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ZOOQUARIA

AUTUMN 2024

ISSUE 123

Soaring to new heights

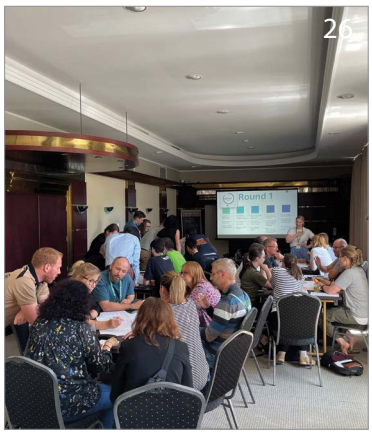
Important births and new policies keep EAZA progressing

ELE-PHANTASTIC NEWS

THREE ELEPHANT CALVES JOIN THE HERD

DIVING INTO THE FISH ARK

BEHIND THE SCENES AT PLZEŇ ZOO'S NEWEST EXHIBIT



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

Turnover of staff occurs in every organisation, and we seem to be experiencing a peak in the EAZA Executive Office. Thanks to EU LIFE funding and Member financing we've been fortunate in the past decade to be able to expand the team in line with strategic priorities. Consequently, our focus was on recruitment and turnover was very low. We've now hit a phase when many of those staff are reaching five- or 10-year work anniversaries and are looking for new challenges. In common with a lot of small organisations, there are only so many internal progression opportunities we can provide. This brings with it the conflicting emotions of being sad to see staff leave while also happy that they have gained skills to excel in new roles.

Human Resources surveys share that talent retention is the biggest issue facing organisations in 2024. I've written before about the importance of culture and value-matching as being key to staff satisfaction; however, they can only go so far if progression opportunities are limited. The past few years of high inflation have made it difficult to meet pay expectations of (new) staff. Aspects of work-life balance – or, as is becoming more popular, work-life integration – is also increasingly cited as important when staff are choosing new employers. Much of this centres on remote or hybrid working conditions and supporting mental wellbeing at work.

So far, I have mentioned a lot of challenges and not too many solutions. In speaking with many peers about these challenges, I'm afraid we haven't identified an all-encompassing magic answer. What is clear is that organisations are going to need to adapt and change if they want to retain and recruit talented staff. Organisations may need to manage ambitions around growth and strategic achievements so that pay expectations of existing staff can be met. After all, if you lose good staff and can't recruit new ones, achievements will definitely not happen. Having a good culture, consultation and open communication will help keep talented staff onboard, especially if some changes will take time to implement.

This issue of *Zooquaria* will inform you about some of the changes our Association is implementing to ensure EAZA zoos and aquariums continue to evolve with our ever-changing world and hopefully inspire our passionate and expert staff to keep working within our community and saving species together. On page 8, read how, at the EAZA Directors' Days 2024, Member representatives have been discussing the latest trends in society, conservation, wildlife trade, animal care and welfare likely to influence the future trajectory for EAZA zoos along the road to 2050.

On page 10, you'll learn about our recent updates to the EAZA Population Management Manual (PMM) and more specifically our animal acquisition and disposition policy which aims to explain more clearly EAZA's position on legal, sustainable and ethical trade and the expectations from our Members within this context. The article on page 12 is dedicated to our new five-year accreditation cycle and the changes to our Standards for Welfare, Accommodation and Management in Zoos and Aquariums; both of these reflect EAZA's commitment to staying up to date with various scientific advances and best practice.

You will also discover how zoos and aquariums develop solutions to the new needs in species conservation, whether it's by partnering with experts in cryopreservation (page 15), training specialists in range countries (page 20), sharing knowledge with colleagues around the world with online events (page 24) or by creating inspiring exhibits for less charismatic but highly threatened species to provide a great visitor experience and encourage citizen conservation (page 28).

From an EAZA perspective, I very much hope that our recent successful recruitment marks a turning point in our turnover challenges. I remain immensely proud of the Executive Office team and how they continue to stay positive and professional, and progress our work during these times.

Myfanwy Griffith
Executive Director, EAZA

NOTICEBOARD

NEW MoUs

EAZA recently approved two new Memoranda of Understanding (MoUs). The first is with Animal Advocacy and Protection (AAP) regarding cooperation with the Chimpanzee EEP. AAP and EAZA recognise each other's unique capabilities in striving for high standards of wild animal health, welfare and husbandry. This MoU contributes to joint aims for a carefully managed population in human care, a thriving population in the wild and seeking ways to combat the illegal wildlife trade in chimpanzees.

The second MoU is with ReShark, an international collective of over 90 multi-national aquariums and other conservation organisations, government agencies and more, dedicated to recovering threatened sharks and rays around the world. The MoU involves cooperation in the field of the reinforcement of the population, post-release management and conservation research of Zebra sharks (*Stegostoma tigrinum*) from the EEP.

EAZA ANNUAL REPORTS 2023

The EAZA Annual Report and EAZA Taxon Advisory Group Reports for 2023 have just been published on our website (www.eaza.net/about-us/eazadocuments). They summarise the excellent work carried out by our Committees, Working Groups, TAGs, the EEP Coordinators and individual Members over the last year and bear witness to the hard work and dedication of staff members from across our network.

The year provided the opportunity for a recovery from the concentrated focus on crises of the previous three years. While some activities had been scaled back during that time, the ambitions of our progressive zoos and aquariums did not diminish. You will read that of the 226 sub-objectives in the 2021–2025 EAZA Strategy, 93% were on target or were completed by the end of 2023!

We hope that you feel as proud as we do to be part of a progressive zoo and aquarium community working together to save species.

FRENCH PUBLIC CONSULTATION ON CETACEANS

The recent French public consultation about the housing of cetaceans in human care ended with more comments in favour (57%) than against, which allowed the Minister to sign the decree. The 1981 decree has therefore finally been abolished.

