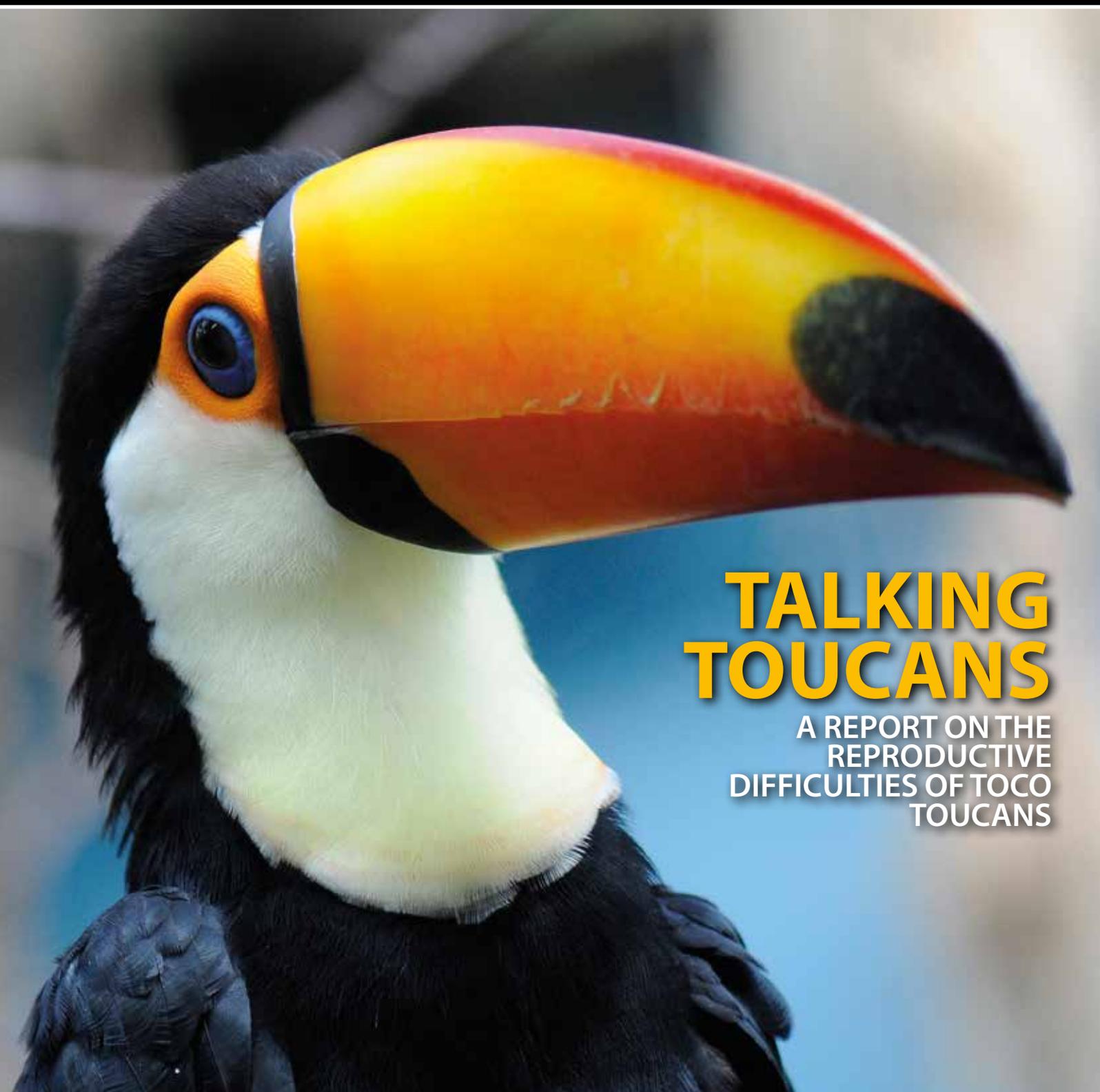


QUARTERLY PUBLICATION OF THE EUROPEAN ASSOCIATION OF ZOOS AND AQUARIA

ZOOQUARIA

SUMMER 2015

ISSUE 90



TALKING TOUCANS

A REPORT ON THE REPRODUCTIVE DIFFICULTIES OF TOCO TOUCANS



Marwell done

SHAPING THE MISSION OF A ZOO THROUGH BRAND VALUES

African style

BEHIND THE SCENES OF A WONDERFUL NEW EXHIBIT AT WROCLAW ZOO





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8



28



21



7



12

4 **From the Director's chair**

Working together to strengthen the community

5 **Announcements**

A round-up of news from EAZA including births and hatchings

8 **Conferences**

Reports on the European Educators Conference and Directors' Day

10 **In memoriam**

We celebrate the life of Hans-Ove Larsson

11 **Endangered species**

Joining forces to protect the anoa, babirusa and banteng

12 **Climate change**

Why we have to act now to curb this threat to our wildlife

13 **Interview**

A discussion with Bryan Carroll on the definition of a direct contribution to conservation

14 **Europe**

An overview of the structure of the European Union

16 **Breeding programmes**

Toco toucans and the principles behind long-term amphibian management

21 **Conservation**

Witnessing first-hand the plight of the African white-backed vulture

24 **EAZA in practice**

How Marwell Zoo is putting EAZA's principles into practice

26 **Species champions**

Two heroes from EAZA's new programme

28 **Exhibit design**

Behind the scenes at Wroclaw Zoo's new Africarium

30 **Corporate member**

How HMJ Design helped bring a major new project at Chester Zoo to life

Zooquaria

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Zooquaria is the quarterly magazine of the European Association of Zoos and Aquaria (EAZA).



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Email: info@eaza.net ISSN 2210-3392

Cover image: © Rob Doolaard – IZP / info@dierenfotografie.nl

For information on print subscriptions to Zooquaria visit: <http://tinyurl.com/zooquaria>.

The views expressed in this magazine are not necessarily those of EAZA.

Printed using vegetable inks on paper containing 50% recycled waste and 50% sustainably sourced virgin fibre; bleached using an Elemental Chlorine Free process.

Printed by Drukkerij Valkenstadt



FROM THE DIRECTOR'S CHAIR

Spring is traditionally a very busy period for EAZA events and the last few months have been no exception. Since writing my last Director's piece not only has everyone been busy with our own conferences, mid-year Committee meetings and TAG meetings, changed calendar time of the Annual General Meeting, new and existing member screenings, and Academy courses, but EAZA has also had a strong presence at 'external' events too. This includes attending meetings in Brussels, WAZA Council, strategy and population management meetings, ISIS Board meeting and R3 population management module workshop, CBSG regional network meeting, and conferences held by Memorandum of Understanding partners, European Association of Aquatic mammals (EAAM) and the European Association of Zoo and Wildlife Veterinarians (EAZVV). As a caveat, there is a strong possibility that I have missed something out of this extensive list! Nevertheless, what it does show is the great diversity of activities, energy and commitment demonstrated by our EAZA community, and it is on this topic of commitment that I wish to spend a little more time.

The Directors' Days meeting, generously hosted by Zoo Zürich, saw nearly 100 EAZA directors come together, committing to discussions about the future of EAZA. This year sees the 30th anniversary of the establishment of EEPs and the 20th anniversary of the EAZA Executive Office. Consequently, it is an ideal time to look to where we want EAZA to be in 10 years' time and what levels of activities and commitment will be needed to get us there. Many thought-provoking presentations were given and there were lively discussions held in the workshops. For me, one of the most involving discussions took place on the last day after the presentation on 'A new skill set for directors' given by Kirsten Pullen, CEO of BIAZA. We are all aware of the influx of new zoo and aquarium directors coming from outside our community and, of course, there will always be turnover of new 'home grown' directors taking on positions. How best to engage and connect with these directors to ensure the 'EAZA ethos' stays strong into the future? It was clearly identified that one of the best ways to gain the skills EAZA directors need is to actually meet and learn from other EAZA directors. Our discussions encompassed various ways to encourage more engagement from our whole community as well as how to overcome potential barriers to this engagement. The regular concerns of time, money and language were raised as potential barriers, however, the fact that many members with limited staff and budget do get involved means these barriers may be more perceived than actual. For many, it is the not knowing what opportunities are available and how to access them that seems to deter EAZA involvement.

As a past educator I know that knowledge alone does not usually result in modification of behaviour. I can mention all the different ways to be involved in EAZA activities from small through to large actions: have you personally signed the Pole to Pole '2 degrees is the limit' petition? (<http://www.poletopolecampaign.org/it-is-time-to-act-2-degrees-is-the-limit/>); are you (or someone at your institution) part of an EAZA Committee, species committee, working group?; do you already have good contact with your local Member of the European Parliament and discuss EAZA matters with them?; would you pledge to add your institutional data to the conservation database, or even complete every EAZA survey you get sent this year? So many of our members do all this and more and so, with the aim of turning knowledge into action, if you are reading this and your institution isn't involved yet at some level in EAZA activities then please put yourself forward and contact me. I would love to hear from you and work together to identify ways you can input and make a positive impact for our community.

Myfanwy Griffith
Executive Director, EAZA

NOTICEBOARD

MEMBERSHIP DECISIONS

THE MEMBERSHIP and Ethics Committee met in Zurich in late April and made the following recommendations to Council, which were accepted.

New Full Members

- Wild Place Project, Avon, UK: Wild Place Project was opened by the Bristol Zoological Society with an emphasis on protecting threatened habitats on our doorsteps and around the globe.
- La Ferme aux Crocodiles, Rhone Valley, France: An 8,000 square metre tropical greenhouse with more than 400 rare crocodiles as well as giant tortoises and free roaming birds.
- Parc Animalier Des Pyrénées, Hautes-Pyrénées, France: A spectacular mountain setting housing native and exotic mammals and birds.
- Al Ain Zoo, UAE: The UAE's premier zoo, with over 4,000 animals and well-established conservation and educational programmes (upgrade from 2-year temporary membership).
- Zoo de Martinique, Martinique, France: A brand new zoo in the northwest of the Caribbean island of Martinique, with species from all over the world (upgrade from 1-year temporary member under construction).
- Parco Faunistico Le Cornelle, Lombardy, Italy: Founded in 1981, the 10-hectare facility is dedicated to conservation, research and education (upgrade from 3-year temporary membership).
- Parc Des Mamelles, Guadeloupe, France: A new 4-hectare site dedicated to the conservation of native and regional species (upgrade from 1-year temporary membership).
- Nordsøen Aquarium, Hirtshals, Denmark: Aquarium dedicated to species of the North Sea (upgrade from 1-year temporary membership).

Retaining Full Membership (EAZA Accreditation Programme): Bristol Zoo Gardens, UK; Dublin Zoo, Eire; Parc Zoologique de Paris, France; Vogelpark Avifauna, The Netherlands; Natur – und Tierpark Goldau, Switzerland; Skansen Zoo, Sweden.

Temporary Membership: Institut de Fauconnerie, Puy du Fou, France (1-year temporary membership); Dvur Kralove Zoo, Czech Republic (2 year temporary membership).

Associate Membership: Derbanus Conservation, Czech Republic.

Termination/Denial of Membership: H.E. Sheikh Butti Maktoum's Wildlife Center, UAE (2 year temporary associate member); Planète Sauvage, France (formerly 2-year temporary membership); Knies Kinderzoo, Switzerland (application denied); Tropicario, Finland (application denied); Stichting AAP (Associate Membership terminated by mutual decision); Zoo Bitola, Macedonia (candidate for membership terminated); Bergen Aquarium, Norway (Temporary Member, termination at own request).



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NEW PUBLIC-FACING WEBSITE



AS MANY MEMBERS will be aware, EAZA's website has had a major overhaul with the launch of our public-facing pages. The new pages are intended to provide a clearer and more interactive way for our visitors, the media and other interested parties to learn about our collaborative work on conservation, research and education, locate their local EAZA member, and contact the EAZA Executive Office. A new member area will follow later in the year, but for the time being, you can still access the existing site by clicking on the 'login' button in the menu at the top of the public pages. If you have any comments regarding the new site, please contact Mirko Marseille at the Executive Office.

NEWS

NATIONAL ASSOCIATIONS COMMITTEE

KIRSTEN PULLEN, Executive Director of the British and Irish Association of Zoos and Aquaria (BIAZA), has been appointed to the Chair of the new National Associations Committee.

SAVE THE DATES

The EAZA Conservation Forum will take place from 11-13 May 2016 at Bioparc Fuengirola, Spain.

The Global TAG Chairs meeting will be held at Henry Doorly Zoo, Omaha, USA from 16-18 March 2016.

Directors' Day 2016 will be held at Opel Zoo, Kronberg, Germany, from 13-15 April 2016.

