Dear WAZA members and friends!

A year full of events and important developments is slowly drawing to a close. One of the big highlights certainly is the completion of two big and important WAZA documents. Both the Conservation and Animal Welfare Strategies will become milestones for the zoo and aquarium community. After more than 2 years of preparation and hard work and with the participation of many members as well as external experts the two documents were successfully launched in Al Ain. The theme of our conference was dedicated at the same time to conservation and animal welfare and the two Council members leading the process are presenting a flavour of contents in this NEWS.

Another focus in this edition is dedicated to commercial fishing. Such positive examples underline the importance of the completion of two big and important WAZA documents. The two new WAZA strategies recently launched at the WAZA Annual Conference at Al Ain provide strong vehicles for WAZA action. Committing to Conservation and Caring for Wildlife aim to build our collective effectiveness in our core foci – in wildlife conservation and animal welfare.

The strategy urges us all to look at the structure and orientation of our organisations; to build our education and advocacy programs; to use the ‘One Plan’ approach in our thinking in animal management; and “to create sustainable business plans to support field conservation efforts while simultaneously facilitating pro-environment behaviour change. This enhanced approach is the only way to address effective human threats to wild populations”.

WAZA’s new animal welfare strategy, Caring for Wildlife, throws out a different challenge. Delivering high levels of animal care is a core activity of all leading zoos and aquariums, and as WAZA members we are all expected to be reaching the highest possible levels of animal care. Caring for Wildlife calls on us to be transparent in our animal welfare practices; to work cooperatively internally within our organisations and with partners; with the community, universities and with like-minded animal welfare organisations. Our work in animal care must be rigorous, with strong governance and be under-pinned by sound observation and up-to-date science. A tool recommended by the strategy is the ‘Five Domains’ model, a framework well-tested in broader animal welfare science and practice.

And why not? We are a collective of like-minded organisations committed to saving wildlife – as a global force we can work more effectively individually and jointly to make a difference for the world’s wildlife.

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I am honoured to be appointed to the position of President of WAZA. Thank you to the retiring President Lee Ehrike for his guidance and wisdom over the past two years in my position of WAZA President-elect, and to all Council and WAZA members for supporting me in taking up this new role.

This is an important time for WAZA. As a representative global organisation committed to wildlife conservation, it is a pivotal time for WAZA to step up, building on our strengths; our partnerships, and our members to make a difference wherever we can to save wildlife and habitats.

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All WAZA members must commit and ‘live’ these strategies. We must be leaders in our commitment and practice; delivering the highest possible animal care and actively working for wildlife conservation.

Just a short word on some of our challenges.

The shocking images of animal abuse sent so rapidly across the world via social media occurring in organisations which call themselves zoos or aquariums have a huge potential to greatly damage us all and also WAZA. We have experienced this acutely over the past 12 months and WAZA Council has responded appropriately, working cooperatively should it relate to a WAZA member; and/or working with partners or government officials in efforts to address specific issues of concern. We will continue to do this and WAZA will build its capacity and influence in this area, using the new WAZA strategy, Caring for Wildlife as a basis.

...We must be leaders in our commitment and practice; delivering the highest possible animal care and actively working for wildlife conservation...
Great advances have been made in conservation-relevant scientific research in the past ten years (page 37). This form of applied research has proven to be of enormous benefit to managing wild populations, when laboratory and zoo-and-aquarium-based scientists collaborate with field researchers and wildlife managers. Examples include the assessment and treatment of an individual’s health by experts in their field, the development and improvement of contraception and assisted-reproduction techniques, and pre-testing of satellite tracking devices on animals in zoological facilities to ensure safe and effective monitoring of wild animals. There is still enormous untapped potential in applying the knowledge gained from our zoo and aquarium animals to saving species in their natural ranges. Research carried out on elephants and frogs in zoological institutions, related to elephant endothermotropic herpes virus (EEHV) and tuberculosis, and the amphibian disease chytridiomycosis, respectively, is proving to have significant benefits for testing and protecting wild populations.

This 2015 Conservation Strategy is primarily directed at the leaders of our zoos and aquariums, making a stronger case for being proactive in preparing for future challenges. In a world that depends on technology to keep ahead of human population growth, and its inherent resource consumption pressures, we continue to lose species and wild places at an alarming rate. Technological advances need to work with nature—not against it—because human beings are totally dependent on nature. To borrow a phrase from Conservation International... Nature doesn’t need people. People need nature.¹

Developing a strong conservation brand at your institution is not only the right thing to do but is what our public expects of us. It also makes good business sense. Zoos Victoria has determined that their conservation work is the second most important reason the Melbourne community visits their zoo. Some great examples of converting interest into action are given in Engagement – Influencing Behaviour Change for Conservation (page 46). The Monterey Bay Aquarium Seafood Watch programme empowers people to make more responsible choices that support a healthier ocean and preserve diverse marine ecosystems. Supply-chain activism, such as Don’t Palm Us Off, the sustainable palm-oil buying campaign created by Zoos Victoria, is another effective programme that conveys their exciting conservation stories all over the city. Whether or not being a recognized leader in conservation motivates more people to visit zoological institutions might be debatable in some regions. What is certain is that conservation provides some fantastic stories that can be communicated to guests during their visit. These conservation victories will more than likely impact the decisions visitors make in relation to return visits, purchasing membership and donating to conservation programmes.

One of the most frequent pronouncements throughout this 2015 Strategy is that zoos and aquariums are uniquely positioned to make a significant contribution to biodiversity conservation. With over 700 million visits to zoological institutions worldwide every year, we can effect change on a scale that no other conservation organization can match—if we practice what we preach! Our conservation actions must correlate with our conservation messages, as we are being held more and more accountable in the world of instantaneous information sharing. Caring for live animals in zoological institutions carries an enormous responsibility; not only must they receive the best possible care and enrichment but also they should be conservation ambassadors that connect to their wild counterparts (page 59).

To illustrate this vital connection and the potential impact on wildlife conservation, I share a recent story from my former employer. In May 2015, the Houston Zoo opened a new US$12 million Gorilla Forest habitat. This was the culmination of a five-year project that included planning, design, fundraising and construction. When this project was approved in 2010, we began to research gorilla conservation programmes that would be a good fit for the ethos at Houston Zoo. We wanted to become true partners in every aspect of the programme, not just a source of financial support. Two major projects were selected—Gorilla Doctors in Rwanda and GRACE (Gorilla Rehabilitation and Conservation Education Center) in the Democratic Republic of the Congo. Not only was this a long-term funding commitment developed but also Houston Zoo assisted with graphic designs, community-education programmes, website upgrades, staff expertise and actively participating on the Board of Directors for each organization. Such wide-ranging involvement ensured that we were an integral part of the conservation stories delivered to our 2.3 million annual guests, and not just a disconnected donor of funds.

Rick Baronj – Chair Conservation and Sustainability Committee

Committing to Conservation in 2015 and Beyond

The definition of conservation has not changed—‘Securing populations of species in natural habitats for the long term’ (page 32). While this is the ultimate goal, there are many pathways towards achieving this. The first step requires creating an internal culture of conservation within every zoological institution (page 25). Before you can affect change on the outside you must have a shared vision and philosophical buy-in at all levels within your organization. As stated, ‘Creating a conservation culture requires clear lines of communication to all personnel about the conservation work being undertaken, and celebrations of success when conservation objectives are achieved’. Everyone – staff, board members, donors and volunteers – must feel that they are playing a meaningful role and making a difference.

Once an internal culture of conservation is integrated throughout the organization then we should involve our visitors and local communities, explaining how their visit to our institution, or their actions in daily life, directly help to save animals in the wild. Some great examples of converting interest into action are given in Engagement – Influencing Behaviour Change for Conservation (page 46). The Monterey Bay Aquarium Seafood Watch programme empowers people to make more responsible choices that support a healthier ocean and preserve diverse marine ecosystems. Supply-chain activism, such as Don’t Palm Us Off, the sustainable palm-oil buying campaign created by Zoos Victoria, is another effective programme that has involved the entire community and corporate world.

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Committing to Conservation in 2015 and Beyond

Following more than two years of collaboration, Committing to Conservation: The World Zoo and Aquarium Conservation Strategy was published and the document distributed at the 2015 WAZA Annual Conference in Al Ain. This timely publication contains a wealth of best-practice and leadership guidelines to assist zoological institutions of all sizes, and in all regions of the world, to maximize their conservation efforts. Both the Conservation Strategy and Caring for Wildlife: The World Zoo and Aquarium Conservation Strategy (2005) was a new format that utilizes compelling images to reinforce the text, making it more user-friendly for a wider audience. The focus is on conservation action and results. A checklist of Seven Steps to Conservation Leadership was published in 2011–2020

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One month before the public unveiling of Gorilla Forest our marketing team arranged for a local newscaster to accompany a member of our conservation team to Rwanda to film a one-hour TV special on the role of the Houston Zoo in helping to save gorillas in the wild. This programme was broadcast at prime time just one week before the much-anticipated opening. While the TV special helped to increase visitation rates to the new exhibit, its primary purpose was to demonstrate how a visit to Gorilla Forest actually helps to save endangered wild gorillas. Having a popular TV spokesperson confirming this direct connection between animals in zoological institutions and those in the wild is worth more positive PR than money can buy. This is a practical example of how the One Plan Approach should work for every live animal at your institution.

The 2015 Conservation Strategy contains many other great examples of how WAZA institutions have stepped up their conservation efforts. The estimated total amount of conservation funding from WAZA accredited zoos and aquariums is US$350 million a year. This number could easily be over one billion US dollars, if every institution contributed 2–3% of their operating budget or raised an equivalent amount from conservation donors (page 33). One billion US dollars would be far more conservation dollars than by any other conservation organization in the world.

The most successful zoo-and-aquarium-based conservation programmes have formed mutually beneficial partnerships with other conservation-minded organizations to leverage their contributions into much larger packages of support. The European Association of Zoos and Aquaria (EAZA) has developed some very successful conservation campaigns in which all its members can participate. These EAZA campaigns raise several hundred thousand dollars a year for global species conservation. The WAZA Biodiversity is Us outreach project is yet another example of the collective power of zoological institutions to raise awareness, promote action and save animals in the wild (page 45, 47 & 48).

Since the publication of the 2005 Conservation Strategy, zoos and aquariums have dramatically increased our conservation commitments and impacts. That is the good news. However, we are still only performing at a fraction of our potential in terms of conservation of biodiversity. While most zoos and aquariums state ‘conservation’ as their core mission, they have not yet developed business and fundraising plans that allow them to contribute more than one or two percent of their operational budgets to field-conservation efforts. The 2005 Conservation Strategy provides practical guidelines and credible examples of how to increase the intellectual and financial investments in conservation-related activities of your own institutions.

If we can all commit to the principles and guidelines set forth in this Conservation Strategy, and stay the course, we will not only ensure the continuation of our institutions but also the survival of our planet. We may even be able to change the definition of zoos and aquariums. Imagine, a new universally accepted definition of our institutions as ‘places where people come to see and learn about animals, which play a major role in saving populations of species in the wild’.

I hope you find this 2015 WAZA Conservation Strategy both helpful and inspirational.