The new 2024 decree provides a framework for the housing of cetaceans in zoos and aquariums and will be supplemented by an agreement on the supervision of research programmes conditioning this housing. Experts from the Association of French Zoological Parks (AFdPZ) are involved in the drafting of this agreement

EVENT UPDATES

EAZA Annual Conference

We are excited to announce that tickets have almost sold out for the EAZA Annual Conference 2024. So, if you want to join our biggest event hosted this year by Leipzig Zoo (Germany) on 8–12 October, register shortly on the event page.

European Zoo Nutrition Conference

Additionally, early bird registration has just opened for the 12th European Zoo Nutrition Conference and will be available until 28 November. This edition will be hosted by Apenheul (the Netherlands) on 23–26 January 2025. The EAZA Nutrition Working Group also invites practitioners and researchers working in all disciplines related to zoo and aquarium animal nutrition to submit their abstracts for this event before 31 August.

All relevant information about our coming events can be found on www.eaza.net/events.

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International Congress of Zookeeping

EAZA is a proud sponsor of the next International Congress of Zookeeping taking place in Wellington (New Zealand) on 11–15 February 2025. The event aims to bring together keepers from around the world under the theme `Me tiaki, kia ora – We must look after our environment so all life will flourish'. You can find more information on www.iczoo.org/icz2025.

NEW ARRIVALS

A NEW PYGMY HIPPO AT ATTICA ZOO

IN FEBRUARY THIS YEAR, our team at Attica Zoo (Greece) were delighted when our pygmy hippopotamus pair (*Choeropsis liberiensis*), which were living in a mixed enclosure with sitatungas (*Tragelaphus spekii*), produced a healthy young hippo.

At the end of October 2023, the team observed that the belly of the female, Lizzy, was slightly bigger than usual. That same week, our veterinarians checked on her with an ultrasound and confirmed the keepers' suspicions that she was indeed pregnant. Lizzy was voluntarily trained to stand in a sideway position so that the team could check her belly and her breasts. The vets checked her weekly with an ultrasound and checked her breasts to see if she was producing milk, what consistency the milk was in and if the milk had any flow. We found that at early stages she was producing a clear and sticky substance. As Lizzy got closer to giving birth, this changed to a milky substance. A camera was installed so that night monitoring was possible, giving us access 24/7, making it possible for the keepers to monitor her closely and notice any behavioural changes. On 19 February, Lizzy gave birth to a healthy male named Maylo. Thanks to the camera, we were able to observe the early stages of labour, which happened late in the afternoon. Following the EAZA Best Practice Guidelines for the species, we observed Lizzy from a distance. The whole process took about two to three hours.

Lizzy showed a preference to her empty pond, so we adjusted it and filled it with straw as bedding in order for her to be comfortable. To give Lizzy and Maylo the rest they needed, we continued monitoring them through the camera and checked whether Maylo succeeded in breastfeeding.

In the first week, the vets did a health check on Maylo and the keepers bathed and weighed him at 7 kg. At the time of writing, Lizzy and Maylo have bonded well. Our team could not be happier as the young hippo is growing very fast, sleeping a lot and having little bursts of energy during the day!

GUARDIANS OF THE RAINFOREST:

NUREMBERG ZOO (GERMANY) has been home to the harpy eagle (*Harpia harpyia*) since the early 1980s, when a pair, Enrico and Esmeralda, aged between three and five years old, arrived there. This couple, which produced 15 offspring between 1984 and 2002, is considered to be the most important breeding pair of harpy eagles in Europe, if not the world. Nuremberg Zoo keeps six harpies (out of 10 in Europe), making them a focal point of the zoo's collection. Among them, a bird named Domingo is the only ambassador visible to the public. In 2022, the EAZA Raptor TAG proposed that Nuremberg Zoo start and coordinate an EAZA Ex situ Programme (EEP) for harpy eagles.

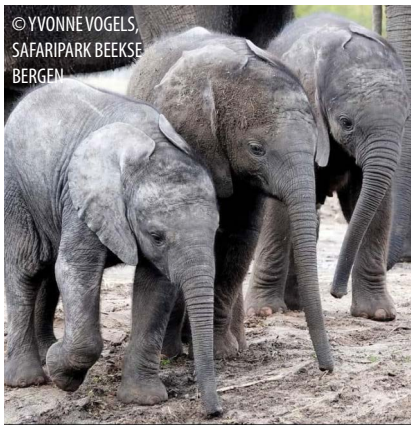
The zoo is particularly proud of its latest reproductive triumph: a chick named Amaya. The chick hatched in mid-October 2023 and is the first harpy eagle birth we have had for over two decades and the first offspring of a pair named Evita and Jorge. Amaya's emergence followed a 56-day incubation period, after which the mother, inexperienced in rearing

ELE-PHANTASTIC NEWS AT SAFARIPARK BEEKSE BERGEN!

SAFARIPARK BEEKSE BERGEN (the Netherlands) is extremely happy to be celebrating the birth of three African elephant (*Loxodonta africana*) calves in the space of three and a half months.

Since 2004, with the arrival of a bull named Calimero, a great deal of effort was put into achieving breeding success. The arrival of a maternal line of three females from Wuppertal Zoo (Germany) in 2014 was another important step in the plan. The matriarch arrived pregnant and gave birth to a female calf on 4 May 2016, so the maternal herd – consisting of Punda (born in 1992), Bongi (2005), Pina-Nessi (2013) and Madiba (2016) – had huge potential for future breeding. But Calimero (born 1978) for some reason would no longer mate, despite the team's many efforts, including artificial insemination.

It was therefore decided to take another approach to increase the chances of success. A second stable was built to house a new adult bull. In August 2021, the bull Yambo (born 2004) came from Parque de Cabárceno (Spain). He was recommended by the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EEP Coordinator because he grew up in a large family group, which included two older bulls. He had learned to cope with the presence of two dominant bulls and to take his chances when possible. His sociable character became apparent immediately when, without any complications, he was introduced to the breeding females. He also did not seem to be bothered by his neighbour, the 7,000 kg Calimero.