NEW DOCUMENTS APPROVED

AT THE SPRING Council meeting held in Zurich on 30 April, two new documents were approved and have now been adopted officially by the Association. These are the Culling Statement (2015), which replaces the Euthanasia Statement (2011), and the Definition of a Direct Contribution to Conservation, details of which can be found on p13. Both documents can be found on the EAZA website www.eaza.net.

EAZA POPULATION MANAGEMENT ADVISORY GROUP

THE EAZA Population Management Advisory Group (EPMAG), chaired by Kristin Leus, is looking for new participants to fill a revised structure. Population biologists and managers interested in becoming **Core Members** (assisting with population management duties), **Advisors** with expertise that would be helpful for further development of EAZA's population management capabilities, expert **Corresponding Members** keeping up to date with EPMAG and population management issues and **Regional Links** who can assist with liaison between their Associations and the EAZA community, are asked to contact Kristin at kristin.leus@eaza.net, or Kristine Schad at kristine.schad@eaza.net.



BEST PRACTICE GUIDELINES

NEW GUIDELINES have been published on the EAZA website to assist curators and keepers with the breeding and husbandry of midwife toad species, callitrichids and the red-crested turaco (*Tauraco erythrolophus*).

BIRTHS AND HATCHINGS

OKAPI BORN AT CHESTER ZOO

ON 30 APRIL 2015, Chester Zoo welcomed a new okapi, the second to be born at the zoo. The young male, named Usala, brings the number of animals in the EEP to 60, of which 14 are in UK zoos. With the species recently reclassified to Endangered on the IUCN Red List, due to major pressures in its home habitat, zoos across the world have become the front line for okapi conservation; in the light of continued violence and commercial threats in areas such as the Virunga National Park, breeding programmes such as the EEP have become one of the brightest hopes for the preservation of the 'forest giraffe'.

The birth was captured on closed circuit cameras, and was the first okapi birth in the UK, and only the second in Europe, to be shown to the public via the internet. Footage such as the birth of Usala may be a valuable tool in the development of public interest in species such as the okapi, which although charismatic and undeniably beautiful, does not share the recognition of the giraffe and other megafauna in the public consciousness.

SECRETARY BIRD BREEDING SUCCESS



FIVE AND A HALF YEARS after the establishment of a potential breeding pair at Safaripark Beekse Bergen, a single secretary bird chick has hatched and been reared by the devoted parents. After fertile eggs in the 2014 breeding season, there were high hopes. One interesting detail is that the male has an amputated wing due to an accident in the institution we received him from, but this did not stop him from mounting.

With a population of only around 60 birds in EAZA institutions, much attention needs to be paid to breeding this species. Competition between the use of birds for breeding and bird of prey demonstration is a continuing challenge. Alongside this, the species does not seem easy to breed, with pair-bonding playing a key role in this matter.

GORILLA JOY IN STUTTGART

THERE HAVE BEEN three gorilla births within six months, and all three babies are being reared by their mothers in the family group at the Wilhelma Zoological and Botanical Gardens, Stuttgart. Females Tuana and Kolo gave birth to their sons Tonda and Kajari in late December and early January. The latest arrival is another son born on 27 May from female Mutasi. Yes, there is a problem with male surplus, but all three females had a breeding recommendation – so the boys are welcome anyway.

Mutasi's son has the privilege of growing up in the presence of his grandmother Mimi, who will hopefully celebrate her 50th Wilhelma anniversary on 14 October this year. Mimi was the first gorilla to arrive at Stuttgart as a wild-caught infant in 1965. In 1973, she moved from an enclosure made of wood and welded mesh to the zoo's first ape house, where gorillas, chimpanzees, bonobos and orangutans were successfully kept and bred for 40 years. In spring 2013, Mimi and her family were again moved, this time to the new house for African apes in the upper part of the Wilhelma park, which includes spacious and naturally planted outside enclosures. Mimi, who had not touched grass for 40 years, was the first gorilla to enter the new indoor exhibits and among the first group members to explore the outdoor exhibit, well before silverback Kibo dared to follow. She gave birth to 11 babies in the course of her life, of which seven are still alive. Her maternal skills only turned out to be perfect with her ninth offspring, the first to be mother-reared. Today Mimi also has 16 grand-, 18 great-grand-, and three great-great-grandchildren. Great!

Sire of the three latest gorilla babies at Stuttgart is silverback Kibo. His family includes his son Kimbali and daughters Mawenzi and Milele, full sisters of Mutasi's young son, as well as old wild-caught female Undi, a very talented aunt to the youngsters. Twelve gorillas in the family group plus two infants in the adjacent gorilla EEP nursery makes for a full house, and hopefully a very attractive place for visitors to observe social behaviour and play in the years to come.



Learning behaviours

LISBON ZOO, PORTUGAL, ONE OF THE FOUNDING MEMBERS OF EAZA, HOSTED THE EUROPEAN ZOO EDUCATORS CONFERENCE 2015 IN MARCH

Antonieta Costa, Head of Education, Lisbon Zoo

This year's EZE conference was based upon the theme 'The Power of Behaviour – How to Inspire People to Act!'. With the idea of turning education theory into action, it brought together about 140 educators from all over Europe, working in zoological institutions, NGOs and conservation-based associations, representing more than 60 zoos from around 15 different countries. The conference included three days of presentations, workshops and activities aimed at sharing best practices, and highlighting future trends. It was preceded by an optional one-day EAZA Academy seminar 'Communicating Biodiversity through Visitor Engagement', which touched upon exploring ways to engage visitors with biodiversity issues.

The conference discussed a variety of topics related to the theme that educators could use in their daily lives to conserve species and their habitats. These included: how to create emotional connections to nature; which partners in learning can we establish?; and what kind of inspiring experiences lead to changes in behaviour? The evaluation of these changes also formed part of the conference.

A group of students from the College Valsassina opened the conference with a fabric-based performance known as *Parangolés* about the Pole to Pole Campaign, setting the mood for the theme that would follow.

The first keynote speaker was Sheikh Abdul Aziz Al Nuaimi, also known as the 'Green Sheikh' for his work on the environment. He is a member of one of the royal family's rulers in the UAE, having acquired the nickname for his campaigns on the environment and for abandoning a career in oil. He serves the government of Ajman as an environmental advisor, and his contributions to the environment and humanity were recognised in 2007 by the Sharjah Volunteering Awards. In his speech 'Being the new change' he provided important examples that can lead to changes in behaviour and

he shared some experiences from his personal journey about the power of behaviour change and its challenges for the individual, societal and global outlook.

Linda Steg, Environmental Psychology Professor at the University of Groningen (The Netherlands) lectured on 'How to inspire people to engage in pro-environmental action'. This theme was based on the first Aichi biodiversity target: 'By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.'

Effective learning, teaching and assessment are vital for the success and growth of EAZA education programmes. The second theme – Cognition and Psychology: New Didactic and Pedagogical Strategies – looked at new approaches and educational strategies that focus on blending ways of learning to foster people's connection with nature. Teresa Eça – President of the International Society for Education through Art, set the tone on this issue through her speech on inspiring people to act through engaged arts projects in educational settings. This session also included a section looking at the trials and errors of EAZA educational programmes and what we can learn as educational practitioners when our programmes do not always go according to plan!

One of the benefits of attending an EAZA educator's conference is the fantastic opportunity to network with other educational professionals and make new connections, which will hopefully lead to innovative collaborations on a variety of different educational projects. The theme 'Education Partnerships' showcased examples zoos that have effectively worked in partnership with other zoos, conservation NGOs or corporate organisations. Leah Melber from the Lincoln Park Zoo (USA) was the keynote speaker.

Aichi Target 1 represents both an opportunity and an important



responsibility for EAZA members. We have the opportunity to engage with hundreds of millions of citizens from all backgrounds annually, in the unique environment of our zoos and aquariums. The session on learning sustainable behaviour highlighted how we need to ensure higher levels of biological literacy and foster sustainable behaviours by stimulating new forms of learning, engagement and evaluation. Frits Hesselink, Dutch Environmental Consultant launched the theme with his speech: 'Would you change because I ask you?'

Within these themes were also presented 31 talks and five different workshops on engaging art with education, measuring impact of learning experiences, communicating biodiversity, examples of tools that help connect people to nature, investigating the long-term impacts of informal science learning at zoos and aquariums and technology in zoo education as a new pedagogical-didactic approach.

The conference ended with a final workshop on the next EAZA conservation campaign 'Let it grow'. This workshop focused on activities and resources related to local biodiversity that are already available in various zoos and aquariums and that can be extended and applied to the new campaign.

As a bastion of species conservation, scientific research and environmental/conservation education, Lisbon Zoo organised a successful and productive meeting, offering a unique environment in which to work, brainstorm and be inspired.

The view from the mountains

A REPORT ON EAZA DIRECTORS' DAYS 2015, SPRING COUNCIL AND THE ANNUAL GENERAL MEETING

David Williams-Mitchell, Communications and Membership Manager, EAZA



DIRECTORS AND STAFF AT THE MASAOLA RAINFOREST EXHIBIT

This year's Directors' Days conference, held in Zurich at the end of April, marked a welcome change of pace from last year's event, which was dominated by discussions about the ethics of population management culling. Indeed, one year on, the situation looked quite different, with a series of presentations and discussions aimed at defining the future for the Association over the next 10 years – a decade that will see a change in the Council and Chair (as from Spring 2016) and the formulation of new strategies from the Committees and EAZA itself.

2016 marks the end of the current four-year EAZA strategy, a period in which we have seen an increase in public scrutiny of our credentials in conservation, research and education, developments in welfare science, the further expansion of digital communications and a host of other factors which suggested that a review of our principles and philosophy was needed. Re-evaluating the environment in which members operate, and the need to balance all aspects of their individual and collective work, was seen as a foundation from which to begin the process of reviewing and revising the objectives of the next strategic period from 2017-2020.

The 90 Directors present at the meeting presented and discussed a number of topics: a SWOT analysis for the zoo and aquarium community; balancing the business needs of members against the mission to collaborate; a review of the core values of the association; and a look at the skill sets of Directors in the 21st century. The leaders of our community by and large confirmed that they remain committed to the

same principles defined in the current strategy.

So what came out of the discussions? Directors confirmed that there is no meaningful contradiction between individual business plans and the collaborative work of the Association, but felt that we need more involvement from all members in the collaborative process, particularly through encouraging new voices to be heard. Our core values haven't changed, but we need to be more assertive in telling the public about our successes, and as transparent as possible in describing why we do what we do. We will continue to be an inclusive association, which aims to do its best to improve the standards of all European zoos and aquariums through lobbying and technical assistance, while working to ensure the end of bad institutions that have no will to change, and which damage the reputation of us all.

The Spring Council meeting took place on Thursday morning (30 April) and covered a number of important issues. Firstly, a new culling statement was approved by Council, following a consultation with the National Associations initiated at last year's meeting in Saumur. The new statement, which takes into account more fully the cultural context of culling across the region while requiring members to speak in support of the scientific basis of culling as a population management method, provides a compromise that will allow all shades of opinion on the matter to be heard without damaging relations between members.

The Definition of a Direct Contribution to Conservation was also approved by Council (see p13). The Definition will

act as the basis for the Association's first concerted attempt to measure in real terms the resources our members provide for conservation projects in the field and, meeting specific parameters, in our institutions. Council agreed to test the definition at selected member institutions to confirm its validity, and we look forward to being able to report the findings of these pilot programmes.

Following the creation of the National Associations Committee at Saumur, Council also confirmed BIAZA Executive Director Kirsten Pullen as its Chair. The Committee will work to provide national viewpoints in specific topics, continuing to give valuable assistance such as that given to the Executive Office in the redraft of the culling statement.

Finally, the Council gave a clear direction into the Association's relationship with circuses, the definition of which has become increasingly difficult to delineate in recent years as governments legislate to eliminate wild animals from travelling shows and circuses respond by establishing themselves in permanent facilities. Council ruled that no EAZA member can share facilities or staff with a circus facility, regardless of welfare standards at that institution, and asked the Executive Office to work on the clear definition of the term 'circus'. In the interim, however, it is clear that institutions that base their keeping of animals solely on entertainment and make little or no effort towards conservation, research and education cannot be members of EAZA.

Alex Rubel and his team, especially Gabriela Fenner, did a fantastic job of hosting the conference; highlights included the icebreaker at Zurich's extraordinary elephant house, and the farewell dinner held at the Masaola restaurant – which featured Swiss chocolate made from cocoa and vanilla grown in the adjacent rainforest exhibit. Given the theme of the conference and Zoo Zurich's exemplary record in conservation, education, research and husbandry, EAZA could not have hoped for a better vantage point to look to the future. We look forward to next year's event at Opel Zoo in Kronberg, Germany.



DIRECTORS IN DISCUSSION ABOUT EAZA'S NEXT DECADE.

