Dear WAZA members and friends!

It is going to be a great and exceptional year for WAZA and all our members. After the initiation of the “Decade on Biodiversity” project and after one year of preparation now it is real. The formal launch of the project will take place at the International Zoo and Aquarium Marketing conference in May 2013, to be held at Bristol Zoo Gardens, UK. The first round of surveys about biodiversity literacy in WAZA member institutions has been concluded. It has clearly shown that a visit to a zoo or aquarium has a positive influence on knowledge and awareness about actions. People are prepared for taking action but need more advice on how to do it. A new generation of smartphone and social media users is prepared to take ideas on board – for daily actions in support of biodiversity. The WAZA tools are exactly focusing on action and providing members with ideas for an improved outreach and visitor involvement. What is key is the link between zoo animals, biodiversity and personal responsibility. Celebrating the start of this project, WAZA invited some extraordinary personalities of the community and of our partners to contribute to this first double issue of WAZA News.

A special thank you goes to the MAV Asociation and Al Ain Wildlife Park and Resort for their financial support of the project. I also wish to thank all members and partners who helped to develop this Decade Project and I hope that all members will help to promote the use of the tools. You can contribute to the social media activities and all zoos and aquariums can make use of the appealing designs, the app or the films or movies – in order to make an even greater difference, in favour of biodiversity!

Gerald Dick
WAZA Executive Director

“Biodiversity” is a misunderstood term. According to surveys in the United Kingdom, many people there think it is a brand of laundry detergent. In some countries, notably the United States, the word is perceived by some to connote political correctness or a left-wing public policy approach. But of course this is not the case. “Biodiversity” is a recently coined word – first used in the 1980s – that in its broadest sense is synonymous with “Life on Earth.” It can refer to the variety of life at the genetic, species and ecosystem level. Biodiversity is us, as part the earth’s great assemblage of biological entities and systems. The historical underpinnings of zoological institutions are an expression of our fascination with biodiversity, and today our institutions are increasingly focused on conserving biodiversity.

In 2010, the United Nations General Assembly declared 2011–2020 the Decade on Biodiversity, with a view to the implementation of the Strategic Plan for Biodiversity and pursuing outcomes collectively known as the “Aichi Targets,” aimed at inspiring broad-based action to halt and eventually reverse the loss of biodiversity of the planet. Zoos and aquariums, with their expertise in species conservation and enormous potential for engaging millions of people, are natural forums for creating awareness of biodiversity and the challenges facing it across the globe.

This issue of WAZA News features several expert voices examining the significance of biodiversity conservation, and the important role zoos and aquariums can play in these efforts. The issue also marks the approaching launch of WAZA’s most ambitious public awareness campaign to date – Biodiversity is Us - designed to provide a coordinated and customizable suite of tools that member institutions can use to engage their visitors and supporters in the global effort to combat biodiversity loss.

Lee Ehmke
WAZA Chairman
The critical importance of clear and consistent communication regarding the role of zoos and aquariums has been made abundantly evident in recent weeks as a result of the intensive international attention over the annual dolphin drive hunt in Taiji, Japan. For over ten years, WAZA has consistently and unequivocally opposed this inhumane and cruel hunt, and has attempted to work with our Japanese colleagues and officials to move away from a status quo situation that is unacceptable under WAZA’s Code of Ethics and Animal Welfare.

Our effort to constructively engage with all involved parties has been widely mischaracterized by animal rights activists and other opponents of the drive fishery, and many WAZA institutions have unjustifiably been criticized as being somehow complicit in the practice. In response, we developed a statement of clarification (www.waza.org/pressnews-events/news/waza-strongly-condemns-the-taiji-dolphin-drive-hunt), which succinctly communicates WAZA’s commitment to the highest standards of animal welfare, as well as to biodiversity and species conservation. This serves as just the latest example of why a unified effort to market zoos and aquariums has been made abundantly evident in recent weeks as a result of the intensive international attention over the annual dolphin drive hunt in Taiji, Japan. For over ten years, WAZA has consistently and unequivocally opposed this inhumane and cruel hunt, and has attempted to work with our Japanese colleagues and officials to move away from a status quo situation that is unacceptable under WAZA’s Code of Ethics and Animal Welfare.

The Biodiversity Project is launching soon! As you all know WAZA’s Decade on Biodiversity Project is launching soon! In fact some of the tools, and posters, are currently available for download and personalization with your own institutional logo! The videos will also be available before the launch. Please make sure you plan ahead to launch the tools either immediately after the launch (May 12th, 2014, in Bristol) or at another suitable time this year. To maximise the impact of this project we need as many of our members as possible to participate in this project—ideally all our members including national and regional associations.

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Training manual and Platform for tools

The visuals (and the videos later) are available on the platform for adaptation with your own institutional logo. Please make sure you login to the WAZA Members’ area to access them and contact the WAZA Decade Project Manager (contact at the end) if you have any issues. From here you will be able to choose the language in which you will want the tools.

Among these there is a training manual, explaining the process of adapting the tools to your needs and branding them with your own institutional logo. Please make sure you read through this document which gives you background information on the reason for this project, what tools are being made available to you free of charge as well as advice on how best to make use of these tools for maximum impact.

From this platform you will be able to also download six different visuals in five different formats in at least five different languages. Please note that if your language is not immediately available this can be arranged by contacting the WAZA Decade Project Manager and enquiring how to make the tools available in more languages.

Lastly, the videos, all three different versions, will be available for download in high definition from this platform in all project languages. These can be downloaded and adapted with your own institutional logo. The training manual will explain how this can be done as well as providing advice on maximising their impact.

Additional tools

In addition to the tools detailed above, WAZA will be launching the mobile phone application and the social media campaign on the official day of the launch, Monday May 12th. These tools are all tied together, so please refer to the previously mentioned training manual on how best to engage with us for both these tools.

If you, as an institution, or people within your institution, use social media tools (Facebook and Twitter) please make sure you ‘friend’ us and interact with us and the WAZA Decade on Biodiversity social streams as well as help promote our application.

Together we can reach out to hundreds of thousands of visitors to our institutions and contribute on educating, engaging and promoting positive actions to preserve biodiversity.
Zoo Exhibition and Biodiversity: “Building a Forest to Save a Forest”

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.” WAZA and its institutional members are committed to achieving this target, and are exceptionally well-poised to do so given the enormous and growing audience of more than 700 million people that visit WAZA-affiliated facilities every year. And while education programs, interpretive graphics and electronic media can support these efforts, arguably the most effective way that “biodiversity” can be conveyed is through our live animal exhibits, particularly those that seek to immerse zoo visitors “within” biodiverse environments.

Zoos have long been places that celebrate biodiversity in the broadest sense of the word. For centuries, zoos acquired and displayed species using taxonomy as the organizing principle, illustrating the “degree of variation of life” that is connoted by the word “biodiversity.” This was (and remains) an appealing feature of a zoo, exemplified by the great animal collections in San Diego, Diego, Berlin, Antwerp, London and New York’s American Museum of Natural History opened an immersive African rainforest diorama as part of its Hall of Biodiversity. Individually and in combination, these two displays provide a detailed and accurate sense of what an African rainforest looks, sounds and feels like. Both offer visitors tangible opportunities to help protect this unique and imperiled habitat. The Hall of Biodiversity’s walk-through diorama incorporates compelling stories about the institution’s researchers using science to create strategies for protecting the forest, and invites visitors to champion their work by supporting the Museum. Congo Gorilla Forest’s innovative “voting” activity – where guests designate how they would like their exhibit admission fees to be allocated to support the organization’s related field conservation activities.

By the 1970s and 80s, a number of forces began moving the focus of zoos away from encyclopedic taxonomic collections. Exhibits began to be organized around other thematic concepts: zoogeographic, bioclimatic, ecological, and behavioral. This shift coincided with efforts to display animals in more naturalistic settings, starting early in the 20th century at Carl Hagenbeck’s Tierpark in Hamburg, and continuing with horticultural advancements based on Hein Hediger’s pioneering zoo biology work at Basel and Zürich zoos. Today, thematic exhibition has become a predominant methodology for zoos and aquariums, and biodiversity is therefore often expressed in very different ways than the traditional taxonomic “stamp collection” style.

An alternate definition of “biodiversity” - the diversity of animals and plants living in a particular area or region – was initially evident as an organizing principle in only a few select zoos, notably Tucson’s Arizona-Sonora Desert Museum, with its exclusive and comprehensive focus on the biology and physical environment of the Sonoran Desert, and the European montane wildlife featured in Austin’s Alpenzoo. Biodiversity as an organizational concept for exhibits gained traction during the 1970s and 80s with a proliferation of large, mixed-species rainforest habitats: Topeka, Brookfield, Wichita, Toronto and Minnesota zoos all built enormous temperature-controlled buildings, where a full complement of tropical plants and animals were maintained, and interpretation extended beyond individual species and began to highlight the interconnections between animals, plants and their physical environments. Larger and more elaborate versions of the concept followed: the Bronx Zoo’s Jungleworld (1985), Anchorage’s Burger’s Bush (1988), Omaha’s Lied Jungle (1992) and more. In all of these complexes, typical mammal, bird and reptile collections were augmented with the inclusion of fish, amphibians, insects and other invertebrates, sometimes as free-ranging populations. Many other rainforest “biomes” have since been built, including the zoo world’s largest building to date – Leipzig Zoo’s astonishing Gondwanaland – which features a wide variety of animals and plants representing three major rainforest environments (Africa, Asia and South America) and their ancient connected origins.

While tropical rainforests were the primary topic of these biodiversity exhibits, some zoos and aquariums also began to develop similar concepts featuring other bio-regions and habitats, both indoors and out. Arnhem, Ottawa, Chicago, Indianapolis and Austin all built extensive enclosed desert habitats, while mixed species “African savannahs” have become a staple of zoos worldwide. Many aquariums were developed entirely around, or have devoted major areas to, specific geographic regions and habitats. Frequently, these new exhibits feature the institutions’ local environment. The Monterey Bay Aquarium set the pace for this strategy when it opened in 1984, with a comprehensive and stunningly executed presentation of local oceanic environments. Other major aquarium developments have featured exotic habitats, also presented holistically (i.e. the Burger’s Zoo’s Ocean, Shedd Aquarium’s Amazon Rising and Osaka’s Ring of Fire).

In all of these cases, the concept of biodiversity is illustrated by the juxtaposition – and in some instances co-habitation – of a wide variety of plant and animal species from the same ecological and/or zoogeographic regions. Interpretive graphics and interactive media augment the living collections, helping to elevate the importance of biodiversity and conservation.

It is interesting to note that while zoo exhibits were evolving beyond taxonomy to embrace biodiversity and habitat themes, many traditional natural history museums were also on a similar course. The venerable Paris Museum of Natural History’s “Grand Parade” and New York’s American Museum of Natural History’s Hall of Biodiversity both spectacularly created tableaus of mounted specimens and high-tech interpretation, using the overwhelming variety of animal and plant forms displayed together to palpably illustrate biodiversity.

Around the beginning of the 21st century, major exhibits that powerfully demonstrate biodiversity and the challenges of sustaining that diversity opened at several of the world’s leading zoos. In 1995, the Wildlife Conservation Society’s Bronx Zoo completed Congo Gorilla Forest, a massive indoor/outdoor exhibit complex that was largely centered on one of the great flagship species of the world – and also the first showcase for a wide range of species that represent the eucarotic biodiversity of the Congo Basin tropical rainforest. A richly detailed immersion experience transports visitors into a re-creation of a tropical forest environment, using hardy plants that simulate the composition and form of tropical vegetation, integrated into a context of constructed topography and giant forest tree boles. From millipedes to mandrills, rock pythons to red river hogs, Congo tetras to Congo peacocks, more than 70 species of animals are presented in this densely-vegetated exhibit sequence, designed to reflect the almost overwhelming richness of the Central African forest.
The power and effectiveness of this intensive immersion design approach was well-described by the editors of the New York Times, reflecting on the opening of the American Museum of Natural History’s Hall of Biodiversity:

Biodiversity is a word that still trails its newness behind it. Because it gained currency during a time when multiculturalism and political correctness also became watchwords, biodiversity, to many people, still carries a whiff of postmodern sanctimony. But that is a mistake. Biodiversity is a hugely important concept that stresses the coherence and interdependence of all forms of life on earth and a new willingness to appraise the meaning of that interdependence, not just for humans but for every one of life’s component parts.

...Biodiversity is a way of talking about what scientists have long understood: the dependence, not just for humans but for every one of life’s component parts, of a single, specific locale – eastern Madagascar’s Masoala National Park – is experienced by guests who explore pathways on the forest floor and canopy, and are offered intensive interpretation in an adjacent exhibit hall with extensive museum-type displays. Funds generated by the exhibit and its associated shop and restaurant are partially allocated to support the source of the exhibit’s inspiration, Masoala Park. Eco-tourism to Masoala and other Madagascar locations by Swiss travelers has grown exponentially as a result of the awareness generated by the exhibit, providing an economic incentive for Madagascar to protect the park, one of the world’s great centers of biodiversity.

For more than a decade, Congo Gorilla Forest and Masoala Rainforest have served as high profile examples of zoo exhibits that brilliantly present biodiversity and directly engage visitors in the process of protecting biodiversity ex-situ. These projects were ambitious and expensive, and very few zoos or aquariums are so well resourced as to tackle initiatives of this enormity. But it is possible for smaller institutions with more limited budgets to develop models that achieve similar results, scaled to their size and capacity. One of the most impressive scaled examples is the work of “Papiliorama,” a modestly-sized zoological facility located in the small Swiss town of Kerzers. This specialized zoo features skillfully-executed exhibit pavilions – one for butterflies, a “daytime” Central American rainforest, and a unique walk-through nocturnal rainforest. These pavilions combine to envelope visitors within linked spaces that together express the richness of the biodiversity of Belize, and engage guests in the institution’s efforts to raise funds to protect a specific piece of Belizean forest. As a direct result, the Shipstern Nature Reserve in northeastern Belize was established with support from the Papiliorama Foundation, which also provides annual operating support of $30,000 CHF to the Reserve, much of this generated by zoo guests who have toured the lush and well-interpreted displays.

