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Dear WAZA members and friends!

The last months have been amongst the most busy ones for the executive office. The exciting programme for our 67th Annual Conference has been finalized, a CO2 compensation scheme for zoos and aquariums has been put together and offered to WAZA members, a new edition of the WAZA magazine – entitled fighting extinction – with a focus on “extinct in the wild” classified species has been published, the WAZA project in support of the decade on biodiversity with the survey module on awareness has started, WAZA is now represented on IATA’s live animals and perishables advisory panel, WAZA and the world zoos and aquariums have been dignified by Jane Goodall and HRH Charles, Prince of Whales and WAZA has been gifted a commemorative design by Jonathan Woodward, a commended finalist of the “BBC Wildlife Artist of the Year” competition …

In this edition of WAZA News, there is a focus on arthropods, an amazing group of diverse creatures and oddly enough an often ignored and misunderstood diversity of “creepy crawlies”. On the other hand insects are the most species-rich group of organisms on earth, which justifies their place in zoos and aquariums, next to great apes or sharks.

I wish to thank all members for their ongoing support – in the 77th anniversary year of WAZA – and my dedicated staff in the executive office for the tireless work on our behalf.

Gerald Dick
WAZA Executive Director

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It is a pleasure for me as for each WAZA President to be invited to many association’s conferences around the world. This means in my case that I get a much closer view of our zoo community as ever before and I must say that every single meeting increases my respect! Although the associations and the individual zoos behind them are very different and manifold in various ways they constitute one large community which pursues common ideal goals!

The British and Irish Association of Zoos and Aquariums (BIAZA) had its annual meeting in mid June at Paradise Wildlife Park/UK. What has impressed me very much is the close contact that they have established to the political arena on national level – visible by the welcome address and presentation of a Member of Parliament. The conference focused on the question of how we can present and let tour visitors get close to animals in an ethically responsible way and what the results of these contacts to animals are. Do visitors change their attitudes and behaviour? There is of course a range of possibilities of animal encounters used in different institutions but I have a very positive feeling that the respect towards animals is always the key of all efforts.

The Association of Latin American Zoos and Aquariums (ALPZA) held its annual conference in Puebla/Mexico at the end of June. Their meeting was put under the theme “Celebrating Biodiversity, the achievements in Conservation, and Brotherhood” and had a variety of very good presentations and discussions about this topic. I was happy to add the international perspective of WAZA’s cooperation and strategies towards biodiversity conservation.

Beyond that I was invited to join the board meetings of both the Mexican Association of Zoos and Aquariums (AZCARM) and ALPZA to gain more insight into their work. The Mexican association with 74 members has set up an accreditation system for its members to secure high operational standards which has impressed me very much. Furthermore they have adopted a strategic plan for the coming two years and included significant conservation and education actions like the support for an important jaguar reserve and the production of an educational manual.

The WAZA Council has spent its mid-year meeting in Temaiken/Argentina in April which was another chance to learn more about the ALPZA region. Next to many different other topics we focused on the question of structuring our overall work at one additional “strategic day”. Thanks to our Executive Office with its most qualified staff WAZA as an organization becomes more and more professional. This is great – but leads to the question of how to integrate the work and tasks of our different Committees into this changing structure and how to generate more synergies at the same time. This issue is an ongoing one and hence we have decided to have a supplementary separate workshop on the issue, WAZA Council together with all Committee Chairs. This one will take place in August and I am honoured to be the host in Leipzig.

I am confident that we will come up with new ideas on how to more efficiently organize our work and I look very much forward to this meeting!
Zoo departments dedicated to the presentation of arthropods, particularly spiders and insects, are usually called „insectariums“. The insectarium at the Aquazoo/Loebbecke-Museum in Düsseldorf is able to work from a long tradition as it was established in 1976 when the institute was still, as a result of the destruction caused during World War II, temporarily housed in an air-raid shelter. It was here that the presentation already started to become a highlight and very popular with visitors. The dissemination of knowledge about the actual „rulers of the world“ – as insects are frequently known – was then already the objective and had been declared as such at a time when zoos did not always regard insectariums as essential. The presentations developed at the „zoo bunker“, as the people of Düsseldorf often called the institute, were so highly informative and timeless that to this day, 25 years after they were relocated to the new premises in the Nordpark in 1987, they are still used to inform broad audiences about the life of arthropods.

It is often surprising to learn that insects constitute the class of animals that by far covers the most diverse ranges of species. To date, around one million animals have been scientifically described, which is more than 60% of all known species. And countless insects and other arthropods (spiders, isopods, crustaceans, myriapoda, etc.) remain undiscovered. It is remarkable that the general population is not very familiar with these animals and that it is becoming increasingly less knowledgeable about them as time progresses. Few school students, for example, are able to name any species of insect, much less say anything about how they live or behave. It is even frequently too much for people intending to be trained as animal keepers to list five species of insects or to explain the difference between insects and spiders. The first thing that comes to people’s minds when arthropods are mentioned is that insects are „pests“, that they can cause damage and that they are detrimental to plants, wooden structures and food. Some people will perhaps also say that as parasites they are harmful to other organisms and that they transmit diseases. But insects can also be beneficial to humans. For instance, around 500 species of insects represent a valuable source of protein to many people around the world and many insects also play a major role as pollinators in agriculture. It wouldn’t be possible to make honey without bees, for example, and ichneumon wasps help control pests, silkworms produce valuable fabrics while other insects produce valuable substances for use in pharmaceuticals and fruit flies (Drosophila) are the „pets“ of genetic research. Even forensic science uses knowledge about insects to help solve crimes (entomological forensics). And, last but not least, more and more people are beginning to keep and breed insects, spiders and other arthropods as pets with the intention of studying these animals at home, of opening a „window on nature“ or of just relaxing and observing them.

The Aquazoo exhibits arthropods over an area of 203 square metres. There is also a further 23 square metres of space and additional rooms behind the terrariums which are not open to the public that the keepers use for their work and for breeding insects. The presentation is divided into sections by a giant star-shaped combination of showcases and a partition wall, which uses illuminated graphics and display cases to explain the basic structures of nine insect orders. A screen with „trackball“ allows visitors to penetrate deeper into the subject matter by providing information about the „insect of the year“, by showing the Aquazoo’s special Internet site that focuses on insects to be called up, by enabling the world of insects in indigenous deciduous forests to be explored and by presenting a simple slide show of the world of arthropods. The Aquazoo’s Internet site does not only list many of the species according to the Arachnida, Crustacea, Myriapoda and Hexapoda groups that are or that were formerly kept at the Aquazoo, it is also home to a picture gallery, distribution maps and tips for breeding specific species.
The site also provides information to the general public about the scientific work that the Aquazoo/Loebbecke Museum does in the scientific field of entomology. Two associated societies (“Entomologische Gesellschaft Düsseldorf 1866” and “Arbeitsgemeinschaft Rheinisch-Westfälischer Lepidopterologen”) use the institute’s collections (including 341,000 butterflies from 17,000 species, 117,000 beetles from 15,000 species and many other specimens) in their work and meet every week to carry out research in the zoo’s magazine. A two-day congress (“Westdeutscher Entomologentag”) is held every year – for the 25th time in 2012 – with presentations from the whole field of entomology and arachnology. Thanks to regular field work, for instance, it has been impressively shown that the number of diurnal butterflies within Düsseldorf’s city limits has fallen by more than 50% – which shows just how much biodiversity has been lost in recent decades in the group of Lepidoptera alone.

Another frequently visited presentation has been dedicated to “state-building insects” (social insects) which uses two tall showcases along with large models to exhibit termites and wasps. The wall opposite this installation is home to an eight-metre long presentation that uses three-dimensional models of the continents to show typical (sub-) tropical beetles and butterflies behind glass: Agrias, Morpho and Dynastes from South America; Charaxes, flower chafer and Goliath beetles from Africa and Ornithoptera and Chalcosoma from India to Australia. Honey bees are social insects with which everyone is familiar and the Aquazoo does not only provide information about their biology (anatomy, life inside the hive, language of dance, etc.) in showcases and on information boards, it also allows them to be observed in a living hive during the warm period of the year. Something else that is special happens in winter: the live bees are removed to spend the winter with their keeper so a small showcase containing a variety of tarantulas is exhibited in their place. Spiders generally attract many visitors who – for the most part – find them fascinating. That’s why a presentation, which also includes a series of exoskeletons (exuviae) that demonstrates how this group of animals grows, has also been permanently dedicated to the geographic distribution of the Aviculariidae. The impressive mouthparts that male spiders also use in mating are also on exhibited.

Such a wealth of detail creates knowledge but such knowledge also requires the exhibition of living specimens. The Aquazoo therefore is home to 22 insect presentations (including two major terrariums), which, mostly over two floors, the keepers can access from the rear. It is also possible to move the upper sections backwards on rails, which allows the keepers to serve them from the front thus enabling them to see the terrariums as the public does. All small enclosures are equipped with
illuminated boxes that at the touch of a button reveal to visitors the species of animal being shown while providing interesting information about them (type of species, systematic classification, place of origin, food and a brief text with biological details). The showcases containing live animals attract many visitors thus indicating how fascinating the world of arthropods actually is. It is also exciting to see how Peruvian stick insects (Peruphasma schultei) initiate their mating behaviour and how sphoecoid and jewel wasps (Ampulex compressa) paralyse cockroaches with their stings, lay their eggs on them and then bury them in small cavities. The research into how these animals can be bred that was carried out at the Aquazoo is helping scientists all over the world in their biological studies and toxin analyses – specimens have, for instance, been sent from Düsseldorf to the universities of Frankfurt, Regensburg and in Israel. There are many more amazing facts to be discovered: banded-legged golden orb-web spiders (Nephila senegalensis), for example, weave giant webs and are also able to overpower even larger insects, the giant African millipede (Archispirostreptus gigas) can grow up to 25 centimetres long and how the African cave cricket (Phaeophila cris brexoides) develops from egg to adult has only been entirely understood since 1986. Really unusual organisms also stand out, for example, the amblypygi that wait with their flat bodies under stones and bark for prey or the well-camouflaged wandering violin mantis (Gongylus gonylodes) from India that wait to snatch insects in the bushes. And the very strange stalk-eyed flies (Chaetodippsi meigenii) that are indigenous to Africa: their eyes are located at the end of stalks just behind the antennae. The reason for these stalks is still being researched. In some species, the males with the longer stalks are the most likely to win mates and establish harems. The larvae that hatch from the eggs live on grass (Poaceae = Gramineae). The wealth of forms on show to visitors at the zoo is almost endless. Be it the assassin bug (Platymeris biguttatus) from western Africa, the European house cricket (Acheta domestica) or field crickets (Gryllus bimaculatus) from southern Europe (which by the way, like many other insects, are bred at the institute for food for other animals), the water scorpion from Africa, which grows to become as long as a finger, or the stick insects from Asia – each terrarium provides new insights into the world of arthropods. Insights which are always complemented with additional museum exhibits. For instance, large models allow the heads of insects and their mouthparts to be experienced as do the enlarged eggs and insect larvae that demonstrate the different phases of development.