Finally, this document would never have been possible without the endless hours of assistance from my fellow co-editors (Fiona Fisken, Martha Parker and Markus Gusset) and those other major authors who were critical to the entire process: Jeffrey Bonner, Paul Boyle, Steve Burns, Onnie Byers, Gerald Dick, Lesley Dickie, Suzanne Gendron, Jenny Gray, Herbert Hofer, Susan Hunt, Sonja Luz and Peter Riger. A special thanks goes to Megan Farias of the graphics design department of the Houston Zoo for the incredible artwork, and to both Peter Riger and Martha Parker for final photo selections. As one person stated after reviewing the printed document – ‘congratulations on a powerful and pretty piece of work’.

We extend our grateful thanks to all the sponsors of both the Conservation Strategy and the Animal Welfare Strategy, whose logos appear on the back covers of the documents. Their generous contributions helped to de-fray additional unbudgeted expenses and allowed us to produce publications of the highest quality.

Step 1: Inform
Educate your governing authorities and staff about the status of wild populations of animals on a regular and ongoing basis, and demonstrate how everyone can play a noteworthy role in reversing the declines.

Step 2: Mission
Update the mission statement and strategic plan of your zoo or aquarium to include a declaration that your institution exists for a higher purpose—wildlife conservation; a pledge that your institution will contribute to the effort; a plan for creating a culture of conservation in your staff, communities, governing authorities and donors that gives everyone the opportunity to make a measurable difference.

Step 3: Budget
Assess how much your institution currently spends on field-conservation efforts. Ideally, those streams should be identified and allocated (from operating budgets and events) and externally (visitor, donor or government funded).

Step 4: Revenue
Work with staff to identify dedicated streams of revenue that can be used for field-conservation programmes. Ideally, these streams are generated both internally (from operating budgets and events) and externally (visitor, donor or government funded).

Step 5: Partnerships
Leverage resources by collaborating and partnering with other zoological institutions, conservation organizations, centres of learning, government agencies and high-net-worth individuals that share our passion for animals and conservation.

Step 6: Priorities
Identify and prioritize species which allow you to deliver conservation victories that clearly demonstrate this impact: the animals in zoos and aquariums have on our ability to save their wild counterparts. Connect your animals to field conservation with personal stories of organizational commitment, both financially and with staff expertise.

Step 7: Communication
Develop a communications plan that is positive and proactive about your commitments and actions. Cultivate respected, independent spokespersons to deliver conservation stories to visitors, the greater community and society.
Caring For Wildlife: WAZA’s First Zoo And Aquarium Animal Welfare Strategy

We believe that zoos and aquariums have a responsibility to achieve high standards of animal welfare in support of their goals as modern conservation organisations...

Zoos and aquariums that are members of WAZA should have a continuing commitment to improving animal welfare. That commitment is to:

• Strive to achieve high welfare standards for the animals in our care;
• Be animal welfare leaders, advocates and authoritative advisers; and
• Provide environments that focus on the animals’ physical and psychological needs.

(Extracts from Caring for Wildlife, 2015)

Written over two years, with input from many WAZA members and animal welfare experts, including scientists, academics and animal welfare professionals, Caring for Wildlife is an important step for WAZA.

Significant advances have been made in the knowledge and understanding of animal welfare, and WAZA members, comprising the world’s leading zoos and aquariums, are at the forefront of this important area. This has been highlighted in WAZA’s development of the world-first World Zoo and Aquarium Animal Welfare Strategy, Caring for Wildlife.

Our collective goal as WAZA members to conserve wildlife has been well-reflected in three WAZA strategies produced over more than twenty years (1993, 2005, and 2015). These documents have been influential and continue to be so, not just to WAZA members but more broadly to zoos and aquariums around the world, helping to guide organisations which hold wildlife to make steps towards saving wildlife. This has been significant and is ongoing.

Yet in the animal welfare sphere, WAZA members have taken our animal welfare expertise somewhat for granted. Animal care is a part of our everyday work, and in the main we do it very well; it is core to our operations. We have immense expertise, specialist knowledge and direct high-level practice across a huge range of taxa.

It is now the time for WAZA members to step up – to show our good practice and excellent animal care – to influence, advocate and act – not only in wildlife conservation, but to provide global guidance on zoo and aquarium animal welfare.

Caring for Wildlife has been written with this in mind. It is not only a guide for WAZA members to fine-tune operations and to continually improve, it aims to be a starting point in making a difference for all animals in those many other organisations around the world which call themselves a zoo or aquarium.

This is particularly important given that we now live in an interconnected world and an age of real-time digital communications. A neglected animal in one zoo is quickly broadcast around the world and is a reflection on all zoos; an ill-treated dolphin in one aquarium makes all of our organisations look bad.

WAZA’s Caring for Wildlife contains practical recommendations and also checklists to assist in achieving high standards of animal welfare. Central is the recommendation that zoos and aquariums apply the scientifically based ‘Five Domains’ model to understand, assess and monitor animal welfare. The model is based on four animal physical/functional domains: nutrition, environment, physical health and behaviour, and a fifth domain: an animal’s mental state. These domains frame conditions that give rise to negative and positive subjective experiences that collectively can provide an indication of an animal’s welfare status at a particular time.

Caring for Wildlife also includes recommendations on welfare accreditation, staff awareness, exhibit design and environmental enrichment. It incorporates ways to manage and monitor animal welfare in conservation activities of zoos and aquariums. It advocates that the public communication activities of zoos and aquariums are avenues to promote animal welfare and provide guidance on visitor engagement and on animal interactions.

Recommendations regarding environmental enrichment include using positive reinforcement as an enrichment and training tool and sharing successes and failures to improve knowledge and practice. Conservation-based recommendations include establishing animal welfare as a key component of zoo and aquarium conservation activities and projects supported by your organisation.

Caring for Wildlife also recommends using animal welfare as an instrument for facilitating collaboration within and between organisations. It recommends growing internal expertise, partnering with universities, research bodies and other zoological institutions to further the understanding of animal welfare states and related science.

It is also recommended to actively support, partner or ‘twin’ with organisations that require guidance to improve animal welfare. This can be through staff exchanges, training opportunities, exchanging knowledge, or providing or helping to secure funding grants.

In summary, Caring for Wildlife aims to provide guidance on establishing and maintaining good animal welfare. It outlines the animal welfare measures and conduct expected from WAZA members and also supports the ongoing evolution of positive animal welfare within the wider zoo and aquarium community.

I acknowledge and thank co-editors Professor David Mellor of Massey University and Dr Markus Gusset of the WAZA Executive Office, as well as the many chapter contributors and those who kindly read Caring for Wildlife during its development. I also acknowledge and thank Professor Joerg Junhold Director of Leipzig Zoo and previous WAZA President, whose vision it was to initiate WAZA’s Caring for Wildlife.

CITES, animal welfare and animal rights

The issues of animal welfare and animal rights can generate a lot of media attention, especially regarding charismatic CITES-listed animals, both through traditional and social media. We saw this most recently with the extraordinary global media attention surrounding the killing of a male African lion in Zimbabwe that was given the name Cecil. This is one area where national, rather than international law sets the rules and as such it varies considerably from one State to another – noting that the issue of animal rights is related – yet distinct from animal welfare.¹

CITES was the first, and possibly remains the only, global legal instrument to address animal welfare,² while noting some issues have been considered by the World Organization for Animal Health (OIE) and that several other conventions have adopted certain resolutions that relate to aspects of animal welfare.

The animal welfare provisions under CITES are specific and targeted. They address the transport of live animals so as to minimize the risk of injury, damage to health or cruel treatment; ensure the suitability of places destined to receive live animals (Res. Conf. 11.20), including rescue centers. Guidance on meeting these CITES obligations have been provided by the Parties in some instances, such as through the guidelines on the transport of live specimens (Res. Conf. 10.21 (Rev. Cops16)). However, to date, States have considered that most animal welfare issues should be addressed through domestic law rather than international law and there is currently no global treaty governing either animal welfare or animal rights, although efforts have been made by some NGOs in this regard. It is perhaps partly for this reason that CITES has been used as a forum for the expression of a wide range of differing and passionately held views on international trade in wild animals, including on particular trade transactions, whether all of the actions sought by various actors fall under the current mandate of CITES or not.

And CITES is possibly the only global forum in which we see experts and advocacy groups from such a wide range of perspectives – conservation and sustainable use, trade, development, livelihoods, animal welfare and animal rights – come together in one place to discuss, and contribute to the making of decisions and recommendations on such issues, which is a great strength of CITES.

In this context, it is worth noting that CITES does not prevent countries from taking measures that go beyond what is agreed through CITES, which are known as stricter domestic measures. Such measures do however need to be consistent with a country’s obligations as a member of the World Trade Organization.

CITES and illegal trade in wildlife – when international trade is illegal

CITES regulates international trade in CITES-listed wildlife, and this involves addressing both legal and illegal trade. For domestic or international trade in wildlife to be described as illegal or as “illicit wildlife trafficking”, which is often used to refer to illegal trade, it must contravene either domestic or international law (or both).

CITES obliges States that are Party to the Convention (inter alia) not to trade in listed species other than in accordance with the Convention, to take appropriate measures to enforce the Convention and to prohibit trade in violation thereof, including measures to penalize such trade.

Consequently, illegal trade, or “illicit wildlife trafficking”, under CITES includes trading commercially in wild-taken specimens of Appendix I listed species and failing to obtain, or to follow the conditions within, the necessary permits or certificates to trade in Appendix I, II or III listed species, as well as the illegal possession of specimens illegally imported or otherwise acquired.

The scale of illegal trade in wildlife and the international response

Leaving aside timber and marine products, it is estimated that the annual value of wildlife crime is up to USD 20 billion a year ranking it amongst other serious transnational crimes such as the trafficking in people and arms. Let me share just three examples to illustrate the scale of the illegal taking that feeds this illicit trade:

• The poaching of African elephants and the illegal trade in their ivory is one of the most noticeable and destructive forms of wildlife crime. Over the period 2010-2012, an estimated 100,000 elephants were poached for their ivory. In some regions, such as Central Africa, killings far exceed births, putting regional populations at imminent risk of extinction.

• The recovery of the White rhino is a great conservation success story, mainly due to the efforts undertaken in South Africa, but these gains are now under threat. Poaching was well under control up until 2007 when only 13 rhinos were poached. Since that time we have seen a rapidly increasing level of poaching, which reached a high last year with 1,215 rhino poached in South Africa alone for their horn.

• And these crimes are not only affecting iconic species that we all know well. Lesser known species such as the pangolin, a small ant eater living in Africa and Asia, are being poached at a massive rate for their scales and meat, with 20 tonnes of pangolin meat being recovered in just one customs seizure – that is the equivalent of 130 people of my weight.

¹ In particular: national authorities being satisfied that “any living specimen will be so handled and shipped as to minimize the risk of injury, damage to health or cruel treatment”; the proposed recipient of a living Appendix I specimen to be imported or taken from the high seas “is suitably equipped to house and care for it”; any living Appendix II specimen taken from the high seas “will be so handled as to minimize the risk of injury, damage to health or cruel treatment”; during any period of transit, holding or shipment, living specimens “are properly cared for so as to minimize the risk of injury, damage to health or cruel treatment”; designated rescue centers are able “to look after the welfare of living specimens, particularly those that have been confiscated”; and trade in certain live animals is only to “appropriate and acceptable destinations.”

² While there are many definitions, perhaps the primary distinction between the two is that animal welfare accepts the responsible use of animals to satisfy certain human needs, whereas animal rights does not, with animals themselves having rights that must be respected.

© Gerald Dick
White rhino at Lisbon Zoo.
While combating illicit wildlife trafficking presents major challenges, the positive news is that there is a global collective effort underway to combat it and we are witnessing encouraging progress both at national and international level in response to the changing dynamics of these highly destructive crimes, some aspects of which I will highlight.