The first-hand experience provided by immersive exhibits like Congo, Masoala, Papiliorama and others in zoos and aquariums of all sizes throughout the world, when combined with efforts to engage visitors in the process of conserving the real-world habitats represented by these exhibits, demonstrate the power of the international zoological community. Transformative experiences leading to tangible biodiversity conservation actions by visitors through the catalyst of good design and integrated strategy: this is the meaningful impact that 21st century zoological institutions can achieve. At its best, zoological exhibit design help meet the aspirational goal of the Aichi Target 1, creating awareness, concern and action on behalf of the planet’s biodiversity.
The Big Plan to Save Nature: Time is Ticking Toward 2020

The adoption of the Strategic Plan for Biodiversity 2011–2020 at the tenth meeting of the Conference of the Parties of the Convention on Biological Diversity (CBD COP10) in 2010, including its Strategic Goals and its 20 Aichi Targets, represented a major step forward for biodiversity conservation to support life on earth. We are now three years on from that meeting.

IUCN and the Strategic Plan for Biodiversity

The Strategic Plan for Biodiversity represents an unparalleled opportunity for all parts of society to work together to tackle the ongoing biodiversity loss crisis. IUCN, its Members, Commission Members and Secretariat played a significant role in the development and adoption of the Strategic Plan and are committed to working toward the achievement of the Aichi Targets.

IUCN is actively working on many projects which support the achievement of the targets. By continually increasing the data available on The IUCN Red List of Threatened Species™ and Protected Planet (which includes the World Database on Protected Areas1), IUCN provides essential knowledge to guide conservation action and policy decisions, critical to the achievement of the Aichi targets. In addition, IUCN is working on a review of the Key Biodiversity Areas approach and is developing a Red List of Ecosystems which could play an important role in supporting the implementation of targets including Aichi Target 11 (Protected Areas and areas of importance for biodiversity) and Aichi Target 5 (Reduce rate of habitat loss).

Zoos and Aquariums (…) have significant capacity to educate and build awareness amongst the public…

Zoos and aquariums are located in or near cities and therefore have significant capacity to educate and build awareness amongst the public, particularly the younger generation.

Target 12: a priority for Zoos and Aquariums

Target 12 reads: By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained. Zoos already play a critical role in species conservation and thus contribute directly to Target 12. For example, managing ex situ breeding programmes and helping to maintain genetic diversity of restricted or threatened species; financially supporting conservation programmes for threatened species and their habitats; raising the profile of key threats to threatened species such as illegal wildlife trade or impacts of development and building capacity in countries with low resources to improve conservation success.

Friends of Target 12

Conservation works but conservation action needs to be scaled up as current efforts are insufficient to offset the main drivers of biodiversity loss. Friends of Target 12 is an emerging partnership which aims to build synergies to support countries in their actions to achieve Aichi Target 12. It provides practical guidance and raises awareness of successful initiatives and programmes that aim to stem the tide of species’ extinctions.

To find out more:
www.iucn.org/friendsoftarget12

The Friends of Target 12 partnership is diverse. It comprises 25 environmental organizations; conventions, funding organizations; governmental agencies and zoos and aquariums – including WAZA, San Diego Zoo and The Zoological Society of London. It also includes some more innovative initiatives such as the Save Our Species programme (SOS), a joint initiative of IUCN, the Global Environment Facility and the World Bank which funds on the ground conservation projects to ensure the long-term survival of threatened species and their habitats.

Any organization working actively on species conservation can apply to become a member of Friends of Target 12.

Target 1: The IUCN Red List, Zoos and Aquariums – building awareness of biodiversity

Target 1 reads: By 2020, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

From the Zoological Society of London, has been a key partner in the IUCN Red List which the IUCN Red List is the world’s most comprehensive information source on the global conservation status of animal, fungi and plant species and their links to livelihoods. It is an invaluable conservation resource, an education tool, a health check for our planet – a Barometer of Life. The zoo and aquarium network are key partners who can contribute significantly to building awareness of species conservation issues by using the IUCN Red List scale (an easy to use graphic that clearly identifies the threat category of a species) on enclosure signage, websites and educational materials or featuring The IUCN Red List’s weekly Amazing Species on their website.

Currently there are many zoos and aquariums who are already engaged, enabling millions of visitors to be introduced to and learn about The IUCN Red List of Threatened Species – thank you!

The IUCN Red List scale is now available in nine languages – English, French, Spanish, German, Greek, Danish, Dutch, Arabic and Japanese. Scales in additional languages can also be developed. If you are interested in using the scale or buttons, or featuring Amazing Species on your website, please contact Lynne Labanne at lynne.labanne@iucn.org

This year The IUCN Red List celebrates its 50th year of guiding conservation action. Join us in increasing public awareness of species and biodiversity loss – spread the word, get involved, follow our news.

Toward 2020

For the first time ever, the world has a unified agenda to tackle biodiversity loss, a loss which is continuing at unprecedented and alarming rates. The Strategic Plan provides a framework for us all to focus our efforts, delivering results toward the achievement of the Aichi Targets. By working together we can amplify success. The authors would like to acknowledge valuable input from Katherine Secoy, Senior Policy Advisor at the Zoological Society of London.
The IUCN Red List of Threatened Species

Guiding Conservation for 50 years

People have an inherent fascination for scarce plants, fungi and animals, and have as a result been documenting the rarity of species for many centuries. In the 1940s several pioneering works were published on extinct and vanishing mammals and birds. Using information from these publications, the early beginnings for The IUCN Red List started in the 1950s with a card index system that was used to document data on threatened mammals and birds. In the early 1960s the card index was transformed into a two-volume set of data sheets. They were presented in loose-leaf format within red binders with the idea that the data sheets could be replaced when new information became available. The drafts were not available for general circulation. In 1964, the first most comprehensive list of threatened mammals and birds was compiled and was published early in 1965 – enabling public access to the data.

As resources grew, the outputs increased and in 1994, all birds were assessed for the first time. Further groups have been completed over the years for example – 1998 all conifers; 2004 all amphibians; 2008 all mammals, amphibians and birds; 2011 all tuna and in 2012 all sharks. As the production of hard copy publications of The IUCN Red List was too resource intensive, The IUCN Red List was first released on the internet in 2000, enabling broader access to information and allowing for more frequent updates at reduced costs.

The launch of Amazing Species in 2010, The IUCN Red List facebook and twitter accounts in 2011 and the launch of the ‘Discover’ sub-site in 2013, are major contributors in building awareness and use amongst the non-scientific community.

The IUCN Red List is also about people – world renowned, passionate, species experts; many of them working voluntarily; and conservation organizations working in partnership to compile and manage this critical conservation resource.

The IUCN Red List is produced by the IUCN Global Species Programme working in close partnership with the IUCN Species Survival Commission (SSC). It is based on contributions from a network of thousands of scientific experts around the world, including members of the IUCN SSC Specialist Groups, IUCN Red List Partners (currently BirdLife International, Botanic Gardens Conservation International, Conservation International, Microsoft, NatureServe, Royal Botanic Gardens Kew, Texas A&M University, Sapienza University of Rome, WildScreen and the Zoological Society of London), and many others including experts from universities, museums, research institutes and non-governmental organizations.

To find out more:

- www.iucnredlist.org
- @amazingspecies
- www.facebook.com/iucn.red.list

The future – 2020 goal

Many species groups including mammals, amphibians, birds, reef building corals and conifers have been comprehensively assessed. However, there is much more to be done and increased investment is needed urgently to build The IUCN Red List into a more complete ‘Barometer of Life’.

The target for the ‘Barometer of Life’ is to increase the number of species on The IUCN Red List to at least 160,000 by 2020, improving the taxonomic coverage and thus providing a stronger base to enable better conservation and policy decisions.

As resources grew, the outputs increased and in 1994, all birds were assessed for the first time. Further groups have been completed over the years for example – 1998 all conifers; 2004 all amphibians; 2008 all mammals, amphibians and birds; 2011 all tuna and in 2012 all sharks and rays.

In 2014, we are celebrating the significant contribution of The IUCN Red List of Threatened Species in guiding conservation action and policy decisions over the past 50 years. The IUCN Red List is an invaluable conservation resource, a health check for our planet – a Barometer of Life.

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Join us in celebrating the contribution that The IUCN Red List has made in guiding conservation for 50 years and help us grow – spread the word, get involved!

Currently there are many zoos and aquariums who are already engaged by using The IUCN Red List scale on their enclosure signage or websites, enabling millions of visitors to be introduced to and learn about The IUCN Red List – thank you!

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Braulio Ferreira de Souza Dias
Executive Secretary of the Convention on Biological Diversity

Braulio Ferreira de Souza Dias is the Executive Secretary of the Convention on Biological Diversity (CBD). Appointed by the Secretary-General of the United Nations, Mr Dias took up his position in February 2012, bringing with him more than three decades of experience in biodiversity science and policy and its implementation at national and international levels. Prior to joining the Convention, Mr Dias was Secretary of Biodiversity and Forests at the Brazilian Ministry of the Environment, from September 2010, and before that was Director for Biodiversity Conservation at the Brazilian Ministry. In addition, I was involved in the negotiations and implementation of the Convention on Biological Diversity (CBD) since its inception, and I represent Brazil in the Intergovernmental Negotiating Committee of the Convention on Biological Diversity. I served as a member of the Scientific and Technical Advisory Panel of the Global Environment Facility, Vice-President of the International Union of Biological Sciences and Coordinator of the Steering Committee of the Inter-American Biodiversity Information Network. In all of this work I was also involved in the development of the CBD, both at the international and at the national level. The current Strategic Plan for Biodiversity 2011–2020 is something that I was very involved in its negotiation.

If you had to explain biodiversity with one image, what would it be? This would be very challenging – for me it evokes images of the luxurious rainforests and savannas of Brazil, my home country. Biodiversity comprises all forms of life on the planet and their ecological functions. How do you capture that in one image? Each person has a very personal connection to biodiversity that is unique to that individual. It could be their favorite animal, a national park they visit, or even their favorite fruits. It might be interesting if your readers would take some time, and think about how biodiversity affects them in their daily lives.

What has been your favourite zoo or aquarium experience? I enjoy visiting zoos and aquariums with high standard research, animal breeding and conservation programmes, and effective public awareness initiatives. For example, WAZA has in a pilot programme that not only includes discussion of other environmental issues that relate to biodiversity protection – such as sustainable consumption practices that make a difference to species. How would you judge the significance of the CBD’s Strategic Plan in comparison to previous strategic documents?

Do you think that the role of our community for biodiversity conservation is underestimated? I think in certain cases the zoo community has been recognized for its role in protecting threatened species. Where captive breeding programmes have been successful, the key role of zoos in supporting species conservation has been recognized. Also, we do recognize that the accumulated knowledge and expertise held by many zoos can be put to use in breeding and reintroduction programmes for species otherwise endangered or extinct in the wild. I think that we need to identify where zoos can expand this role, for particularly vulnerable populations.

Do you have any personal focus of work within the given framework which is set by the contracting Parties of the CBD? From the beginning of my tenure here at the Secretariat I have stressed the importance of having the Convention adopted goals and focus more on actual implementation. I believe that we are now ready to move into this new and important phase if we are to achieve the aims of the Aichi Biodiversity Targets. However, I understand that this is not an easy task and that it requires the participation of all the Parties to the Convention. We must also not forget the vital role played by all other relevant stakeholders.

I am impressed that WAZA, for example, is rolling out a pilot programme …

Where do you see CBD beyond 2020, which is after the defined decade on biodiversity? The Strategic Plan for Biodiversity is meant to be the basis for work until the middle of this century. Its vision is that by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people. The CBD will continue to support this future of a life in harmony with nature. This makes the Strategic Plan a powerful partner of any global sustainable development plans – it brings the protection of biodiversity into the mainstream of human activity, and in so doing, shows that protecting biodiversity is really about protecting ourselves.
Clear Win for Species in World Heritage Sites

If I tell you World Heritage, what do you see? The Great Wall of China, the Pyramids of Egypt, Vatican City? World Heritage is often associated with cultural heritage. However, the prestigious World Heritage List contains 1,141 natural sites, and 29 mixed cultural and natural sites. Wait — did you just think of the Galapagos and ha Long Bay?

World Heritage has a key role in conserving some of the most irreplaceable and valuable natural habitats where many of the emblematic species inhabiting our planet can thrive. Out of the 222 sites inscribed on the World Heritage List for their natural importance, 135— or 60%— have Outstanding Universal Value based on their significance for species conservation, including threatened species. Natural World Heritage sites also account for half of the land covered by the protected areas identified as most critical to preventing extinctions of mammals, birds and amphibians, according to a recent study published in Science journal, which based its findings on the World Database on Protected Areas and The IUCN Red List of Threatened Species. The study was part of an analysis of terrestrial gaps in the global World Heritage map. It calculates the ‘irreplaceability’ of individual protected areas to quantify their contribution to the long-term survival of species. The author of the study made the point that, if all 76 sites found to be “exceptionally irreplaceable” for species conservation were given World Heritage status, their protection would be boosted given the rigorous standards required for World Heritage sites.

The natural sites that are protected under the World Heritage Convention are places that the international community has recognized as significant for all humanity. We — NGOs, governments, the public sphere, you— have collectively endorsed shared responsibility to protect World Heritage sites, so that future generations can benefit from them too. Should we expect the best out of World Heritage sites? Absolutely. Does the best come out of World Heritage sites? Yes and no. Can we do better? Of course, and IUCN World Heritage Programme, the advisory body on nature to the World Heritage Committee, is about to launch a new knowledge product to make it happen.