Hans-Ove Larsson (1946-2015)



It is our sad duty to announce the passing of Hans-Ove Larsson, *writes Linda Askelund of the Skansen Foundation*. Hans-Ove passed away suddenly at the SAZA annual conference on 17 April 2015 at the age of 68. He is a great loss to the whole zoo community.

Hans-Ove was based at the Skansen Foundation in Stockholm for many years. For the last two years he had been retired but continued working on several other zoo projects.

Hans-Ove was a member of the board of SAZA for many years and contributed to the building of the Swedish organisation with a lot of input from EAZA. He was also SAZA's chairman for 10 years.

He was very dedicated to EAZA and for many years he was a member of the council, involved in committees, TAGs and much more. He was the vice-chairman and, for a short time, the chairman of EAZA until his health put an end to his extensive commitments. He recovered and was back in business again after a while and kept on, as he always did, at 100% levels.

Hans-Ove led a fulfilling life outside the Skansen, both before and after retirement. His passion for Africa took him to Kenya annually for 30 years and he led many guided tours in the Masai Mara region. He was a talented artist illustrating zoo signs at Skansen and other zoos and also completing illustrations for books. He wrote several books on Swedish carnivores and especially wolves. He enjoyed fishing during the summer. He was also a musician, and in his younger years he was a guitarist and singer in a band.

He is missed greatly by all who knew him. Hans-Ove was a beloved husband, father and grandfather, and our thoughts go to his family.

Ungulate conservation

AN INNOVATIVE NEW PARTNERSHIP BETWEEN ZOO AND FIELD-BASED CONSERVATIONISTS HAS BEEN CREATED TO CONSERVE THREE OF INDONESIA'S MOST THREATENED LARGE MAMMALS

James Burton, Chair, IUCN SSC Asian Wild Cattle Specialist Group

Six partner organisations, including EAZA, have come together to contribute to the long-term survival of anoa, babirusa and banteng as described in three National Action Plans. The aim is to establish durable global *ex situ* activities and populations that effectively contribute to the conservation of these taxa, and to support a range of *in situ* activities including research, education, capacity-building and conservation actions.

THE CONSERVATION CHALLENGE

Indonesia is one of the world's biodiversity hotspots, and the Ministry of Forestry has identified 14 national top priority taxa that are threatened with extinction. Three of these are anoa (*Bubalus* spp. – dwarf buffaloes), babirusa (*Babyrousa* spp. – wild pigs); and the banteng (*Bos javanicus* – a wild cattle species). These taxa are not only important as flagship species for their respective island habitats, but they also play a vital role in their environments by helping to maintain habitat diversity through browsing and grazing. The Indonesian Government, European and American zoos have already contributed to the publication of the three National Action Plans for these species.

Many EAZA institutions as well as the EAZA Cattle and Camelid TAG have supported *in situ* conservation activities of these three taxa in the past 10 years. This has been important in building the relationships and joint understanding for the foundations of this larger partnership.

AN INNOVATIVE PARTNERSHIP

Six partner organisations have formalised this collaboration by signing a Memorandum of Understanding for the long-term conservation of these taxa. This includes Indonesian and international organisations, who are leaders in both the *ex situ* and *in situ* conservation of these species. The organisations are: Indonesia Zoo & Aquarium Association (PKBSI), European Association of Zoos and



Aquaria (EAZA), The Association of Zoos & Aquariums (AZA), IUCN Species Survival Commission (SSC), IUCN-SSC Asian Wild Cattle Specialist Group (AWCSG), and IUCN-SSC Wild Pig Specialist Group (WPSG). The agreement has also been witnessed by the Indonesian Ministry of Forestry; this is the authority for species conservation in Indonesia.

To develop a plan for linking the existing captive programmes with *in situ* activities for these taxa, WAZA's Global Species Management Plan (GSMP) framework has been selected as the best approach. This was agreed at meetings of representatives of the Indonesian, European and American partners in 2014. A GSMP is intended to provide a 'Master Plan' that captures the intent of all partners in the GSMP for a defined timeframe or until agreed milestones are reached. To date, only seven species have GSMPs developed. We intend to develop three additional GSMPs, one each for anoa, banteng and babirusa.

HOW TO BECOME INVOLVED

We are looking for organisations to come forward to offer their support to help implement the next steps. In 2015, the GSMP workshops to develop the masterplans will be held and contributions to fund these are currently being sought. The implementation of the *ex situ* and *in situ* activities begin this year and will gather momentum in 2016, running until the end of 2019. There is also the opportunity for institutions to be involved with

global meta-population management, including possible translocation of important animals from Europe and America back to Indonesia. So, there is a need for many organisations to offer practical and financial support. In addition to collaborating with this innovative and effective partnership, contributing organisations will be acknowledged in all publicity as well as on the partner websites. If you are interested in becoming involved please contact the following: for anoa contact Gerd Nötzold (EEP Coordinator and ISB keeper for Anoa – gnoetzold@zoo-leipzig.de) or Terry Hornsey (EAZA Cattle and Camelid TAG Chair – terry.hornsey@africa-alive.co.uk); for banteng contact Dorothée Ordonneau (EEP Coordinator for Banteng – d.ordonneau@hotmail.fr) or Terry Hornsey; for babirusa contact Thomas Kauffels (EEP Coordinator and ISB keeper for babirusa – thomas.kauffels@opel-zoo.de), Jochen Reiter (EAZA Tapir & Suiform TAG Vice Chair – Reiter@zoo-duisburg.de), or Bengt Holst (EAZA Tapir & Suiform TAG Chair – beh@zoo.dk); for GSMP meetings or *in situ* activities contact James Burton (jburton@earthwatch.org.uk).

For further information see the following links: Species Planning Workshops in 2009: <http://www.asianwildcattle.org/our-work/conservation-planning/national-planning/indonesia-workshop.html>; GSMPs: <http://www.waza.org/en/site/conservation/conservation-breeding-programmes/gsmpp>.

Tackling the threat

WE MUST ACT NOW TO CURB CLIMATE CHANGE FOR MOTHER NATURE'S SAKE

Bas Eickhout, Dutch Member of the European Parliament representing the Dutch Groenlinks party

Climate change will have a large impact on Mother Nature and her animal kingdom. If we don't act we will lose precious ecosystems and the biodiversity that they contain will get lost with them. Luckily, there are three lines of action to which everyone can contribute to curb the consequences of global warming. First, public pressure is essential to push climate change higher up on the political agenda. Second, we have to increase the demand for green energy. And third, we have to make sure that institutions stop investing in fossil fuels.

MOTHER NATURE IS CHANGING

Precipitation, frost and evaporation are examples of climate patterns which will change as soon as the earth gets warmer. Ecosystems are based on these climate patterns and will therefore change as well. For instance, grasslands will turn into forests at places where it gets wetter and into desert where it gets dryer. According to scientists a temperature increase of three degrees will change a quarter of the world's vegetation. Unique ecosystems like the Arctic tundra and alpine mountain peaks are already under so much pressure that they can disappear completely.

The sea is changing too. Everyone has heard about rising sea levels as glaciers melt and warming water expands. That's not all though: our seas and oceans are absorbing a large share of the increase in CO₂, which causes seawater to become more acidic. Acidification of seawater might not sound too bad, we don't drink it after all, but it is disastrous for the animals and vegetation living in it. For example, acidification causes coral reefs to disappear. Not only are the reefs a beautiful tourist attraction, they also contain the highest diversity of fish to be found anywhere on earth.

CAN THE ANIMAL KINGDOM ADAPT?

Research shows that species already are changing their habits. Birds lay their



eggs earlier in the year than usual and mammals come out of hibernation sooner. Many species are moving closer to the poles as a response to the rise in temperatures. In some countries, birds don't even have to migrate any more, as the climate is suitable all year round. People often think that adapting to climate change is part of a normal evolutionary process. However, there is an upper limit to the speed at which animals can adapt.

The problem with manmade climate change is the swiftness at which it occurs, as evolution simply won't be able to keep pace. Scientists have found that our climate is currently changing at least 10 times faster than any change recorded over the past 65 million years. They know this by, for example, collecting data (such as CO₂-concentrations) that has been preserved within rocks, ice and tree rings.

Some well-known animals are already getting into serious trouble. Everyone knows the example of the polar bear depending on sea ice to catch prey. Sea turtles and seals are facing problems due to the loss of beaches caused by an increasing sea level. Whales are being threatened as well, since warming waters contain less plankton for them to feed on. And a large part of the last remaining wild tigers live in mangrove forests jeopardised by sea-level rise and acidification.

CLIMATE NEGOTIATIONS

In December 2015 all the countries of the world will come together in Paris to negotiate for a new universal climate

agreement, which will replace the old 1997 Kyoto Protocol. It is essential that our political leaders take up a leading role during the international negotiations and push for an ambitious, fair and legally binding global climate agreement. For the wealthier countries this not only implies reducing their own emissions, but also helping the poorest countries in the world doing the same.

How can we influence the outcome of the climate negotiations? **Joining EAZA's Pole to Pole campaign and signing the '2 degrees is the limit' petition is a useful first step.** Only through broad public pressure can we make our governments understand that we expect serious action before, during and after the climate negotiations.

LEAVE FOSSIL FUELS INTO THE GROUND

More can be done though. The root of the entire problem has to be addressed: the burning of fossil fuels has to stop. And that is something everyone can do. In a relatively short time solar panels have become much cheaper thanks to large consumer demand. There is an increasing number of citizens creating cooperatives to invest in green energy sources.

If we take climate change seriously then a large part of our known fossil fuel reserves will have to stay into the ground. Fossil fuel companies are currently lending money based on reserves that will probably never be extracted, which creates financial risks. This so-called 'carbon bubble' led to the rise of the carbon divestment movement asking organisations to move their money out of fossil fuel companies. Attention for this movement is increasing after they received back-up from institutions like the Bank of England. Everyone can join this movement and everyone can start divesting money from fossil fuels.

We have a moral responsibility to make sure that our wonderful ecosystems and species don't become curiosities from the past. Let's act accordingly.

Bryan Carroll

THE EAZA GUIDELINES ON THE DEFINITION OF A DIRECT CONTRIBUTION TO CONSERVATION ARE DISCUSSED BY EAZA COMMUNICATIONS AND MEMBERSHIP MANAGER DAVID WILLIAMS-MITCHELL AND BRYAN CARROLL (BELOW), CHAIR OF THE CONSERVATION COMMITTEE

DWM: EAZA Council recently approved the EAZA Guidelines on the definition of a direct contribution to conservation. Can you tell me why the Association felt that it needed to set up these guidelines in black and white?

BC: Zoos and aquariums have been moving much more towards a mission of conservation over past years, but we have never really provided a framework for what that means. Some members believe that everything a zoo does is conservation, while some stick entirely to the idea that conservation is an *in situ* activity only. On the other hand, critics of zoos and aquariums deny that our institutions make any real contribution at all, but they have not necessarily defined what they mean when they say 'conservation' either. For a while now, the Conservation Committee has felt that these will just remain 'he said, she said' arguments until we create a framework and actually see how much we contribute according to these criteria.

DWM: So this is aimed at being an objective attempt to set some limits to what we believe to be conservation?

BC: Yes, that would be accurate. It's fair to say that there will be some argument from all sides about whether the definition is correct, but it needs to provide clarity and openness. Whatever it provides us in terms of results, moving towards an objective definition can help us to identify any areas where we need to strengthen our contribution, any areas where we are doing particularly well, and where the limits are to what we are able to do.

DWM: Our member institutions are scattered all over the continent, some in cities, some in the country and so on. Is it reasonable to expect a single definition to provide a good picture of the contribution a member makes to conservation?

BC: This is a living document, which



is to say that it will get better as we go along and gain more experience within member zoos and aquariums. We hope to learn if and how to use the guidelines for developing tools to measure conservation input. For instance, if you look at the direct costs of housing for a highly endangered species like the scimitar-horned oryx: they might be entirely different in a city zoo than in a countryside zoo where space is at less of a premium, but the effect on the species' survival might be exactly equal. It's areas like these where we need to really test the document to destruction!

DWM: There are a few surprises in the document. Direct costs for conservation education and capacity building as a contribution, for example, are limited to activities where there is a conservation outcome. What criteria did the Committee have for including or excluding areas of zoo work?

BC: True, even though the remit of the Conservation Committee is field conservation, we have tried to include conservation-breeding, education and research within this framework. Obviously, if the definition is intended to be objective, then it needs to be measurable. In a lot of cases, if the measurement of the outcome is not really possible, then the costs of the activity can't really help us build an objective picture of how well we are doing. Again, leaving out some activities might be controversial for some members, but we have to set lines somewhere.

DWM: So what is the next step, now that we have a definition to work with?