The 2012 UN Conference on Sustainable Development, whose outcomes were endorsed in a resolution of the UN General Assembly, explicitly recognized the “economic, social and environmental impacts of illicit trafficking in wildlife, where firm and strengthened action needs to be taken on both the supply and demand sides” and has emphasized “the importance of effective international cooperation among relevant multilateral environmental agreements and international organizations.”

This message was powerfully reinforced in July when the UN General Assembly unanimously adopted a resolution on “Combating Illicit Trafficking in Wildlife”, being the first dedicated resolution on the topic adopted by the UNGA. This resolution was the culmination of several years of increasing political attention being paid to the devastating impacts of illegal trade in wildlife.

These resolutions, and those taken by CITES and others, recognize that illicit wildlife trafficking increasingly involves transnational organized crime and in some cases rebel militia and rouge elements of the military. This has changed the dynamics of combating this highly destructive criminal activity, in particular as it relates to some charismatic species, such as elephants and rhinos.

As a result, the importance of treating certain illicit wildlife trafficking as a serious crime has been recognized by the UN General Assembly and others along with the need to combat corruption. The need for States to engage with Customs, the police, rangers or inspectors, the judiciary, and sometimes the military to implement CITES effectively is also recognized, which may necessitate intervention from the highest political level.

The UN General Assembly, CITES Parties and others have recognized the need to ‘mainstream’ wildlife crime in calling for all States to consider becoming Parties to the UN Conventions against Corruption and Transnational Organized Crime. As a consequence, international organizations that deal with Customs, the police, the judiciary, and related conventions dealing with corruption and transnational organized crime, become an essential part of the architecture for implementing CITES and combating illicit wildlife trafficking. The ultimate objective is for such entities to include the combating of illicit wildlife trafficking in their core programmes and as a part of their daily work.

We have also seen the United Nations Security Council adopt two Resolutions on UN sanctions targeting armed groups in the Central African Republic and the Democratic Republic of the Congo financed by the illegal exploitation of natural resources, including poaching and illicit wildlife trade. Individuals or entities involved will be subject to travel bans and asset freezes. Such measures are critical when dealing with States where there is a breakdown in law and order and where armed groups are operating.

The role of International and national law in combating illegal trade in wildlife

While CITES includes enforcement-related obligations, and many other international agreements address such issues, law enforcement is a domestic responsibility and current international efforts are focused on strengthening cross-border cooperation amongst source, transit and destination States, as well as supporting relevant bilateral, regional, and cross-regional enforcement efforts. The benefits of this collaboration across source, transit and destination States are now increasingly evident—such as the excellent results achieved through Operation Cobra III, the largest ever joint enforcement initiative undertaken earlier this year between 62 States across Asia, Africa, Europe and North America.

Some academics and non-governmental organizations have called for international enforcement powers to combat illicit wildlife trafficking. This could only occur under the existing international legal regime if the jurisdiction of the International Criminal Court were expanded to cover illicit wildlife trafficking.

To do so, such offences would, however, need to be regarded by the international community as one of “the most serious crimes of concern to the international community as a whole”, such as the crime of genocide, and included in the Rome Statute of the International Criminal Court. It is highly unlikely that such a step will be taken, at least in the foreseeable future.

As is referred to earlier, CITES does however have compliance processes and compliance measures have been taken in the past where there has been a sustained failure to enforce the Convention at the national level. The ability to take such international compliance measures, as a last resort, is not found in many international instruments, and it is a reason why CITES is often described as a Convention “with teeth.”
When animals for exhibit, breeding and/or interpretive program purposes cannot be sourced from other zoological institutions, zoos in the United States very rarely participate in the direct collection of specimens from the wild. Instead, they rely upon importers and animal dealers to provide the animals they desire. Relying upon such commercial sources, while mitigating costs relative to staff time and logistical planning, may also be influenced by the presumption that outside sources could accomplish the importation of wild specimens through established (presumably efficient) processes. This presumption may be unfounded.

The Pangolin, Aardvark and Xenarthra TAG (PAX TAG), a taxon advisory group of the Association of Zoos and Aquariums (AZA), has monitored data on the commercial trade in associated taxa since 2000. While the original intent had been to simply assess the potential availability of various species as it considered the TAG’s ability for building sustainable populations of 200-held species, the data raises questions about the volume of the commercial trade in xenarthrans and the disproportionately small percentage of imported specimens that ultimately appear within managed zoological collections.

Wildlife and wildlife products legally imported into the United States must be declared at their port of entry through the filing of a Form 3-277, Declaration for Importation or Exportation of Fish or Wildlife. Information from these forms is entered into the US Fish and Wildlife Service (USFWS) Law Enforcement Management Information System (LEMS) database. Through a Freedom of Information Act (FOIA) request, USFWS provided the data to PAX TAG on the number of pangolins, aardvarks and xenarthrans declared to be imported into the United States from September, 2000 until September, 2015. The data relative to the importation of tamanduas were analyzed in detail, as trade in this species had become, at least anecdotally, a topic of concern.

The LEMS data related to tamanduas (both Tamandua tetradactyla and T. mexicana) were sorted so that individual animals that were exported and subsequently re-imported (for short-term purposes, such as public appearances and marketing promotions) were eliminated from the data set, as were individuals that passed through a given US port “in transit” to a different international destination. There were very few individuals (n=3) identified by importers as Tamandua mexicana, and one animal that had been identified only to the genus level. These animals were deleted from the dataset as they did not contribute to the overall findings of the investigation.

Information from the US regional studbook for southern tamandua (Tamandua tetradactyla) was compared to the data for the past 15 years that resulted from a global taxon report generated via ZIMS, the Zoological Management Information System, a product of ISIS. This process validated the completeness of the studbook data at least in relation to those institutions in the US that are ISIS contributors.

The challenge in assessing the role of zoos relative to the larger commercial trade in wildlife lies in the nature of the three datasets that have to be reconciled. LEMS data is a comprehensive compilation of legally imported animals, but often non-specific about individual importers in as much as the names of these individuals are sometimes redacted in the reports provided under FOIA. Furthermore, animals that are acquired by importers often remain within their facilities until sold, often via intermediaries. Thus, there is no direct connection of individual animals that were acquired by importers and the zoos in which they ultimately may appear.

ZIMS data is a detailed picture of the collections of those institutions that participate in the reporting to ISIS, but this is not an all-inclusive list of zoological facilities. In addition, reporting institutions will often generalize non-zoo sources of animals as “PUBLIC” or “PRIVATE.” Studbook data can address a broader set of participants, but seldom reflects specimens held by private individuals or dealers. While it is known that tamanduas sometimes appear in the pet trade in the US, an objective assessment of the number of pet tamanduas is lacking.

Analysis and cross-referencing of the three data set reveals that 383 tamanduas were declared to be imported into the United States over the past 15 years. In striking contrast, only 50 wild-caught imports entered the studbook population over the same timeframe. Through both imports and captive births a total of 148 tamanduas passed through the studbook population during the period examined. Of these, 63 were zoo-born specimens, leaving 85 individuals that were either acquired from known importers, acquired from intermediaries, or acquired as captive born specimens from non-zoo sources.

Even if all of this latter group were to have actually been imported individuals, the total commercial trade in this species in the US would be seven-fold the number of individuals that appear in zoos that participate in collective management strategies. This suggests the conclusion that the number of tamanduas actually acquired by cooperating zoos is relatively small (~14%, 6%) in respect to the total volume of US trade in the species. Nonetheless, the contribution of non-zoo sources to the North American managed tamandua population has been significant.

Three importers alone accounted for minimum of 339 acquired during the timeframe evaluated (58.3% of the total number of imported tamanduas). Of these, only 46 are directly traceable to those importers although, through intermediaries and captive breeding, the number of tamanduas those three importers supplied to the studbook population could be as many as 81 (13.6% to 23.9% of the total they imported).

The fate of the imported animals that do not appear in the studbook remains a question. The few tamanduas that were directly imported by zoos, or acquired through small importers that have close ties with zoos, have seemingly good survival rates. As previously acknowledged, it is known that some pet tamanduas exist in the United States. However, if there were truly a large-scale pet trade in tamanduas, the frequency with which former pets (having been relinquished by their owners) appeared in zoological collections would be expected to be greater than is evident. This is the pattern seen with many other exotic pet species, such as kinkajous, coatimundis, and even primates. The former pet tamanduas would appear as originating from “unknown” sources and thus would comprise a subset of some 35 animals that are not directly traced to zoos or specific importers. Anecdotal evidence would seemingly suggest that private entities (other than those that would report them to the studbook keeper) only rarely hold tamanduas. Informal inquiries of non-traditional zoos (“rescue zoos”) failed to identify any former pet tamanduas entering their collections.

...the contribution of non-zoo sources to the North American managed tamandua population has been significant...
Tamanduas can prove to be challenging to care for. Dietary issues and related nutritional disorders are matters that often undermine the species’ ability to thrive in captivity. Behavioral and spatial requirements can also make tamanduas ill-suited for the novice caretaker. Nonetheless, there is a consistent trend of increase in the commercial importation of tamanduas, and this trend is increasing slowly but exponentially. (See graph.)

A collaborative campaign of the IUCN SSC Anteater, Sloth and Armadillo Specialist Group, the Pangolin, Aardvark and Xerantrha TAG, and the Southern Tamandua Species Survival Plan has recently been undertaken to discourage the pet trade in tamanduas. Funded by the Reid Park Zoo (Tucson, Arizona), 300 posters were printed in each of three languages (English, Spanish and Portuguese) and distributed at the 22nd congress of the ALPZA (Asociación Latinoamericana de Parques Zoológicos y Acuarios) that took place in June, 2015.

In October, 2015 there was a workshop on the Nutrition of Insectivorous Mammals sponsored by Busch Gardens (Tampa, FL) and the San Antonio (TX) Zoo at which new approaches to feeding of myrmecophagous mammals were discussed. While advances are being made to better the husbandry of xenarthrans under the care of zoo professionals, the degree to which the survival of tamanduas in enhanced while in the possession of importers and pet owners is yet to be seen.

Persons responsible for zoo animal acquisition decisions are encouraged to carefully consider the sources of their collection animals. Large-scale importers may be driving a demand in exotic species that is much greater in volume than that which serves the zoo community itself. By resorting to the expediency of purchasing animals from commercial entities, zoos may be having much larger indirect toll on wild populations than would be immediately apparent. This is not a circumstance limited to tamanduas. A preliminary assessment of data relative to Linne’s two-toed sloth, Choloepus didactylus, would indicate that that species is subject to at least 50% more commercial trade, with equally poor representation in the managed population.

Those zoos already in possession of captive xenarthrans are encouraged to help build a sustainable captive population through breeding the respective species, as well as to stay abreast of developments in the husbandry of the taxa.

Our zoo and aquarium industry clearly prioritizes captive breeding as the most sustainable and environmentally benign way to source specimens for our exhibits, and certainly for the pet trade. However, Wild capture of live fishes for public aquariums and the home aquarium hobby can, in cases, go far beyond “sustainable”. In fact, wild capture fisheries can even result in an overwhelming benefit for the environment and people living in areas of biological importance. Zoos and aquariums should be leaders in showcasing these examples through our exhibits.