Expect the best

World Heritage sites offer insight into the way protected areas around the planet are conserved and managed. Experiences, successes and challenges encountered in real-world practice of the World Heritage Convention are illustrations of the realities faced across protected areas. They are the litmus test for measuring success: if we do not manage to deliver in this segment of globally recognized protected areas, we clearly have failed. At the same time, these sites have the potential to be the learning laboratories and a source of inspiration for protected areas practitioners. Exposing successful performance opens up the possibility for the transfer of good management practices among sites, and for sharing lessons in the wider protected area community.

How can high level policy targets be met and supported by concrete tangible actions?

Policy is meant to have an impact on behavior — behavior of governments, businesses, communities and individuals. We need to see action at all these levels. National Biodiversity Strategies and Action Plans (NBSAPs) are where policy is translated into concrete actions. In 2010 at the tenth Conference of the Parties, in Decision X/2, the Parties to the CBD agreed to review, and as appropriate, update and revise their NBSAPs in line with the Strategic Plan. This revision process and setting of national targets is to include the engagement of all relevant sectors and stakeholders, and should be developed taking into account national priorities and capacities. Countries are urged to adapt updated NBSAPs as a policy instrument, and then use them for the integration of biodiversity into national development, accounting and planning processes in order to achieve Aichi Target 27. Another critical component is the importance of mobilizing the necessary resources, which was recognized by governments in Decision X/3, for mainstreaming biodiversity in national strategies. To help Parties, the CBD Secretariat has developed a range of tools and guidance available to Parties on the CBD website, as well as an online reporting facility to enable Parties on progress towards their national targets and their contributions to the achievement of the Aichi Targets. At its twelfth meeting, the Conference of the Parties will undertake a mid-term review of progress in the implementation of the Strategic Plan and the achievement of the Aichi Biodiversity Targets.

What are the main stumbling blocks to achieving the targets?

There needs to be political will/commitment devoted to preserving biodiversity. There has to be a transformational change in the way biodiversity is treated in national economic and land-use planning, and in the governance systems that frame this planning. Without these changes being made and sustained, the issues will remain the same. Also, specific issues, for example forest loss, often involve other sectors than just the forestry sector. Support for and progress made on other Aichi Biodiversity Targets is often a prerequisite for success with the directly related forestry targets. And, with many things, funding is a stumbling block for implementing or achieving the Aichi Targets. As the financial mechanism of the CBD, the Global Environment Facility (GEF) helps developing countries and countries with economies in transition to meet their Convention commitments. Since 1995, the GEF has invested about $2.8 billion and leveraged about $7.6 billion in co-financing for 790 projects that address the loss of globally significant biodiversity in over 135 countries. Their financial support is critical. At COP 22 in India, Parties agreed to an increase of biodiversity funding for the implementation of the Strategic Plan, which includes doubling the total biodiversity-related international financial resource flows to developing countries by 2015 and at least maintaining this level until 2020.

What recommendations do you have for facilitating the transition from purely awareness-raising to motivating people to carry out individual actions?

Make it personal. Remind people that biodiversity underpins the health of the planet and has a direct impact on all of our lives. We are all directly affected by the loss of biodiversity. It is not something that we can disengage ourselves from, whether we want to or not. Everybody uses biodiversity and everyone benefits from biodiversity. Be it clean water to drink, fresh air to breathe, food to eat, medicines to cure our diseases, clothing to wear or the myriad of other products and services provided by biodiversity, we all rely on it for our survival. Nothing on earth exists in isolation and each contributes to the balance of nature and survival of our planet.
Thus there is a clear pathway for World Heritage properties to play a leading role in meeting and resolving the challenges faced by protected areas worldwide. Today, however, the most reliable way we learn about what goes on in World Heritage sites is through reactive monitoring, which is carried out only in response to problems that have been identified. As a consequence, out of the current 222 natural World Heritage sites, we know that 81% are listed as "in danger" and 25% are affected by serious conservation issues. The state of conservation of the remaining sites is little known.

Eye on threats

Reactive monitoring is extremely important to keep major threats under the radar and mobilize attention at the international level on the sites that are most affected. The Selous Game Reserve in Tanzania, for example, is famous for its large elephant population, which is explicitly stated as one of the reasons why the World Heritage Committee inscribed Selous on the World Heritage List in 1982. At the time, the Selous elephant population was estimated at around 106,300. It suffered a steep decline to just over 22,000 in 1991, but due to effective anti-poaching efforts since 1992 the population recovered to more than 70,400 in 2006. However, a population survey carried out in 2013 by Tanzania Wildlife Research Institute in collaboration with Frankfurt Zoological Society and others, estimates the current elephant population in the Selous-Mikumi ecosystem at a mere 31,084—the lowest ever recorded since 1976.

Eye on results

What reactive monitoring seldom brings out is the success achieved on the ground as a result of best practice and effective management. Species do thrive in World Heritage sites. And the contribution of zoological conservation projects in these exceptional areas is part of that achievement. A recent study prepared jointly by Berlin University’s Museum of Vertebrate Zoology and two universities of Illinois catalogued 355 amphibians—such as frogs, toads, salamanders and caecilians—and 322 reptiles—such as snakes, lizards, turtles, and crocodiles—in Manú National Park in Peru, where Frankfurt Zoological Society is also conducting a project. This site, which was inscribed on the World Heritage List in 1987, represents only 0.01% of the planet’s land surface; yet 2.2% of all amphibians and 1.5% of all reptiles known worldwide inhabit it. This makes it the top protected area in the world for amphibian and reptile diversity. There has been a clear win for animal species in World Heritage sites. Their stories need to be told so we can gain 360-degree vision on the effect of the World Heritage Convention on the ground—and clearly demonstrate that high standards and best practice bring real results.

360-degree vision

IUCN World Heritage Programme, together with the World Commission on Protected Areas, is developing strategies and actions to help boost World Heritage performance over the next decade. A key product that will be launched in Spring 2014, is the new IUCN World Heritage Outlook website, followed by a report planned for the IUCN World Parks Congress taking place in November 2014, in Sydney, Australia. It sets out to improve the conservation future of the Earth’s iconic places by tracking the state of conservation for all natural and mixed World Heritage sites. It will show evidence of best practice and identify the standards that sites need to achieve to remain excellent.

This approach allows us to harness the widely untapped potential of the World Heritage Convention as one of the world’s most important, and most underrated, conservation instruments. Through it, we can raise awareness of World Heritage sites as flagships for innovations in management, responding to major threats and pioneering best practice.

In terms of biodiversity conservation, the numbers speak for themselves. A recent New York Times editorial reported that the snow leopard population across Asia is likely fewer than 7,000. Another editorial in the Washington Post states that more than 60,000 elephants and 4,600 rhinos have been lost to poachers just in the last two years. The World Wildlife Fund reports that, "two-thirds of the world’s fish stocks are either fished at their limit or over fished.”

These are but a snapshot of what is a growing trend of decline in species population numbers. However a new, related trend in biodiversity conservation and communication is just beginning to take look at a different set of numbers—numbers in terms of people, their level of understanding of biodiversity, and their willingness to change or not change behavior.

Today, more than ever before, the numbers of national parks, wilderness areas, zoos and aquariums are increasing as are the numbers of people that visit them. In fact, a recent survey by the World Association of Zoos and Aquariums (WAZA) reveals that, annually, more than 700 million people visit zoos and aquariums alone. The global reach in visitors numbers suggest a large number of people are exposed to the value, as well as the threat to biodiversity. These large designated nature hubs and their reach to the public also cause one to think that ecologically responsible citizens are increasing in numbers. Yet, the biodiversity decline continues.

According to Dr. Stanley Asah of the University of Washington’s School of Environmental and Forest Sciences, “All biodiversity decline can be traced to the interface of natural systems and people’s actions. It is how we behave toward nature or biodiversity that leads to these results.”

Dr. Asah’s research on the human dimensions of natural resource management and conservation psychology offers two possible reasons as to why people often fail to act ecologically responsible. For one, the conservation community has focused perhaps lopsidedly on awareness and education. This is the idea that facts and figures will enter the public consciousness and instigate positive behavioral change towards the environment. As Dr. Asah and an increasing number of social science experts argue, conservationists must transcend making people aware of a problem and focus on motivating pro-environmental action through strategic communication and other behavior change strategies.

Second, to motivate people, conservation communicators should study and draw from the playbook of social marketers, specifically, the idea that a positive narrative—one that can stir an emotional and other motivational responses—is persuasive and more influential than communicating facts. In other words, to motivate people to take action, a more successful approach may be to replace “shock and scare tactics” with awe, wonder and amazement. It means flooding the public consciousness with images that inspire hope and action.

Even in an urban setting such as Washington, DC, peoples’ love and interest in nature is sometimes surprising but strong. Bird enthusiasts as well as everyday commuters in the DC Metro area were captivated recently by an unpredictable invasion of Snowy Owls that migrated south from the Arctic along with some very cold air. What has been called a once in a life-time invasion or “irruption,” as it is referred to by ornithologists, these beautiful birds are captivating the city, scientists and birders alike as they collaborate to report sightings on citizen, research and social media websites.

“It is this kind of opportunity that we could seize to remind people of their connection with nature and especially to motivate biodiversity conservation,” says Dr. Asah.

An urgent need for behavior change is suggested by the upsurge in wildlife trafficking. The demand for ivory in hotspots like China, Southeast Asia, East/Southern Africa and, the eastern borders of the European Union, some markets in Mexico, the United States, parts of the Caribbean, parts of Indonesia and New Guinea, and the Solomon Islands is attributed to the increase in human populations. The unprecedented surge of illegal trade in wildlife is not just disrupting population numbers of species most at risk, it is disrupting ecosystems, triggering a further loss of biodiversity. Many argue that until the demand for these products is addressed through successful communication campaigns and other relevant behavior change strategies targeted at changing people’s attitudes and actions, wildlife trafficking numbers will only increase.

Conservation, Numbers, and People

In other words, to motivate people to take action, a more successful approach may be to replace “shock and scare tactics” with awe, wonder and amazement. It means flooding the public consciousness with images that inspire hope and action.

1 Deputy Chair, IUCN, CEC
2 Steering Committee Member, IUCN CEC
It is now imperative that the conservation community move beyond awareness to a stronger focus on behavior change. Nonetheless, Dr. Asah argues that “One of our top priorities is to improve communication with the Convention on Biological Diversity. The International Union for the Conservation of Nature’s Conservation Leadership Programme has already support some organizations to help communicate the latest social science research, and we need to develop strategies to integrate this science into successful public awareness and outreach activities.

Some organizations already support a greater role for behavior science. Conservation International, as part of their Conservation Leadership Programme works in partnership with BirdLife International, Fauna & Flora International, the Wildlife Conservation Society, and BP plc “to promote the development of future conservation leaders and provide them with the capacity to address the most significant conservation issues of our time.” The Conservation Leadership Programme is a great example of behavior change as part of the leadership course where young conservation leaders living and working in Africa, Asia, East/Southeastern Europe, Latin America and the Caribbean, the Middle East and the Pacific Islands are trained and mentored to implement successful practices.

Perhaps through programs such as these, the conservation community will begin to expand social science research and better understand the numbers related to people, which will hopefully reverse the numbers related to biodiversity decline.

Reference

In the face of climate change and the world’s growing attention towards altering ecosystems, have species lost their importance? We now celebrate the UN Decade on Biodiversity and take stock of our attitude towards biodiversity’s most recognizable form: the species. Panda bears, hummingbirds, and the golden poison frog are the embodiment of biodiversity and serve as symbols of resilience and hope in a world of constant change. Species are the lens people often use to understand the world around them. The image of the polar bear swimming between ice floes helps us digest the impact of melting polar ice caps.

Zoos and aquariums know this well through experience supplying the public intimate experiences with fauna that would otherwise be limited to a few people. But are zoos and aquariums doing enough? Does the experience of thousands of visitors to see an endangered animal at a zoo actually benefit the remaining wild population? Could zoos and aquariums do more to help people understand and contribute to the plight of species near extinction?

The exercise of generating a global list of sites for extremely threatened species that have become, or have always been, rare is an enormous challenge. AZE follows three principles to select species: Endangernement, Irreplaceability, and Discreteness. The list is based on groups of plants and animals that are well studied and for which the degree of conservation threat has been documented. That list includes mammals, birds, amphibians, some reptiles, conifers and reef-building corals. These taxonomic groups have all been assessed globally by the International Union for Conservation of Nature, a network of over 10,000 scientific experts and author of the Red List of Threatened Species. Other taxonomic groups, such as freshwater fishes, are undergoing global threat assessments and will be subject to AZE in the future. Experts selected species with the highest threat levels, Critically Endangered and Endangered, and identified those species that reside in a single remaining population. AZE follows three principles to select species: Endangernement, Irreplaceability, and Discreteness. The list is based on groups of plants and animals that are well studied and for which the degree of conservation threat has been documented. That list includes mammals, birds, amphibians, some reptiles, conifers and reef-building corals. These taxonomic groups have all been assessed globally by the International Union for Conservation of Nature, a network of over 10,000 scientific experts and author of the Red List of Threatened Species. Other taxonomic groups, such as freshwater fishes, are undergoing global threat assessments and will be subject to AZE in the future. Experts selected species with the highest threat levels, Critically Endangered and Endangered, and identified those species that reside in a single remaining population.

Many have already joined a burgeoning global alliance of one hundred leading conservation institutions called the Alliance for Zero Extinction (AZE) that seeks to prioritize species protection at the locations where species extinction is most likely to occur. Experts identified nearly six hundred irreplaceable sites that contain the only remaining populations for nearly one thousand imperiled species. Note that some sites contain the last remaining population for multiple species, which is not surprising given the unique conditions of these sites that resulted in exceptional endemism. Several of these ‘super sites’ are outstanding for their AZE species richness, such as the Sierra de Juarez in Mexico which boasts twenty-five endangered or critically endangered amphibians and mammals. This information was published as a map in 2005 and then updated in 2010 (www.zeroextinction.org).

