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ZOOQUARIA

SUMMER 2024

ISSUE 122

Cat strategy

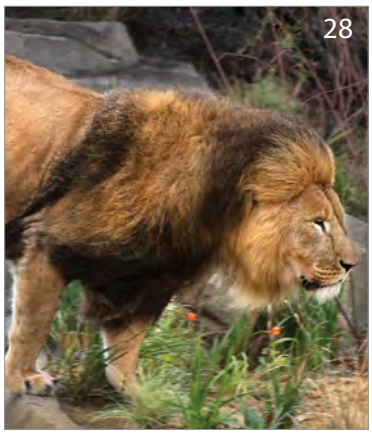
A new plan for our most threatened felids

IS ZOO DOO FOR YOU?

THE STORY BEHIND A SUCCESSFUL ANIMAL WASTE PROGRAMME

RETURN TO SOCORRO ISLAND

RESTORING THE SOCORRO DOVE TO ITS NATIVE HOME



KEY: a quick guide to frequently used acronyms

CITES: Convention on International Trade in Endangered Species
EEP: EAZA Ex situ Programme
IUCN SSC: International Union for Conservation of Nature Species Survival Commission
LTMP: Long-term Management Plan
RCP: Regional Collection Plan
TAG: Taxon Advisory Group
ZIMS: Zoological Information Management System

Zooquaria

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FROM THE DIRECTOR'S CHAIR

It has been a busy first half of the year with many conferences and events taking place. Articles on the highly successful EAZA Animal Welfare Forum and the Joint Taxon Advisory Group (TAG) Chairs Meeting are in this issue of *Zooquaria*; we will be sharing more on EAZA Directors' Days and Conservation Forum in the next one. Not only do these conferences share best practice and the latest updates relevant to our work, but also they provide an important opportunity to network and make lasting connections.

As the EAZA membership continues to grow, it becomes even more important that we stay aware of advances and connected to each other. I'm aware that in-person attendance at events comes with associated financial and time costs; however, I am strongly of the opinion that the benefits outweigh these costs. We aim to advertise our events and their content as much in advance as possible to aid your planning; I encourage everyone to check our events pages and budget accordingly.

Continuing the theme of advances and connections, I trust you are as delighted as I am by the much-anticipated, IUCN Species Survival Commission (SSC) Position Statement on the role of botanic gardens, aquariums and zoos in species conservation. This statement sends a powerful message, clearly supporting the crucial and often unique roles that progressive zoos and aquariums play in species conservation. It is the result of multiple connections across the IUCN, botanic garden, aquarium and zoo community working together towards advancing understanding and opportunities. Please do read the statement if you have not yet had a chance to do so, and consider using it in your communications. More guidance is given in the article on page 8.

This issue of *Zooquaria* contains various articles sharing advances, from Best Practice Guidelines to sustainability and lobby work. It is likely that all of these have been brought about by collaborative work enhanced by connections made in-person at (EAZA) events and meetings. Irrespective of the working language of EAZA being English, the diversity of cultures and languages within our community means we often gain more understanding and trust via these in-person interactions. If I haven't managed to connect with you at an event so far this year, I very much look forward to doing so at a future event!

Myfanwy Griffith
Executive Director, EAZA

IF YOU WOULD LIKE TO HELP SUPPORT UKRAINIAN ZOOS AND AQUARIUMS, PLEASE SCAN THIS QR CODE.

NOTICEBOARD

EAZA SPRING COUNCIL AND AGM

The EAZA Directors' Days conference was excellently hosted by Fota Wildlife Park (Ireland) at the end of April. The conference included a meeting of EAZA Council and the Annual General Meeting (AGM) of the Association.

COUNCIL DECISIONS

EAZA Council approved the following membership decisions:

NEW MEMBERS

Full Membership

Eskişehir Zoo and Aquarium, Turkey

Temporary Membership to Full Membership

EcoZonia, France
Safari de Peaugres, France

Temporary Membership

Crocodiles of the World, UK

Withdrawing Temporary Membership Under Construction

Carratraca Zoo, Spain
Bark-Biopark Barquinha, Portugal

EAZA ACCREDITATION PROGRAMME

Temporary Membership

Kraków Zoo, Poland
Chemnitz Zoo, Germany
Santillana Zoo, Spain
Jihlava Zoo, Czechia

Maintain Full Membership

Zoo Dortmund, Germany
Walter Zoo, Switzerland
Montpellier Zoo, France
Besançon Zoo, France
NaturZoo Rheine, Germany
Bremerhaven Zoo, Germany
Munich Zoo, Germany
AquaZoo Friesland, Netherlands
Parc des Oiseaux, France
Krefeld Zoo, Germany
Schwerin Zoo, Germany

Withdrawing Members

Linton Zoo, UK
Cracid Breeding and Conservation Center, Belgium
Vasco da Gama Aquarium, Portugal

OTHER DECISIONS

The following zoos are due to be visited by the EAZA Technical Assistance Committee as potential Candidates for Membership: Baku Zoo, Azerbaijan; Shymkent Zoo, Kazakhstan. Newly approved Council members were also welcomed: Kaupo Heinma (Tallinn Zoo) as Estonian representative, Rebecca Biddle (Twycross Zoo) as UK representative and EAZA Vice Chair, as well as Brian Zimmermann (Bristol Zoo Project, UK) as EEP Committee Chair. Departing EAZA Vice Chair and EEP Committee Chair, Kirsten Pullen (formerly Paignton Zoo, UK), was thanked for her contributions and service.

AGM DECISIONS

Important documents and policy updates were approved, including rules on animal acquisition and disposition, Standards for Welfare, Accommodation and Management of Animals in Zoos and Aquaria, and the move to a five-year accreditation cycle (from the current 10-year cycle).

More information about the Directors' Days conference and some of these updates will be provided in detailed articles in the next issue of *Zooquaria*. Stay tuned for #123!

TAG AND EEP VACANCIES

The number of new-style EAZA Ex situ Programmes (EEPs) is growing, creating more opportunities to become involved in programme management. If you are working for an EAZA organisation, find out which programmes are still looking for a Coordinator and #JoinTeamEAZA! All the programme vacancies are posted on the TAG home page in the EAZA Member Area.

EVENT UPDATES

Early bird registration is open for the next EAZA Annual Conference until 15 July 2024. To benefit from this rate and join our biggest event hosted this year by Leipzig Zoo (Germany) on 8-12 October, register on the event page. Find out all relevant information about our upcoming events on www.eaza.net/events.

UKRAINE ZOOS EMERGENCY FUND

EAZA continues to raise funds and provide donations to those in need as the war in Ukraine endures. A report on the activities associated with the Fund throughout 2023 can be found on our website: www.eaza.net/emergency-appeal-for-ukrainian-zoos. Since the Fund was launched, donations have reached €1,983,824.56 and €1,867,276.51 has been spent. We thank all the individuals who have made 11,772 donations so far, as well as the 220 EAZA Members and other organisations worldwide. Further donations will continue to help animals and staff at Ukrainian zoos and aquariums.

Please note that since 1 April 2024, the previous QR code and link for small, direct donations have expired. If you would like to donate or are displaying visuals to fundraise for Ukrainian colleagues, please make sure to use the new QR code and link, available on our website. Thanks!

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NEW ARRIVALS

SUMATRAN TIGER CUB SUCCESS AT PARKEN ZOO

ALL PICS © LINN LAGERSTRÖM, PARKEN ZOO

ON 3 JUNE 2023, FOUR SUMATRAN TIGERS (*Panthera tigris sumatrae*), one male and three females, were born at Parken Zoo, Eskilstuna (Sweden). Mother Kiesha gave birth to her cubs in the large outdoor display enclosure where she lives with the cubs' father, Tondi. (The cubs' two-year-old sister Toba was in the off-show outdoor area, waiting for transport to Greece a few days later.) While cleaning the enclosure, the keepers were able to check the health status of the cubs that remained in the enclosure; the parents were moved to another area for a short period of time. Although the cubs have been on display since day one, not many visitors managed to see them at first, as there are many trees, bushes and rocks to hide behind in the forest part of the enclosure.

Kiesha and Tondi have been together since November 2020, when the male arrived from France through a breeding loan from Honolulu Zoo (Hawaii). They have been getting along very well. Tondi has remained with Kiesha and the cubs the whole time and has proved to be a very good father, spending a lot of time taking care of the offspring, playing with them and lying down with them in the shelter or on one of the shelves. During feeding time, however, he is separated, as he loves his food a little too much and doesn't like sharing.

At six weeks of age, the cubs started to move around a lot in the enclosure and the keepers could already see a difference in behaviour: two of the cubs tended to explore more, the other two were shyer and more careful in their behaviour. The cubs also had a thorough veterinary health-check at this point. They were sexed, vaccinated, weighed, and the transponders were implanted. Their weights were between 6.1 kg and 7.2 kg. The male was named Banyu and the three females were named Dewi, Indah and Kemala.

Despite the cold climate, our Sumatran tigers are outside every day. During the winter, the cubs grew a lot of winter fur and looked almost like Amur tigers (*Panthera tigris altaica*). The first time the cubs experienced snow, they frolicked all day and both the mother and the father had to watch out as they snuck up on everything and everyone.

The team is excited to continue to follow their growth and development and is looking forward to seeing them enjoying the Swedish summer.

PROMISING PROGRESS FOR RED-FRONTED MACAWS

THE ROYAL ZOOLOGICAL SOCIETY OF SCOTLAND'S (RZSS) Edinburgh Zoo (UK) has a long association with the beautiful red-fronted macaw (*Ara rubrogenys*) and currently coordinates the EEP for the species. This Critically Endangered bird is a high priority for the EAZA Parrot TAG, with insurance, education and fundraising roles.

RZSS last fledged chicks in 2003 and at the start of 2023 had two males, who were housed together. Frederic arrived in 1995 and had sired a few chicks with his previous partner, none of whom survived to fledge. Oliver arrived in 2019 with plucking issues and unable to fly.

In November 2022, two adult females arrived, neither of which had previously bred. Once they cleared quarantine, they were introduced to one another and then placed in an aviary adjacent to the males, separated by mesh.

Five months later, all four birds were moved to a neutral, off-show area next to each other in same-sex pairs. After two days of acclimatisation, but before they could set up territories, all four birds were given full access to each other to allow them free choice over mate selection. An instant pairing bond was formed between Frederic and Zaelia, with Esmarelda and Oliver also getting on well.

Frederic and Zaelia moved back to the on-show macaw aviaries and, as the strongest pair, were given the choice between the two aviaries. Once they selected their preferred aviary, the dividing slide was closed and the second pair moved into the other side.

Three weeks later, Frederic and Zaelia became very defensive of the indoor house. They laid and incubated three eggs, which didn't hatch.

Another clutch of three was laid at the start of July and they incubated perfectly. Candling showed one egg to be fertile and it hatched on 28 July, with calls heard from the nestbox. Keepers made brief visual checks within the box when the adult birds were feeding, but were otherwise hands-off.

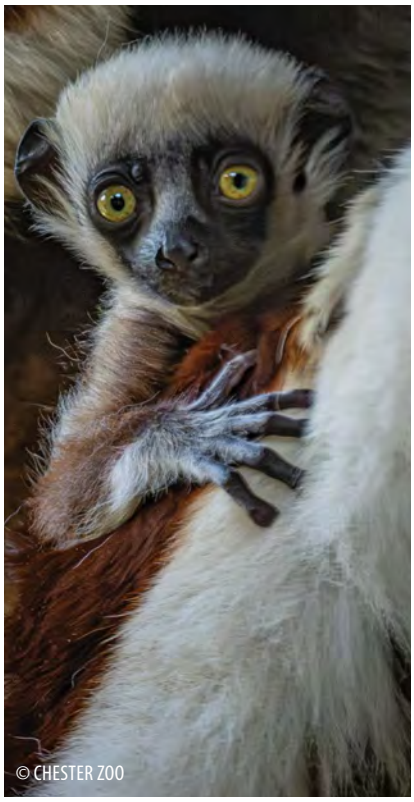
A quick first health check was done

© AMY MIDDLETON, RZSS

when the chick was one month old. The young male was well, weighed 478 g and fully fledged on 13 October.

The second pair didn't breed but within 10 days of moving to the aviaries with his new female, Oliver began to show signs of feather regrowth and six weeks later was almost fully feathered. He has since been seen taking short flights and we hope that this, coupled with their pair bond, means we may have two breeding pairs during the next season.