Much experience is required for the presentation of colonies of leaf-cutter ants (Acromyrmex sp.) from South America. Both young and old press their noses against the glass panes of the terrariums to watch the many busy workers pass through metres of glass tubes to cut little pieces of leaves from plants and process them into a paste-like substrate that is then used to cultivate fungi – the organisms which they eat for food.

It is not possible to list all types of arthropods that are being successfully kept and bred by the team at the Aquazoo, there are a dozen alone in the group of stick insects (Phasmatodea). Some groups have been bred in Düsseldorf for over 30 years. At times, between 50 and 60 species of arthropods were kept as permanent exhibits, for research purposes and for creating attractive lessons. But it is not only children and young people who are interested in this subject (15% of all school classes focus on this topic in their lessons), a wider audience is also grateful for the opportunity of gaining interesting insights into the amazing world of insects, spiders, isopods and their relatives. No zoological facility can do without including at least a few arthropods in the range of species they exhibit.

To find out more: www.duesseldorf.de/eng/aquazoo/insektarium/index.shtml
The year was 1992. It was an amazing time to be working with invertebrates in zoos in North America. Only a few facilities were looking at invertebrates as a potential attraction to the public, but those that did found a huge market wanting to learn more. It was not a field that one could learn by picking up a book. It was in its infancy and thus was very exciting that the Toronto Zoo was hosting the Association of Zoos and Aquariums National Conference. It was also the first official meeting of ITAG, the Invertebrate Taxon Advisory Group, now known as the TITAG, the Terrestrial Invertebrate Taxon Advisory Group. This group would become the focal point for invertebrate people working in zoos in North America.

This was also a time when the IUCN was looking at the zoo community as a strong partner in conservation. Zoos attracted huge crowds throughout the world, so better place was there to send the world a message. Zoos also were realizing that the natural resources were not limitless and that our knowledge of wildlife could be utilized to help preserve life on earth. We knew we could make a difference. We weren’t exactly sure of how we could do it. But we were going to try.

For the past twenty years, the few zoos maintaining invertebrates has more than doubled. TITAG has worked at making the zoo, invertebrate community a recognized group within the larger community. It has acted as a focal point for education, discussion and dispersal of species within the community. The community has worked together in cooperative breeding projects and stimulated interest to have individual zoos work within their region to make a difference for a species or a habitat. The following is a discussion of what North American zoos are doing for invertebrates and conservation around the world.

Conservation has moved rapidly in several pathways in twenty years. Zoos are now leading educators showing the public just how integral the role of invertebrates are to all life on earth, TITAG has instigated several ideas that have brought the zoos together in support of common goals and finally individual zoos have partnered with institutes, universities and government agencies to work on local projects to save a threatened species or community of species needing help.

Education

Zoos are leading the way in changing attitudes. A favourite way of teaching is with the use of a living animal as a tool. A living animal is capable of maintaining an audience’s attention better than any speaker. In the past few years no group of animal has fulfilled this niche better than arthropods. Species of insects and arachnids now grace most educational throughout the zoos of North America. And it is here that the grass roots of conservation is taught. The invaluable role of invertebrates and respect for the animals can first be seen here. Two programs that exemplify the role of invertebrates in conservation are Audubon’s Insect Zoo in New Orleans and the Woodland Park’s “Bug Club” program.

The Insect Zoo was designed solely to show the visitor what lived out there in world. Exhibits showed what the animals were, where they live and why they were so important to our world. Situated in the heart of New Orleans, visitors become totally immersed into the world of invertebrates. Giant replicas of common invertebrates mix in with living examples. By the time a person leaves the exhibit they have become aware that these fascinating creatures do play a role on earth.

...A living animal is capable of maintaining an audience’s attention better than any speaker...
The second example of education conservation in North America is the “Bug Club” program. It began at Roger William’s Park Zoo in Rhode Island and now resides at the Woodland Park Zoo. It began as an outreach program using invertebrates but took the next step where children actually became involved in looking for and identifying invertebrates in the wild.

Not only has the program been used in local schools, it has traveled as far as New Guinea where it was used to enlighten people in small villages in the Papua highlands. Many zoos are now following the ideas shown by these programs. For more information contact the Audubon Insectarium or Erin Sullivan at Woodland Park Zoo to learn more.

TITAG – SSP’s, RCP’s, SWARM, IECC and the BFCI

The Association of Zoos and Aquariums (AZA) is the leading group for organizing conservation programs across zoos. Specifically the group that works with terrestrial invertebrates (TITAG). Presently chaired by Erin Sullivan of Woodland Park Zoo, Erin has been instrumental in moving the aims and good practices stressed by the group. With Erin is a group of dedicated entomologists, educators and zoo professionals that form a steering committee to help guide and push the agenda developed by TITAG. Some of the initiatives set up and maintained by TITAG are: Species Survival Plans, a Regional Collection Plan, the SWARM program and support of the IECC and the BFCI.

The strongest example of a Species Survival Plan for invertebrates is the American Burying Beetle. Once found in 35 states and southern Canada, the species range now is tentatively recognized from nine states. The program has been ongoing for nineteen years and shows a strong collaboration between zoos and the United States Fish and Wildlife Endangered Species Branch. Captive breeding and release has taken place in three sites across the species range and one site appears stable enough that the releases have stopped and the team is now monitoring the Nantucket site to ensure that the population is stable without the need for recruitment. The lead for the Zoos is Lou Perrotti, Director of Conservation Programs. Roger William’s Park Zoo, Providence, Rhode Island.

Another program set up and run by the TITAG is the Regional Collection Plan (RCP). Zoos working with invertebrates have selected a series of species maintained by Zoos that are suggested as the species within this massive taxonomic group for people to choose when organizing their collection. In this way specimens utilized by the zoos can be obtained from other zoos without putting pressure on the wild populations. The steering committee has taken this one step further with a new program known as SWARM, the Safety Web for Arthropod Reproduction and Management. In this program, species with special attributes for captive programs are highlighted for special consideration in the development of guidelines for breeding and developing sustainable programs for the species.
The group has also set up an excellent support system for the IECC (Invertebrates in Education and Conservation Conference). The conference is run by the Sonoran Arthropods Study Incorporation and is the largest conference specialized to support the community involved in: captive propagation, education and conservation of invertebrate species. TITAG is a leading supporter of the program and annually holds their mid-year meetings at this conference despite pressure from their parent association. By doing this participants are ensured in having a great meeting of others in the field of invertebrate conservation.

Perhaps one of the strongest lasting contributions that zoos are doing as a whole is the support of the Butterfly Conservation Initiative (BFCI). Run by the Florida Biodiversity Foundation Inc., of the University of Florida, the program is dedicated to the conservation of rare, endangered and threatened butterfly species in North America. Zoos across North America are the strongest supporter of the program and it is the financial contributions of these zoos that keep the program running. Since its inception in 2003, the BFCI has run workshops on butterfly conservation, supported butterfly conservation across the United States and educated people on the design and usefulness of butterfly gardens in communities across North America. To see and understand the array of endangered species of butterflies across North America visit the BFCI website (www.butterflyrecovery.org)

**Individual projects**

Although TITAG pushes their specific projects, it must be made clear that individual zoos are also encouraged to partner with institutions, NGO’s and government agencies to work on local initiatives within their region. Many species of invertebrates have very limited ranges and it is often a local zoo that can step in and become the lead or an important partner in the conservation efforts of those species. Here are a few examples of what is being done.

A short scan through the zoo websites from North America show a huge array of invertebrate work taking place. Zoos are involved in biological surveys, habitat restoration, captive rearing and long term monitoring taking place. There is a group of zoos working on coral restoration and rearing but marine work would take this article well beyond its proposed length. Butterfly work is most widespread but there is work on pollinators, beetles and even spiders. People are maintaining freshwater mussels and crayfish. The list of work is impressive and thus I will only list a few. What should be also noted is there are many projects underway that are not listed. I only have to look at Toronto Zoo to see this. The following are some highlights that are of note.

It is well known that pollinators are in trouble across the planet. Zoos such as Lawry Park and Sea World have programs helping pollinators. Another good example is the program developed by the St. Louis Zoo. They have developed the Centre for Native Pollinator Conservation (CNPC). The Centre has set three goals in which they focus on the importance and diversity of native bees within North America. The goals are:

- Educating people about the importance of pollinators for the plants and wildlife around them and in their lives.
- Developing and supporting local, national and international collaborations to develop pollinator conservation programs and research.
- Advancing our understanding and appreciation of native bees and other pollinators.