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AZE is helping drive the global conservation agenda towards species. The 10,000 member International Union for the Conservation of Nature passed a unanimous resolution to adopt AZE and is actively integrating AZE as a component of their Key Biodiversity Areas process. Multilateral banks such as the International Finance Corporation included AZE in their safeguard policies, which will help steer development projects away from AZE sites. The Convention on Biological Diversity adopted a zero extinction target and uses AZE to measure progress towards meeting this goal. AZE is working with the Secretariat of the Convention to support nations to protect AZE sites in achieving this target. For instance, a new funding opportunity aligned with AZE, called the LifeWeb Zero Extinction campaign, allows donor governments to fund protected areas projects in other countries to support the Convention on Biological Diversity targets.
in-country partners have contributed IUCN downlisting three bird species from Critically Endangered to Endangered, including yellow-eared parrot in Colombia with Fundación ProAves, Lear’s macaw in Brazil with Fundação Biodiversitas and pale-headed brush-finch in Ecuador with Fundación Jocotoco.

Another excellent example of partners work has occurred in India. Zoo Outreach Organization began a campaign to work on freshwater fishes and has identified 20 species in 15 sites for immediate conservation action. Through the Indian AZE, select mammalian and amphibian taxa are identified for conservation efforts in the Western Ghats and the Himalaya biodiversity hotspots. In India with the Central Zoo Authority’s directive on prioritizing endangered species for conservation breeding, the Chamba Sacred Langur and the Kerala Rock Frog can become excellent AZE taxa for heralding a critical role for zoos. This work helps highlight the leadership role of India, who host the forthcoming WAZA Annual Conference in New Delhi in November 2014.

The zoo and aquarium community have a vital role to play in supporting targeted AZE field programs. We recommend WAZA consider initiating a global ‘Adopt an AZE site’ program that would leverage increased support for conservation efforts. Using the AZE partner list, we could generate an inventory of institutions able to implement field programs and link conservation actions to species held in zoos and aquariums. This may function particularly well for amphibian species, which make up roughly half of all AZE species that are being held in situ populations and require future reintroductions. One such example is the blue-billed curassow for which I have personally worked to protect through the establishment of a protected area in the Magdalena River Valley with Fundación ProAves. I saw the species at the national zoo and was fascinated by the intimate behavioral and dietary knowledge the zookeeper had of the bird. Likewise, the keeper was fascinated to learn of the habitat and threats that persist in the wild. Mounting some signage for visitors and offering them a way to both learn about AZE species during their visit, but also to contribute to AZE site protection would be a phenomenal contribution. An ‘Adopt an AZE site’ program would improve conservation of these places critical to the survival of species threatened with extinction.

Perhaps most important is the work of AZE member institutions and several recently formed national Alliances in Brazil, Colombia, Mexico, Peru and India to protect AZE sites and species. For instance, American Bird Conservancy is working on over half of the 93 bird AZE sites in the Americas through habitat protection and other methods such as the translocation of a new population of Millerbirds onto Laysan Island in Hawaii. Conservation programs with

George B. Rabb

Zoos Can Help People Care!

My career started as a boy in summertime encounters with carpenters ants around an ancient live oak in front of the home of my maternal grandparents in Lumberton, a small North Carolina town.

I spent much of my childhood outside. We lived in Charleston, South Carolina, and I had many hours searching for frogs, salamanders, lizards and snakes and critters of every variety. The swamps, shores, pine forests: they were our classrooms. And the ants...well, they fascinated me in terms of how they interacted with each other. They were so busy and clear. Together. With my keen childhood hearing, I was certain I could hear them communicating with each other. All these years later, my fascination with other life remains, reinforced for me early by a year in high school in Lumberton upon onset of World War II. Science teacher Lena Petrie introduced me to current ecological thinking as well as to his own multi-faceted ornithological pursuits.

How could anything but a career in behavioral research and conservation follow such a childhood?

Insightful professors at the College of Charleston and bird-watching owners of the bookstore there further fostered my interests in investigations of the natural world. Notably, mathematic professor Robert Coleman also taught a course in mammalogy and then a field research term on local mammals.

Back in Charleston, I had the good fortune to be tolerated and encouraged by Charleston Museum curator E. Burnham Chamberlain as we brought in mollusc shells from the beaches, and then live creatures from the swamps for a special display room—well, for reptiles and amphibians. He was a kind, challenging mentor who introduced me to current ecological thinking as well as to his own multi-faceted ornithological pursuits.

I will never, ever, forget an afternoon... My own studies included the reproductive behaviors of the Surinam toad and relatives, wolf pack social relationships, and okapi mother-infant relationships...
Near the end of my thesis work, K. P. Schmidt of Chicago’s Field Museum of Natural History encouraged me to apply for the position of curator of research at the Chicago Zoological Park – Brookfield Zoo, a then unique job in American zoos. Drs. Schmidt and Alfred Emerson of the University of Chicago were on the selection committee, and I was very fortunate to be chosen by them, for they and colleagues had a large role in promoting animal ecology in America. And at this time, animal behavior was also going through rebirth as a scientific field at the University of Chicago, and I became closely associated with this development, particularly in psychology with Dr. Eckhard Hess.

I spent much of twenty years facilitating research at Brookfield by students from universities across the country. My own studies included the reproductive behaviors of the Surinam toad and relatives, wolf snakes, a group of venomous snakes, which followed so many evolutionary relationships to their ecological settings – “Fragile Forest,” “Fragile Desert.”

As zoo director, I began looking at the viability in the wild of many species held in zoos, and I began attending meetings of the International Union for the Conservation of Nature and its voluntary corps of species conservationists, the Species Survival Commission, then led by Sir Peter Scott. I soon advocated for more definite standards for degrees of endangerment designated by the Red List process of IUCN, and Georgina Mace, then with the Zoological Society of London, led the needed revision.

In 1989 I became chair of the SSC, and with IUCN staff leader Simon Stuart, began enlarging its membership from 2000 to 7000 people in 100 specialist groups concerned with the conservation of particular groups of animals and plants and with issues such as reintroductions of species to the wild.

Then, with other zoo directors such as William Conway, I began discussions and conference presentations on how zoos should become conservation centers that would on the one hand arouse visitors to concern for the future of many species, and on the other hand work directly for the conservation of such species in situ and ex situ. As SSC chair, I put the challenge of having a comprehensive conservation planning effort to the IUCZ’s at their meeting in Singapore in 1991. Subsequently, IUCZ and CEBIS collaborated in response, and in 1993 I was pleased to have my organization publish their work, the first World Zoo Conservation Strategy.

Coincidentally in 1989, the first World Congress of Herpetology took place, and the global conservation plight of the amphibians came to light from informal reports of field studies worldwide. Shortly thereafter, I set up with David Wake the SSC Declining Amphibian Populations Task Force. The Chicago Zoological Society funded its activities for several years, including an assembly in 1997 at which a chytrid fungus was identified as the cause of many declines and rapid extinctions of some species. The Task Force was merged into the Amphibian Specialist Group in recent years, and two action oriented bodies have been formed to tackle the conservation challenges – the Amphibian Ark to secure endangered species in captive populations, especially those vulnerable to the chytrid fungal pandemic, and the Amphibian Survival Alliance to address all issues identified in IUCN’s Amphibian Conservation Action Plan. Much of my time in retirement has been devoted to this conservation crisis, wherein at least a third of the 7000 known species of amphibians will become extinct in a few years.

I picture my younger self – knee-deep in mud, dead beetle in my pocket, salamander in hand – and I worry about today’s children. Are they having such experiences? Are they still allowed time and freedom to roam the natural areas, thinking about their own place in the ecological web? Some are, but most aren’t. And how are they then to develop their own environmental ethic? How can they truly value nature if it isn’t in their pool of experience?
lifelong learning is widely accepted as ‘a vital ingredient of capacity building for a sustainable future’ (Fien & Lopez Ospina, 2004). however what do zoos want people to learn in contributing to a sustainable future? having attended iZe conferences every year since 2006, i have noticed that the question posed above has changed for many zoos. Rather than asking what it is we want people to learn, which implies an acquisition of knowledge, more often i hear educators asking three carefully sequenced questions. these are:

1. what is it we want people to do?
2. what do they need to feel and know in order to do that?
3. how can we help them take that action?

the shift away from zoo-based learning experiences focusing on the acquisition of wildlife knowledge and towards influencing conservation sensitive behaviors has no doubt been prompted by the very thing that motivated the united nations to name this decade ‘the decade on biodiversity (2011–2020)’. severe and rampant loss of biodiversity. Based on current trends, the Convenion of Biological Diversity tells us that an estimated 34,000 plant and 5,200 animal species—including one in eight of the world’s known bird species—currently face extinction. And as we know, this rate of extinction is not based on natural extinction rates but rather due to unsustainable human behaviors.

whilst the rate of biodiversity loss may seem overwhelming, you need only attend a zoo conference to learn that more than 700 million people visit zoos annually. this is a significant, direct, face to face reach that many industries and conservation organizations envy, and one that i believe we’re yet to truly leverage for wildlife gain. Based on our reach and proven ability to influence attitudes, knowledge and behaviors across a range of regional projects, many zoo professionals express hope and a willingness to roll up their sleeves and join a movement that could very well make history and truly mitigate human-induced threats to wildlife. i like to call this the rise of community conservation.

Community conservation in short, is a term used by a growing number of zoos to capture efforts driven by community actions that that generate net biodiversity gain in the wild. You can argue that conservationists have known much of what has been captured in this article for a very long time, well before the decade on biodiversity was launched. However, only in recent years have conservationist and educators begun to realize on mass just how powerful their two disciplines can be when combined and then peppered with the wisdom of the social science field. the caliber of presentations and composition of papers at iZe conferences in recent years reflects this, and the upcoming conference in 2014 (to be hosted by Hong Kong Ocean Park Sept 2–6) will have a stronger focus on this community conservation ‘sweet spot’ than ever before.

there is an enormous body of great work emanating from zoo-based education teams right across the world. here are just a few examples of program’s working to meet the community conservation sweet-spot through well considered program design and a commitment to extend their program reach and impacts:

• Taronga Conservation Society’s FishLife program1, Australia
• Bristol Zoo’s Grills for Gorilla2, United Kingdom
• Zoo’s Victoria’s Don’t Palm us off Campaign3, Australia
• Two Ocean’s Aquarium4, South Africa
• monteray Bay Aquarium’s Seafood Watch5, usa

more and more we are beginning to see zoo’s extend their capacity and reach to programs that have originated in other zoos. Zoo’s Victoria’s Don’t Palm us off campaign continues to exemplify this strategic approach, and is now integrated throughout the learning experience of more than ten zoo’s across the UK, usa and Australasia. There has also been an increase in the number of zoo-based education programs designed to benefit a range of specific target audiences, not just school groups.

in addition to the projects listed above, innovation continues to drive progress across zoo-based education programs, often merging departmental goals across education and fundraising portfolios such as Chester Zoo’s Go Orange for orang-utans5, Healesville Sanctuarys Fighting Extinction Challenge6, Werribee Open Range Zoo’s Common Cent’s Challenge7 and London Zoo’s Streak for Tigers initiative8.

authentic learning experiences that provide our community with direct, hands on ways to assist wildlife continue to receive praise, with Hong Kong Ocean Park’s Horse Shoe Crab rearing program9 a leading example.

the final zoo-based education trend worth of note in recent times is the way in which we as an international community are embracing technology to help serve our conservation education goals. From clever applications onsite (such as Sea World Florida’s retail recognition screen to promote marine wildlife conservation and donations opportunities) to the emergence of wildlife conservation ‘apps’ from which there are too many to list (google ‘zoo app’ and get busy downloading!). Geocaching10 is also emerging as a tool to help engage children, and adults alike with our natural world and we’ll continue to share leading ideas and advances through IZe’s facebook page11 as we come across them.

1 www.taronga.org.au/foodtube
2 www.bristolzoo.org.uk/go-grills-for-gorillas
3 www.zoo.org.au/ozea/permarket
4 http://ethithinkthabout.org
5 www.seafoodwatch.org/cr/seafoodwatch.aspx
7 www.zoo.org.au/education/school-program/zoosources/all-school-guideline-challenge
8 www.zoo.org.au/for-your-locals/common-cents-challenge
9 www.zl.org/uk/london-zoo/whatson/streak-for-tigers/254/EV.html
11 www.geocaching.com
12 https://www.facebook.com/pages/IZe-International-Zoo-Educators-Association/296398125775577
13 www.izea.net/membership/become.htm
14 www.oceanpark.com.hk/conservation/issue/decade-on-biodiversity
15 www.poletopolecampaign.org

one of those i value most about being involved with IZe is the opportunity to gain an insight into zoo-based education practices across the globe. it has been an absolute pleasure to witness zoo-based education evolve and mature over the past decade, which is a real credit to our industry with IZe members and institutional members helping to support this growth.

the upcoming 2014 iZe conference at Hong Kong Ocean Park11 will focus on setting targets for success and building evaluation capacity across education programs. delegates will also explore further collaboration opportunities across programs such as the WAZA led biodiversity is us10 initiative and EAza’s terrific pole to pole campaign.

as i cast my eye over the ambitions of the Decade on Biodiversity and the activities of zoos around the world, one thing remains clear. never before has there been a more critical time for zoos to integrate their education and conservation work, and fortunately, never before have zoos been better equipped to lead the charge and help rise to the challenge of set by the Decade on Biodiversity, often referred to as the greatest challenge of our century.

reference

Conserving global biodiversity, and reversing its continued loss, is the overarching mission that defines and unites the modern zoo and aquarium community. The fact that the United Nations also see great value in this endeavour is something that should further motivate and inspire zoos and aquariums.