There is a particular example in Brazil’s Rio Negro basin, which has been elucidated and studied by Project Piaba. Here, aquarium fish can be collected in very high volumes (40,000,000+/year) and still result in negligible, if any, negative impact on the long term stability of the wild stocks. Interestingly, while the fish stocks are extremely resilient during natural environmental cycles, they are very sensitive to longer environmental disruptions such as those resulting from environmentally destructive practices. In the Barcelos region of the Rio Negro, exports for the global aquarium trade represent at least 60% of the cash income for the area, and provide the basis for the majority of livelihoods for the people. Since the fishery is of such importance to the residents, there is a very powerful and effective driver of environmental stewardship ingrained in the local culture. If one were to visit the town of Barcelos (the hub of the regional fishery) and introduced themselves as an assessor for a timber or mining company planning to move in to the area, that person would very likely have a very uncomfortable day.

The benefit from the protection of the fishing communities is not limited to the species being selected for capture and export. In order to maintain a long lasting and robust aquarium fishery, the entire ecosystem must be safeguarded, and that is exactly what has been happening in Barcelos for more than 60 years. Pink river dolphins, macaws, monkeys (and many other IUCN red listed species) all benefit by having the habitat that they depend on protected by the fishing communities. The very high quantity of carbon locked in the giant trees of the Amazon remains sequestered in these protected areas and the tropical forest continues its atmospheric scrubbing processes. The fishing communities have a lasting source of cash income alleviates poverty and assures them that they will be able to feed their children today and in the days to come.

Project Piaba did not conceive of nor initiate this model. The positive relationship between the fishery, forest, forest-dwelling communities and the fish trade was in place when Project Piaba researchers first visited the area. However, it quickly became apparent that this interdependent system could be very powerful. With such encouraging findings related to the Brazilian case, it was natural for the conservation community to gain interest in aquarium fisheries as a mechanism for environmental protection and poverty alleviation. The IUCN Freshwater Fish Specialist Group has since established the Home Aquarium Fish Sub-group (HAFSG).

The HAFSG developed several goals, which include:

• To identify, validate, and promote the conservation and wise management of wild populations of tropical fishes that are part of the home aquarium trade, as well as the ecosystems where they are found.

• To support sustainable, socioeconomics, and environmental benefits for home aquarium fishing communities, especially living in regions of biological importance.

• To develop and implement solutions that result in the most robust market for home aquarium fish that result in sustainable protectionism, poverty alleviation, and climate stability.

The HAFSG is currently developing a white paper which will list a variety of examples of where the aquarium trade currently results in environmental and socioeconomic benefits. It will also highlight regions where fisheries could reasonably be adapted to result in environmental benefits and areas where the aquarium trade could be considered as part of a conservation strategy.
One of the intended applications of the HAFSG white paper is for use by zoos and aquariums, to help develop exhibits that engage and inform our visitors. Our visitors often have a very profound experience as a result of our compelling programs and live animal displays. By the mere action of choosing to visit a zoo or aquarium, our visitor population is a self-selected group, which is disproportionately inclined towards environmental concerns.

In a soon-to-be-published study of visitors to public aquariums in the US, surveys have indicated that nearly one third of our visitors are active in aquarium fishkeeping. The home aquarium hobby in turn, provides the economic support for a system which results in acts of desperation and environmental destruction? The good news is that trade can help alleviate poverty and food security drives of poverty alleviation and environmental stewardship.

So many of the conservation challenges that we face seem to be beyond our control, and it is difficult at times to maintain hope. We often find ourselves asking, how can we foster responsible home fishkeeping? Either way, this topic is quite pertinent to our guests and relevant to our exhibit choices.

Zoos and aquariums have the power to exhibit wildlife in compelling ways. By showcasing and promoting home aquarium fish that have been sourced from places like Brazil’s Rio Negro, we can also foster responsible home fishkeeping. The home aquarium hobby in turn, provides the economic support for a system which results in poverty alleviation and environmental stewardship.

Thomas Ziegler
Cologne Zoo, Germany

Thomas became curator of the Aquarium/Terrarium/Insectarium Department of the Cologne Zoo in 2003; he is also the coordinator of the Cologne Zoo’s Biodiversity and Nature Conservation Projects in Vietnam and Laos. Thomas is member of the IUCN/SSC Amphibian Specialist Group, within the Mainland Southeast Asia Region, and of the Crocodile and Monitor Lizard Specialist Groups. Furthermore, he is European Studbook keeper for the Philippine crocodile. Thomas has studied biology at the University Bonn (Germany), and conducted his diploma and doctoral thesis at the Zoological Research Museum Alexander Koening in Bonn, with focus on zoological systematics and amphibian and reptile diversity. Since 1997 he has been involved in the discoveries and descriptions of S. reptile, nine amphibian and one mammal species, mainly from South East Asia. Thomas has published more than 330 papers and books. As a zoo curator and project coordinator he tries to combine in situ and ex situ approaches, viz., to link zoo biological aspects with diversity research and conservation, both in the Cologne Zoo, in rescue stations and breeding facilities in Vietnam and in Indochina’s last remaining forests. Since February 2009, Thomas has been an Associate Professor at the Zoological Institute of Cologne University.

WAZA: How do you manage to combine your professional duties at Cologne Zoo with your academic commitments and field work?

T.Z.: Yes, actually these are several jobs, which I have to balance: the work as curator, the university courses and the research, and finally the project activities, which are not easy to combine. Here, mainly team works and logistics are important. Because I am working in Vietnam since 1997, and have developed a stable network together with very engaged and close partners, under the leadership of Dr Truong Quang Nguyen from the Vietnam Academy of Science and Technology, it is possible to reduce my on-site project work to a few weeks per year. Apart from that the continued, nearly around the clock e-mail communication with Vietnam is crucial to keep the projects running. Important to me is also the bilateral exchange at the same eye level; hence, we also have frequent guest visits from Vietnam and Laos, either project partners, students or keepers from the stations which we have jointly built up and developed. It goes without saying, that research and paper writing, but also the supervision of students goes far beyond working hours, often at night and during weekends. Also the constitution of an excellently matched and regularly communicating team was crucial, both in my department, where the keepers outstandingly support me, and in the team of students; currently, in our international working group, we have four herpetological Ph. D. students in Cologne, six in Vietnam and one in Laos. Mostly courses take place in the lecture room in my department so that I am directly on site and within reach which makes it easier to combine my academic commitments with the professional duties.

Furthermore, we can conduct conservation based ex situ research directly in the zoo with species for which we are also engaged in the field. That’s because we have built up a focus on South East Asia in the terrarium section; currently we are building a crocodile lizard research and breeding compartment, and perform larval developmental studies directly in our amphibian breeding facilities, which we have built up in recent years. And last but not least I am supported and encouraged by my directors Theo Pagel and Christopher Landsberg to continue with teaching, research and conservation activities.
There are meanwhile four student courses every year in Cologne, and an additional one in Bonn, which I already run since 19 years. We can pass on our ideas and experiences in zoology and biodiversity conservation, to a new generation. I am also glad to see that some of my former students on their part could fill vacancies for example in nature conservation authorities. In particular I am happy that we recently also could establish student courses in Vietnam, namely a weeklong course in Hanoi and a one day course in Ho Chi Minh City, so that we directly can build up young academics on site in our project partner country. More than 100 students annually participate in our courses, some write their theses in the zoo or in the external projects, through which we achieve an increased scientific output by means of publications. For example, only based on our Philippine crocodile husbandry, so far six theses could be implemented at Cologne Zoo. By doing so, data on the social, reproductive and space use behavior of that endangered crocodile species could be obtained.

Generally, I try to develop research topics, which are also of relevance for the zoo. For instance, in the context of genetic screening we could proof for the first time the existence of the recently revalidated Northwestern Nile crocodile in a European zoo. Subsequently, previously wrongly identified Nile crocodiles could be identified, and by doing so a basis for a potential breeding project could be set up. Furthermore, some of the newly recorded or described species during our field work could attract attention for nature conservation. For instance, we could prove the occurrence of the crocodile lizard in Vietnam for the first time in 2003 and subsequently, based on our field research and first population assessment the species was added to the IUCN Red List. We are also engaged in environmental education programmes, in building conservation breeding programmes and in pushing for improved conservation measures. Our ecological field research also has revealed that some of the hitherto known husbandry parameters have to be changed. By doing so, research directly adds to towards improved husbandry and thus is of use for the zoo community.

How does Cologne Zoo emotionally and intellectually connect its visitors to your field work?

We refer at different places in the Cologne Zoo to our research and nature conservation activities in Indochina. For example there is a Vietnam presentation in the terrarium section with large mixed rainforest consisting of panels and posters. In particular in the terrarium section we develop since years a focus on South East Asia and try to display attractive, little known and often threatened species like the only recently discovered Quince monitor lizard, where we could achieve the first breeding success in a European Zoo and the first F2 breeding of the species in general. We also closely cooperate with the authorities and could accommodate diverse species from confiscations, which we subsequently try to breed and study, for example the enigmatic Blue tree monitor. Generally, our visitors are informed by a new signposting system. Topical offspring in the terrarium section are shown in a special offspring exhibit, like currently froglets of the helmeted toad, a threatened species listed in the Red Data Book of Vietnam. At the occasion of special events, such as the zoo day or the long night in the Aquarium, our visitors also can directly ask questions to the zoo team and gain special back-stage insights. Beside guided tours and talks, we also regularly provide detailed information through reports about our activities and projects, for example in the Journal of the Cologne Zoo. The public is also informed through regular press reports, for example about topical breeding successes, but also TV documentations such as currently “Theos Tierwelt” which also introduces aspects of the German-Vietnamese nature conservation project.

The revised World Zoo and Aquarium Conservation Strategy has a stronger focus on field conservation. Some zoos and aquaria claim that by breeding animals and educating visitors, they are already doing enough for conservation, without the need to get engaged in field conservation. What is your view on that?

Of course, zoos are important windows to nature to show the visitors the fascinating species diversity, but also have to point to its preservation. Conservation breeding programmes are also important, but if we do not succeed to conserve species in their biotope or rather fail to preserve the natural habitats, then all becomes absurd. I believe, every zoo should decide according to its scope. One option can be to acquire funds for conservation, another is personnel commitment, for example an e-mail advice sent to a help seeking station overseas. Due to our long-time contacts in Vietnam and the existing network, we can directly interfere and cooperate on site. That way we provide our knowledge in terms of setting and development of rescue stations and of conservation breeding projects, like it is currently happening for the Psychedelic rock gecko in Wildlife at Risk’s Hon Me Rescue Station in South Vietnam, coming along with corresponding staff training, as we just recently have also implemented in the reptile house of the Saigon Zoo.

In your experience, what does it take to create a culture of conservation in a zoo or aquarium, as called for in the revised World Zoo and Aquarium Conservation Strategy?

Well, next to in situ engagement zoos and aquaria also can directly contribute in their institutions, beyond current ESB’s and EEP’s. In particular in herpetology, common species could be replaced by poorly known and threatened species. Here individuals rescued from confiscations could be the founder of a breeding project. We just recently received confiscated Antaresia pythons, which could not be properly identified by morphology alone; after genetic analyses they all proved to be Stimson’s pythons which we subsequently could breed (to our knowledge for the first time in a European zoo) to provide offspring to interested zoos. Generally, exchange of keeping parameters and publication of breeding successes is important, so that we can learn and benefit from each other, share bred individuals, and by doing so contribute to the reduction of wild caught amphibians and reptiles in zoos. In the last year we could help the authorities to temporarily house confiscated wild-caught Jewelled geckos, which subsequently were returned to their home country – the first overseas repatriation of a poached living animal species to New Zealand. That was from our point of view a great message for species conservation and at the same time shows that zoos themselves can play an important role in wildlife rescuing. At present, together with TRAFFIC and WWF, supported by the Federal Agency for Nature Conservation, we try to develop a study to receive evidence for the scientific proof of the origin of reptile skin from the trade. Generally, nature and species conservation can be implemented in a varicoloured way, it only has to be done.

