(s): The objective in each country was for school groups to build empathy for nature and help develop caring environmental practices in their wider communities. Additionally we sought to devise an evaluation approach that avoided over-reliance on written or spoken responses. Drawings lend themselves to child-friendly evaluation and we gradually refined this technique with a sample size of 385. Method of Delivery: In Tanzania and India school groups made field trips to nature reserves for a mixture of immersive experience and didactic teaching. In China curriculum materials that focused on the importance of forests were delivered in schools. Evaluation: In Tanzania and China post-experience data were collected in schools. In India pre and post data were collected at the beginning and end of the field trip. Children completed Drawn Meaning Maps and results were analysed using a scoring matrix that converted qualitative into quantitative data. We scored data against the pre-planned learning objectives and this included looking for what was not there. We also looked for the unexpected and where possible explored further through discourse to deepen understanding. Conclusion: Effective environmental education relies on clear learning objectives and rigorous evaluation frameworks being established in the planning phase. Where education planning was found to be poor, evaluation was weak. The pre and post-test afforded an interesting insight into how participants were momentarily changed by the experience; conversely delayed post-test provided us with the most robust data in terms of measuring outcomes.

Dr Maggie Esson has extensive overseas experience in conservation education practice and is a member of the Visitor Studies Association. Her Doctoral thesis was: The evolution of zoos as environmental education providers: the challenges of instilling behaviour change in visitors.

Recent conference presentations include: Partnerships and Proof – zoos and their insitu involvement in education at Zoos and Aquariums Committing to Conservation, Seattle, USA; The Evolution of Zoos as Environmental Education Providers, The History and Development of Menageries, Zoos and Aquariums Symposium. Chester, UK; and The value of listening to voices that are usually unheard, Visitor Studies Association, Phoenix, USA.

Utilizing Authentic Research-based Experiences to Transform Perspectives on Local Wildlife

Rachel Bergren – Lincoln Park Zoo, USA

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Strategic Importance: The Black-footed ferret (BFF) is one of North America's most endangered species. The success of the BFF recovery is inextricably linked to healthy prairie dog (PD) populations, but the PD is still considered by many to be a nuisance species. The success of the BFF recovery effort depends on community support for PDs, BFFs and a healthy prairie ecosystem. **Aim:** This case study will explore the use of authentic research-based experiences within a community to increase awareness and understanding of the Black-footed ferret and prairie dog and their role within a healthy prairie ecosystem. **Objective/Method of Delivery:** Various program elements will be discussed including target audiences: 1) classroom teachers and 2) youth participants in a community summer work-study program, as well as overall program design, descriptions of activities, materials/equipment and evaluation. **Evaluation:** We will discuss the use of pre-participation questionnaires, reflective writing exercises, post-participation questionnaires and follow-up interviews to assess how well the program aligned with participant expectations, to examine changes in conservation knowledge and attitude and to identify specific opportunities for improvement. **Conclusion:** The study results indicate that the inclusion of well-designed authentic research-based experiences can lead to positive changes in conservation knowledge and attitude.

Rachel serves as Vice President of Education at Lincoln Park Zoo, working closely with animal care and conservation departments to plan integrated education programs. Before joining LPZ in 2008, Rachel spent 11 years at Shedd Aquarium. Rachel is an active member of AZA. She is a past chair of AZA's Conservation Education Committee, and currently serves on the Government Affairs Committee. Rachel holds academic appointments at both George Mason University and Western Illinois University, where she teaches courses in conservation education and zoo and aquarium management. Rachel received her B.S. in Marine Biology and her M.S. in Biology.

Building environmental stewardship – the success of student horseshoe crab rearing project in Hong Kong

LI Mei Ying, Isabel – Ocean Park, Hong Kong

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Living in a fast pace urban city, Hong Kong students do not have a lot of opportunity to experience the wild. The horseshoe crab rearing project allow them to have hands-on experience in taking care of wildlife, protect their habitat and also release their animal to the wild to increase its numbers. Jointly organized by the City University of Hong Kong, Ocean Park Conservation Foundation and Ocean Park Hong Kong, this project includes workshops, guided visit, hands-on experience in rearing the animals, presentation to their peers and in-situ conservation work. We conduct pre- and post- survey to students to test their attitude, knowledge and behavior change. This presentation will share how we execute this project and the evaluation results.

Isabel's passion for the environment started in her teenage years when she was the Student Environmental Protection Ambassador for her secondary school. Since then, she has engaged and organized various environmental education events. She joined Ocean Park as an educator in 1999 and became the Education Manager in 2008. Her interest is in studying visitors' behavior in the zoo/aquarium and how the experience impacts them to have positive behavior change.

Living in Harmony with Elephants

Vella Kwamboka – Save the Elephants, Kenya

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The purpose of the project is to empower children, families and communities to make a difference for wildlife by offering different ways for them to protect animals and animal habitats from the different human-based threats. The ultimate aim of conservation is to create behavioural changes that will have a positive impact on wildlife, as measured by a formal evaluation of outcomes.

The objectives of this elephant program are to reach Turkana Primary 6, 7 and 8 students in Kenya: to create empathy for elephants (attitudes); to increase knowledge about elephants (knowledge); to share and encourage actions that will reduce human/elephant conflict (beehive fences),

And to provide behaviours that will help students live more safely around elephants. The best potential ambassadors for elephants are those who live amongst them, sharing their land and their future. 'Living in Harmony with Elephants' is a set of Elephant Lessons designed to strengthen the existing conservation relationship with the Samburu community in a bid to foster positive attitudes through the Mobile Education & Monitoring Unit. The lessons enhance students' understanding of the African Elephant, the various human activities that threaten elephant habitats and the actions that help reduce human-elephant conflicts. The use of images, video clips, role-playing scenarios, visual aids, posters, interactive activities and games offers different and fun ways of teaching and learning experience. It promotes student participation, involvement and thus understanding of the messages behind the whole exercise. The lessons use Enquiry Based Learning with the use of critical thinking, creative thinking, and problem solving skills. They make use of a variety of learning styles such as auditory, visual and kinesthetic through interactive activities and demonstrations. Visual aids have also been incorporated to enhance the students' understanding of wildlife features and adaptations. Evaluation is by use of pre questionnaires before commencing the lessons and post questionnaires after all the lessons have been presented.

Previously an Assistant Environmental Officer at Ecotact Ltd where one of the responsibilities was to manage a bee-keeping project at Huruma village, next to Karura Forest. Afterwards, I interned at Save the Elephants, assisting with website management, administration work and field education activities. Currently, I am in charge of administration of the organization's Grassroots Education Programme activities (Infrastructure, Internship, Scholarship and Mobile Education & Monitoring Unit) which are based around Samburu & Buffalo Springs National Reserves.

Education – Is it really the best tool to fight extinction or could the money be better spent?

Rachel Lowry – Zoos Victoria, Australia

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There is a belief among some social scientists that it is a waste of time to simply raise awareness with the expectation that once informed people will change their behaviours. In fact, some warn that educating people about environmental issues when too young or using scare-tactic approaches can have a reverse affect, switching people off or worse, perpetuating nature deficit disorder or a phenomenon known as eco-phobia. When presented with these arguments, one could argue that funnelling money into *in situ* conservation efforts is a more direct and effective way to save wildlife and conserve our world's biodiversity. That is of course, until you look at data from around the globe which sadly shows many failed *in situ* conservation efforts. So which is it? Invest in field conservation or education? This paper shares an integrated approach to zoo-based conservation; highlighting Zoos Victoria's fighting extinction strategy and the need to evaluate success against both education and conservation indicators. Underpinning the success of this strategy is the need for conservation and education teams (including marketing and community conservation) to work as one.

Rachel is Director of Wildlife Conservation and Science at Zoos Victoria. Rachel leads a team of highly skilled conservationists who deliver wildlife captive breeding and release projects, eco-socio projects and conservation advocacy initiatives. Rachel has a deep interest and experience in merging her zoology and education qualifications with social science developments to influence conservation sensitive attitudes, knowledge and behaviours. Rachel has

developed award-winning programs that have tackled conservation and sustainability issues both locally and globally. In 2010 she was awarded Sustainability Leader of the year by WME within the Government and NGO sector. Rachel currently holds the position of President-elect on the IZE board and will commence her tenure as President in August 2012.

Conservation Education as a Means of Conserving Biodiversity: Zoos in Africa and Malaysia Joining Forces

Elize de Jager – National Zoological Gardens, South Africa

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Conservation has the goal to teach theory and practice of preservation and restoration of biodiversity adversely affected by human activities. In this way people may increase their awareness of conservation issues and change their attitudes and behaviour to promote environmental conservation. The evaluation of conservation education programmes allows us to confirm that this goal is reached. The aim of this study is to evaluate the conservation educational programmes of the National Zoological Gardens of South Africa, the Malaysian Zoo Negara and the Uganda Wildlife Education Centre (UWEC). The objectives of this study are to benchmark the NZG's conservation education programmes against those of other international zoos; to establish criteria for a successful Conservation Education master plan; and to investigate whether this master plan can be implemented by other South African zoos. This study took the form of a comparative evaluation of the conservation education programmes of the mentioned zoos. A literature review was done in order to: establish the place of zoos in modern society; establish the place of zoos in the framework of conservation education and to establish the need of evaluating conservation education programmes. A mixed methods approach was followed in this research including both qualitative and quantitative methods. Best practices and/or weaknesses in Conservation Education Programmes in zoos were determined by focus group - and individual interviews as well as the Kellogg's Logic Model. The questionnaires were tested by means of a pilot study. Zoos have a powerful part to play in achieving global sustainability through conservation education. The evaluation of conservation education programmes is needed to ensure that intended change in knowledge, attitude and behaviour is achieved. The results and findings of the study will be discussed in the paper.

Elize de Jager has been employed by the National Zoological Gardens of South Africa since 2009 as Curriculum Developer and Head of the Life Sciences Centre. She has completed a B.Sc. degree and Postgraduate Teacher's Diploma at the University of the Free state. She later completed a M.Ed. degree in Environmental Education at the University of South Africa and is currently enrolled for a Ph.D. (Curriculum Studies).

Fostering attitudes of empathy towards animals in youth ages 4 – 7 through play experiences in a zoo setting

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Strategic Importance: Developing attitudes of empathy towards animals leading towards an appreciation of nature; changing behaviors in children through play behaviors.

Aim: The purpose of this study was to analyze children's play behaviors in a zoo setting. As non-formal educational facilities, zoos have the ability to use unstructured nature play to reinforce the social and cognitive development of children ages 4-7. This exploratory research looked at play behaviors in one zoo setting reflecting the growth of empathy towards the natural environment.

Objective(s): The first objective was to determine what types of play occurred in a zoo setting. The second objective was to determine if children who engaged in play in a natural setting within a zoo expressed empathic feelings or actions towards animals and nature.

Method of Delivery: Using systematic observations children were observed and data was collected using a qualitative approach.

Evaluation: Data that was collected from children playing was divided into subgroups to determine trends in play behaviors. Three themes developed: empathy, pretend play, and power play. All themes lead to the conclusion that children are innately drawn to nature and have a genuine empathy for the natural environment.

Conclusion: According to the data collected through this research, the children's language and actions showed that they indeed demonstrated some level of empathy towards animals. Parallel, functional, and dramatic play behaviors have all been linked to the development of empathy and an appreciation of nature. The play opportunities enhanced their visit, giving them a connection to the animals and nature. The experience that zoos provide to visitors is priceless in that they are able to reach a variety of people on different levels of knowledge. For children this means using the basic fundamentals of childhood development to foster empathy for animals and an appreciation of nature.

I began my zoo career 5 years ago at the Lake Superior Zoo in Duluth, MN as the Education Coordinator. While there I obtained my MEd. in Environmental Education focusing on how zoo play areas contribute to empathy towards animals and the natural environment, using the San Antonio Zoo's Nature Spot. After completing my degree I was fortunate enough to become the kidZone Play Coordinator at the North Carolina Zoo, helping them reach their programming goals and commitment to outdoor play through the expansion and development of their outdoor playspace, nature playdays, professional development opportunities for adults working with children and of course, play.

Which animal mirrors me? A project between art and psychology in Parco Natura Viva (Verona, Italy)

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In Parco Natura Viva (Bussolengo - Verona, Italy) we strongly believe that art can be a good support for environmental education and that is a good opportunity for children to express their inner self. Especially for very young children, is difficult to express their feelings and their emotions by words so drawings are a very supportive instrument used by psychologist to collect information. In many occasions, we organized artistic events such as art exhibitions and workshops for children. Our public as always showed interest in this field and when Pippo, our oldest animal died years ago, children started to send us their drawings representing the Hippo and the way they feel about him. By receiving these drawings and realizing that every child saw Pippo not the way he was but the way the child feel him we started to think that it could be interesting to use art to know better our little visitors. In this study, the aim is not to investigate children's past experiences but their personalities and their way of thinking animals. Children were asked to draw the animal that represent their selves. We decided to study which class of animals is more represented by children and why. We are also interested in understanding why a child chooses a specific animal: usually reasons were focused on sharing physical features or temperamental characteristics.

Sara Piccoli holds a Clinic Psychology degree from the University of Padua in 2004 with the thesis "Perfectionism and Psychopathological disorders". She carried out the training in one of the most important clinic in Italy for eating disorders. Since 2007 she is working for Parco Natura Viva and from January 2011 she is working for Educational department in which collaborate with some didactic projects. During 2011 summer she has followed young children attending a summer camp in the Zoo. She is currently working on evaluation projects.

Measuring Attitudinal and Behavioural Change in Visitors to SeaWorld and Busch Gardens

Bill Street – Busch Gardens, USA
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Strategic Importance: SeaWorld Parks and Entertainment implemented a conservation impacts study using qualitative and quantitative measures to assess the overall conservation messaging received by guests at our SeaWorld and Busch Gardens parks. **Aim:** Since we are highly visible in the consumer market, we were interested to find strategies that can influence in-park message receptivity and retention. We also wanted to measure the existing effectiveness of our efforts in-park to change

conservation behavior. **Objective(s):** We researched current performance in knowledge gain, attitude impacts, and the key attributes of visitorship that can account for potential changes in behavior. To compare these performance measures in a larger theory of change, we evaluated pre-visit expectations, entry conservation knowledge and attitudes, in-park learning, and delayed-visit interviews to assess retention and actual behavioral impacts. We measured the impact of this change on brand perception and potential word of mouth transfer of these conservation messages to others. We compared these results with the SeaWorld consumer research team satisfaction studies in order to assess the relationship between conservation education messaging and overall experience measures. Lastly, we commissioned a national consumer survey to benchmark audience attitudes and receptivity to conservation messages against the average American consumer market. **Delivery:** A specific strategic plan was developed to use the results of this research to modify experiences in our park. **Evaluation:** We developed a set of “psychographic” profiles of visitors based on their receptivity to our conservation stories to help explain why learning gains may vary across our various audiences and help guide the best strategies for reaching each specific audience. **Conclusion:** Through this research, we have been able to categorize our guests and develop specific messaging and conservation strategies for these audiences. We have also established a baseline that we can compare to in future years to assess our effectiveness.