The United Nations Strategic Plan for Biodiversity 2011–2020, as defined by the 20 Aichi Biodiversity Targets, and being implemented via the United Nations Decade on Biodiversity, is the way in which the United Nations see us all “building a future of living in harmony with nature”. Within the Aichi Biodiversity Targets, we do not need to look far to see the direct relevance for zoos and aquariums: indeed, the very first target is closely aligned to one of the zoo and aquarium community’s key functions— that of education providers on the topic of biodiversity conservation. Target 1 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”.

Zoos and aquariums have long promoted their educational role in the fight against biodiversity loss. A major challenge, though, has been validly measuring whether zoo and aquarium educational outputs are actually achieving the desired educational impacts. In addition, a truly global study of educational impacts has been entirely lacking. To address this sizeable gap, WAZA—a consortium of zoos and aquariums—decided to implement a global evaluation study, focused on three main research questions:

1. Do zoo and aquarium visitors understand the term biodiversity?
2. Do zoo and aquarium visitors understand the actions they can take to help protect biodiversity?
3. Can zoos and aquariums make a positive contribution to Aichi Biodiversity Target 1?

To address these issues, we developed a survey instrument with input from a wide range of social science experts. The outcomes identified in the first two research questions were measured using open-ended questions (which were later content-analysed to provide quantitative data). To address the issue of impact raised by the third research question, we needed to implement a repeated-measures research design (i.e. measuring the same visitors twice, both before and after their visit). Given the organisational challenge of conducting such research, we were very pleased to have the participation of 30 WAZA members from across the globe and more than 6,000 visitors. Indeed, this sample size is substantially larger than any prior published studies of zoo and aquarium visitors. This large sample presented its own challenges; namely, the sheer effort required to manually input more than 6,000 handwritten paper surveys in a number of different languages. Each open-ended survey response then had to be manually “coded” by researchers at Chester Zoo to quantify the visitor outcome data to pave the way for a full statistical analysis.

All this effort was worth it and the headline results we uncovered were broadly positive. Before their visit, 69.8% of zoo and aquarium visitors had at least a reasonable understanding of the concept of biodiversity. Reasonable in this case means, at least in basic terms, a correct definition of biodiversity. Meanwhile, 50.5% of visitors could name a specific pro-biodiversity action or behaviour that could be achieved at the individual level before their zoo or aquarium visit. In addition, we saw a small, but statistically significant, increase in both of these variables between pre- and post-visit. Biodiversity understanding increased from 69.8% to 75.1% of visitors, while knowledge of at least one specific pro-biodiversity action (achievable on an individual level) increased from 50.5% to 58.8% of visitors (Fig. 1).

These findings hold significance for policy and practice well beyond the WAZA community. In Montreal during October 2014, we presented our preliminary results at the Convention on Biological Diversity Seventeenth Meeting of the Subsidiary Body on Scientific, Technical and Technological Advice. There, global stakeholders involved in the implementation of Aichi Biodiversity Target 1 expressed interest in our research, as well as in the continued role that zoos and aquariums could play in supporting the United Nations Decade on Biodiversity.

Clearly, our research results, while positive, are not the end of the story for zoos’ and aquariums’ contribution to public engagement with biodiversity. While a reasonable level of biodiversity understanding among two-thirds of visitors arriving at zoos and aquariums is a promising start, this does mean that one-third have little to no understanding of biodiversity. Half of visitors could name an achievable pro-biodiversity action before their visit, but the remaining half could not. Perhaps the most direct concern for the zoo and aquarium community is that only around 4% of visitors named visiting zoos and aquariums as a pro-biodiversity action they could take, but around 14% named other organisations that they felt were worthy of support, financially or otherwise.

For more details, see our report A Global Evaluation of Biodiversity Literacy in Zoo and Aquarium Visitors, available from the WAZA Executive Office.
Basel Zoo and its Amazing Biodiversity Found Between the Exhibits of Zoo Animals

In many zoos, the areas between the enclosures of zoo animals provide habitats for diverse communities of free-living animals, plants and fungi, but these organisms have rarely been studied. This diversity was hardly known despite the fact that zoos, as part of their conservation mission, should not only support conservation projects for exotic threatened species and implement ex-situ breeding programmes, but also engage in conservation programmes for indigenous species, through captive breeding and through education and awareness raising. Basel zoo provides financial support to various international conservation projects, but is also concerned about local species diversity. Basel zoo thus strives to protect and support the native biodiversity within its confines and educate the visitors about free-living, native animals and plants within the zoo. Basel zoo is a city park of 12.6 ha surface, which is mostly surrounded by buildings and urban constructions. Only a narrow part towards the valley of the river Birsig is relatively rural.

In 2005, an extraordinary research project was started. Using an all-taxis biodiversity inventory approach, a team of 46 zoologists and botanists carried out a three-year study to detect the free-living organisms (plants, fungi, animals) in the areas between the enclosures of zoo animals. The researchers involved were professionals at different universities, museums, at Basel Zoo or in private consultants offices, retired professionals, students and amateur entomologists, mammalogists or botanists, representing altogether 13 different institutions. All the work was carried out without payment, except the determination of some specimens of invertebrates, which were sent to specialists abroad.

The following aspects were addressed in particular: firstly, the creation of an inventory as complete as possible, which includes indigenous, invasive and introduced species; secondly, the detection of rare species and taxa on the national Red Lists, and finally a comparison with other similar parks.

Most groups of organisms were sampled either continuously (e.g. using pitfall traps) or on several occasions throughout the season. The following sampling techniques were used: pitsalls (for spiders, ground beetles), sweep nets (leaf hoppers), leaf litter and soil sieving (earthworms, land snails), light traps (nocturnal lepidoptera), traps with yellow pans (diptera), visual sampling and hand catches (various groups).

The main findings of the biodiversity inventory are presented in a book with various colour photographs.

The results surprised even the most optimistic experts: a total of 3120 free-living species could be documented in this relatively small city zoo. However, not all taxonomical groups could be considered. It was estimated that the actual richness of free-living species in Basel zoo may exceed 5500. Thus, the number of free-living species is approximately eight to ten times higher than the 646 species of zoo animals.

The inventory of the ferms, flowering plants, amphibians and birds is virtually complete and that of the lichens, mosses, land snails, spiders, centipedes, earwigs, cockroaches, orthopterans, fishes, reptiles and mammals is good. Less complete, though still relatively representative are the data on groups comprising many species, such as fungi, hemipterans, beetles and lepidopterans. The remaining taxa were only insufficiently or not at all covered, mostly due to the lack of specialists. Among the recorded taxa, 31 are new for Switzerland. These new species are mainly representatives of taxa that so far have been insufficiently studied in Switzerland, such as springtails or aphids. The unintentional introduction of plant parasites (fungi and arthropods) with ornamental plants is documented only in three cases. Because of a lack of data, nothing is known about the accidental introduction of organisms associated with zoo animals.

Various factors may contribute to this high diversity. One part of the area is rather woody, representing a remnant of riparian forest present when the zoo was founded in 1874. Several forest species have been able to survive since then. The banks of the river Birsig still enable animals to colonize the zoo, and the embankment of the French railway, which crosses Basel zoo, provides a corridor to open, dry habitats. All green areas are managed organically, herbicides and insecticides have not been used for many years. The mosaic of different sub-strates, three-dimensional structures and variable abiotic conditions enables many species to coexist within a small area. Furthermore, whenever exhibitions are renovated or new exhibits are constructed, new habitats are created for pioneering species. Exhibits usually contain some plants from the zoo animals’ range states. However, between the enclosures, indigenous vegetation is supported.

This study also shows that sustainable park management (e.g. organic gardening without herbicides and insecticides, planting of native bushes and trees between the exhibits for zoo animals, provisioning of artificial nesting sites for wild bees) does work to protect biodiversity. The findings of this project are used to draw the attention of zoo visitors to the fascinating indigenous species living in gardens and parks and to raise their awareness of the native biodiversity and the need to protect it. Furthermore, the success of sustainable garden management in protecting native biodiversity may motivate the public to undertake their own wildlife-friendly gardening activities.

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Adding Value to the Zoo Animal Collection

Introduction

This article follows on from an article published in WAZA News 4/2012 that introduced Zoos Victoria’s Species Selection and Assessment Tool. This tool enables both a qualitative and quantitative assessment of each species in the collection to determine its role, the value that it brings and the effort associated with maintaining it. This article describes how the use of this tool has contributed to an increased conservation value of our animal collections.

Zoos Victoria’s animal collections at its three properties – Melbourne Zoo (Melbourne), Healesville Sanctuary (Healesville) and Werribee Open Range Zoo (Werribee) – are annually assessed. Trends in the changing role and value of species within the collections can be determined by comparing the results of annual reviews. A conservation value score is assigned to each species. The score reflects the value of the species in supporting conservation outcomes – the higher the score, the greater the value. In turn, the higher the value, the stronger the alignment between the animal collection and Zoos Victoria’s strategic objectives as a zoo-based conservation organisation. This tool is used to monitor trends and to provide guidance for species selection and management.

Results

The animal collections have now been reviewed three times using this tool. The results indicate both increased value of species in our collections, and an increase in the number of species having multiple roles. This demonstrates a stronger alignment between the use of species and our organisational objectives.

Each species may be used to support one or more of the following five roles: Recovery, Ark, Ambassador, Enabling and Research. Over time there has been an increase in the proportion of species meeting the criteria for the Recovery, Ark and Ambassador roles (Fig. 1). The increase in species satisfying these categories is primarily due to the 2012 launch of Zoos Victoria’s Fighting Extinction commitment.

Zoos Victoria’s Fighting Extinction commitment ensures the prevention of extinction of 20 local threatened species. Fighting Extinction species are usually both Arks and Recovery species, with captive breeding and reintroduction programmes being established for many of them. Fighting Extinction species are also Ambassador species, being featured in interpretive material that promotes awareness of the species, and Zoos Victoria’s role in conservation of the species.

Zoos Victoria’s community conservation campaign actions encourage behaviour changes that support conservation outcomes. Each campaign has clearly defined and measurable actions for our visitors and also features an Ambassador species. For example, orang-utans are the face of “Don’t Palm us Off”, whilst seals are the face of “Seal the Loop”, a programme that promotes the safe disposal of fishing lines in bins placed in popular fishing locations.

The quantitative assessment determines a conservation value score for each species in the collection. The maximum possible score is 100. Based on the 2013 review, the five most valuable species at Zoos Victoria are all Australian native species, and all are included in our Fighting Extinction commitment:

- Eastern barred bandicoot (Peramelesgunnii): 87
- Lord Howe Island stick insect (Dryococelus australis): 83
- Helmeted honeyeater (Lichenostomus melanops cassinii): 82
- Orange-bellied parrot (Neophema chrysogaster): 82
- Tasmanian devil (Sarcophilusharrisii): 82

The most valuable exotic species are:

- Asian elephant (Elephasmaximus): 64
- Hamadryas baboon (Papio hamadryas): 54
- Philippine crocodile (Crocodylus mindorensis): 52
- Sumatran orang-utan (Pongoabellii): 53
- Plains zebra (Equusburchelli): 51

For each of Zoos Victoria’s properties, an average conservation value score is calculated. An upwards trend is noted for the average score of Zoos Victoria’s animal collections (Fig. 2). The increase is largely due to changes in ways in which species are “used”, rather than changes in the actual collections.

Zoos Victoria’s corporate plan sets targets for the conservation value of the animal collections to increase the value scores over time. A goal of 35 was established for 2013; overall Zoos Victoria has attained this goal, with both Healesville and Werribee exceeding the target.

Case study: budgerigar

The budgerigar (Melopsittacus undulatus), or budgie, is the most abundant bird species in ISIS-listed zoos, with some 9,666 budgies displayed in zoos around the world. Zoos Victoria maintains budgies at Melbourne and Healesville. Overall at Melbourne have a value score of 4, whilst those at Healesville have been scored 20.

At Melbourne, budgies are housed in an aviary located within the walk-through Australian bush precinct. The aviary provides visitors with a variety of Australian birds found in arid regions, including budgies. The aviary is landscaped to represent habitat, and there is signage to provide information. At Healesville, budgies are now housed in the walk-through Land of Parrots aviary. Guides welcome guests to the aviary and provide information about budgies and the role that Zoos Victoria plays in recovery programmes for endangered birds like the orange-bellied parrot, explaining that only about 90 of these parrots survive in the wild and Healesville breeds parrots for release. Guests can place some bird seed onto a feeder near the visitor path, attracting budgies close to visitors.

The visitor experience provided by Land of Parrots is more engaging and interactive than Melbourne’s budgie aviary, resulting in a higher value score for Healesville’s budgies. Land of Parrots is a new development that has entailed revamping of an old aviary, and selecting individual birds suited for a walk-through aviary. The experience is further complemented by a commitment of staff to the aviary when it is open, providing both monitoring of visitor behaviour and allowing for sharing of information. This innovation has been rewarded by increases in the value score for several bird species.

Figure 1

The role of the species in Zoos Victoria’s animal collections

Figure 2

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Zoo people generally love the zoos as Ark metaphor. There is a sense of purpose in sailing through the flooded world, holding on board a precious cargo of threatened species. We know that the world is facing a flood of biblical proportions, the increasing tide of extinction. We also know that no-one else is going to be able to prevent extinction, our zoos literally are the only places with the know-how and resources to hold and breed threatened species. Yet we see that is not well in the zoo Ark. Many challenge the direction, capacity and potential of our vulnerable Ark in the light of the urgent demand. Some think that we have fallen asleep at the wheel, our heads full of daydream of cash, while we sail perilously close to the rocks.