How does Cologne Zoo benefit from your activities outside the zoo, both academic and in the field?

Generally, I try to develop research topics, which are also of relevance for the zoo. For instance, in the context of genetic screening we could proof for the first time the existence of the recently revalidated Northwestern Nile crocodile in a European zoo. Subsequently, previously wrongly identified Nile crocodiles could be identified, and by doing so a basis for a potential breeding project of this poorly known species could be set up. Furthermore, some of the newly recorded or described species during our field work could attract attention for nature conservation. For instance, we could prove the occurrence of the crocodile lizard in Vietnam for the first time in 2003 and subsequently, based on our field research and first population assessment the species was added to the IUCN Red List. We are also engaged in environmental education programmes, in building conservation breeding programmes and in pushing for improved conservation measures. Our ecological field research also has revealed that some of the hitherto known husbandry parameters have to be changed. By doing so, research directly adds to towards improved husbandry and thus is of use for the zoo community.
In the spirit of the One Plan Approach, as propagated in the revised World Zoo and Aquarium Conservation Strategy, how could we better integrate the conservation of wild-animal populations managed in human care with those in the wild?

Herpetologically thinking, I immediately come here to amphibians. Of the worldwide more than 7,000 recognized species, about one quarter is data deficient which means we only know that these species do exist. Here, more field research is crucial, but also in zoos we have a chance to find out more, for example about husbandry and the factors that trigger reproduction, or the early developmental and larval stages, which would be difficult in the wild due to the rarity of taxa or difficult accessible habitats, on the other hand reserve populations can be built up, also for potential subsequent relocations or releases. In this context another example comes to my mind, which I am very pleased about, and which underlines the potential of zoos and zoo stock for species conservation.

In the course of our diversity research in Laos we recently have discovered a previously unknown Siamese crocodile population in a province, where the species was thought to be extinct. We just lobbyed with the local partners and authorities for the establishment of a protected area in this site, where the endangered species has survived. But because the population apparently consists of only few remaining individuals, genetically screened, purebred surplus individuals from zoo stocks could in fact help to restock the natural population and keep it viable.

Ted A. Beattie
President and CEO – Shedd Aquarium

35 Years Have Flown By Like an Instant

It’s bittersweet to think that over 35 years in the zoo and aquarium community have flown by in what seems to feel like an instant, having had the honor of spending the past 21 of those years as President and CEO of Chicago’s Shedd Aquarium. Though I will be stepping down in the coming year, I’m filled with a sense of ease knowing the next generation of our leaders and conservation stewards are poised to propel the zoo and aquarium community forward. I’d be kidding myself if I didn’t also admit that feeling is coupled with a growing sense of anticipation for the next chapter in my life, that will not include the familiarity of walking through Shedd’s doors every day as has been my routine for more than two decades.

From there, I took a job at the Chicago Zoological Society’s Brookfield Zoo in a marketing capacity, and we launched our first Holiday Magic and Boo! At the Zoo programs, turning them both into annual traditions that would allow generations of families to come together to connect with animals. At Brookfield, I also oversaw the opening of Seven Seas Panorama, its $13 million dolphin facility. This experience would pave the way for my eventual role at Shedd and for my participation in various marine mammal conservation efforts.

It was also during this time that I traveled extensively to Africa with many of the zoo’s supporters, and saw animals up close in the wild. Of course, I had always understood the value of encounters with animals as a way to encourage people to care about their protection, but it was here where that message truly resonated on a personal level. These trips would lay the foundation for making conservation the driving force behind every part of Shedd’s mission.

I held two zoo director positions – first at Knoxville Zoo and then at Fort Worth Zoo – before returning to Chicago to begin my tenure at Shedd. I vividly remember driving up alongside the aquarium on the eve of what would be the first day of an amazing 21-year journey, pulling over to a parking spot where I could see the entire building. I just pinched myself – I couldn’t believe that I would be walking through those celebrated doors the very next day as the aquarium’s President and CEO, succeeding only two others before me. That feeling of excitement would not soon wear off.
On my first day on the job, John Shedd Reed—the grandson of John G. Shedd after whom the aquarium is named, and Chairman of the Board of Trustees at the time—walked into my office and challenged me to “get more science and education into this building.” I remembered my promise to myself after returning from Africa and how imperative I knew it was for people to connect their visit to the aquarium with global conservation efforts. It was a lofty assignment to receive on my first day, and I’m proud to say we’ve made great strides in providing both formal education opportunities and achieving a portfolio of 18 field research programs. These programs span the globe, from preserving and understanding seahorses in Asia to helping the Bahamian government establish protected park areas for Bahamian rock iguanas, one of the world’s most endangered lizards. It was because of this that I was appointed by U.S. President George W. Bush to the 16-member U.S. Commission on Ocean Policy in 2001, where we crafted the national strategy on a range of issues from stewardship of marine resources and pollution prevention, to enhancing and supporting marine science, commerce and transportation. It remains one of the highlights of my career.

I worked closely with John Reed in that first year, who not only served as Chairman of the Board, but was also an executive at Santa Fe Railway with headquarters across Grant Park on Michigan Avenue. One day, I was looking out my office window, which at the time overlooked the front steps of the aquarium. Chicago was blanketed in snow after another winter storm and there was not a soul in sight … except a bundled John Reed, who was then 85 years old, trudging through the sheets of white up the steps into his beloved aquarium, ready to do more to save the species of the world. His passion and commitment served as an example for me and why I also wanted to make Shedd a place all employees wanted to come to every day.

Looking back, I’ve often been asked what I believe has made Shedd so successful. The answer is simple: it’s our people. I found that stepping aside and letting people tinker on their own often yields amazing results. This approach also allows space to build upon employees’ skills, which has made Shedd a positive work environment and an enriching one where people not only grow, but thrive. I’m extremely proud of the individual and talented staff members who have left Shedd to lead other reputable institutions. In this way, I feel I’ve helped fulfill the growth in the next generation of leaders.

In addition to the joy of watching Shedd’s staff flourish, I’ve also enjoyed 15 years of teaching management courses as part of professional management schools for the Association of Zoos and Aquariums (AZA), and most recently, created AZA’s Executive Leadership Development Program. This is another way I’m paying back Ed and others for their years of mentorship, as I help prepare the next generation of executive leaders to successfully advance the global zoo and aquarium community for the future.

It has been a privilege to lead and work alongside the thousands of staff, trustees, volunteers, researchers, educators and others who have dedicated their lives to animals and inspire the 700 million people who visit accredited zoos and aquariums worldwide each year to learn and care about them both at places like Shedd and in the wild. It is they who have made Shedd “the friendliest place in town” and it shows. Shedd has been honored to be recognized as the top paid cultural attraction in Chicago 17 out of the last 21 years, with total attendance during my tenure reaching more than 33 million guests.

From my first day at Cincinnati Zoo to my last day at Shedd, there has been considerable and significant change within the zoo and aquarium community. Through it all, it has been a great honor and pleasure to work with my WAZA and AZA colleagues to ensure our community remains relevant and successful, and most importantly, effectively delivers on our collective missions of educating people and saving animals and protecting ecosystems. As I move on, I remain hopeful for the industry to continue to cultivate and inspire new leaders. The future of our world depends on them.

…how imperative I knew it was for people to connect their visit to the aquarium with global conservation efforts…
Gerald Dick – WAZA Executive Office

Handbook of the Mammals of the World. Vol. 5: Monotremes and Marsupials
Edited by Don E. Wilson & Russell A. Mittermeier

The Handbook of the Mammals of the World is published in association with Conservation International and the International Union for Conservation of Nature (IUCN). This fifth volume provides complete coverage of two important groups of mammals kept in human care: monotremes and marsupials.

A quote from Charles Darwin illustrates the strength of emotions: “I put my face close to the thick glass-plate in front of a puff-a-dadder in the Zoological Gardens, with the firm determination of not starting back if the snake struck at me; but, as soon as the blow struck, my resolution went for nothing, and I jumped a yard or two backwards with astonishing rapidity. My will and reason were powerless against the imagination of a danger which had never been experienced.”

A thorough analysis of zoo emotions of various kinds based on sources of some of the big zoos in Germany in the wider context of history and psychology.

Many thanks to all who made it possible to get this important message shared throughout the countries in which tamanduas naturally range. Aside from the great potential that this effort has shown in terms of sharing awareness about the trade, it has demonstrated the power of collaboration between an individual zoo, the Pangolin, Aardvark and Xenarthran TAG, the IUCN Anteater, Sloth and Armadillo Specialist Group and an international zoological association.

When the 22nd congress of the ALPZA (Asociación Latinamericana de Parques Zoológicos y Acuarios) was held at the Córdoba Zoo in Argentina, from June 1 through 5, over 300 participants attended. Again, through the generosity of the Reid Park Zoo, the “Save a Life: Leave tamanduas WILD” posters were printed in Spanish, Portuguese and English (in paper and vinyl) so that they could be distributed to the attendees. They were a huge success and were featured prominently during the conservation session. Participants were invited to support the campaign by exhibiting the posters in their zoos and at least one pledged to frame the poster and hang it up near their tamanduas exhibit. All but a few of nearly 500 posters made their way back with the attendees.

The SSP has made this poster freely available to anyone who wishes to share or distribute it. Full-sized, high-resolution versions of the poster (for printing purposes for example) are available in English (28 MB), Spanish (30 MB) and Portuguese (29 MB), and can be downloaded here:

The SSP Working Group on Threatened Species (the SSP’s Education Advisor) and the IUCN Anteater, Sloth and Armadillo Specialist Group (ALPZA) have adapted to an amazing diversity of lifestyles and habitats. Lavishly illustrated with colour photographs showing different behaviours of all of them, the text contains the latest up-to-date information on all 22 families in eight orders of monotremes and marsupials, both Australasian and American. The book contains 44 colour plates, 737 colour photographs and 375 distribution maps.

In addition to the fourth volume on sea mammals (reviewed in WAZA News 4/2014), the third volume on primates (reviewed in WAZA News 3/2013) and the second volume on hoofed mammals (reviewed in WAZA News 1/2012), we also recommend the first volume covering the carnivores of the world, published in 2009. The other three volumes of the Handbook of the Mammals of the World, covering the remaining mammalian taxa (Vol. 6: Rodents and Lagomorphs, Vol. 7: Insectivores, Vol. 8: Bats), are forthcoming.

The author, Erik van Vliet, has worked for many years as a zoo designer for zoos all over Europe, South Africa and Asia. According to Erik, visiting zoos is the only truly universal pastime. The book has a circulation of 1,000 copies only, so make sure to get yours while stocks last.

Exhibiting Zoo Animals: The book that makes its author redundant
By Erik van Vliet

We all know the long-running joke, “The most dangerous animal in the zoo is the architect.” In fact, zoo design has come on age. While the present book mainly covers the visitor-experience aspect of exhibiting zoo animals, quality zoo design is essential for facilitating environmental, educational, sustainable population management and animal welfare – key issues within the world zoo and aquarium community.