The group has already worked with local gardeners on education, collaborated with the Xerces Society and the Missouri Department of Transport to develop pollinator rights-of-way and been involved with developing a conservation strategy for North American bumble bees. They are also members of the IUCN/SSC Bumble Bee Specialist Group.
When dealing more specifically, a great example of zoos helping an individual species can be seen in a collaborative effort with the Lincoln’s Children Zoo, Henry Doorly Zoo’s Berniece Grewcock Butterfly and Insect Pavilion, the State of Nebraska’s Game and Parks Department and the US Fish and Wildlife. The group has teamed up to work on the Salt Creek Tiger Beetle (Cicindella nevadica lincolniana). Considered one of the most endangered species in the United States with numbers only in the 100’s, it is listed as highly endangered. The species comes from an extremely rare habitat quite near human settlements and thus has had problems. The zoos wish to breed and head start specimens for re-introduction into several protected areas where the beetle once dwelt. It is the role of the zoos to use their animal husbandry expertise to develop protocols and provide the numbers to make a difference.

Freshwater mussels have suffered drastically over the past several years. Pollution and the creation of dams for hydro electricity have played major roles as stressors for these species. The Toronto Zoo has started an awareness program for species in southern Ontario, but South Carolina Aquarium and Columbus Zoo are working on programs for 10 years or more. Columbus Zoo has built a special facility capable of breeding and maintaining rare mussels found in the State of Ohio. The facility uses natural river water to maintain their populations. If some form of disaster occurs on the river, the facilities can maintain through an internal re-circulating system protecting the specimens from possible fatal mishaps.

Butterflies are by far the most worked on group of invertebrates within zoos. Programs range through several fields of expertise and levels of involvement. The BFCI alone is supported by over 40 zoos. There is the monitoring of monarch butterfly populations through Monarch Watch; annual butterfly surveys that record data for the North American Butterfly Association, specific projects dealing with habitat specialists in small populations to actual captive propagation for re-release. Species that zoos are involved in include: Mitchell’s Satyr, the Oregon Silverspot, Taylors Checkerspot, Schaus Swallowtail, the Miami Blue, Fedder’s Blue, the Puget Blue and of course the Karner Blue Butterfly.

In many cases, the state in which a specific butterfly exists is approached by the staff of that zoo or chooses to approach that zoo for help. The experts within the state, determines the need for a captive breeding project and they see the zoo as being the experts in that field. This shows the influence that zoos have made over the past few years. One good example of this influence is the Karner Blue Butterfly. Several zoos including Roger William’s Park Zoo, Toledo Zoo, Detroit Zoo and Toronto Zoo have been involved with this species for 20 years. The success of many education and captive breeding for re-release projects have shown federal and state officials that partnerships with zoos work.

Most of the information so far written has been published already. But it must be mentioned that there is a vast amount of work being done on invertebrates for conservation that has not yet been published. Toronto Zoo can be an example of this. It has been mentioned that the Zoo has begun a program of awareness for the freshwater mussels in Ontario and that it has been involved in the effort to return the Karner Blue butterfly to Ontario. What isn’t mentioned is that they have been involved in butterfly surveying for the Rouge Park and the eastern Toronto Region for 19 years, they have helped in surveying odonates (dragonflies and damselflies) for over three years, they hosted the first 24 hour “bioblitz” that identified over 3300 species in its first attempt and recently they were the lead in a survey of the spiders within Rouge Park, an urban wildlife park where Toronto Zoo resides.

One would not expect much from such a study as spiders but it was noted that during the creation of a series of booklets on the Biodiversity of Toronto, that spiders had not been looked at in the region for 100 years. In cooperation with the Royal Ontario Museum, the Rouge Park and the Canadian Institute of Biodiversity at the University of Guelph, Toronto Zoo worked on this survey. Results from this short study came up with 125 species, 30 of which were new for the Toronto region and one was new for Canada. On top of this a specimen of Ontario’s only mygalomorph (primitive spiders containing the tarantulas) was found. The Northern Purse-web Spider, Sphodros niger has only been found approximately 12 times in Canada and officially only just over 100 times in its entire range. Its rarity has placed it on the proposed endangered species list for Canada. This represented a new site not known before for this extremely rare species.

This is just an example of what has not been published in regards to conservation efforts ongoing in North America by zoos. This short discussion has not covered work done on Partula snails, Mossy rock tarantulas or blind cave crayfish. There is just too little space. It is needless to say that the zoos of North America are making their mark in the efforts to support invertebrate conservation. Partnerships have developed and zoos are being appreciated for what they can offer.
Shigeyuki Yamamoto

I’m already getting over 60 and spent more than half of it in the zoological world. When I started my career in zoos over 35 years ago, I was not planning on staying in the field for a long time.

I didn’t like zoos because I didn’t believe in bringing animals into captivity from the wild. I had thought to bring them into captivity would lose their dignity to live in the wild by their will and power. When I was a student, I dreamed about the ideal of the perfect society. I was inspired by the philosophy of humanism. However, I soon recognized that this way of thinking ignored nature and was exclusively focused on humans and their needs and peculiarities. I took to learning about wildlife instead. I was attracted by the raccoon dog that doesn’t have a territory and lives at Satoyama. If we people would like to know about wildlife, we make effort to go to their place and ask them to excuse us to see their lives. That’s the attitude how I came to the zoological world. I still believed that a zoo was the urban device that brought animals from the wild in a pompous manner.

In the 1970s, Japan was developing quickly. Roads, dams, factories, and canals were being built everywhere. As a consequence, nature was systematically being destroyed at an alarming rate and environmental pollution was raging. Valuable traditions and knowledge related to living in harmony with the natural world vanished, as rural populations, who were the guardians of this knowledge, migrated into urban areas. Many people became so far removed from nature, that it was common for city dwellers to be clueless about what season it was. As time went by, more and more people became used to their new artificial environments, where convenience and consumption reigned.

The Ocean and the mountains were badly affected, as were areas such as Satoyama and Satoumi. Both were formerly productive regions where sustainable relationships between humans and nature had existed for centuries. The wisdom of the people who have lived together with nature was made by feeling nature and learning from nature. We also learned from animals. I believe that if we lose this connection with the natural world, we, as a species, cannot survive. We as people living in urban areas need a lot of effort to keep the relationship between humans and nature. It is this philosophy that has guided me in my work with zoos. I want to help keep the relationship between humans and nature alive.

I paid attention to the endemic animals that breathe the same air and drink the same water as we do. The planning for the building of the Toyama municipal family park zoo started in 1974. The site was in my hometown of Toyama. As the team leader of animal management, I was interested in featuring animals which were endemic to Japan. Most of my colleagues considered this an unusual idea, because at the time, zoos were seen as places of leisure, not as facilities for the conservation of nature. In addition to featuring endemic animals, I wanted to include those who were threatened or displaced by human over-development in Japan. I understood that this collection of animals would not be as exotic as giant pandas or giraffes and a lot of effort was spent convincing visitors of the importance of Japanese wildlife that are in conservative colors. I also wanted to showcase domestic animals that were significant in Japanese culture and heritage as well as were threatened by extinction. I was convinced that keeping them and the associated culture is also one of the important issues that zoo should take care of.

August 1976, age 28. Living at a house in the mountains with the rescued raccoon dog named My.
Since the beginning of the 21st century, Japan’s environment and culture have changed a great deal. Much of this has happened unnoticed. With the rapid progress of globalization and urbanization, the Satoyama area, once the cradle of a harmonious coexistence between humans and nature, has become abandoned. Most of Japanese terrestrial animals are living there. And the fragile balance, that had existed for so many centuries before, has been broken. For example, the appearance of the Asiatic black bear in urban areas has caused damage to human populations. Furthermore, increasing numbers of Japanese sika deer and wild boar have damaged crops and native ecosystems. It also happened in Toyama. Since 2000, I have made the regeneration of Satoyama a priority and I have aspired to have the Toyama municipal family park zoo contribute to the region’s issues, wherein we cooperate with local people. This aim constitutes a major reason for why I started to work for the zoo in the first place. I believed that it was important to build bridges between humans and nature. Over time, I have worked hard to help establish links between the zoo and local businesses, the government, and academic institutions. My main objectives are to influence nature conservation, to re-establish sustainable relationships between humans and nature, and to help revitalize local populations. Our activities are still expanding.

The Toyama municipal family park zoo has no gorilla, no elephant. A zoo of this style situated in a rural area was an exception. It could have been heresy. And I have worked as the director of the zoo for 7 years. I became the Chair of the Japanese Association of Zoos and Aquariums (JAZA) in 2010. Most of the time, the Chair of JAZA had been the Director of Ueno zoo that is located in our capital. My accession was also an exception.

The underlying principle of my work for the last 35 years has been the belief that Japanese zoos must help to reinforce the link between humans and nature. My belief extends beyond Japan. I am convinced that once people see the world, they can recognize their position and their place, and discover what they should do. We cannot survive otherwise. If any of what I have done has influenced other directors of Japanese zoos and aquariums, I would be most humbled.

I’m writing this article on 11 March, 2012, a year after the Tohoku earthquake. Since then, the words “Kizuna” and “Tsunagari” have been uttered frequently. They mean “ligature, linkage”. The essence of these words represent what we, as a nation, have learned from the massive earthquake that shook our country to its core. The current issue is how to make “Kizuna” and “Tsunagari” an everyday affair and how to keep it. From a zoo’s point of view, we hold and keep many of lives and we can contribute to biodiversity conservation locally as well as globally.

…I believed that it was important to build bridges between humans and nature....
This haiku, by Basho Matsuo, a haiku poet of the Edo era, represents a worldview and a perspective on nature. In Japanese, the haiku is written by 17 letters and the vision of the world, nature, life and seasons are fully described in such a short sentence. The old pond symbolizes the coexistence of humans with nature over a long time, and the jumping frog stands for immersing ourselves in the life of the world of coexistence. This is exactly the spirit of “Kizuna” and “Tsunagari”. I would like to expand this vision of nature that is an inherent part of Japanese culture, to all over the world. Making forests healthier, making life healthier, and making the Earth healthier, this should be what WAZA should aim to do through its focus on biodiversity. This too, is what JAZA should prioritize.