Bill Street, a conservation education leader for 20 years, and is currently the Corporate Curator of Conservation and Education at SeaWorld Parks and Entertainment (SEA), the largest zoological institution in the world. SEA includes three SeaWorld parks (Orlando, San Antonio and San Diego), two Busch Gardens parks (Tampa, Williamsburg), Discovery Cove and several water parks. He is a Representative for the SeaWorld & Busch Gardens Conservation Fund, an active member of the AZA, NSTA, and a Board Member of ZCOG and IZE. He has held leadership positions at the National Wildlife Federation, Aquarium of the Pacific, and Shedd Aquarium.

'Living with spiders' – do phobia courses really work?

Dave Naish – Bristol Zoo, UK

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Strategic Importance: Phobias dramatically affect people's daily lives with many of them avoiding places and situations or suffering from Obsessive Compulsive Disorders. It is estimated that in some Western societies, up to 52% of women and 18% of men have some degree of spiderphobia.

Aim: To help sufferers overcome their fear of spiders. **Objective(s):** People suffering from spiderphobia often feel helpless, isolated, even ridiculed and unable to see how to improve their situation. The course aims to provide spiderphobics with the tools to manage their phobia, as well as helping them appreciate the vital role spiders play in nature. **Method of Delivery:** The four-hour courses are led by a counselor and hypnotherapist, and a zoo education officer. The courses are small and personal with a maximum of ten participants and include a number of elements: relaxation, hypnotherapy, discussion, a talk about spiders and an optional meeting with spiders. **Evaluation:** Evaluation was carried out using evaluation forms. Anxiety levels for participants fell by an average of 54% across all spider encounters. In addition the language used by participants to describe spiders also changed markedly with a move away from pre-course 'fear' and 'panic' towards post-course 'interest' and 'calmness'. Importantly these improvements continued two months after the course. 75% of participants rated the course between 8-10 for usefulness in helping them deal with their phobia. **Conclusion:** Zoos are ideally placed to help people relate to the natural world in more positive ways. The Bristol Zoo phobia course relies on a mix of elements to deliver an effective treatment and encourage significant and long lasting behaviour change for participants.

Dave Naish joined Bristol Zoo's Learning Department 10 years ago after many years of fieldwork in South America and Africa. He coordinates the zoo's busy formal education programme and also makes regular trips to Cameroon to support one of the zoo's conservation field projects which works to safeguard great ape populations from the threat of the bushmeat trade.

The Educational Claims of Zoos: Where do we go from here?

Andrew Moss – Chester Zoo, UK

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Zoos exude a certain self-confidence regarding their roles as education providers. Indeed, the education outputs of zoos are, at face value, pretty impressive, with most investing in learning opportunities for leisure visitors, education groups and in some cases, as part of their in-situ programmes. However, these outputs are not necessarily reliable indicators of the educational achievements of zoos. Quantity does not necessarily equate to quality, just as outputs do not necessarily lead to outcomes. Zoo-accreditation organizations such as the AZA and EAZA offer us clear insight into the strategic vision underpinning the education goals for zoo visitors; a heightened appreciation of the value of biodiversity and a connectedness with the natural world. Unsurprisingly, we find that most zoos have educational goals that ally neatly with the vision of their respective accreditation body. Consequently, we are left with fairly narrow, top-down educational goals. This does not necessarily sit well with what we know about the unpredictability of 'free-choice' learning in environments such as zoos and aquariums. Research that seeks to explore the impacts of zoo visits often focuses on evaluating performance based on educational goals and the findings used as a means of providing evidence of institutional achievement. However, any visitor outcome that falls outside of this narrow range could well be missed by the research. In this article, we will present this argument in more detail and propose that a research model that takes unpredictability and the unexpected into account is necessary and overdue.

Andrew Moss is the Education Research Officer at Chester Zoo. He has been involved with visitor research at the zoo for 8 years, and has formerly worked as an Education Officer. Dr Maggie Esson is the Education Programmes Manager at Chester Zoo and has responsibility for the zoo's educational work, including formal and informal learning, as well as in-situ conservation education and visitor research.

One Shot Wonders: Effective Single-Contact Educator Programs

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Research indicates the most effective models of educator professional development, those most likely to inspire change or meaningful connections, should be extended experiences, upwards of 80 hours. However, resource constraints often limit the opportunities that can be offered by zoos to models of shorter duration. This paper will explore how single-contact programs, emphasizing an empowerment model of professional development in process over topic-specific training (i.e. Big Cats or Africa), can still result in positive outcomes. Two models will be discussed: (1) an educators-only evening at the zoo, and (2) university partnership to incorporate professional development at the zoo within a pre-service methods course on science teaching. Both were focused on building overall comfort with, and understanding of, conservation research methods and the work of the zoo in this area. Questionnaire data from immediately after the educator evening together with data collected months after the program demonstrated the positive impact directly after the program as well as identified the most lasting gains. Questionnaire data from teachers participating in the pre-service professional development program showed improved understanding of how the Lincoln Park Zoo can support classroom instruction, and overall work of zoo researchers. Interviews with partner professor(s) provided additional insight into lasting gains through anecdotal stories from past participants. A mixed-methods approach was used for both sets of data. Likert scale responses were analyzed quantitatively to create average scores for key responses while open-ended responses were analyzed using thematic category construction and frequencies within response categories tallied from that data. Direct quotes are inserted where appropriate to provide additional insight into quantitative results. The study results indicate that though long-term, professional development programs might provide the greatest impact, a single contact

model, when designed with appropriate rigor, can still be effective in building understanding of conservation science and zoo resources.

Leah has over 20 years experience within informal science education with special emphasis on supporting public understanding of the work of researchers. She is author of Informal Learning and Field Trips and co-editor for the upcoming publication Putting Theory Into Practice: Tools for Research in Informal Settings together with numerous journal articles. She received a Promising Leadership Award from Association of Midwest Museums in 2010 and was recently appointed to the Fulbright Specialist Roster. She received her Ph.D. from the University of Southern California in educational psychology and is the Director of Student and Teacher Programs at Lincoln Park Zoo.

Tailoring Conservation: How to bridge the gap between conservation and the general public

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A poster on polar bears, a game about the diversity of animals, a drawing of a non native plant or a gathering about connecting pathways, what do they all have in common? They are all deeply related to the list of deliverables of the EUZoos-XXI project. As the general public often feels mystified and disconnected from conservation issues, the EUZoos-XXI project was idealized and implemented as a 3-year project funded by the Seventh Framework Program of the European Commission aiming to bring the general public closer to science. With a partnership amongst 5 zoological facilities (4 European and 1 North-American), one research center and an environmental consultancy company, this project developed scientific-based educational materials, activities, implemented programs and involved society on four main conservation topics: Ecological connectivity, Biodiversity, Alien Invasive species and Endangered Species. Various approaches were used to gain the insight of the general public on conservation issues, one approach was the public participation meetings, resulting in demonstration projects implemented in each of the four European zoological facilities. Another example was the International Biological Art Contest, which engaged amateur and professional artists to express their views on the four conservation topics. The feedback was important in helping the partner Zoos and Marine parks to alter and develop educational programs that better fit their visitors.

Currently responsible for the EUZoos-XXI project and all the associated educational material, with a vast experience as a zoo educator. With a college degree in Marine Biology and a master's degree in Biology, as also experience on field research projects (e.g. impact of fishing gears on monk seals; climate change impacts).

Assessing Zoological Institution's Websites: Available Educational Programs

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The purpose of this study is to evaluate the educational opportunities offered on zoo websites, Zoos endure the burden of being in a highly competitive market in which families search for stimulating recreational activities that come at a reasonable price. Given the numerous alternative educational avenues available in various types of media, whether a zoos' role in public education is important is a difficult question, and a few researchers have suggested that television and the internet are partly responsible for society's interest in biodiversity conservation. With the development, availability and increased use of the internet, zoos are undergoing another socio-cultural and socio-technological change. By capitalizing on the advancement of multimedia internet technology, zoos are able to offer the public interactive web-based activities. This study is an assessment of the educational opportunities described on 130 AZA accredited zoos' websites. The zoo websites have been evaluated on the presence/absence of the following educational components: professional development, zoo activities aligned academic standards, classroom kits aligned with standards, pre/post-visit activities, outreach programs, distance learning programs, staff guided field trip tours, summer/holiday camps, overnight programs, programs for home-schooled children, teen volunteer programs, an accessible library, private wildlife tours (off-site), internships for secondary students, internships for college students,

programs for both Boy/Girl Scouts, and internet blog. The data show that AZA accredited zoos on average participate in only 8.8 of the 17 components (range=1-16, median=9, STD=3.04). The most common educational component is the presence of summer/holiday camps (89.23% of institutions participating) and the least common is internships for secondary students (6.92%). Zoos offer a wide range of programs, but there is a divide in the programs offered. Because the zoo website is a crucial place for teachers, parents, and home-schoolers to find information, the website should reflect the zoo's educational programs.

I am an Assistant Professor at Texas Tech University in Lubbock, TX (USA). My primary research focuses on informal science education with an emphasis on human-centered perspective and understanding human cognition and perception, and cognitive learning theory.

Case Studies

Zoo Walkways: The Path to Connecting with Nature

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Strategic Importance: Every zoo visitor travels along walkways. And with goals of connecting visitors to nature, why do those walkways not incorporate this idea or reflect the connection between natural free-play and learning? Why do zoos seek ways to curb play behavior and curiosity along those walkways versus embracing them for informal learning? What 'sense of place' is reflected along the walkways? Zoo walkways have the opportunity to be more once they recognize the need and opportunities for more. **Aim:** The aim of the workshop is to challenge zoo professionals to look at the zoo walkway as more than simply a way of moving visitors from one area to the next and to begin to see them from the eyes of the visitor especially the children. Zoo educators and designers must rethink our idea of the walkway in order to engage a child's natural curiosity and sense of adventure beyond the gates of the children's zoo or at the zoo playground. This will allow a more fully integrated zoo experience and reduce mixed messages that currently are being sent to the visitors. **Objective(s):** To review natural play behavior in children and see how zoos currently engage children beyond the children's zoos and play areas. To review current walkway design to see what 'sense of place' we have created. To look toward a new future in walkway design. **Method of Delivery:** PowerPoint presentation. **Evaluation:** **Conclusion:** Zoo educators have a responsibility to discuss and push for the implementation of informal education elements which will enhance the zoo experience for children. Creating this dialogue about design, learning, and walkways will allow the creation of a more fully integrated zoo experience and reduce mixed messages.

Barbara Brem is a landscape architect in the state of Texas (USA) with over 18 years experience in the design field and is a Certified Playground Safety Inspector (CPSI) (USA). During her career, she has worked on a variety of projects encompassing high-end residences, parks and playgrounds, educational facilities, office parks, and religious facilities. Mrs. Brem's main interest has been in captive animal holding and visitor behavior with an emphasis on natural learning landscapes. She is interested in going beyond the current design approach to create more active, natural environments for both the zoo visitors and the animals.

Dragon Puzzle Game "ABCDE" 2012

Wu, Chien-chu – Taipei Zoo, Taiwan

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The Dragon is on behalf of 2012 in Chinese Lunar Year. In Chinese culture, the mysterious image of the dragon is composed of a wide range of different kind of animals, as what the zoo can represent the

different characteristics of them. We use the concept of dragon's traditional image to design zoo's activity. Our aims to strengthen visitors' awareness of biodiversity, increase families' learning motivation and maximize the visit experience. Taipei Zoo develops an experiential education program entitled "Dragon puzzle game" included 5 topics: "Animals", "Biodiversity", "Conservation", "Dragon Culture Exhibition 2012" and "Environmental education", such like sustainable energy issue. Visitors can use a treasure map to discover the ABCDE's stories hidden in the zoo exhibits and complete a blank Dragon Pass. By this funny game, visitors have to spend more time in front of animal's enclosure and families can increase more social-interactive and learning motivation about conservation. Therefore, create a game program of simple rules, little time to complete, full of challenges and incentives will encourage visitors to organize a meaningful tour and enrich visiting experience by self-guiding.

Wu, Chien-chu, an educator at Taipei Zoo, is in charge of water and energy conservation exhibits, Green zoo project, environmental education programs and a designer of zoo's guide brochures. She is also a volunteer tutor of WOW Biodiversity's outreach program for "Society for Wildlife and Nature" in Taiwan.

Primary Education Collaboration: Designing and Using Experiential Zoo Curricula

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Realising a gap in the number of upper primary students attending Niabi Zoo. Therefore, Niabi Zoo made it an objective to reach out to these educators and ask for cooperation in evaluating how to bring these educators to the facility, the main focus being an increase in effective programming. To achieve this it was essential that discussion with educators took place. Following an initial discussion with a focal group of educators, a short evaluation was given to all upper primary educators. Based on these questionnaires, two major factors were drawn as to why educators were not attending: economics and access. One specific reason was the lack of curricula that was available to educators. In cooperation with several educators, a three-part rainforest curriculum was fabricated to engage students and to inspire a caring compacity for the research occurring at zoos and in the field worldwide. This presentation will give the details of this programme currently and other projects that have transpired from this original programme.

Monae Verbeke is a doctorate research student at the University of Warwick and currently works for the Birmingham Museum Trust. She has completed research at several zoological facilities, worked in a variety of education roles and has a Masters in Biology from Western Illinois University.

The Evolution of Animals of the Dreaming

Natasha Mooney – Taronga zoo, Australia

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Aim: To increase Indigenous knowledge and perspectives for school groups. **Objective(s):** Taronga Zoo's *Animals of the Dreaming* program aims to highlight the importance of the natural environment to Indigenous Australians and links with the Aboriginal perspectives component of the NSW curriculum. **Method of Delivery:** *Animals of the Dreaming* is an hour long workshop focusing on Aboriginal people and their relationships with the land and animals. Students learn about Aboriginal spirituality, the importance of animals and the reliance upon our environment for daily survival. Following strict practices ensured the sustainability of both plants and animals and allowed them to live in harmony for many thousands of years. Our outreach program is presented as a partnership between Aboriginal elder Col Hardy and a Taronga Zoo Education Officer. This one hour interactive session is held for larger school groups and involves music and Dreaming stories to make connections. Taronga is about to embark on translating the delivery of this successful program to create greater access to regional Australia through video conferencing this program to schools. This is an exciting time for us as we bring together new technology about an ancient culture. **Conclusion:** The development of indigenous

perspectives in Taronga Zoo education has been a work in progress for the last fifteen years. The *Animals of the Dreaming* program has become a successful model of delivering Indigenous perspectives.

