QUARTERLY PUBLICATION OF THE EUROPEAN ASSOCIATION OF ZOOS AND AQUARIA

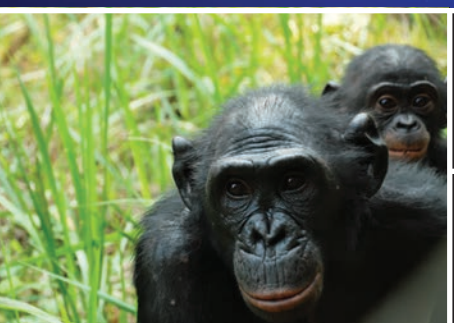
ZOOQUARIA

SUMMER 2018

ISSUE 101

UNDER THE SEA

INSIDE NAUSICAA'S ASTONISHING NEW AQUARIUM



The great ape rescue

WORKING TOGETHER TO SAVE THE APES OF AFRICA

Genetic rescue

WHY BIOBANKING IS CRUCIAL FOR SPECIES SURVIVAL

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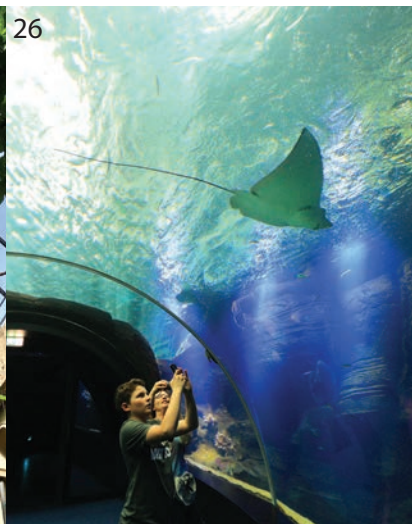

Zooquaria

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FROM THE DIRECTOR'S CHAIR

In issue 100 we projected what EAZA might look like in 25 years, and I am still very much in that forward-facing mood. It's hard not to get excited about what the future holds when we are entering a new era for our 'breeding programmes', or, as I am now learning to call them, 'population management programmes', because the new style EAZA Ex situ Programmes (still shortened to EEPs) will be not only about breeding, but also a holistic look at what the roles and goals for that population are. I am a strong believer that words have the power you give them. Consequently, I am advocating not that we shy away from using 'breeding', but that we expand our vocabulary to reflect the diversity of what our EEPs encompass. Along these lines, I am delighted that we have the first 'new' Regional Collection Plan and EEPs approved under our forward-facing strategic direction. You can find out more on page 18.

The other recent activities that have kept me looking to the future have been our first-rate Directors' Days and Conservation Forum. Both events highlighted key topics and contained informative discussions that will guide our Association over the next few years. The summary from Directors' Days was in Zooquaria 100 and the one from the Conservation Forum can be found on pages 22-3. I would like to take this opportunity to thank our excellent hosts, KMDA Antwerp and Tallinn Zoo respectively, and to share some of my personal 'take-aways' from those events.

Regarding the Conservation Forum, I do not think I was alone in being a little nervous that, for the first time ever, one of our conferences was livestreamed via Facebook. Would the technology work? Would we lose some of the open discussions around 'sensitive topics'? Would people feel that there was less benefit in attending in person? In the end all these worries were unjustified. The technology worked perfectly, we had more than 10,000 views from around the world and nothing but positive feedback. The livestreaming provided an excellent way to get the leading conservation debates, challenges and successes out into the wider community. One theme that I felt reoccurred throughout our sessions on trade, freshwater fish conservation and the rewilding/restoration agenda was tension between people and policy makers. The following comments were ones that got me thinking: 'People want conservation but policy makers aren't ready to give it'; 'Who gets to legally define what is "wild" and what is "kept wild" – is this the role of NGOs or politicians?'; 'Conservation legislation is based on what we knew 30 years ago. The challenges and science have moved on; now is the time for a paradigm shift and zoos and aquariums should be shaping these new agendas'. With European Parliament Elections occurring in early 2019, these are the thoughts that will contribute to shaping the development of our EAZA Manifesto. Over the next few months, this manifesto will be developed with input from the EAZA community so that it can be used to promote to voters and politicians our ideals and potential options for beneficial change.

With resources for conservation efforts becoming ever more thinly spread as governments withdraw support but still expect action on Sustainable Development Goals and Environmental Action Plans, more and more people and policymakers are looking to zoos and aquariums to provide solutions. Many of the discussions during the Conservation Forum and Directors' Days made me confident that we can (and indeed already do) provide these solutions; however, this is going to be truly effective only if *all* EAZA Members are involved. As our Association grows we can no longer rely on the same 'familiar faces' to provide input and guide our decisions. At our recent Annual General Meeting it was exceedingly disappointing that we did not have enough representation to vote on the new EAZA Constitution – our key governing document. We need to do more to find out why certain Members are not engaging with EAZA and how we can better align individual Member goals with those of the Association. It is my wish that all EAZA Members are involved and feel ownership in the actions and directions our Association is taking. The elections for seats on EAZA Council that will take place towards the end of this year are just one way that Members can become involved, but there are many more.

Whether you agree that it was Abraham Lincoln or Peter Drucker who said it, I hope you agree that '*The best way to predict the future is to create it*.' Please join me and our EAZA colleagues in creating the future we all want to see.

Myfanwy Griffith
Executive Director, EAZA

NOTICEBOARD

OBITUARY: TINE GRIEDE, 1954 - 2018

After an all-too-short battle with illness Tine Griede passed away in May 2018. Tine will be known to many from her various positions within Dutch zoos and, more recently, at EAZA Associate Member Van Hall Larenstein where one of her roles was to help coordinate placement of student interns at many EAZA Members and the EAZA Executive Office.

The NVD has shared the following obituary with the EAZA Community:

Tine started her career in 1983 as curator in Apenheul. After five years she became animal welfare coordinator at the National Zoo Research Foundation, a part of the NVD at that time. From 1994 to 2001, Tine was Head of Animals and Plants at the Noorder Dierenpark in Emmen, where the animal park gained world fame with large groups of animals such as impalas, baboons and Asian elephants. She was part of the design team for Gaiazoo Kerkrade before moving to work at Van Hall Institute to use her experience to train future generations of animal managers in ways that were as close as possible to the practice of zoos. Tine was also on

the CITES committee of the Dutch government, and watched over transfers of endangered species across Dutch national borders. To complete the circle, in recent years Tine became a member of the Supervisory Board of Apenheul.

Tine was recently awarded with an EAZA Lifetime Achievement Award. We keep her in our memory as a strong woman who, thanks to her unbridled energy, passion and extensive network and perseverance, has contributed widely to the EAZA community.

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EAZA AT THE CITES ANIMAL COMMITTEE MEETING 2018

At the WAZA Annual Conference in Berlin last year, former CITES Secretary-General John Scanlon called on the global zoo and aquarium community to increase its visibility and share its expertise to help strengthen CITES. EAZA was thus represented at the 30th CITES Animals Committee in Geneva (16–20 July 2018).

At the meeting, EAZA worked together with colleagues from WAZA, AZA, San Diego Zoo, WCS and ZSL on a successful side-event, introducing the conservation activities of our professional zoo community to meeting delegates. In addition to EAZA and San Diego Zoo, Christine Breitenmoser-Würsten from the IUCN SSC Cat Specialist Group and Panta Kasoma, the Animals Committee Representative for Africa and Uganda, provided excellent presentations.

We made interventions offering expertise in relation to *ex situ* breeding trade reviews and on suitable housing and care, most prominently for African elephant and southern white rhino, who are at the forefront of discussions around appropriate and acceptable destinations for CITES species. Finally, EAZA supported a call to add Dryas guenon to the so-called 'significant trade review' process, given the alarming export quota that are reported for this critically endangered species.

ANIMAL WELFARE AT EAS

From 25-27 September, the Euro Attractions Show (EAS) will take place in Amsterdam at the RAI convention centre, welcoming the world's leaders in leisure, tourism and entertainment for the second largest gathering in the world for leisure professionals. The show is an unparalleled opportunity to visit six exhibit halls, get some insight into industry trends at educational sessions – with specific seminars on digitisation, safety, new trends, immersive experiences and revenue – and enjoy unique networking opportunities and the EAS Opening Reception at Strand Zuid. In addition, a dedicated Animal Welfare Forum will also take place this year at the RAI Centre on Monday 24 September. Over the past decade, public concern about the welfare and rights of animals has grown exponentially. The implications of this trend are significant and profound for zoos, aquariums, attractions and any parks that display or feature animals. Professionals from all over the world, including EAZA Director of Communications and Membership, David Williams-Mitchell, will explore the key components of the current issues, with a focus on providing actionable information about how organisations can understand, cope with and proactively manage potential public criticism.

To register for EAS, go to: **www.iaapa.org/expos/euro-attractions-show/home.** To register for the EAS Animal Welfare Forum, go to: **www.iaapa.org/expos/euro-attractions-show/education/animal-welfare-forum/.**

NEW ARRIVALS

LIFE UNDER GRIFFON WINGS

ON 14 APRIL 2018, a 12-year dream and project was brought to fruition at ARTIS Amsterdam Royal Zoo, the Netherlands: two young birds from the ARTIS griffon vulture group were released into the wild in Sardinia.

In 2006, ARTIS drastically reduced the number of vultures in the collection following a reevaluation of the collection plan. This left ARTIS with griffon vultures (*Gyps fulvus*) only, a group that was developed with the addition of birds from throughout the EAZA network. In 2010, we received four injured female birds from a rescue centre in Spain, and by 2012 the group of vultures was 16 strong.

In 2017, more breeding pairs were active, with nests built and eggs laid. One pair bred successfully and cared for the chick, while another pair abandoned an egg in the nest; this was incubated and the chick was cared for successfully by a single-sex male pair.

The EEP Coordinator, Inigo Sanchez Garcia, was pleased to allow our birds to participate in the reintroduction programme. Jose Tavares of the Vulture Conservation Foundation provided information on the possibilities and various cost implications, and recommended the reintegration programme in Sardinia.

The reintroduction was organised within the framework of the European LIFE programme and within 'Life Under Griffon Wings', a project developed and coordinated by the Sassari University of Sardinia, the Centro per la Allevamento and the rewilding project at Bonassai near Alghero.

The goal of Life under Griffon Wings is to increase the conservation status of the griffon vulture population in Sardinia by rescuing it from critical demographic isolation and mitigating the main threats limiting population viability.

The ARTIS vultures were sent to Sassari for a quarantine and acclimatisation period of three months before release. The birds were equipped with a GPS tracker before they were released so that ARTIS visitors can follow their activity on the zoo website; this was all the more exciting when, following the departure of the birds ARTIS1 and ARTIS2, we first picked up their GPS signals, showing them to be acting as expected and in good health. As part of the release, a virtual reality video was made that allows aviary visitors to view the moment of the release, and is proving to be very popular.

ARTIS intends to continue with the release of several birds on a regular basis to support the work of Life Under Griffon Wings, and looks forward to the reestablishment of a strong and adaptable wild population in the Sardinian mountains.

RONALD VAN WEEREN

BABY WOMBAT ARRIVES AT ZOO DUISBURG

FOR THE FIRST TIME IN 40 YEARS, Zoo Duisburg, Germany, has succeeded in rearing a mainland common wombat (*Vombatus ursinus hirsutus*). Wombats have been kept at Zoo Duisburg since the 1960s, with several breeding successes in the 1970s. However, for many years thereafter all breeding efforts failed for unknown reasons. So it was very surprising that a joey was born in October 2017, as the sire rarely showed any reproductive activities, was considered to be too old at 22 years of age, and died shortly after the birth.

Although not endangered in the wild, common wombats from the Australian mainland are important ambassadors for more threatened wombat species and are among the most popular of all zoo animals, so they are perfect animals to educate the visitors about the unique mammal fauna in Australia.

SIMON BORCHARDT

FOUR SOCORRO DOVE SQUABS HATCH IN HEIDELBERG

OUR YOUNG PAIR OF SOCORRO DOVES (*Zenaida graysoni*) were brought together to Heidelberg Zoo in Germany from Plzen and Chester at the end of 2015. What followed was more than a year of negotiations, separations and stressful mitigations – indeed a drama in terms of dove-relationships.

It is not without reason that the Socorro dove has been named the 'loneliest bird in the world'. Already rare in the wild, the reason for this was because they are fiercely territorial and, typically, pairs will go their separate ways outside the breeding season.

In our case, the drama gave way to agreement with the onset of winter 2017, and during the coldest month, the pair built a nest together and finally produced some eggs. The usual number of eggs is one or two, and we were delighted to have two hatchlings by 22 January. It is not unusual for Socorro doves to re-clutch, and as the EEP population could be larger, we allowed the second clutch. The first two young, both males, were removed from the parent's aviary just before the second clutch hatched on 7 March.