BC: We are aiming to test the definition through a cross-section of members, determining how to interpret and implement specific contributions within a few zoos and aquariums. It will help us judge whether the guidelines are useful and accurate as it stands, or whether we need to look again at the criteria.

DWM: Isn't there a temptation there to just move the goal posts if the result doesn't please us?

BC: No, I don't think so. As I said earlier, the definition gives us clarity and transparency, and the idea is to help us continually improve our performance in conservation, so there's no point in cheating!

DWM: If the tests go well, and it becomes clear that the definition is valid, how will it affect the Association?

BC: The idea is that if we can validate the definition through testing, then it will become the basis for a conservation standard and a conservation strategy for EAZA members – one which will really help them to focus their efforts in the way that best suits their circumstances and resources as well as making a real difference to the natural world.

The EAZA Guidelines on the definition of a direct contribution to conservation are available on the EAZA website www.eaza.net. The guidelines were produced by the Conservation Committee, with reference to the World Zoo and Aquarium Conservation Strategy, the IUCN Guidelines on Ex Situ Conservation and documents provided by BIAZA and AZA. If you have any questions regarding the document, please contact Merel Zimmermann at merel.zimmermann@eaza.net.

Introducing the European Union

DO YOU NEED A GREATER UNDERSTANDING OF HOW THE EU WORKS? THIS ARTICLE IS YOUR STARTING POINT

Daniel Nuijten, EAZA EU Policy Manager

The European Union can be difficult to get to grips with, as the structures are complex and if you are not working on EU processes on a daily basis it can be challenging to know how new legislation comes into force. At the same time, EU legislation has a direct and indirect impact on our work. Therefore this article tries to give a basic overview of the EU institutions, their role, and which areas are key for zoos and aquariums.

If, having read this article, you would like more specific information or to learn more about the policy and political processes of the EU, you can; participate in the EU workshop at the annual conference in Wroclaw in September, contact the Legislation Committee, or EAZA's EU Policy Manager, Daniel Nuijten, for more information.

The EU has three institutions that work very differently, but that are key for zoos. Each represents a different aspect of European integration: The European

Commission, the European Parliament and the Council of the European Union.

The European Commission could be compared with the ministries in the different member states. They are divided by policy area in what is called a Directorate-general. Currently there are 34 of them each dealing with a different area. What is important to know is that the European Commission is the sole institution that can propose legislation. They can do this upon request by the European Parliament or the Council, but they can do this on their own initiative as well. This places the European Commission at the heart of each policy process. In addition to this the civil service of the European Commission is manned by staff with a high degree of expertise on EU legislation as well as the policy topics, enabling the European Commission to discuss all topics in detail with relevant stakeholders.

At the same time, the European

Commission is always contacting other institutions and relevant stakeholders for input on new processes and to be part of them through constructive input. For example, EAZA was part of the consultation that led to the legislation that was introduced this year on Invasive Alien Species. In addition, EAZA is currently contributing to the fitness-check on the Birds and Habitats Directives, a process to discover whether these two important conservation directives are still 'fit for purpose' or whether, after all these years, they need to be adapted to fit the current climate. This openness in cooperation remains even after legislation is adopted. EAZA is currently part of the European Commission's working group on Invasive Alien Species which discusses the implementation of the legislation. EAZA is also part of the working group on Animal Health, which discusses with all stakeholders the latest developments around the subject and how we can work



together to ensure that we tackle new diseases appropriately.

The European Parliament is a very different organisation. It is where democratically elected politicians represent the citizens of Europe. This makes the Parliament a very open and accessible institution, but it also means that the members (MEPs) are overloaded with requests and information. MEPs can create a bridge between citizens, local organisations and the EU processes in Brussels. They can be very effective in bringing issues onto the political agenda that are overlooked by other stakeholders. As does the European Commission, the European Parliament has divided the work it tackles into policy areas, handled by committees. The committee most relevant for our work is the committee on environment, public health and food safety, which encompasses our conservation work, animal health and animal welfare. The members of these committees discuss different proposals around these topics before they go to the plenary and are often more specialised in them, building up extensive knowledge of the different dossiers.

The European Parliament does offer opportunities for zoos to engage in EU work. Members of the

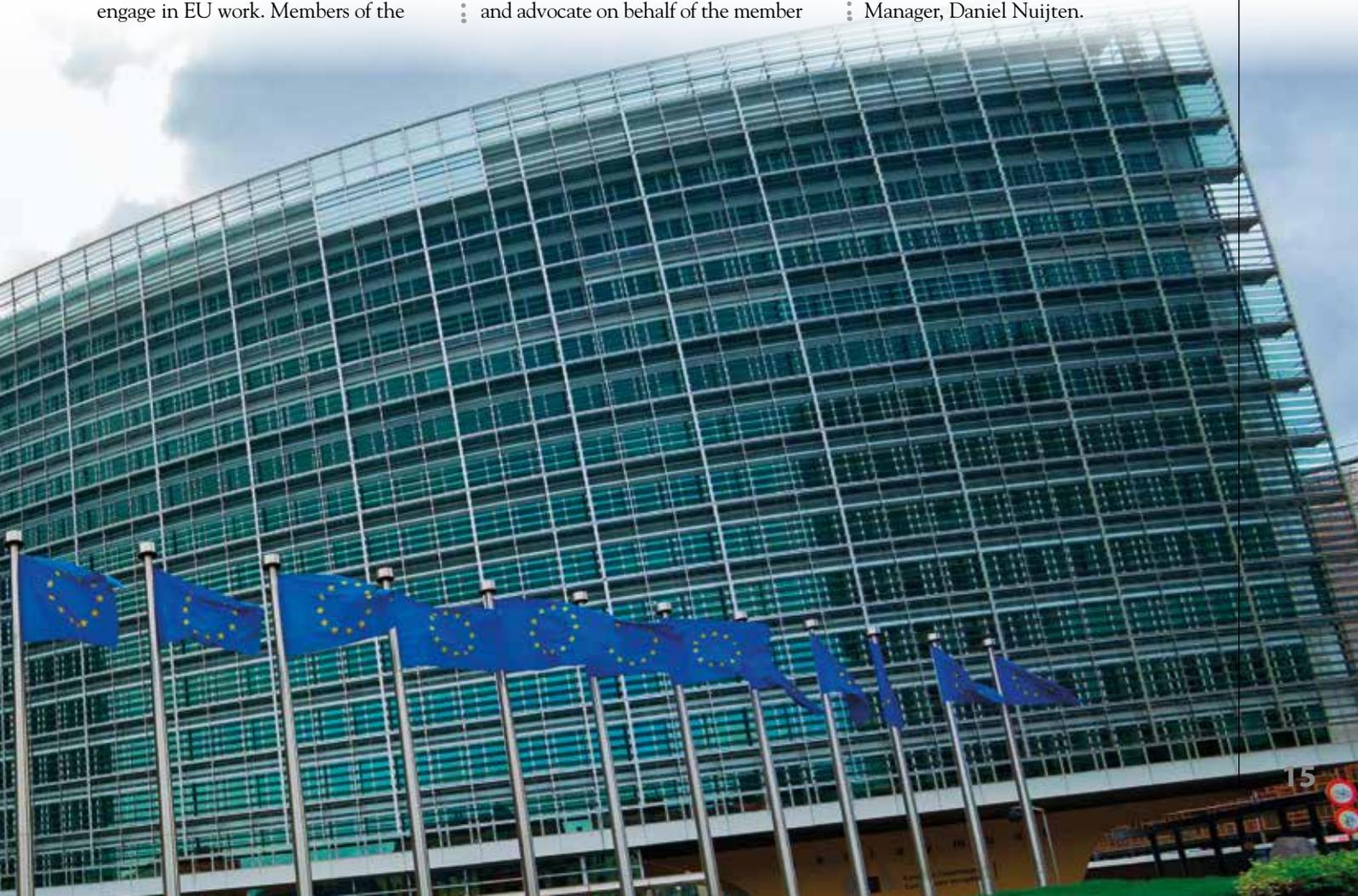
European Parliament come from local constituencies and many of them come from cities where an EAZA zoo or aquarium is located, giving a direct connection between the relevant MEP and the EAZA member. **We would like to encourage all members to find out which MEP represents your region and discuss with your national association or the EAZA executive office what are the current EU processes that need to be addressed.**

The last institution is the Council of the European Union, where each of the 28 member states is represented. This is where the heads of state discuss key EU issues, and is also where environment ministers, who head the environment committee, discuss all conservation policies. All their work is prepared by representatives from the ministries from the member states. This means that every environmental ministry has someone that is sent to the meetings of the environment committee to discuss all proposals. This makes the Council less open than the European Commission and the European Parliament as a lot of key people are based in the capitals of the member states. These people are supported by permanent representations, which are based in Brussels to monitor and advocate on behalf of the member

states and form the bridge between the developments in Brussels and the member states.

These institutions together drive the European integration process and the legislative processes that affect our work. To give an example, the key piece of legislation for our work is the Zoo Directive (1999/22/EC), which states that every member state should draft legislation to regulate the establishment of zoos. A directive in the EU is legislation that asks member states to adopt laws that are in line with the directive, which differs from a regulation which directly applies across the EU when adopted by the EU institutions. Another directive that applies directly to our work is the Balai Directive (92/65/EEC) which helps us to regulate the health of our animals.

The EU can be quite a labyrinth, but a greater understanding of how it works can help us in working more efficiently with those institutions and raise the issues we feel need to be addressed. We hope that this article provides some initial insights and we would like to encourage everyone to get involved. If you would like more information feel free to contact the Legislation Committee, or EAZA's EU Policy Manager, Daniel Nuijten.





Saving Toco toucans

IN SEPTEMBER 2014 ROTTERDAM ZOO COMMISSIONED A RESEARCH STUDY ON THE DIFFICULTIES IN REPRODUCTION OF TOCO TOUCANS. THE RESULTS CALL FOR A RAPID RESPONSE

Tom Verschoor, research student, Rotterdam Zoo, Netherlands; Adrian Walls, Head Bird Keeper, ZSL London Zoo, and keeper of the Toco toucan ESB

Ever since the bird's introduction to zoological collections (1851, Artis Amsterdam), reproduction of Toco toucans (*Ramphastos toco*) in captivity has proved to be difficult. Although one can make probable suggestions about the reasons for this, no research has been done so far to clarify the issue. The limited reproduction in zoos causes risks for the sustainability of the captive population. The population is further threatened by the relatively high rate of deaths. In order to try to discover the keys to success (or failure) a research

study was set up by Rotterdam Zoo, on behalf of the Toucan and Turaco TAG, in cooperation with 25 other Toco toucan holders from EAZA. The main focus of the study was to analyse the situation in which the animals were held and managed in zoos and to compare the results of successfully and non-successfully reproducing zoos to find the factors that are most important for breeding these animals.

DATA COLLECTION

To collect the data needed to compare

the situations in the different zoos, a questionnaire was designed in cooperation with several people who have experience with Toco toucans. The questionnaire covered the following subjects: reproduction, couple interaction, diseases and deaths, nest location, diet and environment. The questionnaire was sent out to all holders of Toco toucans in EAZA zoos. A total of 30 zoos (out of the 36 holders) responded: four zoos were excluded because of various reasons, the other 26 zoos were included in the study. The results revealed several points of attention which (if improved) can contribute to better likelihood of reproduction and growth of the population.

MATCHMAKING

First of all, the group of animals (24 individuals) that have been reproductive in the participating zoos over the past five years consist mainly of birds that are parent-reared/wild-caught. As shown in Figure 1, 62% of the reproducing animals

Figure 1. Origin of reproductive animals

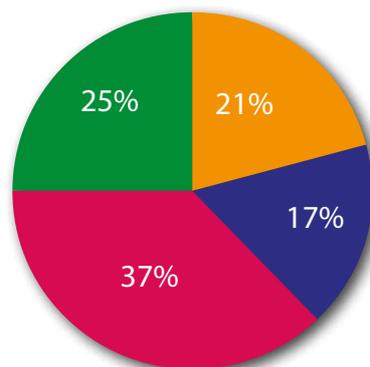


Figure 2. Causes of death

Scientific name	Name	Deaths
<i>Mycobacterium avium</i>	Tuberculosis	4
<i>Yersinia pseudotuberculosis</i>	Pseudotuberculosis	3
<i>Cholecystitis</i>	Inflamated gallbladder	1
<i>Hemochromatosis</i>	Iron storage disease	6
<i>Hepatitis</i>	Inflamated liver	1
<i>Intoxication</i>	Poisoning	2
<i>Dyschezia</i>	Constipation	3
-	Complication of surgery	2
<i>Chronic endocarditis</i>	Inflamated heart endothelium	1
<i>Capillaria infection</i>	Nematode infection	1
<i>Staphylococcus lentus</i> (kidney)	Inflamated kidney	1
	Total	25



are parent-reared/wild caught. This implies that parent-reared animals are more capable of producing offspring, something that is seen in other bird species as well. This suggests that pairs comprising two hand-reared birds must be avoided and parent-reared pairs would be ideal. Some of the zoos with one or more hand-reared individuals mentioned that the bird focused its attention on people instead of their partner. Another factor contributing to this behaviour is probably the fact that partner compatibility seems to be very important in a successful reproductive pair, where the birds are selective in their choice of partner. Most of the zoos that have had repeated reproductive success have at least two pairs of birds in their collection. This gives them the opportunity to swap the pairs if incompatibility is a problem.