Natasha is an Aboriginal person from the Yuin Nation on the South Coast of New South Wales. After graduating from the University of Wollongong she worked at the Australian Museum as an Interpretive Officer in Indigenous Australians exhibition conducting tours and teaching both within the exhibition and the Aboriginal hands on Room. She has facilitated Aboriginal Cultural Awareness Session for NSW Health and NSW Legal Aid staff members. Most recently she has been a classroom teacher before beginning work at Taronga Zoo as the Aboriginal Education Officer. Natasha has a strong interest in Aboriginal history and current perspectives.

Looking at people looking at animals – an international bibliography of visitor experience studies and exhibit evaluation in zoos and aquariums: what use is it to you - and how can you contribute?

Harry Schram – Antwerp Zoo, Belgium

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Aim: More and more zoo and aquarium educators are involved in visitor studies and exhibition evaluation as we all want to make sure our message comes across. "Looking at people looking at animals" is a tool to help with exchanging information between all those involved in the process of zoo and aquarium visitor studies. It gives you an overview of what has been done by others, what literature exists and what background information is available to put our work into context. Started by EAZA, the project has a global relevance and also aims to include material in other languages than English (with translations). Objective(s): This international bibliography can be a practical help for you but you are also an essential partner in keeping it up to date. How do you use it – and how can you contribute to it?

Currently working as educator for the Research & Development Department/Zoo Academy of the Royal Zoological Society of Antwerp (i.e. Antwerp Zoo, Planckendael and the Blankenberge Serpentarium) (Belgium). Formerly independent zoo & interpretation consultant, executive director of EAZA (European Association of Zoos and Aquariums), co-ordinator of the Antwerp EcoHouse and tv editor.

Public Talks: what do visitors think about it? Evaluating Public Talks in Parco Natura Viva (Verona, Italy)

Tommaso Sandri – Parco Natura Viva, Italy

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Since many years ago our Park has been performing Public Talk during the week ends to offer visitors many information not only about the animals but also about our mission and the role of a modern zoological park. Usually Public Talks take place during the daily environmental enrichments scheduled for the specific species we are going to talk about. We were interested in understanding what do our visitors think about the enrichment: if they perceive them as an opportunity to learn something about animals, an opportunity to take some good pictures or if they think enrichment are something important for animal welfare. We also focused on the visitor's evaluation of our staff ability to communicate messages about wildlife and zoos role in conservation. To investigate this points we conceive a questionnaire to fill after the public have attended one of the Public Talks of the day. Questionnaire was composed of 10 items. The findings suggest that public animal talk produce positive zoo experiences, enrichment perceptions and staff assessments. This study quantifies an outcome of enrichment program with public talk beyond its effects on animals and extends the benefits to zoo visitors.

Tommaso Sandri is an undergraduate student of the University of Parma in Biology. He started his collaboration with Parco Natura Viva in 2008 during a stage at the age of 17. After that he worked for 2 seasons in the park as a guide in the educational department.

Fish scale project: a communication campaign about sustainable sea food consumption to mitigate the overfishing

Bruna Valettini – Genoa Aquarium, Italy

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According to Sofia 2010 FAO report, the apparently increasing trend in the percentage of overexploited and depleted stocks (more than 80% in some areas) and the decreasing trend in underexploited and moderately exploited stocks, do give cause for concern. Accidental catches and fishing scraps represent more than 25% of the total catches, for an estimated weight of over 40 million tones of fish discarded every year. Only about 10% of the over 700 edible species is actually merchandised, due to established eating and cultural habits. Sustainable sea food consumption is therefore crucial to help mitigate overfishing and to preserve marine biodiversity. Genoa Aquarium, together with national and international partners, is carrying out a European project whose aim is to raise awareness of general public and fish industry professionals, about sustainable seafood consumption. The project objectives are: increase the consumption of less known species, reduce fishing scraps and at the same time reduce the exploitation of more known and consumed species and ultimately preserve marine biodiversity. To reach these goals it has been adopted a “positive” communication strategy based on the promotion of a sustainable species list, through the creation of a stakeholder network that involves fishermen, the retailing chain, restaurants, tour operators and consumers. Several communication tools have been addressed specifically to the different targets together with events held in the aquarium and in other occasions (eg. shows and exhibitions) to teach public how to recognize the sustainable species and how to cook them. Last but not least, part of the project is the survey of general public and stakeholders awareness of the problem, together with the record of the sustainable species distribution on the market in order to evaluate the effectiveness of the project. Aquariums can mobilize many people encouraging sustainable behaviors. Let’s act together to safe sea life!

Bruna Valettini- In charge of European projects at the Educational Department of the Genoa Aquarium; she has a University Degree in Biological Science at the University of Genoa. Her experience at the Aquarium, since 1992, included aquariology and then planning, coordinating and setting up exhibitions, educational projects and international events with the aim of raising public awareness about marine environment. She participated, often as coordinator, to various EC projects (OCIDAM, OCEANICS, EUROCEANS, AQUARING, etc.). Project manager for temporary exhibits, she has a long experience in communication projects for the large public, often carried out with international partnerships.

Acting Locally: Bringing about change in your City

Paul Cox – National Marine Aquarium, UK

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With an organisational aim of “driving marine conservation through engagement”, the National Marine Aquarium has set its sights on influencing a broad audience beyond the walls of the Aquarium. The first step was to develop a meaningful partnership with the City’s education system, influencing curriculum development, establishing a Marine Academy and encouraging city-wide engagement with the local natural environment. Next was creating and delivering a City-wide festival event that celebrates the relationship with the natural environment across all sectors and incorporates a strong sustainability theme, setting real targets for city-wide behaviour change. The Aquarium is now working closely with the City marketing and destination management functions to develop a new brand for the City that focuses on its marine strengths and creates a platform to develop national awareness and behaviour change campaigns. The project has required engagement with a wide range of disciplines including; conservation biology, psychology, education, business, marketing, leisure, tourism and local government. This case study demonstrates that “extreme” networking, a commitment to partnership working and working outside of traditional sector boundaries can extend Aquarium education and conservation outcomes way beyond the visit by exploiting the very strong engagement potential offered by our unique environments.

Paul Cox left a career in investment banking to study Marine Biology at Plymouth University. His current role as Head of Science & Learning at the National Marine Aquarium puts him at the forefront of the communication of marine science to a broad public and, in particular, to young audiences. He also enjoys responsibility for the curatorial and diverse research activities of the Aquarium. Paul has a Masters degree in Science Communication, specialising in links between formal and informal learning and has participated in a number of national and international projects linking Marine themes to the formal curriculum.

Building behaviour change into exhibits: Case study of Penguin Beach and Tiger Territory, ZSL London Zoo

Dr Rebecca Day – Zoological Society of London, UK

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The Case Study investigates whether visitors learn and change their behaviour following visits to specific exhibits. Two studies were conducted. The first determined, through summative evaluation, whether learning and behavioural outcomes of "Penguin Beach" were achieved. The second used front-end evaluation to provide a baseline of visitor knowledge prior to the development of "Tiger Territory". Evaluators asked visitors to answer surveys, vote using tokens, and complete "pledge cards" to ascertain what they learnt during visits to different areas within "Penguin Beach". Despite some indications of learning and behaviour change, it was noted for future exhibits that a baseline was necessary to determine the impact exhibit features had. Accordingly, surveys were conducted to find out what visitors knew about tigers prior to the development of a new exhibit. Visitors were also asked their opinions on the tone and content of the exhibit. The evaluation revealed some misconceptions but also that most visitors would prefer the interpretation to take a positive tone, despite stating that they themselves were pessimistic about the long term future of tigers. The Penguin Beach study revealed visitors were most likely to suggest specific and relatively easy actions on their "pledge cards" of how they could help penguins.

Rebecca Day is Manager of Engagement and Interpretation at the Zoological Society of London. This role encompasses live interpretation and exhibit interpretation across London and Whipsnade Zoos. Becky is interested in how we can use zoos to influence visitors' behaviour and how we can use expertise in zoo education to help in situ conservation.

What is a 'Handprint Zoo'?

Ms.Meena Nareshwar – Centre for Environment Education, India

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Concept of Hand Print Zoo – Challenges for Zoos in India: Zoos cater to a large and diverse target audience. Zoos receive a large variety of visitors with varied socio cultural educational, occupational and financial backgrounds. They belong to different age groups. They speak different languages. Though all the above points are strengths also since at one time you reach out to a wide target audience, this helps in spreading the message of conservation but at the same time, addressing to the educational needs of all these target groups is a major challenge. The Centre for Environment Education(CEE), India will be holding a COP 11 Biodiversity conference in Hyderabad, scheduled between Oct 1-19, 2012. The period 2011-2020 has been proclaimed by the UN General Assembly as the UN Decade on Biodiversity (UNDB) to raise awareness about the importance of and threats to biodiversity. The Decade coincides with the duration of the Strategic Plan for Biodiversity 2011-2020 adopted by CoP-10 to the CBD held in Nagoya, Japan in October, 2010. It contains 20 targets to help achieve the three objectives of the CBD and the Millennium Development Goals. As one of the many initiatives CEE is planning, we want to work with the Hyderabad Zoo, which is already doing fantastic work and here is a potential opportunity to working towards making Hyderabad Zoo a "Handprint Zoo", a green zoo, following and adopting sustainable and eco-friendly practices. Hyderabad Zoo would be a role model/model example for other zoos in the country to follow. Zoos support environment friendly practices: Many zoos in India are practicing ban of polythene bags inside the zoo. Such efforts are

indirect interpretation methods to make visitors aware about the natural feeding habits of the animal and how polluting zoo with plastic could harm zoo animals, and sensitizing and the zoo visitor about larger issues in the Zoo and the need to adopt sustainable lifestyle practices. Lucknow Zoo distributes almost 20,000 paper bags free of cost to visitors every month. Mumbai Zoo had banned the plastic bags and plastic bottles inside the zoo premises. Hyderabad Zoo has taken initiative steps to have tea, coffee and ice cream in paper cups, besides that they have opened a counter near entrance, where paper bags of different sizes are made available at reasonable cost. Nehru Zoological Park in New Delhi has been declared as a 'No Poly Bag Zone'.

Meena is an Environmental Education Professional with over ten years of experience gained from the Centre of Excellence in Environmental Education (CEE). CEE is a national institution established in 1984, supported by the Ministry of Environment and Forests, Government of India. Meena is a Senior Programme Coordinator and Scientist at CEE and her work involves developing education and interpretation programmes for zoos, botanical gardens, national parks, sanctuaries, natural history museums, urban parks and other nature appreciation areas. She has also designed and developed many publications. Meena enjoys traveling, going to nature camps, birdwatching and reading. Meena strongly believes that Zoos provide an excellent opportunity to open up a whole new world of curiosity and interest and sensitize visitors.

Teen LEADERS-inspiring teen stewardship and advocacy through a teen volunteer interpreter program

Sandra Pitts – Fresno Chaffee Zoo, USA

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What are your teen volunteers doing? The Fresno Chaffee Zoo “Teen LEADERS” program was developed to advance conservation knowledge and stewardship behavior in teen participants. During the 2011 pilot year, 15 teens were trained as educational interpreters to deliver a number of fun, family-friendly water-based activities, age-appropriate conservation messaging and stewardship actions to zoo guests. The training program promoted team-building, communication and leadership skills and was designed to 1) inspire first-hand behavior change, 2) create a “ripple effect” of those changes on friends, family and zoo guests. The program challenged teens to recognize the impacts of their actions on the environment and then take steps to reduce negative impacts, and to undertake and promote positive ones. In the post-program survey teens reported positive changes in conservation actions and feelings about the natural world. In 2012, with the assistance of an Ocean Project grant, the program will expand to reach more teens.

Sandy Pitts is an Education Specialist at the Fresno Chaffee Zoo.

The Effects of a Hand-Feeding Opportunity on Visitor Attitude and Behavior

Kathleen Morgan – Southwick’s Zoo, USA

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Some suggest that what visitors learn at the zoo may conflict with the role of zoos as conservation education agents and may create false stereotypes of wild animals as malleable creatures that can be tamed and kept as pets. These stereotypes may be difficult to correct, since research has shown that the average zoo visitor spends little time at a typical zoo exhibit. One factor known to increase time spent at an exhibit is human-animal interaction. Some studies suggest that direct interaction with wildlife improves learning about wildlife and may improve attitudes towards conservation. However, there is also a strong opposing viewpoint that such interactions send the message to zoo visitors that ownership and captive maintenance of exotic species is acceptable and perhaps even desirable. In this study, we attempted to determine the effects, if any, that an opportunity to interact with captive giraffe had on visitor behavior and attitudes. We collected behavioral data on both giraffe and zoo visitors before, during, and after times when visitors could feed zoo-provided browse to the giraffe. We also surveyed visitors to determine attitudes towards giraffe and animals in captivity. Finally, we

collected donations for a giraffe sanctuary and compared dollar amounts received during times when visitors could and could not feed giraffe. Results showed an increase in amount of time that visitors spent at the exhibit during feeding opportunities, even by visitors who were not feeding the animals. Attitudes towards the animals and the zoo also improved, as did the amount of money collected during feeding times. Taken together, these data suggest that facilitating positive visitor interaction with zoo animals can produce effective change in visitor attitude and behavior with regard to conservation.

Kathy Morgan received her Ph.D. in Comparative Psychology from UC Davis in 1992. Her research focus has been on animal stress in captivity and ways to improve animal well-being. Spending a lot of time observing captive animals in zoos gave her an interest in zoo visitor behavior, too, and in formal and informal science education. She currently teaches biological psychology at Wheaton College in Norton, Massachusetts (U.S.A.), and also serves the nearby Southwick's Zoo as its Director of Research.

A global evaluation of biodiversity literacy in zoo and aquarium visitors

Markus Gusset - WAZA

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Aichi Biodiversity Target 1 of the United Nations Strategic Plan for Biodiversity 2011–2020 states that 'by 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably'. As a contribution to achieve this target, and to effectively complement existing educational materials, the World Association of Zoos and Aquariums (WAZA) will develop tools for raising awareness about biodiversity in zoo and aquarium visitors. This will be accompanied by an evaluation of the knowledge about and perception of biodiversity in zoo and aquarium visitors, also to assess the effectiveness of the tools developed for awareness-raising. To this end, questionnaire surveys among visitors to zoos and aquariums across the globe will be implemented, before and after having been exposed to the awareness-raising tools to be produced. Such a large-scale evaluation of zoos and aquariums as education centres is mostly lacking and, with WAZA being an official partner of the United Nations Convention on Biological Diversity (CBD) during the Decade on Biodiversity 2011–2020, also needed by CBD with regard to achieving Aichi Biodiversity Target 1.