COQUEREL'S SIFAKA ARRIVES AT CHESTER



© CHESTER ZOO

CHESTER ZOO (UK) welcomed the birth of a Coquerel's sifaka (*Propithecus coquereli*) in September 2023. Classified as Critically Endangered according to the IUCN Red List, this species is challenging to keep and the zoo has experienced mixed breeding success from its pair, Beatrice and Elliott, since their arrival from the Duke Lemur Centre (USA) in May 2021. Beatrice gave birth to a stillborn infant in January 2022 and gave birth again in December 2022, but the infant died suddenly three months later. Therefore, the arrival and subsequent rearing of this latest infant was a cause for celebration and a big boost to the EEP.

At Chester, the sifakas are housed in a large building comprised of one big on-show enclosure (9.4 m x 6.4 m), and a smaller off-show area (3.5 m x 4.4 m). They have access to an extensive, planted outdoor area (895 m^2) and a smaller enclosed outside area (3.0 m x 4.5 m), respectively. The husbandry guidelines recommend the brief removal of the infant from its mother in the early days to allow keepers to monitor the infant's weight and ensure feeding. To accommodate this, we attached a 'squeeze cage' to the off-show area so Beatrice could be trained to come into this confined space, allowing the infant to be removed for weighing. Beatrice soon became comfortable with this arrangement, allowing removal of the infant, and we were able to track a reassuring progressive weight gain.

Following the guidelines, Beatrice and Elliot were also physically separated from one another immediately following the birth, but maintained visual access. All were successfully brought back together after six weeks and Elliot proved to be an attentive father. Now the infant is developing well, growing in confidence and is regularly seen jumping around the enclosure and using his parents as stepping stones! The team at Chester is looking forward to future breeding success, using these techniques and continuing to contribute to this important EEP.

Playing a key role

THE IUCN HAS CONFIRMED WHAT EAZA MEMBERS ALREADY KNOW – THAT AQUARIUMS AND ZOOS ARE VITAL FOR SPECIES CONSERVATION

Sandrine Camus, Communication Coordinator, EAZA Executive Office

On 11 October 2023, the IUCN Species Survival Commission (SSC) released its Position Statement on the role of botanic gardens, aquariums and zoos in species conservation.

In this document, the SSC recognises the key roles that these organisations can, and do, play at the intersection between *ex situ* and *in situ* conservation. These roles span applied genetic, behavioural and veterinary science, husbandry, wildlife reintroduction and translocation, research, education and community engagement, policy development, access to nature-based experiences and conservation funding.

The Commission also believes that there is opportunity and interest to increase participation in these roles. It urges all botanic gardens, aquariums and zoos to meet their conservation potential and to work as valued members of a well-integrated conservation community to ensure the survival and health of wild populations of animals, fungi and plants.

Finally, the SSC encourages all its partners, including government agencies, to collaborate with botanic gardens, aquariums and zoos in the collective work of saving species through the One Plan Approach.

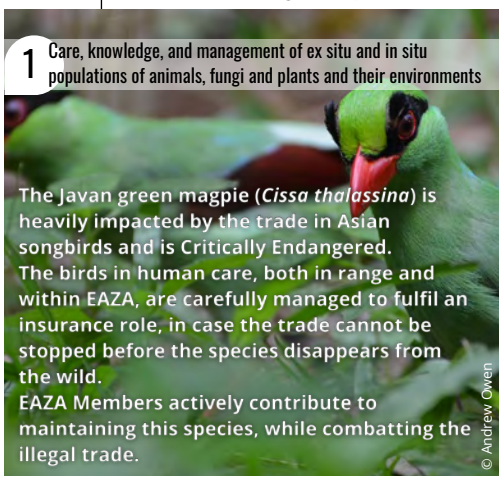
'As a longstanding member of IUCN and partner of SSC, EAZA welcomes this position statement,' says Myfanwy Griffith, EAZA Executive Director. 'It clearly demonstrates the crucial and often unique roles of progressive zoos and aquariums in species conservation. EAZA strongly supports the emphasis put on collaboration across *in situ* and *ex situ* conservation activities to enable impactful conservation outcomes.'

We especially celebrate IUCN's call for an integrated and inclusive approach to species conservation, in the spirit of the One Plan Approach. The latter is a guiding principle of joint population management in EAZA – which enables our community to maintain healthy populations of healthy animals with positive welfare and maximise our contribution to species survival, in collaboration with *ex situ* and *in situ* partners.

Our 400+ Members from 47 countries form an important part of the international conservation community, across the roles highlighted in the position statement. See below for six examples of how EAZA zoos and aquariums help to save threatened species in relation to the six categories described in the statement. The efforts of our community, of course, go way beyond these examples, as regular readers of *Zooquaria* will know.

The IUCN Position Statement is therefore an amazing tool for EAZA Members to use in their lobby and advocacy work at the local to global level. We encourage you to make the most of it and share it alongside practical examples of your conservation work. Together they will further demonstrate the collective power and recognition of our community.

1 Care, knowledge, and management of ex situ and in situ populations of animals, fungi and plants and their environments



The Javan green magpie (*Cissa thalassina*) is heavily impacted by the trade in Asian songbirds and is Critically Endangered.
The birds in human care, both in range and within EAZA, are carefully managed to fulfil an insurance role, in case the trade cannot be stopped before the species disappears from the wild.
EAZA Members actively contribute to maintaining this species, while combatting the illegal trade.

© Andrew Owen

2 Health and pathology

The chytrid fungus *Batrachochytrium salamandrivorans* (Bsal) threatens the survival of several amphibian species in Europe.
EAZA and its Amphibian TAG have developed a free Massive Open Online Course (MOOC) to provide information on this fungus with regard to its epidemiology, the veterinary aspects, prevention and *in situ* and *ex situ* conservation challenges. Five months after the launch, over 455 people had registered to the course!

© AquaZoo Düsseldorf

3 Conservation translocations

In 2019, thanks to an unprecedented partnership among EAZA, the Rwandan Government and African Parks, a group of zoo-born Eastern black rhinos (*Diceros bicornis michaeli*) was transported from Europe to Akagera National Park in Rwanda where they were released into their new and wild home.
Two successfully reproduced in 2023!
This is an important contribution to ongoing restoration efforts, helping to build a sustainable and secure wild population of the species in its native range.
This builds on years of EAZA Members' expertise with rhino translocations.

© Drew Bartlin

4 Ethical research, science and data

The EAZA membership has established dedicated biobanking facilities for the European and Western Asian zoo- and aquarium community to secure genetic material, enable conservation-directed research, improve the viability of small populations, and provide a backstop against extinction in certain cases.
The EAZA Biobank has been growing significantly in recent years and is now approaching 20,000 samples!

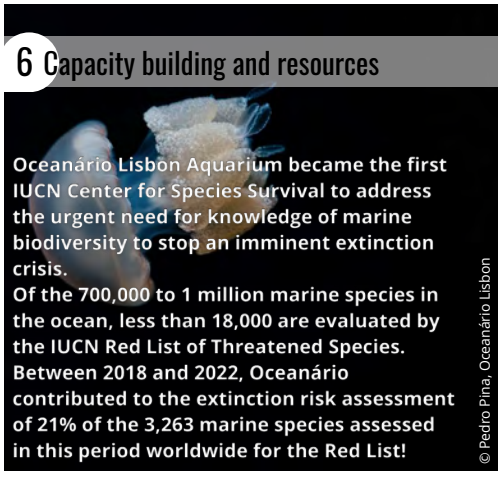
© Antwerp Zoo, Jonas Verhulst

5 Working with communities

EAZA collaborates with other regional associations across the globe to save species together.
For instance, we contribute to the Global Species Management Plans for Anoa (*Bubalus depressicornis*), Banteng (*Bos javanicus*), Babirusa (*Babyrousa babyrussa*) and Sumatran tiger (*Panthera tigris sumatrae*) and support the Indonesian zoo association with capacity building to facilitate cooperative population management programmes.
Every year, many organisations promote the Action Indonesia Partnership on 15 August!

© West Midland Safari Park

6 Capacity building and resources



Oceanário Lisbon Aquarium became the first IUCN Center for Species Survival to address the urgent need for knowledge of marine biodiversity to stop an imminent extinction crisis.
Of the 700,000 to 1 million marine species in the ocean, less than 18,000 are evaluated by the IUCN Red List of Threatened Species.
Between 2018 and 2022, Oceanário contributed to the extinction risk assessment of 21% of the 3,263 marine species assessed in this period worldwide for the Red List!

© Pedro Pina, Oceanário Lisbon

Political strategy

BIAZA'S PUBLIC AFFAIRS STRATEGY SHOWS HOW NATIONAL ASSOCIATIONS CAN SUCCESSFULLY ENGAGE WITH GOVERNMENTS ON MATTERS OF CONSERVATION

Andy Hall, Communications and Public Affairs Manager, British and Irish Association of Zoos and Aquariums (BIAZA)

It is more important than ever that zoos, aquariums and the associations that represent them are politically engaged. Political engagement as a tool is crucial to driving forward conservation, education and research, and can also offer solutions at both a national and local scale.

At BIAZA, political engagement has become a strength of our association. How do we do it? BIAZA's public affairs work can be thought of in three main components: structure, strategy and action.

STRUCTURE

The COVID-19 pandemic saw the creation of BIAZA's first Public Affairs Working Group. This group of political professionals from across the sector now meets on a weekly basis to swap intelligence and to plan and deliver its political engagement. Additionally, this group meets at a host zoo once a year to plan and reflect on strategy. While the group has been very active, public affairs have also been structurally integrated elsewhere: BIAZA's Communications Working Group now has a greater focus on public affairs and oversees campaigning work, and BIAZA has established an Elephant Task Force (ETF) to provide a steer through the political and communication aspects of the 10-year government-commissioned Elephant Welfare Group report.

The work of the ETF demonstrates the importance of having a structure. Made up of experts in communications, public affairs and animal welfare, the ETF sets out plans to manage anti-zoo/elephant media, support the BIAZA membership and generate positive media coverage, and has also been working to engage politicians through meetings and site visits.

STRATEGY

It has been essential to have a long-term strategy in mind. We were clear that we wanted to change the prevailing perceptions of us as a sector that was perceived to be under attack to a sector that was confident, transparent and proactive. Indeed, we ended up calling our public affairs strategy 'changing the narrative'.

SIR LINDSAY HOYLE, SPEAKER OF THE HOUSE OF COMMONS, AND DR REBECCA BIDDLE, DIRECTOR OF CONSERVATION AT TWYCROSS ZOO, AT THE GREAT BRITISH WILDLIFE RESTORATION EVENT

Having a strategy has not only been important in setting out priorities, but also enabled us to explain to our members our political activities and why we needed them to engage with their local politicians. For example, having a clear vision meant we were able to get all our Irish members, big and small, on board to lobby the governments both in the UK and in Ireland on the issue of easing animal transfers, by means of a joint letter and media action. While this issue remains a significant challenge to the sector, the cross-border action gained significant media coverage and has garnered support from all corners of politics.

ACTION

Public affairs can appear cerebral, but for BIAZA it has always been about taking practical actions, and sometimes this has meant getting creative. In January 2024, BIAZA put forward 22 native species conservation projects – from Marwell Wildlife's sand lizard reintroductions to tree planting by Folly Farm – and put these in front of our politicians in a competition entitled 'The Great British Wildlife Restoration'. The competition was a big hit; more than 60 politicians voted in the competition and many turned out for a very special evening event in the Palace of Westminster. During the event, Members of Parliament and Peers (from the House of Lords) attended to support the projects in their constituencies and learn more about the environmental leadership role that the zoo and aquarium sector is rightfully taking.

These actions delivered outcomes. The Great British Wildlife Restoration saw the Labour Party (the official opposition) commit to working with the zoo sector should they be elected to government. The ETF has set the scene for securing a future for elephants in the UK. Engagement from members such as Chester Zoo means we have commitments from the government on integral environmental issues such as deforestation.

We continue to march forward. At the time of writing, BIAZA is bringing together ocean conservationists from the National Marine Aquarium and the Zoological Society of London to present to the UK parliament the work of zoos and aquariums in conserving our marine world; it is also preparing for general elections in the UK and will engage with the newly appointed Taoiseach of Ireland.

This is only a snapshot of what we have been doing at BIAZA and, as always, the reality is that this has been a significant challenge, but the future is bright. We know it is to the benefit of all our members, big and especially small, that we can punch above our weight in the world of politics.

Spread the word

THANKS TO THE EFFORTS OF THE CAMPAIGN TEAM AND THE ENTHUSIASM OF EAZA MEMBERS, THE 'VIETNAMAZING' CAMPAIGN IS OFF TO AN AMAZING START

Members of the Vietnamazing campaign team, Marcel Stawinoga, Dortmund Zoo and Thomas Ziegler, Cologne Zoo

Vietnamazing in Action

We tell stories!

We enthuse people for conservation and Vietnam's biodiversity!