In closing, I would like to humbly bow my head to the people, regions, environment, and animals, which have been the victims of the earthquake. I would also like to thank WAZA and all of the people who have helped us. Japanese zoos and aquariums are the guardians of animal lives and we strive to make “Kizuna” and “Tsunagari” the basis for how we operate. JAZA is ready to lead the way, let’s go forward together!
Ray Morrison is the Facilities & Environment Manager at Chester Zoo, England. The Zoo was opened in 1934 and has a diverse range of buildings and exhibits, including a Victorian Mansion house which once was home to the Zoo aquarium, and a free flight bat cave. Ray was a founder member of the Zoo’s Green Team and in 2004 helped Chester Zoo become the first zoo in the UK to achieve ISO 14001 accreditation, the ISO standard for environmental management systems. He has helped Chester Zoo obtain a number of regional and national awards for excellence in environmental management.

Ray is also a member of a team set up by BIAZA to promote and support environmental sustainable initiatives across the BIAZA membership. His particular focus is on energy conservation and efficiency. Ray has been invited to speak to the Aquariums and Zoos Facilities Association of the USA at Cincinnati Zoo, where he will share the challenges and successes of Chester Zoo’s sustainable development journey.

WAZA: Could you briefly explain your professional background?

Ray: Before joining the zoo I worked in the maintenance and construction industry as a craftsman. I started at the Zoo in 1989 and my first job was as a plumber. I was promoted to Maintenance Supervisor and in 1999 became the Maintenance Manager. I obtained a Diploma in Environmental Management in 2008 and in 2011 became the zoo’s Facilities & Environment Manager.

What is the biggest challenge you had to face to implement the necessary changes of your projects? That’s easy – developing the smart building, systems and staff! We consider smart buildings to be those that maximise the potential to use passive systems for lighting, heating and cooling and minimise the use of energy hungry systems.

Smart equipment comes in many forms from intelligent, yet relatively inexpensive, lighting controls to complex heat recovery equipment and motor controls. We believe smart people are those who are aware of the issues and who are aware of the impacts of their behaviour on environmental performance and the associated costs, both environmental and economic.

WAZA Interview

What are the biggest projects you are working on? In terms of capital projects by far the biggest is the £30 million ‘Islands’ development. Due to open in 2015 it will take our visitors on a conservation expedition bringing the islands of the Philippines, Papua New Guinea, Bali, Sumatra, Sumba and Sulawesi to the heart of the North of England. The development will showcase the zoo’s conservation fieldwork and bring together a range of animals including Anoa, Banteng, Babirusa, Bali Starling, Cassowary, Indonesian Rhinoceros Hornbill, Indonesian Winkled Hornbill, Lorikeet, Sumatran Orangutan, Saltwater Crocodile, Sulawesi Macaque, Sumatran Tiger and the Visayan Warty Pig. Working closely with my colleagues in Estates and external teams I am championing sustainable development on the project, where possible endeavoring to influence a green design and build practice.

I am also working on the zoo’s Carbon Reduction plan. We have determined energy, waste and transport as the big issues to focus on and I am working with colleagues across the business to encourage resource efficiency and improve environmental performance. We have a strategy which recognises that there are many elements which influence environmental performance and that smart places (buildings) with smart products (technology) and smart people (staff) are the critical factors.

What’s the main obstacle for implementing such projects? Is money the main barrier? Or is it changing the human habits that are the most difficult mission? If we strive for all new developments to be truly sustainable then, when taking into account the whole ‘life costs’ of our exhibits and facilities, money is always the biggest challenge. If money was no object then all projects could be carbon neutral and contain only the best equipment and be maintained and operated by highly trained staff. In reality a compromise has to be reached between meeting the immediate expectations and requirements of colleagues, the
Ray’s 3 wishes for the Zoo Genie

1. I wish that world leaders meeting at the Earth Summit in Rio de Janeiro, Brazil (20–22 June 2012) truly embrace and subsequently deliver the changes required to tackle the mounting environmental crisis. Nature is currently being subjected to unprecedented destruction and loss due to our relentless plundering of its resources.

2. I wish that the world governments, businesses, including all world zoos and citizens alike adopt more sustainable lifestyles and that we are able to look back at this decade as being the time that a fundamental shift occurred, embracing the principles of one planet living.

3. I wish that I had a time machine so that I could go back to 1934 and ensure that every electricity cable, and every water and gas service that had ever been buried in the zoo was recorded on detailed plans and had been put in to last for at least ninety years, by which time I will have retired!

Have you been successful to combine energy savings and cutting back of costs? Yes. We have had enjoyed many success. A holistic approach to energy management, focussed on the three smarts -- smart places, products and people – has delivered significant gains in energy efficiency and energy conservation.

Projects at the elephants, penguins, and jaguars exhibits have been particularly successful. Savings on these exhibits alone are greater than 500,000 kWh/yr each year, with resulting CO₂ emissions reducing by 200 tonne a year. At the penguin exhibit fitting smart controllers to the system pumps (see photo) reduced energy consumption by 50% and the investment paid back in eight months. At the Elephant exhibit fitting air quality monitoring equipment to the ventilation system enabled a 60% saving. Further initiatives across the site have had a considerable positive impact. When taken cumulatively we have achieved a 10% reduction in energy consumption in real terms. The return on investment predictions has exceeded all expectations. Site energy usage is monitored using smart energy meters and portable data loggers to identify opportunities for more savings. Once saving potential is identified we work hard to ensure good intent is followed up with action.

Would you say that energy savings is becoming a priority for the zoo world? Absolutely. Unless we can make all our developments carbon neutral, we are highly likely to be dependent on fossil fuels. The burning of fossil fuels, such as gas and coal used for electricity production, results in carbon dioxide being released into our atmosphere emissions. The overwhelming scientific evidence and opinion is that this is harmful to our environment. In addition to these environmental concerns, energy is becoming an increasingly expensive commodity. World zoos have an obligation to conserve energy, so supporting conservation aims in recognition of the pressures energy use puts on biodiversity, and to manage with financial prudence.

Do you feel as an “Alien” amongst zoo people? Not nearly as much as I once did! There is now a real awareness of the need to embed sustainable practices thought out the business. For example we recently set out to formalise and evaluate the temperature and lighting requirements for both animal and plant sections. While both teams were very robust in looking after their needs we did achieve positive change and worked in a collaborative partnership which has continued. We identified opportunities to reduce some temperature and lighting demands, in particular with reduced heating demand for the evening period, which also better replicates the natural environments in addition to the related carbon and financial savings, these savings represent true free wins as they were achieved by simply changing controls set points.
Brazil’s Great Atlantic Forest Rises Again

Winding like delicate green tendrils across the chequered farming landscape of eastern Brazil are four corridors of hope. Prowled by ocelots, tamarins, pumas and lowland tapirs, these slender Atlantic Forest passages form links in a chain of renewal – for threatened wildlife, for an all-but vanished rainforest and for poor farmers and their families.

When forester Laury Cullen Jr first moved to Pontal do Paranapanema in São Paulo State to study an endangered monkey, nine-tenths of the once-mighty Mata Atlântica, Brazil’s Atlantic Forest, had fallen. Cleared for timber and farms, its removal came at a devastating cost to the many hundreds of species of animals and plants living there, most of which are found nowhere else on Earth.

Twenty years on and the relentless march of human progress has taken a hopeful turn. Corridors and islands of forest are springing up anew, tended by the caring hands of 310 farming families who today earn a better living from the intermingled trees, wildlife and crops than they were ever able to gain from agriculture alone.

Cullen’s approach has successfully managed to combine the goals of conservation and landscape restoration with finding new sources of income for poor farmers and funds for further forest replanting – a plan that saw him honoured as an Associate Laureate of the 2004 Rolex Awards.

Today the scale of his achievement can be seen from space and via Google Earth, which shows the largest forest corridors. “The change in the landscape is striking,” Cullen says. “We are extremely proud to see how our activities in the ground have effectively changed the landscape and contributed to additional cover in the Atlantic Forest.”

The corridors and associated “stepping stones” (islands of forest close enough together for animals and birds to migrate between them) contain two-thirds of a million trees comprising 700 hectares of new forest that links the state’s two largest protected areas, Black lion tamarin ecological station and Morro do Diabo state park. For the first time in decades the long, slow ebb of the Atlantic Forest has reversed and regrowth has begun.

Although the new forest has been established only for a few years, ecology students monitoring wildlife transit are reporting that ocelots, pumas and tapirs are already using the corridor to move between protected areas. “We now hope jaguars, one of the species we want to save, will begin to use them too,” says Cullen.

When he began his project, much of the farming land was degraded. At the same time, the Brazilian government had decided to resettle thousands of urban poor in rural areas. Cullen and his team worked alongside the new settlers, showing them how to use agroforestry – the integration of trees with farming – to improve soil fertility and generate new sources of income from trees, seedlings and from organic farming of corn and coffee. Fifteen community-based agroforestry nurseries are now flourishing.
Asked how to describe the mood of the farmers today, he says: “The main word is ‘proud’. Our farmers are very proud of their involvement in changing landscapes and changing the history of land reform in Brazil. They have demonstrated it is possible to ‘green’ the fragmented rural landscapes and to generate new income.”

As the word spreads, the number of participating farmers is growing at a steady rate of around 5 per cent a year. The plan has also been accepted by larger farmers and sugar cane growers in the area. Settlers from the nearby states of Parana and Mato Grosso do Sul have visited to learn from the experiences of the Pontal farmers and are planning similar projects in their own districts.

Several organizations worldwide have supported the project, helping to raise US$3 million in funding over the past eight years. Nevertheless, finding enough funds to maintain momentum remains a challenge. “We need to find ongoing funding for small technologies like irrigation that can help increase production,” Cullen says.

The benefits, he points out, are global. When fully grown, the 700 ha of new forest will store 65,000 tonnes of carbon and he hopes that fresh investment will soon begin to flow from large international corporations keen to offset their carbon emissions.

The ripples from those slender forest corridors are also making themselves felt in the corridors of power: the project has become one of Brazil’s most often quoted community-based conservation achievements, and is thus meeting one of its most ambitious goals – to influence the political process and thinking at local, state and national level.