Dr Markus Gusset is a conservation and animal welfare biologist with more than 10 years of expertise in researching and protecting wildlife both in its natural habitat and in human care (at Zurich Zoo and Leipzig Zoo). He received his PhD degree in 2006 and has been a Research Associate at Oxford University's Wildlife Conservation Research Unit since 2007 to pursue his research interests. He joined the WAZA Executive Office in 2009, where he serves as Conservation Officer and acts as the International Studbook Coordinator.

Corporates and conservation – will they ever learn?

Amy Bye – Bristol Zoo, UK

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In 2011, as part of the Wow! Gorillas campaign, Bristol Zoo offered a free outreach workshop to the corporate sponsors of the project. **Aim:** To promote gorilla conservation to a corporate audience. **Objective(s):** The outreach aimed to generate interest in gorillas, highlight conservation issues concerning gorillas and promote behaviours that have a positive benefit on wild gorilla populations, such as buying sustainable wood products and recycling mobile phones. **Method of Delivery:** A two hour interactive presentation from our Wow! Gorillas Outreach Officer, that included video clips, activities and gorilla biofacts (skins, skulls, food items). **Conclusion:** Out of the 59 sponsors, only 25 accepted the education outreach. Many of those who did accept did not use the outreach session to engage their employees but instead donated it to a community group or used it as a public outreach to increase footfall to their business. Where did we go wrong? What could we learn to better engage this audience in the future?

Amy Bye joined Bristol Zoo in 2005. During her time as an Education Officer, Amy has coordinated several successful public education campaigns that promote positive behaviour change in Zoo visitors.

Subliminal Education: How less obvious, can be more effective

Catherine Pearce – ZSL Whipsnade Zoo, UK

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As a zoo community, we know the importance of recycling and how it can lessen the impact of our waste on habitats and their residents but are all too aware that many visitors do not respond well to firm and direct advice. Primarily a conservation organisation, it is important that we educate our visitors how small changes in their behaviour can improve the environment and this message is often most effective when delivered in an unobtrusive manner. Our recycling policy is gradually introduced to ZSL visitors through our extensive programme of live events including feeds, demonstrations and workshops with visitors largely unaware of the underlying theme running through these sessions. We have range of innovative methods to do this including using a Californian sealion to demonstrate recycling, talking about recycled enrichment items during talks e.g. old clothing being used for the chimpanzees or browse from fallen trees during giraffe feeds. Everyday items can be reused by running workshops for visitors where they assist in making enrichment items for lemurs or bird feeders to take home. This programme of events can go hand in hand with more visible recycling initiatives such as signage, bins in our cafes and grounds or less obviously through our train commentary describing the effects on free roaming animals and talking about uses for elephant poo. Surrounding visitors with subliminal recycling information can be a compelling and successful means of communicating an important message.

Catherine Pearce has been an explainer at ZSL Whipsnade Zoo for 4 years after starting her informal education career whilst studying Marine Biology at University. She has a range of experience in devising and delivering talks and workshops both through her work at ZSL Whipsnade Zoo and also her time as a volunteer at the London Aquarium and whilst working as a student ambassador to raise the aspirations of disadvantaged children in Newcastle and Durham.

From Animal Behaviours to Human Behaviours

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Strategic Importance: Integrate animal training techniques as a component of an indirect contact approach for prey bird conservation education. **Aim:** Facilitate visitors to recognize the importance of local prey bird species and motivate them to take action to positively impact on their conservation. **Objective(s):** Reduce the negative impact of human behaviours towards prey bird species through the use of wild animal training techniques and educative interpretation, generating new knowledges, clarifying cultural negative implications, developing care attitudes and motivating to adopt new behaviours in the visitors. **Method of Delivery:** The exhibition consists on a 30 minute talk where visitors learn about prey bird features, importance of prey birds, major threats for these species and action steps for their conservation. Trained prey birds perform natural behaviors that support the explanations, increasing complexity of the exercises during the presentation and reducing the distance with people, generating different emotions at each part of the presentation. **Evaluation:** Quantitative evaluation: It is done by comparisons of the number of visitors at the exhibitions on the first semester of 2011 and 2012. Qualitative evaluation: by a comment book where visitors can voluntarily write on, at the end of every exhibition. Summative evaluation: by questionnaires applied on the World Bird Festival celebration each October. Questionnaires are intended to provide information about processes and results on visitors. **Conclusions:** The exhibition is considered by visitors both fun and educative and generates interest in other education activities. Exhibitions allow education staff to deliver efficient conservation messages to visitors. Indirect contact with program animals is an effective approach to create a strong emotional connections. Showing species' natural behaviours allow visitors a better understanding of their biological and ecological importance. Visitors show a change in their attitudes and a strong willingness to modify their behaviours to collaborate on prey bird conservation.

Education Department Coordinator at San Juan de Aragon Zoo. Sponsored delegate at IZE's 2006 conference at National Zoological Gardens, Pretoria, South Africa. Recipient of the ZCOG Les Whitt Memorial Award 2011 to attend the AZA Professional Training Course "Conservation Education, Effective Program Design". Major in Biology, Sciences Faculty, National University of Mexico.

Educational curriculum strengthening at biodiversity component, participation of the education community of San Antonio Del Tequendama, Colombia

Iván E. Ramos – Santacruz Zoological Foundation, Bolivia

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Strategic Importance: The education component for Amphibians, had been focus in Education staff training, community work with 4 rural schools in San Antonio del Tequendama, doing workshops during the class time, teachers training, scientific surveys by children with the local amphibian species.

Aim: Promoted works of Conservation and Education with native species of the region. **Objective(s):** Introduce Biodiversity component using Amphibians as Flyer Specie, into the science lectures including at the Regional curriculum schools. Introduce students recognize and learn about their own local Fauna and Flora encourage conservation attitudes. To achieve that knowledge about local Biodiversity is important. Include the entire program construct in the PRAE document into the science curriculum.

Continue with the teachers training to ensure the development of the program. **Method of Delivery:** For 2012 the Education proposal is introduce Biodiversity component using Amphibians as Flyer Specie, into the science lectures including at the Regional curriculum schools. Colombian Education system has as strategy the formulation of Environmental Education projects PRAE (School Environmental Project), which each education institutions had to do and develop environmental projects leader by Teachers and institutional Directors. Santacruz Zoological Foundation had been working at the PRAE constructions during 2010 and 2011, doing workshops and creating teachers leader team, including Biodiversity as one of the 3 principal components. **Evaluation: Students evaluation:** compare knowledge's and wrong information before starting the program and after the program training. Presentation results of the scientific projects done by the students. **Teachers evaluation:** knowledge improvement of teachers and students by constant surveys. For 2012, the education strategy to encourage teachers to elaborate Education Guides-Education Material for Biology-Science classes, including knowledge's, education techniques, and applying the strategies plan published at the PRAE. For a second Goal continue with a local Biodiversity Strategies for the education institutions of the Municipality of San Antonio Tequendama in a participative process with all the actors evolved during the last 3 years. **Conclusion:** Teacher training program develop, teacher team for the Environmental Project working with a strategy plan construct, PRAE document constructed with participative process and approval of the governmental institutions, education material design and worked. Scientific methodologies included into the Science subjects at the education institutions.

Animal Science at the University of La Salle since 2005, I worked on several projects dedicated to the conservation, research and environmental education, tending for natural resources of the country and the benefits to the community. From 2006 to 2009 worked as Chief Operating in Biopark La Reserva, a new concept of zoological, coordinating and directing various projects of Conservation and Environmental Education to work with children from more than 100 colleges and universities. Since 2010 I joined the Santacruz Zoo Foundation to coordinate and direct the Project Amphibian Conservation Region Tequendama in the Andes of Colombia, linking the community and children over 18 rural schools and 2 urban schools.

Stop "Bears on the Road": Changing Public Attitudes for Survival of Sloth bear

Bexell Ayyachamy Daniel – Zoo Outreach Organisation, India

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Indian Sloth Bears have suffered terrible torment as "dancing bears" owned by the *Kalandar* community which depended on this cruel entertainment for their livelihood. For centuries, many bear cubs were captured from the forest at the same time their parents were summarily killed to facilitate the capture, which has led to an enormous decline over time. SOS Wildlife pioneered a successful means of

working with the *Kalandars*, other NGO's and the Indian Forest Department, which reduced the captures and killings exponentially. Nevertheless, people living in areas where this has taken place still need to learn what a cruel practice it is so they can refrain from participating and report instances they see. Zoo Outreach Organisation with the support of *Alertis* Fund for Bear and Nature conservation, developed a Sloth bear teaching programme to train educators in areas where the remaining dancing bear racket exists. ZOO developed a teaching manual to train educators in 'active learning' and other techniques to make their teaching more effective. Some of these educator training programmes, organized at select zoos and bear rescue centers in central and South India will be discussed, along with the impact towards sloth bear conservation.

B.A. Daniel is with Zoo Outreach Organisation Trust since 1995. He is the Education Coordinator for Zoo Outreach Organisation Trust and has planned and implemented many local education programmes in the country and coordinated education programmes in regional level with in South and South East Asia. He has also contributed heavily to the design and production of a variety of educational materials. He has organized about 44 educators training programmes in this region. He is a member of the IUCN Commission on Education and Communication and IZE.

ZSL and Client Earth on the road to Rio +20: Youth Declaration project

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Strategic Importance: For world leaders to sign a binding commitment with the youth of the world to fulfill the Aichi target by 2020. The aim is to create awareness of the "Declaration of young people's right to a healthy planet", by encouraging people to sign the online declaration, deliver a youth focused event at the Rio +20 conference and invite world leader to sign a binding commitment thus changing decision makers behavior to be more supportive of the Aichi targets 2020. "Broken promises now mean a broken planet later. The people who will feel this most keenly are those who will live in the decades to come, who will suffer or benefit from decisions made by leaders now. We are ready to listen to young people's concerns and to support them in taking action for their future. We hope this campaign will make governments sit up and listen too." James Thornton, Chief Executive of ClientEarth. The objectives are to get 1 million people to sign the online Youth Declaration, to deliver an event at Rio +20, to secure signatures for world leaders and the evaluate the success o the project. The presentation will be a narrative of the journey taken by ZSL and client Earth in the lead up and during to Rio+20. It will highlight the successes, constraints and lessons learnt from embarking on this global initiative. Evaluation will be performed though the monitoring the number of people signing the Youth Declaration, that participate in the ZSL/Client Earth Rio +20 event and through self reflection from the project team .This project is paramount at engaging the young people to lobby world leaders to acknowledge their commitment to future generations.

Animals reach hearts – but how do we reach visitors' minds and change behaviour? How a non-animal based exhibit works at uShaka Sea World.

Jone Porter – South African Association for Marine Biological Research, South Africa

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Climate change has become a household term in South Africa, thanks to the hosting of COP 17 in 2011. Most people know that a problem exist, but have little idea of what they can do to change the situation. The Eco-House was opened at uShaka Sea World in February 2012. This new exhibit provides visitors with concrete actions that they can take in their homes to address the issue of climate change – saving money through sustainable living. The exhibit uses the endangered African Penguin as an icon to provide an emotional connection to motivate visitors to make lifestyle changes. A selection of static interpretation boards have been installed to provide relevant information while interactive panels encourage visitors to learn interactively. Two assessments have been completed: 1)

An initial assessment of guests' current actions pertaining to sustainable living and 2) Through observation and surveys, a preliminary assessment of the most effective components of the exhibit. Our results will be used in order to inform future exhibits which encourage conservation action.

Jone Porter, Director Education, uShaka Sea World. Our Education Centre caters for formal education, schools and special interest groups, and informal education, visitors to uShaka Sea World. I am the Africa representative for the International Zoo Educators Association and on the Education sub-committee of the African Association of Zoos and Aquaria (PAAZAB). Prior to this I worked for Ezemvelo KwaZulu-Natal Wildlife, responsible for community conservation projects adjacent to provincial protected areas along the coast.

Participative construction of sustainable agriculture systems in a vulnerable area of Colombia

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The last four years Colombia has experienced increase of natural tragedies as landslides, flood victims, loss of Biodiversity a consequence of the climate change and the inadequate agriculture and farm practices for years. San Antonio del Tequendama located in the High Mountain Area of Colombia, considered an important region for their water resources had experience a loss of natural areas, due the deforestation done by the local community to established cattle, pork or agriculture unsustainable systems. Needs to provide an Environmental Management Policy to protect the natural areas, and give to the community sustainable systems to permit them work and survive. The project evolve vulnerable community to identify their environmental problems promote their own strategies that will be able to solve and prevent environmental damages causing by the unsustainable agriculture and farm systems doing for decades; due facilitate methodologies providing skills to local community for identify their principle environmental issues, causes and consequences, and construct in a participative method for their possible solutions including training in agriculture and farm sustainable systems, easily, low cost, and less time results to implement in their lands, constructing a Policy for San Antonio region about Good Agriculture Practices support and adopt by the local government. Approach to local community visiting most vulnerable areas, environmental evaluation with community participation has done, with a group construction of the systems and strategies to improve including a community training of sustainable agriculture. Number of families evolved increased from 24 to 73, now their able to understand and change unsustainable practices to sustainable including reforestation- agriculture, and pork production, having now in phase 1 12 complete sustainable farms, 23 families working. With the local government their started to support and work in a local policy using the environmental laws that the country has that ensure to continue and strengthen.

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Education, an essential conservation tool – implementing and conceiving new pedagogical-didactic strategies

Maria Antonieta Pires da Costa – Lisbon Zoo, Portugal

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Lisbon Zoo (LZ) educational activities started in 1992, with a Guided Tour program, which provided a better support and a better educational advantage for those who visited the Zoo. In 1994, the first Educational Department Global Project was approved. This was meant structure the base for the development of educational services at the Zoo. In 1996, the Educational Department main goal is to

develop and implement the educational function of the Zoo, through its own facilities and equipment, as well as technical staff specifically trained to perform. With a strong educational concern in all areas, the work developed in the last years has contributed for the perception of LZ as an Educator. Having full conscience of its patrimony, LZ has increased educational policies in the last years and in 2009 Educational Programs in LZ are recognised by the Portuguese Ministry of Education as educational value as parallel teaching in the pedagogical school curricula and as having a major role in environmental education in pre-school, primary and secondary school. Lisbon Zoo (LZ) is a promoter of the knowledge construction process in order to implement and conceive new pedagogical-didactic strategies. Bridges with teachers are built to plan and execute regular and continuous partnerships in the area of Conservation Education in order to encourage debate within the school environment of man's behaviour in relation to the environment and its consequences, to raise awareness of the importance of preserving wildlife and its ecosystems, and to unify efforts with an International Education Strategy. With this educational relation LZ / teachers, we achieved to involve around 25.000 students per year from schools all over Portugal, through educational programs in LZ. This session will give details of these pedagogical-didactic strategies and presents some examples and evaluation methods employed.