In WAZA News 2013/4, Jens-Ove Heckel and his co-authors took up the challenges to the zoo Ark with their thought-provoking article “Has the Ark gone off course?” Perhaps it is time to open the hold and take a good look at what lies below the decks. Let us take some time to understand what we carry in our collective, figurative Ark. We need to ask if we have been responsible in the stewardship of our animals, or are we scooping up every cute and furry passenger that comes along? What do we have stowed in each compartment? Can we improve the payload? Armed with the details of where we are now, we can start to correct the Ark’s course. Plotting a 20-year journey, we can start to live up to our potential and promise of saving species.

Concluding remarks

Zoos Victoria’s approach to collection review and assessment provides a framework for aligning animal collections with an organisation’s directions, and clearly defining the roles of each species. For Zoos Victoria, this has meant tracking the conservation value of our animal collections relevant to our agreed priorities. The “scoring approach” and targets identified in the corporate plan have encouraged teams at all three properties to develop and implement a range of initiatives that contribute to tangible conservation outcomes, overall contributing to Zoos Victoria’s goal to save threatened species from extinction.

Global Zoo Collection: Animals on the Ark

In recent years, there has been a dramatic breakthrough in the availability and access to data on zoo animals. The Zoological Information Management System (ZIMS) is emerging as a stable, easy to use platform for zoos to store and share data on their collections. Currently, 883 zoos are members of ISIS, loading their collections into the global ISIS ZIMS database. Working with the programmers, we have extracted a full dataset of all the animals in our collections and the story is interesting, intriguing and, dare we say, inspiring.

First of all, let us make a few disclaimers: the data we will share are only as good as the data you input and quite frankly some of your data are rubbish. Our first request is that you take a little time to make sure that your data are correct. That you have loaded every individual that ever lived as live or your staff have not just guessed, somewhat randomly, that you hold 10,000 frogs. Also the data are limited by the participation of members. As a global zoo community, these data are essential if we are to manage our collections professionally and sustainably, so our second request is that you join ISIS and encourage all your friends to join.

The global zoo collection currently stands at 3,500,000 individuals across 13,000 species reported in ISIS. This is a truly staggering number of individuals and species. However, we can refine this a bit. Of all animals listed, 10 species account for 73% of individuals (usually recorded as “groups”), mainly corals and ants. Widening the net, we find that 38 of all species listed account for 64% of individuals, held in groups larger than 10,000 individuals.

The first indication that Heckel and his co-authors are right, indeed that we may be drifting aimlessly, is that for 883 species we only hold a single individual. Seriously, that is 883 single animals with no hope of breeding or contributing to insurance populations, 883 enclosures making no contribution to conservation.

When we talk about collaboration we dream of zoos working together, maximising output by holding important species. Heckel and his co-authors are worried that the level of duplication in our collections has gone beyond what is required, but here is a scary list (Table 1). For 37% of all species listed, only one facility is holding that species. We have our favourite species, perhaps the passion of a curator, perhaps we think that it will attract visitors, perhaps as zoo people we simple like to work alone and hold animals no-one else holds. Interestingly, 82% of species listed are held at 10 or less facilities. So, only a few species are very popular. When we consider species held by more than 10 facilities the percentage drops considerably, but as we will see those few are very, very popular.

Case study: eastern barred bandicoot

Eastern barred bandicoots, or EBBs, are rabbit-sized marsupials native to south-eastern Australia. In Victoria, several populations are being re-established using individuals captive-bred at Zoos Victoria and other organisations. In the 12 months prior to 30 June 2013, Zoos Victoria has released 4,5 EBBs to the wild. In the 2013 review, EBBs obtained conservation value scores of 70 at Melbourne, 51 at Healesville and 87 at Werribee. The variation is due to the different roles at each property; for example, no breeding occurs at Healesville. At Werribee, the conservation value score for EBBs was 60 in 2010, 82 in 2012 and 87 in 2013. The increase is due to the following initiatives:

- In 2010, the Ambassador score was 0; it is now 10 following the launch of Fighting Extinction.
- In 2010, the Enabling score was 10; it is now 17 with EBBs not required for the breeding programme but being used as contact animals.
- In 2010, the Research score was 10; it is now 20 due to the implementation of a mate-choice project.

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Most Popular Animals on the Ark

Rather predictably, the most popular animals are big, beautiful and attract visitors. Whether we look at most popular by the number of facilities holding a species or by the number of individuals per species the list has a predictable outcome, with a few surprises (Table 2). For mammals the big cats top the list, followed closely by domestic animals. Yes, horses, sheep and goats dominate our mammal collections. Peacocks, flamingos and budgerigars dominate our bird collections; simply put, they are colourful, engaging and easy to hold in large numbers.

Sadly, the most popular list is rather unimaginative. Many of the species on the list are common in zoos. However, the proportion of threatened species held in zoos is unevenly distributed, yet it is not insignificant. Simple maths shows that there is a considerable difference against the need. If we consider the IUCN Red List of Threatened Species categories Vulnerable, Endangered and Critically Endangered, as many of these species is too low to be able to make a significant contribution to conservation. Almost half of the threatened species of mammals, birds and reptiles held in zoos are threatened. The commitment of zoos to holding threatened species is unevenly distributed, but it is not insignificant. Simple maths shows that there is potential to do a lot more. Zoos could, for example, hold representatives of every endangered reptile without building a new enclosure, simply by exchanging common with endangered reptiles. Leading to our third request, that as you plan your collection you consider changing common for threatened species. We can assure you they are also beautiful, we will certainly engage your visitors and give you a powerful story to tell.

Unfortunately, simply looking at the number of species held in zoos is misleading, as the number of individuals of many of these species is too low to give you a powerful story to tell. The proportion of threatened species that exceed a threshold of 250 individuals ranges from only 9% for birds to 18% for mammals.

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In June 2014, Taxon Advisory Group (vice) chairs and colleagues with equivalent positions playing an active role in regional collection planning from around the world will come together in the Netherlands. They will dream of conservation heroes, they will build relationships and they will talk about improving the management of our global zoo collection. In November 2014, WAZA will meet in India for the annual conference and will consider an updated World Zoo and Aquarium Conservation Strategy. Together, we can tackle the challenges of our time, the potential loss of species and collectively decide which of our global zoo collection is mis-leading, as the number of individuals of many of these species is too low to be able to make a significant contribution to conservation. Almost half of the threatened species of mammals, birds and reptiles held in zoos are threatened. The commitment of zoos to holding threatened species is unevenly distributed, yet it is not insignificant. Simple maths shows that there is potential to do a lot more. Zoos could, for example, hold representatives of every endangered reptile without building a new enclosure, simply by exchanging common with endangered reptiles. Leading to our third request, that as you plan your collection you consider changing common for threatened species.

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In June 2014, Taxon Advisory Group (vice) chairs and colleagues with equivalent positions playing an active role in regional collection planning from around the world will come together in the Netherlands. They will dream of conservation heroes, they will build relationships and they will talk about improving the management of our global zoo collection. In November 2014, WAZA will meet in India for the annual conference and will consider an updated World Zoo and Aquarium Conservation Strategy. Together, we can tackle the challenges of our time, the potential loss of species and collectively decide which of our global zoo collection is misleading, as the number of individuals of many of these species is too low to be able to make a significant contribution to conservation. Almost half of the threatened species of mammals, birds and reptiles held in zoos are threatened. The commitment of zoos to holding threatened species is unevenly distributed, yet it is not insignificant. Simple maths shows that there is potential to do a lot more. Zoos could, for example, hold representatives of every endangered reptile without building a new enclosure, simply by exchanging common with endangered reptiles. Leading to our third request, that as you plan your collection you consider changing common for threatened species.
Museums and the Role in Maintaining Global Biodiversity

We were delighted to be able to communicate with the members of the global conservation community, an issue that is important to us as it is to WAZA. The International Council of Museums Committee for Collections and Museums of Natural History (ICOM NATHIST) is the natural history arm of the International Council of Museums (ICOM). ICOM is a network of 30,000 museum professionals from 37 countries, in response to global challenges facing the sector.

ICOM’s 31 International Committees, of which ICOM NATHIST is one, conduct advanced research in their respective fields for the benefit of the museum community. ICOM carries out its international mandates thanks to international mandates in association with partners such as UNESCO, INTERPOL, and the World Customs Organisation (WCO). ICOM’s missions include fighting the illicit traffic of cultural goods, managing risk, promotion of culture and knowledge.

ICOM NATHIST represents members of ICOM that are focused on collecting and interpreting natural history and is concerned with the conservation of biological diversity in museum collections as well as in the natural environment, the scientific study of the world’s natural heritage and the education of the wider public through museum displays, conferences, field trips, etc.

Modern museums do a considerable amount for the environment in terms of research, conservation and raising public awareness. Increasingly, they also lead primary research in conservation. For instance, every year, hundreds of thousands of migratory shorebirds undertake migrations between South America and the Canadian Arctic, stopping to rest at points along the way. These critical “staging grounds” are under threat from global climate change, over-harvesting of food supplies, and disturbance or destruction of habitat. Most migratory shorebirds are in serious decline. Scientists from the Royal Ontario Museum in Toronto collaborate with researchers in Argentina to band birds in Delaware Bay, USA, paving the way for a vitally needed conservation management plan.

ICOM NATHIST believes this presents a challenge and an opportunity for the museum community. We look forward in working with WAZA and other partners to give the Decade on Biodiversity its best chance of success.

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Botanic Gardens and the Decade on Biodiversity

Our lives depend on biodiversity. Biological resources provide us with food, fibre, medicine and energy and they regulate our environments. Our natural landscapes and wildlife inspire and enrich our lives and provide opportunities for recreation and tourism. Plants are universally recognised as perhaps the most vital component of the world’s biological diversity and yet at least 25% of the world’s plant species are threatened with extinction. Studies indicate that, with climate change, this figure is likely to grow considerably. Significant loss of plant diversity will have catastrophic impacts on human livelihood and conservation action is needed now.

In this Decade on Biodiversity, botanic gardens are leading the way in addressing plant conservation issues. Working within the framework of the Global Strategy for Plant Conservation (GSPC), botanic gardens are united in their quest to understand and document plant diversity, to conserve the wild plants that are under increasing threat around the world and to raise awareness of the importance of plants.

The world’s flora consists of around 350,000 plant species – with some 1,000 new species being discovered every year. Given this great diversity, it may be surprising to learn that approximately one third of all known plants can be found in the living collections of botanic gardens and arboretas. These institutions are therefore ideally placed to both conserve these essential biological resources as well as celebrate their beauty and diversity.

In addition to documenting, recording and displaying plant diversity, botanic gardens are increasingly working outside the garden walls, using their collections and expertise to restore damaged ecosystems and engaging the public in a wide range of citizen science projects. Essential information, from the impacts of climate change on plant behaviour to conservation techniques for the most rare of species is being gathered through botanic garden research programmes.

1 The Global Strategy for Plant Conservation is a programme of the Convention on Biological Diversity. It includes 16 plant conservation targets to be achieved by 2020. Further information is available at www.plants2020.net
Strategic Plan for Biodiversity.

With the support of BGCI, botanic gardens are reaching out to an ever wider constituency, raising awareness of the importance of plants, conserving plant diversity and working with local communities to use plant resources to sustain livelihoods and ecosystems. All these actions are essential contributions to the Decade on Biodiversity and help us to move closer to achieving the ambitious targets of the GSPC and the Strategic Plan for Biodiversity.

With illustrative graphs, this book not only quantifies but also lays out the complex linkages between ecosystem services and urbanization, giving case studies of cities that have an ecosystem service approach in order to address the many challenges. From a previous more direct dependence on their hinterlands, nowadays the situation has changed to a more indirect linkage where resources are transported across the globe resulting in complex and often masked feedback mechanisms.

The Leading Zoological Gardens of Europe 2010–2020 (Update 2013)
By Anthony Sheridan
Schulung Verlag, Münster, 2013 | 64 pp | ISBN 978-3-86523-240-3

The 2013 update is an appendix to and should be used in conjunction with the original book What Zoos Can Do: The Leading Zoological Gardens of Europe 2010–2020, published in May 2012 (reviewed in WAZA News 3/2012). The 2013 update contains two years of additional data, current to the end of 2012. Whilst the selection criteria for zoos and aquariums included in the survey remain unchanged, the unique information and analyses have been extended: 92 instead of 80 zoos and aquariums from 23 instead of 21 countries; 37 instead of 27 factors analysed for the four ranking lists; five additional groups of iconic species; eight instead of five other zoos and aquariums of special significance; and zoos and aquariums categorised in three instead of two groups. What Zoos Can Do – with its ranking lists loved by some, hated by many and feared by all – continues to be a must-have book for all those involved, from zoos and aquariums to policymakers and other zoos and aquariums of special significance; and zoos and aquariums categorised in three instead of two groups. What Zoos Can Do – with its ranking lists loved by some, hated by many and feared by all – continues to be a must-have book for all those interested in zoos and aquariums.

By Geoff Hoosey, Vicky Melfi and Sheila Parkhurst

Four years after publishing the first edition (reviewed in WAZA News 2010/2), a second edition of the ground-breaking book Zoo Animals: Behaviour, Management, and Welfare was released in late 2013. The information was again superbly compiled by Geoff Housey, Vicky Melfi and Sheila Parkhurst. All chapters have been revised to offer an up-to-date and balanced overview of the role of zoos and aquariums in modern society. The chapter on “Captive breeding” has been renamed “Small population management” and has been significantly revised to reflect modern trends and to offer further insights into the problems and innovative solutions of this central topic. Coverage of research methods, genetics and conservation has been enhanced to reflect current thinking.