For Laury Cullen, the inspiration to keep going is readily drawn from the profound changes both in the natural and the human landscapes that are taking place. The keys to success, he says, are “presence, passion and determination”: at Pontal do Paranapanema they are in plain view as a new paradigm for modern humanity living in harmony with the natural world unfolds.

To find out more:
www.ipe.org.br/english/

…For the first time in decades the long, slow ebb of the Atlantic Forest has reversed and regrowth has begun....
The Live Animals Regulations (LAR) issued by the International Air Transport Association (IATA) are the global standard for air transportation of live animals. The LAR are enforced by the European Union and the US Fish and Wildlife Service, are accepted by the World Organization for Animal Health (OIE), the Council of Europe has used these regulations as a basis for its code of conduct for the international transport of farm animals, and they are deemed to meet the air transport requirements of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). CITES furthermore recommends the usage of the LAR as a reference to indicate suitable conditions for carriage other than air where appropriate. As the CITES guidelines for transport and preparation for shipment of live wild animals, that were last revised 30 years ago, still apply to the non-air transport of live animals under certain circumstances, conflicts were predictable.

Over the past years the CITES Animals Committee and the CITES Plants Committee established a joint working group (TWG) to work on a scoping exercise to determine the need for creating new CITES guidelines. The TWG comprising of representatives from manifold organisations including zoos and aquariums and related entities from around the world, found that there was no need for writing completely new guidelines from scratch but that one global standard for the shipment of live animals was desirable and special provisions for the non-air transport were needed. IATA LAR were a good basis to start from as the container requirements in the IATA LAR can, in most cases, be used for non-air-transport as well. Some taxa, however, would require particular modifications of the IATA container requirements and/or transport procedures, in order to be properly transported by non-air modes of transport.

As chair of the CITES TWG I had the opportunity to consult and liaise with diverse stakeholders and experts on developing new guidelines for non-air-transport of CITES listed species to replace the CITES guidelines for transport and preparation for shipment of wild animals and plants (1981) as well as attend several meetings of the IATA Live Animals and Perishables Board (LAPB), and participate in various workshops and round-tables on the non-air-transport of wildlife. Valuable expert opinions and documents relating to the non-air-transport of CITES-listed species have been received and the taxa that need deviations from the LAR have been identified.

Particular modifications for these taxa have been elaborated and compiled into the „CITES Guidelines for the Non-Air Transport of Live Wild Animals and Plants“ that will serve as an addendum to the IATA LAR.

While all requirements for the shipment of plants are considered to be covered by the IATA Perishable Cargo Regulations (PCR), the document that deals with the transport of live wild animals consists of three parts. Following a short “Introduction” on CITES and the transport of live specimens, a “General Conditions” section contains guidance on planning obligations for the transport of live animals, means of transport, marking and labeling, persons accompanying transports, loading and unloading of animals, and measures to be taken during transport. The “Technical Specifications” section describes the technical details for the identified taxa that require transport conditions additional to or deviating from those found in the IATA LAR.
that will become the basic standard for all modes of transport. The new guidelines should be made available on the CITES website and also shared with IATA for possible incorporation into the LAR.

To avoid running into the same problems as with the 1981 Guidelines, the new “CITES Guidelines for the Non-Air Transport of Live Wild Animals and Plants” need to be reviewed and revised on a regular basis. This will be done in consultation with the IATA Live Animals and Perishables Board that had indicated their interest prior to the meeting. The 1981 CITES Guidelines for transport and preparation for shipment of live wild animals and plants shall be repealed.

The “CITES Guidelines for the Non-Air Transport of Live Wild Animals and Plants” and the recommendations made by the TWG are endorsed by the CITES Animals and Plants Committees and will be submitted to the CITES Conference of the Parties (CoP) in Bangkok in 2013. Provided adoption by the CoP the Live Animals Regulations (LAR) for animals, the Perishable Cargo Regulations (PCR) for plants, and the CITES Guidelines for the Non-Air Transport of Live Wild Animals and Plants in their most recent edition will be deemed to meet CITES air transport requirements and thus become legally binding in those countries signatory to the convention!

There will be one standard finally! And one board! From then on the IATA LAPB will take on responsibility for air and non-air-transport. But, this is a dynamic and continuous process and it is important to be part of this process and be proactive instead of reluctant. This is why WAZA has applied for an opening on the Live Animals and Perishables Advisory Panel of IATA already consisting of representatives from the World Organization for Animal Health (OIE), the Animal Transportation Association (ATA), the Association of Zoos and Aquariums (AZA), and the Pet Industry Joint Advisory Council (PIJAC).

The LAPB was established to evolve criteria applicable to the acceptance, handling, and loading of live animals and perishables in air transport and is in charge of the IATA LAR and PCR. It meets twice a year to improve and amend the LAR that is published annually in English, French and Spanish.

As of April 2012, Andreas Kaufmann has been appointed to the Live Animals and Perishables Advisory Panel on behalf of the World Association of Zoos and Aquariums!

Now WAZA has an important position in this process, and it is time to take on responsibility! Share your good and your bad experience! Set up a transport working group with your regional zoo organization, have regular meetings where you discuss problems with the LAR and its future addendum, and find solutions. Come up with suggestions for improving transport regulations and help us and help yourself to the best possible standard in live animal transportation that serves the animals and the zoo community!
Wildlife Heroes: 40 Leading Conservationists and the Animals They Are Committed to Saving by Julie Scardina and Jeff Flocken


Wildlife Heroes. They are our peers, our colleagues, and our inspirations. We all individually have our list of people who we admire, and combined over the decades there are most likely many hundreds of them. Individuals so dedicated to a species, habitat or idea that it becomes their life’s work. But why just 40 Wildlife Heroes? Anything larger today and our currently evolved inability to pay attention would make the book inaccessible to those it is intended to reach – the general public. That is not to say that zoo and aquaria staff and colleagues would not find the book informative as well. This is one of those books that crosses over quite easily and is what makes Wildlife Heroes so unique. Each story is no longer than 4 pages with highlights of fast facts, great imagery, what you should know and what is important. As a whole, each chapter is easily digestible and a quick read told as much from the co-authors’ point of view as from the conservationist.

The co-authors admittedly chose the species and conservationists from personal interest and we would most likely do the same. Nonetheless, the book is an outstanding who’s who of individuals who have not only committed their careers, but devoted their lives to making a difference. Karen Eckert is quoted as saying “what could be more threatening to a population of sea turtles and other wildlife than to have no one care whether they survived or not”. Whether you care about Lemurs or a species closer to home whose story is not part of the book, Wildlife Heroes makes you care. As Zoo and Aquarium professionals, it is our responsibility to care and inspire not only our visitors, but our communities and governments. In its easily accessible style, Wildlife Heroes can help us make those connections.

The book can be ordered by: www.runningpress.com


Russell Tofts, having been a zookeeper himself developed deep affection for historical research and writing. This book about Jersey Zoo is a proof for long time in-depth historical research, analysis and entertaining writing and fun reading. Although the book is focusing on the career of Ken Smith, it provides ample information about zoos in Britain.

The book traces the childhood of Ken Smith, a son of a grocery store owner in England. From his early essay about elephants and his involvement in the Natural History Society, eloquently talking about zoo animals back in 1927, to his first employment at the Oxford Zoo – which just existed six years and finally also to his professional life as electrical wireman. During...
World War II he had the pleasure of being in Aden, South Yemen, where he had enough time to enjoy desert wildlife and collect snakes, lizards and small rodents for London Zoo. After 1946 the fate became clear, as he started working at Whipsnade Zoo, involved in rearing Pere David’s deer calves. It was the place where he encountered Gerald Durrell, who worked as a keeper as well but inferior in rank. Durrell was already concerned about the threats to species and he already put together a first red list, long before IUCN has started to do so. Ken Smith changed jobs, so for instance to Calderpark Zoo near Glasgow and then to Paignton Zoo. The two men stayed in contact and became animal suppliers for zoos, their first expedition was to the British Cameroons and the book talks about angwantibos, water chevrotains, hairy frogs, cusimanses and others – some of them which have never been seen in a zoo before. As superintendent at Paignton he later followed Gerald Durrell when he decided not to catch animals any more for other zoos: Jersey Zoo was inaugurated on 14 March 1959. Although Ken Smith did never become director, he was the de facto director who even employed the later director Jeremy Mallinson. Gerald Durrell was away on expeditions a lot and is characterized as a man with little practical skills. In reality Ken Smith was leading the show and he even declined a director’s post at Dudley zoo in 1962. Later he had his own zoo, the Exmouth Zoo and consequently three more in the vicinity.

On over 200 pages and with 72 black and white photos this biography surfaces many unknown details of zoo history. It is fun reading and puts the development of zoos in Britain into a historical context along the time axis of the 20th century.

The book can be ordered by: www.zoohistory.co.uk

Miranda Stevenson Received
The “Order of the British Empire, OBE”

Miranda has been a driving force in this evolution of zoos, she has demonstrated best practice, led by example and where necessary by inspiration. She has been instrumental in raising the standards of British zoos to become some of the best in the world and then advocating these advances in the European and indeed the global zoo forum.

In her role as Curator of Edinburgh Zoo, Miranda began to employ techniques to dramatically raise the care and welfare of zoo animals. Miranda also fostered and encouraged her staff to share this knowledge and Edinburgh Zoo became a beacon of best practice. It was also during this time that Miranda began to become involved with the formation of international cooperative breeding programmes for endangered species. Although Miranda’s speciality was primates her knowledge and foresight was able to transcend taxa.

Miranda’s present role as Director of the British and Irish Association of Zoos and Aquaria has been an ideal platform to continue her mission to improve zoos and raise the contribution of zoos to science and conservation.

© BIAZA

Dr. Jane Goodall:
“Zoos have greatly improved during my lifetime. WAZA affiliated zoos and aquariums educate hundreds and thousands of people around the world and, increasingly, are playing an important role in the conservation of species.”

© Zoo Magdeburg
Jane Goodall and Gerald Dick signing the Golden Book of Barleben, 12 May 2012.