There are ambitious plans to reintroduce the Socorro dove to its home island. The species has been extinct in the wild for multiple generations, and the European *ex situ* population plays a vital role in the species recovery.

GEORGE GENTRY; U.S. FISH AND WILDLIFE SERVICE

Saving samples, saving species

WHY BIOBANKING IS ESSENTIAL FOR GENETIC RESCUE AND POPULATION SUSTAINABILITY

Johanna Staerk, Dalia A. Conde, Boripat Siriaroonrat, Oliver Ryder and Christina Hvilsom

Many species today are classified by the IUCN as threatened, and there are many others not yet in that category which are nevertheless in decline and losing genetic diversity. It is therefore important to ensure and preserve samples from these species as a valuable resource for the future. The success of *ex situ* population management for species conservation relies on intensive demographic and genetic management. The current pedigree-based management process is frequently hindered by incomplete or inaccurate pedigree records, origin assumptions and taxonomical uncertainties. Modern genomic tools can help to infer how species have changed over time, evaluate a species' adaptive potential, offer 'early warnings' about ecological changes and genetic distinctiveness, and thus guide translocation, breeding in human care and reintroductions. As such, possibilities abound for using conservation genetics to improve the future management of threatened species.

STORING GENETIC DIVERSITY

Zoos and aquariums are potential havens for storing genetic diversity, not only through the animals under their care, but also through biobanking of samples. Historically, these institutions have developed population management strategies with the aim of maintaining genetically healthy populations that resemble their wild counterparts. Through historical and living records, these populations have provided an invaluable source of knowledge on species husbandry, and more recently on animal health by the standardisation of records across more than 1000 institutions in a global database: ZIMS (Zoological Information Management Software). For some populations in ZIMS, it is possible to trace their ancestors back as far as the 1800s. Now, living individuals can provide not only historical records but also a legacy of the genetic diversity.

The EAZA membership has established the EAZA Biobank, which has facilities and an infrastructure that allows optimal storage of samples from all species held in EAZA institutions. The samples will be linked to the individual animal´s ZIMS information, providing a plethora of

possibilities for coupling genotype with phenotype information. Although the EAZA Biobank stores samples from all species, regardless of their current threat status, there are arguably species in more need of molecular genetic investigations than others. With the new EAZA population management structure, a species programme´s need for molecular genetic efforts will be assessed and hence the selection of species to focus molecular genetic efforts towards will be decided during the revision of all programmes during the next four years.

Obtaining samples from the wild is nowadays a difficult process with the implementation of the Nagoya Protocol on Access and Benefit Sharing, which places responsibility for the control of and access to genetic resources with the *importing* country. As a result of the Nagoya protocol, samples from animals held in zoos and aquariums have become increasingly valuable, and it is imperative that these samples are managed responsibly for use and re-use. The samples deposited in the EAZA Biobank provide a treasure trove of genetic information and, furthermore, will be Nagoya compliant. These samples will be a primary resource for supporting population management decisions and guiding conservation research. They will also be an invaluable resource for zoo and wildlife veterinarians, population management programme managers and population biologists working at the EAZA Population Management Centre. By combining the genetic knowledge gained from samples from managed populations with samples from the species natural range, it will provide the foundation for improving the global management of species. Hence, this is a key element of the One Plan Approach for conservation planning, developed by the Conservation Planning Specialist Group of the IUCN, (previously, CBSG).

GENETIC RESCUE

Small, genetically isolated populations lose genetic diversity, mainly by random processes. With each generation, they become increasingly inbred and likely to suffer from inbreeding depression (loss of fitness due to inbreeding) in the short term, and reduced adaptability to changing environments in the longer term, leading to reduced population growth and elevated risk of extinction. The negative effects of inbreeding and low genetic diversity can often be reversed by a process called 'genetic rescue', where crossing at-risk populations with genetically distinct ones will provide genetic variation that can mask harmful effects and promote beneficial phenotype. However, such outcrossing can in theory also be deleterious, i.e. outbreeding depression, but the pendulum appears to be swinging away from these concerns in light of evidence from several studies that has shown that re-establishing gene flow among relatively recently connected populations often increases fitness. Concerns about outbreeding depression if using genetic rescue as a management tool could be minimised with the use of available practical guidelines for when to use genetic rescue and help facilitate the proper use of such. Genetic rescue may not save imperilled populations over the long term (ultimately, sufficient habitat is required for that), but recent results show that the effect of outcrossing by genetic rescue on fitness are beneficial and increase population sizes in the short term, while suitable habitat can be secured.

As part of an integrated species-specific plan for population management, genetic rescue can yield a very high success rate with large effects that are likely to persist if population growth and size are appropriately maintained. The One Plan approach incorporates the concept of genetic rescue through the transfer of living individuals, so named because the influx of genetic variation not present in a threatened population increases the fitness of the new generation of individuals, as is the case for Florida panther (*Puma concolor*) (pictured). By biobanking samples from both wild and managed populations, zoos and aquariums can provide genetic knowledge necessary for use in current and future genetic rescue efforts for managed as well as wild populations, by providing information on identifying the best source populations and even the best individuals to use for genetic rescue, and improve our ability to monitor the outcome of genetic rescue attempts, allowing managers to adjust strategies as necessary.

Genetic rescue can take place through the transfer of individuals, but also by using germplasm, as in the restoration of founder genetic variation through artificial insemination in black-footed ferrets (*Mustela nigripes*), an effort that required cryobanking of reproductive cells in advance of the time of their use. A further benefit of using artificial insemination is that it avoids disruption of social systems. However, viable cell cultures may also serve as sources of genetic rescue to restore genetic variation to small populations through the use of cloning or stem cell technology. While such efforts are in the early stages of development, their potential value has encouraged expansion of existing efforts such as San Diego Zoo Global's Frozen Zoo®, the cryobank in Bangkok Zoo in Thailand, and in the BioBank of the National Zoological Garden of South Africa. During the 2015 and 2016 CPSG meetings, a group of experts and stakeholders discussed the importance of cryobanking as an essential element of the One Plan approach. One of the most complex issues discussed was the complexity and responsibility of deciding on which species to focus initial efforts for cryobanking cells, given that we are in a race against time. Therefore, the next step will be for the regional zoo and aquarium associations, together with WAZA, to develop an effective strategy to respond to the immediate need for collecting and storing cells for targeted species. In parallel, the development of a global biobanking database using ZIMS is being developed to help decision-makers guide efforts for storing cells and genetic samples essential for ongoing and future species conservation and management activities.

It is clear that there is a wide range of opportunities and applications for using genetic samples to support species conservation; however, this will only happen via our coordinated efforts to bank samples nationally, regionally and globally.

Raising our standards

AS THE EAZA ACCREDITATION PROGRAMME COMES OF AGE, WE LOOK BACK AT ITS ACHIEVEMENTS AND CONSIDER WHAT MORE IT COULD ACCOMPLISH

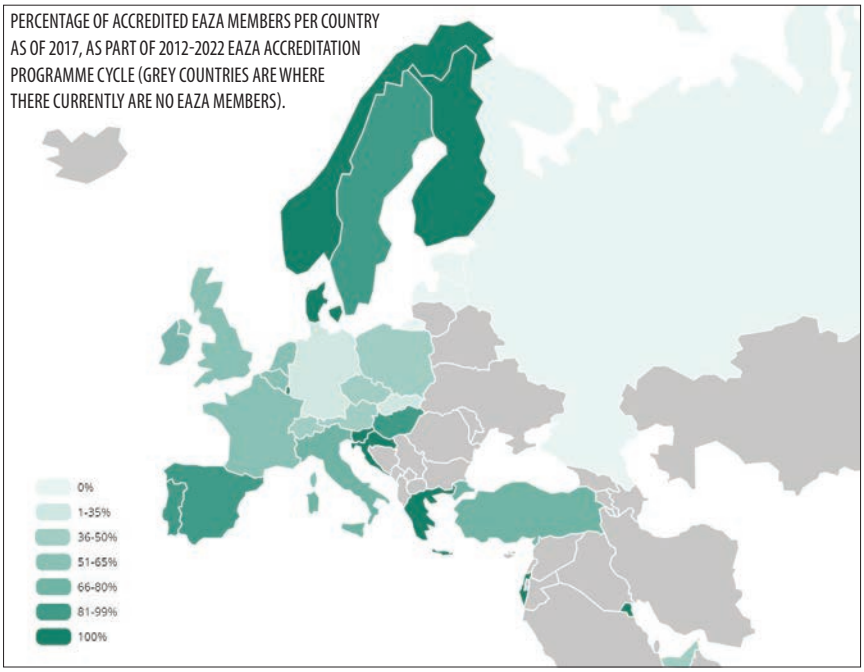
April Adams, Accreditation Manager, EAZA Executive Office

In 2017 EAZA reached an exciting milestone: five years of the EAZA Accreditation Programme (EAP), the cyclical accreditation programme for EAZA Members. The programme has led to a deep understanding of the community and the incredible diversity of facilities, cultures, philosophies and passion for animals and conservation that our Association represents.

The question of whether existing Members should be accredited through a cyclical screening programme was put to the entire membership through a mail-in vote in January 2012. The final tally of 223 votes was a strong yes, with 70 per cent voting for the programme. This was a clear endorsement from the membership that they believed in the value of regular accreditation of EAZA Members, and the need for the programme to keep the association strong. Zoo Zürich had the honour of being the first official zoo to participate in the EAP programme in April 2012, in part because of Director Alex Rübel's shepherding of the programme in his time as chair of the Membership and Ethics Committee. Zoo Zürich was approved for accreditation by EAZA Council in Munich, the first of many accreditations to come.

Since that first screening there has been a continuous evaluation of the accreditation system, the aim being to create the most transparent and objective accreditation process possible. Beginning with a complete rewrite of the accreditation manual in early 2012, there was also a new questionnaire in 2013, and a new screening team questionnaire approved in 2016. The intention is always to improve the accessibility and transparency of the screening processes and the functional benefit to the Member.

The need for the screening team to be able to assess correctly if a Member is meeting EAZA standards has led, in part, to a number of previously subjective topics to be quantified and coded into definitions and guidelines; it has led also to the update of existing standards with the screening process in mind. Some of these documents have become fundamental to the Association, such as the *EAZA Conservation Standards* (2016) and its contribution to definition; the *Guidelines for the Use of Animals in Public Demonstrations* (2016); and an update to the *Standards for the Accommodation and Care of Animals in Zoos and Aquaria*, which was approved by Council in 2014. The EAP and screening process continues to push the Association forward through objective ways to assess a Member according to unbiased Standards and Guidelines rather than the opinions of individual screeners or EAZA Council Members.



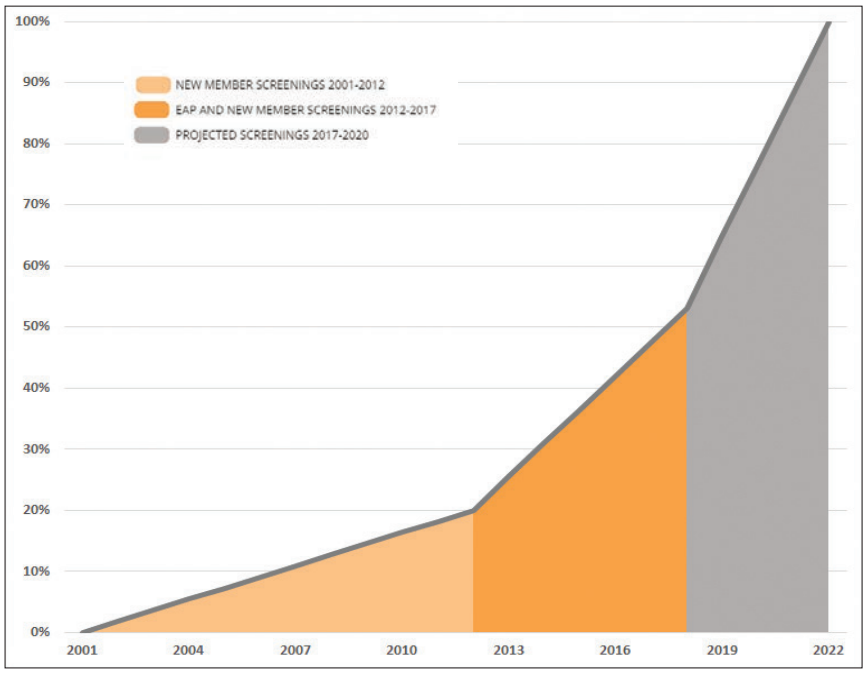
PERCENTAGE OF ACCREDITED EAZA MEMBERS PER COUNTRY AS OF 2017, AS PART OF 2012-2022 EAZA ACCREDITATION PROGRAMME CYCLE (GREY COUNTRIES ARE WHERE THERE CURRENTLY ARE NO EAZA MEMBERS).