Pires da Costa, Maria Antonieta – Ph'd in Education. Head of Educational Department at Lisbon Zoo since 2007. Responsible for defining, developing and monitoring the Education and Training Plan. Responsible for articulating, diversifying and profiling objectives, activities and outcomes of the Educational Department: creation of new activities and products; innovate and quality of the existing ones; external partnerships and strategic relationships; institutional national and international relationships; Collaboration with the Marketing/Commercial Services in the development and promotion of participation of existing sponsors educational activities and support in finding new sponsors. Professor at Lisbon University for 15 years in the pedagogy area.

Climate Change Beyond Polar Bears

Constanze Mager-Melicharek – Burger's Zoo, The Netherlands

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Aim: The audience (zoo educators) gets a handful of useful examples of the effects of climate change on common zoo animal species. **Objective(s):** Zoo educators often still find it difficult to integrate climate change into guided tours or educational programs. Information what persistent development of climate change really means for different animal species, seems difficult to find. Thus we often don't get further than storylinks with species living on melting icecaps. The zoo animals are the primary reason why visitors come to a zoo. We need to make optimal use of the present collection to reach minds and hearts. So it is enormously important to find links between a number zoo species and effects of climate change to bring across the message! In just six minutes, a few examples pass by... **Method of Delivery:** presentation with powerpoint on IZE 2012. **Conclusion:** It's not only polar bears that provide zoo-educators a potential kick-off on the climate change topic!

Constanze Mager-Melicharek was raised in Vienna (Austria) in the neighbourhood of Zoo Schönbrunn. The childhood experiences in the zoo triggered her to study zoology and start a career as zoo-educator. She has worked as educator in the Dutch primate park Apenheul for more than 10 years. In 2011 she has switched to Holland's largest zoo welcoming about 1.5 million visitors a year, Burgers' Zoo. Constanze is member of the EAZA education committee, chair of the EAZA visitor study working group and in the EAZA Ape Campaign planning team.

Lurking in the distance - visitors perceptions on sharks

João Pedro Correia das Neves – Zoomarine, Portugal

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"A fin breaks the water surface in your direction. Now exposed to the atmospheric elements, one can see that it belongs to a large animal... an underwater behemoth with a predatory instinct?" This could be a lousy tagline for a class B film which would, perhaps, fill the imagination of many of us. Could this marine protagonist be a determined shark or just an inquisitive dolphin? Deeply influenced by other taglines and the increasingly available documentaries wherever we turn, a shark would most definitely

be the first choice. And, unfortunately for them, the overall perspective is not too favourable for their immediate conservation. In the essential book "The Naked Ape", Desmond Morris asks why do some creatures make us say 'Aah' and others make us say 'Ugh!?' It seems to be deeply rooted in our nature to define behavioural patterns for all living beings - ones are good and others sell books...With this in mind, Zoomarine visitors were prompted to expose the first adjectives that came to mind when thinking of a shark and, thus, revealing some of their immediate perceptions. Crosschecked with available bibliography, it was possible to draw connections with those perceptions and the increasingly available shark-related media. It also highlighted the increasing responsibility of the zoological community in demystifying and promoting integrated knowledge on sharks towards their future conservation.

With a college degree in Biology and two master degrees (Science Teaching and Conservation Biology), has a vast experience communicating science and conservation to a broad audience (from kindergarten to college). Since 2005, coordinates the Zoomarine (Portugal) Education Department and is deeply involved in several national and international projects. Since 2009, coordinates the Education Workgroup within the Iberian Association of Zoos and Aquaria (AIZA) and is strongly involved in the Education Committee of the Alliance of Marine Mammal Parks and Aquariums (AMMPA).

The Rhino Crisis

Ulrich Bernd Oberprieler – National Zoological Gardens, South Africa

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Aim: To harness support from zoos internationally to address the conservation crisis facing both African and Asian rhinos as a result of unsustainable poaching and the trade in rhino horns. **Objective(s):** To describe the crisis; To suggest ways in which zoos can assist in solving this crisis; To coordinate support from zoos internationally. **Method of Delivery:** PowerPoint Presentation and discussion; **Conclusion:** Rhinos are facing extinction in the foreseeable future due to poaching and the illegal trade in rhino horns. Due to their global distribution and large number of visitors, zoos can play an invaluable role in addressing this crisis.

Ulrich Oberprieler is Manager of the Department: Conservation Education and Public Engagement in Science of the National Zoological Gardens of South Africa (NZG), a unit of the National Research Foundation. He also heads the NZG Academy. In addition, Ulrich lectures at various academic courses and has authored a number of books.

From Local to Global: Creating Globally Relevant Experiences in Ethology and Ecology

Leah M. Melber, Ph.D – Lincoln Park Zoo, USA

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Basic understanding of a concept is a critical precursor to any change behavior. The Young Researchers Collaborative (YRC) was created to build student understanding of conservation science by involving learners in original research projects. This past year, we received a grant to conduct similar programming in Niamey, Niger and launched the Community of Conservation (CC) project. YRC and CC seek to build student understanding of the importance of urban environments as ecosystems and the relevance of conservation to their own backyard. While the YRC curriculum has proven to be successful when used locally, CC sought to determine the global relevancy of a curriculum focused on independent conservation research on the part of students. Through CC, students in both Chicago and Niamey were provided with all necessary materials and a common (translated) curriculum to conduct biodiversity surveys and/or ethology studies in their community. Students exchange the results (via Skype) of their research across continents, while learning about the unique biodiversity of each region. We've discovered our locally relevant curriculum is equally relevant globally as students in both countries have successfully collected and analyzed their data in line with the work of zoo researchers and using authentic research methods.

Leah has over 20 years experience within informal science education with special emphasis on supporting public understanding of the work of researchers. She is author of Informal Learning and Field Trips and co-editor for the upcoming publication Putting Theory Into Practice: Tools for Research in Informal

Settings together with numerous journal articles. She received a Promising Leadership Award from Association of Midwest Museums in 2010 and was recently appointed to the Fulbright Specialist Roster. She received her Ph.D. from the University of Southern California in educational psychology and is the Director of Student and Teacher Programs at Lincoln Park Zoo.

Getting conservationists to consider hearts, minds and behaviour

Dr Rebecca Day – Zoological Society of London, UK

Rebecca.Day@zsl.org

The aim of this Case Study is to demonstrate how educators can contribute to *in situ* conservation and the training of conservationists. Our objectives were to increase awareness of CEPA (Communication, Education and Public Awareness) among conservation colleagues and to ensure it is incorporated into their conservation programmes. Education staff from ZSL have been involved in presenting talks and lectures at conservation courses for the last few years, in particular working with the EDGE of Existence programme. This programme trains up early-career, in-country conservationists as EDGE Fellows and includes extensive training workshops, such as the one held in Nepal in 2011. Alongside practical conservation skills, three days were devoted to considering the importance of including people in conservation activities, and learning CEPA and social science techniques. Simple self assessment and knowledge change tests were developed and showed evidence that the participants had learnt new and useful things from the course. Feedback from participants and conservation staff was very positive and highlighted the importance of addressing CEPA skills for early-career conservationists. Despite not being expert in all of the issues encountered during *in situ* conservation there is a considerable amount education staff can contribute.

Rebecca Day is Manager of Engagement and Interpretation at the Zoological Society of London. This role encompasses live interpretation and exhibit interpretation across London and Whipsnade Zoos. Becky is interested in how we can use zoos to influence visitors' behaviour and how we can use expertise in zoo education to help in situ conservation.

Rafiki wa Faru: How befriending rhinos is helping to save them in Mkomazi National Park, Tanzania

Cathy Dean – Save the Rhino International, UK

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The overall conservation aim of the Mkomazi project and of its environmental education programme, Rafiki wa Faru (friend of rhino) is to change attitudes towards wildlife and habitat conservation to secure the long-term sustainability of Mkomazi National Park and its conservation efforts.

Objective(s): To teach four themes: habitat restoration in Mkomazi National Park, water conservation, and the black rhino and African wild dog breeding programmes; To deliver strong messages about security levels in the Rhino Sanctuary; To allay suspicion about the presence of the (Western) programme leaders in the National Park. Rafiki wa Faru targets children aged 15, who have the ability to act as message multipliers in families and communities, from 14 secondary schools nearest to Mkomazi. A bus collects 27 schoolchildren and 2 teachers for a tightly choreographed day inside the Park and Rhino Sanctuary. Training and resources have been provided by Chester Zoo. A range of monitoring and evaluation methods collect data from Mkomazi staff, teachers and pupils to assess knowledge gain and attitude change. Rafiki has been running since 2007. No poaching attempts have been made on Mkomazi's rhinos, despite the global crisis, and there is much greater community support for the Park.

Cathy Dean has been Director of Save the Rhino International, a UK-registered charity, since 2001. Her main responsibilities are charity governance, fundraising and liaison with field programmes and conservation partners. She has participated in three African Rhino Specialist Group meetings and presented on environmental education programmes at the most recent one in 2011. She was keynote speaker at the International Elephant and Rhino Conservation and Research Symposium in 2011. Cathy recently spent six months on sabbatical working with field programmes in Namibia and Zimbabwe and has run many marathons to raise funds for rhinos.

Environmental education mobilizes community support for *in-situ* Philippine crocodile conservation: Something to be Proud of!

Myrna Cauilan-Cureg – Isabela State University, The Philippines

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Over the past 10 years, an intensive **communication, education and public awareness** (CEPA) campaign has aimed to inform local communities on Philippine crocodile conservation in the northern Sierra Madre, the Philippines. Efforts to actively involve local communities in crocodile conservation and wetland management had been initiated. This paper presents the efforts to mobilize public support for in-situ Philippine crocodile conservation. It showcases the CEPA campaign implemented in the area centered on the theme “the Philippine crocodile: something to be proud of!” and involving the use of community dialogues, school lectures, puppet shows, dance theatre, appearances of a Philippine crocodile mascot, showcasing information in the Municipal Philippine Crocodile Rearing Station, field visits, selling crocodile T-shirts and distribution of crocodile posters, storybooks, manuals, calendars, and newsletters. It reports that through environmental education, most of the people living in Philippine crocodile habitat now know that the species is protected by law. People take pride in the occurrence of a rare and critically endangered species in their village and actively support in-situ conservation action. But the recovery of the Philippine crocodile population leads to more human-crocodile conflicts, thereby posing new challenges for effective environmental communication and public advocacy.

The presenter, MYRNA CAUILAN-CUREG, is teaching educational communication to Bachelor of Science in Development Communication students of Isabela State University, the Philippines. Occupying Professor I rank, she is designated as Chair of the Department of Development Communication and Languages. Her involvement with the Mabuwaya Foundation's Crocodile Rehabilitation, Observance and Conservation (CROC) project started in 2003 wherein she has served as Communication Education and Public Awareness (CEPA) coordinator for the CROC project in-charge of designing communication materials & campaigns. She has co-authored articles with Jan van der Ploeg published in 2011 in Conservation Letters and the Journal of Integrative Environmental Sciences.

Can children spur conservation actions? CSWCT experience

(Presented by Kathy Lehnhardt on behalf of) Silver J Birungi – Chimpanzee Sanctuary and Wildlife Conservation Trust, Uganda

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Uganda is endowed with natural resources, such as forests, in spite of this; high rate of forest destruction for agriculture, firewood, timber and settlements is rampant. Destruction forest means a threat to chimpanzee survival. CSWCT with funding from DWCF in 2010/ 2011 piloted an education program, with the sole purpose of influencing change among the communities living adjacent to chimpanzee forest habitats, through children and youth. The project works with children aged (9- 15) and (16- 18) as, 'Change Agents'. These trained in construction of energy saving stoves, tree planting and grafting, vegetable growing and soil management. With different evaluation and monitoring techniques, 88% stoves were constructed in different homes, 84% survival rate of tree seedlings planted and full participation of family members from different fields and profession. This paper shares experiences, of how community members actively participate in conservation practices and changed their attitude towards the environment.

Silver J Birungi is a conservation educator with the Chimpanzee Sanctuary & Wildlife conservation Trust an NGO that manages Ngamba Island Chimpanzee sanctuary. Ngamba Island is a member of Pan African Sanctuaries Alliance with 21 member sanctuaries. Silver won the 2010, IPS Charles Sandwich conservation education commitment award and continues to work closely with communities in western Uganda to secure and protect wild chimpanzee habitats.

Engaging with communities who depend on their forest. Case study of the 'Community for Primate Conservation' project and the Mefou communities

Jeta James Fawoh – Ape Action Africa, Cameroon

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It is clear today that conservation education cannot be totally independent. A holistic approach is needed to improve its effectiveness. Sustainable livelihood projects in a poor community are necessary to attract support from local people. Good conservation education programmes have failed not because they were not well developed or implemented but because they did not evaluate the needs of the audience using a participatory approach. In order to achieve this goal we implemented the Communities for Primate Conservation project proposed by the Disney Animal Kingdom. Thus we are faced with the issue of what livelihood project the communities want and what legacy it brings in order to improve its adoptability. The Community for Primate Conservation was developed to achieve both educational and the socio-economic needs of the communities and also involving the people to enhance sustainable development. Two people from each of the five villages around the Mefou Primate sanctuary were where selected by the chiefs of the villages to represent their community in the project and who will be the ambassadors to their village. A combination of participatory discussion sessions and projects was used and a feast to attend the objective of the project thereby addressing the issues of massive extraction of wood from the forest, earning a living by conserving primates at the same time improving on tourism by valorizing their culture. There was also the use of a variety of images to channel conservation messages through. The programme was evaluated using pre and post questionnaire and interviews. While engaging in the activities of this programme, participants improved their perception in the need to protect their forest. The same community that has been resisting conservation work now embraces it.

I am Jeta James Fawoh, a holder of a bachelor's degree in Geography and Environmental Management at the University of Dschang. I started work as a volunteer at the Limbe Wildlife Center in 2002. In 2004, I was employed at the Cameroon Wildlife Aid Fund now called Ape Action Africa. I was the winner of the 2008 International training award and the 2009 Charles Southwick conservation Education Commitment Award. I am a trained Naturalist at the Dunes Learning Center Chesterton, USA.

Vampire V.S. Predator — What's Your Impression of Bat?

Wenchi Lin – Taipei Zoo, Taiwan

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Bats are the common but mysterious creatures in people's mind. This report try to approach the subject from different angles: what people's common thinking towards bats, and correct the misunderstandings through creative lessons about bat behavior, habitat, ecology and conservation. The objectives of this report is to correct the misinformation of bats ; to let people know the effect of losing bats, to introduce bat myths, anatomy and scientific classification ; to appeal the secret world of bats to young people and to promote bat conservation through knowledge. We have a pre-test (and pro-test) questionnaire survey to analyze the data. Finally, we hope to reveal bats in its true colors and gain an appreciation for global conservation concerns of bats.