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Urbanization, Biodiversity and Ecosystem Services: Challenges and Opportunities

One of the burning issues for the future of mankind and for biodiversity is urbanization. It is envisaged that by 2030 there will be 60% of humanity living in cities. Now eleven editors and 109 authors have undertaken the impossible: to put together a global analysis of the environmental impacts of urbanization. The book has a global scope, but also a strong connection to regional and local scales and tries to deliver key messages to policy makers and show cases smart urban planning.

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Throughout the book five major trends of urbanization are addressed in 33 different chapters: the expansion of cities, the urban heat island effect leading to local and regional climate change, the water, timber and energy use of built-up areas, the expansion affecting especially low-elevation areas and biodiversity-rich coastal areas and finally the fact that future growth is taking place in areas of limited economic development – leading to constraints to invest in protection of biodiversity and the conservation and restoration of ecosystem services.

As the green areas of cities – including zoos – are increasingly important urban resting and exploration places, this book gives a lot of background on the issue and is possibly the most comprehensive book yet. It is likely that the urban green areas and biodiversity rich coastal areas will finally be recognized as important urban resting and exploration places.

MoU with IUCN Extended for another 5 Years

On 12 December 2013 director general of IUCN, Julia Marton-Lefèvre and WAZA executive director Gerald Dick signed an agreement of cooperation for another 5 years. Both organizations agreed to support the implementation of the “The Strategic Plan for Biodiversity” as well as the agreement will serve an effective implementation of the IUCN 2013-2016 programme. The Biodiversity Conservation Group in the IUCN Secretariat, and through the expertise of the Species Survival Commission (SSC) and the Commission on Education and Communication (CEC), information exchange will be channelled and WAZA members informed.

WAZA signs MoU with the Alliance for Zero Extinction

On 13 November 2013 WAZA joined 88 biodiversity conservation organizations working to prevent species extinctions by identifying and safeguarding the places where species evaluated to be Endangered or Critically Endangered under IUCN-World Conservation Union criteria are restricted to single remaining sites. Currently 588 sites for 520 species of mammals, birds, amphibians, reptiles, conifers, and reef-building corals are covered by the AZE approach for the most predictable species losses.

World Wildlife Day, initiated by CITES

In its resolution, the UN General Assembly reaffirmed the intrinsic value of wildlife and its various contributions, including ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic, to sustainable development and human well-being, and recognized the important role of CITES in ensuring that international trade does not threaten the species’ survival. CITES Secretary-General, Mr John E. Scanlon, said, “3rd March each year, the World Wildlife Day is an ideal opportunity to celebrate the many beautiful and varied forms of wild fauna and flora and raise awareness of the multitude of benefits that conservation provides to people. At the same time, the Day reminds us of the urgent need to step up the fight against wildlife crime, which has wide-ranging economic, environmental and social impacts.”

CMS Links Strategic Plan to Aichi Targets

At the meeting of the CMS (Convention on Migratory Species) Strategic Plan Working Group on 26 November 2013, the importance of animals in human care for migratory species was highlighted in the CMS target 12 which is linked to Aichi target 13. At this meeting the Executive Secretary Bradnee Chambers received first hand information about the WAZA Decade project “Biodiversity is us” and promised to cooperate and provide migratory species highlights.

2013 Proceedings of Disney Conference Published

The proceedings of the 68th Annual WAZA Conference have been published and are available on the WAZA website. The full version of the proceedings are available on the members’ area (documents) whereas the technical congress papers only are again publicly available under Marketing/Publications. For the first time the format of the proceedings is in the landscape format in order to facilitate easy reading on a screen.
**Das große Kribbeln**

Mobile Animal Presentation in Hannover Zoo

Do you know what it feels like when a millipede runs along your arm, or which animal bears the resounding scientific name Tenebrio molitor? Most visitors to a zoo wouldn’t have a clue—and so, in 2012 Hannover Adventure Zoo launched a project to draw people’s attention to animals of rather more modest dimensions than those that usually appear in zoos and animal parks. The project is called ‘Das große Kribbeln’ (roughly, ‘The big tickling’—the centipede feeling...!) and mainly concerned with invertebrates.

Hannover Zoo deliberately tries to meet the visitors halfway, bringing them and the animals closer; information about the animals, their behaviour, their habitats—is conveyed through tangible experiences. For it’s the experiences that stick in visitors’ memories and also encourage them to go to the zoo again. To promote this concept Hannover Zoo came up with ‘Das große Kribbeln’, a project with the intention to approach people with different animals, to remove the boundaries between visitors and animals but also between visitors and keepers and, not least, to enable physical human-animal contact. Although it was clear that animals with six or more legs would not immediately spring to mind as every visitor’s idea of a beautiful close encounter, it was quickly decided that invertebrates would be at the heart of this project...

**Why invertebrates?**

- Contact with the animals is possible, and certainly outside most visitors’ everyday experience.
- Keeping them ‘backstage’ is unproblematic (which is not to say that it’s always simple).
- The logistics (bringing the animal to the visitor) are feasible.
- Invertebrates have tremendous educative potential.

There are more species of invertebrates than of any other group of animals, yet they are underrepresented in zoos. Although a constant and close presence in our lives, they are often despised as harmful and repulsive. The challenge, then, is to overcome people’s prejudice and reluctance to touch them.

Before the project was to start in May of 2012 all sorts of preparations were necessary, starting with selecting diverse, fascinating but also robust species (e.g. Giant African land snails, different kinds of stick insects, leaf insects, millipedes, beetles, cockroaches, not invertebrate, but also on board are a California Mountain Kingsnake and two Turkmenian Sand Boas) that could withstand being carried about in the zoo and the unavoidable shaking and temperature changes. The suitability of particular species for actual contact with visitors was also considered. Once the animals had been chosen a room was put into someone’s hands and when it would be better just to show it in their own hands. Experience with the action in its first season in Hannover Zoo was almost entirely highly positive. Children, especially, are usually fascinated and approach unfamiliar animals uninhibitedly. Being less squeamish and reserved, of course they have to be curved sometimes; mothers, on the other hand, now and then are something else when it comes to squeamishness. Many visitors just look on, but many also ask questions and thus the initial reserve and aversion turns into interest. The close-up presentation of invertebrates and reptiles was greeted with enthusiasm. Generally, visitors are well-behaved, and keepers can tell when an animal can be put into someone’s hands and when it would be better just to show it in their own hands.

In 2012 and 2013 ‘Das Große Kribbeln’ has been a great success and very popular with visitors, who often ask at the entrance gate where they can find the ‘creepy-crawly car’ today. All those involved in the project are very pleased with ‘Das Große Kribbeln’, showing invertebrates puts the focus on a group of animals whose fascinating qualities and diversity make them worthy exhibits.
Diving into the “Lost Valley”

Everland Resort, Korea’s leading theme park, introduced an exclusive, all new interactive animal safari experience, with a grand opening held on April 20th 2013.

The attraction’s target audience is families. “Lost Valley’s” four key features of the story are animal experience, a ride element and closing-the-loop, an appeal to our target audience.

First, “Lost Valley” takes guests on a journey to the legendary mythical world. The story begins with the time when humans and animals still lived in harmony.

Secondly, “Lost Valley” provides an opportunity to experience animal habitats while interacting with animals. Instead of using artificial barriers to separate animal habitats, waterways, swamps, hills and other natural settings were embedded into the scenery allowing guests to view animals in the most natural way in their environments.

Thirdly, the ride in itself in the form of an amphibious vehicle is what makes “Lost Valley” a truly unique attraction. Amphibious vehicles were introduced to a safari. Those vehicles travel both on land and water taking guests on a mythical journey full of surprises.

Fourthly, the needs of the main target audience which are families with children are met.

“Lost Valley” is a huge sensation in Korea, just within the first five months after the opening, one million guests (7,000/day) were counted as visitors.

Information is provided about offshore bases acting as protected habitats and about global warming allowing the common octopus to expand. Bizarre fish species such as the Atlantic wolffish and lumpfish can be enjoyed. Gorgeous wrasses and anemones create an underwater imagination which is in fact an existing stunning marine nature.

To find out more: www.everland.com

The New North Sea Aquarium

100 years after building a first sea water aquarium in Bremerhaven the small “Zoo am Meer!” proudly opened the new North Sea Aquarium in September 2013.

Visitors encounter a fascinating world of different marine habitats of the North Sea in nine tanks with a total volume of 200,000 litres of original sea water. They watch animals of brackish -water and the river Weser, such as zander (sometimes also called pike-perch), European eel and whiting. Visitors can enjoy eelgrass fields with juvenile fish species, pipefishes and seahorses. Different flatfishes and a swarm of grey thick -lipped mullets swim in front of a replicated breakwater wall. The audience can literally dive into a kelp forest that occurs around the island of Helgoland (see picture).

The public learns about stowaways such as the Chinese mitten crab and established alien species such as the Pacific oyster. The European sturgeon and the common lobster raise attention to the issue of species reintroduction projects.

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To find out more: www.zoo-am-meer-bremerhaven.de
ZAP – Building Zookeeper Outputs in the Philippines

In October 2001, a pilot project initiated by a small Philippine non-governmental organisation, Negros Forest & Ecological Foundation, Inc. (NFEFI), supported by the German Development Service, implemented the First Basic Zookeepers Workshop in the Philippines – on Negros Island in the country’s south-west. The five-day course was the first-ever meeting of Philippine zookeepers and focused on developing best-practice approaches to zoo keeping fundamentals. At the end of the course, a professional association for zookeepers was formed, to develop zoo keeping fundamentals. At the end of the course, a professional association for zookeepers was formed, to develop zoo keeping fundamentals.

The Philippines is one of the world’s biodiversity hotspots, but has an extremely high percentage of threatened endemics. Habitat loss is extreme; enforcement of laws protecting wildlife and habitats is poor; and awareness of the country’s fauna and flora amongst the general populace is very low. The country’s zoos and breeding centres have important roles in helping to reverse some of these challenges; but most of them suffer from poor management, compounded by inadequate resourcing, lack of staff training, poor access to current knowledge, and an overlying lack of appreciation by government and the wider community of the roles of zoos to contribute to wildlife conservation.

Enter ZAP, a major milestone in the Philippines, aimed at strengthening captive breeding skills and increasing staff skills and professionalism in the country. Since founded by a small Philippine non-governmental organisation, Negros Forest & Ecological Foundation, Inc. (NFEFI), supported by the German Development Service, the First Basic Zookeepers Workshop in the Philippines was held in October 2001.

Today, ZAP has more than 300 members in more than 50 institutions throughout the country. Most are zookeepers, although curators, veterinarians and biologists are also well represented. ZAP has since focussed on delivering training courses on the husbandry of Philippine fauna, behavioural enrichment and positive reinforcement training for zoo animals. Comprehensive manuals are developed for each course and provided to all participants, in English and Tagalog. Participation is high, with more than 90 people attending each year.

ZAP’s activities are supported by many local partners, including Ocean Adventure, NFEFI, West Negros College, the Philippine Eagle Foundation, and JK Mercado Farm. We also work with government and are developing a formal partnership with the Protected Areas & Wildlife Bureau of the Department of Environment & Natural Resources. Internationally, ZAP has received assistance from Germany, Australia, the Netherlands, UK, USA, WAZA and the International Congress of Zookeepers. This has been critical in helping to strengthen ZAP’s development and guide its vision to professionalise zoo keeping in the Philippines.

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Ferruginous Duck Breeding and Reintroduction Program

The ferruginous duck (Aythya nyroca), sometimes called the fudge duck or diving duck, is a dark, chestnut-coloured duck, with the males having a distinctive pale iris (hence it is also often called the common white-eye). They eat mainly aquatic plants, but also some molluscs, insects and small fish, collected or caught by diving or dabbling, and they are capable of diving down to depths of 10 m. Their natural habitat is well-vegetated wetlands where they nest in low plant-forms of reeds and other vegetation placed on the ground in thick shoreline vegetation. Their breeding range extends from southern and eastern Europe to southern and western Asia and they are chiefly migratory. These are gregarious birds, forming large flocks in winter, often mixed with other ducks, such as tufted ducks and pochards.

Ferruginous ducks are threatened by the degradation and destruction of their habitats, and other wetland habitats as a result of excessive drainage; reed cutting and burning, covering of water reservoirs; extensively managed fishponds; and the introduction of non-native species. Hunting is a serious threat and disturbance by fishing boats and anglers alongside fringe vegetation can cause nest abandonment and disruption of the breeding cycle. Other lower-level threats include fires; drowning in fishing nets; and hybridisation with native species. The species has declined markedly in Europe where there have been declines of more than 90% in eight European countries. Small numbers occur in various Middle Eastern countries. The species is listed as Near Threatened on the IUCN Red List. Although it is already fully protected in 15 European countries and protected from hunting in six more, it has received little international conservation action, but a number of national initiatives have been developed recently, notably habitat management in Bulgaria and reintroduction schemes in Italy.

Ferruginous ducks have all but disappeared from Israeli wildlife as nesters because of the loss of wetland habitats. In 2004, Jerusalem Zoo began an ex-situ breeding programme with a core group of four captive-born individuals. This group has continued to produce eggs every year. Over the last two years, a pilot reintroduction programme was conducted by releasing nine individuals into the zoo’s central lake – an open area where the birds are not prevented from flying away. However, all nine individuals chose to remain in the lake and did not venture further afield (probable because of the readily available food source). In June 2013, 21 eggs hatched (unexplainably, all males). The chicks were allowed to mature until mid-October when they were identified and banded in preparation for release into the wild.