During the research it also became clear that all birds that had been successful in the past five years had started reproducing during the season following the introduction to each other. None of the reproducing couples had long unsuccessful periods prior to

reproduction. This implies that the decision-making on swapping birds or keeping a pair together needs to be made faster than is currently done. In many zoological collections pairs are kept together for several years without any sign of reproduction. These results show the importance of monitoring couples and interzoological collaboration.

HIGH DEATHRATE

Figure 2 shows that, in the past five years, more than 25 adult individuals have died in the cooperating zoos due to disease, accidents or parasites. This is a very high number considering that the current population in these zoos consists of 65 individuals. The main causes of death include three diseases of which two are quite manageable: iron storage disease (ISD) and Yersinia infections. ISD is caused by the fact that Toco toucans easily absorb iron from their diet, especially haem-iron (iron from an animal food source), and diets which are high on citric acid and vitamin C which facilitate the absorption of haem-iron. This coincides with the observation that

in several zoos dog kibbles and meat are part of the diet and in some zoos fruit which is rich in citric acid or vitamin C is used. Yersinia is mostly spread by mice (wild or in the diet). A vaccination is available and by preventing mice from entering the enclosure and using mice in the diet that come from safe suppliers (ie no wild mice) reduces the risk of a Yersinia infection. The third disease which has caused several deaths is tuberculosis, caused by *Mycobacterium avium*. This disease is known to be difficult to treat in birds because of the intracellular properties of the bacteria and the cell wall which is resistant to antibiotics.

Besides the earlier mentioned risk of ISD, the results showed that 18 out of 26 zoos feed their toucans protein-rich products all year round. This is different from the wild. Several studies show that Toco toucans feed mostly on plant material and only feed on other animals in the reproductive period. Creating a protein peak in the diet (with low-iron protein products) shortly before and during the reproductive period might improve the chances of reproduction.

WHAT'S NEXT?

The reproductive issues and results of the research study call for a change in toucan management. At the moment it seems the high death rate (caused by various reasons) and partner compatibility are the main threats to maintaining a viable population of Toco toucans in EAZA zoos. One might say that attracting animals from private collections or importing animals might be a solution. Although importing animals might benefit genetic variety, while reproduction does not improve and the death rates are high this is no long-term solution. To improve the situation it is important to intensify the collaboration between zoological institutions in forming compatible pairs and to spread knowledge about animal management, health and judgement of pair compatibility. In order to achieve both goals, plans are being made to write husbandry guidelines for Toco toucans. Additionally, a workshop about these animals and their reproduction is being considered. Hopefully, the results of this research will help improve the situation of these iconic birds in EAZA zoos so we can stop the decline and ensure a sustainable population.

Amphibian guidelines



THE AUTHORS PRESENT AN OUTLINE OF PROGRAMME DEVELOPMENT AND MANAGEMENT FOR AMPHIBIAN CONSERVATION CAPTIVE BREEDING PROGRAMMES

Luis Carrillo, Kevin Johnson, and Joseph R. Mendelson III, Amphibian Ark

The multiple threats to global amphibians require multifaceted conservation programmes to ensure continued survival of what remains of amphibian diversity. The IUCN Amphibian Conservation Action Plan (ACAP) identified such programmes, based on information available at that time. Among the conservation responses recommended was an organised approach to build capacity and inform a global network of independent captive breeding programmes for the most endangered species. In response, Amphibian Ark (AArk; www.amphibianark.org) was launched by three principal organisations: the World Association of Zoos and Aquariums (WAZA), the IUCN-SSC Conservation Breeding Specialist Group (CBSG), and the Amphibian Specialist Group (ASG). To meet its mission, AArk has been helping zoos, aquariums and other *ex situ* facilities to address the captive components of the ACAP to save as many species as possible.

One of the biggest challenges in dealing with amphibian conservation is the huge number of species threatened worldwide. Based on our experience, expertise and observations of various programmes worldwide, and on interactions with stakeholders participating in our workshops and courses, Amphibian Ark has developed a set of general principles to be considered in the development phase of an amphibian conservation breeding programme.

SPECIES SELECTION

Amphibian conservation biologists face the dilemma of which criteria should be used to prioritise the species to conserve, and thus the resources necessary to commit to the conservation of those species. Conservation resources are always limited, species face different classes of threats at different levels, and species may be considered to be of differential value based on subjective criteria such as human cultural importance, or arguably

objective criteria such as phylogenetic distinctiveness or ecological roles. While no extinctions are tolerable, some situations may be prioritised as being of more immediate concern than others or the necessary threat mitigation may be more, or less, tractable in some situations. Thus, Amphibian Ark and its partners have designed a tool (Amphibian Conservation Needs Assessment, www.amphibianark.org/pdf/AArk_Conservation_Needs_Assessment_tool.pdf) that is as objective as possible to guide the difficult, and sometimes contentious, process of prioritising species for conservation efforts, and assessing which forms of conservation response are appropriate. The assessment tool identifies a broad suite of conservation actions, including habitat restoration or augmentation, other threat mitigation such as pollution control, community awareness and involvement, and/or captive breeding for eventual reintroduction.

Ex situ conservation of a threatened amphibian species should be



CLOCKWISE FROM FAR LEFT: NORTHERN CORROBOREE FROG (*PSEUDOPHRYNE PENGILLEYE*) ©MEAGHAN O'CONNOR, TIDBINBILLA NATURE RESERVE; NORTHERN CORROBOREE FROG BREEDING FACILITIES ©MEAGHAN O'CONNOR, TIDBINBILLA NATURE RESERVE; SOUTHERN CORROBOREE FROG (*PSEUDOPHRYNE CORROBOREE*) RELEASE ©MICHAEL MCFADDEN, TARONGA ZOO

(www.amphibianark.org/pdf/AArk-Amphibian-Population-Management-Guidelines.pdf).

LONG-TERM PLANNING

When *ex situ* management of an amphibian species is considered necessary and appropriate, the priority should be to establish the initiative within the range country/area of ecological origin. However, if the perceived urgency of the situation requires it and appropriate infrastructure is not available regionally, then *ex situ* programmes may sometimes be set up outside of the range country/area – ideally while appropriate infrastructure is being established in the home country/range. All *ex situ* initiatives should be temporary in nature and viewed as just one of the tools that can help in the overall conservation of a species. It therefore follows that strong links between fully integrated *ex situ* and *in situ* programmes are fundamental to the long-term success of species conservation. This is normally best highlighted through the establishment of a formal Taxon Management Plan that explicitly states the short-, medium- and long-term goals of each component of the conservation initiative.

A key challenge to the success of *ex situ* conservation programmes is ensuring the long-term viability of the programme, until such times as the threats facing the species in the wild have been eliminated, and the wild population is once again self-sustaining. In many cases, this can take years, and so *ex situ* rescue programmes might need to be maintained for five to ten years or more. Long-term viability involves all aspects of the programme, such as secure sources of continued funding, consistent staffing and infrastructure, successful health and husbandry protocols, genetic health of the population, and advance planning for housing or reintroduction to the wild of the predicted offspring.

considered a necessity when *in situ* conservation cannot by itself ensure the survival of a species and its ecosystem. Institutions considering the development of an amphibian *ex situ* conservation programme should begin by reviewing and considering the results of previous Conservation Needs Assessments in the country/region. The results of all conservation need assessments conducted so far may be viewed on the AArk Assessment Results page on the AArk web site (www.amphibianark.org/assessment-results/). Assessing species for conservation actions both *in situ* and *ex situ* will guide institutions in deciding, with the resources it has (space, staff, funding, etc) which species should be prioritised for the development of new *ex situ* programmes, which species urgently need field research or protection, etc. The assessment process may also help with gaining governmental authorisation and support from relevant organisations such as the IUCN. In conjunction

with AArk's Amphibian Conservation Needs Assessment process, the *Guidelines on the Use of Ex Situ Management for Species Conservation* (IUCN/SSC, 2014) should be used to help confirm that an *ex situ* programme for each species is warranted, and that appropriate planning, monitoring and evaluation are considered and documented. Amphibian Ark strongly recommends that at least 20 pairs of animals (or groups of individuals) be available as founder animals for establishment of a new *ex situ* colony. Ideally, these would be unrelated and will successfully reproduce, but of course that cannot be guaranteed. Amphibian Ark has developed a tool to help calculate the number of founders that should be collected, based on the reproductive biology of the species being considered. The tool is available on the AArk web site (www.amphibianark.org/founder_calculation_tool.htm) and uses data from our Amphibian Population Management Guidelines:

RESOURCES

Adequate resources, in predictable and steady supply, are crucial to the success of an *ex situ* programme. Resources include skilled staff, live food, funding, veterinary services, etc. and must be available for the entire duration of the programme. Sufficient resources to support the programme for its anticipated lifetime must be available for it to be successful. Establishing facilities and collecting rescue populations is only the first, albeit perhaps the greatest, expense. However, it is insufficient to support only those first-year expenses without operational support for the long-term, which may amount to years or even decades. In addition to financial planning, *ex situ* programmes should begin with an established plan for working with partners to mitigate threats in the wild and, where necessary, getting animals back into the wild, as well as how to distribute and properly manage the progeny of captive animals in the interim. AArk has developed a tool that should be utilised before the implementation of any new *ex situ* programme, to ensure that adequate resources are in place (www.amphibianark.org/program_implementation_tool.htm).

GENETIC DIVERSITY

Simple successful breeding of an endangered species in captivity is not sufficient to declare a programme a success. In some cases, the founder animals of a species breed once, soon after being brought into captivity, but never again successfully. Attrition of offspring due to natural causes, faulty husbandry, or uncontrollable accident prior to F1 animals reaching sexual maturity may reduce or eliminate the real success of a breeding event. A surprising number of amphibian species may produce seemingly healthy F1 progeny but ultimately fail to produce viable successive generations. There will inevitably be some loss of founder diversity in populations that prove to be difficult to produce F2 offspring, and this needs to be considered when determining founder numbers.

Because amphibians are often maintained in groups, and individual identification sometimes can be difficult, amphibians can be

challenging to manage in captivity in terms of maintaining well-documented pedigrees or genetic bloodlines. Nevertheless, the basic principles of genetic health that pertain to all *ex situ* conservation programmes apply to amphibians. AArk recommends this online tool (<http://popfrog.org/>) to review the basics of successful genetic management of a long-term multi-generational population and to inform the start-up strategy regarding important factors such as numbers of unrelated founder animals.

EXIT STRATEGY AND REINTRODUCTIONS

Viable and genetically robust cohorts of offspring produced by well-managed breeding programmes must be maintained in the long term in appropriate facilities. Once successful breeding begins, the progeny need to be managed in order to liberate space for subsequent generations. These animals, and ideally there should be a great number of them, will require adequate space, food and staffing that, generally, should be allocated across multiple partner facilities. The exit strategy or final goal ideally would be to raise them until they may be reintroduced into the wild as part of a coordinated *in situ* and *ex situ* conservation programme involving all relevant government agencies and regional stakeholders. All captive programmes which will result in reintroductions must include appropriate goals, objectives and actions, risk assessments, release strategies and ongoing post-release monitoring.

There certainly are situations where *ex situ* programmes may be started before it is clear that the threats in the wild have been – or can be – mitigated. This realistic situation is a very difficult challenge to confront and may lead to conflicts in priorities and values among stakeholders. Unfortunately, the situation of diseases, such as amphibian chytridiomycosis that is now endemic in the historical ranges of many threatened species, can represent just such a conservation challenge.

ALTERNATIVE RATIONALE

Planning an *ex situ* programme for amphibians that is relevant to conservation may include goals other than ultimate reintroduction of captive-

produced offspring of a Critically Endangered species. AArk has identified a number of such programmes that are important and may well fit the needs, mission, and possible limitations of specific institutions. These alternative conservation roles, outlined in the Conservation Needs Assessment tool (web link above) include 'Ex Situ Research' in which animals in the programme are explicitly being produced for purposes of research, which may be in the realms of laboratory research (eg controlled studies of the pathology or veterinary treatment of chytridiomycosis) or to develop and refine husbandry techniques. Such exploratory husbandry research may involve a small number of a threatened species, or a surrogate species that is closely related with a similar biology. In either case, the goal is to inform subsequent *ex situ* programmes with the focal threatened species. An *ex situ* programme for a non-endangered species may be warranted if the stakeholders decide that a surrogate programme is the best plan, for example in order to train new staff or troubleshoot new facilities or protocols using a non-endangered species but closely related or ecologically similar species.