As outlined in this book, richly illustrated with hand drawings by the author, zoo design combines elements of stage design, landscaping, education, architecture, film and theatre. Zoo design is about inspiring and creating emotions by means of the visitor’s sense of imagination. In future, our visitors will not longer accept visible confinement, so the zoo design trend is towards flawless immersion.

This manual is a reference guide to zoo designers and to zoo staff wanting to critically direct, regulate or assist their design team. It aims at combining a zoo’s mission, the awareness of quality design and the available techniques. The author leaves no doubt about his aspiration to make the manual, as stipulated in the book’s subtitle: to make its author redundant.

A large part of the book is dedicated to the human-animal relationship, including negative emotions, such as disappointments, grief, fear and the joy of teasing. As part of the zoo adventure, the five senses of a zoo experience are analysed and issues such as anthropomorphism in the zoo (like Jakob, the billiard playing orang utan) and emotions, the author analyses the visitors of zoos, being more wealthy people and students at the end of the 19th century, whereas early in the 20th century the visitors became more diversified. A chapter also deals with the voyeurism when humans from Tierra del Fuego and Inuit were presented in zoos. After the 1930s also zoos were used for political purposes and the impact of World War II on zoos is documented. A quote from Charles Darwin illustrates the strength of emotions: “I put my face close to the glass plate in front of a puff-a-dadder in the Zoological Gardens, with the firm determination of not starting back if the snake struck at me; but, as soon as the blow struck, my resolution went for nothing, and I jumped a yard or two backwards with astonishing rapidity. My will and reason were powerless against the imagination of a danger which had never been experienced.”
WAZA Council decided at the 70th Annual Conference to fund the following projects out of 17 submitted applications:

1. Providing zoo-keeping training workshops for capacity building of animal care staff from five important zoo and wildlife care facilities in the Visayan Islands, Philippines submitted by Virginia Zoo with CHF 6,550.

2. Developing capacity for improving animal welfare practices: participatory training courses in animal husbandry and conservation education for zoos and wildlife centres in Southeast Asia submitted by ZSL with CHF 9,000.

3. Animal welfare workshops (Tiblis, Yerevan, Sarajevo, Osijek and Brasovos), submitted by EAZA with CHF 13,450.

Manual on the Rehabilitation of Anteaters of Colombia

All four anteater species can be found in Colombia: the giant anteater (Myrmecophaga tridactyla), the northern tamandua (Tamandua mexicana), the southern tamandua (Tamandua tetradactyla), and the silky anteater (Cyclopes didactylus). The manual is designed to guide professionals who every day are faced with the challenges of maintaining and rehabilitating anteaters (only in Spanish). It has been developed by veterinarians, animal management specialists, biologists, ecologists, and engineers from Colombia, Peru, Argentina, Brazil, and the United States and includes information about legislation, ethics, taxonomy, management, anesthetia, nutrition, neonatology, clinical pathology, quarantine, rehabilitation, habitat, monitoring, environmental education, conservation.

http://xerarthrans.org/bibliography/manuals

free download

www.worldfishmigrationday.com

Biodiversity is Us Award winners

During the WAZA annual conference in Al Ain a number of institutions were highlighted for their outstanding contribution to the Biodiversity is Us project. The applications we received put into perspective the flexibility of the tools by demonstrat- ing how both WAZA members and external partners adapted the tools to their needs. We were delighted to be able to showcase these examples at our annual conference and give the awardees (see table) a prize of recognition for their contribution in front of their peers.

A video with highlights of the winning applicants will be visible on the Biodiversity is Us YouTube channel: https://www.youtube.com/watch?v=ulNjcrj9j1k

Table of 2015 Biodiversity is Us awardees

<table>
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<tr>
<th>Fundación Zoológico Santacruc, Colombia, Member of ACOPAZOA</th>
<th>African Lion Safari, USA</th>
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<td>Bmo Zoo, Czech Republic</td>
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<td>Brno Zoo, Czech Republic</td>
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<td>Natural History Museum Rijeka, Croatia, Member of ICOM</td>
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<td>Tiergarten Schönbrunn, Zoo Vienna, Austria</td>
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<td>Vancouver Aquarium Marine Sciences Centre, Canada</td>
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World Wetlands Day
Tuesday, 2 February 2016

Wetlands for our Future Sustainable Livelihoods

Countless people around the world depend on wetlands to finance the necessities of their life through fishing, growing rice, weaving or tourism. The future of their livelihoods depends on healthy wetlands, a product of wise and sustainable use.

Wetlands for Our Future: Sustainable Livelihoods is the theme for World Wetlands Day on 2 February 2016. This theme seeks to demonstrate the vital role of wetlands for the future of humanity and their relevance towards achieving the “future we want” expressed in the newly approved Sustainable Development Goals.

To help support activities for World Wetlands Day, outreach materials such as posters, factsheets and handouts in English, French and Spanish can be downloaded from the website.

Everybody between the ages of 15 to 24 is invited to participate in the Youth Photo Contest that will run from 2 February 2016 to 2 March 2016 by uploading photos on the website. The winner of the photo contest will win a free flight courtesy of Star Alliance, Biosphere Connections, to visit their choice of any of the Ramsar Wetland Sites of International Importance located all around the world.

World Wetlands Day is organized by the Ramsar Convention on Wetlands to raise public awareness about the value of wetlands. The production and distribution of Outreach materials for World Wetlands Day is financially supported by the Danone Group.

www.worldwetlandsday.org

Left to right: Susan Hunt, Gerald Dick, Lena Lindén.
Chinese App
China’s rich biodiversity – about 10% of the world’s – has been increasingly under threat and the public’s overall awareness of biodiversity loss has yet to be raised. The CBD reported that China’s goal is to raise public awareness of biodiversity and promote ecologically friendly development and harmony between human beings and nature. The potential outreach to all Chinese speakers around the world is also a vital target audience for biodiversity related content.

This is why WAZA is delighted to have recently launched the first ever action-oriented biodiversity app in Chinese. This brings the total number of languages in which the App is available to seven; English, French, Japanese, German, Spanish, Portuguese and now Chinese! This is truly a global campaign and educational content.

Use of the Biodiversity is Us tools
The use of the Biodiversity is Us tools has been growing steadily as WAZA member institutions, and partners, have been seeing how these tools can integrate into their existing campaigns and educational content. To this date we have had 269 different people requesting login details to the online platform representing 182 different institutions in 46 different countries! This is truly a global project which will grow ever bigger, with several larger institutions already planning the use of the tools for 2016.

If you too want to join this movement to raise awareness on Biodiversity and simple everyday actions please contact me, Tiago Pinto-Pereira, the WAZA Decade Project Manager.

Biodiversity is Us
https://biodiversity.decade@waza.org

© Singapore Zoo
“Create your own poster” at Singapore biodiversity festival.

© Mark 11 Zoo Aquarium
Adapted information on app download.

© Singapore Zoo
Customized poster – “We are all connected” at Singapore biodiversity festival.

© Paul Pearce Kelly
Supporting the Zoos and Aquariums for Paris initiative.
Observed and projected impacts on agriculture, health, security and their socio-economic consequences were also covered and strongly support the detailed assessments in the latest Intergovernmental panel on climate change (IPCC) Impacts, Adaptation and Vulnerability report (IPCC 2014). The keynote presentation by PIK’s Chief Economist and Co-Chair of IPCC’s latest Mitigation report, Ottmar Edenhofer, made it clear that far from realising the essential action of phasing out coal emissions we are experiencing “a coal renaissance” in terms of increased usage. He stressed the necessity of implementing a raising price on carbon if we are to have any chance of phasing out such dangerous fossil usage. Pricing carbon was also a key message in the conference outcome statement along with the need to remove subsidies for fossil energy. It’s the lack of progress with these key mitigation actions that explains why we’re still tracking UNFCCC’s highest CO₂ emissions trajectory scenario with little tangible policy commitment to ensure a fighting chance of even realising the widely cited 2°C target. The inadequacy of the 2°C target as an effective ‘guardrail’ for avoiding dangerous climate change is acknowledged in UNFCCC’s structured expert dialogue report (UNFCCC 2015) and, as is so often the case, opinions and comments expressed outside of the formal meetings invariably conveyed greater concern as to the danger we are facing and the inadequate policy response. One of the most important concluding plenary comments was from Professor Hans Joachim Schellnhuber (PIK founder and Director) who urged scientists to voice their opinions on the implications of the climate change science.

A final observation of the meeting was the relatively low media presence at the concluding press conference and in subsequent reporting (have you heard anything?). Given the stakes for humanity and biodiversity alike, effectively communicating is vital and yet even such major international scientific gatherings struggle to get the necessary attention and policy response. It’s all the more important therefore that the latest science presented at the conference, along with the most recent UNFCCC reports and planetary boundaries assessment (Steffen et al 2015) show our WAZA climate change position to be robust summations of the threat severity and response imperatives. It also highlights the importance of CBSG’s Zoos and Aquariums (IUCN guidelines as release protocols) and spot testing, as well as pre- and post-evaluations.

1. Provide training and skills-building on emergency treatment of wild primates to sanctuary veterinary staff over the course of a five-day workshop.

2. Measurably increase the skills and knowledge of practitioners to maximise potential for the release of wild primates through appropriate medical and rehabilitation care, as measured by direct observation and spot testing, as well as pre- and post-evaluations.

3. To improve the success rate of wild primate rehabilitation and release at PASA member sanctuaries by 10% in the year following the workshop.

The workshop was held in Diani, Kenya and hosted by member sanctuary Colobus Conservation on 3–7 November 2014. Twenty-four individuals representing 19 organisations attended the workshop, including representatives of the Kenya Wildlife Service. Moderated by experts from Africa and around the world, the workshop helped to build capacity of primate veterinarians and healthcare workers at PASA member sanctuaries and throughout national parks, wildlife offices and universities. The training focused on emergency care and rehabilitation of human-injured wild primates preparatory to their release back into the wild (following IUCN guidelines as release protocols) as well as central veterinary topics such as primate diagnostics, treatment, emerging infectious disease, risk analysis and surgery.

This five-day, intensive training began with two days of theory involving interactive presentations and lectures (disease outbreak management, animal husbandry, sanctuary case studies, anaesthesia), then two days of practical application (cardiac ultrasound, necropsy, rehabilitation and enclosure design), followed by one day of extensive evaluation, reporting back and planning for the following year. The workshop also included donations of medical supplies for participating sanctuaries and materials for the host sanctuary. Delegates also benefitted from the professional associations and alliances developed, along with access to the PASA veterinary listserve, and ongoing financial support for medications and equipment. Workshop highlights include:

- Extensive written materials were available for the attendees: Disease Risk Analysis workshop specific to the wildlife sanctuary situation. This is based on, and makes regular referral to, the IUCN/DIE Manual of Procedures for Wildlife Disease Risk Analysis. This process was worked through at the workshop and a manual with real-life sanctuary examples is forthcoming.

- Expert clinical technical demonstrations: Video of a best practice primate field necropsy, demonstrated at the workshop by Dr Helene De Nys of the Robert Koch Institute and Dr John Cooper of Cambridge University. Video of ape cardiac assessment by Aimee Drane of the International Primate Heart Project (IPHP). These will be a useful resource for future learning opportunities.
In addition to the practical training and skills building, the workshop was an important site for attendees to communicate and build relationships and expand the impact of the PASA veterinary network. Outcomes from these activities include:

- Agreement on the SMART objectives for the next edition of the PASA Veterinary Manual.
- Agreement with the Kenyan Veterinary Board that this workshop will be eligible for official CPD status in Kenya in the future.
- Confirmation of IHPH support for assessing cardiac health across the PASA veterinary network.
- Facilitated collaboration between PASA member and host Colobus Conservation and the Kenya Wildlife Service.