Of the three cycling females in the group, the youngest one was mated first in January 2022. The second female was mated in April and the matriarch in May. The team therefore knew they had to prepare for three calves in a short period.

On 4 November 2023, the young female, who was named Mosi, was born, weighing 70 kg. She was allowed to nurse from her grandmother which was a great advantage, as for the first-time mother everything was new and strange. On 3 December 2023, a second female, Ajabu, was born, two months earlier than expected. With a low body weight (less than 60 kg) and a navel infection, she struggled during the first weeks, but the excellent care provided by the elephant team and veterinarians led to her recovery. She weighed 100 kg two months later! The third female calf didn't have this problem as she was born on 19 February 2024 weighing a solid 130 kg.

The arrival of three African elephant calves within three and a half months is, of course, very special, for the herd as well as the zoo team. The calves thrive, play, sleep and are mischievous together – a bundle of joy for the elephant keeper team and the visitors!

NUREMBERG ZOO'S COMMITMENT TO HARPY EAGLE CONSERVATION

young, took over the maternal duties. Amaya has now grown considerably and weighs more than five kilos. The main challenge in rearing and reproducing harpies in human care is their social dynamics, particularly their monogamous nature, which makes it difficult to facilitate bonds between older males and females. Climate, while still a factor, is of secondary importance.

In their natural habitat, in the tropical rainforests of Central and South America, harpies prey on large mammals such as primates, sloths and anteaters. Within the confines of the zoo, they are sustained by a diet of rabbits, guinea pigs and ungulate meat. Harpy eagles have long reproductive cycles, exacerbating their precarious situation as their habitat is disappearing faster than they can reproduce. This large and powerful bird of prey is threatened and listed as Vulnerable on the IUCN Red List. Zoological institutions such as Nuremberg Zoo are passionately committed to the conservation of this species, not only through coordinated breeding efforts, but also through scientific research into the behavioural, genetic and conservation aspects of these majestic birds in their natural environment.


© NUREMBERG ZOO

Charting a course for the future

DIRECTORS' DAYS 2024 DISCUSSED THE TRENDS THAT ARE SHAPING THE FUTURE TRAJECTORY OF EAZA ZOOS AND AQUARIUMS AS THEY FOCUS ON REVERSING BIODIVERSITY DECLINE BY 2025

Tomasz Rusek, Director of Advocacy and Communication, EAZA Executive Office

From 23 to 26 April, EAZA Member Fota Wildlife Park in the Republic of Ireland hosted the EAZA Directors' Days 2024, bringing together 139 CEOs, directors, managers and guest speakers from 112 institutions in 34 countries.

The global conservation community has set 2050 as a target for reversing the decline of biodiversity and restoring harmony between humans and nature. Consequently, 2050 also became the horizon for discussing the evolving role of zoos and aquariums (thereafter 'zoos') during this conference. We asked speakers from within and outside EAZA to share their views on the trends – in society, conservation, wildlife trade, animal care and welfare – that are likely to influence the future trajectory for EAZA zoos along the road to 2050.

In the opening session, Karen Fifield, President of the World Association of Zoos and Aquariums (WAZA), spoke about the evolution of zoos at the individual, regional and global levels. Karen's compelling talk inspired the attendees to consider the global responsibilities facing our community, and how we *must* work in unison to achieve our ambitious goals of saving species together.

The session on 'Human Diversity is Biodiversity' presented a powerful narrative on the interconnection between biodiversity and the respect for human diversity in our communities. Biologist and gender diversity leader Brigitte Baptiste (Universidad Ean, Colombia) led with a persuasive talk on embracing biodiversity in its broadest sense, highlighting the intrinsic value of all forms of life and challenging us to shape the future rather than protect the past. This was complemented by Nicola Craddock (Zoo and Aquarium Association, ZAA, Australasia) who explored how incorporating First Nations heritage into zoo programmes can enrich conservation efforts and visitor experiences while respecting

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ancestral wisdom and connection to nature. Peggy Sloan (Shedd Aquarium, USA) shared practical insights into the application of Diversity, Equity, Accessibility and Inclusion (DEIA) policies and how zoos can become stronger by creating space for diverse voices and experiences.

In the session 'Breaking the Silo: what should zoos and aquariums do more of looking to 2050, from outside perspectives?', Loïs Lelanchon (International Fund for Animal Welfare, IFAW) addressed the role of zoos in wildlife rescues and in rehoming confiscated animals. Ilaria de Silvestre, also of IFAW, emphasised the importance of advocating for effective welfare laws, encouraging the audience to embrace legislation as a tool for progress in zoos. ZSL's Malcolm Fitzpatrick then introduced the 'Extinct in the Wild Alliance', which aims to protect the most threatened animal species, drawing on the unique strengths of the alliance members, including the specialist knowledge of zoo staff.

Being a perennial topic that impacts all zoos and aquariums, Chris Shepherd (Monitor Conservation Research Society) delivered a keynote on 'Wildlife Trade – be the good, avoid the bad, combat the ugly', underlining the necessity of due diligence in animal acquisitions and dispositions. The workshop 'Thank You, Next', led by former EEP Committee Chair Kirsten Pullen, sparked a lively discussion about the implementation of EAZA's new acquisition and disposition rules.

The programme also touched on emerging trends such as cryopreservation (in a talk by Mads Bertelsen, Copenhagen Zoo, Denmark), innovative zoo masterplans (Erik Zevenbergen, Rotterdam Zoo, the Netherlands) and conservation education evaluation (Antonieta Costa, Lisbon Zoo, Portugal). In addition, in a year of important elections, the participants looked at ways to increase political support for zoo-based conservation. The conference also included the EAZA Annual General Meeting as well as the spring meetings of the EAZA Council and several Committees.

The comfortable and modern conference venue at Fota's brand new Conservation Education Centre is a remarkable testament to the park's evolution from the leisure destination it was first conceived as 40 years ago to the progressive institution oriented towards inclusive conservation and wildlife research it is today. We thank the warm and dedicated Fota team, all sponsors, speakers and participants for the inspiring talks, discussions and networking.