ADDITIONAL BENEFITS

Beyond the aim of confirming that Members are meeting the EAZA Standards, the secondary goal of an accreditation visit is to benefit the Member through peer review and knowledge exchange. The Members that have participated in the screening programme have found the experience to be a positive one, and an opportunity to take a close look at themselves and their way of working. In a 2013 survey, the EAZA Executive Office asked 35 screened facilities of their opinion of the accreditation experience. Of those who responded, the overall satisfaction with the EAP experience was high; 94.12 per cent answered that they found the overall experience satisfactory or very satisfactory. When asked if the screening process was beneficial to the facility, one respondent commented that 'the best benefit was that it made our staff more interested and involved in the process of preparing before the screening'. Another commented that sometimes EAZA is 'so far away' for the keepers, but the screening process helped them realise the connection in other ways. Another comment was that the screening experience provided 'the tools to make things better in our zoo'. Other respondents found that the screening report helped to positively reinforce their efforts and encouraged them to continue their good work.

It has been the experience of the screening teams that this direct connection of EAZA to the zoo or aquarium through an accreditation visit helps to solidify their inclusion in

PERCENTAGE OF ACCREDITED EAZA MEMBERS OVER TIME: EAZA BEGAN SCREENING NEW MEMBERS IN 2001, THE EAZA ACCREDITATION PROGRAMME BEGAN IN 2012 AND IS PREDICTED TO ACCELERATE FROM 2018 TO COMPLETE ITS 10-YEAR CYCLE.



the community and encourages more engagement with EAZA in the future. It is hoped that we will be able to increase the benefit to the participating zoo or aquarium through clear feedback and opportunities for engagement.

The screening programme would not exist without our experienced team of screeners. Hailing from nearly every country that EAZA represents, the eagerness of the screeners to participate and share their knowledge is inspiring. Feedback from the screeners is always that they find the experience of serving as a screener incredibly enriching. Spending time looking in depth at a fellow EAZA Member, discussing different techniques, sharing cultural differences and connecting over shared challenges and successes is an edifying way to spend a few days. The screeners are an excellent example of the willingness of our community to eagerly share our knowledge and experience to better serve the animals in our care, and to work towards our missions of conservation and connection to nature.

Accreditation missions have visited 31 of the 33 countries that have Members holding animals, and of the two that haven't yet been visited, both have their screenings planned for summer 2018. Thirty-six of these countries have had *all* of their EAZA Members screened, although some have not yet fully passed through the accredition approval cycle. In 184 screenings of new and existing members, 93 per cent have achieved accreditation.

LOOKING AHEAD

After the initial years of proving its value and benefit to the community, the EAZA Accreditation Programme is ready to write a new chapter in its history and its place in EAZA. The Accreditation Team is now looking more holistically at the membership programme in its entirety. The Team has had a reorganisation and will soon add a new staff member who will focus entirely on screenings, which will help us greatly to increase the number of screenings performed each year. New EAZA Executive Office team members are being trained to serve as rapporteurs, also increasing our capacity. To meet this greater need, the Accreditation Team will need a larger pool of screeners. In addition, the Accreditation Manual is undergoing revisions and will be discussed by the Membership and Ethics Committee at their meeting in September. Additional taxa-specific demonstration guidelines are in development, and the Conservation Education Committee is developing materials to help the screening teams evaluate educational programmes during the screening process. The outlook for the EAP programme is ambitious, which matches the ambitions of the Association.

In my own experience during screening missions to more than 100 zoos and aquariums in Europe and abroad, I am continually amazed at the innovation and forward thinking of EAZA Members. Immersive experiences that recreate the homeland of the species and tell the story of conservation hot spots; cutting-edge veterinary techniques that lead to the birth of genetically valuable animals, giving us hope for highly endangered species; educational programmes that lead to a fascination with animals and inspire behaviour change, through art, cultural experiences, close-up animal encounters and emotional learning techniques; all of these and more are a credit to our Members. Even after nearly seven years and hundreds of trips, I have not yet had a screening where I didn't learn something new or discover a different way of working with animals that I didn't expect. The diversity of our community is clearly our strength.

If you are interested in the EAP programme, would like to serve as a screener, or wish to volunteer your facility for a screening, please contact april.adams@eaza.net.

CLOCKWISE FROM LEFT: BIRD CAGES SILENT FOREST EXHIBITION, WILHELMA STUTTGART; FUNDRAISING SILENT FOREST LOTTERY, WILHELMA STUTTGART; THE GOLDEN JAY, THE TROPHY OF THE EUROVISON SONGBIRD FESTIVAL (NEXT TO ITS COLLEAGUE MADE OF BALLOONS); DRAWING CONTEST WINNERS; EXHIBITION IN BLIJDORP; ARTENSCHUTZTAG STAFF COMMITTMENT © SIMON BRUSLUND; PRINTSCREEN FB POST FLUITCONCERT BLIJDORP; DRAWING CONTEST WINNER

SONGBIRD RESCUE

NINE MONTHS INTO EAZA'S SILENT FOREST CAMPAIGN, WE LOOK AT WHAT MEMBERS ARE DOING TO PROMOTE THIS VITAL MESSAGE

Constanze Mager, Head of Education, Burgers Royal Zoo, the Netherlands and Lucia Schroder, Head of Education, Cologne Zoo, Germany

Now that the EAZA Silent Forest Campaign has been up and running for about nine months, it is time to report back on the many creative and stunning activities being undertaken by Members that have a high educational impact and/or fundraising potential (many have proven to be very successful at fundraising already).

It is inspiring to see the activities that are going on all over Europe, from east to west and north to south. If you are a bit disappointed that the Silent Forest activities of your zoo are not mentioned here or on the campaign site, Instagram or Facebook page, email us a short report and a few pictures and we'll make sure they are included!

SONGBIRD FESTIVAL IN ROYAL BURGERS' ZOO

On the eve of the world's most-watched singing competition, the Eurovision Song Contest, Burgers' Zoo held a fun fundraising event. As it was a try-out for next year, the event was held semi-internally, with competing teams of their own volunteer guides and volunteers from other zoos. After a short introduction to the EAZA Campaign, the teams worked their way around the zoo, looking for answers to some tricky Eurovision-linked animal questions and photo challenges. After some intense competition, the 'Golden Jay' trophy went to the team from Apenheul Primate Park. It was a very enjoyable and successful evening and the zoo hopes to repeat it next year, this time involving the public.

In addition they welcomed 498 visitors over eight weekends of Early Bird Walks, held in the tropical rainforest hall, Burgers' Bush. Starting at 7am and finishing at 9am (the zoo's regular opening time), skilled guides accompanied the visitors as they observed the behaviour of many different birds. Naturally, the Silent Forest Campaign was one of the topics of these guided tours.

With just these two activities, the zoo collected more than €2500, which meets the Bronze level for which they pledged.

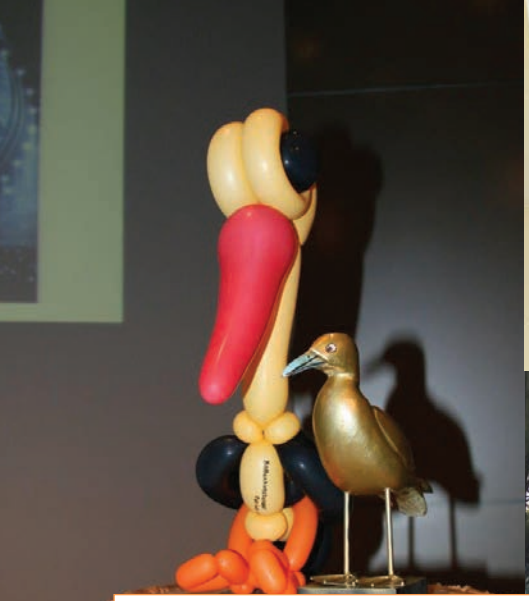
COLOGNE ZOO

On 6 June, Cologne Zoo held its Songbird Day, which is a great example of cooperation with NGOs and businesses. The day began with an early bird guided tour, where the participants enjoyed the special early-morning atmosphere. Here, the target was to observe native songbirds with field guides from the Nature and Biodiversity Conservation Union (NABU), partners of BirdLife International.

Throughout the Songbird Day, visitors were offered a range of creative activities, such as face-painting, colouring and mask-making, as well as behind-the-scenes guided tours of the breeding aviaries.

All kinds of information about the campaign and native birds were available. Art was predominant during the day; the artist Rolf Jahn painted his 'crazy birds' on a wall as a permanent artwork. And, maybe most crazy of all, tattoo artists from four studios came to the zoo to do live tattooing, immortalising a passion for birds in a very original way. All revenues were generously donated, contributing €2785 to the Silent Forest campaign. A fifth tattoo shop arranged a 'walk-in day' and donated their fees, which came to almost €2000.

Uwe Reetz, the singer, songwriter and animator, performed a German version of Ashley Fayth's beautiful songbird song, in cooperation with Chester Zoo, for whom the song was composed. Thanks to these activities,



BirdLife INTERNATIONAL Partnership for nature and people IUCN SSC Species Survival Commission Asian Songbird Trade SG TRAFFIC the wildlife trade monitoring network

Cologne Zoo collected more than €5700 on just one day – the Gold level of fundraising!

STUTTGART AND NEUWIED

Wilhelma Zoo in Stuttgart, Germany, is busy with a Silent Forest Lottery and a drawing competition, and have so far collected €2500. They also opened a Silent Forest Exhibition in the middle of May. An even earlier effort – to our knowledge the first in Europe – was the Zoo Neuwied in Germany, which mounted an exhibition next to the Bali starling enclosure.

BLIJDORP

Blijdorp Zoo in Rotterdam is putting a great deal of effort into the EAZA Campaign. Not only have they opened a very attractive exhibition in the Asian area of the zoo, but also they inform visitors and non-visitors alike about the songbird crisis and the action that is needed in an appealing way on their website and on Facebook and Twitter. An online whistling contest, which involves adults and children whistling the melodies of five southeast Asian species, which they record at home and send to the zoo, has proved very popular. In addition, Blijdorp is collecting binoculars to be re-used by nature clubs in Indonesia to promote birdwatching. The transport of the binoculars is kindly organised by Liberec Zoo. Liberec and a number of other Czech zoos are also holding a singing competition, in which children are asked to write their own bird-related lyrics to Chester Zoo's bird song.

LAGOS, LISBOA AND LOUROSA

Our colleagues in Portugal are also committed to making the 'Floresta Silenciosa' campaign a success. In Lisbon Zoo, art students were encouraged to design ways on how to raise awareness for the campaign, which produced some great results. In Lagos and Lourosa, educational exhibits were designed; in Lourosa these also functioned as stage sets for a play about a musician inspired by bird songs.

VISITOR SURVEY PRELIMINARY RESULTS

At the beginning of the campaign, the EAZA Education Committee asked if it was possible to do pre- and post-surveys amongst adult zoo visitors to find out if public knowledge about the songbird crisis increased over the two-year life of the campaign.

London Zoo provided a short survey, which was conducted in three zoos to get a baseline. To date, we have had 167 responses to the survey (Neunkirchen 19, Burgers' Zoo 46, Cologne Zoo 102), taken before the campaign began. Here are a few results that may interest you.

- When we showed the pictures of the six campaign flagship species, only 3.5% of the visitors were able to name at least one out of the six, getting them at least half-correct ('a beo' instead of 'Nias beo' or 'a thrush' instead of Sumatran laughingthrush' were counted as correct). The lack of knowledge about these exotic bird species did not particularly surprise us. (To be truthful, we're sure that quite a lot of EAZA Member employees would not be able to identify those species, either!)
- 74.9% of the visitors answered that they thought that the Southeast Asian songbirds were threatened; the rest answered 'I don't think so', or 'I don't know'.
- What was a little surprising was that pet trade was identified as one of the biggest threats, even though the zoo had not yet started campaigning. 70.1% of the respondents ticked 'pet trade' as the reason why those birds are threatened. Other answers given (multiple answers were, of course, possible) were habitat destruction (79.6%), and competition with invasive species (43.7%), which is not a main threat in reality. Only 19.2% identified singing competitions as a threat.
- German zoo visitors proved to be a lot more aware of local, native passerine birds. Only 4% could not name a single correct local species, while almost 35% of the Dutch zoo visitors were unable to do so.