© BIAZA
The 8th Zoo and Aquarium Marketing Conference
13–16 May 2013
Twycross Zoo, UK

Next year, the 8th Marketing conference will be hosted in Europe at the kind invitation of Twycross zoo. Under the theme of the Decade on Biodiversity zoo and aquarium marketers from all around the globe will get the opportunity to attend a variety of presentations and workshops, share views on current challenges and cooperations, present their case studies, share their experiences and best practices, and spend unforgettable moments with their colleagues!

Biomimicry Europe, Innovation and Finance Summit
Biomimicry – the Business Link to Biodiversity
29–31 August 2012
Zürich, Switzerland

The Biomimicry Europe Innovation and Finance Summit offers the opportunity to learn about Biomimicry, to consider solutions nature can provide, and to discuss the latest commercialization platforms and financing instruments that will accelerate the path to market for bio-inspired innovation. The Summit is organized by the not-for-profit Foundation FFGS (Foundation For Global Sustainability), a Zürich-based Think & Do tank founded in 2007 in cooperation with swisscleantech, San Diego Zoo, Zurich Zoo, Biomimicry 3.8, Wyss Institute Harvard and Ethical Markets. More information and registration: www.ffgs.org

Turning the Tide published in Portuguese

Due to the support of the Aquarium in Lisbon, the Oceanario de Lisboa, the Global Aquarium Strategy for Conservation and Sustainability, “Turning the Tide” is now also available in Portuguese language. The publication is available for download on the WAZA website / Conservation. WAZA is grateful to the director of the Aquarium in Lisbon, muito obrigado João Falcato!

Pardon My French!

The WAZA website www.waza.org is now available in French for all French speaking members. Madelaine Moinat joined the WAZA Executive Office for a few months as part of a special training programme and helps with technical information in French. As a result, the main sections are now updated and translated; some others such as the News section or the conservation project page will remain in English.

Just click on the top right corner of the page and the French version will magically appear. A nice gift for all the French-speaking or francophile members of WAZA!
Looking for a Gift to Your Trustees or Board Members?

The WAZA history book is a perfect present, as it provides you with the full history and development of the international zoo and aquarium community. While presenting the historical background of the community it also offers an outlook to the future development and challenges which we are facing. Many historical documents and over 200 photos make it a "must have" for zoo and aquarium aficionados. "77 Years: The History and Evolution of the World Association of Zoos and Aquariums, 1935-2012"; distributed by NHBS. Please order at www.nhbs.com/77_years_the_history_and_evolution_of_the_tefno_183221.html at a price of 19.00 € /23.00 $

Celebrating WAZA’s 77th ARTniversary!

WAZA has been dignified at the occasion of its anniversary thanks to Jonathan Woodward – an environmentally-friendly wildlife illustrator who has donated a stunning illustration. A commended finalist of the "BBC Wildlife Artist of the Year" competition in 2011 and 2012, Jonathan creates illustrations in a cut paper collage style, using recycled magazines for children’s books, wildlife organisations and charities.

WAZA is very grateful to Jonathan who offered his time and efforts to design a beautiful collage illustration for our 77th anniversary. The commemorative print is available in a number of sizes, framed, unframed or printed on canvas.

Treat yourself or your friends to this lovely artwork and help conservation at the same time, with 50% of all proceeds going to WAZA in support of conservation.

Jonathan Woodward: “As a wildlife illustrator and passionate about conservation, I was honoured to be asked to create a commemorative Illustration for WAZA. It was great fun creating the cut paper collages of some of my favourite creatures and I hope it helps promote the fantastic work that WAZA does.” Thank You Jonathan!

More information and orders: http://jonathanwoodwardstudio.com

Zoos and Aquariums Committed to Biodiversity Conservation

The wonderful compilation of wildlife projects and international partnerships of our community is now available at a special price of 22.50 $ directly from San Diego Zoo: Sue Sincavage (Ssincavage@sandiegozoo.org). Hurry up, the few very last copies are waiting for YOU!
There’s No Need to Kiss This Frog… He’s Already a Prince: *Hyloscirtus princecharlesi*

The brown-coloured frog with large orange blotches was discovered by Ecuadorian scientist Dr Luis Coloma four years ago among preserved museum specimens. Luis, working within the Amphibian Ark, later took part in expeditions to Cotacachi-Cayapas national park in his homeland and found three live adults and some tadpoles. On 5 July a delegation, led by WAZA past president, Gordon McGregor Reid, was invited to meet with HRH Charles, Prince of Whales at Highgrove, UK. The critically endangered frog species was named in honour of Charles, who has been campaigning for decades to help save the world’s remaining rainforests, giving major speeches in the rainforest nations of Brazil and Indonesia on the subject. Charles established his Prince’s Rainforest Project to help find a viable financial solution to the problem of deforestation and starred with an animated frog in a video to highlight the issue.

The delegation presented a glass replica of the frog as well as a golden medal and the scientific description of the frog in *Zootaxa* to HRH Prince Charles. Charles also mentioned during the talks that he appreciates the endeavours of the zoo and aquarium community to raise awareness about biodiversity, to address threats and provide ideas for people’s actions within the Decade on Biodiversity.

Charles: “If we lose the battle against tropical deforestation, we lose the battle against climate change.”

To find out more: [www.rainforestssos.org](http://www.rainforestssos.org)
A year into its existence the Amphibian Survival Alliance is making substantial headway towards creating a united global community focused on amphibian conservation. The ASA’s mandate was to coordinate the comprehensive implementation of IUCN SSC’s Amphibian Conservation Action Plan (ACAP), a plan developed in 2005 in light of the amphibian extinction crisis. The ACAP resulted in a solid foundation from which to launch an ambitious global conservation initiative and although significant contributions have been made to date, we are still very much in the depths of the crisis. The last version of IUCN’s Red List of Threatened SpeciesTM, published during the Rio+20 Conference, revealed that the situation has not improved. We are still living in a world where every third amphibian species is threatened with extinction and every fourth is assessed as Data Deficient. Paradoxically, this is all taking place in a world in which funding for environmental initiatives is increasing (though not necessarily aimed directly at biodiversity conservation), organizations with a “green” focus continue to sprout, and awareness about environmental issues is mainstream.

It is in this challenging context that the ASA is functioning as a “go to” organisation, promoting synergies within the conservation community to mainstream amphibian conservation and identifying new opportunities to increase available resources. In other words, we need a united front in order to scale up our response to match the complex problems that amphibians are facing. The Alliance is not a replacement for ongoing initiatives like Amphibian Ark, but rather sets such initiatives in a proper context as one of the many elements in a concerted response to a complex problem. The ASA has focused much of its initial efforts on linking existing programs for in situ and ex situ conservation. We envision the ASA as a broker bringing together partners from the different sectors of society that are needed for successful conservation, and being able to represent the interests of amphibians at the negotiating table – which are also the interests of many other species: focusing on amphibian needs would help advance sixteen of the twenty CBD targets (Aichi targets) that countries committed to fulfil by 2020.

The success of the ASA will rely completely on the united efforts of its member institutions. Already, 20 institutions, including several zoos, have signed our Letter of Commitment (LoC) and in doing so express a firm commitment to implement conservation actions in favour of amphibians. The zoo community is firmly behind the initiative with CBSG, WAZA and EAZA represented on our board, and several zoological institutions having provided the necessary seed funding to launch the Alliance.

In order to make a real difference to the survival of amphibians a united effort across the entire community will be necessary. We encourage all those with an interest in amphibians to help us maintain, expand, and build new networks among the stakeholders. To those institutions with the means, we also urge you to contribute to the maintenance of the coordination unit. ASA is just beginning and it is our best opportunity to reverse the amphibian crisis. We invite you to visit our new web-page and to sign our Letter of Commitment. Unite with us – the amphibians need it!

To find out more: www.amphibiessurvivalalliance.org
Update on International Studbooks

There are currently 127 active international studbooks (ISBs), including 161 species or sub-species (10 ISBs cover more than one taxon). The following events regarding ISBs have occurred since 1 April 2012:

**ISBs archived**
- On 2 April 2012, CPM decided to archive the ISB for the diademed sifaka (*Propithecus diadema*).
- On 4 April 2012, CPM decided to archive the ISB for the Japanese macaque (*Macaca fuscata*).

**ISBs established**
- None.

**Transfer of ISBs to new keepers**
- On 2 April 2012, CPM approved the transfer of the maroon-fronted parrot (*Rhynchopsitta terrisi*) ISB to Carolina Hartmann (Africam Safari, Mexico).
- On 4 June 2012, CPM approved the transfer of the sand cat (*Felis margarita*) ISB to Grégory Breton (Parc des Félin's, Nesles, France).
- On 11 June 2012, CPM approved the transfer of the black lion tamarin (*Leontopithecus chrysopygus*) ISB to Dominic Wormell (Durrell Wildlife Conservation Trust, UK).
- On 20 June 2012, CPM approved the transfer of the cotton-top tamarin (*Saguinus oedipus*) ISB to Thijs van den Houten (Flamingo Land, UK).
- On 21 June 2012, CPM approved the transfer of the black lion tamarin (*Panthera pardus japonensis*) ISB to Andrea Echeverry (Barranquilla Zoo, Colombia).

**Transfer of ISBs to new institutions**
- On 16 April 2012, CPM approved the transfer of the horned guan (*Oreophasis derbianus*) ISB, kept by Juan Cornejo, to Bronx Zoo (USA).

**Pending issues**
- As of 30 June 2012, ISBs for the Edward’s pheasant (*Lophura edwardsi*), Vietnamese pheasant (*Lophura hatinhensis*), North China leopard (*Panthera pardus japonensis*) and Sumatran rhinoceros (*Dicerorhinus sumatrensis*) are vacant.

Help for Illegal Scorpions

On Friday, 18th May 2012 customs authority at Budapest Liszt Ferenc International Airport seized 503 emperor scorpions (*Pandinus imperator*) arriving from Ghana. Twenty-eight specimens were already found dead on arrival.