The next EAZA Directors' Days will be hosted by Oceanogràfic Valencia (Spain) from 1 to 3 April 2025.

Fit for purpose

THE EEP COMMITTEE HAS COMPLETED ITS REVIEW AND UPDATE OF THE RULES AND PROCEDURES FOR THE ACQUISITION AND DISPOSITION OF ANIMALS, ENSURING THAT EAZA'S PROCEDURES IN THIS AREA REMAIN LEGAL, SUSTAINABLE AND ETHICAL

Danny de Man, Deputy Executive Director, and Raymond van der Meer, Director of Conservation and Population Management, both EAZA Executive Office

With the approval of the EAZA Strategic Plan 2021–2025, the Annual General Meeting (AGM) tasked the EEP Committee with reviewing and updating the rules and procedures for acquisition and disposition of animals, ensuring these are *'fit for purpose'*. EAZA has had acquisition and disposition rules and procedures for decades that are included in the EAZA Population Management Manual (PMM).

The EEP Committee has worked on updating the acquisition and disposition rules and procedures for well over two years, always aiming to find a good balance between futureproofing them in alignment with the Association's vision of 'progressive zoos and aquariums saving species together with you' while also considering the diversity of the EAZA membership and the species under our care. The overarching focus of the EEP Committee has been on defining and consistently outlining the Association position on legal, sustainable and ethical trade, and secondly on the articulation of expectations from the EAZA Members within this context.

The Committee held numerous workshops and consultations in the process of developing the updated rules and procedures, including among the members of the Committee, with TAG Chairs and EEP Coordinators, chief executive decision-makers, wider membership and EAZA Council. Several dedicated sessions were also organised as part of the EAZA21+ campaign. Valuable feedback was received during these workshops and consultations that were crucially important in helping to establish and fine-tune the updates and understanding where compromises needed to be made.

CHEETAH TRANSFER © KRISTIANSAND ZOO, INSET MONTPELLIER ZOO

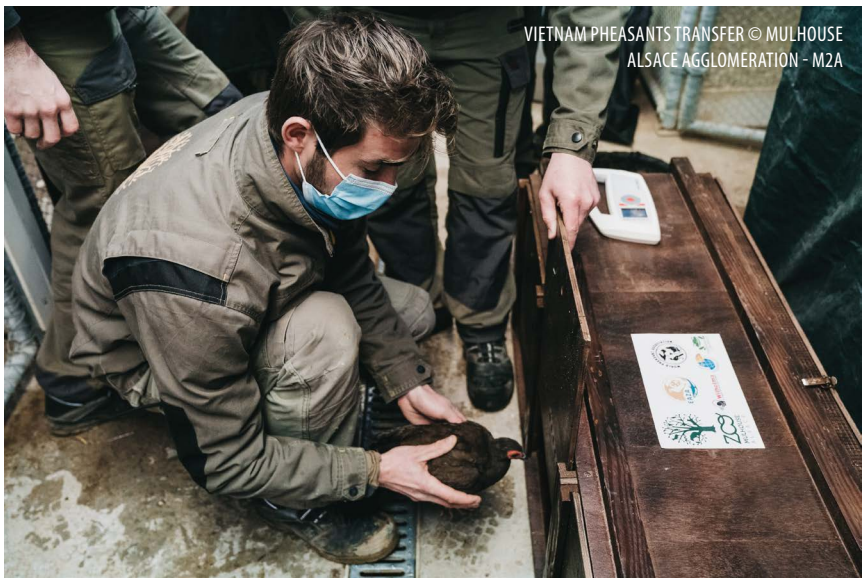
STRENGTHENING OUR POSITION

Approval of the updated animal acquisition and disposition rules and procedures by EAZA demonstrates the achievement of a key target of the trade-related outcomes of the EAZA21+ campaign.

It demonstrates that EAZA is a professional stakeholder and credible partner in relation to legal, sustainable and ethical wildlife trade: for example, as part of the implementation of Target 5 of the Kunming-Montreal Global Biodiversity Framework (GBF), and the implementation of the EU Action Plan against wildlife trafficking. Further on, it demonstrates consistency with previously Council-approved EAZA positions on the EU Biodiversity Strategy, against songbird trafficking and commercial tiger trade.

The updated rules and procedures will provide a solid basis for EAZA to take stronger positions in relation to various ongoing discussions at CITES, clearly demonstrating that we are trading animals professionally. This enables us to separate ourselves very clearly from unprofessional or dubious traders and places us in a good position when advocating for stricter legal regulations of trade in captive animals to address real and genuine problems with this trade.

Finally, these rules and procedures



VIETNAM PHEASANTS TRANSFER © MULHOUSE ALSACE AGGLOMÉRATION - M2A

RED PANDA TRANSFER © DEBRECEN ZOO

will provide a consistent baseline for collaborations with potential partner organisations – for example, with professionally organised branch organisations representing non-EAZA Members, which are important within the context of our *ex situ* structure and the One Plan Approach.

ETHICAL ACQUISITION AND DISPOSITION

To ensure an ethical approach when exchanging animals, an ethical standard is set within the updated rules and procedures. Although some elements of these standards are not new, there are some relevant changes that will lead to better alignment with EAZA's vision. There is a clearer emphasis on the importance for Members to do their due diligence that also considers the broader chain of supply and demand. The expectation for Members is better described, and more guidance will be prepared including best practice examples.

In addition to the longstanding rule that EEP and ESB animals *must* not be sold, the importance of non-commercial trade is stressed, including a new expectation that Members *should not* sell non-EEP animals. EAZA Members can request voluntary donations to conservation projects, and may ask for compensation of costs directly related to the disposition of the animals (e.g. transport). Amicably agreed exchanges of non-EEP animals are not considered primarily commercial. EAZA Members are encouraged to use alternative options for acquiring animals to avoid buying animals, whenever such options are available and appropriate.