Even though the sample size is small, there seems to be a huge difference between countries! In the Netherlands, the blackbird was the most-named local songbird, but other respondents counted parrots and birds of paradise as being 'local songbirds', and we got these answers more than once. There is clearly a lot of work still to be done!


BROWN BEAR (*URSUS ARCTOS*)

The meaning of LIFE

A GRANT FROM THE EU LIFE PROGRAMME HAS HELPED EAZA TO DEVELOP AND IMPROVE MANY VITAL ASPECTS OF ITS WORK OVER THE LAST TWO YEARS

Maaike Voorham, Elmar Fienieg and Danny de Man, Conservation and Population Management Department, EAZA Executive Office

EAZA's successful application for the EU LIFE operating grant for the period 2016–2017 has enabled the EAZA Executive Office to work on a number of additional tasks and projects. The LIFE grant covered a broad range of EAZA activities that were carried out over the two-year period, including support for the Let it Grow campaign, developing guidance on sustainable practices, lobbying initiatives in Brussels and increased communication of our conservation and scientific work; but this article will focus on the projects that EAZA's Conservation and Population Management (CPM) department was responsible for implementing.

WHAT IS EU LIFE?

The LIFE Programme (L'Instrument Financier pour l'Environnement) is the European Union's funding instrument for supporting environmental, nature conservation and climate action projects throughout the EU.

The operating grant allows conservation organisations to develop and increase their conservation activities by making funds available for increasing capacity in the organisation. As part of our application, EAZA was able to create and fill four positions over a two-year period. For the CPM team, this meant we were able to appoint Elmar Fienieg, who has worked on a number of EAZA projects before, as our Assistant Population Biologist. The projects that the CPM team worked on as part of the LIFE grant included performing a desk study on European *ex situ* conservation actions and strategies, expanding the EAZA Conservation Database and extending the number of Quick Population Assessments (QPAs) that are part of our EEP evaluation process. Furthermore, the team was able to facilitate several Long-Term Management Plan (LTMP) meetings, which allowed us to increase the number of LTMPs significantly in comparison to the years before.

EX SITU CONSERVATION DESK STUDY

A central objective of this study was to create a database for conservation actions in the EU that included an *ex situ* component. This database would allow us to know what conservation actions are being taken, and to investigate whether these actions were taking advantage of the *ex situ* expertise of a zoo. The desk study focused on species that are listed on Annex IV of the EU's Habitats Directive or Annex I of the Birds Directive, as these are the species most in need of conservation action on species level according

to the European Union's legislative framework. It was also investigated whether any conservation authority (e.g. a country, IUCN or other conservation NGO) had defined a need for *ex situ* conservation for these species as part of a broader species conservation strategy or action plan. One of the things that the study showed was that some *ex situ* conservation actions were being targeted at species that did not need them, while other species with a defined need for *ex situ* conservation action did not always have such conservation actions in place. The expertise of zoos does not always seem to be considered in *ex situ* conservation projects. The next step will be to disseminate the relevant findings to the right people and prepare a peer-reviewed publication on our findings.

Funded by the EU LIFE fund, the EAZA Population Management Centre team organised Long-term Management Plan meetings in 2016 and 2017 for 15 different species:

Barbary macaque (*Macaca Sylvanus*)	Bearded vulture (*Gypaetus barbatus*)	Bottle-nosed dolphin (*Tursiops truncatus*)
Brown bear (*Ursus arctos*)	Dalmatian pelican (*Pelecanus crispus*)	Eurasian griffon vulture (*Gyps fulvus*)
Eurasian lynx (*Lynx lynx*)	European bison (*Bison bonasus*)	European black vulture (*Aegypius monachus*)
European mink (*Mustela lutreola*)	European otter (*Lutra lutra lutra*)	Musk ox (*Ovibos moschatus*)
Persian leopard (*Panthera pardus tulliana*)	Northern bald ibis (*Geronticus eremita*)	Wolverine (*Gulo gulo gulo*)

QPAS AND CONSERVATION DATABASE

The LIFE grant also allowed the EAZA population biologists to increase the number of QPAs and to support the development of the EAZA Conservation Database. The QPA is part of the EEP evaluation process and, as the name suggests, provides a quick overview of the current status of a population. With the QPA, context can be added to the evaluation of the programme and the EEP evaluators can determine how the programme is doing on a population management level. Furthermore, the QPAs provide additional transparency towards the community, as they are published on the Member area of the EAZA website. Over the two-year period of the grant, the CPM team was able to perform 40 QPAs in addition to the ones that were already scheduled.

The Conservation Database is an online tool with three main purposes: to document conservation efforts within EAZA, to communicate these efforts both internally and externally, and to promote cooperation between all parties involved with conservation efforts. The team was able to increase the number of projects on the database to over 1500, and significantly increased the internal and external communication of these projects.

LTMPS UNDER EU LIFE

The purpose of an EEP for a population can be very different from species to species. The Long-term Management Plan (LTMP) process was developed to use this purpose as a starting point to determine the strategy for managing a population, and to determine everything else that needs to happen to create a successful programme. The aim of an LTMP is to allow the EEP coordinator to manage the population towards a goal and avoid losing too much time on troubleshooting.

Before 2016 we had worked on LTMPs for only a few species. The LIFE grant has allowed us to work on 15 LTMPs in two years. For all these 15 species we then went through three phases: preparations, a meeting and writing the report.

These LTMPs were led by the relevant EEP coordinators and studbook keepers and supported by population biologists and EAZA's TAG liaisons where possible. However, it needs to be emphasised that each LTMP is developed and executed communally. The EEP participants form the basis of any plan by providing the relevant data and input for the plan, and are obviously essential for executing the plan. Furthermore, essential input and support is given by the TAG and the programme's Species Committee and advisors.

During this process, we would be trying to answer three critical questions: What do we have? What do we want? How do we get there? Here we want to report some of the results of these 15 LTMPs, showing how these were different and how they helped us to move these EEPs forward.

WHAT DO WE HAVE?

Good plans need a solid foundation. Consequently, with an LTMP it is important to provide a solid base of information on which we can build and make decisions. Therefore, for all 15 species, the EEP coordinator and the population biologist worked closely together to collect all relevant information.

This included working on the pedigree. For the Northern bald ibis, the ancestry of the 1700+ living birds was only two per cent known, making it impossible for the coordinator to perform any kind of pedigree-based genetic management. However, because the coordinator had so carefully and precisely kept track of all adult birds within the EEP over the years, the population biologists and coordinator were able to determine a complete list of possible parents for over 3000 individuals. The use of the MULT function and molecular genetic data then allowed for an increase in the known pedigree to 90 per cent and thus allowed the coordinator to make recommendations based on mean kinship.

For the European black vulture, demographic issues required more attention. A series of simulations in PMx were important to provide an idea of how recent husbandry improvements would impact the growth of the population over time.

Of course, we also want to know how the species is doing in the wild, as for many of the 15 species the *in situ* situation had changed quite a bit over the years. For example, some years ago reintroductions were a clear priority for the European otter due to declines and local extinctions. As the population has been slowly recovering in western Europe, reintroductions may now have become less important. While the European otter has seen an improvement in its status, the opposite was true for European mink. The European mink went from 'Vulnerable' to 'Critically

Endangered' within two decades, as the main threats – habitat loss and the impact of the invasive American mink that escaped or has been released from mink farms – intensified and even expanded to their last refuges. This realisation only verified the urgency of conservation measures, including the important role of the *ex situ* population and reintroductions.

With the European bison the threats have not changed significantly over the last decades, but its situation has. For the last decades, the focus has been on increasing the number of wild European bison. However, as the population has been steadily increasing, a new problem has arisen in the form of lack of space for Europe's largest living terrestrial mammal. It became apparent that the focus needed to shift from increasing the number of bison to convincing governments to increase the available habitat suitable for bison. The information on the current status of the bison was essential for revealing that the role of the *ex situ* population was extended from back-up population to ambassador for the need for habitat protection. The case of the European bison illustrates the importance of knowing what we have before answering the second key question of the meeting:

WHAT DO WE WANT?

Why do we want to keep a population of a certain species? The answer to this question was different for each of the 15 species, which was illustrated by their different roles.

Species that convey a strong educational message as ambassador, either on species level or on wider topics, can have an educational role. The Barbary macaque, being the most seized CITES-listed mammal in the EU, received an educational role to convey messages on wildlife trafficking and their use as a tourist attraction. The musk ox was given a role as ambassador for species struggling with the effects of climate change and the European brown bear as an ambassador for human-wildlife conflict in their home range. Other species have a role as a charismatic and engaging species that involve the public with wildlife and act as an ambassador for a certain species, ecotype or nature in general, such as the bottle-nosed dolphin.

Of course, for most programmes the roles were already known to a certain extent. Formulating detailed roles in a written document, however, provides transparency for all involved, and will eventually make it easier to determine what this means for the management of the population. Since the European mink, northern bald Ibis and Persian leopard EEPs were already involved in established reintroduction projects, it was likely from the start that continuing this involvement would be a future role. For the three European vultures the roles of some programmes seemed very similar at first sight, as they are all involved in reintroductions. However, while both the European black vulture and bearded vulture EEP function as a genetic back-up for the wild population, for the European black vulture this concerns the entire species' range, while the bearded vulture EEP functions 'only' as back-up for the European sub-population. Contrary to the other vultures, the main role of the Eurasian griffon vulture was not reintroduction but education about the threats vultures face; mainly poisoning due to the use of poisoned carcasses set for livestock predators or anti-inflammatory drugs for cattle, such as Diclofenac. So even though roles might look very similar at first glance, the devil is in the detail and these details are important as they will impact on the right management strategy for achieving the role.

Furthermore, species are not limited to a single role. For example, the European otter, besides being a charismatic and engaging species, also has an educational role covering multiple topics. Moreover, it was not only given roles on its own behalf, but was also made ambassador for the much more threatened European mink, with whom it shares its habitat.

GROUP PHOTO FROM THE VULTURE LTMP MEETING FOR THE BEARDED VULTURE, EURASIAN GRIFFON VULTURE AND EUROPEAN BLACK VULTURE

WHAT HAPPENS NEXT?

After the roles are determined, the goals of a programme need to be established. What do we need to do to get what we want? When establishing roles and goals, we need to be realistic about the capabilities of the *ex situ* population. This also takes the Wants and Needs of the participating institutions into consideration.

To fulfil the educational role of the European brown bear, it was decided that a clear educational strategy needed to be in place. This message differed between range countries and countries where bears no longer occur.

For the musk ox, while determining the roles of the populations, it became apparent that there was no longer a need to keep the different subpopulations separated from each other to fulfil these roles. In fact, for the viability of the EEP it was essential to merge the subpopulations. Therefore, the goal was changed from preventing hybridisation of these subpopulations to keeping a demographically stable, logistically feasible and genetically healthy mixed musk-ox population.

From the four subspecies of Eurasian lynxes within EAZA, only the Northern and Carpathian lynx were thought to be potentially sustainable populations. Therefore, while the goal for Northern and Carpathian lynx was a demographic and sustainable population to achieve their roles, the goal of the two other


MUSK OX

subspecies was to be phased out through natural attrition.

HOW DO WE GET THERE?

How do we get what we want with what we have? One of the conservation roles of the Barbary macaque led to the goal of keeping the population as genetically diverse as possible. To achieve this, successful breeding with the genetically valuable individuals in the population would be required. The most obvious strategy would be to give breeding priority to the genetically valuable individuals. However, considering social behaviour, prohibiting genetically less valuable groups to breed would be detrimental for their welfare. Therefore, for most groups at least one female was recommended to breed, while genetically important groups were given the recommendation to breed more often. Based on this strategy, the coordinator made breeding recommendations that were added to the LTMP report.

To achieve one of the established goals of the Wolverine EEP, 12 births were needed annually. However, when evaluating the number of births in the last few years and the number of births that were expected in the next year, this turned out to be above the desired 12. Moreover, within two years, there would be more births than institutional space for the first time in the history of the programme. Therefore, it was decided to give non-breeding recommendations to some pairs, so that the number of Wolverines would not exceed the capacity of the holders.

With the Dalmatian pelican, genetic management of the population is difficult, due to the large amount of unknown ancestry within the pedigree. Nevertheless, analyses of transfers between colonies could still be used to identify the colonies with underrepresented lineages that had to be given breeding priority over a very overrepresented lineage.

Not all strategies are immediately linked to population management. For the European mink EEP, following its role to promote legislation and policies that will benefit the species, a series of action points focused on lobbying at the EU. The listed actions are for the long-term and need to be feasible and realistic. Therefore, these also take into account that the people involved in these plans, like the coordinator, TAG members, species committee and keepers, all have limited time.