DISCUSSION

With appropriate planning, resources and commitment, **all *ex situ* organisations are able to implement and support conservation programmes for threatened amphibians**, thereby taking a positive step towards saving some of our most threatened species. If more organisations are willing to follow the principles outlined in this article, to work with species that have been assessed as needing urgent *ex situ* programmes, and to be well-prepared to commit to a potentially long-term programme, we can reduce the chance of losing more species, and ensure the survival of those species that most need our help.

The AArk web site (www.amphibianark.org) contains a wealth of information to assist with all aspects of ex situ amphibian conservation programmes, and AArk staff (info@amphibianark.org) are always available to provide specific advice, training and support to individual amphibian programmes.

A WHITE-BACKED VULTURE CHICK, TOO
YOUNG TO TAG – WHAT DOES THIS
INFANT'S FUTURE HOLD?

The decline of the vulture

IN THIS PERSONAL NARRATIVE, THE AUTHOR EXPLAINS HOW A TRIP TO SOUTH AFRICA REVEALED THE EXTENT OF THE WORK NEEDED TO SAVE THE AFRICAN WHITE-BACKED VULTURE

Dave Warren, Education Officer, Blair Drummond Safari Park

'You see, Dave, conservation is a first-world luxury' was the matter-of-fact response I received from zoologist and field biologist, Beryl Wilson, as she negotiated her Toyota Hilux through the minefield of antbear-dug craters that pock-mark the South African bushveld. We were en route to one of the 169 African white-backed vulture (WBV) nests visited during my week's stay, and Beryl's response was the first of many such replies that met my stream of naïve questions.

Steering onwards between countless 'wait-a-bit' acacia trees (so called because the merest contact with such a tree will necessitate several minutes' disentanglement), Beryl posited the notion that within our lifetime, Africa's skies could be vulture-less. It was a faintly bizarre idea, for more reasons than one. First, vultures seem very much an intrinsic part of the African landscape; even northern Europeans are familiar with the image of vultures turning lazy circles high up in the haze of the savannah, or squabbling, hunch-shouldered and blood-stained, over the remains of a lion kill. Second, if vultures clean up the remains of dead animals, surely they'd be the very last to go, even in a fragile ecosystem? This and other questions would soon be answered.

My arrival in Africa – on a regrettably fleeting visit – followed a chain of events that began with a childhood infatuation with birds of prey. I got involved with falconry in a determined way in my early twenties and, fresh from agricultural college, was very fortunate to find work as a display falconer at Blair Drummond Safari Park (BDSP), near Stirling, Scotland. I still work for BDSP, but now as the Education Officer, a position that has allowed me to engineer a means of generating financial support for three conservation initiatives – 21st Century Tiger, Save the Rhino and the International Vulture Programme (IVP). The fundraising efforts of BDSP gave us some good



AN ADULT VULTURE SAFEGUARDING A CHICK AS WE APPROACHED THE NEST.

contacts in the field, and when Campbell Murn of The Hawk Conservancy Trust, founders of the IVP, offered me an opportunity to go out to South Africa and get involved with their vulture monitoring work, I jumped at the chance.

I was met from the plane in Kimberly by Andy Hinton of the Hawk Conservancy, and 40 minutes later we were at Mokala National Park, where I was introduced to the other members of the team: Thierry Bouchet and Marco Billaud (employees of Puy du Fou, an EAZA member specialized in the breeding of birds of prey), Graham Bessant (a British falconer) and Adam Rose (carpenter by trade and regular team member).

The team is coordinated by Beryl Wilson and Angus Anthony, the latter a retired game farm manager who completed a thesis on vultures years ago. This pair have been jointly responsible for monitoring WBVs in the greater Kimberley region in the arid Northern Cape province, particularly on Dronfield Nature Reserve, a privately-owned De Beers Mining Company property. Vultures were first monitored here in 1974, and the current project has been under way for 22 years. They aim to better understand the impacts of the rapid



LEFT: BERYL WILSON ATTACHES A WING TAG TO A WBV;
 ABOVE: THE AUTHOR HOLDING A 10 WEEK-OLD WBV CHICK,
 TAGGED AND ABOUT TO BE SAFELY RETURNED TO ITS NEST;
 AND THE RECOGNISABLE SHAPE OF A VULTURE IN THE
 AFRICAN SKIES



decline in the WBV population, the prospects of sustainable recovery and the lasting effects on the ecosystem – information that will be fed into the Savanna Tree-nesting Vulture Project in several countries across southern Africa. Individually, they each have their own focus. Angus is interested in nesting and breeding success, as well as fledging rates of the youngsters. Beryl studies sexual bias in dispersal behaviour, and the survival of the youngsters post-fledging.

HUMAN STRUGGLES

It was at this point that I had wondered out loud why there wasn't a greater pool of local interest in the WBVs within this region. Beryl forgave my naivety and went on to better explain the answer that opens this article. For the vast majority of locals, conservation of vultures (and indeed many other species) necessarily plays second fiddle to more basic humanitarian requirements – clean water, fresh food, healthcare, basic housing and education, to name a few.

In this region, where the WBV population has crashed by nearly 50% in the last 10 years, the prospect for humans is hardly much rosier. The unemployment rate is 25.5%, infant mortality is 34 deaths for every 1,000 births, and every 30 seconds a girl is raped, making it far more probable to be violated than to achieve a degree. Even though the health of the surrounding ecosystem is essential to long-term human survival, in the short-term, wildlife conservation is unlikely ever to be a priority in this sort of socio-economic context. Long-term planning, and the ability to provide carefully for the future, is a luxury that we take for granted in the West.

Luxury or not, vultures are nonetheless important creatures to have around, as India found out to its cost in the 1990s.

Widespread prophylactic use of the cheap anti-inflammatory veterinary drug, diclofenac, in cattle had the effect of killing more than 97% of the sub-continent's avian scavengers over a 14-year period. The corpses of unconsumed livestock littered the streets, fields and hillsides, and began to feed a burgeoning feral dog population. Rabies proliferated, waterways became polluted, and conservative estimates suggest that 48,000 human deaths can be attributed to the vulture population collapse. The cost to India's government was conservatively estimated to have been US\$24 billion from 1990-2008 alone. If there is one thing Africa could do without, it's the sort of economy-crippling crisis that might ensue from further pollution to her waterways and a rampant disease outbreak.

COMBINATION OF THREATS

So what is causing the declines? In Africa, as in India, vultures are very much the victims of collateral damage. The scale of deliberate killings for witchcraft medicine is dwarfed by the knock-on effects of two other wildlife atrocities. First, diclofenac use is widespread here too (and, incidentally, has recently been cleared for use again in Europe). Second, rhino and elephant poachers have cottoned on to the fact that a growing 'wake' of circling vultures in the air attending the scenes of their activities can be a give-away to park rangers; they have responded by poisoning carcasses.

We know, alarmingly, that of the 23 species of vultures in the world, 14 are officially classified as Threatened or Endangered, and that the declines have occurred in the last 50 years. Already seven of the nine species in southern Africa are Endangered. What we don't yet know – or have yet to widely appreciate – is the effect that vultureless skies will have.

A WBV CHICK GAZES BACK THROUGH A MIRROR
HELD OVER ITS NEST.



Vultures in freefall

In recent years, the decline of many species of African vulture has become critical. Estimates suggest that, in the last three generations, the rate of decline of the Egyptian, white-backed, Rüppell's, cape and white-headed vultures have all been 90% or greater, which should qualify them for Critically Endangered status under the IUCN's guidelines. The bearded vulture (-70%), hooded vulture (-83%) and lappet-faced vulture (-80%) have been in freefall, too.

Poisoning of carcasses, which are often baited with toxic pesticides to kill livestock predators, has caused around 61% of the birds' decline. This could have dire consequences not only for the vultures themselves, but for much of the ecosystem they inhabit. As scavengers, vultures play a vital role in the disposal of carcasses and other waste products; without them, carcasses are largely consumed by mammalian scavengers such as dogs and jackals, which can increase levels of disease transmission with potentially disastrous consequences for human health.

According to Beryl, agriculture and tourism-related activities are collectively probably the second leading industry in the country. The economic implications related to disease outbreaks and sanctions imposed on meat- and animal-product exports from the hunting and tourism industries are incalculable.

The cascading effects of our actions are sometimes freakishly distant from the original cause. Vultures, which are long-lived (up to 30-40 years in the wild) are already faced with a variety of threats in their environment, including collisions with power lines, electrocutions, drowning in raptor-unfriendly dams and being targeted for traditional medicinal uses. However, the most recent mass-poisoning events in neighbouring countries are cause for even greater concern.

In the past two years alone, around 2,000 birds have lost their lives, and this is certainly not sustainable in a population with

already low numbers and a species with a low rate of maximum population growth. Large vulture species like the WBV don't usually begin to breed successfully until their fifth year, and only raise one chick at a time. Even experienced breeders will only rear an average of two chicks to fledging age every three years; when you add up the numbers, it takes a vulture pair 16 years just to replace themselves.

What was particularly concerning about a July 2013 poisoning event in the Caprivi Strip in Namibia, where between 400-600 birds died, was that two wing-tagged birds from the Northern Cape were recovered. One was from Mokala and the other from Dronfield. Both were less than a year old, (having been ringed and tagged during the previous October ringing event) and both had already flown about 1,500 km from home.

Long-distance movements are probably normal, but they should involve all populations in all areas, meaning that, overall, population densities remain unchanged. Where one particular area suffers huge mortality, you end up with a pattern of 'source' and 'sink', whereby the productive areas lose all their young birds to a black hole elsewhere. The situation is exacerbated by possible sex-ratio biases in dispersing birds. Beryl believes that most of the dispersing birds are females, meaning that their home populations end up male-dominated, with obvious implications for breeding success. She argues that governments must work collectively to resolve these issues; vultures are mobile animals that do not heed international boundaries. Crimes against vultures are unlikely to be taken seriously until they're given the same priority as those involving more charismatic fauna such as rhinos and elephants.

A tourist is now statistically four times more likely to see a white rhino in the wild (even with the current rate of poaching) than to see a white-backed vulture. As things stand, southern African skies could be empty of vultures within five years.

HOPE FOR THE FUTURE

I needed to leave Africa with something affirmative, a message of hope and encouragement to bring back to the UK and with which to fuel our conservation efforts at BDSF. So, to put an optimistic gloss on the rather grave picture that had been painted in my mind, I decided to spend my last day tagging vultures with Angus Anthony. Just watching this retired man in his 22nd year of ringing and monitoring vultures was inspiring enough. As he came down from the final acacia tree of the 2014 season, I asked him what, if any, positives the future held. He cautioned against too much optimism, as I expected, but talked also of success in education initiatives that inform landowners and livestock managers of the negative consequences of incidental vulture poisoning. There are also incentive schemes in operation to try to reduce the allure of poaching for ivory and rhino horn, though this is a tougher nut to crack in a harsh rural area with scarce job opportunities. But where there is a will there is always hope, and while this light remains on the horizon, Beryl, Angus and others like them will soldier on. My own work now lies in education and fundraising, as it always has, but I return to the fold with a keener sense of the problem and even greater resolve to make a difference.

I hope this article inspires readers to visit the IVP website (www.hawk-conservancy.org/ivp) and find out ways to lend their support.

Shared values

AN AGREED SET OF VALUES CAN MAKE A ZOO OR AQUARIUM RUN MORE SMOOTHLY AND SUCCESSFULLY

James Cretney, CEO, Marwell Zoo, UK

Our sector is very much defined by people with passion. The wonderful people who work within zoos and aquariums are very often enthusiasts with an inextinguishable passion for what they do. However, like many qualities, enthusiasm and passion – if taken to the extreme – can become a problem. How many of us, for example, slave away in our jobs only to volunteer for more responsibility (such as running a studbook), or take on extra work (often in our own time) only to resent, over time, the lack of resources we are given or even become stressed under the burden of



Marwell's brand values

Warm: *'Enthusiastic, affectionate, kind and supportive.'*

This is 'how we give' to others. Being warm means showing a genuine interest in other people. Active listening and open, positive body language are key to this. As a charity we respect diversity and cultural sensitivity and are thoughtful, nurturing and concerned about the welfare of others.

Welcoming: *'Cheerfully receiving, bringing pleasure to those we greet.'*

This is 'how we receive' others. Being welcoming means that we are inclusive in what we do. We share our knowledge and skills with others, whilst respecting their opinions and the pressures they might face. Compassion and empathy are at the heart of this.