Where all EAZA Members will endeavour to ensure that animals acquired are bred in human care, the updated rules have a more elaborate and more consistently formulated section describing the criteria when it might still be appropriate for Members to import animals from the wild. This section also refers to exceptional circumstances when these criteria do not apply and where Members do have a strong rationale to obtain wild-caught specimens as part of their institutional species plan.

EAZA Members are encouraged to (should) prioritise the acquisition and disposition of (non-EEP) animals from/to other EAZA Members. The updated rules provide a description of a more converged and simplified process when EAZA Members exchange non-EEP animals from/to institutions or persons that are not a member of EAZA (non-EAZA Members).

WHAT'S NEXT...

After completing the review of existing rules and procedures in order to get them *'fit for purpose',* the EEP Committee will next turn its attention to the part of the sub-objective that points to the '*implementation by the EAZA Membership*'. The EEP Committee will prioritise the provision of support to Members with the implementation of the rules and procedures and hence the Committee will focus on the development of additional practical guidance and examples of best practice to be developed (for example on due diligence processes). Stricter rules and procedures were discussed in relation to a few topics including on ensuring non-commercial trade and discontinuing the importation of wild-caught animals in the absence of a direct conservation role to do so.

These did not yet receive consensus at this time and are hence not included in this update, and it was agreed that these points require further work to understand the need and impact for the membership. A wildlife trade task force has been set up under the oversight of the EEP Committee and Conservation Committee to work on progressing on these items in the next three to five years.

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Screening for success

EAZA IS CELEBRATING THE COMPLETION OF THE FIRST CYCLE OF ITS ACCREDITATION PROGRAMME

April Adams, Director of Member Development, EAZA Executive Office

In April 2024, the EAZA community reached a historic milestone: the end of the first cycle of the EAZA Accreditation Programme (EAP). While it tends to be a bit quieter than other aspects of EAZA, it is the first experience you have as a new Member, creates an opportunity to show off your work to colleagues during the screening, and is the mark of quality that you can highlight both within the community and to the wider world. It is the reason that we freely share animals across Europe because we can be confident that the animals will have positive animal welfare in scientifically based institutions with commitment to the Standards and spirit of EAZA.

EAZA first began requiring accreditation screenings only for prospective new Members in 2001. It wasn't until 2012 that the Annual General Meeting (AGM) approved the implementation of a system to periodically visit existing Members, which made up 80% of the EAZA membership at the time. The discussion to begin this programme was a long one, with much discussion and consultation with the membership, and the hiring of a new Accreditation Coordinator. I am happy to say that I was that new member of Team EAZA, and am excited to have been here at the beginning and seen it through to the end of the first cycle.

The first cycle should have taken us 10 years, ending in 2022. COVID-19 set us back, as no one was able to travel for nearly two years, but we have caught up nicely and are now back on target. We are now getting ready to start the screening cycle again, this time beginning with the Members who were screened as part of their new Member applications from 2001–2012.

The success of the EAP resides in the support of our volunteer screeners. I hear time and time again how valuable it is for the screened Member to have two experienced colleagues spend two to three days exploring every corner of their facility, discussing business tactics and personal experience, and lending a fresh set of eyes to their zoo or aquarium. And the screeners also learn so much during the screenings; borrowing good ideas, learning about new fundraising techniques, discussing animal transfers and bringing this experience back to their home zoo or aquarium. This mutual and positive support and peer review is the core strength of the EAP. Many new screeners even go back to their institutions and excitedly recommend that their colleagues sign up too.

What also makes the EAP a success is the willingness to adjust to new science, norms and cultures as they arise. Standards are reviewed on a regular basis, with small changes made nearly every year, and a holistic review every five years. The Standards for Welfare, Accommodation and Management (WAM) of Animals in Zoos and Aquariums have just undergone one of these more rigorous reviews, with input from the Membership and Ethics, Veterinary and EEP Committees, and additional helpful input from the Welfare and Records Working Groups. This has led to a robust update of the Standards that drives our community to better meet our goals of positive animal welfare, safety and more.

The EAP is also scalable, and able to meet the needs of the smallest EAZA Member with fewer than 20,000 visitors up to the largest Member with 3.5 million visitors. While the expectations may be slightly different for these two Members, the spirit and principle are the same, meaning that we can welcome all Members in EAZA, big and small.

The important aspect of cultural understanding is contained also within our screeners team. We strive for every screening to have a national or regional screener that can provide

LEFT TO RIGHT: SCREENING VISIT AT ZOOM ERLEBNISWELT GELSENKIRCHEN ; SCREENING VISIT AT DRESDEN ZOO; SCREENING VISIT AT ZOOM ERLEBNISWELT GELSENKIRCHEN ALL © BORJA REH

context to the laws and culture of the country we are screening. While the Standards remain the same and often exceed local legislation on safety and welfare, having the guidance and understanding from the national screener truly helps the other screener to understand the cultural, legal and logistical environment in which the screened Member operates.

I must also highlight the importance of the EAZA Executive Office (EEO) Rapporteurs, who write the reports and serve as the 'equalising' force for all screenings. Rapporteurs are representatives of EAZA as an institution and accrediting body, to give context to standards and experience from other screenings. They write the reports that make the system work, all while connecting with the screening team and maintaining a positive experience for all involved. For myself, I consider it a privilege to serve as a rapporteur and I know my EEO colleagues feel the same.

Lastly, the Membership and Ethics Committee is the guiding and leading force behind the EAP, reading the 35+ screenings that come through the Committee every year, working with challenging screenings as well as the positive ones, and providing as much compassion and support to our Members to meet the Standards and maintain or achieve Full Membership. They must also maintain the integrity of the EAP and its commitment to the Standards, sometimes leading to difficult decisions. I have great respect for the many engaged and dedicated members of this important Committee that drives so much of EAZA's spirit.