We let people participate and make the difference!

ALL IMAGES © MARCEL STAWINOGA, DORTMUND ZOO

EAZA's current conservation campaign 'Vietnamazing', which focuses on Vietnam's unique habitats and threatened biodiversity, was launched in September 2023 during the EAZA Annual Conference in Helsinki (Finland). EAZA Members and other interested conservation partners were then able to sign up and prepare for the campaign launch at their own institutions at www.vietnamazing.eu. The campaign has since seen a steady growth in interest, with around 130 EAZA Member institutions, non-EAZA member institutions, conservation partners and interested people currently registered.

To increase this interest even further, as well as showcase what has been done so far to highlight Vietnamazing and attract participation and support, we want to share some of the communication work that has been done at the campaign team's institutions.

Brief overviews of the campaign have of course been given in previous issues of *Zooquaria*; one of its flagship species, the Vietnamese crocodile lizard (*Shinisaurus crocodilurus vietnamensis*), was featured on the cover of *Zooquaria* 120 (Winter 2023/24), and an infographic highlighting the main goals of the campaign appeared in *Zooquaria* 121 (Spring 2024). Each *Zooquaria* in 2024 and 2025 will contain new information on the campaign, so keep an eye out for each new issue of the magazine.

CREATING THE BUZZ

The official Vietnamazing website (www.vietnamazing.eu) went live in September 2023. Shortly afterwards, the social media channels on Facebook, Instagram and YouTube were set up and content is now regularly published on them. The nine flagship species have been featured in different posts, introducing their characteristics, the threats they face and the goals set for each by the Vietnamazing campaign. The website provides general information on the flagship species and projects, the campaign partner organisations and participants, as well as news on the progress and success of Vietnamazing. Check out the official Vietnamazing campaign trailer on our YouTube channel!

Zoos, aquariums and other partners are very welcome to provide information, pictures and videos of the flagship species and to join in promoting the EAZA Vietnamazing campaign on their own social media: for example, by sharing Vietnamazing's official posts and using the #vietnamazing tag. This will help to make the conservation work of zoos and aquarium more visible and create Vietnamazing ambassadors.

To reach some of the national associations and organisations, Thomas Ziegler, Marcel Stawinoga and Claudia Haase (from Cologne, Dortmund and Leipzig Zoos

respectively, all in Germany) introduced the new EAZA Conservation Campaign with engaging presentations at the 'Merchants, Marketing and Public Relations' conference of the Association of German-speaking Zoological Gardens (VdZ) in Cologne. The campaign was also promoted at the member meeting of the Zoological Society for the Conservation of Species and Populations (ZGAP) by Thomas Ziegler and Viktoria Michel (Görlitz Zoo and ZGAP, Germany). Constanze Mager (Royal Burgers' Zoo, the Netherlands) arranged lectures during the Dutch zoo volunteer gathering in November 2023. She presented the campaign to the Dutch zoo educators and has started training volunteers to be able to deliver a family activity focused on Asian rainforest animals at their zoo. Burgers' Zoo is also developing a concept for a children's musical featuring the campaign and Vietnamese animals as well as arranging early bird walks and Vietnam animal evening tours.

GETTING STARTED AT YOUR INSTITUTION

Vietnamazing has been highlighted in multiple tours and student classes in Cologne Zoo, which uses its terrarium area in the aquarium to get visitors up close to some of the flagship species. They also delivered campaign-related information, presentations and backstage tours during their 'Long Night at the Aquarium' in November 2023.

At Leipzig Zoo, the campaign was launched on 10 February 2024, which is the Vietnamese New Year, known as Tet. Children were encouraged through play to learn more about the endangered species part of the campaign. The zoo visitors are now welcomed by a Vietnamazing banner at the main entrance and the Vietnamese pheasant (*Lophura edwardsi*) has been chosen as its ambassador. The Vietnamazing movie (available on the campaign website) is shown continuously at the Entdeckerhaus Arche, the zoo's conservation centre.

More Vietnamazing events are planned in 2024 – for example, at Mulhouse Zoo (France) on 2 June, 7 June and 14 July – so stay tuned to hear more about that later!

Follow Vietnamazing on:
Facebook: @vietnamazing.eaza
Instagram: @vietnamazing.eaza
YouTube: @vietnamazing_eaza

SPREADING OUR MESSAGE FURTHER

The campaign was also introduced at the Saigon Zoo's Symposium (Vietnam) on their 160th anniversary. It nicely connects our efforts to those of our zoo colleagues in Vietnam. Articles and news are also shared with the World Association of Zoos and Aquariums (WAZA) and the Reverse the Red movement to reach even more of our community.

By sending articles not just to magazines and journals, but also to newspapers, we can speak directly to conservationists outside the zoo and aquarium community. For example, an article about Vietnamazing was included in the December 2023 edition of the *Amphibian Ark Newsletter*, and the IUCN's Freshwater Fish Specialist Group is considering publishing one in their newsletter as well. More locally and nationally, articles have been submitted to the German Society for Herpetology and Terrarium Science, with a focus on the campaign's reptilian and amphibian flagship species.

By publishing press releases and giving radio interviews, Cologne Zoo has been able to raise awareness not only of the campaign, but also of the conservation work of zoos and aquariums at large. In addition, in March 2024, a beautiful film called 'Vietnam's Secret North' premiered at Cologne Zoo and was later shown on the European culture TV channel ARTE. The film is a co-production by Skyland Productions, Catkin Media and Flying Pangolin Film with the Austrian Broadcasting Corporation (ORF), in cooperation with ARTE, DocLights/NDR Naturfilm and ORF Enterprise.

KEEPING UP WITH THE LATEST NEWS

Another way of grabbing the attention of your visitors while fundraising is now possible thanks to the Vietnamazing webshop (https://shop-vietnamazing.myspreadshop.net) which is now open! Your institution can order campaign merchandise such as t-shirts and caps (and more to come) for your staff and your shops. If you have already joined the campaign a 25% discount code is waiting for you in the members' area of the Vietnamazing website.

As of last month, more information on the ninth flagship species – the Northern white-cheeked gibbon (*Nomascus leucogenys*) – has been added to the campaign website. To support the long-term survival of these gibbons, the insurance population in human care needs to be strengthened both in Europe and Southeast Asia. The campaign will aim to support an increased cooperation between *ex situ* institutions and improve welfare conditions where it is needed.

Over the next couple of months, campaign partners will be introduced in more detail, and social media postings will focus on storytelling through authentic postings on *in situ* and *ex situ* projects. There will, of course, be regular updates about events and promotions on Vietnamazing, as well as continued calls to participate in the campaign and to be part of it by organising events, showcasing posters, starting educational work or fundraising.

Have you not joined the campaign yet? Be part of it!

FURTHER READING

Ziegler, T., *et al.* (2023). *Amphibian focus in the 'Vietnamazing' EAZA Conservation Campaign, 2024–2025*. Amphibian Ark Newsletter, 64: 7–9

Raising standards together

CREATING EAZA'S BEST PRACTICE GUIDELINES IS A COLLABORATIVE TASK THAT BENEFITS THE WHOLE SPECIES CONSERVATION COMMUNITY

Merel Zimmermann and David Aparici Plaza, Animal Programmes and Conservation Coordinators, EAZA Executive Office with the mentioned TAGs and Committee members

The EAZA Best Practice Guidelines (BPGs) represent a significant step forward in ensuring the wellbeing of animals. These documents provide valuable direction not only for zoos and aquariums, but also for other professionals in animal care, guiding them towards the highest standards of animal management, welfare, conservation and education. With 65 comprehensive BPGs already published (and more in the pipeline), along with eight additional supplements, appendices and translated versions, EAZA sets a precedent for species-specific care. And all of it is open access on the Documents section of our website.

These BPGs cover everything from diet and habitat to socialisation and health to ensure that each species receives the attention it deserves. They also contribute to a solid framework for breeding, research and conservation projects. Furthermore, they assist in institutional species planning by guiding Members towards suitable species to include and providing a sound overview and understanding of the resources required.

FROM THE SONGBIRD TAG

By David Jeggo, TAG Chair, Cologne Zoo (Germany), and TAG Vice Chairs Harriet Whitford, Jersey Zoo (UK), and Jessica Borer, Basel Zoo (Switzerland)

The Songbird TAG has published five BPGs, and plans to do so for all 22 EEP species. Several are under development – such as for Pittas covering all Pitta taxa. Combining BPGs between EEPs for species with similar husbandry requirements is something the TAG is aiming to do more often. Pittas have virtually disappeared from EAZA institutions, and their programme was discontinued. The BPGs therefore record the knowledge and experiences of maintaining these birds to date. With the husbandry techniques learnt and recorded, given sufficient founders, a population of a pitta species could in the future be maintained in EAZA institutions, and mistakes of the past avoided. Importantly, while pointing out the challenges, they provide a guideline to any potential *in situ* conservation programme for a threatened pitta: for example the Critically Endangered Gurney's pitta (*Hydronis gurneyi*).

The BPGs can cover EEP species not held within EAZA or held in extremely low numbers. Much experience has, however, been gained from in-country breeding centres and this vital knowledge has been captured. Conversely, where the experience has come from institutions in Europe, such valuable information has the potential to be applied to conservation breeding programmes in-country. The latter is a big driver for the compilation of the BPGs. Ideally, they should therefore take account of climatic and other regional variations.

TAG TIPS

- To assist with the production of the BPGs in an efficient manner, a Vice Chair has taken on the role of coordinating the production of BPGs, liaising with the compilers and helping with the editing.
- To increase usage of the BPGs by non-native English speakers, a start has been made on translating them, and so far there are versions in Bahasa and German.

FROM THE AMPHIBIAN TAG

By Ben Tapley, TAG Vice Chair, Chester Zoo (UK)

The eight published Amphibian BPGs are extremely varied, as some tackle a single species and others cover several species together. The latter approach can be quite challenging; while many areas of husbandry may overlap, there are always species-specific considerations. Some BPGs for amphibians must incorporate different 'levels' of management: for example, for mountain chicken frogs (*Leptodactylus fallax*) guidance is provided for management in biosecure and non-biosecure facilities.

While compiling BPGs, we have made use of the incredible EAZA network. Obviously we collaborated with other EAZA holders, but also with the private sector, academic sector and conservation biologists from range states. BPGs for the Sardinian brook salamander (*Euproctus platycephalus*) and typhlonectid caecilians would not have been possible without the contribution of the private sector. For the latter, we posted husbandry questionnaires on specialist forums. However, husbandry practices varied hugely, both within the zoo and aquarium community and between private breeders. Deciding how to present in the BPGs practices that are not particularly evidence-based required a lot of careful consideration.

Several laboratories have adopted the EAZA BPGs for amphibian husbandry and we suspect that the BPGs are widely referred to by those working in the private sector.

TAG TIPS

- Provide adequate supervision when involving students or interns in the development of your BPGs to make sure they are up to the standard required.
- The collaborative nature of BPGs sometimes create a huge amount of editing work. To save time, we would advise you to stick to British-English spelling and decide beforehand which tense to write in.

FROM THE CALLITRICHID TAG

By Bryan Carroll, TAG Vice Chair, Bristol Zoo Project (UK)

Our first edition of the EAZA BPGs, entitled 'EAZA Husbandry Guidelines for the Callitrichidae', was published in August 2002 after a gestation period of about 18 months. Since then, there have been regular

additions and updates, the most recent being published in 2022. The revision process reflects the changes in our knowledge over the 20 years related to husbandry and care in zoos, taxonomy and our understanding of the species' biology in the wild. The main challenge, particularly for the first edition, was the size and complexity of the document that we needed to produce. Fortunately, we had many volunteers to take on a section of the work or to undertake peer review. The TAG members are its greatest strength!

The impetus to produce the BPGs was a desire to improve callitrichid husbandry among the EAZA community. We were surprised that some aspects of their biology and care were not as widely understood and appreciated as we assumed. We wanted to provide a toolbox for the care of these species in a single document covering more than 60 taxa of callitrichids, so that we did not have to refer to multiple sources when dealing with issues that zoos encountered.

Despite some obvious differences between species, the fundamentals of their biology and care are similar (enclosure requirements, social groups, reproductive strategies, diets). However, one size does not fit all the Callitrichidae. For instance, *Callimico* has a single infant while the others typically have twins; consequently, their infant-rearing strategy is slightly different. We also had to be careful to point out dietary differences, such as provision of plant gum being more important in marmosets than in tamarins. We have undoubtedly seen improvements in husbandry and care because of these BPGs.