Wenchi Lin worked in Education Department of Taipei Zoo for 16 years. She is responsible for programming the summer vacation camp projects and zoo events. This year she begins to take over the zoo interpretation system.

Understanding the attitudes of visitors at a safari park

Louise Anne Cribbin – Blair Drummond Safari and Adventure Park, UK
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Aim: to gain further understanding of the attitudes of visitors with regards to education and conservation. **Method of Delivery:** Participants were approached at Blair Drummond Safari & Adventure Park and asked to fill out a 17 item questionnaire. Participants were entered into a free prize draw for a seasonal passport on completion of the questionnaire. **Conclusion:** Analysis of data is still taking place, aiming for completion by the start of August. Early analyses of preliminary data suggest that visitors predominately spend a day at a safari park for enjoyment; however they do mostly feel that they have been educated. The majority of visitors believe that the safari park has an obligation to help protect animals in the wild as well as the animals at each collection. Visitors who claim to have a closer relationship with animals are more likely to want to help protect both the individual animals at the park and species in the wild. Further data analysis with the complete data set will provide insight into how the talks/shows offered by the establishment, motive for visiting the park effect, the age of the participant and the activities they choose to participate in relate to conservation attitudes.

I am an Education Assistant at Blair Drummond Safari & Adventure Park, so I frequently engage with the public. My job role is to educate and so I find the study of visitors and their engagement with science and conservation issues very interesting. I am also currently studying for my MSc in Evolution and Behaviour at the University of Stirling. My research interests include the cognitive and communicative abilities of animals as well as the communication of science.

Complex way to complex change: system of zoo-based activities aimed to change Hearts, Minds and Ultimately Behaviours in Novosibirsk Zoo

Yulia Kisora – Novosibirsk Zoo, Russia
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Aim: to prove the need of complex systematic approach in zoo education. **Objective(s):** to analyze three directions of change: Hearts, Minds, Behaviors and suggest the best ways to follow it. **Method of Delivery:** paper or poster. **Conclusion:** The change that we would like to see in “hearts, minds and behaviors” of zoo-visitors may be the growing understanding of beauty, complexity and vulnerability of the wildlife. The first concerns emotional impact on the visitors. To inspire the feelings of interest, admiration and respect, that we would like to see in our audience, we need to forget about theory and abstractions. Only the true stories and data do touch hearts. The second (mind) is about the target audience and obtaining knowledge by it. Different styles should be applied to different groups of people. Four groups are dealt with: preschoolers, children, teens and students, adults. Four ways of giving knowledge are distinguished: LECTURE, DISCUSSION, GAME, ART. Each group is teachable best with the set of first one (passive learning) and one or several of the rest (active learning). For example, preschool children get the most part of available information through art, while teens acquire the knowledge through debates and role-playing games. On top of it lays the change in behavior, understanding of threats to the wildlife and readiness to help it. In local scale it means teaching the active respect to the wildlife: careful treating of animal that surround us and participation in wildlife-friendly actions and campaigns (placing of artificial breeding sites, feeding city animals at winter etc). The system of activities performed in mentioned directions can inspire changes and therefore help the zoo education reach its main goal.

Yulia Kisora works as a head of informational department at Novosibirsk zoo. The field of her duties includes education programs, celebrations of theme days and public relations.

Leveraging the power of technology to connect with wildlife using iPads

Kathy Lehnhardt – Disney's Animal Kingdom, USA

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Strategic Importance: Conservation educators around the world are always looking for innovative tools to engage visitors about wildlife and conservation actions. **Aim::** The use of technology, especially iPads, can spark the interest of visitors and educators alike to connect visitors to wildlife at your facility. **Objective(s):** To use technology to enhance children's understanding and viewing of wildlife; To use technology to inspire visitors to conservation action; To use technology as an exciting tool that delights visitors as well as educators. **Method of Delivery:** Power point. **Evaluation:** Qualitative comments collected from visitors and conservation educators clearly demonstrated an enthusiasm for this new wildlife conservation tool. **Conclusion:** Try this technology at your zoo or aquarium to hook and hold visitors in front of exhibits and as a way of delivering conservation actions.

Getting people involved with wildlife and wildlife conservation has been Kathy Lehnhardt's passion for the past 30 years. As Curator of Education at Disney's Animal Kingdom, Kathy has an unparalleled opportunity to impact a larger audience than ever before with wildlife conservation messages. Currently, her work includes leading a young, enthusiastic team of educators who interface daily with hundreds of Disney guests, teaching the Interpretation Methods course to all staff, creating young children's activities, implementing in-situ education programs in Africa, and on-going evaluation projects that measure conservation impact. Kathy is the current President of the International Zoo Educators Association.

Defining Conservation Biology Education

Dr Sue Dale Tunnicliffe – University of London, UK

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Strategic Importance: We do not actually define the levels of gradual and incremental learning necessary in developing the understanding of the nature of conservation. Conservation psychology is now a recognized field, is it not timely to discuss and define conservation biology education? **Aim:** To present a rationale and overview for conservation biology education, its component areas and links with other Educational genres. **Objective(s):** to present an overview of area included in general field referred to as conservation education research. **Method of Delivery:** power point presentation of key areas after asking the audience to define what they mean by conservation biology education. **Evaluation:** In research about conservation understanding that I have carried out are apparent that fundamental concepts necessary before conservation can be fully understood are lacking. Some deliverers that these concepts are in place make the assumption. **Conclusion:** Data reveal that conversations spontaneously generated at animals as exhibits are of a basic understanding of the concept animal, their needs and their relationship with other species and then their habitat and the relationship and effects of the wider environment including climate. Conservation biology education seeks to define the stages in the hierarchy of knowledge and understanding that have to be incremental assimilated by learners if they are to have the opportunity to really understand the complexities of biological conservation. The role of zoo educators is to develop a protocol, which may lead to a real understanding of the issues facing the living world in which the learner lives and in the wider world. Conservation biology education in sites of field conservation needs careful handling working what the endemic population, their customs and understandings.

A zoologist specialising in science education, ex ZSL head of education, interested in children's understanding of animals Has published widely internationally particularly on children's understanding of animals and is widely cited. Recent relevant papers 2007 Conservation and education: Prominent themes in zoo mission statements, Journal of Environmental Education, 2011 Using a Field Trip Inventory to Determine If Listening to Elementary School Students' Conversations, While on a Zoo Field Trip, Enhances Preservice Teachers, International Journal of Science Education. A founder editor Journal of Emergent Science, Associate editor for Journal of Biological Education, on the board of several international journals.

Introducing social and emotional aspects of learning into education programmes

Sarah Thomas – Zoological Society of London, UK
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Aim: To provide an introduction for using social and emotional aspects of learning (SEAL) in education programmes – for schools, visitors and community outreach projects. **Theoretical Basis:** Using the work done by Daniel Goleman on emotional intelligence, and more specifically on social and emotional learning, the workshop will explore how social practice and emotional content in our learning programmes are essential if we want our stakeholders to change their hearts, minds and ultimately behaviour.

Train your future colleagues

Hetty van Dijk - Van Hall Larenstein University of Applied Sciences, The Netherlands
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Zoos and aquaria can make a great contribution towards the training of students. They can offer students ways to improve their communication skills, develop insight in education, and try their hand at research. Tasks and assignments can be found to provide all levels of students with valuable practical experience. And it's not just a one-way offer: students can help zoos and aquaria by carrying out daily tasks, finishing projects that zoo professionals never seem able to find time for, and perhaps even bringing new ideas and insights into the zoo. And who knows, you might even be training your own future colleagues!

Hetty van Dijk is a lecturer at the bachelor course 'Animal Management' at Van Hall Larenstein University of Applied Sciences in the Netherlands. Part of her job is supervising traineeships and theses in zoo education. Traineeships may include daily tasks at education departments, interaction with the public, development of educational materials and small research projects. Theses consist of research projects on for instance visitor behaviour or evaluation of education projects.

Workshops

How to Validly and Robustly Measure Zoos' Impacts on Hearts, Minds and Ultimately Behaviour

Dr Eric Jensen – University of Warwick, UK
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This workshop will focus on helping zoo educators measure impacts on visitors of all ages in ways that will stand up to rigorous external scrutiny. There will be a presentation that identifies the key methodological issues involved in this complicated task of impact evaluation. This presentation will cover major methodological issues such as self-report in survey design and generalization at a level that is understandable for a zoo educator with an interest (but not necessarily a background) in evaluating impacts. The presentation draws upon the extensive body of methodological literature developed in the social sciences to guide the design, conduct and analysis of evaluation research. Specific practical options that are particularly effective in zoo contexts will be highlighted, as well as offering delegates a look at particular impact evaluation studies' methods, which were conducted at Durrell Wildlife Park and ZSL London Zoo. The workshop will also include practical elements in which delegates work on constructing their own impact evaluation survey questions and critique and discuss prior impact evaluation research.

Dr Eric Jensen is a social scientist at the University of Warwick, who has extensive experience conducting impact evaluation studies in settings such as zoos, museums and science festivals. He teaches research methods at the undergraduate and doctoral levels at Warwick, and leads a Master of Science programme in Science, Media and Public Policy. He has numerous publications in peer-reviewed journals such as Public Understanding of Science and Visitor Studies, and a recently published book on social change. He is currently running a seminar series on the topic of 'Evaluating the Impacts of Public Engagement and Non-Formal Learning'.

Evaluation and Feedback Techniques for EE and Interpretation

Ms Meena Nareshwar – Centre for Environment Education, India

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Aim: To understand how effective our educational and interpretation programmes are? Are they making a difference in the Lifestyles of people and living sustainably? **Theoretical Basis:** Pre, post summative evaluation, feedback mechanisms, Using the Message-media matrix. **Description of the practical:** Case-study presentations and critical analysis.

I am an Environmental Education Professional with over ten years of experience gained from the Centre of Excellence in Environmental Education (CEE). CEE is a national institution established in 1984, supported by the Ministry of Environment and Forests, Government of India. I am a Programme Coordinator at CEE and her work involves developing education and interpretation programmes for zoos, botanical gardens, national parks, sanctuaries, natural history museums, urban parks and other nature appreciation areas. Have also designed and developed many publications. I am a Board Member of IZE and the South Asian Regional Representative for International Zoo Education (IZE) and work with 8 countries. Meena enjoys traveling, going to nature camps, birdwatching and reading. Meena strongly believes that zoos provide an excellent opportunity to open up a whole new world of curiosity and interest and sensitize visitors regarding the value and need for conservation of wildlife.

How can we alert and help our visitors rescue climate change policy?

Paul Pearce-Kelly – Zoological Society of London, UK

Paul.Pearce-Kelly@zsl.org

Aim: We need this workshop to help address two urgent public engagement imperatives. The first is how we can best alert our visitors, and wider audiences, to the greatly increased climate change threat facing biodiversity and humanity alike. The increased threat is exemplified by the major Arctic sea ice loss and permafrost thawing which illustrate how close we are to the risk of disastrous runaway warming. The implications for life on earth are profound and yet there's still very little public awareness of the severity of the situation. There's also woefully inadequate political recognition of either the urgent threat or the policy measures essential for pulling the climate system back to a relatively safe state in the fast closing window of opportunity remaining to us. The second is how can we help empower our visitors, and wider audiences, to realise their tremendous potential for ensuring that our political leaders acknowledge the danger and take the essential mitigation policy actions while there's still time to do so? **Public engagement opportunities** such as IZE's **Push the Button** initiative are the kind of public engagement actions we need but the critical question is how can we ensure such initiatives can most effectively connect with our hundreds of millions of visitors for their policy influencing potential to be realised in time? **Theoretical Basis:** We must alert and motivate our hundreds of millions of zoo and aquarium visitors to join our urgent message to world leaders to implement the essential mitigation policies for saving humanity and our planet's biodiversity from disastrous climate change.

Description of the practical: Suggest that we focus on designing an ambitious (largely web-based) visitor engagement plan capable of swift implementation and wide scale participation across the WAZA community and beyond.

Paul Pearce-Kelly has been with ZSL for 30 years. In addition to his senior curatorial focus, he coordinates the Zoological Department's research work and serves on five IUCN Species Survival Specialist Groups (including its recently formed Climate Change group). He specialises in species conservation but in recent years has focused on helping to clarify the climate change threats to biodiversity and the response imperatives. In this capacity he chairs the World Association of Zoos and Aquariums (WAZA) and the Conservation Breeding Specialist Group (CBSG) Climate Change Task Force.

Zoos Victoria's Connect – Understand – Act Model
A zoo-based model to assist program design and evaluation
Rachel Lowry – Zoos Victoria, Australia
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Aim: To provide participants with a model that can be utilized to design programs that target attitudes, knowledge and conservation sensitive behaviors that influence change. **Theoretical Basis:** This award-winning model was designed in 2005. Evaluation over numerous programs has demonstrated its effectiveness in influencing attitudes, knowledge and behaviors. The model draws upon theory and methodology from the Conservation, Social Science and Education discipline. Evaluation is a fundamental component. **Description of the practical:** The model will be introduced briefly via PowerPoint, with an example of its application given. Participants will then be asked to choose their own conservation challenge, and in small groups design a program that selects its target audience and target behaviors based on the species and issue they are trying to address. Time will be spent as a whole group discussing which pedagogy best suits each program, and evaluation techniques will be discussed with examples of different evaluation methodology given for consideration.

Rachel is Director of Wildlife Conservation and Science at Zoos Victoria. Rachel leads a team of highly skilled conservationists who deliver wildlife captive breeding and release projects, eco-socio projects and conservation advocacy initiatives. Rachel has a deep interest and experience in merging her zoology and education qualifications with social science developments to influence conservation sensitive attitudes, knowledge and behaviours. Rachel has developed award-winning programs that have tackled conservation and sustainability issues both locally and globally. In 2010 she was awarded Sustainability Leader of the year by WME within the Government and NGO sector. Rachel currently holds the position of President-elect on the IZE board and will commence her tenure as President in August 2012.

Innovation in Zoo and Aquarium Education and Conservation
Bill Street – Busch Gardens, USA
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Aim: This workshop will expose participants to education innovation happening in zoos and aquariums around the globe and provide the tools to spark innovation at their facilities. **Theoretical Basis:** Using techniques developed by innovation training programs in the U.S., we will explain how to expand and invest in innovation at zoos and aquariums and how to manage innovative ideas and concepts to increase the chances of success. **Description of the practical:** Zoo education is rapidly adapting to new communication styles and techniques. Increasing diversity of audiences, changes in access and ability through technology and the increasing expectations of visitors to immediate and substantive experiences are having dramatic changes on all aspects of zoological education. The expectations of conservation education have expanded beyond traditional programming to increased involvement in exhibit design, animal husbandry and training with animal ambassadors, spokesperson and experts on product development. Educators are also being viewed as a leading source of innovation and strategic planning at most facilities, noted by the growing number of executives that have come from the conservation and education ranks.