It is not only we who see the success of this peer review but external parties recognise the EAP as a leading accreditation programme. EAZA was directly involved in the development of the WAZA Welfare Goal and used our 20+ years of experience as an accrediting body to support the development of this global welfare framework. It was also proud to be one of the first to be approved as a WAZA Recognised Welfare Evaluation Programme, as reviewed and scrutinised by our peers in Africa (PAAZA), the USA (AZA) and Australasia (ZAA). EAZA too respects the learning opportunities that a peer review can bring. This process led to EAZA pushing forward on important welfare-related topics, such as welfare assessments as a standard, and, most importantly, shortening the next screening cycle from 10 years to five. Both points help us to meet the global benchmark for cycles and objective assessments, ensuring that EAZA will endure as a leader in the zoological accreditation field.

The new cycle will begin in 2025, and we are eager to begin with recently renewed WAM Standards, Research Standards, Field Conservation Standards and the new Accreditation and Screening Questionnaire, currently in development, that will give the Member more of a voice in their accreditation report.

The future success of the EAP is founded in its existing excellence: peer review by fellow zoo professionals, constant updating to incorporate new science and techniques, scalability for all Members and culture fair across Europe and beyond. But we need your help! With the shortening of the screening cycle, we are in search of new screeners! The requirements are for a screener to have worked in an EAZA Member for at least five years, and to be a Director/CEO, Veterinarian, a high-level Curator or Educator. Please contact info@eaza.net to sign up and to learn about our upcoming screener training programme.

I am proud to have had a small part in the success of the EAP and I can't wait to see how we develop in this new five-year cycle.

See you all on an accreditation screening soon!

Conservation education in action

A SELECTION OF THE EFFORTS OF JUST A FEW OF OUR MEMBERS REVEALS THE MANY AND VARIED ACTIVITIES BEING ORGANISED ACROSS EUROPE TO SUPPORT AND PROMOTE EAZA'S VIETNAMAZING CAMPAIGN

Lucia Schröder, Educator, Ruth Dieckmann, Educator and Theo Pagel, Director, all Cologne Zoo

Zoos and aquariums across Europe are actively engaged in conservation education to raise awareness for endangered species and the biodiversity hotspots of Vietnam in support of the EAZA Vietnamazing Campaign 2024–25. These initiatives serve not only as educational tools for advocacy, but also as fundraising platforms for selected conservation projects.

Plzeň Zoo (Czechia) organised a special event on annual May Day where visitors embarked on a journey through the plight of endangered species, poaching threats and the importance of biodiversity in Vietnam. Various organisations offered engaging activities, ranging from face painting to chemistry experiments, all contributing to the campaign's objectives.

Helsinki Zoo (Finland) hosted a School Conference for secondary school students. Through workshops and presentations, students were empowered to spread awareness among their peers, extending the reach of conservation messages to a wider audience.

Ostrava Zoo (Czechia) provided an immersive experience for visitors, offering riddle stations about Vietnamese species. They also integrated educational elements into its Gibbon Temple exhibit, shedding light on the conservation efforts for the endangered Delacour's langur (*Trachypithecus delacouri*).

Mulhouse Zoo (France) planned 'Vietnamazing Sundays', in June and July, with educational games of skill and reflection, exploration and discovery of Vietnamese mountain species and storytelling sessions all aimed at highlighting the importance of protecting Vietnamese biodiversity.

Les Terres des Nataé (France) organised a stand presenting the campaign. A Vietnamese association came to perform traditional dances and martial arts several times during the day. They also prepared a treasure hunt around the flagship species and a tombola to raise funds.

Heidelberg Zoo (Germany) took a multi-faceted approach by integrating the EAZA campaign into various aspects of visitor experience. From informative signage and workshops to interactive donation mechanisms, the zoo ensured that every visitor and the local community had the opportunity to contribute to conservation efforts.

Zoom Erlebniswelt Gelsenkirchen (Germany) focused on raising awareness about the Vietnamazing campaign during their Species Conservation Day. Using educational tools such as campaign signage, informational booths and species ambassadors, the zoo effectively conveyed the urgency of protecting Vietnam's biodiversity.

On 10 May 2024, **Nordens Ark** (Sweden), had a Vietnamazing event for a group of 30 people who got to experience the zoo after closing hours. After an introduction to the campaign, they enjoyed a guided tour of the Turtle Ark, which houses endangered turtles, including the campaign flagship Vietnamese pond turtle (*Mauremys annamensis*). This very popular event will be repeated over the summer.

A volunteer at **Cologne Zoo** (Germany) used polystyrene to create an oversized snail model of the flagship *Bertia combojiensis* to focus attention on Vietnamazing in the insectarium. On Climate Day 2024, the public transport company KVB raised money for the campaign with marzipan animals.

Leipzig Zoo (Germany) highlights Vietnamazing with dedicated educational signage and the video trailer at multiple locations, such as in their conservation centre. All visitor events also include a campaign stand where children can playfully engage with the topic. Donations are collected continuously through QR codes in the zoo, at the stand and by selling Vietnamazing merchandise at the zoo shop.

Let these examples inspire you! We hope more zoos and aquariums will get involved in conservation education work, fostering a sense of responsibility towards nature and empowering individuals to contribute to conservation efforts for Vietnam on a global scale.

Vietnamazing merchandise is now available for your institutions.

All profits made from it go directly towards the conservation projects supported by the campaign. Share the shop and the merchandise with your visitors and colleagues to help us reach the donation goals. Register with the campaign to get a discount for the merchandise (https://vietnamazing.eu/merchandise).

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Unlocking the potential of cryopreservation

THE EAZA CRYOPRESERVATION NETWORK COULD BE THE KEY TO UNLOCKING THIS CRUCIAL CONSERVATION TECHNOLOGY

Andrew Mooney, Senior Conservation and Science Officer, Dublin Zoo; Susan L. Walker, Head of Science, Chester Zoo; Zjef Pereboom, Research and Conservation Manager, Royal Zoological Society of Antwerp; and Christina Hvilsom, Manager of Population Biology, Copenhagen Zoo

In 2023, the EAZA Cryopreservation Interest Group (CIG) was formed as a direct result of the growing need within EAZA to preserve living cells and gametes for future conservation and research efforts. Comprised of representatives from the EAZA Biobank Working Group, Reproductive Management Group, Population Management Centre, Executive Office, Member institutions and other partners, the CIG offers expertise and guidance to ensure that all EAZA Members have access to cryopreservation facilities, supporting EEPs and LTMPs.