All finalised reports (after a review by the meeting attendees and EEP participants) are available on the TAG pages of the EAZA website to provide transparency about the EEP to the EAZA community. And then the hard work of implementing the LTMP to realise the roles and goals can start.

LIFE AFTER LIFE

What did the LIFE grant really bring EAZA – and what comes after? The work enabled by the grant particularly helped to maximise the conservation impact of EAZA Members and maintain healthy populations and individuals with positive animal welfare. While the conservation database and desk study focused on maximising the conservation impact of EAZA and the QPAs helped to maintain healthy populations, the LTMPs did both in taking both the *ex situ* and *in situ* situation of a species into consideration.

Working on the LTMPs, part of the outcomes and decisions are concrete and are immediately implementable, as this article illustrates. Furthermore, the publication of these documents immediately provides more transparency for EAZA Members on the running of a programme. However, the long-term effects of many strategies and actions will need more time to evaluate, as could be expected with a plan for the long-term.

What we can immediately evaluate, though, is the LTMP process. In the last two years, we have been able to build up experience with LTMPs that allowed us to lay the groundwork for one of the central elements of EAZA's new population management structure: developing a tailor-made LTMP for every EEP. This is something that was clearly enabled by the LIFE grant, as well as the patience and support of EEP Coordinators and ESB Keepers, Species Committees, advisors, external partners and of course, all the EAZA Members holding these species.

In the future, these LTMPs should become easier to develop, as the roles and goals of EEPs will already be established during the Regional Collection Plan (RCP), the other central element of EAZA's new population management structure. Moreover, there is now a larger team to support the creation of these management plans with the newly established EAZA Population Management Centre (PMC).

As part of the LIFE operating grant, there is a need to part match the EU funding with organisational funding. Consequently, the activities and results described above were truly a team effort. The authors would like to thank the EEP coordinators and Species Committees for their hard work and also would like to thank Van Hall-Larenstein intern Clara Köhler who did her internship at the EEO in 2017.

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A plan for the future

AN UPDATE ON THE FORMATION AND WORKINGS OF THE NEW EAZA REGIONAL COLLECTION PLAN AND EAZA EX SITU PROGRAMME

Simon Marsh, Yorkshire Wildlife Park, UK, and Raymond van der Meer, EAZA Executive Office

The EAZA Canid and Hyaenid TAG has made significant and useful progress over the last three years. In 2016, the TAG was able to hold the first global Integrated Collection Assessment Planning (ICAP) workshop, which was organised by the AZA Canid and Hyaenid Taxon Advisory Group (TAG) together with the corresponding EAZA and ZAA TAGs and conducted in collaboration with the IUCN SSC Canid and Hyaenid Specialist Groups. The workshop upheld the guiding principles of the One Plan Approach to conservation and was facilitated by the IUCN Conservation Planning Specialist Group (CPSG).

The results of the ICAP workshop laid the groundwork for the new EAZA Regional Collection Plan (RCP) workshop in 2017, in which representatives from the EAZA Canid and Hyaenid TAG and staff of the EAZA Executive Office took part. Using the same principles as the ICAP and directed by the five-step decision-making process as described in the IUCN Guidelines on the Use of Ex situ Management for Species Conservation, the TAG focused on the roles for the *ex situ* population of canids and hyaenids species held in the EAZA region.

During the one-and-a-half-day RCP workshop, the group worked on all species under the TAG's remit, comprising 43 species within the two taxa. Five of these species were EEPs, four species were ESBs and seven species were Monitored by TAG (MON-T). Before the workshop, species were categorised into threatened and non-threatened species and further ordered into large populations (>100), small populations (~50-100), very small populations (<40) and not being kept in EAZA. Following the same process with all 43 species allowed participants to prioritise the species that were considered to take more time.

THE FIVE-STEP DECISION-MAKING PROCESS

1. Population status review
2. Role of *ex situ* population
3. Goal(s) and size of *ex situ* population
4. Resources, expertise, feasibility and risk associated with the EAZA Ex situ Programme
5. Yes or no to EAZA Ex situ Programme and determine its management strategy

The species assessment sheets completed during the global ICAP workshop were taken as the basis and were combined with developed EAZA species sheet templates, which are basically similar in their set-up but pay more attention to drawing conclusions that are of relevance to the EAZA region.

Following the five-step decision-making process (see box above for further details) the group first updated the existing status review and threats, considering any regional legislation (i.e. EU Habitats Directive). The next step was to discuss if EAZA could deliver the roles of the programme (direct or indirect conservation) described on the ICAP sheets, and EAZA then agreed or disagreed.

If any role was identified for a species benefit, feasibility and risk for the EAZA population were rated and this determined whether a role was recommended. This was followed by a discussion of whether EAZA could fulfil this role and whether active management was needed. In the case of a need for active management, the species will be managed as an EAZA Ex situ Programme (EEP) and in any other case, one of the various Monitored by TAG (MON-T) categories was decided upon.

The final part of the RCP workshop was to apply for EEP status for the relevant species. The developed template guided the TAG to make conscious decisions rather than automatic assumptions about the form and functioning of the EEP.

For the Canid & Hyaenid TAG, 10 species that would benefit from being an EEP, because of active management, were identified. Of the remaining 33 species within the remit of the TAG, four species are to be monitored by the TAG (MON-T), two species are to be replaced with another taxa (MON-TREPLw), eight species are to be phased out (MON-TPhase out) of EAZA collections and the remaining 19 species are specified as 'do not obtain' (MON-TDNO). Detailed information and the reasoning behind the decisions made can be found in the RCP document.

The new EAZA RCP is based on expert evidence and a clear structure with achievable targets. It is the first time that the TAG has, for each species, a transparent and justifiable reason for what the programmes are doing and how it will be done. The RCP is a strategic document that allows the TAG to work at a regional level but also, where applicable, at a global level.

The EAZA Canid and Hyaenid TAG has taken the One Plan approach to the heart of the new RCP process, giving clearly defined roles for each species. This will give EAZA Members the confidence to justify why they have conservation- and non-conservation-dependent species in their care.

Exchanging views in Budapest

THE LATEST JOINT TAG CHAIRS MEETING WAS A CHANCE TO THINK GLOBALLY ABOUT POPULATION MANAGEMENT AND ITS ROLES IN CONSERVATION

Martín Zordan, WAZA Conservation Coordinator

The third Joint TAG Chairs meeting started with a warm welcome from our host, Professor Dr Miklós Persányi (Budapest Zoo & Botanical Garden), who wished the 181 attendees representing 32 countries – including animal programme leaders, population biologists and representatives from IUCN-SSC Specialists – an enjoyable and productive conference.

Over the first two days in May, we gathered at the Danubius Hotel Flamenco in Budapest, Hungary, to learn more about how the conservation impact of breeding programmes across the world is increasing.

With a compelling keynote presentation, Dr Onnie Byers (Chair of Conservation Planning Specialist Group) explained the major role that TAGs can play in wildlife conservation by following the Assess-Plan-Act framework. Under this approach, TAGs can increase their contributions by collaborating in the IUCN Red List assessments process, in the conservation planning phase and finally working on the implementation of the recommended conservation actions. It is hoped that this model will further increase the effectiveness and value of our conservation role. And if anyone had doubts on how to achieve this, several presentations provided excellent cases studies on how different TAGs (covering species from grasshoppers to bantengs) are making this happen by establishing valuable partnerships with IUCN-SSC Specialist Groups.

INCREASING VALUE

From the EAZA region, we learnt how the Integrated Collection Assessment and Planning (ICAP) process is being used as an effective tool to bring to life the new EAZA population management structure. Certainly, this will increase the conservation value of the EAZA Ex situ Programmes (EEPs) and the experience itself has the potential to inspire other regions to adopt similar frameworks. Additional sessions provided opportunities to get updates on some of the latest developments across the World Association of Zoos and Aquariums (WAZA) network, including India's Central Zoo Authority (CZA), the Association of Latin American Zoos and Aquaria, (ALPZA), the Pan-African Association of Zoos and Aquaria (PAAZA) and the Species Conservation Tool Initiative (SCTI). Considering the fragile situation of many East and Southeast Asian species in the wild, it was positive to learn about the progress made in programmes run by the South East Asian Zoos Association (SEAZA), the Japanese Association of Zoos and Aquariums (JAZA), Taipei Zoo, the IUCN Asian Songbird Trade Specialist Group and the Indonesian Association of Zoos (PKBSI).

Additionally, a presentation given by a representative from the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) made us think about how the unique technical expertise of the TAGs can be highly valuable for this international organisation. We definitely should take this opportunity to work together with CITES.

The addition of a new session on Animal Welfare allowed for an interesting discussion on the challenges and opportunities to further promote optimal animal welfare. A Q&A panel with speakers from Edinburgh University, WAZA, the Association of Zoos and Aquariums (AZA), the Population Management Centre, the AZA Reproductive Management Centre and the EAZA Animal Welfare Working Group invited us to reach a balance between population management and animal welfare goals. I left with the feeling that there is a genuine willingness to find that balance by integrating the varied expertise that exists within our community.

UNIQUE OPPORTUNITIES

From a WAZA perspective, the Joint TAG meetings are unique opportunities to meet your counterparts from different regions; it is where we transcend the barriers that can exist in our email communications with each other, and where 'they' become part of a global 'we'. That is why AZA, EAZA and WAZA created a travel grant fund that supported the attendance of 33 participants from different continents.

On behalf of WAZA, I would like to thank EAZA as the host region and Budapest Zoo & Botanical Garden for a fantastic conference.

The great ape rescue

HOW PASA AND EAZA ARE WORKING TOGETHER TO SAVE AND PROTECT THE APES OF AFRICA

Noel O'Donnell, Pan African Sanctuary Alliance; Maria Teresa Abello, Zoo de Barcelona, EAZA Great Ape TAG Chair; Jeroen Stevens, Antwerp Zoo, EAZA Great Ape TAG Co-chair; Katharina Herrmann, EAZA Office; Gregg Tully, Pan African Sanctuary Alliance

Fighting the decline of wild primate populations requires an organised and collaborative effort by all the stakeholders. A combination of *ex situ* and *in situ* conservation projects provides the knowledge, resources and financial strength required to combat the numerous threats to wild primates throughout Africa. Together, PASA and EAZA have played pivotal roles in the primate conservation efforts that have taken place over the last two decades.

PASA'S ORIGIN AND PROGRESS

The Pan African Sanctuary Alliance (PASA) is the largest association of wildlife centres and sanctuaries in Africa. Consisting of 23 organisations in 13 countries, PASA's members are securing a future for Africa's primates by rescuing and caring for orphaned apes and monkeys, fighting the hunting of endangered species and the illicit pet trade, protecting habitats, and educating and empowering communities.

PASA began in 2000, at a time when an increasing number of primate rescue and rehabilitation centres in Africa were collectively caring for thousands of chimpanzees, gorillas, bonobos and other endangered primates. Many leaders of these wildlife protection organisations were facing similar challenges, and could benefit by learning from each other. Conservationists and primatologists organised a meeting in Uganda to bring them together for the first time. The directors of the organisations agreed there was a need for improved communication, and as a result the Pan African Sanctuary Alliance was formed.

While PASA's initial functions were networking and communication, the Alliance soon took on additional roles, such as strengthening the capacity of its member organisations and establishing high standards for their operations. PASA has run projects ranging from crisis response to international law enforcement, thanks largely to the support from associations such as the EAZA. Nowadays, PASA's member organisations are far more proactive in addressing the causes of the tragic decline in primate populations.

EAZA'S WORK AND CONTRIBUTIONS

Since its establishment in 1992, EAZA's mission is to facilitate cooperation within the European zoo and aquarium community towards the goals of education, research and conservation. It was estimated that more than 140 million visits are made to EAZA Members each year. Using this wide reach, EAZA educates its visitors about wild animals and their habitats, with the aim of imparting the knowledge and opportunities needed for us to live sustainably alongside nature.

Zoos and aquariums have a strong role to play in protecting nature and wildlife, both at institutional level and out in the field. The key ways in which they do this include:

- providing funding and manpower to *in situ* conservation projects that are aimed at protecting animal populations and their habitats;
- maintaining viable populations of animals in human care to ensure their survival over the long term;
- educating visitors about animals and their habitats;
- providing visitors with the knowledge and opportunities they need to live sustainably as part of nature; and
- researching all aspects of animal biology to improve our understanding of animals and how they live and interact.

In 2000, EAZA launched its first EAZA Conservation Campaign. This campaign addressed the issue of the unsustainable and illegal hunting and trade of threatened wildlife, in particular the great apes. One hundred and seventy institutions participated in the campaign, of which the vast majority were EAZA Members. It resulted in one of the largest petitions ever submitted to the European Parliament, with 1.9 million signatures gathered – almost double the initial target of 1 million. As a result, in 2004 the Parliament recognised the importance of the issue of bushmeat in relation to wildlife conservation, human food security and livelihoods and human health. Part of the money raised during that campaign was used to support PASA in reinforcing the outcome from the *in situ* conservation projects and protecting African apes and their natural habitat.