Bill Street, a conservation education leader for 20 years, and is currently the Corporate Curator of Conservation and Education at SeaWorld Parks and Entertainment (SEA), the largest zoological institution in the world. SEA includes three SeaWorld parks (Orlando, San Antonio and San Diego), two Busch Gardens parks (Tampa, Williamsburg), Discovery Cove and several water parks. He is a Representative for the SeaWorld & Busch Gardens Conservation Fund, an active member of the AZA, NSTA, and a Board Member of ZCOG and IZE. He has held leadership positions at the National Wildlife Federation, Aquarium of the Pacific, and Shedd Aquarium.

Evaluating Environmental Programmes and Exhibitions

Ava Ferguson, Susan Kevin – Monterey Bay Aquarium, USA

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Aim: In 2010, the Monterey Bay Aquarium became the first institution in the United States to open a live-animal exhibition about climate change and the oceans. In addition to staging this 5,000-foot temporary exhibition, the Aquarium created a comprehensive and integrated suite of onsite and online programs about climate change that was funded in part by the National Oceanic and Atmospheric Administration (NOAA). The programs were designed to engage the public beyond the exhibition and allow the Aquarium to extend the reach of its climate change communications. The Aquarium evaluated the effectiveness and reach of this initiative using a variety of methods across multiple formats, which included the exhibition, an auditorium program, theatrical presentations, conversations between volunteers and visitors, a website, social media communications and special events. The purpose of this workshop is to use examples from this effort to show participants how they can evaluate their own environmental initiatives based on their institution's goals, audience and the type of communications being evaluated. **Theoretical Basis:** Prior studies in informal learning settings have confirmed the benefits of directly involving educators, designers, interpreters and other practitioners in the evaluation process. This workshop will draw on the theory and practice of participatory evaluation to motivate participants and provide them with entry-level skills for evaluating their programs, exhibits, events or online media. **Description of the practical:** During the workshop, participants will practice the steps involved in drafting a plan for evaluating a specific offering at their zoo, aquarium or nature center (with a special emphasis on offerings that interpret climate change). The resulting plan will include the following sections: Project Description; Evaluation Goals; Research Questions; Proposed Methods/Resources; Suggested Analyses; Application of the Findings.

Ava Ferguson has over 25 years of experience developing and evaluating educational media and exhibitions for a variety of museums, aquariums, zoos and other informal learning settings. She holds a bachelors' degree in biology, a graduate certificate in science communication and a master's degree in education. She spent more than 10 years as a senior exhibition developer at the Monterey Bay Aquarium before taking on her current position as Visitor Research Manager.

Susan Kevin is the Senior Visitor Researcher at the Monterey Bay Aquarium where she is responsible for overseeing and conducting a variety of evaluation projects, ranging from exhibition and program studies to marketing surveys to online analyses. She holds a bachelor's degree in zoology and a master's degree in marine ecology.

Zoo Walkways: The Path to Connecting with Nature

Barbara A. Brem – ZooLex Zoo Design Organisation and Dallas Zoo, USA

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Aim: The aim of the workshop is to challenge zoo professionals to look at the zoo walkway as more than simply a way of moving visitors from one area to the next and to begin to see them from the eyes of the visitor especially the children. Zoo educators and designers must rethink our idea of the walkway in order to engage a child's natural curiosity and sense of adventure beyond the gates of the children's zoo or at the zoo playground. This will allow a more fully integrated zoo experience and reduce mixed messages that currently are being sent to the visitors.

Theoretical Basis: Through unstructured play, children learn both physically and mentally how to interact with the environment and people around them. They learn important skills such as problem solving, working cooperatively, and how to positively interact with one another. Additionally, positive memories that they gain while outdoors become connected to those locations and can lead to feelings of "ownership" of and caring for outdoor areas. Utilizing this knowledge in design can set a foundation for environmental stewardship and caring.

Description of the practical: Zoo educators have a responsibility to discuss and push for the implementation of informal education elements which will enhance the zoo experience especially for

children. Creating this dialogue about design, learning, and walkways will allow the creation of a more fully integrated zoo experience and reduce mixed messages.

Barbara Brem is a landscape architect in the state of Texas (USA) with over 18 years experience in the design field and is a Certified Playground Safety Inspector (CPSI) (USA). During her career, she has worked on a variety of projects encompassing high-end residences, parks and playgrounds, educational facilities, office parks, and religious facilities. Mrs. Brem's main interest has been in captive animal holding and visitor behavior with an emphasis on natural learning landscapes. She is interested in going beyond the current design approach to create more active, natural environments for both the zoo visitors and the animals.

They are not like you! Getting to know your target audience

Liam Smith – BehaviourWorks, Monash University, Australia

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Aim: To provide a framework for understanding visitors' thinking about behaviour.

Theoretical Basis: The belief elicitation phase the in the application of Ajzen's theory of planned behaviour

Description of the practical: The theory of planned behaviour is a well-established model of human behaviour and it can be used to work out what messages might work with target audiences for particular behaviours. The first part of this workshop will present the central tenets of this theory and an explanation of the steps involving in using the theory to help work out key messages. The second part will be a practical session which will focus on the first of these steps – understanding visitors' thoughts about the target behaviour via a belief elicitation exercise. To do this, we will start by first explaining how to use some simple questions to help understand what target audiences think about the behaviour you want them to do. After running through some examples, participants will then practice using a questionnaire for a particular behaviour of interest.

Dr Liam Smith has been working in and with zoos on behaviour change challenges for nearly 10 years and up until 2010, this was his primary area of interest. His PhD, conduct in conjunction with Zoos Victoria and completed in 2009, was focused on the role of emotional arousal in zoo experience in influencing visitor behaviour. He now directs a university-based research unit interested in behaviour change for all sustainability issues (BehaviourWorks Australia) and leads projects in water, climate change adaptation and mitigation, energy efficiency and waste in addition to his zoo work.

Posters

Increasing Youth Participation in Community Conservation Projects: Teens for Planet Earth Meet FrogWatch USA

Nalini Mohan – Wildlife Conservation Society, Bronx Zoo, USA

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Aim: To increase youth involvement in conservation projects in their own communities.

Objective(s): To increase youth participation in [Frogwatch USA](http://aza.org/frogwatch), aza.org/frogwatch, the Association of Zoos and Aquariums' citizen science program that involves collecting data on frog/toad calls and learning about wetland conservation. We'll spread the word about FrogWatch USA chapters across the US and train local teens. To introduce youth to [Teens for Planet Earth](http://teens4planetearth.org) (T4PE), a WCS social networking site for teens who want to protect our planet: teens4planetearth.org. Youth around the world can access resources, discuss conservation issues and apply for awards for exemplary community conservation projects. **Method of Delivery:** By connecting these two programs, teens become involved in citizen science and discuss their projects online. Local teens will be trained to be

FrogWatch USA volunteers using interactive games and demonstrations. The internet is used to reach teens in T4PE. Conclusion: Technology is changing the way youth think about almost everything, including conservation. Technology enhances – but doesn't replace - doing community conservation projects on relevant issues which benefit both youth and their communities. Using online tools such as T4PE can provide a forum for teens to discuss conservation issues while they take action in their own communities.

Nalini Mohan is Global Education and Outreach Program Manager at the Wildlife Conservation Society (WCS), based at the Bronx Zoo, Bronx, NY, USA. Nalini (B.Sc. Zoology, Master of Education) has also been a zoo educator in Calgary, Canada. She has collaborated with zoos and field programs in China, Cuba, Costa Rica, Bangladesh, Guatemala, India, Lao PDR, Mexico, Madagascar, Papua New Guinea, Rwanda, among others. She works on education/outreach strategy development, developing materials, training, and evaluation. As a 2011-2012 TogetherGreen Fellow, an Audubon program with support from Toyota, Nalini's project focuses on involving teens in community conservation projects.

Tigers – Education tools for conservation

Esther Conway – 21st Century Tiger, Zoological Society of London, UK

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21st Century Tiger works with zoo educators to raise awareness, and inspire fundraising activities for wild tiger conservation. Between them zoo educators possess a great deal of knowledge and resources on how to use the captive population for conservation. This Poster presentation will encourage educators to collaborate with each other and share best practice. The objective for 21st Century Tiger is to collate this knowledge into useful free resources to assist access for both keepers and educators to fresh and stimulating ideas. This is an opportunity for sharing best practice, resources and innovative ideas from the zoo tiger population to change hearts, minds and ultimately behaviours towards wild tigers, their habitats and ecosystem survival.

Esther Conway is the manager of 21st Century Tiger. Based at ZSL, she has worked on this programme for 5 years.

“Parco Natura Viva (Verona, Italy) in action for bats. Our activities to support 2011-2012 Year of the Bat.”

Veronica Zanardi – Parco Natura Viva, Italy

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Parco Natura Viva planned many activities to support the “Year of the Bat” WAZA Campaign. We started a collaboration with an project called “A Bat as Friend”, born by the cooperation between the Museum of Natural History and Unicoop in Florence, which consists in selling wooden bat boxes at a minimum price in Coop supermarkets. We started selling boxes in our shop. The boxes contain also a questionnaire that people have to fill after having hung up the boxes to help researcher collecting data about colonization of the boxes. Every year we have a lot of different events inside the Park: in 2011 we dedicated a month to the Bats with educators having talks to the public using the panels in the “Bat Paths” (a specific walks we created to promote awareness in our public about bats) and also arranging special occasions to meet children and to create, with them, many themed items. In 2011 we started a project with children of a primary school about bats. We had two lesson at school to tell the children about bats, their way of living and their secret lives (children were excited about that) and then they came to the Park, where children could meet the bats in the greenhouse and hang the bats they had created at school on trees ... virtually freeing them in the wild as a sign of hope and respect. Moreover in September 2011 our Park take part at the Tocati – International Street Game Festival, that every year take place in the centre of Verona, by creating a point where children can learn about local fauna: this year we had our Bat Panel and a bat box transferred in the centre of Verona reaching a lot of people and having them involved in games and laboratories.

Veronica Alessandra Zanardi is an educator. She holds a degree in Pedagogy from the University of Padova where she graduated with a thesis in Environmental Education conducted in Parco Natura Viva. In 2005 she was hired in the Educational Department of the zoo as Director of Animal Assisted Activities. From then on, she has been involved in preparing animals for interaction with disabled children, and the correlated children's activities. She also is a certified dog trainer (FICSS, CSEN) and technician for Mobility Dog and she has worked in a Pet Therapy Center (in a Hospice for mental disorder) for San Patrignano.

Where Are They Now? A Follow-up to the M.A.G.i.C. Mowgli Project

Betsey Brewer – Southwick's Zoo, USA

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In 2010, we presented the results of a science education initiative in which the zoo partnered with 20 middle school girls, 10 women college science students, and a variety of women architects, engineers, and exhibit designers in a kind of "designer's challenge" competition to design an exhibit for the zoo's new African leopard. We presented data that showed that girls participating in the project scored better on a standardized test of science and engineering concepts than did a control group of peers, and also showed improved attitudes towards math and science. At the 2010 conference, several attendees asked if we knew where our middle school participants were now. In this poster, we present what we have learned since about where our girls ended up, and what impact, if any, they say that their participation in our 13 week program made on their lives. Of the 20 girls who had originally participated, we were able to track down 11. Of these 11, a little over half are now studying in a math, science, technology, or engineering field. All of them claim that the project had a long-term impact on their confidence and on their ability to work both as members of a team and as team leaders. Still others describe the impact that their participation made on their career goals in science. This poster presents their stories, and demonstrates the power and long term effects that a science education initiative carried out in partnership with a zoo can have on children's lives.

Ms. Betsey Brewer has been an Executive at Southwick's Zoo for more than 22 years. Ms. Brewer is also Executive Director and founder of EARTH (Environmental Awareness of Resources and Threatened Habitats). She has given thousands of lectures to audiences of all age groups on such topics as animal ecology, endangered species and captive environments. Ms. Brewer holds a B.A. degree from Wheaton College and a Master's of Arts degree in Wildlife Conservation Education from Vermont College of Norwich University.

The impact of Presenter talks on people's perceptions of Chimpanzees (*Pan troglodytes*) at Chester Zoo

Ruth Jane Pearson – Chester Zoo, UK

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A survey using semantic differential scales was used to assess visitor's perceptions of Chimpanzees at Chester Zoo both in a control condition and after visitors have listened to one of three different presenter talks. This research aimed to look at the impact of presenter talks and their educational potential in changing people's perceptions of animals. It was hypothesised that after listening to a presenter talk visitors would change their perception about Chimpanzees according to the content of the presenter talk. Results will be presented.

As part of the Chester Zoo Presenter team I deliver the Zoo's informal education programme. Through Presenter talks, educational exhibitions and first person interpretation, the presenter team delivers educational information and the society's key conservation messages to over 1 million visitors that visit the zoo each year.

Learning from your audience

Laura Laird – ZSL Whipsnade Zoo, UK

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Evaluating visitor responses can help to reach desired learning outcomes. My aim was to assess the effectiveness of different interpretive methods used to enhance visitors' absorption and comprehension of educational messages delivered during talks and to highlight the most successful. By questioning visitors after educational talks we could assess the level of information received by visitors and discover if our educational messages were being communicated effectively. By evaluating these responses over time we would be able to see if changes made to the delivery of our talks had a positive effect on the information learned by visitors. Throughout our busy season we conducted numerous visitor response questionnaires after educational talks. These were conducted at random by different people on different days to increase the variability of visitors surveyed. Responses were collated over the last four years using the same format allowing us to make a direct comparison over time. Early questionnaires revealed that visitors absorbed a variety of different educational messages suggesting our talks needed to be better focused on fewer key messages. As a result, visitor responses became more uniform with the majority of visitors remembering the same key information. This correlation was seen to be stronger at talks involving audience participation. Events where visitors helped make and give animals enrichment whilst it was explained were particularly successful. Having a few objectives can make it easier for visitors to retain key educational messages. These are also more easily absorbed when visitors are engaged through interaction. Interaction not only makes activities more enjoyable and therefore more memorable, it also allows people to learn visually and kinesthetically allowing more of the audience to be reached. Audience participation is an invaluable tool and by conducting visitor evaluations we can understand how best to use it to meet our educational needs.

Laura Laird is the Live Interpretation Team Leader at ZSL Whipsnade Zoo. Her role is to create an exciting program of events to be presented to visitors by the zoo's Explainer and Volunteer teams. Through these events she aims to inspire individuals to find out more about the natural world in which they live and how they can be involved in helping to protect it.