Wise: *'Showing experience and good judgement.'*

This is how we use our expertise. We need to harness our considerable skills and knowledge in adapting and shaping our outlook. This means reflecting on our experience whilst taking the initiative and responsibility to drive forward the development of our organisation, its people and our charitable objectives.

Contemporary: *'Up-to-date and current, compatible and relevant to society and present thinking.'*

Being responsive, and open to change and new ideas will help ensure that we remain relevant to society and at the cutting edge of present-day thinking. We must constantly review what we do, and have the confidence to commit to ongoing change and development.

additional responsibility, pressure and workload?

People are, however, what make organisations work, and zoos and aquariums, irrespective of legal status (eg private, charitable, council-run etc) are no different.

The role of the CEO or senior staff is to paint the vision and lead the way (sometimes then getting out of the way); to hire the very best talent of skilled, vibrant people; and continually to motivate, coach and support that talent. In addition, painful though it may be, when needed, the role requires support of the refreshment of that talent cultivating a culture of continued excellence. It is that talent that when aligned to a great product (like good zoos and aquariums) and a credible business plan, makes an organisation flourish.

THE RIGHT BEHAVIOURS

In truth, however, we all know that 'people' can be difficult. Whether it is colleagues, staff, the public who visit us, or even ourselves! Keeping true to how we wish to (or should) behave, both individually and institutionally, can be hard, especially when we find ourselves under pressure. Similarly, when recruiting staff it can be easy to spend too much time looking for and discussing technical skill. But often that is the easy bit to examine. The candidate is presumably qualified or not, or else they have the necessary experience or not. That is why they made it from the shortlist to the interview, and so technical skill is usually pretty easy to determine. In my experience, if things are going to go wrong, it is not on the technical knowledge (the hard skills) but the 'people' bit (the soft skills). For example, do they upset people, can they not manage a team, do they not communicate or work in a team, or do they fail to respect others? I am sure you know what I mean! It doesn't matter how much of a genius someone is, if they cannot work with others it won't end well. Organisations are about people. So, in addition to our own technical skills, we need to have 'organisational values' or what are sometimes called 'brand values'.

After all, a brand is simply a promise – what does your organisation stand for and what promise does it make to its staff and visitors? If your organisation doesn't yet have an agreed set of values, this is something that all staff can be a part of developing, perhaps at a facilitated workshop, where some shared values can be defined and agreed. I would suggest no more than four or five such values, which can be expanded upon, defined and then used in everyday working life. Why do we need them? Because we are all human and without a simple framework or guide to shape our behaviour we sometimes drift back to our old ways of working that are sometime less positive.

For example, Marwell's brand values are being warm, welcoming, wise and contemporary (see box). We don't always succeed, but we are forever trying. With the help



MARWELL'S BRAND VALUES BUILD A STRONGER, HAPPIER ANIMAL TEAM.



of staff we have articulated them, have defined what they mean and have examined what 'too much' or 'too little' of each of these values actually looks like; as mentioned earlier, all good things become weaknesses if done to excess. We now use them in recruitment, probation period, appraisal, training and, if sadly needed, in intervention and even in disciplinary matters.

They really are important to us as they shape and guide who we are institutionally. Not that Marwell is full of automated robots – far from it. We have some very colourful characters, believe me, but we try to share the same organisational values.

LIVING THE VALUES

My job as Marwell's CEO is to make sure we continually live these values and I use them constantly, like a mirror to my face, checking that I don't revert to my own bias particularly if I am under pressure, tired or annoyed – I find it really helpful. For example, when I speak to people, when I write an email, when I proofread text, I look for these values; it is like a sense-check, and when I am with others I expect them to embody our values too. Why? Because when we live these values we have consistency across the organisation and that is really important (that is what a brand is all about) so people know what to expect – they are our promise to one another. In Marwell's case, our values keep us from being lazy, they ensure we are courteous to others and we behave

professionally. Moreover, people know what is expected of them and what they also can expect from others such as their colleagues, managers and me. This is really important and helps give consistency and confidence, at all levels, and ensures that our wonderful and passionate people can do what they do best, in turn enabling our organisation to continue to develop and flourish.

Brand values are not dependent on the size of the institution, its turnover or how many visitors come through the door. Any organisation that has more than one member of staff, and has contact with the public in the course of its business, needs to define what it stands for, and how that shows itself in the interactions of everyone involved.

Indeed having a solid foundation allows Marwell to work with the wider EAZA community on the same basis – providing the opportunity for us to play an active role within the association's programmes, such as managing studbooks and EEPs and the teaching of population management, while providing the internal support that allows the passion of our staff to add to, rather than detract from, the successful implementation of our business plan.

With clearly defined and appropriate values, every member of EAZA can contribute to conservation, education and research without overstretching or neglecting the people who make up this fascinating community. It is this balance that makes working in a zoo or aquarium a life-long pleasure.

Big animals, big heroes

SPECIES CHAMPIONS IS AN INITIATIVE OF THE EAZA CONSERVATION COMMITTEE, AIMED AT HIGHLIGHTING THE DEDICATED AND PASSIONATE PEOPLE WHO ARE MAKING A REAL DIFFERENCE TO THE CONSERVATION OF SPECIFIC SPECIES, AND PROVIDING A FOCAL POINT FOR ZOOS TO GET INVOLVED WITH THE PROJECTS AND SPECIES THEY REPRESENT

Elephants: Richard Bonham

To many people, elephants belong to the most charismatic species on earth writes Dr. Friederike von Houwald, EAZA Conservation Committee member and Rhino TAG Chair. They fascinate us with their majestic looks but also their kind nature and social behaviour. They are very intelligent, have long-lasting memories and have managed to survive the long process of evolution for millions of years.

The fact that their existence could possibly soon come to an end leaves many of us very worried. Ivory is sold at Asian markets as jewellery and other 'nice-to-have' fashion items. For this 'fashion', each day, 70–90 elephants are killed; every 20 minutes one giant falls. Estimates suggest that the African elephant (*Loxodonta africana*) population has dwindled to fewer than 400,000 today compared to over 1.3 million in 1979 and pessimists declare the species could be extinct by 2030 if poaching continues at the current rate.

But elephants are not only targeted for their ivory, they also struggle with local people for food and habitat. Human wildlife conflict is an emerging issue worldwide. In some areas of Africa, next to ivory poaching, conflict is the most commonly seen problem for elephants. In fact, so that large land mammals can live alongside humans, without conflict, good conservation management practices must include the local people: it is an illusion to think otherwise. This is essentially important in areas where wildlife is still allowed to roam outside national parks through community land.

Richard Bonham, Director of Operations of Big Life Foundation, Kenya, was born and raised in Kenya. His passion for wildlife turned him into one of the most active conservationists in Kenya. Being a true wildlife enthusiast, his heart was wedded to the Chyulu Hills, a beautiful hill range, north of the Amboseli and Kilimanjaro, and owned by the local Maasai.

His polite and kind nature as well as his deep understanding of the Maasai culture opened many doors to him. He was allowed to set up a place in the Chyulu Hills where he started his first NGO, the Maasai Preservation Trust (MPT). Having seen dwindling wildlife numbers, mainly due to poaching in the 1980s, his interest in protecting wildlife turned into a full-time job.

When poaching of elephants also started to escalate in this region, Richard joined forces in 2010 with Nick Brandt, a world-famous photographer and passionate conservationist, and merged MPT into the Big Life Foundation. The heart of this foundation is the Amboseli Ecosystem, covering over 2 million acres, owned by the local Maasai. This area has huge conservation potential as it is one of the last places where large elephant herds are allowed to migrate between the Amboseli NP and Kilimanjaro NP to the Chyulus NP and the Tsavo NP.

His approach is to include the Maasai people in all conservation management strategies; to provide jobs, education, long-term as well as short-term support and perspectives; and to be at hand when most needed in human/wildlife conflict situations or setting up professional anti-poaching strategies, including a well operating informer network.

Richard's approach works. Since 2010, 315 rangers have been employed and trained. They are stationed in 31 outposts, controlling over 2 million acres of wilderness in the Amboseli-Tsavo ecosystem. This is the only project of its kind to give rangers cross-border control (Kenya-Tanzania) and prosecution abilities. Most Big Life staff are well trained Maasai from the region, and all of them are proud to be part of a team, a family. They know that they protect this amazing ecosystem and its wildlife for their next generation, and all of them work with great respect for Richard. No wonder that they have given him a very special name: Enkasi, the White Maasai. In 2014, Richard was given the Prince William Award for Conservation in Africa. He truly is an exceptional person: this is why the EAZA Conservation Committee nominates Richard as our Elephant Species Champion.

For further details on the Big Life Foundation or if interested in supporting this species champion visit <https://biglife.org/> or contact EAZA Conservation Committee member Friederike von Houwald at vonhouwald@zoobasel.ch.

Rhinos: Mike Knight



The Southern white rhino (*Ceratotherium simum simum*) faced tremendous poaching threats in the early 1900s, when only about 50–100 individuals remained in South Africa. But with the help of successful conservation management strategies, the

species became a true conservation success story. At the end of 2012, over 20,400 individuals were counted in subSaharan Africa. Unfortunately, this success story only accounts for the southern white rhino. With only five individuals surviving, the northern white rhino seems set to go extinct very soon.

In contrast to the white rhino, the black rhinoceros (*Diceros bicornis*) still survives as three subspecies, but with none occurring in truly large numbers. As with the white, the black rhinos came under extreme pressure in the 1970s–1990s, with numbers falling to just 2,400 individuals. And, as with the white rhino, due to targeted conservation-management interventions, numbers slowly rose to just over 5,000 individuals in 10 African countries.

These numbers show that well-managed conservation strategies can turn the tide for an endangered species. Unfortunately, the current situation for rhinos in Africa, and also in Asia (greater one-horned rhinoceros *Rhinoceros*



unicornis, Javan rhinoceros *Rhinoceros sondaicus* and Sumatran rhinoceros *Dicerorhinus sumatrensis*) looks dire. In the past seven years, a new poaching crisis has hit both continents, with the majority of poaching incidents happening in Africa. This crisis is triggered by a new 'fashion' or demand for rhino horn in Asia. Rhino horn has become a symbol of wealth for many Asian people, in particular Vietnam, where increasing economic prosperity has enabled the growth of the demand for illegal luxury wildlife products.

In 2007, only 13 cases of rhino poaching were recorded in South Africa. Seven years later, in 2014, numbers rose to alarming 1,215 carcasses. There are concerns that the rise in rhino poaching since 2008 may result in both African species falling into decline if the threat is not reduced very soon.

When times are dire, good ideas and money are important factors to assist rhino conservation. But most important are strong personalities who have a deep understanding of the situation. Very often, these personalities manage to bring chief players together around a table, discuss ideas and manage to implement them as well. Their eagerness, interest but also persistent impact keeps the ball rolling. Without such species champions, many projects would not run successfully.

One of these outstanding personalities is Dr Mike Knight.

Mike has worked for over 30 years in the field of conservation. Trained as a wildlife ecologist in South Africa, he has spent most of his career within South African national parks. He started as a scientific officer based in the southern Kalahari, then as a regional ecologist for numerous parks; he became head of research for South African inland parks and is currently the General Manager for Park Planning & Development in South Africa. His experience is in large mammal ecology, ecophysiology, park planning and conservation planning in Southern and East Africa. He has

been involved in rhino conservation for the last 20 years. In 2008 he was appointed the Chairman of the SADC Rhino Management Group (RMG) and in 2011 he became the Chairman of the IUCN SSC African Rhino Specialist Group (AfRSG). He is a very well-known conservationist within and outside South Africa.

His profound knowledge of the African rhinoceros species but more importantly his knowledge of political and structural implications for rhinoceros conservation is of utmost importance in the current rhino crises. As IUCN AfRSG Chair, Mike works nationally and internationally with various politicians and governments to combat horn-demand, illegal hunting, illegal export of trophies, and poaching activities in various countries, while joining forces in the intelligence network for the protection of rhinos. His broad knowledge together with his holistic approach towards the current rhino crisis and his extreme engagement in hard times, when a rhino is poached every eight hours, are holding together a network of people who all work towards a single goal: the long-term conservation of rhinos in Africa and Asia.