Most birds are banded on the leg using a numbered or coloured band to enable conservationists to watch from a distance and readily identify the bird. This does not work with aquatic birds, however, because their legs are hidden in the water most of the time, so a special technique developed in Portugal is used to band their bills. They are individually sized to the birds’ bills and threaded through their nostrils with a fine nylon thread. The nylon does not bother the bird and does not interfere with breathing, eating or breeding. The bands are easily read from a distance. Because ferruginous ducks are more sensitive than most ducks and prone to sudden stress-induced heart attacks, a special protocol was developed at Jerusalem Zoo to fit the bands as quickly as possible with minimal stress to the birds. A few days later, the ducks were taken to the north of Israel where 15 males and two females were released into the Hula Valley Nature Reserve, in conjunction with the Israel Nature and Parks Authority. This is the beginning of a multi-year breeding and release programme. Coupled with raising public awareness of wetland habitat preservation, we hope to see a population recovery in Israel.

Since 1970, cheetah (Acinonyx jubatus) distribution in Kenya has been reduced to 75% of its historical range, based on comparative analysis conducted in a national survey by Action for Cheetahs in Kenya (ACK) between 2004 and 2006. Through their range in Africa, cheetah populations are higher on public and private ranchland than in protected parks and sanctuaries. ACK research is focused on evaluation of Kenya’s current cheetah population density, identification of a near critical threshold in which cheetahs can no longer survive in an area. Increased levels of faecal “stress” hormones (i.e. glucocorticoids) are an early warning of health and reproductive changes, and can provide us with indicators of management needs.

In support of the Kenya national cheetah strategy, ACK goals are to:
1. Identify factors affecting cheetah livestock predation and mitigate conflict.
2. Understand cheetah habitat selection and mitigation resource competition.
3. Influence public and administrative changes to positively affect cheetah conservation and management protocols through capacity building and community involvement in conservation action.

ACK studies test system population dynamics models and improve understanding of cheetahs in various land-use classifications.

Previous ACK studies show that behavioural and diet adaptations of the cheetah could account for their persistence in marginal and developing regions. Field officers from within the community are trained in wildlife monitoring, scat collection, public presentation and conflict mitigation. Analysis of game counts, camera trap data and faecal sample content uses digital images and prey hair identification to compare cheetah prey and habitat selection in different land-use categories. Cheetahs typically vary their diet, but when prey and habitat selection is limited, there is a critical threshold in which cheetahs can no longer survive in an area.

ACK project goals extend beyond research through community participation in conservation, school education activities and public awareness campaigns. Results from previous ACK interviews show that higher general education did not lead to higher tolerance for wildlife, but the level of exposure to conservation education materials and community information meetings resulted in positive attitudes towards living with predators. Effectiveness of education and awareness programmes are measured through pre- and post-surveys and through conservation actions within the community. ACK works with community self-help groups to encourage environmental responsibility in economic initiatives. The use of eco-credit is a common method by which residents seek to improve their livelihoods and gain access to resources. Such groups emphasized the need to take ownership of the sustainable management of the savannah ecosystem, and to see the ecological and economic benefits of sustaining the wildlife populations.

Mary Wykstra – Carnivores, Livelihoods and Landscapes, Nairobi, Kenya
There are currently 129 active international studbooks (ISBs), including 163 species or sub-species (10 ISBs cover more than one taxon). The following events regarding ISBs have occurred since 1 October 2013:

**ISBs archived**
- None.

**ISBs established**
- None.

**Transfer of ISBs to new keepers**
- On 3 November 2013, CPM approved the transfer of the Persian leopard (Panthera pardus saxicolor) ISB to Susana Nolasco (Lisbon Zoo, Portugal).
- On 9 December 2013, CPM approved the transfer of the slender-horned gazelle (Gazella leptoceros) ISB to Patricia Cassidy (San Diego Zoo Safari Park, USA).
- On 9 December 2013, CPM approved the transfer of the red glaucogularis (San Diego Zoo Safari Park, USA).
- On 9 December 2013, CPM approved the transfer of the red glaucogularis (San Diego Zoo Safari Park, USA).
- On 23 December 2013, CPM approved the transfer of the black-necked crane (Grus nigricollis) ISB to Zhou Junying (Chinese Association of Zoological Gardens, China).
- On 23 December 2013, CPM approved the transfer of the black-necked crane (Grus nigricollis) ISB to Keri Bauer (Busch Gardens Tampa, USA).
- On 23 December 2013, CPM approved the transfer of the black howler monkey (Alouatta caraya) ISB to Keri Bauer (Busch Gardens Tampa, USA).

**Pending issues**
- As of 31 January 2014, the ISB for the blue-throated macaw (Ara glaucogularis) is vacant.

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### 8th International Zoo and Aquarium Marketing Conference

**Biodiversity: Leadership by Zoos and Aquariums**

**12–14 May 2014 | Bristol, UK**

What is the role of the Zoo and Aquarium Community in the Biodiversity Challenge? What can each zoo and aquarium, as well as our community as a whole, do to help preserve biodiversity? What are the best means for communicating biodiversity and for getting our visitors to act? How can we cope with sometimes contradictory approaches?

The WAZA Zoo and Aquarium Marketing Conference addresses directors, marketing and communication experts of WAZA members as well as external communication specialists in order to try to answer these questions. Presentations, case studies, best practices and workshops are planned for an exciting and engaging conference.

The conference will be hosted by Bristol Zoo Gardens, and is held in partnership with the regional associations EAZA and BIAZA.

The overall theme of this Conference is “Biodiversity: Leadership by Zoos and Aquariums” and 5 main topics will be developed:

- Communicating biodiversity through modern technologies
- Resourcing and biodiversity conservation: two different mindsets?
- Promoting and measuring “biodiversity-friendly” behavioural change
- Biodiversity communication campaigns
- Negative publicity damages biodiversity communication

Please see [www.waza.org/Marketing&Media](http://www.waza.org/Marketing&Media)

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### 69th WAZA Annual Conference and Technical Congress

**New Delhi, India, 2–6 November 2014**

The conference will take place at The Ashok – New Delhi, hotel and conference center, set upon 25 acres of prime land in the capital’s diplomatic area, it symbolizes the traditional grandeur and hospitality of India. Ever since its inception in 1956 to host India’s First International event-UNESCO conference. The Ashok has been setting standards, not only in conference handling but also as fantastic host for state guests and VIPPs. It is located in Diplomatic Enclave, Chanakyapuri, New Delhi in the heart of City centre – the capital of India. 2 km from Rastrapati Bhavan (Presidential Palace), 1 km from International Airport; 10 km from domestic airport and 9 km from railway station.

For registration and accommodation booking please visit the WAZA website. Registration is open as of 15 April 2014 and the early bird fee is available until 15 July.

The general theme of the conference is “Biodiversity is us” – reflecting the Decade on Biodiversity.

The following keynote speakers have already accepted:
- **Joel Sartore** National Geographic
- **R. K. Pachauri** Director General of TERI - The Energy and Resources Institute and chairman of IPCC the Intergovernmental Panel on Climate Change, Nobel Prize winner in 2007
- **Priya Ranjan Sinha** tiger expert, former director of Wildlife Institute of India and currently IUCN representative

**Future WAZA Conference Venues**
- 2016 Africam Safari, Puebla, Mexico (9–13 Oct 2016)
- 2018 Bangkok, Thailand

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### Call for Papers

Contributions are especially sought for the following more overarching topics:

- The role of zoos in biodiversity conservation
- The role of aquariums in biodiversity conservation
- The zoo and aquarium community as partner in biodiversity conservation: what we do and how we are seen
- Animal welfare and biodiversity conservation: two sides of a coin?
- Outreach to zoo and aquarium visitors – new approaches
- CEPA (Communication, Education and Public Awareness) and zoos and aquariums

**Deadline for submission**: 20 May 2014. Please use the provided form on the WAZA homepage, website, [www.waza.org](http://www.waza.org)

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**Markus Gusset – WAZA Executive Office**

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New WAZA Members

- Shedd Aquarium | USA | as institutional member
- Gan-Garoo Park Australia | Israel | as institutional member
- Rajiv Gandhi Zoological Park & Wildlife Research Centre | India | as institutional member
- Bannerghatta Biological Park, Bangalore | India | as institutional member

Bannerghatta Biological Park, Bangalore, India

- Sponsors: B. P. Ravi (Sri Chamrajendra Zoological Gardens, Mysore) and S. Panda (Nandankanan Zoological Park)
- Founded: 1974
- Area: 731 ha
- Collection:
  - Mammals: 28 species and 732 specimens
  - Birds: 44 species and 363 specimens
  - Reptiles: 16 species and 212 specimens
  - Fishes: 10
- Staff: 24 permanent, 210 temporary
- Owned by: Zoological Society, Zoo Authority of Karnataka, Autonomous body, non for profit
- Director: Range Gowda, IFS
- Member of: Indian Zoos Association, Indian Zoo Keepers Association
- Address: Bannerghatta Biological Park, Bannerghatta, Bangalore-560 083, Karnataka, India

Bannerghatta Biological Park has been systematically classified into 4 constituent areas, bringing under the exclusive control of unit officers for a dedicated scientific management.

- 1. Bannerghatta Zoo
- 2. Bannerghatta Safari
- 3. Bannerghatta Butterfly Park
- 4. Bannerghatta Rescue Centre

The entire management and administration of Bannerghatta Biological Park is under the control of Executive Director, who is on the cadre of Chief Conservator of Forests and assisted by Deputy Director, Assistant Director (Veterinary Service), Range Forest Officers, Zoo Engineer and other supporting staff.

Bannerghatta Biological Park is one of the renowned wildlife tourism centres of Karnataka. This was started in a modest way in the form of picnic corner during the year 1971 in order to provide the picnic facilities to the urban population leaving in the vicinity of Bangalore. Over the years number of other ecological and tourism important units were setup under the umbrella of Bannerghatta Biological Park such as zoo, safari, rescue centres, butterfly park and nature camp etc. The basic objective of establishing a multi ecological institution in the Bannerghatta is to mainly provide biorecreation and education apart from ensuring the conservation of fauna and flora of the region. The Zoo Authority of Karnataka after realizing the multi various activities being carried out, have decided to systematize the management and thus have created the independent units of management, under the exclusive control of Range Forest Officers for each of the unit.

To find out more: www.bannerghattabiologicalpark.org
Recent Updates

New institutional member

Gan-Garoo Park Australia, Israel

- **Sponsors**: Shai Doron (The Tisch Family Zoological Gardens in Jerusalem) and Yehuda Bar (Zoological Center Tel Aviv-Ramat Gan)
- **Founded**: 1996
- **Area**: 5.66 ha
- **Collection**: 30 species and 65 specimens
- **Visitors**: 110,000 paying
- **Owned by**: Kibbutz Nir David, Tel-Aviv – Ramat Gan
- **Director**: Prof. Ram Dgani; Yahuda Gat, Founder and Executive Chairman
- **Member of**: Israeli Zoo Association
- **Address**: Kibbutz Nir David, Emek Hamayanot 10803, Israel

Gan Garoo Park Australia – Israel is one of the most unique parks in the country. It was established as a non-profit organization with the authorization and support of the Australian and Israel National Parks associations and the Australian Embassy in Israel. The park was planned and first established in 1996, when the infrastructure was installed and vegetation unique to Australia was imported. In recent years Gan Garoo has received more than 110,000 visitors annually, including school children, families, senior citizens and organized tours from Israel and abroad. Visitors receive a guided tour of the park, including an in-depth talk about Australia its geography, history and culture. In the Park: The park covers an area of 24 acres. All plants are native Australian flora. There are about 20 varieties of Eucalyptus and other trees and bushes; they are planted around a small artificial lake, watercourses and lawns. The park’s fauna is composed of a variety of native Australian animals such as gray kangaroos, red kangaroos, wallaroos, wallabies, brush-tailed bettongs, emus, cassowaries, grey-headed flying foxes, merinos sheep and long nosed potoroos.

There is a specially designated area in which kangaroos move around freely and visitors may pet them. There is a wealth of Australian bird life including the kookaburra, cockatoos, various parrots, brush-tailed Australian turkey etc. There is a new Loris & lorikeets aviary (the size of a basketball court), with 65 charming hand raised birds.

As for reptiles we have the Blue tongue Lizards, carpet python, frilled lizards, bearded lizards and gilded species like giant squirrel, mouse deer, rust spotted cat etc. The park covers an area of 24 acres. All plants are native Australian flora. There are about 20 varieties of Eucalyptus and other trees and bushes; they are planted around a small artificial lake, watercourses and lawns. The park’s fauna is composed of a variety of native Australian animals such as gray kangaroos, red kangaroos, wallaroos, wallabies, brush-tailed bettongs, emus, cassowaries, grey-headed flying foxes, merinos sheep and long nosed potoroos.

Proposed master plan of zoo envisions to develop ex-situ breeding facility for local important endangered species like giant squirrel, mouse deer, rust spotted cat etc. The Zoo is developed on a piece of land which also encompasses a water body popularly called Katraj lake spread up within a 21.7 ha area. This is a tank developed by the Peshwas to supply water to Shaniwarwada and the surrounding settlements. Today the zoo is a vital green belt within the rapidly growing area that is known as Katraj.
Biodiversity is Us

We are all connected

You are part of the exciting web of life that includes millions of species of plants and animals.
We call this ‘biodiversity’.
But it is shrinking fast, putting our planet – it’s people and animals – at risk.
You can help stop this. Through your daily actions, you can make the world a better place.
What will you do today?
Biodiversity is Us.
Download the ‘Biodiversity is Us’ app and discover what you can do today.

BENEFITS:
- Getting communication tools for free
- Being part of a global initiative led by WAZA
- Getting the word out about the role of zoos and aquariums
- Support educators and communicators to attract visitors
- Getting visitors involved in actions to save biodiversity

A strong message to be presented via several tools:
Available in 5 languages (English, French, German, Spanish and Japanese).

POSTERS
several formats
4 designs in 5 formats

FILMS
- 30 seconds public service announcement
- 3 minutes introduction, entrance of zoos and aquariums, restaurant area, etc.
- 13 minutes educational movie

APP & SOCIAL MEDIA
on smartphone or tablet

Additional information:
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