TAG TIPS

- To address very species-specific differences not captured in the combined BPGs, the TAG produced a separate guidelines document for the lion tamarins, which is sent to potential new holders, and which points out issues such as their more fragile social structure as groups get larger.
- The BPG is a living document that must be updated regularly as our knowledge of husbandry and social management improves, and so that we can respond to the demands of zoos, such as changing exhibition trends. Make sure the format of your document allows for easy updating and effective search functions.

REVIEW AND PUBLICATION

By Friederike von Houwald and Brian Zimmerman, EEP Committee members, Bern Zoo (Switzerland) and Bristol Zoo Project (UK) respectively

Once the relevant Species Committees and the TAG have agreed on the final product, a subgroup of the EEP Committee reviews the content with support from the EAZA Executive Office. This review ensures that the BPGs are consistent and follow a similar structure as much as possible. It also allows for highlighting opportunities for improvement before making them publicly available on the EAZA website. Once approved, all BPGs are assigned a DOI (Digital Object Identifier), a unique number used to identify and reference the document and keep track of it. It also allows the document to be accessed reliably, even if the link itself changes.

BPG FEEDBACK

Two members of the current review subgroup shared their experience with reviewing:

'Reading the BPGs is a great joy as I learn so much every time we receive a request for review. Having now read quite a few guidelines, I am thrilled by the amount of knowledge within the EAZA community, from primates to beetles, from fish to okapis. I wish that more people would share their knowledge by writing BPGs in their field of expertise, to help others learn and improve but also to showcase the diversity of knowledge EAZA Members have.'

'It is a one-stop shop for keeping the species and can be relied on when planning a new enclosure or exhibit. BPGs act as a reference point and source of substantiated information when having to defend requirements to architects, CEOs, or finance people.'

In the future, the EEP Committee would like to increase the evidence-based content while also exploring how it can improve the development process, the format and the approval process, with the ultimate aim of increasing the speed and number of BPGs being published. Stay tuned for the developments!

Return to Socorro Island

A WIDE-RANGING MULTI-AGENCY EFFORT TO SAVE THE SOCORRO DOVE MEANS THAT IT MAY AT LAST BE ABLE TO LIVE AND THRIVE ON ITS HOME ISLAND

Stefan Stadler, Vice Director and Head of Scientific Department, Frankfurt Zoo

SOCORRO DOVE WITH FLEDGLING © BASEL ZOO

In 1972, the Socorro dove (*Zenaida graysoni*) was observed for the last time on its Mexican home island, Isla Socorro, in the Eastern Pacific. In 1994, the species was declared Extinct in the Wild by the IUCN Red List. In light of this information, conservation activities both *ex situ* and *in situ* were started in the late 1980s, and in 1995 EAZA approved a formal EEP, run by Frankfurt Zoo (Germany). From a humble start with a handful of private breeders and two German zoos (Cologne and Frankfurt), the EEP, over the years, developed into a solid community of about three dozen zoos in over 13 European countries to make sure the species would not go extinct.

At the same time, the late Luis Baptista, Professor at the California Academy of Sciences (USA), started the Island Endemics Foundation to promote activities to return the Socorro dove to its home island. The factors leading to the extinction and the logistics of sending the doves to the island thus needed to be addressed. *In situ* (USA and Mexico) and *ex situ* (Europe) conservationists joined forces and founded what was subsequently known as the Socorro Dove Project (SDP), which in 2004 built a breeding station on Socorro Island to receive, breed and prepare for release the doves coming from the EEP (Stadler et al., 2005).

Why Socorro doves from Europe? At the time, breeders in the US had hybridised Socorro doves with closely related mourning doves (*Zenaida macroura*). By contrast, European birds were almost identical with pure Socorro doves of known origin according to an early study of the (molecular) genetics of birds from both the US and Europe. Unfortunately, the avian influenza epidemic in Europe in 2006 stopped all plans of sending Socorro doves back to Mexico. Instead, a sister population on the American continent was established. With tremendous help from the Albuquerque Biological Park (New Mexico), a dozen EEP Socorro doves from Edinburgh and Paignton Zoos (UK) reached the US and were subsequently bred to over 60 individuals. In 2011, the SDP signed a Statement of Cooperation with the Africam Safari Zoo (Mexico), leading to a major milestone in the project: the return of the species to its home country after 40 years of absence.

In the following years, *in situ* efforts were undertaken by various stakeholders to reverse the negative conservation impacts on Socorro Island. Habitat degradation caused mainly by the effects of introduced domestic sheep became an ever-increasing issue, leading to massive erosion in the southern half of the island. An eradication campaign was successfully implemented until 2012. Habitat recovery, however, needed more than the absence of sheep, and, as leader of the *in situ* activities of the SDP, Juan Martínez of the Institute of Ecology (INECOL, Mexico) established a reforestation programme with four endemic tree species essential for the requirements of the Socorro dove (and many other endemic birds). Growing these trees from seeds collected on the island was only possible thanks to INECOL expertise in the botany and ecology departments. Eventually, several thousand trees were planted on Socorro Island in areas previously degraded by sheep activities.

The presence of feral cats – originating from the beginning of human settlement in 1957 – on the island is another issue that needs tackling for SDP to succeed. In 2011, a Mexican NGO was employed by the local authorities to eradicate feral cats from the island. Despite reported decreases in cat abundance in certain areas, the plan to complete the campaign in 2017 has, so far, failed.

On the *ex situ* part of the SDP, the EEP has seen a number of major steps forward. Since its official upgrade to the new-style EEP in March 2023, the Long-term Management Plan (LTMP) for the species was published, identifying its direct conservation

SOCORRO DOVE BREEDING STATION BUILT BY ISLAND ENDEMICS AND THE MEXICAN NAVY ON SOCORRO ISLAND © SDP / INECOL

CARING FOR PLANTED ENDEMIC TREES IN EROSION AREA DUE TO HABITAT DEGRADATION CAUSED BY DOMESTIC SHEEP ON SOCORRO ISLAND © SDP / INECOL

SOCORRO DOVE PROJECT TEAM MEMBERS WITH REPRESENTATIVES OF THE NATIONAL COMMISSION FOR PROTECTED AREAS © SDP / INECOL

role as an insurance population ('Ark/Insurance') as the highest priority. Major recommendations from the LTMP include an increase in population size; the establishment of breeding centres ('Species Champions'); the collection of samples for various conservation-related research purposes; and an analysis of mortality data by the newly appointed veterinary adviser, supported by the Zoological Society of London's (ZSL) Institute of Zoology (UK).

In March 2023, the core members of the SDP also met in Mexico to discuss progress with regard to the final goal of reintroducing the species to its home island. ZSL scientists and experts from the IUCN Conservation Translocation Specialist Group (CTSG) had recently published a ground-breaking article in *Science* (Smith et al., 2023) on the fate of the Extinct in the Wild species. One of the co-authors, Axel Moehrenschlager, Chair of the IUCN CTSG, and Gary Ward, Curator of Birds at ZSL London Zoo, joined the SDP team to provide expertise and support to future activities. The meeting started with a highly instructive visit to Africam Safari's breeding aviaries and an introduction to their new husbandry practice. Socorro doves now enjoy the use of very large aviaries of some 200 m^2 (5 x 40 m), which are used to promote pair formation in young birds, and physical exercise and training of birds before the return to the island.

The team also went to Mexico City to promote the SDP to Mexican citizens via several nationwide TV events; and to discuss with the local authorities the status and progress of the project. As the Revillagigedo archipelago is not only a UNESCO Biosphere Reserve and a National Park, but also an area administered by the Mexican navy, regular meetings with the latter are an essential part of the work coordination. The Armada de México has been extremely supportive over the years, and even provided one of their construction units to build the breeding station on Socorro back in 2004. Regarding the conservation management on the islands, two sections of the Ministry for the Environment are responsible for evaluating project proposals and, eventually, for issuing the necessary permits. After years of discussions, the draft of an important document called PACE (Action Programme for Species Conservation) was finalised, which lifts the Socorro dove officially as a priority species into the ranks of high-profile Mexican conservation species such as, for example, the vaquita (*Phocoena sinus*), the Mexican wolf (*Canis lupus baileyi*) or the California condor (*Gymnogyps californianus*).

To build on the impetus generated by these meetings, the SDP team now intends to organise an intensive workshop at Africam Safari with all stakeholders (governmental and NGO, national and international, *ex situ* and *in situ*) including additional external experts. The focus is now on finding a suitable date and financial support to get all these people together.

The Socorro Dove Project has been on the scene for several decades now, and the hopes are still high to eventually downlist the species from the Extinct in the Wild category. However, these activities are intended to have a positive effect on the general ecology of the island and, thus, on many other endemic species. The SDP is, therefore, an outstanding example of IUCN's One Plan Approach combining *ex situ* and *in situ* conservation activities. With the continuing support of our longstanding partners now strengthened by two global leaders in conservation (IUCN and ZSL), the Socorro Dove Project knows that the species will finally return home.

REFERENCES

• Smith, D. et al. (2023). *Extinct in the wild: the precarious state of Earth's most threatened group of species*. Science 379: eadd2889

• Stadler, S. G., Horblit, H. and Martinez-Gomez, J. (2005). *Good news from the reintroduction project for the Socorro dove*. EAZA News 51

A future for felids


PALLAS CAT (*OTOCOLOBUS MANUL*) © ALEX SLIWA

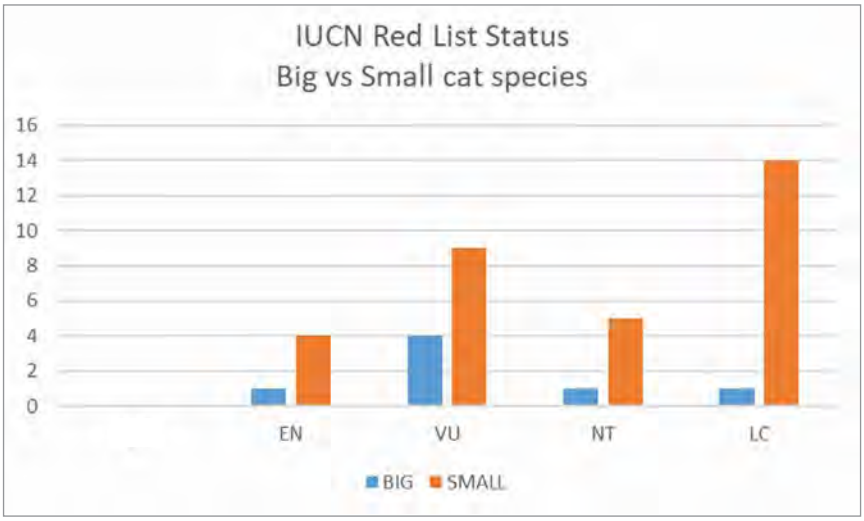
THE NEW FELID TAG RCP OFFERS A PLAN FOR SUSTAINABLE POPULATION MANAGEMENT FOR FELIDS LARGE AND SMALL

Alex Sliwa, Felid TAG Chair, Cologne Zoo; David Barclay, Felid TAG Co-Chair, RZSS Highland Wildlife Park; Andre Stadler, Felid TAG Co-Chair, Alpenzoo Innsbruck

In January 2022, the EAZA Felid TAG RCP workshop was held online, as an updated RCP was needed to support conservation efforts for felids. After a lot of planning by the EAZA Executive Office and the Felid TAG Chairs, the population management needs of the Felidae were reviewed. With 41 species and 80 subspecies in the family, it was not possible to review all subspecies in fine detail. We decided to assess a selection of priority species including cheetahs, lions, leopards, tigers, wildcats and lynxes at subspecies level while the other species were assessed at the species level.

The meeting was also an opportunity to revisit and reiterate the overarching vision and aims of the Felid TAG. While the focus remains on maintaining healthy, genetically viable, self-sustaining populations in human care, it is our hope that individual cats in these populations can also act as ambassadors, drawing attention to the plight of the taxa in the wild. In doing so, Members have the potential to raise funds for conservation support and to highlight the valuable role of *ex situ* populations in species recovery, best practice husbandry and *in situ* conservation action. The TAG itself aims to work for, support and promote felid conservation efforts while adopting the One Plan Approach to ensure that an effective integration between *ex* and *in situ* conservation actions continues. Members are also strongly encouraged to take advantage of the high-profile, charismatic and iconic status of felid species and use them to drive educational programmes that highlight the threats to felid populations and their habitats globally. Efforts should also be made to shine more light on the smaller cat species, which are less often studied, resulting in significant gaps in knowledge and conservation support.

With the aims of the TAG documented, the workshop discussions turned to the important task of reviewing the status of all individual population management programmes. Prior to the workshop, the Felid TAG last updated the RCP in 2018 leading to the management of 32 programmes: 22 EEPs, one European Studbook (ESB) and nine Monitoring Programmes. The management level for these programmes followed previous EAZA guidance and the conservation needs for each species. However, a lot has changed in the last five years both *ex situ* and *in situ*. As a result, the new RCP approach, giving a more detailed assessment of each programme, was more than welcome.