The PASA Veterinary Healthcare Panel assessed the veterinary healthcare aspects of each sanctuary’s programme, offering advice and support where needed. During the workshop, specific medical skills and competency of each delegate (e.g., surgery, parasitology, diagnostics) were assessed by the facilitators using pre- and post-quizzes, observation and spot tests. All delegates provided case studies of animal health issues they have been dealing with, and these provided an opportunity for scientific discussion. Feedback from attendees was elicited informally and formally through an evaluation survey. As the survey indicates, almost all delegates felt that the workshop imparted new knowledge and learning that they could use in their work to improve the health of the animals under their care. Suggestions will be used to tailor future programmes to the needs of participants.

Ezequiel Hidalgo – Buin Zoo

Conservation of the Critically Endangered Darwin’s Fox by Buin Zoo

Darwin’s fox (Lycalopex fulvipes) is currently considered one of the most endangered species of carnivores of the world. Recognized as “Critically endangered” by the IUCN Red List, this canid species is endemic of the temperate forests of the coastal range of southern Chile. Initially known exclusively from Chiloé Island, in 1990 a mainland population was reported at Nahuelbuta National Park (600 km north of its insular range) and since 2012 the species has been reported in intermediate areas.

Buin Zoo, a member of both WAZA and ALPZA (Latin American Association of Zoological Parks and Aquaria), works in the South of Chile for the conservation of the Darwin’s fox.

We work with this species through our Conservation and Research Department which was created in 2010 with the goal of developing conservation sciences applied to native endangered species. We have been working in two core areas of conservation: a training course program that has received over 1000 attendees from 21 Latin American countries in the last years; and a research program focused on the impact of infectious diseases in wildlife at ex situ and in situ environments has been established as well as an evaluation of control measures in order to reduce the damage of such hazards in endangered species.

Viruses, particularly rabies and canine distemper virus have being reported as significant threats for many species of Canids species. Considering that no information was available concerning the health status of wild populations of Darwin’s foxes, in 2012 Buin Zoo’s Conservation and Research department launched a disease surveillance program in the field to evaluate the risk of outbreaks in both the insular and continental range of the species. This program has grown and up to date 34 animals have been sampled for more than 30 pathogens and several peer-reviewed scientific publications have been produced to share the results with the scientific community.

A new addition to our research is the development of a project to compare pathogens prevalence in areas with differential level of anthropic interferences where Darwin’s foxes occur. We have extended our research to also sample other species of carnivores that share the same ecosystem with this threatened Canid. Additionally, we are also sampling domestic dogs and vaccinating them in order to avoid any spillover to wild carnivores. This is particularly important in Chile where domestic dogs have a major negative impact on wildlife both by predation and spreading diseases.

In the upcoming years we aim to create a disease risk analysis that will be useful when evaluating the need to translocate Darwin’s foxes to other areas.

We have created a serum and tissues bank with samples of this fox in order to have samples available for retrospective studies and share them with other institutions. Within this project we have been providing opportunities for the development of local capacities for students and scientists who participate in our research. These efforts have allowed us to include students of Veterinary medicine who want to do their thesis with us. Scientific outcomes include physiological values for hematology and biochemistry, detection of two previously undescribed parasites as well as feline mycoplasmas reported in the species as well as the first gamaherpesvirus for both a Canid species and a carnivore in Latin America.

Since 2013 we are part of a multi-institutional alliance between our zoo, two universities, a private reserve and a NGO from Chiloé Island to increase the collection of samples for health, genetic and ecological studies.

This initiative has included additional activities that contribute to Darwin’s fox conservation including a training course in the field with students of conservation disciplines, collaborative work with academia and private reserves, and participation in different stakeholder meetings in which Chilean government agencies have been involved.

Between the 4 and 5th of September 2015, Buin Zoo hosted the course “Canids Conservation and Management” with lectures by Dr. Claudio Sillero-Zubiri (Chair of the IUCN Canid Specialist Group) and many experts working on genetics, health, management and ecology of Darwin’s fox. This was a unique forum for different groups working with the species as well as representatives of the Ministry of Environment of Chile, currently working on the design of the species conservation national plan. The event included a forum that produced valuable information to update species conservation status assessment by the IUCN Canid Specialist Group.

For the coming years we will continue our program by increasing the areas of study, establishing new alliances and advocating for species conservation. Buin Zoo remains committed with the survival of Darwin’s fox through cooperation with all parties interested in protecting this small canid.

We firmly believe that zoos and aquariums in Latin America can significantly contribute toward the conservation of threatened species through a science-based approach.
New Facility for Orangutans
A New Enclosure That Allows Maximum Social Flexibility and Provides a Complex and Enriched Surrounding

During last year’s enclosure design has improved considerably: bigger spaces and naturalized surrounding... but nowadays it is not only a question of keeping animals in a containment space; we should try to give them the best living conditions.

When looking at their wellbeing we take into account we focus on the animal’s ability to cope effectively with day-to-day changes in its social and physical environment; and the animal’s ability to engage in beneficial species-typical activities, and the expression of species-typical postures and locomotion.

To achieve an enclosure where the orangutans cope with its environment we need carefully plan: structure and design, available space, shelter and resting areas, environment conditions, and enrichment elements... and of course budget!

The improved knowledge on orangutan biology of last year tells us that orangutans while not living in social groups, orangutans do have a complex social structure.

Orangutans show a characteristic sexual dimorphism, and fully grown males are about 2 or 2.3 times heavier than adult females and show facial protuberances for what they are called flanged males; but in addition, there is another form of sexually mature males (the so-called male bimaturism): the unfledged males that do not present the facial protuberances.

Flanged males are mostly solitary, have overlapping territories with home ranges of several females and are sexually active; they do not tolerate other flanged males, but are relatively tolerant towards unfledged males in their home ranges.

Unflanged males contrary to the flanged males, they are comparatively “social” and tolerant towards other males and do not produce “long calls”, both unflanged and flanged males are mating at a similar rate.

It is usual to observe in zoos that females approach males actively and selectively with regard to the phase of their menstrual cycle. If females are allowed to control the access to the male on their ovulatory phase, the male will be less aggressive when she approaches him and initiates copulations. In the wild, females have a preference for fully adult males and seek the company of these flanged males for sexual consorts, whereas mating with unfledged males take place mostly outside such sexual consorts.

Considering all these issues each new orangutan facility has to be as much as possible flexible to facilitate a good management of the social group.

The new orangutan facility at Barcelona zoo (1081 m²) has four outside spaces; two of them sheltered (103 and 56 m²) and with climate control and two of them are naturalized open areas (453 and 216 m²).

It is important that the new enclosure facilitates our staff providing the best husbandry and management and for the orangutans to achieve efficient levels of wellbeing: management of the social group with flexibility, food and drinking provision, easy and secure interaction between animals and keepers (including training), veterinarian checking and treatment, a good level of cleaning and healthy conditions and security for animals, keepers and visitors.

...providing the best husbandry and management...
The Jerusalem Zoo has just opened (on 10th July 2015) a new Stone (Beech) Marten Exhibit – *Martes foina*. Stone martens occupy a variety of habitats, including wooded, rocky, cultivated, and even developed areas, in the temperate regions of Europe and west and central Asia.

They sleep and give birth in small spaces, usually rock crevices or hollow trees, but they find attics and other spaces in buildings to be very suitable den sites. Their ability to adapt to developed or cultivated areas and their fondness of fruit have turned the martens into agricultural pests in many areas. One of the reasons for the decline and even extinction of many species is the destruction of natural habitats by humans in favour of agricultural and urban development, but there are species who benefit from the development and at the same time “take revenge” on the humans for entering their territory.

Most of the species that benefit from development have diverse diets and can enjoy what humans bring with them – gardens, fields and, of course, garbage. Plenty of it... Some species enter “only” to feed in the gardens, plantations, fields and garbage bins, while others have adapted to human company and remain living in houses, warehouses, barns or abandoned buildings. They may be pests to us, but for them this might be “sweet revenge” on the people who took over their previous homes. Stone martens frequently enter both agricultural and residential areas and enjoy the bounty these areas have to offer – fruit, other food leftovers, and also small spaces inside the buildings.

In Israel they often make their homes in attics, while disturbing the human residents and “making their lives miserable”. Israel Nature and Parks Authority rangers are often called on in these cases to save the people and rescue the martens, some of which arrive at the Jerusalem Zoo, get checked up, and are released back to the wild, to areas that are further away from human settlement areas. This exhibit is home to two stone martens that were brought to the Zoo as babies and who were unable to be released back into the wild.

This exhibit demonstrates one of the meeting points between humans and the environment – it is set up as a house with a garden on the edge of a natural habitat and encourages visitors to remember that there were and are animals there. Some will not return, but others remain or visit from time to time. Many species help us – they control rodents and insects that damage our gardens, for example. Others are dangerous to us, but may have an important ecological role in another area and by contacting the appropriate authorities (Nature and Parks Authority rangers, professional exterminators) we can ensure that they are caught alive and moved to a suitable place. To avoid encouraging the animals to become pests, we can fence gardens well, keep garbage bins well closed, and not leave scattered garbage and food remains.

However, we can also remember why the animals enter our gardens, fields and houses and, as much as possible, accept them with love, even if this negatively impacts some flowers, irrigation hoses, or the tidiness of the yard. These interactions between humans and the environment, require understanding, goodwill and sometimes also the willingness to settle for less.
**Penguin Promises**

The Penguin Promises behaviour change campaign was designed to encourage visitors to uShaka Sea World, Durban, South Africa, to take positive post-visit action to help environmental conservation. Using a range of the principles for effective environmental education, Penguin Promises is an innovative campaign focussed on the African penguin (*Spheniscus demersus*). The African penguin is the icon for the campaign because the species is endangered (numbers in the wild have declined by up to 94% over the last 100 years); penguins have excellent appeal and have been popularised through movies such as *Madagascar*, *Happy Feet* and more serious documentaries such as *March of the Penguins*; and uShaka Sea World, and many other facilities, have colonies of breeding African penguins on exhibit to visitors. The campaign asks visitors to the facility to make a “Promise to the Penguins”. With the tag line “We don’t want your money honey, we want your love”, the campaign encourages visitors to make one change in their daily lives to become more environmentally responsible. Visitors are then asked to hand write their behaviour change promise on a printed postcard and post it in a specially designed post box. Their promise is their commitment to the environment.

Although difficult, measuring the long-term impact of a behaviour change campaign is critical. Few studies have been able to assess “real life” changes in behaviour over a year post visit. The first phase of the campaign has been completed and results of the long-term (18+ months) impact of the Penguin Promises behaviour change campaign have been published. The results show that the campaign is contributing to changes in personal visitor behaviour. Over 53% of the visitors who responded to a post-visit e-mail survey could describe the changes that they have made at home. More importantly, the research is revealing the reasons for visitors’ actions and barriers to action. Factors leading to the success of this campaign are, therefore, being studied in order to contribute to the growing body of work providing guidance to the designers of zoos and aquariums on how they can help facilitate more environmentally responsible behaviour in their visitors after a visit.