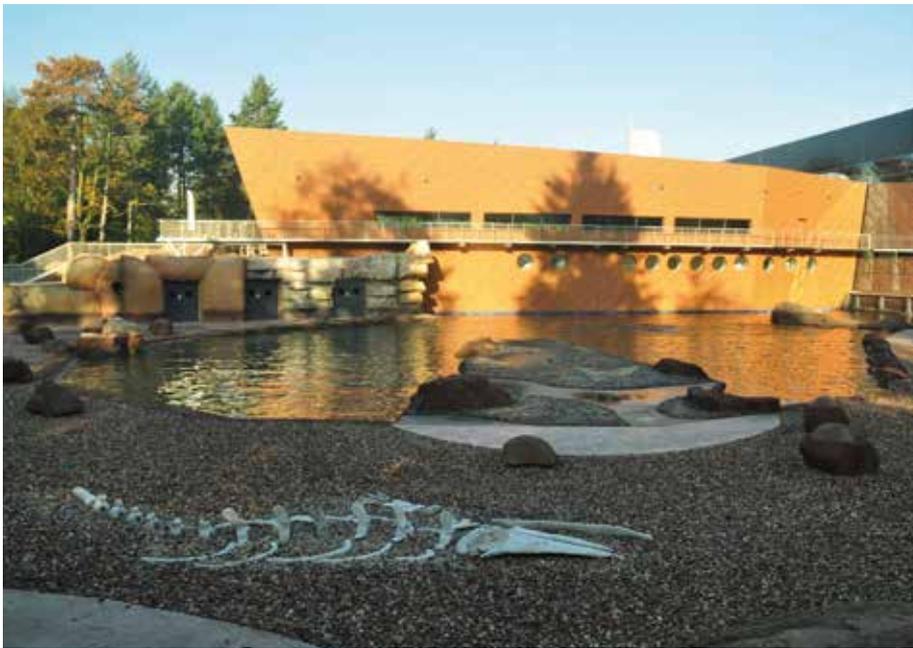
Mike is an outstanding person and one of the most important players worldwide in rhino conservation. Mike's inclusive approach has greatly broadened the reach and expertise of the Specialist Group, enabling different sectors of the rhino conservation world to work together more effectively.

It is a great pleasure and an honour to closely work with him in the EAZA Rhino TAG and a great opportunity for us to nominate him as one of the EAZA Species Champions.

EAZA members that want to become involved with Mike's rhino conservation work please get in touch with Friederike von Houwald (vonhouwald@zoobasel.ch).

The impossible come true

THE NEW AFRICARIUM AT WROCLAW HAS TRANSFORMED THE POLISH ZOO INTO A MAJOR NATIONAL ATTRACTION



Radoslaw Ratajszczak, Director, Wroclaw Zoo

In early 2007, after 25 years working for Poznan zoo, I won a competition to become a Director of Wroclaw Zoo. From day one it was obvious that the zoo needed rapid changes to develop and survive. Dark clouds were gathering, in the form of a poor financial situation, run-down facilities and bad press.

The new post required hard work, first to improve conditions for the animals, build or re-build facilities and increase a number of visitors. Then, in 2008, I was able to convince the city administration to try to build something really big and unique in the zoo and to change the organisational structure to a limited company. Traditionally, all Polish zoos had been run as municipal or governmental entities that had nothing to do with free economy. The first private zoos only began to appear in the early 2000s. The change, which required the liquidation of a 'budget entity' took place in 2010 and opened the door to more rapid progress.

Building an oceanarium (or dolphinarium) had long been a dream held by the city authorities and talks were already underway with foreign companies that ran, for example, Sea Life centres. Such a construct was also in accordance with our new master plan for the zoo, and building a private one outside of the zoo would be very detrimental.

In addition, I didn't really like the idea of building just another classic oceanarium. It had to be one with a difference. After initial discussions it was decided to concentrate on just one continent, in this case Africa, with the new pavilion being named 'Africarium'.

An architectural competition took place in 2009, and the next two years involved plenty of planning, as well as the establishment of a legal structure for ZOO Wroclaw LLC. By the end of 2011 we were ready to open a public tender for the actual construction, which began in April 2012. Altogether 86 different companies from Poland, Japan, Spain,

Germany, Austria, Switzerland, Great Britain and Netherlands contributed with up to 600 people working on site for 24 hours a day. After a record-breaking period of fast work, in just over 2.5 years we were able to open Africarium officially on 26 October 2014 – six months ahead of the scheduled deadline.

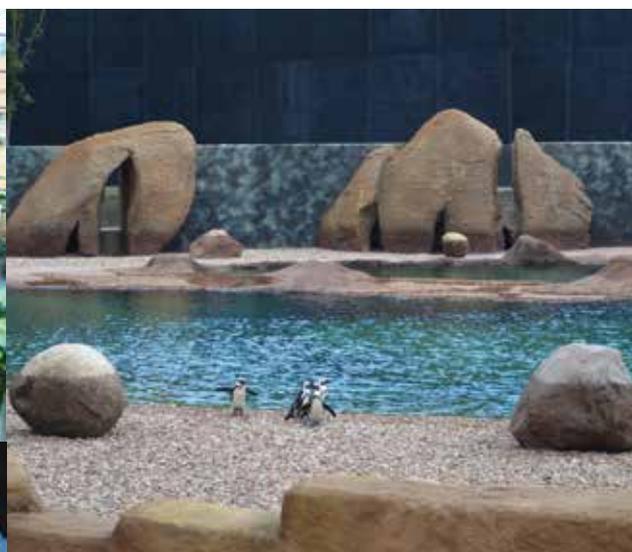
BEHIND THE SCENES

So, what exactly is Africarium? By European standards, it is a rather large exhibit covering almost 1.5 hectares and featuring major African water habitats, both freshwater and marine. It holds about 16 million litres of water in various displays, and the total cost was around 55 million euro.

Visitors begin in a main entrance hall which includes three conference halls, one for 170 people, another used as a classroom for 50 people and a third used as a VIP room for special events. All are proving very popular. In the centre of the entrance hall there is a shallow tank showing an African swamp environment with typical fish like lungfish, various cichlids, (including an endangered one from the crater lakes of Cameroon) and upside-down catfishes.

There, visitors begin their journey, moving down from a beach that creates an exhibit for African spurred tortoises, through a shallow area to the deeper coral reef of the Red Sea. This exhibit holds a million litres water and features well over 1,000 fish representing 50 species.

Next is an eastern African freshwater lake with underwater views of common hippopotamus in a huge, 2.5 million-litre pool full of tilapia fish. There is also an area of underground savannah featuring aardvark burrows as well as naked mole rats. Further along there are two tanks, 120 thousand litres each for fish from lakes Malawi and Tanganyika. The visitors then return to ground level to observe dik-diks, dwarf mongooses plus a wide range of East African birds – bee-eaters,



go-away birds, cattle egrets, hammerkops, hadada ibises, weavers and many African duck species. There is no outside paddock for the hippopotamus but a very large part of the roof can be opened during warmer weather providing access to sun, wind or rain. This decision, controversial to some, was not made due to budget cuts or lack of space but due to the issue of weather conditions. Heating water in the outside pool to anything around 20°C would be very difficult and costly. Cold water in turn can result in arthritis, commonly observed in the hippopotamus.

Visitors leave this area and pass under a big waterfall to enter Mozambique Channel. This is a large tank, holding 6 million litres with large viewing panels and a tunnel. The maximum depth is 7 metres, and the tank includes numerous sharks, groupers, rays, guitarfishes and skates as well as Napoleon wrasse and green sea turtle. Additionally there are shoaling species like lutianus, pompanos, trevallies and batfishes.

The path then brings us to the Skeleton Coast. This part of the building resembles a ship that once ran into the rocks on this treacherous shore. Through the underwater, huge windows one can see over 50 African penguins 'flying' beneath the surface as well as a group of African fur seals. Their tanks hold 3 million and 4 million litres respectively and are over 5 metres deep. There are also four additional tanks in the middle which hold jellyfish, selene and moray eels as well as smaller, bottom-dwelling sharks. There is also a restaurant and café on the top deck. The penguins really enjoy the size and especially depth of the tank as they entertain visitors with almost constant swimming. Within just three months of their arrival the first chick had already hatched, and others have followed.

The final habitat is a rainforest with a lush, natural vegetation. It includes a very big pool, the largest in Europe for manatees (the manatees are the Caribbean species, but we

explain why) and Nile crocodiles. A wide range of African fish such as Nile perch, tigerfish, Congo puffers, African carp and cichlids augment the exhibit. There are also free flying birds – turacos, African grey hornbills, mousebirds, rollers and ducks. The numbers of birds as well as some small mammals will increase with growth of vegetation.

EASY ACCESS

The whole building is accessible for disabled people through lifts, ramps and escalators. Education is provided through electronic means as well as classical labels.

The Africarium immediately proved to be extremely popular. Since the opening well over 1.2 million visitors have arrived, with over 900,000 in 2015 by the end of May. There are increasing numbers of visits (currently over 60%) from outside of our region as well as from abroad. The economic impact on the city is great, so the authorities are pleasantly surprised, and the positioning of Wrocław city on the tourists' map of Poland has changed rapidly. ZOO Wrocław already ranks among the largest attractions in our country and with a predicted 2 million visits this year, it will easily become number one. All this has happened within a period of just eight years: in 2006 the zoo welcomed just 360 thousand visitors.

Of course this big change in our zoo could never have happened without the help, friendship and transfer of know-how from other zoos. I have to mention (among many) the Director of Leipzig zoo, Jörg Junhold, and Rotterdam ZOO's Mark Damen. For me this shows the real EAZA spirit.

I hope many of you will have a chance to visit our zoo and see Africarium with your own eyes during the upcoming EAZA Conference. Like almost all large zoo developments it has the potential to grow and new individual exhibits are already at the planning stages or under construction.

Going through the roof

A MAJOR PROJECT AT CHESTER ZOO WAS BROUGHT TO LIFE BY EAZA CORPORATE MEMBER HMJ DESIGN



Mikkel Ravn, International Sales Manager, HMJ Design

HMJ Design is a small Danish trading company that specialises in procuring a diverse range of building materials for zoos, using sustainable and eco-friendly supply chains. We have been trading with zoos and amusement parks for more than 20 years, and find this particular sector interesting, because it enables us to let the conservation and sustainability ethic of the zoos 'trickle' down the supply chain, thereby making it clearer to producers, that manufacturing according to those ethics is of benefit to both their business and their local environment. This means that, apart from the great fun (and occasional hair-pulling frustration) of running a small business in an international setting, we can also begin to nudge our business contacts in the right direction from an environmental standpoint.

Two years ago, Dan Pearlman Architects approached HMJ Design for a bid on the Chester Zoo Islands project tender, the biggest zoo project in UK history at a budget of £40 million. We had been introduced to Dan Pearlman six years earlier at the EAZA conference in Madrid, which goes to show that patience is sometimes a required trait when working in zoo circles!

We had several product lines, which could be incorporated in the project, but a focus on our artificial-fibre thatch-roofing materialised rather quickly. Even though a traditional Indonesian thatching for the various huts and temples in the Islands project would certainly be desirable, there are just too many impracticalities associated with it: natural thatching material from the Far East rots and moulds very quickly in the colder Northern European climate, where the thatch seldom has a chance to dry out completely. The resulting frequent import of spare thatching for renovation from halfway around the world was therefore deemed to leave too big an environmental impact, as well as being too expensive to buy and install over and over again.

Following talks with the project management, we ended up recommending two different types of artificial thatch: the Bali palm thatch, which emulates the traditional appearance of thick, flat grass strands, and the fibre tiles, which emulate

traditional Balinese Alang-Alang straw thatch, which in many respects similar to the thatching technique we know in Europe.

Each thatch type was delivered in three different colours, from a deep straw-like yellow to a light-brown, to a dark brown and grey. By cladding each of the different buildings in one of these respective colours, we were able to recreate the visual expression of a traditional Indonesian community, where roofs are changed cyclically every 6-10 years, and thereby arrive at an even more authentic environment for the 'Intrepid Explorers', as Chester Zoo terms their visitors.

Some of the tasks were not entirely straightforward: for an Indonesian temple, which is traditionally clad with an Iduk fibre made from small palm trees, we had to get creative and make a bespoke black type of thatch, in order to hit the traditional look completely.

The thatch was produced in South Africa under fair socio-economic conditions, at a factory that actively contributes to keep more than 1,000 people out of poverty. The fibres are made of polypropylene, for longevity and ease of recycling; thus the thatch is not plagued by the environmental side-effects associated with PVC, which has been used in the past.

At the time of writing, our local UK installation partner Mike Keating, and his employees of MK Enterprises, are working double-time, weekends included, to finish the last stretch of construction. The guys are sending us photos as the work progresses, and we have to say that Islands will be amazing (opening Summer 2015, it should be open by the time you read this). Needless to say, we are very proud to have been selected for this inspiring project. In addition, we feel as if we have been involved in a case that underlines the vast potential for immersive experiences in zoo contexts, when the decorative and functional elements are planned meticulously and come together just right.

For further information, please visit www.hmj-design.com. For information about the Chester Zoo Islands project, check out www.chesterzoo.org.



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