During the workshop, 59 species sheets were presented and reviewed along with each current programme. Common themes and challenges that have the potential to impact multiple programmes were discussed in detail, including space issues, husbandry challenges, holding/representation of generic or recessive individuals (e.g. white tigers), development of more species-specific small cat exhibits and techniques to encourage the phase-out of non-recommended species. After a summary from the IUCN Cat Specialist Group Chairs highlighting 13 species and subspecies of high priority for reintroduction and 28 species and subspecies of high priority for conservation breeding, the reintroduction potential of various species was also discussed; for example, for wildcat, Carpathian lynx (*Lynx lynx carpathicus*), Persian leopard (*Panthera pardus tulliana*) and the long-standing Iberian lynx (*Lynx pardinus*) project.

The outcome of this fruitful workshop was a new programme structure with 28 recommended EEPs, including one 'combined' EEP and two EEPs with specific phase-out objectives. Of the 40 Felidae wild cat species, 24 are listed on the IUCN Red List as Near Threatened or worse, highlighting the importance of *ex situ* populations and their role in conservation support.

While the RCP is an incredible tool for sustainable population management, it can only be as good as those using it.

The TAG strongly encourages all felid holders to follow the RCP guidance, shift towards threatened species management, move out of 'easy', 'cheap' and non-recommended species and support as many felid conservation and research projects *in situ* as possible. Many great things were achieved for felids in the last decade, and with your help, there is scope to do more.

WILDCAT FITTED WITH GPS COLLAR BEFORE ITS RELEASE
© SAVING WILDCATS (RZSS)

Highland rescue

EXPLORING THE ROLE OF *EX SITU* MANAGEMENT IN THE RESTORATION OF THE WILDCAT TO SCOTLAND

David Barclay, Felid TAG Co-Chair and Estelle Morgan, Senior Animal Keeper Saving Wildcats, both RZSS Highland Wildlife Park

A significant milestone for wildcat (*Felis silvestris silvestris*) conservation efforts was reached in 2023 when the UK's first individuals to be bred in human care were released in the Highlands of Scotland. Nineteen wildcats were released into the Cairngorms National Park through Saving Wildcats, a European partnership project led by the Royal Zoological Society of Scotland (RZSS) and based at RZSS Highland Wildlife Park (UK). As of April 2024, 10 months after the first releases were carried out, 18 of the 19 released wildcats are still considered to be alive. With a potential 95% survival rate, high site fidelity, two years of successful breeding and an extensive post-release monitoring programme, the results to date seem promising.

With the 'source' of wildcats for release coming from the UK's conservation breeding programme, it goes without saying that the successes to date would not have been achievable without a long-term commitment to effective population management and *ex situ* husbandry. This article provides an overview of the key *ex situ* actions implemented prior to the releases, and highlights the potential for current wildcat *ex situ* management and recovery to act as a model for other conservation projects supported by the EAZA community.

STARTING FROM SCRATCH

We should start by rewinding back to 2015, when RZSS officially took over the management of the UK breeding programme and Studbook for wildcats. With a breeding population of only 64 individuals, large gaps in the historical data set and questions over the genetic ancestry of the cats, a lot of work was needed. Working as a partner of the first national wildcat conservation project Scottish Wildcat Action (predecessor to Saving Wildcats), RZSS ensured that *ex situ* management was listed as a key project action. This set in motion a series of population management actions with the objective of improving the sustainability of the population and thus allowing it to act as a source for potential future recovery efforts.

Between 2015 and 2018, a lot was achieved (including improved Husbandry Guidelines and breeding success, an increase in holders and the addition of new founders), but two stand-out actions contributed significantly to improved population management: a hybrid assessment of the entire breeding population

DEDICATED WILDCAT BREEDING ENCLOSURES AT PROJECT PARTNER NORDENS ARK'S LUNDEN BREEDING CENTRE
© SAVING WILDCATS, RZSS

and a full molecular reconstruction of the pedigree. This meant that individuals with a high degree of hybridisation could be removed and only high-quality cats would breed. It also provided a clearer picture on the population statistics, allowing for more effective breeding recommendations. This resulted in a larger, more sustainable population (end of 2019, n=120) that could now contribute to conservation recovery as a source population

Simultaneously, field data collected during the Scottish Wildcat Action project showed that the status of the wild population was far more critical than first thought and in need of more drastic action, in the form of reintroductions. This critical shift was confirmed by an independent review from the IUCN Cat Specialist Group in 2019 (Breitenmoser et al., 2019).

Thankfully, the RZSS-led application to the EU LIFE programme for funding to deliver the first wildcat breeding-for-release project in the UK was approved in 2019. A key component of the project was to build a dedicated Conservation Breeding for Release Centre (CBRC) where wildcats could be bred and managed prior to release into the wild. Using experiences from other carnivore release projects – such as Iberian lynx (*Lynx pardinus*) and European mink (*Mustela lutreola*) – Saving Wildcats was able to complete the construction of the centre in 2021 in time for the project's first breeding season in January 2022.

To minimise the risk of human habituation, the CBRC was constructed in a remote, off-show area. Built to house 16 adult wildcats, paired in one of eight dedicated breeding enclosures, it was designed and furnished to optimise breeding efforts and to support the health management and behavioural development of kittens. In 2022 and 2023, the centre saw the arrival of six and five litters, totalling 22 and 14 kittens respectively.

At natural dispersal age (six to nine months old), the juveniles are transferred into one of 20 specifically designed pre-release enclosures, where they remain until they are released (at around one year old). These large and naturally complex enclosures have integrated the surrounding landscape of the Cairngorms, included dynamic climbing structures and varied denning options, all to provide opportunities to exercise choice and develop key behaviours. The pre-release enclosures are interconnectable, creating the opportunity to foster communication and socialisation through enclosure exchange. The entire centre also benefits from strict biosecurity measures that include a predator-proof perimeter fence, designated 'fire break' changing facilities and enclosure-specific foot dips.

DATA COLLECTION

One core aspect of breeding and managing wildcats for release is the effective collection of health and behavioural information, while not causing disturbance or influencing behaviour. The collection of such data has been achieved via a dedicated 72-camera CCTV monitoring system installed across both breeding and pre-release enclosures that is operated from a CCTV control room. In collaboration with a team of *ex situ* advisers, a pre-release checklist was developed, identifying the necessary behavioural release criteria that each wildcat must pass to be released. Through various behaviour sampling methodologies, and over several months, robust data is collated on the wildcats' responses to humans, general behavioural diversity and food acquisition. Data is also collected on activity patterns, enclosure use and abnormal behaviour to inform an adaptive management approach to maximise overall welfare. To date, all wildcats have passed the necessary behavioural release criteria. This affirms our approach to pre-release management of wildcats.

MEETING THE DIETARY CHALLENGE

Providing a nutritionally varied diet when commercially available feed types are limited and facilitating hunting opportunities when the provision of live prey is not legal in the UK are two challenges of preparing wildcats for release. Our formulated diet and its provision aim to overcome some feeding challenges by fostering other key behaviours associated with food acquisition and survival. Such behaviours include caching, scavenging and prey recognition. Over winter months, wildcats in Europe have been reported scavenging on deer carcasses, considering them a valuable resource (Ruiz-Villar et al., 2020 and Krofel et al., 2021). Deer carcasses were thus incorporated into the feeding routine, which provided observed opportunities for *ad hoc* feeding, carcass preparation (hair plucking) and caching (by covering in snow and vegetation). Lastly, to facilitate prey recognition, automatic feeding boxes that open and play the sound of prey at programmed times, were developed in collaboration with St Andrews University (UK). Although in its early stages of development and testing, this method of providing food aims to progress from feeding only during 'working hours' to offering food at randomised and more natural times.

Despite the many challenges of breeding-for-release projects, some successes are already visible for Saving Wildcats. There is however a long road ahead for wildcat conservation in Scotland and it is vital, if releases are to continue, that the population in human care remains a long-term insurance policy and that high standards of *ex situ* management continue.

REFERENCES

• Breitenmoser, U., Lanz, T. and Breitenmoser-Würsten, C. (2019). *Conservation of the wildcat* (Felis silvestris) *in Scotland: review of the conservation status and assessment of conservation activities*. www.nature.scot

• Ruiz-Villar, H., López-Bao, J. V. and Palomares, F. (2020). *A small cat saving food for later: caching behavior in the European wildcat* (Felis silvestris silvestris). European Journal of Wildlife Research, 6: 76

• Krofel, M., Južnič, D. and Allen, M. L. (2021). *Scavenging and carcass caching behavior by European wildcat* (Felis silvestris). Ecological Research, 36: 556–561

Enhancing collaboration

INSIGHTS FROM THE FIFTH JOINT TAG CHAIRS MEETING

Paula Cerdán, Head of Conservation and Animal Welfare, WAZA; David Field, WAZA Vice President and Committee for Population Management Chair, RZSS; Thalia Pelegrin, Conservation and Animal Welfare Intern, WAZA

In May, the fifth Joint Taxon Advisory Group (TAG) Chairs Meeting (JTCM) was hosted by Edinburgh Zoo (Scotland) home of the Royal Zoological Society of Scotland (RZSS). The meeting brought together zoo and aquarium colleagues from around the world, providing a platform to strengthen connections and discuss key topics, innovative ideas and new collaboration opportunities.

After two intense days of EAZA TAG meetings, WAZA's Committee for Population Management (CPM) mid-year meeting and a bagpipe lesson at the event icebreaker, a total of 126 passionate delegates from 26 different countries/regions participated in a variety of talks. The sessions ranged from integrated population management and RZSS's approach to combining *ex situ* and *in situ* conservation efforts in Scotland to WAZA's new ambitious 2027 Population Management Goal (27PMG) and the potential for zoos and aquariums to contribute to the Convention on Biological Diversity's Global Biodiversity Framework (GBF).

David Barclay and Helen Taylor (RZSS) opened the conference with an inspiring keynote on their current progress toward RZSS's ambitious goal to reverse the decline of at least 50 species by 2030. Case studies such as the charismatic wild cat (*Felis silvestris*) or the lesser-known pine hoverfly (*Blera fallax*) illustrated the effectiveness of combining effective population management with *in situ* efforts.

Paula Cerdán (WAZA) explained the premise of WAZA's new goal that aligns with their new vision to be a globally recognised and trusted leader in advancing conservation and animal welfare. The 27PMG will help to support regional capacity for professional and efficient population management, as well as the role of zoos and aquariums in the global conservation community. The session welcomed regional representatives to share their insights on what this would bring to their region as well as to the global zoo and aquarium community, and how their processes currently fit the six elements of the 27PMG.

Other sessions on the first day highlighted the importance of strengthening collaborations, and how we could make use of the global network to optimise our efforts and the way we work together. Within this, an update on the future changes to International Studbooks (ISB) and Global Species Management Plan (GSMP) frameworks was presented, with the new formats aiming to align more closely with global conservation structures such as the Kunming-Montreal GBF and the IUCN Ex situ Guidelines and supporting direct conservation efforts.

To wrap up the first day, the spotlight shifted to aquarium representatives on stage, who evidenced the key role of collaboration between zoos and aquariums, and the need for joint efforts to address shared concerns and explore different mutually beneficial opportunities to

BAGPIPING LESSON DURING THE ICEBREAKER © WAZA

common challenges, such as species sustainability and the ethical sourcing of animals.

The second day started with a look back in 2022, when the GBF was adopted at the fifteenth meeting of the Conference of Parties of the Convention on Biological Diversity (CBD CoP15). Escaping the shadows of the failed Aichi Targets, a session held during JTCM encouraged delegates to explore how to move from *Agreement to Action* and invited them to actively contribute to the parties' efforts to reverse human-induced declines in biodiversity and help to set the world on a path towards 'living in harmony with nature'. As James Biggs, from the Zoo and Aquarium Association Australasia (ZAA) said during his opening talk, 'Biodiversity Conservation is a shared

REPRESENTATIVES FROM THE DIFFERENT REGIONAL ZOO ASSOCIATIONS DISCUSSING THE 27PMG © WAZA

WAZA COMMITTEE FOR POPULATION MANAGEMENT © WAZA

THE WAZA CPM MID-YEAR MEETING

Ahead of the JTCM, the WAZA Committee for Population Management (CPM) held its mid-year meeting. Chaired by David Field from the RZSS, with Candice Dorsey (AZA) and James Biggs (ZAA) as Vice Chairs, the committee reviewed progress towards its workplan, which includes ambitious tasks such as the review of the International Studbook and Global Species Management Plan frameworks. The other main task of the CPM is the development and implementation of the WAZA 27PMG, a goal that will see WAZA-member regional associations develop population management frameworks that include the elements defined for professional and effective regional population management. The committee's work on the 27PMG will be launched in November 2024 at the 79th WAZA Annual Conference in Sydney, hosted by Taronga Zoo (Australia).

responsibility'. Kira Mileham (IUCN SSC) concurred in her presentation, mentioning that 'we know how to save species, we need to do more of it, and do it together'. Fiona Sach (Zoological Society of London, UK) then presented on the Extinct in the Wild Alliance and highlighted the unique role that zoos and aquariums have as custodians of 39 animal species currently listed as Extinct in the Wild on the IUCN Red List. William van Lint (EAZA Executive Office, the Netherlands) introduced EAZA's new animal acquisition and disposition policy and how it links with the CBD framework.