COMBINED ACHIEVEMENTS

EAZA, PASA and their member organisations have

A few examples of ways in which EAZA institutions and PASA member sanctuaries can and do collaborate:

- **Send used zoo/aquarium uniforms**: Donations of uniforms help wildlife centre staff to appreciate that they are part of a global conservation movement, in addition to providing a necessary resource.
- **Arrange staff exchanges**: By spending time at a zoo in Europe, African staff can learn new skills and different approaches to managing animal populations. Volunteering at an African sanctuary can be an unforgettable experience for a European zookeeper, as well as an opportunity to share their knowledge and learn new methods.
- **Provide technical advice**: Wildlife centres in Africa encounter challenges that include managing animals with problematic behaviours, recovering from disasters, integrating chimpanzees into social groups, and changing management approaches as apes approach adulthood. Zoos can provide invaluable input.
- **Give financial support**: PASA and its member wildlife centres are entirely dependent on grants and donations to conduct their conservation programmes. Zoos have an essential role in providing funding for this work.

PASA CONSERVATION PROJECTS THAT CAN BE FUNDED BY EAZA MEMBER INSTITUTIONS

Edutainment Film Programmes
The Pan African Sanctuary Alliance is working with 13 of its member organisations in nine African countries to distribute high-quality, engaging films that have conservation messages. The programme has already reached hundreds of thousands of people and the goal is to influence millions.

Strategic Development Conference
PASA conducts annual conferences for the directors of its 23 member organisations across Africa, with the goals of creating a stronger community that addresses conservation and welfare threats on a continent-wide scale, building the capacity of sanctuaries, empowering them to become more sustainable and effective, and training the next generation of leaders.

Primate Care Training Programme
Excellent care is crucial to the welfare of the animals rescued from the illegal wildlife trade and the bushmeat crisis, most of whom need specialised treatment to recover from physical and psychological trauma. PASA sends highly experienced instructors to wildlife centres to provide customised training for all the animal care staff. This benefits thousands of rescued primates.

Kids for Compassionate Conservation
PASA member organisations in Cameroon are conducting a pioneering, interactive conservation education programme which obtains exceptional results. The focus is a custom-designed children's book which teaches empathy for wildlife as well as the threats to great apes. PASA is building on this success to enable its members across Africa to adapt the programme to local schools.

Emergency Support Programme
Wildlife centres in Africa are often affected by disasters such as floods, political instability and disease outbreaks such as the recent Ebola crisis. PASA provides emergency grants, advice and practical support, and works with the organisations to ensure they can continue their conservation programmes and animal care.

collaborated on *in situ* conservation programmes to protect great apes and their habitat since the early 2000s. EAZA zoos have provided PASA and its member wildlife centres with invaluable support in more than 200 projects that have positively impacted thousands of primates throughout Africa.

In September 2010, the EAZA Ape Campaign was launched with the aim of making a significant and lasting contribution to the continued survival of apes and their habitat, covering the species of great apes and 16 species of gibbon that are threatened by illegal hunting, deforestation and disease outbreaks. The four objectives of the EAZA Ape Campaign were to increase habitat protection and reduce habitat loss, to reduce hunting and trade of apes, both live and dead, to change consumer behaviour to reduce pressure on apes and their habitats, and to raise €1 million to establish a lasting fund providing ongoing financial support to ape conservation.

Thanks to a new online tool, the EAZA Conservation Database, the collaboration between EAZA and PASA members in recent years can be quantified. The table below shows PASA/EAZA partnerships. These numbers are expected to continue to rise in the future.

In the EAZA Conservation Database, information is entered voluntarily by the participating institutions, and not all collaborations have been entered yet. In any case, the table shows that during the last few years, collaboration from EAZA institutions with *in situ* conservation projects for African apes is increasing.

The table below shows the total number of collaborations supported by EAZA institutions for each African species of great ape that have been registered in the EAZA Conservation Database. Although in general these numbers look fine, on closer examination it is clear that this collaboration still has much potential to increase. With bonobos, a high percentage of EAZA institutions that participate in the EEP are already contributing to *in situ* conservation projects; but for the other species, EEP participants could contribute more according to their economic possibilities.

GOING FORWARD TO SUPPORT CONSERVATION IN AFRICA

By working together, EAZA, PASA and their member organisations have a far greater impact than they could reach independently. Now, as our closest relatives are nearer to extinction than ever before, this collaboration is more important than ever.

EAZA Member zoos and aquariums are encouraged to partner with PASA and its member wildlife centres to produce a lasting impact on primate conservation, which includes extending awareness through conservation education so that together we can ensure the continued protection of natural habitats, as well as aim to restore those habitats already devastated by human action. For more information contact Gregg Tully Gregg@pasaprimates.org

Species involved	Total no. of collaborations	Collaborations addressed to PASA centres	%	Countries	No. of EAZA Institutions collaborating	No. of European institutions participating in the sp. EEP	% EEP institutions supporting *in situ* projects
Bonobo	46	24	52	1	8	10	80
Chimpanzee	273	133	48	13	29	91	32
Western Gorilla	142	71	50	7	26	63	41
Eastern Gorilla	47	0	0	3	10		
TOTAL	**508**	**228**	**45**		**73**	**164**	

A meeting of minds

A PACKED PROGRAMME AT THE 2018 EAZA CONSERVATION FORUM ENSURED A SUCCESSFUL AND INVALUABLE EVENT FOR CONSERVATIONISTS FROM ACROSS THE COMMUNITY

Mirko Marseille, EAZA Events and Member Services Coordinator

From 22–25 May, 158 conservation-minded people, from both the zoo and aquarium community and the field conservation community, gathered in the Environmental Education Centre of Tallinn Zoo to exchange insights, developments and experiences at the 2018 EAZA Conservation Forum. The impressive turnout was gratifying, as the Conservation Forum is all about building bridges between the *ex situ* and *in situ* worlds. Because of the increasing popularity of the forum, the event sold out during the early-bird period; in fact the event is growing at such a pace that the 2020 Forum will need a larger conference venue altogether.

However, the good news is that those who missed the chance to register were still able to follow the presentations, as for the first time in EAZA event history, the entire Conservation Forum was recorded and the talks and sessions were streamed live on the EAZA Facebook page and a few other adjoining platforms in Estonia. The technical, visual and auditory quality of the recordings proved to be excellent, and they can still be viewed on the EAZA YouTube channel and will continue to be available for everyone. At the time of writing, the recordings have been viewed more than 14,500 times, and the feedback regarding the live stream has been overwhelmingly positive. As a result, the option of a live stream during one of our future events will be explored in further detail. The online broadcast as well as many other elements of the EAZA Conservation Forum 2018 were made possible by generous financial support from the European Regional Development Fund via Enterprise Estonia.

The forum had a similar programme set-up as the 2016 event in Fuengirola, with the notable exception of workshop sessions. Instead of these, a mini-seminar on illegal wildlife trade was scheduled for the first day. After the opening session and the keynote speech by Jorge Rodriguez Romero from the Directorate General for the Environment (European Commission) about combating unsustainable and illegal wildlife trade, the mini-seminar began, facilitated by Carl Traeholt from Copenhagen Zoo. The discussion after the presentations, with contributions from TRAFFIC, SanParks, the Private Rhino Owners Association in South Africa and others, centred on the legal rhino horn trade in southern Africa. Despite multiple attempts by the facilitator to steer the discussion in other directions, the rhino horn trade debate dominated the proceedings. However, the discussion, which attracted input from the audience as well, proved to be interesting and highly contentious. The seminar was a valuable addition to the overall programme and may be replicated for the 2020 edition with different and relevant topics. After the seminar, other topics addressing the impacts on wildlife of illegal wildlife trade were addressed and explored, including the EAZA Silent Forest Campaign and wildlife trade in Iran, Vietnam and Laos.

The first day of the forum ended with the showing of conservation movies from the Snow Leopard Trust, the Saola Working Group and Save the Golden Lion Tamarin Trust.

The second day began with a session on conservation efforts in the Baltic region. The keynote, delivered by Riinu Ranap from the University of Tartu in Estonia, highlighted the decline of amphibians at their northern range edge and how this is a challenging task for nature conservation. Further talks discussed the plight of the European pond turtle (*Emys orbicularis*), the hermit beetle (*Osmoderma eremita*), Baltic seal species and the management of large carnivores in Estonia.

The second session of the day began with a keynote speech from Jörg Freyhof from the IUCN SSC Freshwater Fish Specialist group, who discussed freshwater conservation and what zoos and aquariums can do to fight the fish biodiversity crisis effectively. Other talks in this session covered the lake sturgeon (*Acipenser fulvescens*) in the US as a bioindicator for environmental health, the status of Corfu killifish (*Valencia letourneuxi*), and how a potential new fund for freshwater fish can be established by working together. After a short break, the third session of the day, 'Connecting to conservation', began with contributions from NGOS from Zimbabwe, Indonesia, Botswana and Singapore, who highlighted initiatives that focus on the connection between conservation practices and community engagement and education. The day concluded with a visit to Tallinn Zoo, where delegates could register for one of the many guided zoo tours or just walk around by themselves and experience the zoo. After the zoo visit, delegates were treated to some delicious locally made organic ice cream. While enjoying the stracciatella and mango flavours, delegates joined a meet and greet session with the creators of the conference posters to discuss the poster contents and to acquire more background information about the featured topic. The second day ended with the showing of 'Durrell's Underhogs', a film about the conservation work of the Durrell Institute in India.

The third and final day opened with a session on 'Conservation reintroductions', comprising presentations on the methodology, the urgency and the complex challenges of reintroductions. After a short coffee break it was time for a discussion about the concept and practice of rewilding, including a keynote presentation by Paul Jepson, member of the supervisory board Rewilding Europe in the UK. Rewilding is a progressive approach to conservation in which nature is allowed to take care of itself, enabling natural processes to shape land and sea, repair damaged ecosystems and restore degraded landscapes. Paul introduced the concept of rewilding and highlighted cases from across Europe, including success stories and failures alike. The role of zoos in the process of rewilding was discussed, highlighting the fact that it is a contentious subject – not everyone believes that

rewilding is the answer to all conservation issues. However, there seemed to be a general consensus that it is a dynamic and complex process, and because each project has a long timespan, its direct impact is sometimes hard to measure.

In the afternoon, there was one final session, 'EU Funding Opportunities for Conservation'. The presentations centred on the EU LIFE programme, the EU's financial instrument that supports environmental, nature conservation and climate action projects. Anita Fassio from the LIFE Unit, the executive agency for small- and medium-sized enterprises in Brussels, introduced the programme and was followed by case studies from the field in Finland (wild forest reindeer, *Rangifer tarandus fennicus*), and Austria (northern bald ibis, *Geronticus eremita*). In the second session, six more presentations were scheduled, including talks about the WAZA Nature Connect programme, how Nuremburg Zoo and Lisbon Zoo fund their *in situ* conservation projects and the experiences of HUTAN (a Malaysian NGO focusing on Bornean orang-utan habitat conservation) when it comes to financing a grassroots conservation programme. The Snow Leopard Trust concluded the day with a talk about community conservation in Asia's mountains.

Eric Bairrão Ruivo, the new Chair of the EAZA Conservation Committee, closed the forum with thanks and an inspiring speech that reflected on the many excellent presentations and discussions that had been held. After the closing speech, it was time to head back to the hotel and prepare for the farewell dinner, which was held in the House of the Blackheads, a beautiful building that used to be a former headquarters of the Brotherhood of Blackheads, historically a professional association of ship owners, merchants and foreigners dating from the 14th century. The farewell dinner proved to be the crowning glory of the forum, offering impressive and delicious food in a stunning setting. Several delegates registered for a free post-conference tour on the following day to Lahemaa National Park, located relatively close to Tallinn, while others opted for one of several wildlife tours, including a visit to Hiiumaa island, where European mink (*Mustela lutreola*) reintroductions take place and the population is being continuously monitored, and a tour to Eastern Estonia, close to the border with Russia, where delegates could join in a bear-watching tour and stay in a bear hide for the night.

Based on the feedback from delegates in the evaluation survey it can be concluded that the 2018 Conservation Forum turned out to be unforgettable for many delegates. In addition to the stimulating presentations and the invaluable exchange of opinions and expertise, everything from the standard of food and drink to the entertainment at the social events made the experience even better. In summary, the EAZA Conservation Forum 2018 was a huge success; it will be remembered as a well-organised, informative and enjoyable conference and will surely set the example for future events. Many thanks to the great host Tallinn Zoo, all the other partners and to the participants for making this meeting such a success!