The EAZA Biobank already plays a crucial role in safeguarding non-living biological samples such as DNA, tissue, blood and serum, supporting non-commercial conservation and research efforts. The CIG complements this service by focusing on living cells and gametes, providing a robust framework for long-term storage at ultra-low temperatures (-196°C). To facilitate access to cryopreservation services for the community, the CIG is guiding the development of the EAZA Cryopreservation Network. This network is comprised of EAZA and non-EAZA partners with the necessary infrastructure and expertise for cryopreservation. These partners commit to ensuring that stored samples can be used effectively in future conservation efforts in line with the One Plan Approach and EAZA population management strategies. The Cryopreservation Network is integral to the CIG's vision, and it is our aim that at least one partner can be developed in each country, ensuring effective and efficient sample processing for all EAZA Members.

This extension of current biobanking efforts offers numerous opportunities for species conservation, management and research. By preserving living cells, including somatic cells such as skin, and reproductive material such as sperm and oocytes, we can ensure the long-term preservation of genetic diversity at a far greater capacity than is currently possible within living EAZA collections. For EEPs, cryopreservation has the potential to considerably increase their chance of success, allowing us to maintain or increase genetic diversity, and possibly even to reintroduce lost genetic diversity into current populations. When used in conjunction with assisted reproductive technologies such as artificial insemination and in-vitro fertilisation, cryopreservation can also provide novel ways to generate offspring and preserve genetic diversity. Within EAZA, cryopreservation has already been identified as a potentially useful tool in the conservation and management of numerous species, including the Sumatran tiger (*Panthera tigris sumatrae*), Socorro dove (*Zenaida graysoni*) and pupfishes.

Despite the immense potential of cryopreservation, several areas require further investigation and consideration before wider application. First, the development of species-specific protocols is essential. By adapting methods tailored to domestic animals, these techniques may be applied to a broader range of wild species, for many of which our reproductive knowledge is currently limited. Additionally, the logistics of sample collection and transportation within a critical time window (24–48 hours) and the need for more dedicated facilities with adequate resources present significant challenges to successful sample preservation. Cryopreservation facilities require liquid nitrogen tanks, monitoring systems and trained personnel to process, store and manage samples for cryopreservation, which can be resource-intensive.

With new technologies come new possibilities for the use of cryopreserved material. However, their use needs to be responsible and balanced against ethical, ecological and social considerations to successfully integrate new technologies with traditional conservation methods. This will help to facilitate efforts to preserve global biodiversity for future generations in an equitable and inclusive way. A new EAZA position statement will be published in 2024 informing the membership about the exciting new possibilities, but also complex ethical questions and concerns surrounding the use of cryopreserved materials and biotechnology.

EAZA Members can engage with the CIG in many ways: submit samples to your nearest Cryopreservation Network partner, become a partner yourself, or share insights and suggestions to help shape the CIG's strategies. By working together on preserving living samples, we can make significant strides in conserving and managing threatened species.

Safety nets for a secure future

HOW THE NEWLY PUBLISHED PARROT REGIONAL COLLECTION PLAN (RCP) FOCUSES ON PROTECTING THESE INCREDIBLE BIRDS FROM EXTINCTION

David Aparici Plaza, Animal Programmes and Conservation Coordinator, EAZA Executive Office; Simon Bruslund, EAZA Parrot TAG Chair, Copenhagen Zoo; Laure Pelletier, EAZA Parrot TAG Vice Chair, Beauval Zoo

Parrots are among the most charismatic and intelligent birds, captivating both scientists and the general public with their vibrant colours, involved social behaviours and remarkable vocal abilities. In the wild, parrots play crucial roles in their ecosystems, such as seed dispersal and pollination, contributing to the health and regeneration of forests and establishment of microhabitats. Their presence is often a key indicator of environmental wellbeing, making their conservation essential for maintaining biodiversity.

In zoos, parrots are a favourite among visitors, offering unique educational opportunities to learn about avian biology, conservation and the importance of preserving natural habitats. Their engaging personalities and striking appearances make them star attractions, drawing attention to the broader issues of wildlife conservation.

Recognising the pressing threats faced by parrot species – such as habitat loss, illegal trade, and disease – the Parrot RCP aims to guide the management and conservation of parrot species within EAZA institutions with a clear focus on sustainable populations of the most threatened species in our care. Other aims of the RCP are to provide support for *in situ* conservation efforts, to enhance public education and awareness and to ensure welfare. By promoting collaboration among zoos, researchers and conservationists, the RCP sets a strategic framework for protecting these fascinating birds from extinction and securing their future in the wild and under human care.

HIGHLIGHTS OF THE RCP

The Parrot TAG looks after 421 species of parrots, including some that no longer exist in the wild. The new RCP used a scoring process to prioritise 81 species. These were then organised into 49 species sheets, allowing a manageable overview for the integrated RCP hybrid workshop hosted by Beauval Zoo (France) in April 2023, which had more than 50 participants in person and online. The RCP outlines several key strategies to ensure the health and sustainability of parrot populations within zoos.

PARTICIPANTS AT THE PARROT REGIONAL COLLECTION PLAN MEETING © PARROT TAG

Keeping parrots healthy is a big part of the plan. There is available information and Best Practice Guidelines on how to manage diseases, especially viruses, but not everyone agrees on the practical feasibility of these guidelines. Some think they're helpful, while others find them confusing or not feasible. The RCP emphasises better communication and teamwork to improve these health strategies and seeking pragmatic solutions. It also aims to integrate information on parrots' health status in population management, ensuring transparency for their placement and care.