A session on euthanasia for population management purposes brought together Ben Supple (RZSS), Gareth Siddorn (Chester Zoo, UK), Mads Frost Bertelsen (Copenhagen Zoo, Denmark) and David Powell (St Louis Zoo, US) to share their insights on the ethical, scientific, cultural and communication considerations surrounding this practice. An engaging panel and Q&A followed between the speakers and the attendees. While population management euthanasia is a complex topic with significant regional variation and diverse perspectives, it is essential for us as part of a global community to understand these differences, and to work collectively – both within and between our organisations – towards shared goals and effective communication of this sensitive topic.

The JTCM concluded with a session on the importance of mate choice for effective *ex situ* population management and showcased several case studies from different regions and taxa. This included a discussion on the role zoos and aquariums must play to safeguard the future of species, the use of biobanking against extinction and how TAGs can collaborate to bolster the impact of biotechnology.

Ten years after the first JTCM gathered in Alphen aan den Rijn (the Netherlands), these bi-annual meetings continue to provide opportunities for different regions to share and learn from each other, as well as reinforce connections and explore different ways of working together to strengthen the global zoo and aquarium community.

We thank the Edinburgh Zoo team for another brilliant edition attesting to the collaborative spirit driving advancements in zoo and aquarium conservation and furthering the WAZA strategic objectives of transformative leadership and species impact. With colleagues from around the world gathering under the auspices of the RZSS, the event served as a platform to forge new connections, look into the future by positioning our work in the global conservation community, and chart the course for stronger inter-regional collaboration to optimise zoo and aquarium conservation efforts.

KIRA MILEHAM AT THE JTCM © WAZA

Are you using your zoo doo?

WOODLAND PARK ZOO, THE FIRST AMERICAN ZOO TO START COMPOSTING ANIMAL WASTE, OFFERS ADVICE ON HOW TO INCREASE YOUR SUSTAINABILITY AND REDUCE YOUR COSTS

Liv Johansson, Sustainable Waste Management Specialist, Woodland Park Zoo

In the past year, more than 1,500 people have come to Woodland Park Zoo (USA) with no intention of seeing animals. These visitors were paying in advance and driving from all over the state for something entirely different: poop. For nearly 40 years, Woodland Park Zoo has been creating compost from the manure and bedding produced by its animals and selling it to the community under the trademarked name, Zoo Doo.

To be clear, no one is taking home buckets of raw manure. At these Fecal Fest sales, as they're known, avid gardeners and small farmers are shovelling a fully mature compost, produced to meet the highest safety standards in the industry. It's an intense, but deeply rewarding effort for everyone involved. The process starts with daily collections of manures and beddings at animal units. We use manures and beddings from all our animals including primates, birds and, more recently, carnivores. An exception is made for animals in medical quarantine and those that do not use a compostable bedding.

Bedding and manure is collected using two devices: a skidsteer for larger piles (think rhinos or giraffes) and a set of curbside carts paired with a truck outfitted with an easy dump bed and cart actuator. Once collected, these materials are brought to the Zoo Doo yard where the composting process gets underway.

To make compost, it is essential to facilitate the decomposition of organic materials under aerobic conditions. Oxygen is arguably the most important element in the composting process. Without adequate oxygen, the anaerobic bacteria proliferate, generating highly objectionable odours and an unusable end-product. The aerobes, by contrast, break down the organic inputs, neutralise pathogens, and mineralise the plant-essential nutrients.

To ensure that our piles are receiving enough oxygen, we use a system of aerated static piles (ASP). These piles are formed on top of a concrete pad embedded with air and drainage ducts that force air in and drain excess moisture out. This ASP system was designed by Engineered Compost Systems and installed in 2019, made possible by a $250,000 donation from the Sunderland Foundation.

Thanks to this ASP system, we produce close to 1,200 tons of compost each year more quickly, with improved overall quality. The microbial communities in the piles release incredible amounts of heat, elevating pile temperatures to over 55°C for 21–30 days, eliminating pathogenic bacteria and viruses, weed seeds and pharmaceutical residues.

After curing for another 60–90 days, Zoo Doo is ready for action! It is used by our horticultural team on landscapes and in habitats throughout the zoo, sold to the public and donated to school gardens as well as to dozens of local organisations who grow pollinator gardens and produce for food banks.

The whole process is a team effort with lots of departmental overlap! Keepers make sure that the bedding is ready to go in the designated bins for the programme. The maintenance staff pick up waste from animal

ZOO DOO CONVERTS ANIMAL BEDDING AND MANURE INTO HIGH-QUALITY COMPOST

PINT POTS OF ZOO DOO

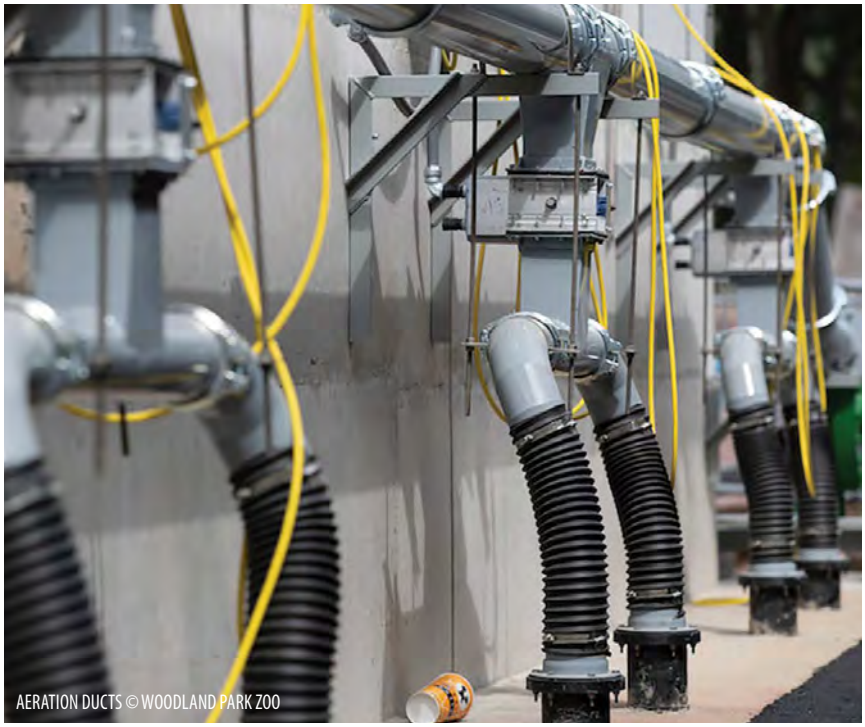
management and rotate the compost between bunkers. The sustainability team is responsible for monitoring, processing and distributing the Zoo Doo.

In addition to facilitating beautiful community connections and reducing the ecological impact of our operations, Zoo Doo helps eliminate financial waste, too. We avoid paying for off-site composting, estimated to be $250,000 a year, generate revenue through the sale of our compost, and minimise the need to buy soil amendments. Ultimately, composting is a gesture of institutional responsibility, a rewarding professional pursuit for staff and remarkable proof of the earth's ability to regenerate and nourish itself.


FULL TIP BUNKER

Five tips to do doo without being in deep doo-doo:

- Do your internal research! For a successful programme, having enough poo coming from megafauna makes a huge difference, especially if motivation to do it is revenue-based.
- **Look into funding opportunities (grants, donors) focused in sustainability to help you fund your programme.**
- Pay attention to rules and regulations around composting as they can vary between regions. Make sure your planned compost operation complies with the local regulations and acquire any certifications/permits you may need as an operator.
- **Choose a convenient site at your facility. The composting site should be close to power and water, and have drainage to allow for aeration as you continue to improve and upgrade your composting systems.**
- Collaborate with your community and educational partners to share how you do doo! This will help create a buzz and promote your programme as you are launching it and getting started.


AERATION DUCTS © WOODLAND PARK ZOO

Visit www.zoo.org/zoodoo to know more about our composting process and the Zoo Doo programme.

The peatland challenge

FUTURE-PROOFING FLANDERS' LAST REMAINING PEATLANDS IS A CRUCIAL PART OF PROTECTING BIODIVERSITY AND FIGHTING CLIMATE CHANGE

Zjef Pereboom, EAZA Research Committee Chair, Antwerp Zoo Centre for Research and Conservation

Antwerp Zoo (Belgium) recently celebrated the 70th anniversary of 'De Zegge', marking its status as the first nature reserve in Flanders and one of Belgium's last remaining lowland marsh habitats. Covering 120 hectares, this Natura 2000 reserve has been owned and managed by Antwerp Zoo since 1952, featuring a mosaic of wetland biotopes home to particular fauna and flora which have adapted to this nutrient-poor ecosystem. However, with the increasing impact of human-induced climate change and ecosystem degradation, the future of this exceptional piece of nature, particularly its ecologically valuable peatlands, is in jeopardy. To ensure its enduring existence, the zoo, along with various key stakeholders, has launched a range of new conservation measures backed by a comprehensive research programme.

CLIMATE CHANGE PLACES PEAT IN THE SPOTLIGHT

For a few hundred years, Northern Europe has experienced an increasing trend of excavating and burning peat as a primary source of energy, leading to the loss and deterioration of peatlands. This degradation has worsened over time as peatlands were extensively drained for conversion into agricultural land and for providing peat for gardening purposes.

Apart from its importance for the many unique plant and animal species associated with peatlands, peat serves as a significant carbon storage facility and it operates as a natural sponge, absorbing excess water during wet periods and slowly releasing it during dry spells. As such, peatlands serve as vital buffers against both droughts and floods, and they provide a potential solution for mitigating the effects of global warming.

Regrettably, the anniversary of De Zegge also underscored the significant challenges we are currently facing in upholding optimal conditions for peatlands under various scenarios of climate change and land use. The reserve is currently suffering greatly from desiccation, primarily due to the increasingly dry summers and continuous drainage of the adjacent agricultural area. This has led to the progressive drying out of some of the delicate peat soils in the reserve, resulting in significant adverse effects. Under the influence of oxygen, for example, stored organic matter in the peat is broken down, causing irreversible damage and degradation to the peat. The organic carbon that has been safely stored in the peat soil for thousands of years is now rapidly released in large amounts into the atmosphere as carbon dioxide, along with other greenhouse gases such as methane. Currently, an estimated 6% of the global carbon dioxide emissions comes from drained peatlands alone, which in turn amplifies global warming. In addition, with the further loss of peatlands, the unique fauna and flora associated with peatlands, including many species that are protected in Flanders, such as the Eurasian bittern (*Botaurus stellaris*), the brown harrier (*Circus hudsonius*), the spotted crake (*Porzana porzana*), the grass snake (*Natrix natrix*) and the Eurasian water shrew (*Neomys fodiens*), are at risk of disappearing.

SCIENCE FOR PEATLAND CONSERVATION

To prevent the further degradation of De Zegge, several immediate conservation actions were planned in close collaboration with

DE ZEGGE NATURE RESERVE © KMDA JONAS VERHULST

THE ADMIRE CHAMBER IS EQUIPPED WITH SENSORS TAKING CONSTANT MEASUREMENTS OF THE TEMPERATURE, THE HUMIDITY AND THE LIGHT INTENSITY © KMDA JONAS VERHULST

neighbouring landowners, NGOs, nature conservation organisations, the Flemish government and scientists. We are currently doing everything we can to preserve the existing marshland by trying to manage the eco-hydrology to the best of our abilities, and to restore peat. This includes measures such as rewetting the affected areas in the reserve and active conservation management.

In order to facilitate the development of a science-based, long-term management plan for De Zegge and to monitor the implementation of conservation measures and their effectiveness, the Centre for Research and Conservation (the research institute at Antwerp Zoo) has launched a new research programme within De Zegge in 2023. As part of this initiative, the zoo appointed a full-time research coordinator for Habitat Conservation and Restoration. Our new colleague Willem-Jan Emsens organises and coordinates fundamental and applied research projects focusing on peatland conservation and restoration, and monitors the effects of conservation efforts in De Zegge and similar peatland reserves.