Officers made a physical check of a reptile shipment that was covered by both export and import documents. During this check they found the 503 scorpions that were not covered by CITES documents. They also found two serrated hinge-back tortoises (*Kynixis erosa*) in addition to the authorized number of specimens. The scorpions have temporarily been placed in the rescue center of Budapest Zoo, and after support was requested by CITES secretariat, WAZA executive office with support of Tiergarten Schönbrunn (Zoo Vienna) found a place (23 in Hungary, 20 in Erfurt, 30 in Zoological Garden Plock and 20 in Vienna) for some of them. Those scorpions are quite easy to keep and they also breed very well, therefore it was quite difficult to find a place for such a big number.
The San Martin titi monkey (*Callicebus oenanthe*) is a Peruvian endemic primate species. Until 2002 it was known from only six museum specimens, originating from the area around Moyobamba, Department of San Martin, Peru. Considering the degradation of the forests in this region, it was assumed that *C. oenanthe* was extremely rare, and possibly even critically endangered.

Until 2007, no conservation measures were taken, probably due to the lack of information on the distribution and conservation status of the species. Therefore, in 2007 Le Conservatoire pour la Protection des Primates, the conservation association of La Vallée des Singes Primate Park in France, initiated the Proyecto Mono Tocón, a project for the conservation of the San Martin titi monkey (locally known as mono tocón) and its habitat. As a first step, extensive research was started on the distribution and taxonomy of *C. oenanthe*. The study revealed that the distribution of the species was larger than expected, but due to an extremely high rate of deforestation (up to 80% in some provinces) the species is in immediate danger of extinction. The results of the studies were used by IUCN to upgrade its status on the Red List from Vulnerable to Critically Endangered.

In 2009 the local Peruvian NGO Proyecto Mono Tocón was founded. The project employs fulltime four young Peruvian biologists. The enthusiastic team is supported by six students who run their theses with the project, and an active group of more than 25 volunteers, mostly students from the local university.

In order to take effective conservation measures, research on the distribution of the San Martin titi monkey and the threats to its survival continues. With the help of GIS habitat studies and field research, we intend to determine which areas are the most suitable for titi monkey conservation. Additional research is conducted on other primates, including a new population of bald uacaris (*Cacajao* sp.) that our team discovered in the mountains of San Martin. Our team supports other primate projects and bird surveys.

Our active education team has developed an interactive educational programme for local schools around areas with titi monkeys. In the city of Moyobamba a botanical garden is being transformed into an educational centre, in which school groups and tourists can learn about the nature of San Martin. Nature clubs for children have been founded. The members are active for our educational department, and help with the cleaning of the streets and public areas of the cities. As there is little action against the illegal animal trade, workshops on the importance of nature protection and law enforcement are given to local authorities. Groups of guides working for ecotourism projects have received environmental education. A comic book about nature conservation was created and distributed in large parts of San Martin, including by other projects.

The conservation activities range from membership in nature reserve management committees to the creation of new protected areas. Local (native) communities are supported, mainly technically, in their strive for the creation of nature reserves on their territories. The project no longer focuses only on the San Martin titi monkey, but on all primates of the region and their habitat.

The project is coordinated by Le Conservatoire pour la Protection des Primates and the Spanish NGC Sugkamat. The project is adopted by the *Callicebus cupreus* EEP, and is supported by a large number of European zoos.
Western Derby Eland Conservation Programme

The first formal Czech–Senegalese cooperation focused on western derby eland (*Taurotragus derbianus derbianus*) conservation started in 2000. A few individuals were captured at Niokolo Koba National Park by the Direction of National Parks of Senegal and the Society for the Protection of Environment and Fauna of Senegal (SPEFS) in 2000 and transferred into the safety of the fenced Bandia Reserve. The first activities of a team from the Czech University of Life Sciences Prague in the Niokolo Koba National Park were started at the same time. These activities were mainly focused on animal census, research and the possibility of *in situ* conservation of western derby elands, and were supported by the Czech development cooperation.

The conservation programme has been funded for many years by the Czech development cooperation and scientific grants. The last large project funded by the Ministry of Environment of the Czech Republic was terminated successfully in 2009. Nowadays, the Derbianus – Czech Society for African Wildlife (Derbianus – CSAW) is the main platform for the Senegalese–Czech cooperation on the conservation of this critically endangered antelope. Derbianus – CSAW is non-governmental organisation and was founded by a group of experts from the Institute of Tropics and Subtropics at the Czech University of Life Sciences Prague in 2010. The main activities of Derbianus – CSAW are focused on the conservation programme for western derby elands in Senegal. More than 80 western derby elands live in semi-captivity at Bandia and Fathala reserves in Senegal. Derbianus – CSAW together with SPEFS, the Czech University of Life Sciences Prague and Prague Zoo manage the studbook for the western derby eland.

The animals within this conservation programme should be regularly monitored. Our team should ensure the optimum composition of the breeding herd and build new facilities in reserves for antelopes whose numbers are continuously increasing. The conservation programme is based on three main pillars: population management, research and education. Population management is the base of the conservation programme. Every year it is necessary to identify newborn calves in reserves according to their stripe patterns and mother–infant relationships. Monitoring the relatedness between the animals is essential for the formation of new herds composed of less-related animals. According to our findings, selected animals are transported to new breeding herds.

Research is mainly focused on the ecology and feeding behaviour of western derby elands because the knowledge about these animals and their behaviour is very poor. We have studied the foraging ecology in their natural habitat (Niokolo Koba National Prk) and also in the fenced reserves. Maternal behaviour and reproduction are also included in our research. The last but not least pillar of our work stands on education. Long-term success is dependent on cooperation with and assistance of the people who live in the neighbourhood of the reserves and parks. We hold educational programmes for children and workshops for reserve staff, teachers and local people.

The society members of Derbianus – CSAW have been saving this critically endangered antelope for many years and attained a lot of important achievements by this time. Derbianus – CSAW also follows other activities of its members, especially research in other countries of the tropics and subtropics (Congo, Ethiopia) and environmental education of children and adults in Senegal and the Czech Republic as well. In the Czech Republic, we cooperate mainly with Prague, Pilsen, Ostrava, Liberec and Jihlava zoos where we hold educational and fundraising events for visitors.

Derbianus – CSAW together with SPEFS and other partner institutions are planning, for the beginning of the year 2013, a Western Derby Eland Conservation Workshop in Senegal based on the Species Conservation Strategy Process together with IUCN’s Species Conservation Planning Subcommittee and Antelope Specialist Group experts.
Anteaters are a small group of unique mammals inhabiting the Neotropics. Despite their great visual appeal, their long lifecycle and their anatomical and physiological peculiarities, these fascinating creatures have not received due attention from scientific researchers and many aspects of their bio-ecology remain unknown. Anteaters play a significant role in the maintenance and working of ecosystems and help maintain habitat heterogeneity by keeping insect populations in check. Anteaters, even at reduced population densities, may prey significantly on insects, consuming an average of some kilos of ants and termites per day. They forage in different areas and seem to play an important role in dispersion of the deep, mineral-rich soil used by termites. Another of their important ecological roles is serving as food for top predators like the large cats. Thus, the drastic decline in their populations may trigger a process of ecological collapse, compromising long-term ecosystem integrity.

Conservation efforts focusing on landscape species, such as anteaters, help maintain regional integrity of ecosystems in general, maintaining their biodiversity, current ecological processes and their natural landscapes. Landscape species may use large, diverse areas, have significant impact on the structure and function of natural ecosystems, and are particularly vulnerable to environmental threats posed by man. This project aims to participate in an active way in the conservation of anteaters in Brazil, making the results obtained available in a way to add them to the information bank that is being created by the project. The project aims to contribute to the proposal of creating and elaborating an action plan for the conservation of these species in South America and protect areas of natural habitat that may be affected by short- and long-term environmental changes, aiming at the conservation of the species in question.

Since 2005, research has been carried out in taxonomy and ecology of the silky anteater (Cyclopes didactylus) in Amazonia and Atlantic forest, analysis of health in giant anteater (Myrmecophaga tridactyla) and lesser anteater (Tamandua tetradactyla) populations in the Pantanal, and analysis of the distribution of different populations of anteaters in Brazil. This includes the preparation of a studbook for giant anteaters and lesser anteaters. We develop environmental education in schools and empower students in biology and veterinary medicine in wildlife conservation work.

In addition, Projeto Tamanduá has a database and samples available to researchers who want to develop Master’s and doctoral theses. Many theses have been developed with our support. During the last years we have had great results. IUCN accepted our suggestion, based on five years of research, to separately evaluate the coastal north-eastern Brazil population of Cyclopes didactylus. This population is separated from the main population by over 1,000 km, and may be sufficiently differentiated at the genetic level to represent a separate Evolutionary Significant Unit. Therefore, we considered it appropriate to evaluate it apart from the main population. However, knowledge about the ecology and conservation status of the coastal Brazil population is virtually non-existent, and field research is urgently needed to correctly assess the long-term chances of survival of this smallest of all anteaters.
The full programme is available on the member area of www.waza.org, registration link is provided on the homepage: “Fighting extinction 2012” – stamp.

The keynotes will be delivered by Arron Wood and Martin Copley.

- **Arron** was named in the top ten education leaders in 2009 as part of The Weekend Australian Magazine, he received The Centenary Medal for outstanding contribution to conservation and the environment, awarded by the Governor-General and completed a Churchill Fellowship to New York and Geneva with the United Nations. He was appointed by Lord Mayor Robert Doyle to the high level Economic Development Board to attract sustainable investment to Melbourne.

- **Martin** is the Founder and Chair of Australian Wildlife Conservancy (AWC), a non-profit whose mission is the effective conservation of all Australian animal species and the habitats in which they live. The origins of the organisation date back to 1992 when Martin established the first small sanctuary in the Perth Hills (WA) known as Karakamia. Today AWC owns and manages 22 sanctuaries across Australia totalling approximately 3 million hectares (7.5 million acres). AWC was awarded the Prime Minister’s Environmentalist of the year Award in 2006 and Martin was made a Member of the Order of Australia in 2010 for his services to conservation.