What factors affect learners' participation in taught sessions at ZSL Whipsnade Zoo: are we reaching those we are trying to reach?

Hannah Thompson – ZSL Whipsnade Zoo, UK

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Part of the process of evaluating learning within the Zoo. Using a sociocultural framework, the aim was to find out how resource use is mediated during group work and how this affects learner participation. Objectives included: to study interactions, communication and other behaviour of 5/6 year old children working with school-based adults; to identify which resources were used, how and by whom; to identify which resources and ways of learning were prioritised and/or legitimised; to expose instances where learning was encouraged or constrained. Data were gathered using audio recording, observation notes made during and after the sessions, pre- and post-visit activities (mostly drawn responses). Through this study an understanding of attitudes and expectations was developed: those of zoo staff, school children and adults accompanying them. It exposed different ideas of what constitutes 'learning', the sorts of resources associated with it and how relationships are used to support the process. Although the majority of children's pictures indicated pleasure in learning it showed that approval of an authority figure was required to sustain this. Established attitudes to types of resources and demonstrations of understanding endured unless others were legitimised by an adult (generally zoo staff). A difference was noticed between behaviour, language use and interaction on the edges of tasks and within them which suggests participants followed a ritual of learning in a particular way. Closer focus on an individual exposed constraints on her opportunities to learn. While group work and use of mixed resources has potential to enhance and enrich learning, adult mediation of resource use is key to their

success (or otherwise) for individual learners. A zoo education programme needs to address adult participation if it is to reach child learners.

Hannah Thompson is an Education Officer at ZSL Whipsnade Zoo, England and recently completed an MA(Ed) with the Open University. She is interested in how we can communicate effectively, attitudes to learning, what is considered successful learning in the zoo context and how it can be measured.

ZEST (Zoo & Environment Skills Training) – Developing Young People for Life

Alaina Marie Macri – Royal Zoological Society of Scotland, UK

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Zoos provide a unique working environment due to the variety of vocations all working together. ZEST (Zoo & Environment Skills Training) aims to allow vocational students (15-17yrs) to take part in a dynamic work experience scheme. We offer placements with the keepers, marketing, development, gardens, education, and visitor services teams at Edinburgh Zoo and the Highland Wildlife Park. The objectives of this 8 month course are to have students acquire skills in writing CVs, handling interviews, and developing their abilities in task management and team work. ZEST has been created to be more than a work experience scheme. The students learn about the conservation roles of zoos and environmental issues such as sustainability. They also gain an appreciation for British wildlife and animal care by taking part in workshops. The course is run in partnership with Scottish schools; collectively we deliver and evaluate two SQA (Scottish Qualifications Authority) qualifications which were specifically chosen to support the aims of the course. Overall, ZEST is an innovative initiative which gives students a head start in conservation focused careers as well as instilling a responsibility to the environment which they will share with their parents, peers and future generations.

Alaina Macri is an experienced zoo education officer that has been working in and with zoos for 10 years. In 2005 she completed her Masters in Applied Animal Behaviour & Welfare at the University of Edinburgh. Prior to this Alaina received her BSc (Hons) Biology/Psychology degree from the University of Windsor. Throughout her time working in zoos she has developed and delivered a wide range of educational activities, her main area of focus being further and higher education. In conjunction with her work in zoos she also teaches online courses and is a member of the ABWAK council.

ZSL and Client Earth on the road to Rio +20: Youth Declaration project

Rosie Cliffe, Kate Oliver – Zoological Society of London, UK

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Strategic Importance: For world leaders to sign a binding commitment with the youth of the world to fulfill the Aichi target by 2020. The aim is to create awareness of the "Declaration of young people's right to a healthy planet", by encouraging people to sign the online declaration, deliver a youth focused event at the Rio +20 conference and invite world leader to sign a binding commitment thus changing decision makers behavior to be more supportive of the Aichi targets 2020. "Broken promises now mean a broken planet later. The people who will feel this most keenly are those who will live in the decades to come, who will suffer or benefit from decisions made by leaders now. We are ready to listen to young people's concerns and to support them in taking action for their future. We hope this campaign will make governments sit up and listen too." James Thornton, Chief Executive of ClientEarth. The objectives are to get 1 million people to sign the online Youth Declaration, to deliver an event at Rio +20, to secure signatures for world leaders and the evaluate the success o the project. The presentation will be a narrative of the journey taken by ZSL and client Earth in the lead up and during to Rio+20. It will highlight the successes, constraints and lessons learnt from embarking on this global initiative. Evaluation will be performed though the monitoring the number of people signing the Youth Declaration, that participate in the ZSL/Client Earth Rio +20 event and through self reflection from the

project team .This project is paramount at engaging the young people to lobby world leaders to acknowledge their commitment to future generations.

Slow Loris Awareness Campaign

Indah Winarti – International Animal Rescue, Indonesia

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There are three species of slow loris in Indonesia all are threatened with extinction. The Javan slow loris has even been included in the "IUCN Red List of 25 Most Endangered Primates of the World". Whilst habitat loss was once deemed the major threat to the survival of the slow loris, it has recently been suggested that trade, both for the pet market and traditional medicine, is having the greater impact on population numbers. Despite the national and international laws prohibiting the trade in slow lorises, they are sold openly in animal markets throughout Indonesia. To decrease the supply and demand of these animals, the Slow Loris Awareness Campaign has been implemented in 2011 which has a strong focus on developing environmental education with the goal to reduce the slow loris trade in Indonesia. The outcomes of our awareness activities in the last year provided us with important information about the key players in the slow loris trade. Based on these results we can now develop strategies to focus on the root of the problem to find long-term solutions to decrease the trade of these animals. We also conducted Loris capacity building seminars and workshops for law enforcement bodies and forestry authorities to create awareness whilst building pressure for more law enforcement.

I hold a Masters degree in primatology and my passion is to protect slow loris and the ecological community of its habitat by educating the community to raise awareness for conservation issues. I am actively working on field research, conservation, awareness activities on slow loris in West Java since 2002. Currently, I am employed by IAR as the coordinator of the Slow Loris Awareness program. I manage club on slow loris conservation since 2007, now namely Kukang ID. The objective of the club is to disseminate information about animal welfare and biodiversity conservation using the slow loris as a flagship.

Education through connection: Zoomarine Italy's interactive experiences as a tool to engage the public in the conservation of nature.

Daniele Rizzelli – Zoomarine Italia, Italy

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During the last few years zoos and parks are focusing their attention to engaging the visitors on important topics such as conservation, biodiversity and related issues. Modern Zoos and Marine Parks are good examples of how non-conventional teaching methods can help to capture the interest of the ordinary public to topics of global importance. Increasing importance is given to the bond between education and the world of animals everybody can see into a themed animal Park. The Department of Education and Science of the Zoomarine Italy proposes a set of special programs and activities designed for and aimed at all ages public: the Zoological Tours and the Educational Demonstration. During a Zoological Tour (Dolphins, Parrots or Pinnipeds), the visitor is escorted by a biologist directly inside the zoological area where he can meet very closely the animals and discover everything about it and about their husbandry. During the Educational Demonstration trainers and biologist work together to show to a big auditorium (3000 pax) the specimen, the husbandry the training and the all important medical behaviors and particularly the differences among the species and the problems they face into the wild). Every school group visiting the Park may decide to leave a small but significant sign of their passage at Zoomarine. The students may in fact do plant a tree and adopt it contributing to the massive planting of species typical of the Mediterranean Area. More than 4000 persons participate to a Zoological Tour and more than 18000 attended to an Educational Demonstration during 2011. More than 40% of students choose to plant a plant.

CIRCLE (Centre for the Integration of Research, Conservation and Learning) – a combined approach to tackling behaviour change

Cat Hickey – Flamingo Land, UK

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Strategic Importance: CIRCLE and the University of York bring together environmental researchers and educators to disseminate research to a wider audience. The research focuses on the movement and learning styles of visitors. Taking a quantitative approach into the evaluation of zoos impact on conservation, CIRCLE together with BIAZA members will be in the position to have a binding strategy in place to ensure all zoos have the opportunity to play a part in field-based conservation.

Aim: To improve conservation and understanding of wildlife and the environment, through research, habitat management and education. A major emphasis of the institute is monitoring; the cyclical process of assessment and reassessment, involving scientists, educators, animal managers and the general public. CIRCLE will also aim to develop the role of science in zoos, in fulfillment of the World Zoo and Aquarium Conservation Strategy. **Objective(s):** To create positive wildlife thinking in response to environmental programmes. To educate and immerse a wide demographic of people in order to stimulate the change of behaviour towards a greener community. **Method of Delivery:** All research is carried out in the zoo by interns, in the field by our field education officer and lead researcher. Delivery of interpretation is through talks, workshops and hands-on activities in the education centre and at designated points in the zoo by our education department. Our educational show which offers a unique method of delivery of educational messages is delivered by seasonal entertainment staff.

Evaluation: Attendance and group dynamic movement at talks; Feedback from participants; pre and post session questionnaires; **Conclusion:** CIRCLE is a dynamic new initiative which brings together a zoo and a UK university combining research and the general public. It works with scientists, teachers, animal managers, educators and the public to create a better understanding of environmental issues in an accessible manner.

Educational Programmes and Activities in Buin Zoo, Chile

Camila Ruz Renjifo – Buin Zoo, Chile

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Aim: To help our visitors rediscover that they are part of the natural world and generate a change in attitudes and lifestyles.

Objectives: 1) Educating visitors about the importance of the environment. 2) Helping people understand that our actions impact the natural world. 3) Inspiring visitors to live more sustainably.

Method of Delivery: Our educational programmes are separated into two groups. The first is for the general public and consists of a series of shows, interactive corners and our themed 'Nocturnal Adventures'. The second group, for students, includes: 'Experiments With Nature': Our educational centre gives children with disabilities the opportunity to explore the animal kingdom. 'Always Prepared for the Environment': Using skills learnt in scouts, children must follow educational clues to find treasure. 'Solidarity': To give children who are not able to visit us the opportunity to enjoy the zoo. 'Great Ecological Adventure': Our most popular programme consists of six different educational tours that compliment the school curriculum and reinforce concepts through play.

Conclusion: In changing attitudes to the environment we hope to encourage a more sustainable lifestyle. To fulfil this we need to develop a method of evaluating the effectiveness of our programmes.

Camila is a professional science communicator and freelance journalist. She has worked in animal enrichment, education and communication in Buin Zoo. Camila is also a communication consultant and podcast producer for the Conservation Foundation and a regular contributor of The Guardian newspaper. She has an undergraduate degree in Zoology from the University of Durham and a Masters in Science Communication from Imperial College London.

Crafty Conservation

Rose Gater – Bristol Zoo, UK

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Strategic Importance: In 2011, as part of the Bristol Zoo Wow! Gorillas campaign, the education team ran a successful schools outreach project. Local schools were given the opportunity to join a wider community city art project designed to put Bristol Zoo at the heart of the city and engage a wide audience. Schools designed, decorated and displayed a small gorilla sculpture within their local community, as part of the larger art trail. As part of the package, schools received a cross-curricula activity pack about gorillas and a Wow! Gorillas outreach visit. **Aim:** To use an art project as a way to educate and promote behaviour change to benefit gorillas. **Objective(s):** The outreach visits aimed to meet four key objectives: to identify the characteristics of gorillas and discover how they communicate; to identify where gorillas live and why they are in danger of extinction; to find out what we can do to help gorillas in the wild; to raise awareness of the Wow! Gorillas sculpture trail. **Method of Delivery:** Interactive workshops and assemblies delivered by the Wow! Gorillas Outreach Officer. Both of these included video clips, activities and biofacts (skins, skulls, food items). **Evaluation:** All aspects of the programme were thoroughly evaluated using a variety of methods. Awareness of conservation issues and ways to help gorillas increased after the outreach visit. 96% of the schools involved took positive actions after the outreach visit. Positive actions included fundraising for gorilla conservation, promoting and buying sustainable wood products, and organising a mobile phone recycling scheme within their school. Many schools chose to incorporate a conservation message into the design of their gorilla sculpture. **Conclusion:** Art was successfully used to engage a large audience outside the zoo with gorillas and action for gorilla conservation. The project was enthusiastically embraced by staff and students in 99 schools and nurseries throughout the region resulting in the decoration of 101 mini gorilla sculptures. The school outreach programme engaged approximately 17,000 pupils in gorilla education.

Rose Gater has worked in Bristol Zoo for four years in a variety of education roles covering both formal and informal education. More recently Rose has been involved with engaging our visitors with one of our flagship conservation projects.

Summer Zoo Camp for the Club of Young Naturalists, Dvur Kralove Zoo

Tomas Hajnys – Zoo Dvur Kralove, Czech Republic

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Dvur Kralove Zoo organised their 8th annual zoo-camp for the Club of Young Naturalists from the city of Karvina, the first event within the series held back in 2004. In the period from 1 to 8 August, 15 children and 2 teachers were accommodated in the local primary school, the group coming to the zoo to attend a special programme on a daily basis. Some of the kids were participating for the fifth time and were showing a great interest and knowledge as regards exotic animals. They took part in a number of teaching lessons organised by Education in addition to a range of experience programmes.

Tomas Hajnys graduated The University of Agriculture in Brno, Czech Republic, in 1991 where he studied Animal husbandry. He joined MAST International Program at The University of Minnesota, U.S.A. in 1991 – 1993. He was an Intern at Minnesota Zoo in 1993. Then he worked for the Agency for Nature Conservation and Landscape Protection of the Czech Republic. Since 1995 he has worked as an Education Officer at the Dvůr Králové Zoo, Czech Republic, for 17 years. He also works as IZE Secretary/Treasurer in 2007-2012.

Introducing social and emotional aspects of learning into education programmes

Sarah Thomas – Zoological Society of London, UK

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Aim: To provide an introduction for using social and emotional aspects of learning (SEAL) in education programmes – for schools, visitors and community outreach projects. **Theoretical Basis:** Using the work done by Daniel Goleman on emotional intelligence, and more specifically on social and emotional learning, the workshop will explore how social practice and emotional content in our learning programmes are essential if we want our stakeholders to change their hearts, minds and ultimately behaviour. **Description of the practical:** There will be a brief presentation on the overview of SEAL, historical and theoretical background and how SEAL framework that is currently used in the UK. Case studies from Blackpool and ZSL will also show its applications. Then, splitting the workshop into small groups each with a facilitator - to discuss specific scenarios relating to 1. Schools and groups, 2. General visitors 3. CEPA/fixed projects. The outcome of each scenario would be that each group would come up with recommendations on how SEAL can be embedded with each type of audience discussed. The groups would then come back together and there would be a plenary of reporting back on the discussion groups. Each participant will receive some resources on SEAL with links to relevant literature if they wish to follow up the workshop further.