INTERNATIONAL COLLABORATION

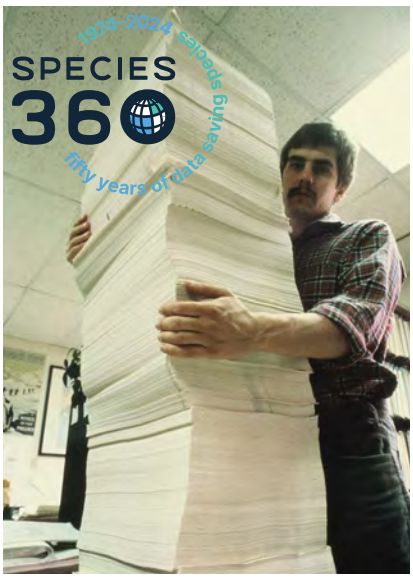
We are not entirely alone in this endeavour. De Zegge is part of the EU-funded Interreg project ADMIRE, featuring a network of peatland reserves in the Netherlands and Flanders. In ADMIRE, Antwerp Zoo collaborates with other nature conservation organisations, universities and governments across the Dutch-Belgian border on conserving, restoring and managing peatlands. A key element of this collaboration involves conducting extensive research to thoroughly examine the climate effects of peat degradation and its contribution to greenhouse gas emissions.

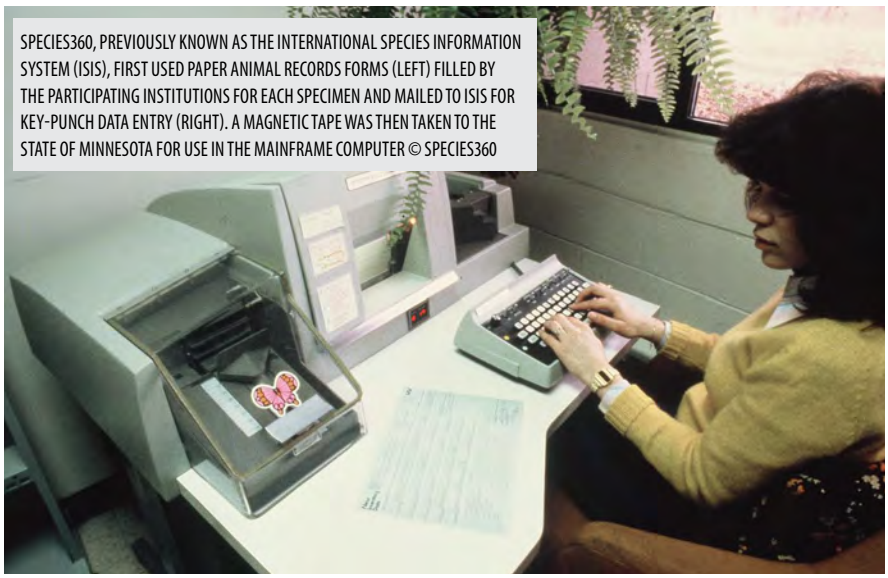
In functional peat, carbon dioxide is continuously absorbed into the soil where it is stored in the form of organic carbon. Within De Zegge peat layers can still be found up to three metres deep, storing significant reserves of carbon. A key question is whether De Zegge in its entirety is still absorbing more carbon than it emits or whether carbon is being released due to accelerated peat decomposition. One of our key objectives is to achieve an overall net balance of carbon by the end of the year. To this end, we have started monitoring the condition of the peat in collaboration with Antwerp University and Radboud University Nijmegen (the Netherlands), by measuring the emission of greenhouse gases at 20 different locations throughout De Zegge. By repeatedly taking these measurements for the duration of an entire year, in all seasons, and linking them to meteorological data, we will be able to see whether greenhouse gases are still in equilibrium in this area.

Apart from the applied significance, these studies are also hugely relevant for policy makers. To mitigate the effects of global warming, the demand for restoring wetland areas is growing, and there is an increasing call from 'green' politicians to work more towards the inundation of desiccated peatlands. Given that, rewetting of extensively drained peatlands promises – theoretically – significant benefits for soil carbon balance and climate change mitigation, it is of crucial importance to precisely quantify the changes in greenhouse gas emissions and the potential impact on our climate. After all, contributing to climate neutrality provides one of the main incentives for peatland rehydration, in addition to the anticipated restoration of the typical peatland biodiversity.

The anniversary not only celebrates 70 years of commitment by Antwerp Zoo to the conservation of De Zegge, but it also signifies a major change in our approach. We are gradually moving from managing the reserve based on best practice and gut feeling to adopting a more scientific approach and integrating systematic research and innovative methodology to secure the long-term persistence of this unique piece of nature. Given the challenges posed by human-induced climate change and local influences, it is opportune and timely to engage in scientific exploration, experimentation, and evaluation to secure the future of De Zegge.

For more information about the project, see: www.zooscience.be/en/stories/a-good-net-balance-of-greenhouse-gases-de-zegge-as-a-storage-facility.





SPECIES360, PREVIOUSLY KNOWN AS THE INTERNATIONAL SPECIES INFORMATION SYSTEM (ISIS), FIRST USED PAPER ANIMAL RECORDS FORMS (LEFT) FILLED BY THE PARTICIPATING INSTITUTIONS FOR EACH SPECIMEN AND MAILED TO ISIS FOR KEY-PUNCH DATA ENTRY (RIGHT). A MAGNETIC TAPE WAS THEN TAKEN TO THE STATE OF MINNESOTA FOR USE IN THE MAINFRAME COMPUTER © SPECIES360

Saving species with 50 years of data

HOW THE SHARING OF DATA OVER FIVE DECADES HAS CREATED A HUGELY VALUABLE RESOURCE AND TRANSFORMED OUR ANIMAL WELFARE EXPERTISE

Gavrielle Kirk-Cohen, Marketing and Communications Specialist, Species360

This year Species360 is celebrating half a century of collecting and sharing global information in the service of conservation. Fifty years ago, Ulysses Seal came up with the idea of sharing veterinary medical records and animal pedigrees; this quickly grew into something much bigger and is now the world's largest source of knowledge on animals in human care.

What started with a handful of members, paper records and punch sheets in the mail – followed by floppy disks and CD-ROMs – soon grew into an enormous database and community. The Species360 Zoological Information Management System (ZIMS) now contains a plethora of records on more than 26,000 species and more than 13 million individual animals. In 1974, we had fewer than 100 members, mainly from the USA; that number now exceeds 1,300, representing more than 100 countries across the world.

Back in 1974, Ulysses Seal saw the immense potential and value to the zoo community of having detailed animal records and a shared global resource of data, not only for the purposes of the work of the zoological community and its credibility, but also for the wider conservation community. Fifty years later we remain committed to Ulysses' vision of using shared data to serve conservation. That is why every single data point that you, our members, add to ZIMS is part of something much bigger. From the weight of an individual meerkat to the medicine dosage prescribed for an ill orang-utan, each individual data point is a puzzle piece. When we start putting them together, we are able to build a comprehensive and complete picture that provides brand new information and feeds into a collaborative global network of data.

We are so grateful to the regional and national zoo and aquarium associations such as EAZA who have been a part of our history for a long time, as well as to all of our members, new and old, who recognise the value of this vision and shared data.

RESEARCHERS FOUND THAT WE CAN SUBSTANTIALLY INCREASE WHAT WE KNOW BY APPLYING ROBUST ANALYTICS TO LONG-OVERLOOKED DATA. WHEN THEY ADDED DATA FROM ZIMS, RESEARCHERS DISCOVERED AN 800% INCREASE IN DATA ACROSS SPECIES © SPECIES360

COLLABORATING WITH EAZA

Over the years we have collaborated with EAZA and its Members on several projects, including:

Biobanking

Several years ago, EAZA and Species360 worked together to bring to life the EAZA Biobank and its specific module in ZIMS. This allows members to make use of ZIMS for Medical Sample Storage to record and

share medical samples, contributing to population management and conservation research. Since the project's inception, more than 160 zoological institutions have stored around 22,000 historical and legacy samples for more than 1,000 species and subspecies in the EAZA Biobank, making it an information-rich database that supports conservation efforts and scientific research.

Vet Advisor Programme

Another valuable collaborative tool is the Vet Advisors Data Sharing programme, which enables Species360 members to voluntarily share data with Vet Advisor institutions approved by the regional zoo and aquarium associations, to support species' health management in their *ex situ* conservation programmes. This programme provides faster, data-driven recommendations for the health management of species within the various EEPs.

SCTI and Studbooks

Many of you will of course be familiar with Studbooks, but perhaps might not be as aware of the technology that powers Studbooks and is integral to the success of population management programmes around the world. PMx from the Species Conservation Toolkit Initiative (SCTI) is a software package that supports the demographic and genetic management of pedigreed populations and is critical to the success of Studbooks. In 2023, Species360 assumed responsibility for SCTI to ensure that these tools – which are so crucial to the community – not only survive, but also thrive. We now have more than 1,600 Studbooks in ZIMS for Studbooks, of which nearly 500 are managed by EAZA Members. This is a lifeline for many endangered species, safeguarding their future survival, and it is all made possible by the many volunteers who manage and contribute data to the Studbooks.

All these programmes work so well in EAZA because its Members are all collaborating and sharing data in the same system.

CARE AND WELFARE: SUPPORTING EAZA ACCREDITATION

EAZA Members share a commitment to high standards of animal welfare, which we aim to support through the Care and Welfare module in ZIMS. We have made several improvements to the module over the past year, including the ability to create and share animal welfare templates with other institutions. Members that are just beginning in their welfare assessments are able to adopt assessment templates created by those with experience of recording and monitoring the welfare of the same species. We hope this module makes accreditation easier for you.

We are especially proud of this collaborative aspect in Care and Welfare, which allows members to share resources, templates and expertise with each other for the benefit of the animals they care for.

A COLLABORATIVE RESOURCE AND ALLIANCE

It is this collaborative spirit, and Species360's founding vision of detailed animal records and a pooled resource of information that would benefit this community, that started the Species360 Conservation Science Alliance (CSA). The CSA is an open alliance of professionals working together to harness the incredible wealth of aggregated data in ZIMS, to uncover more about species and inform strategies on their care and conservation, and ultimately benefit the wider zoological and conservation community.

CSA researchers recently analysed more than 200 years' worth of data on four marine mammal species and found that these species are living longer and better lives than their wild counterparts. The findings were instrumental in influencing policy about the keeping of cetaceans in human care in France and Spain.

Researchers have also recently completed studies on great apes and big cats showing that these species have longer lifespans and lifespan equality in Species360 member zoos. This research is only possible thanks to all of our members and every single data point they enter into ZIMS – helping to build a beautiful picture of the animal kingdom.

We plan to highlight some of the amazing research and work that has been accomplished with ZIMS data in August with our inaugural Conservation Science Alliance Research Symposium and we invite you all to join us for the online event.

We also welcome everyone in the community to join the Species360 Conservation Science Alliance (CSA). Please visit the CSA website at species360.org to learn more.

And finally, as we celebrate 50 years of Species360, we look to the future with optimism and excitement. Our partnership with EAZA and its Member institutions is a testament to the power of collaboration and the impact of shared knowledge. Together, we will continue to enhance the care and welfare of animals, preserve biodiversity and advance the science of conservation. The journey ahead promises to be as exciting and transformative as the past five decades, and we are proud to be part of a global community dedicated to making a difference for wildlife and the planet. We thank each and every one of you for being a part of this journey!

ISIS (SPECIES360) PROVIDED INVENTORY REPORTS TO MEMBERS, THAT WERE AVAILABLE TO READ ON A MICROFICHE

Into the lions' den

A SUPERB NEW ENCLOSURE FOR ARTIS ZOO'S LIONS WAS MADE POSSIBLE BY AN OUTPOURING OF SUPPORT AND DONATIONS DURING THE RECENT PANDEMIC

Anne van Dijk, Animal and Plant Coordinator, Artis Zoo

After a year of building and gardening, the new lion enclosure at Artis Zoo (the Netherlands) opened on 3 October 2023. The new residence for the lion pride, one male and two females, was designed by landscape architect Thijs de Zeeuw and architect Alexander Lefebvre, in collaboration with a large team of animal caretakers, a veterinarian, construction workers and gardeners, led by the manager of the living collection, Tjerk ter Meulen. It is a hilly landscape, inspired by the African savannah in different seasons, with a more dry and a lushly vegetated area. Perhaps the most extraordinary thing about it is that it wouldn't have happened at all if it weren't for the massive and unexpected financial support that was received during the pandemic.