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Moving lessons

A RECENT TRAINING COURSE ON EFFECTIVE CONSERVATION TRANSLOCATIONS PROVED TO BE INVALUABLE TO EVERY PARTICIPANT

Tania Gilbert, Marwell Wildlife, UK, Co-chair EAZA Reintroduction and Translocation Working Group

Last year, on a cold November morning, a group of 30 conservationists from around the world gathered at the Zoological Society of London (ZSL) for the IUCN SSC Reintroduction Specialist Group training course on 'Training for Effective Conservation Translocations'. The participants were, by and large, reintroduction practitioners, and the course promised to build on current experiences and expertise to provide additional tools and techniques for developing and implementing effective conservation translocation projects. The course did not disappoint. I know this because I was one of the shivering participants cheerfully persevering for the four-day course with the aid of plenty of tea, space heaters and thick winter coats after the heating failed.

The course was developed by core members of the IUCN SSC Reintroduction Specialist Group (RSG), and delivered by RSG and the IUCN SSC Conservation Planning Specialist Group, to improve the understanding and effective implementation of the 2013 IUCN SSC Guidelines on Reintroduction and Other Conservation Translocations. The course was first delivered in conjunction with the IUCN World Conservation Congress in Hawaii in 2016, and RSG were pleased to deliver it again at ZSL in the UK following discussions between them and the EAZA Reintroduction and Translocation Working Group. The contents of the course were so relevant for conservationists based within zoos and aquariums that both ZSL and EAZA generously sponsored the course, reducing the costs for participants.

The course itself consisted of a mixture of lectures, training exercises and small-group breakout sessions where translocation problems presented by participants were worked on under the guidance of the course tutors. This combination of methods allowed the tutors to cover core components of the Guidelines, to teach practical methods for applying these guidelines and to practice context-specific application through real-world examples. The modules covered some of the more challenging aspects of the Guidelines including social feasibility and conflict management, choosing the best alternatives and risk assessment.

The course was deliberately targeted at a broad practitioner audience with a range of backgrounds and skill sets, because this type of mixed group best matches the realities of those who plan and implement conservation translocations, adding to the 'real-world' feel of the course. Many of the participants were experienced reintroduction practitioners themselves, whilst others were just beginning their first conservation translocation projects. However, the holistic and flexible delivery of the course took the knowledge and experiences of all the tutors and participants and melded them together to create an environment where everyone developed a greater understanding of the challenges, opportunities and implementation of conservation translocations.

This combination of participants with different backgrounds, experiences and skills provided one of the greatest benefits of this course. My fellow 'ice cubes' came from as far afield as Australia, although the majority were from European non-government organisations, universities and government agencies, with a strong contingent from EAZA institutions. In fact, eleven out of the 30 participants came from Marwell Wildlife, the Royal Zoological Society of Scotland, Royal Artis Zoo, Chester Zoo, Bristol Zoo, Paignton Zoo, Prague Zoo, Nordens Ark and ZSL. Such a diverse group meant that the translocation problems brought to the course by the participants, along with the development of solutions, were varied and novel. We learnt almost as much from each other as we did from the formal course, and formed new connections that will assist our future conservation translocation endeavours.

At this point I would like to take a moment to state that I am not being paid to advertise this course. I have been involved in conservation translocations for the last 15 years, and I genuinely found it to be an extremely useful and beneficial experience, and other participants have informed me that they similarly benefited from attending. I have already used some of the tools learnt during the four days on my current conservation translocation projects, providing greater clarity around decision-making. The RSG will be running the course again in conjunction with their Second International Wildlife Reintroduction Conference at Lincoln Park Zoo in Chicago in November this year. As far as I am aware, there are no plans to deliver the course again in Europe in the immediate future, but the EAZA Reintroduction and Translocation Working Group are discussing the possibility of RSG delivering some modules through the EAZA Academy, which would give EAZA Members greater access to training for conservation translocations.

Showing support

NEW GUIDELINES FROM THE FELID TAG WILL HELP EAZA MEMBERS TO CREATE SAFE, STRESS-FREE AND EFFECTIVE PUBLIC DEMONSTRATIONS

EAZA Felid TAG and Katharina Herrmann, EAZA Executive Office

Following the official approval of the 'Guidelines on the use of animals in public demonstrations' (September 2014) which provides guidance on the use of exotic animals in public demonstrations at EAZA Member institutions, the EAZA Felid TAG has produced a species-specific guidance document for collections performing public demonstrations with felids. These demonstrations are defined as any event where an animal is demonstrating behaviours, trained or natural, while under the supervision or control of a trainer in the view of guests, with the intention of educating, inspiring and entertaining the visitors.

The document aims to provide support to EAZA Members along with best practice guidance, and is constructed around five key aims:

1. Promote an understanding and raise awareness of wild felid species.
2. Allow visitors to see the cats in action and showcase the natural behaviours of felids.
3. Educate visitors about the threats that most of these species face in the wild and the role of zoos in the conservation efforts directed towards felid species, as well as the role of zoos in the global effort to preserve animals and their habitats in the wild.
4. Educate visitors about their special adaptations and their role as predators in their ecosystem.
5. Inspire guests to connect with felid species in the hope of bringing about conservation-minded behaviour change.

The document is an addition to EAZA Best Practice Guidelines and is the result of thorough discussions and input from all Felid TAG members. EAZA Members using felids in public demonstrations should ensure that all activities focus on behaviours that are demonstrations of an animal's natural intellectual or problem-solving abilities and their physical attributes, showcasing a wide range of behavioural diversity. A public demonstration should be designed with animal welfare as the primary factor and the visitor experience as a secondary factor and should use the best practice standards. This natural approach runs like a thread through the entire document.

SMALL CAT EXPERIENCE, NORDENS ARK, SWEDEN

When compared to the American Zoo Association (AZA) or the Zoo Aquarium Association (ZAA), felid demonstrations in the EAZA region are less common and mostly take place during feeding, with a member of staff talking to the public from outside the enclosure. Public demonstrations in the form of a guided animal encounter are the exception within the EAZA region and are accepted by the guidelines only when using smaller cat species such as Pallas's cat (*Otocolobus manul*), European wildcat (*Felis silvestris*) and similar species. This has allowed the Felid TAG to produce a more specific document, setting the framework for how felid demonstrations should be designed without the need to provide detailed information on, for example, animal housing and diets. For information on species-specific behaviours and recommended husbandry/safety procedures the EAZA Member institution should seek assistance from the relevant EAZA Best Practice Guidelines or from the programme coordinator directly.

All the guidance provided considers the diversity of felid species under the TAGs remit, from such animals as Margay (*Leopardus wiedii*) to the Sumatran tiger (*Panthera tigris sumatrae*). All the species have therefore been grouped into three categories to allow more specific guidance on things such as guaranteeing safety, the use of props and the training of the animals. These are:

- **Large cats**: species of the genera *Panthera* (incl. *P. uncia*), *Neofelis*, *Acinonyx jubatus*, *Puma concolor*.
- **Medium cats**: species of the genera Lynx, Caracal, Catopuma, *Leptailurus*, *Leopardus pardalis*, *Prionailurus viverrinus*.
- **Small cats**: Felis species, all other *Leopardus sp.*, all other *Prionailurus sp.*, *Otocolobus manul*, *Pardofelis marmorata*, *Herpailurus* yagouaroundi.

The Felid TAG recognises the value of felid demonstrations in the engagement and education of zoo visitors. Such experiences have the potential to excite and inspire our guests while drawing their attention to the unique characteristics, behaviours, diversity and conservation needs of felid species. It is, however, important that demonstrations are undertaken in a safe, professional and natural environment for guests, staff and, most importantly, animals. For these reasons the Felid TAG strongly recommends that all EAZA Members take into account all provided guidance prior to setting up a public demonstration with felid species.

The 'Guidelines on the use of Felids in public demonstrations' can be accessed at https://www.eaza.net/about-us/eazadocuments/.

Life on the high seas

NAUSICAA, THE FRENCH NATIONAL SEA CENTRE, HAS UNDERGONE A MASSIVE EXPANSION TO BECOME ONE OF THE WORLD'S BIGGEST AND MOST IMPRESSIVE AQUARIUMS

Mathilde Doyer, Communications Officer, Nausicaa

On Saturday 19 May 2018, the redesigned and hugely expanded NAUSICAA, the French National Sea Centre in Boulogne-sur-Mer, France, opened its doors to the public for the first time. This new building contains one of the world's largest aquariums and is an amazing destination for lovers of the sea, where you can experience both the vastness and the fragility of the ocean.

With the opening of its new building, NAUSICAA, which is a major tourist attraction in the Hauts-de-France region, has begun a new chapter in its history. This huge and ambitious project is being implemented by the *Communauté d'Agglomération* of the Boulonnais. Situated between the port and the beach, and incorporating the existing structure, this large-scale architectural project has been designed by Jacques Rougerie in the shape of a manta ray. NAUSICAA's most striking feature is an enormous central tank, which will recreate the ecosystem of the high seas. This extraordinary structure is a considerable architectural, aquatic and technical challenge, and is the first of its kind in Europe. The area resembles the island of Malpelo off the coast of Colombia, and is inhabited by sharks, manta rays and shoals of other fish. An 18 metre-long transparent tunnel offering multiple views, a trench measuring 7.5 metres, giant windows

NAUSICAA IN NUMBERS

100 m^2	area of the big viewing panel (20 metres long, 5 metres high)
6	number of weeks needed to fill the big tank
10,000 m^3	volume of water in the big tank
16,000 m^3	total volume of water at NAUSICAA
58,000	number of creatures
1,200	number of unusual species
10,000 m^2	main exhibition area
7 km	length of the water treatment pipes

and a viewing panel measuring 20 metres long and five metres high will give spectacular views into the huge tank. Visitors will see vastness here: a powerful and living ocean. Visits will also feature interactive and surprising attractions and dazzling new sights.

But NAUSICAA is much more than just an aquarium. It is a centre where the unique marine environment can be discovered in an enjoyable, educational and scientific way, with a primary focus on the relationship between mankind and the sea.

In 25 years, NAUSICAA has welcomed over 15 million visitors and become a major player in efforts to raise awareness of the marine environment. Above all, the centre's role is to rally members of the public behind efforts to improve the way in which the oceans and their resources are managed in order to encourage them all to take action. In fact NAUSICAA's awareness-raising activities have earned it the title of a UNESCO 'Centre of Excellence'.

VOYAGE ON THE HIGH SEAS

Management of the world's seas and oceans is one of the major issues of the 21st century; the United Nations is already discussing methods of governance. In this and future centuries, it will be necessary to manage resources in the high seas, which cover half of the area of the Earth. If the resources in the sea become an alternative to those on the land, we need to ensure that they are used in a sustainable way while also seeking to eliminate any conflict that this may cause.

The high seas seem like a vast desert, but are crossed by highly migratory species and inhabited by creatures which travel enormous distances to feed or reproduce. Small fish, which provide food for larger marine creatures, are clustered at depths of between 200 metres and 1,000 metres. The high seas offer tremendous scope for exploration and science and hugely expand the possibilities for the human race.

The educational side of NAUSICAA's work is the first thing that the visitor encounters, through the Blue Society exhibition in the Entrance Hall. Blue Society seeks to cater for society's current and future needs by tapping into the huge potential that the world's oceans offer us. It is based on responsible use of marine resources, and also the development of innovative technologies and new products, which will generate economic resources and jobs.

SHORES AND PEOPLE

A special exhibition covering an area of 5,000 m^2 is entitled 'Shores and People', and here visitors can explore the many issues surrounding the management of coastal regions. Thanks to the discovery of these ecosystems and the people who live off them, everyone can understand how the human race is involved in the functioning of the oceans, and how best we can benefit from its resources.

A visit to 'Shores and People' begins with 'Travels in Northern Seas' and 'Stopovers in the Mediterranean' and then moves on to a kelp forest. Further on are a lagoon, a coral reef and the open sea tank where visitors will see sharks and multi-coloured fish. Finally, in a recreation of a Californian reserve, six sea lions zip around like torpedoes in their tank, which holds 1 million litres of water. There, through the activities of our sea lions, visitors learn about the need to create reserves to protect certain species that are threatened by mankind. When the sea lions arrived in 1998, NAUSICAA was the only centre in Europe that offered its visitors educational activities with sea lions, which focused on the wellbeing of the animal and its physical and mental development. Today, the French National Sea Centre continues to be a European leader in the field of sea lion training.