The major sessions of the technical congress will deal with “Linking Ex situ and In situ”, “Institutional Developments”, “Animal Management” and “Field Conservation”.

**Future WAZA Conference Venues**

- 2012 Melbourne, Australia (7–11 Oct 2012)
- 2013 Disney’s Animal Kingdom, USA (13–17 Oct 2013)
- 2014 New Delhi, India (9–13 Nov 2014)
- 2016 Africam Safari, Puebla, Mexico

**New Directors**

- Michel Saint Jalme is new Director at the Menagerie du Jardin des Plantes, Paris (France)
- Reinhard Pichler is new Director at Tierwelt Herberstein (Austria)
- Ronda Schwetz replaced Jim Hubing at Henry Vilas Zoo (USA)
- Tomas Frisk is new Chairman of the SAZA (Sweden) as of 24 April 2012
- Michael Böer replaces Susanne Klomburg at Zoo Osnabrück (Germany) as of 1 June, 2012
- Judy Mann replaced Mark Penning at South African Association for Marine Biological Research, uShaka Seaworld (South Africa) as of 1 July 2012
- Chris West is new Director at Edinburgh Zoo (Scotland, UK) as of August 2012
- Jeff Sailer replaced Anne Baker at Toledo Zoo (USA) as of August 2012
- Elaine Bensted replaces Chris West at Zoos South Australia as CEO as of 3 September 2012
**Recent Updates**

**Membership Application**
Nominated as institutional member

**Detroit Zoological Society, USA**

- **Sponsors:**
  Dennis E. Pate (Omaha’s Henry Doorly Zoo) and Patricia Simmons (Akron Zoological Park)
- **Founded:** 1928
- **Area:** 50 ha (125 acres)
- **Collection**
  - Mammals: 52 species and 256 specimens
  - Birds: 58 species and 429 specimens
  - Reptiles: 75 species and 250 specimens
  - Amphibians: 76 species and 1,332 specimens
  - Fishes: 11 species and 135 specimens
  - Invertebrates: 2 species and 1,277 specimens
- **Staff:** 213 permanent, 98 temporary
- **Visitors:** 1,210,988 paying and 6,212 free entrance
- **Owned by:** City owned – Zoological Society operated
- **Director:** Ron L. Kagan
- **Member:** AZA – Association of Zoos & Aquariums, AAM – American Association of Museums, IAAPA – International Association of Amusement Parks and Attractions
- **Address:** Detroit Zoological Society, 8450 W. 10 Mile Rd, Royal Oak, MI 48067, USA

The Detroit Zoological Society is a non-profit organization that operates the Detroit Zoo in Royal Oak, Mich., and Belle Isle Nature Zoo in Detroit, Mich. Delivering on its mission of “Celebrating and Saving Wildlife”, the DZS is a leader in conservation and animal welfare. The DZS offers education experiences year-round, serving more than 35,000 students annually through education programs and approximately 120,000 more through field trips. The Detroit Zoo is the state’s largest paid family attraction, hosting more than 1.1 million visitors annually.

Situated on 125 acres of naturalistic habitats, it is home to more than 3,600 animals representing 274 species. Opened in 1928, the Detroit Zoo was the first in the United States to use barless habitats. Accredited by the Association of Zoos & Aquariums, the Detroit Zoo features many award-winning habitats including the Wildlife Interpretive Gallery, National Amphibian Conservation Center, Great Apes of Harambee and Arctic Ring of Life, which was named the number-two best zoo exhibit in the U.S. by the Intrepid Traveler’s guide to “America’s Best Zoos”. The Belle Isle Nature Zoo encompasses approximately 10 acres of undisturbed forested wetland, and provides year-round educational, recreational and environmental conservation opportunities for the community.

To find out more:
[www.detroitzoo.org](http://www.detroitzoo.org)
**Recent Updates**

**Membership Application**
Nominated as institutional member

**Birmingham Zoo, Inc., USA**

- **Sponsors:**
  Mark Reed (Sedgwick County Zoo) and Dennis E. Pate (Omaha’s Henry Doorly Zoo and Aquarium)
- **Founded:** 1955
- **Area:** 122 ha
- **Collection**
  Mammals: 58 species and 161 specimens
  Birds: 101 species and 493 specimens
  Reptiles: 64 species and 154 specimens
  Amphibians: 6 species and 36 specimens
  Invertebrates: 3 species and 250 specimens
- **Staff:** 114 permanent, 80 temporary
- **Visitors:** 206,763 paying and 126,586 free entrance
- **Owned by:** Public/Private Partnership, City owned/non-profit management
- **Director:** Mr. William Foster
- **Member:** AZA – Association of Zoos & Aquariums
- **Address:** Birmingham Zoo, Inc., 2630 Cahaba Road, Birmingham, AL, 35223, USA

The Birmingham Zoo, Inc. (BZI) is a fully AZA accredited non-profit zoological park with a diverse collection of over 200 species and 10,000 animals from around the world. The Zoo is a non-profit public/private partnership in which the assets are owned by the City of Birmingham and managed by BZI. The Zoo’s budget is funded by operating revenues, private donations and contributions from the City of Birmingham, other local governments and the State of Alabama. Now in its 13th fiscal year as a private, non-profit organization, the Zoo is afforded 501 (c) (3) status from the IRS. The Birmingham Zoo has been ranked as the number one nonprofit tourist attraction in the state of Alabama since 2006. It is an economic engine for growth and tourism and a science and ecology hub for primary and secondary schools. Today, the Birmingham Zoo is blazing new trails in elephant conservation. The new signature exhibit, Trails of Africa, has positioned the Zoo as a national leader in the care and conservation of threatened elephants. BZI’s mission is to Inspire Passion for the Natural World by emphasizing Conservation, Education, Scientific Study and Recreation in all aspects of the Birmingham Zoo’s exhibits, programs, facilities and activities.

To find out more: [www.birminghamzoo.com](http://www.birminghamzoo.com)
**Membership Application**
Nominated as institutional member

**General Direction of Zoological Parks and Wildlife / Chapultepec Zoo, Mexico**

- **Sponsors:**
  - Jörg Junhold (Zoo Leipzig) and Douglas G. Myers (Zoological Society of San Diego)
- **Founded:** 1923
- **Area:** 17.4 ha
- **Collection**
  - Mammals: 106 species and 970 specimens
  - Birds: 332 species and 896 specimens
  - Reptiles: 51 species and 333 specimens
  - Amphibians: 7 species and 143 specimens
  - Fishes: 1 species and 3 specimens
  - Invertebrates: 6 species and 12 specimens
- **Staff:**
  - 118 permanent, 88 temporary
- **Visitors:**
  - 0 paying and 1,533,074 free entrance
- **Owned by:** Local Government Operated
- **Director:** Dr. José Bernal Stoopen
- **Address:** Calle Chivatito s/n, Col. San Miguel Chapultepec, CP: 11850, México D.F.

The Chapultepec Zoo represents one of the most emblematic places of Mexico City. Considered as the “National Zoo” of Mexico, it is one of the most important Zoological Parks in Latin America.

The Chapultepec Zoo was built in 1923 though the coordination of Mexican Biologist Alfonso Luis Herrera. Based on the then novel model of the “Giardino Zoologico e Museo de Zoologia del Comune di Roma” (nowadays Bioparco, Rome, Italy), the Chapultepec Zoo was a space where visitors could admire at that time, a total of 243 specimens of wildlife species from Mexico and the world.

From June 1992 to August 1994, the Chapultepec Zoo was entirely remodeled. An interdisciplinary group of experts transformed the old zoo in a modern and attractive space where the animal collection is distributed accordingly to following bioclimatic zones and their habitats: Desert, Grasslands, Coastal, Tundra, Temperate Forest and Tropical Rainforest.

Currently, the Chapultepec Zoo, is a conservation center that houses more than 1133 individuals from 238 wildlife species from Mexico and the United States. Some of its major endangered species recovery programs are related to the conservation of Giant Pandas, Mexican Wolves, California Condors, Volcano Rabbits and the Axolotl of Xochimilco, an endemic species of the Mexico City Valley. Captive breeding and scientific research are some of the most important conservation actions for these species.

The Chapultepec Zoo, receives every year more than 6 million visitors. Through its temporary exhibitions, educational programs and public awareness activities, visitors can learn about the importance of biodiversity conservation and the efforts that are being developed at the local, national and global scales to recover endangered species.
K&M International, Inc., USA

- Sponsors:
  Dagmar Schratter (Tiergarten Schönbrunn) and Patricia Simmons (Akron Zoo)
- Founded: 1979
- Director: G. B. Pillai
- Member: Commercial Member of AZA and AZA Licensee partner for plush and toys
- Address: K&M International, Inc., 1955 Midway Drive, 44087 Twinsburg, OH, USA

Since 1979 K&M International, Inc. has focused on products and services specifically for the zoo and aquarium industry. Our World Headquarters are located in suburban Cleveland, Ohio with seven additional offices located strategically throughout the world. We are committed to nature and conservation, and proactively strive to be as environmentally friendly and ethically responsible as possible; and proceeds from our sales are used to support many social and environmental causes.

Our Wild Republic division includes thousands of wildlife and nature-themed toys, plush and gifts. We have earned a reputation for high quality products that adhere to the strictest safety requirements and exceed industry standards. Our in-house designers are always developing new, innovative products that spark the imagination and make learning fun.

Through our KMIT division we have developed a software solution specifically designed to meet the needs of zoos and aquariums. The software is modular and scalable with the primary goal to enhance the guest experience while boosting revenue for the institution and streamlining operations.

We envision a better environment where our children are inspired by the wonders of nature and together we develop a respectful passion to preserve and protect it for generations to come.

To find out more:
www.wildrepublic.com
CELEBRATING 77 YEARS

World Association of Zoos and Aquariums

WAZA United for Conservation

http://jonathanwoodwardstudio.com