NATIONAL SUPPORT

At the beginning of 2021, the prospect of constructing a new enclosure within Artis Zoo no longer appeared realistic due to the financial crisis caused by the COVID-19 pandemic. Instead, Artis made plans to relocate the lions to another institution. A reorganisation followed and everything was focused on keeping the park afloat. However, the planned departure of the lions provoked a wave of reactions on a national scale. Various media outlets broadcast the news and a great many people, including two major donors, donated money to support the zoo. Thanks to them, Artis was able to build the new lion enclosure and relocate the scimitar-horned oryx, housed at the intended location for the new lion enclosure.

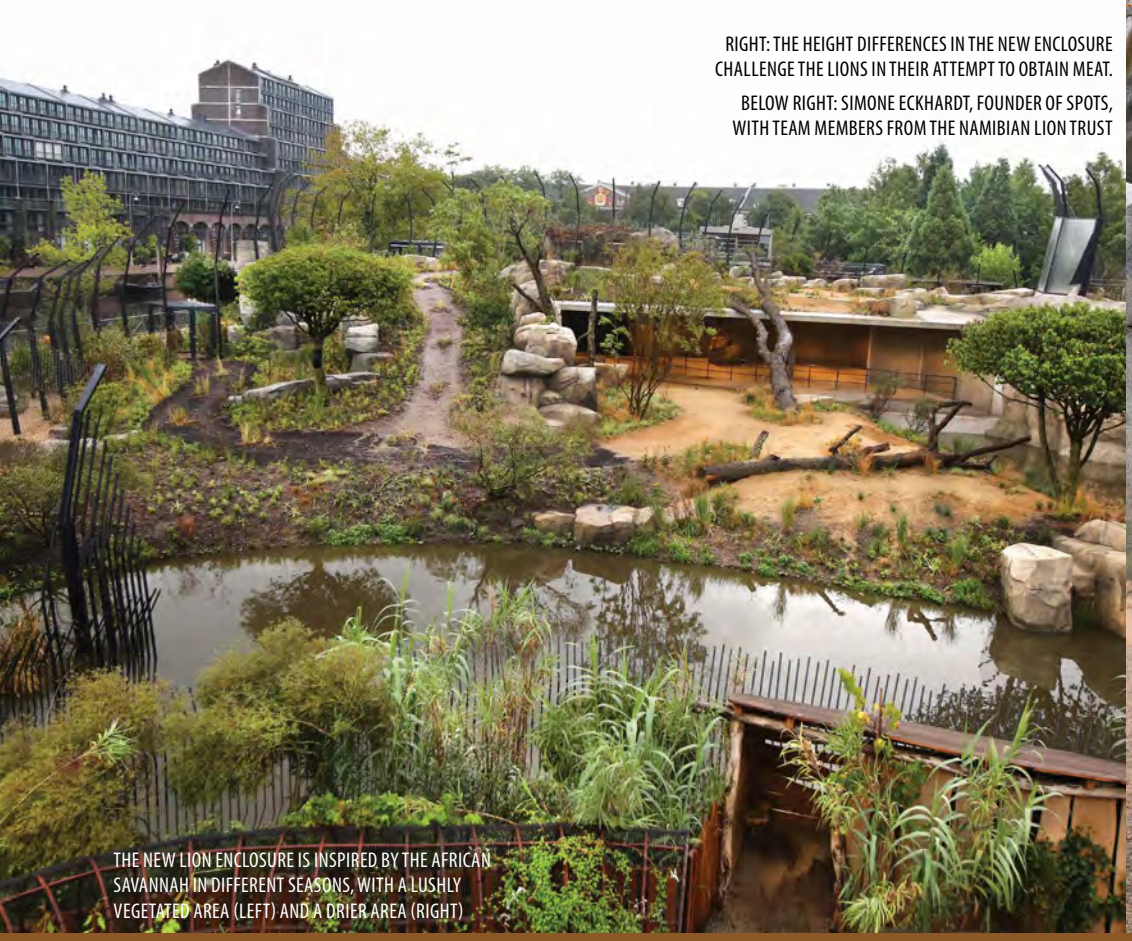
THE FIRST STEPS

The three lions took their first tentative steps into the outdoor enclosure one early morning in September 2023. They were given time to adjust to their new surroundings in peace before the public arrived. Already familiar with the new indoor enclosure, they could now explore and claim the new outdoor landscape. The lions were quite calm, and after an hour, one of the lionesses had already stretched out in the grass to feed on the plants.

The relocation of the lions to their new habitat is an important milestone in the 185 years of Artis' history and another important step in its renewal as a modern zoo and botanical garden. Artis finally said goodbye to the monumental but limited Kerbertterras, where the lions used to be housed. The new enclosure is 10 times larger and the design is also much more complex, in keeping with the lions' natural surroundings and behaviours. Good animal welfare starts with ensuring that animals have as many choices and as much autonomy as possible. Therefore every square metre is used optimally. The habitat contains several climbing structures, terraces for sleeping or viewing and even some heated rocks. Furthermore, the lions have a choice between visible or sheltered spaces, sun or shade, in the lee wind, in the sand of the grass, high or low, together or apart. Multiple resting places were created in different sub-areas: an open sandy plain, a vegetated and rocky part on the hill and grassland along the water banks. The water banks will also soon be an attractive place for local birds such as herons, although entering is at their own risk. The lions are also more physically challenged by all kinds of climbing structures where caretakers can hang up carcasses, whole and in pieces. Even though the predators are superb carnivores, the scents of various plants provide additional enrichment for felines. Therefore a 'catnip garden' was created elsewhere in the park.

THE DESIGN

When designing the landscape, de Zeeuw worked with three layers of



THE NEW LION ENCLOSURE IS INSPIRED BY THE AFRICAN SAVANNAH IN DIFFERENT SEASONS, WITH A LUSHLY VEGETATED AREA (LEFT) AND A DRIER AREA (RIGHT)

RIGHT: THE HEIGHT DIFFERENCES IN THE NEW ENCLOSURE CHALLENGE THE LIONS IN THEIR ATTEMPT TO OBTAIN MEAT.

BELOW RIGHT: SIMONE ECKHARDT, FOUNDER OF SPOTS, WITH TEAM MEMBERS FROM THE NAMIBIAN LION TRUST

ALL PICTURES © ARTIS ZOO

green: perennials, shrubs and trees. The plants and tree provide shelter, food and enrichment. Grass along the water banks – once it grows a little longer – can serve as camouflage while the lions sneak up on prey or dislodge hairballs. In addition, it contributes to Artis' reputation as a nature reserve for local wildlife such as birds, bats and insects in the middle of Amsterdam. In a number of places the visitor unexpectedly comes face to face with the lions without visual barriers, understanding for a moment that we humans are also vulnerable prey animals. The lions themselves look for their favourite places and establish their territory. The lionesses are very close-knit and are regularly seen resting together. The male, however, often wanders around solitarily, only making contact with the females occasionally.

USE OF THE ENCLOSURE

But how do the lions actually like it there? And do they behave differently now? As part of her Animal Management study, student Dana Wolters conducted research into the habituation process of lions. With the ZooMonitor® application, she studied all active, inactive, foraging and social behaviours. Data was first collected when the lions were in the old enclosure to assess their behaviour before the move, then in the new residence. In total, approximately 150 hours of data were collected over 10 weeks. In addition, she recorded the location of the lions several times a day.

Because the habituation started in the inside enclosure, the lions stayed close to the hatches for the first few days. From the hill they looked out over their new territory and went out to explore. They immediately showed more active behaviour: walking, running and exploratory sniffing and touching. Meat was soon deftly pulled from the climbing tree and the lionesses spent a lot of time together. Even after that first 'discovery phase', the lions remain about 10 to 15% more active than in the previous enclosure. This is quite significant, considering that felines like to take a nap and spend three-quarters of their day being inactive. The favourite place during the cold winter months was – apart from the warm indoor enclosure – the highest point, from where they have the best view and can keep a close eye on everything and where some rocks are heated. As time passes, the landscape will become wilder and the lions will continue to make their territory their own. But it's never actually 'finished'. It will be interesting to see if the favourite locations of the lions change when the plants are in bloom and the sand is warm from the sun.

LIONS IN THE WILD

The lions in Artis are part of the African lion EEP. The species is currently classified as Vulnerable in the wild, but numbers went down by 50% in just 20 years. Estimates of current numbers range between 20,000 and 25,000 lions and their protection is desperately needed. Artis therefore supports and collaborates with 'Stichting SPOTS', a Dutch foundation committed to protecting the lion through sharing information, lobbying and supporting local projects. For example, together with the Namibian Lion Trust, SPOTS acts to prevent human-animal conflicts. They help farmers to build livestock pens for their own animals, they provide the lions with GPS collars and appoint special lion guards. This significantly reduces the loss of livestock and creates more tolerance towards lions. With the support of Artis, several lionesses in Namibia can be better monitored using GPS collars. At Artis Zoo, every visitor can learn about the protection of lions in the wild, inspiring and motivating them to treat nature responsibly.

© MICHELE AZZETTI

Knowing me, knowing you

WORKING TOWARDS A BETTER UNDERSTANDING OF INDIVIDUAL ANIMAL WELFARE WAS THE CENTRAL THEME OF THE SECOND EAZA ANIMAL WELFARE FORUM

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March 2024 saw the second delivery of the EAZA Animal Welfare Forum, expertly hosted by Parco Natura Viva (Italy) with the theme 'Knowing Me, Knowing You – Understanding Individual Animal Welfare'. With a full, varied and exciting programme jointly delivered by the EAZA Animal Welfare and Animal Training Working Groups, 234 people from 37 countries convened over three days to discuss all things welfare. From veterinary to behaviour, nutrition to training, the forum explored concepts such as positive collaborations between conservation and welfare, animal welfare indicators and the application of animal welfare within zoos and aquariums. With five sessions running consecutively, totalling 111 workshops and presentations, participants could tailor their programme to meet their own areas of interest, including 25 five-minute poster presentations and plenary presentations.

The forum was preceded by an EAZA Academy Trail-Blazing Trainers workshop, delivered by the EAZA Animal Training Working Group and hosted by the Parco Natura Viva team. Participants broadened their understanding of positive welfare training techniques and practised their new skills with very enthusiastic animal volunteers!

Four fantastic plenaries were delivered, focusing on understanding individual animal welfare and bringing an applied focus. T. V. Joe Layng from Endicott College (USA) opened the forum with 'Contingency superimposition and the distinction between apparent and genuine choice', which had us all rethinking the degrees of freedom that we give to animals when we present them with choices, and how much freedom of choice do they really have – are their choices really choices? We were honoured that Joe delivered a second fantastic plenary entitled 'What is the constructional approach to behaviour change?' to close the forum.

Christian Agrillo from the Italian Society of Ethology delivered a fascinating plenary on 'Visual illusions as a novel tool to improve enrichment and welfare of captive animals', which had the audience captivated by the mind-bending visual illusions on the screen. This included illusions of depth gradients in aquariums to meet the behaviour needs of aquatic species that like to use different areas of the water column in different circumstances, and illusions to steer animals away from electric fences.

Lisa Holmes and Chris Grindle (both Chester Zoo, UK) delivered a plenary on 'Working together for optimal animal welfare: how keepers, curators, vet teams and scientists all play a role in individual animal welfare assessment.' Using case studies, they explained the importance of whole zoo team engagement in animal welfare and the benefits of working as a team to maximise positive animal welfare progression.

Communication and networking opportunities were enhanced by the Whova app that was intensively used by 97% of the delegates chatting on 47 community board topics and sending more than 2,100 messages.

Participants were treated to a visit to Parco Natura Viva, where a range of optional talks and tours were kindly delivered by the zoo team, followed by an excellent dinner. With blue skies overhead, hippos rolled in their natural pool and grazed on the surrounding grassy areas, and chimpanzees used tools to search for food hidden in mounds.

The delegates were also able to see the breathtaking surroundings, including an excursion to Verona and Venice, and beautiful Lake Garda just a five-minute taxi ride away. Whether experiencing the historical cities, the open blue expanse of Lake Garda or the fantastic zoo, Italy showcased its world-famous cuisine, with pizza, pasta and gelato ticking everyone's boxes! And did we mention that a kilo of Grana Padano Parmesan cheese was handed to each participant? The Farewell Dinner included canapés on the terrace, a five-course meal and a surprise treat of opera singers, before participants hit the dance floor until the early hours.

We would like to extend a huge thank you to Parco Natura Viva for their superb hosting, to the Italian Association of Zoos and Aquaria for their support, and to all the fantastic speakers and the participants for sharing their time and expertise. See you in 2026!


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