INTERACTIVE FORUMS

NAUSICAA also features a number of forums, which are centres for activity and interactivity: the Blue Society forum, the 'Shores and People' forum and the High Seas forum all offer visitors a personalised experience, in which they can choose what information interests them, play around with the scenarios in the different themes, take part in surveys and go to events that tell them about life in the high seas. In addition, by creating an account in which they become a member of the NAUSICAA community, visitors can personalise and enhance their entire visit, and afterwards can receive information from the marine and conservation community, as well as advice and encouragement to help to preserve the world's oceans. This all-encompassing approach to the visitor experience, in addition to the astonishing and innovative structures and displays, make NAUSICAA a unique and unmissable experience.

Is education working?

WITH CONSERVATION EDUCATION AT THE TOP OF THE MODERN ZOO'S AGENDA, ZOOS MUST WORK HARDER TO PROVE ITS EFFECTS

Dr Andy Moss, Conservation Social Scientist, Chester Zoo, UK

One of the more startling statistics surrounding zoos and aquariums is that more than 700 million visits are made to them globally each year. It is one of those numbers that is so big that it is difficult for our human brains to truly comprehend; it is a not-insignificant proportion of the world's entire human population. As a community, I don't believe we understand just how amazing this is. And what an opportunity it presents for conservation! Imagine if we could use some of those hundreds of millions of visits to mobilise support in tackling the biodiversity crisis, to raise awareness for endangered species and to connect people to nature in an increasingly urbanised world. We could also promote conservation-friendly attitudes and, of course, encourage people to act in pro-conservation ways. This is, in short, why we have conservation education in our collections – to achieve all of the above.

Conservation education in zoos is an important and noble endeavour, one that is undertaken by highly skilled, talented and passionate educators around the world. I know this because I have worked with zoo educators for many years. Indeed, I was one myself. I still work in an office surrounded by zoo educators, and I find their energy and drive inspiring. However, as a researcher committed to understanding the impacts associated with visiting or engaging with zoos, I often find myself issuing words of caution about what we can and should claim about the educational role of zoos. If I may, I would like to share a few of those words in this article.

OVER-CLAIMING

In the most recent World Zoo and Aquarium Conservation Strategy (2015), there is a sentence that I believe perfectly highlights the issue of over-claiming. It is:

'Zoos and aquariums are trusted voices for conservation, and are able to engage and empower visitors, communities and staff measurably to save wildlife.'

Now while I do not disagree with the sentiment, I do take issue with the way it is worded. It is a sentence that is loaded with empirical statements – that is, statements that require robust evidence to make them valid. For example, 'zoos and aquariums *are* trusted voices for conservation'. Who says they are? Which people or organisations get to decide who the trusted voices for conservation are? I don't believe I have seen any published research that supports this claim.

More pertinent for conservation education perhaps is the final part of the sentence, which claims that zoos '*are* able to engage and empower visitors, communities and

staff measurably to save wildlife'. To me, this is basically saying that zoo conservation education *is* saving wildlife. My personal belief is that it does, but a personal assertion is definitely not enough to make a claim like this. Is there other evidence to support this claim, from published research or other sources? I am not sure there is. Certainly not from the perspective that engagement or empowerment by zoos can 'save wildlife' measurably. This is a huge claim, and one that would be extremely difficult to prove, but by using the word 'measurably' it suggests that we already have this evidence. We don't.

I am perfectly willing to accept that this could also be a good example of a scientist over-analysing a single sentence and needlessly pulling it apart. Perhaps, but we in the zoo world are subject to detailed external scrutiny over everything we say or claim. And rightly so. If we partly justify our very existence based on the outcomes of our conservation education work, then we have a moral and ethical duty to defend any claims we make with the strongest of evidence. The slightly alarming thing is that, in the UK at least, the Royal Society for the Prevention of Cruelty to Animals (RSPCA) was telling us this more than 10 years ago. In a well-researched review of the available evidence, it stated that:

> *'It is not enough for zoos to aim to have an educational impact, they should demonstrate a substantial impact. From our review of the literature, this does not yet appear to be the case.'* (RSPCA, 2006)

I agreed with this statement then, and I still do. In fact, I might argue that it is even more important in 2018 as the general shift in zoo function seems to be moving more towards seeing conservation education as being the key role for zoos. The recent EAZA Conservation Education standards are one piece of evidence of this; zoos who want to be EAZA-accredited now have to demonstrate a substantial commitment to education, via these standards.

WHAT WE DO AND DO NOT KNOW

It is not all bad news, though. We definitely know much more about the educational outcomes of visiting zoos now, compared to 10 – or even five – years ago. Indeed, I have worked on a long-term project that has demonstrated that in a sample of more than 10,000 zoo visitors from around the world, people tend to end their zoo visits with a greater understanding of biodiversity and the ways in which they personally can help protect it. To me, this is great news, and something that we can be justly proud of; namely, that zoos do give people valuable conservation-related knowledge. But as time has passed, so, it seems, have our aspirations. Now it seems that knowledge outcomes are not enough for us. Amongst other things, we want to connect people with nature and actually change behaviours in people. This is also great news, but it comes with greater difficulties in terms of demonstrating that we are achieving what we say we do.

Take changing behaviours in people for example (and by behaviours, I mean those behaviours that can have a positive impact for conservation). From a research perspective, this is a notoriously difficult thing to show conclusively. One reason is because it is very hard to directly measure what people get up to in their personal lives – recycling, energy conservation, responsible purchasing etc. Another is that we want to know how someone's engagement with a zoo will influence their life going forward. There are studies that have used participants' self-reporting of future intentions to behave differently (or not), but these are simply not direct measurements of actual behaviour and, to me, this is not good enough evidence. To actually conduct the research that is needed to measure behaviour change as a result of zoo interventions would be extremely costly in terms of time, expertise, staff and, of course, money. So are we actually committed to finding out if what we claim is what we do?

THINK POSITIVE

I want to try and end this article on a positive note regarding zoo conservation education. And actually, this isn't hard to do. One thing that we, as a zoo community, have been somewhat ahead of the game on is our growing acceptance that conservation itself is actually a people problem. That is, the biodiversity crisis that we are in has come about, almost exclusively, because of the things that people do. Coupled with this is the fact that zoos around the world pretty much universally embrace and promote conservation education within, and outside, their facilities. Put simply, we know what the problem is and we have a plan to try and fix it. So, to my mind, we are at least halfway there. The bit we are missing is the concrete evidence that supports our conservation education aims. I strongly believe that we can do all these things – connect people with nature, change behaviours, help make more pro-conservation citizens – but my personal opinion isn't any more valuable than anybody else's on the subject. And it certainly doesn't count as evidence supporting our claims. Research in the social sciences is not easy. People are complicated things, and trying to measure what they think, feel and do should rightly be difficult. But if we are serious about the claims we make about conservation education, then let's get serious about trying to evidence them.

Designed for living

THE NEW AFRICA ROCKS EXHIBIT AT SAN DIEGO ZOO MAKES USE OF A UNIQUE PIECE OF TECHNOLOGY TO CREATE STUNNING NATURAL HABITATS FOR THE ANIMALS

Christine Jakob, Marketing Manager, Carl Stahl ARC GmbH

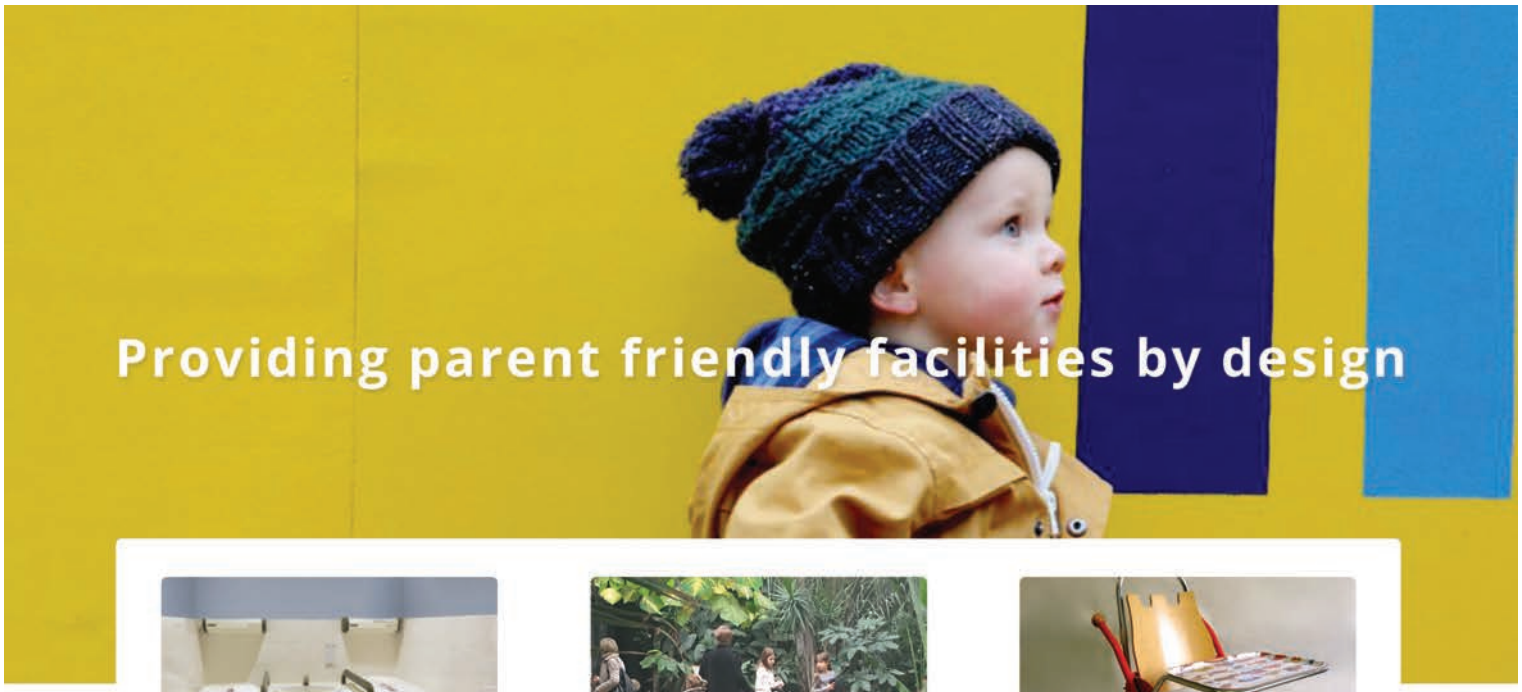
At the end of 2017, a superb new exhibit, Africa Rocks, opened at San Diego Zoo, USA, designed by EAZA Corporate Member Carl Stahl Architecture. Comprising more than 32,500 square metres, the enclosure offers a unique insight into the natural habitats of the different species in six biomes – from the Ethiopian Highlands through Madagascan forests to the coastal regions of South Africa.

Carl Stahl Architecture was commissioned to provide a 6,500 sq m transparent stainless-steel mesh construction made of the company's proprietary X-TEND technology for the zoo's new African biodiversity exhibit. Following the natural, gently rising topography, it effectively spans eight individual enclosures lined up one after the other along a long, winding visitor's path. The minimised roof mesh construction – which has no sight-impeding supporting elements apart from nine inner pylons with load-distribution rings – forms a three-dimensional mesh structure, creating space under the roof, which can be used to the full. In this way, zoo enclosures made of this pre-stressed stainless steel mesh promote the natural behaviour of the animals by extending their freedom of movement into the third dimension and allowing them to climb right up to the delicate mesh roof.

Visitors to Africa Rocks are at the heart of the action, thanks to the X-TEND mesh, which is suspended between the roof and the ground. The mesh is delicate and transparent, opening up visitors' views of the extensive enclosures. The individual sections of the wall mesh are fastened to each other without any visible joints or additional vertical or horizontal cables. This means visitors have an unimpeded view into the compound on their way along the enclosures. The individual enclosures are integrated harmoniously into the topography which, together with the paths, bridges, rock formations and vegetation, presents a virtually natural habitat.

Stainless steel mesh constructions made with X-TEND are perfect for building special enclosures that are suited to particular species and their behaviour. They unite safety and aesthetics, are hard-wearing and durable, and offer virtually barrier-free insights and views, thanks to their transparent structure. The lightweight area-covering structural element can withstand heavy loads, allows extensive spans and enables the creation of spacious areas in which the animals can move freely.

These lightweight constructions have their own design language, which is always focused on the requirements of the particular species, topography, usability and appeal for the visitors. Developed together with zoos and zoo architects the world over, the organically shaped mesh constructions are the result of meticulous technical planning, precise statics calculations and professional on-site assembly, based on the extensive experience of Carl Stahl Architecture.



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