To date the collection and analysis of promises has only been undertaken at uShaka Sea World, although many other facilities have used it for marketing and awareness campaigns. It is now envisaged that the collection, analysis and follow-up with visitors be rolled out to a wider range of facilities in South Africa, and even internationally. A system to record the promises and to facilitate improved follow-up has been designed, and will be implemented in the near future. These aspects will ensure the ongoing evaluation of the project. Appropriate evaluation of the project will remain a critical aspect and it is envisaged that another publication will be produced, once a wider range of facilities have joined the project. Ultimately, Penguin Promises can provide valuable evidence of the impact of zoos and aquariums on the behaviour of visitors. In addition to the evidence, the results can help us to improve our impact, and the role of zoos and aquariums in conservation.

The sand cat (*Felis margarita*) is a flagship and enigmatic desert species, but is one of the least known of all cat species. It has a wide but patchy distribution in North Africa, the Arabian Peninsula, Iran, Central Asia and Pakistan. Presence has been confirmed from only a few locations and no reliable estimates of population size or trend are available. Many aspects of their basic biology and ecology are poorly known. Four subspecies, including the Arabian sand cat (*F. m. harrisoni*), have been described, but the validity of these forms has not been confirmed genetically. The sand cat is currently classified as Near Threatened globally, but as Endangered in the United Arab Emirates (UAE) and Abu Dhabi. These assessments are based on limited scientific evidence; however, a CAMP report published in 2011 stated “real concern” over the status of the Arabian sand cat, that sand dune habitat continues to be lost and so the sand cat population is probably in decline. Sand cats are kept in many zoos mainly in the USA, Europe and the Middle East. The largest captive group is held at Al Ain Zoo in the UAE. The regional and global ex situ populations are currently unsustainable genetically and demographically.

Given this situation, Al Ain Zoo, in line with its commitment to the conservation of arid land and native wildlife, has made the Arabian sand cat one of its conservation focus species. A programme following the One Plan approach, the first for the Arabian region, is now underway. The programme began in September 2013 when Al Ain Zoo hosted a One Plan conservation planning meeting following CBSG guidelines. It was facilitated by a member of the IUCN SSC and attended by all regional institutions with sand cats in their collection, organisations working on in situ research, the IUCN SSC Cat Specialist Group and government and non-government stakeholders based in the UAE. During the workshop delegates shared their knowledge, experience and ideas, and helped to establish conservation and research priorities. The outcomes were published in the 2014 Arabian Sand Cat Status Review and Conservation Strategy. Since the One Plan workshop various other activities have been underway. A sand cat network has been established, which provides a library of all publications about the sand cat as well as presentations from the One Plan workshop. A research project in collaboration with Wildgenes (Royal Zoological Society of Scotland) has analysed the genetic diversity of the ex situ populations to inform population management. This research is now focussing on investigating whether genetic differences exist between the proposed subspecies of the sand cat across its natural range. The research is not yet complete, but has already produced interesting results.
Update on International Studbooks

There are currently 131 active international studbooks (ISBs), including 162 species or sub-species (nine ISBs cover more than one taxon). The following events regarding ISBs have occurred since 1 July 2015:

ISBs archived
• On 31 August 2015, CPM decided to archive the Persian fallow deer (Dama mesopotamica) ISB.

ISBs established
• None.

Transfer of ISBs to new keepers
• On 31 August 2015, CPM approved the transfer of the gorilla (Gorilla gorilla) ISB to Johannes Köhler (Frankfurt Zoo, Germany).
• On 31 August 2015, CPM approved the transfer of the Sri Lankan rusty-spotted cat (Prionailurus rubiginosus phillipsi) ISB to Johannes Köhler (Frankfurt Zoo, Germany).
• On 28 September 2015, CPM approved the transfer of the white-naped crane (Grus vipio) ISB to Yoshihiko Takaki (Saitama Children’s Zoo, Japan).

Transfer of ISBs to new institutions
• None.

Pending issues
• As of 30 September 2015, no issues are pending.

New WAZA Members
• Lehigh Valley Zoo | USA | as institutional member
• Al Wabra Wildlife Preservation | Qatar | as affiliate member
• ZGAP (Zoological Society for the Conservation of Species and Populations) | Germany | as affiliate member
• Worldwide Zoo Consultants LLP | Dubai, UAE (ZoOceanarium Group) | as corporate member

New Directors
• Mike Barclay has been appointed CEO at Wildlife Reserves Singapore | Singapore
• Kevin Willis has been appointed acting CEO at Minnesota Zoo | USA
• Lee Ehmke has been appointed President and CEO of Houston Zoo | USA

Future WAZA Conference Venues
• 2016: Africam Safari, Puebla, Mexico | 9–13 Oct 2016
• 2017: Barcelona, Spain | 19–21 Oct 2017
• 2018: Bangkok, Thailand | 21–25 Oct 2018
• 2019: Buenos Aires, Argentina | 3–7 Nov 2019

Lehigh Valley Zoo is an AZA accredited institution dedicated to local, national and international wildlife conservation through education, community involvement and participation in conservation programs. Participation includes but is not limited to conducting citizen science programs such as, Frog Watch and PA Amphibian and Reptile Survey, field surveys and habitat restoration and involvement in Species Survival Plan programs and maintenance of studbooks.
New Corporate Member
Worldwide Zoo Consultants LLP, Dubai, UAE (ZooOceanarium Group)

- Sponsors: Tim Husband (Dubai Zoo), Paul Hamilton (Dubai Aquarium & Underwater Zoo)
- Founded: 2012
- Director: Christopher Davis
- Member: IMATA, AZA, IAAPA
- Address: Suite 1008 Tower Dubai, Al Nassier Square, Dubai, United Arab Emirates

Our company specializes in development and operations of all types of animal facilities; everything from feasibility all the way through day to day operations.

We have a large team of professionals onboard with a wide range of technical backgrounds; animal trainers to veterinarians to LSS managers, aquarist, operation directors as well as project managers. Our team members have experience from reputable companies all over the world, many of which served as managers at each of these facilities; Disney Animal Kingdom (original project team), Sea World Australia, National Zoo of South Africa, New England Aquarium, Ski Dubai penguins, Disney Living Seas, Dubai Mall Aquarium and Underwater Zoo, Atlantis, Yas Water World, US Navy Bio-Systems, Resorts World Marine Life Park and the Melbournes Aquarium to name a few.

The company has been involved in many unique projects including the Prague Zoo and Bayworld Oceanaarium and Snake Park. We have also served as consultants on the design of several projects including Primorsky Aquarium and Fundazoo Honduras.

www.zooceanarium.com

New Affiliate Member
Zoological Society for the Conservation of Species and Populations, Germany

Zooologische Gesellschaft für Arten- Populationsschutz e. V. (ZGAP)

- Sponsors: Theo Pagel (Cologne Zoo) and Jörg Junhold (Leipzig Zoo)
- Founded: 1982
- President: Jens-Ove Heckel, Zoo Landau, Germany
- Member: EAZA
- Address: ZGAP-Geschäftsstelle, c/o Wildtier- und Artenschutzstation Sachsenhagen, Hohe Warte 5, D-31553 Sachsenhagen, Germany

The Society focuses on the conservation of little-known endangered species worldwide. Thousands of highly endangered species exist, whose names are often not even known by specialists. Many such species have already disappeared during recent decades, because of this lack of knowledge. The ZGAP strives to include local biologists and students in the projects. In this way, the projects can not only be accomplished more economically, but it also offers the opportunity for often young people to contribute to species conservation within their own countries.

In addition, they are important local conservation ambassadors for the future. The main goal of the Society is to contribute to the conservation of little-known endangered species, preferably in their pristine and natural populations. Due to the unawareness of their pure existence a lot of the endangered species are doomed to be extinct before they are even known. Therefore, ZGAP is involved in various levels of conservation work for endangered species and their habitats. To achieve its objectives the Society initiates and scientifically supports conservation programs, compiles additional expert knowledge and opinions, gathers information worldwide, invests in public relation, publishes a journal semi-annually and last but not least funds conservation projects or assists in acquiring necessary funding.

www.zgap.org

© J.O. Heckel, ZGAP
Male Philippine spotted deer (Pacifcus griseus) at Breeding Center in the Philippines.

© F. Richter
Javan warty pig (Sus Java) at Center in the Philippines.

© ZooOceanarium Group
Helping clients train toucan for free flight demonstration.

Another project that our team is working on is the redevelopment of the Dubai Safari Park. We are currently assisting with the design of the new facilities and will take over operations of the show and interactive components when the redeveloped zoo opens in a year or so.

For each of our projects, as we typically serve as consultants, we aren’t able to force clients to follow specific standards but we have in the past strongly advised to follow international standards set by both WAZA and AZA. The company is a member of AZA and we maintain a strong attendance at both the midyear and annual meetings. Most of our staff is also individual members of IMATA and the company sponsors at least 5 staff members to attend the annual conference every year.

In short, we are a growing company and are a strong supporter and contributor towards WAZA’s ‘United for Conservation’ motto.

© ZooOceanarium Group
Zoo Boise, USA

- **Sponsors:** Lee Ehmke (Houston Zoo), Dennis Kelly (Smithsonian National Zoo)
- **Founded:** 1916
- **Area:** 4.5 hectares
- **Collection:**
  - Mammals: 44 species and 172 specimens
  - Birds: 24 species and 36 specimens
  - Reptiles: 14 species and 25 specimens
  - Amphibians: 6 species and 14 specimens
  - Fishes: 7 species and 15 specimens
  - Invertebrates: 4 species and 76 specimens
- **Employees:** 90 permanent, 25 temporary
- **Visitors:** 298,624 paying, 42,419 free
- **Owned by:** City of Boise
- **Director:** Steve Burns
- **Membership:** AZA
- **Address:** 355 Julia Davis drive, Boise, Idaho, USA
- **Mission Statement:** Zoo Boise connects our visitors with animals to inspire and involve our community in the conservation of wildlife worldwide.
- **International Breeding Programs:**
  - Red Panda
  - Research Programs:
    - Zoo Boise actively participates in research on the Southern Idaho Ground Squirrel and helps fund lion/elephant/ungulate research in Gorongosa National Park in Mozambique.
- **Animals:**
  - **Mammals:**
    - 44 species and 172 specimens
  - **Birds:**
    - 24 species and 36 specimens
  - **Reptiles:**
    - 14 species and 25 specimens
  - **Amphibians:**
    - 6 species and 14 specimens
  - **Fish:**
    - 7 species and 15 specimens
  - **Invertebrates:**
    - 4 species and 76 specimens

Zoo Boise is located in Julia Davis Park in downtown Boise. We are the biggest paid attraction in the state of Idaho, hosting 341,000 guests last year. We provide education programs to 30,000 school children per year. We are home to more than 300 animal representing 89 species. Zoo Boise participates in 45 SSPs. We have 300 volunteers who contribute more than 30,000 hours of service annually. Zoo Boise has an extensive field conservation program in which we generate approximately $300,000 per year for wildlife conservation – 10% of our annual budget. We generate these funds with a combination of conservation fees and fees for certain visitor experiences such as giraffe feeding. Our main conservation programs are the restoration of Gorongosa National Park in central Mozambique and a reintroduction project for the Southern Idaho Ground Squirrel. Zoo Boise has been accredited since 2002 with the Association of Zoos & Aquariums. Zoo Boise is operated in a three way partnership between the City of Boise, the Friends of Zoo Boise and Service Systems Associates (food & gift shop concessionaire.)

www.zooboise.org

**Zooboise (@zooboise)**

**Zoo Boise, USA**

A fun and educational free App packed full of useful information with links to social media for global impact.

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