Space is a real issue; we must make more effort to ensure a shift from species that are not threatened and less likely to become threatened towards the many equally attractive threatened programme species. Furthermore, it's important to avoid keeping or producing hybrids or using valuable space in our institutions for colour variations that don't occur naturally. This is particularly important, as many parrots are long-lived, and individuals not suited for conservation breeding or for ensuring population sustainability can block much-needed space for decades.

The RCP contains indications about which parrot species might be suitable for flying during educational demonstrations, both for reasons of programme needs in terms of demographics as well as welfare considerations. Individual new EEPs will be encouraged to develop specific recommendations around this topic. Speaking of welfare, two of the new proposed Parrot EEPs are primarily focused on ensuring welfare. These are for Budgerigars (*Melopsittacus undulatus*) and Rainbow lorikeets (*Trichoglossus moluccanus*) respectively. For both species, walkthrough exhibits are common and there are some concerns about the sustainability and welfare of these populations as well as potential in disease transmission, which we need to investigate. Such EEPs will essentially be research projects with a limited operation time until the issues have been addressed.

Lastly, the RCP adopts the IUCN

YELLOW-CRESTED COCKATOO (*CACATUA SULPHUREA PARVULA*) CHICKS IN NEUWIED ZOO © MAX BIRKENDORF

BLACK-BILLED AMAZON (*AMAZONA AGILIS*) © DANIEL ZUPANC

One Plan Approach to conservation, integrating the management of both wild populations and those in human care, promoting collaboration among all stakeholders to develop unified conservation strategies, ensuring that efforts in zoos complement and support wild parrot populations and conservation efforts.

EAZA EX SITU PROGRAMMES

A significant outcome of the RCP is the establishment of 28 EEPs. Within these EEPs, various roles were selected on a case-by-case basis, including acting as insurance populations, facilitating conservation education and serving as models for scientific research.

- **Hyacinth macaw** (*Anodorhynchus hyacinthinus*): Known for its stunning blue feathers and charisma, this bird is a real crowd-pleaser. It is popular in zoos although it is not the most threatened macaw species.
- **Yellow-crested cockatoo** (*Cacatua sulphurea*): All Asian cockatoos are massively threatened and unfortunately our five EEPs are all struggling with sustainability. Closer cooperation and research could help improve breeding results.
- **Swift parrot** (*Lathamus discolor*): European swift parrot populations may contain genetic diversity that has since been lost in the wild for this Critically Endangered species. We have a shared responsibility to preserve this species.

Everyone has a role to play in parrot conservation. Whether you're visiting zoos, learning about these fascinating birds or supporting conservation projects with donations, every action counts. The launch of the Parrot RCP brings new hope for safeguarding the diversity of parrot species in EAZA institutions and at the same time ensuring sustainability. This plan is also a call to action for zoo professionals, visitors and all bird enthusiasts to unite in support of these incredible birds.

The Parrot RCP was made possible through the extensive collaboration and contributions of many dedicated people. This includes members of the Parrot TAG, EEP Coordinators, staff from the EAZA Executive Office, *in situ* conservation experts, and all participants of the RCP workshop held in Beauval. A heartfelt thank you to everyone who contributed to this vital project!

For those interested in more detailed information on parrot conservation, a list of references and resources is available on the EAZA Member Area.

ECUADORIAN AMAZON (*AMAZONA LILACINA*) © REBECCA BIDDLE


© ARCHIVE OPEL-ZOO

From the tiniest to the tallest

TWO EEPS SHOW HOW THE LTMP PROCESS CAN HELP ALL SPECIES NO MATTER THE SIZE, SHAPE OR CHALLENGE


PARTULA SNAIL MARKED © ZSL LONDON ZOO

Nora Hausen, Population Biologist, EAZA Executive Office, Paul Pearce-Kelly, Partula Snail International Coordinator, ZSL London Zoo, and Jörg Jebram, Giraffe EEP Coordinator, Opel-Zoo

In the most literal meaning of 'one size does not fit all', LTMPs for the EEPs of the tiny Partula snails (*Partula spp*.) and the towering Giraffe (*Giraffa camelopardalis*) have both been developed recently. The EEPs are very different on paper: not only in the type of species they look after, but also in the number of people and holders involved. With the additional challenge of managing multiple populations, their LTMPs focus on the smaller and larger challenges of each EEP.

PARTULA

Picture a typical Partula exhibit… chances are that you struggle with this, as there aren't many holders, and not all individuals are on exhibit. What you will see are rows of glass tanks each holding up to 100 snails. Yet these tanks often contain the last survivors of a whole species. Eleven of the 15 taxa managed by the EEP are Extinct in the Wild and three others are Critically Endangered.

HOW DOES THE EEP CONTRIBUTE TO CONSERVATION?

To fulfil its Ark role and reintroduction remit, for the last 30 years the EEP has been continuously breeding to provide animals for re-establishing these species in Polynesia. Since 2015, more than 25,000 snails representing 14 taxa have been released into their wild habitat. The EEP is a flagship of invertebrate conservation and the One Plan Approach. Together with its French Polynesian government partner, its conservation activities include breeding, reintroduction, education, awareness raising and policy engagement. More about the reintroduction efforts can be found in *Zooquaria* 98. In addition to their core species conservation remit, the zoo populations have provided a model for developing demographic analysis of group-managed species.

WHAT IS THE MAIN POINT OF THE LTMP?

It may sound as if the EEP has everything figured out and has a smooth sailing (or crawling?) ahead. But it's not that easy. The species are surprisingly different in their husbandry demands, some being more challenging to care for than others. We owe the fact that most species are not extinct but thriving to a handful of highly dedicated keepers who are working meticulously to ensure the best care for these fragile creatures. And care is not only attending to husbandry and veterinary needs, but also being passionate about the animals. The element of passion may surprise, yet it has been a major factor in the EEP's recipe for success. Partulas are highly sensitive to change, and populations have crashed in the past, sometimes due to apparently minor or completely unknown reasons. Dedication and thoroughness are considered the most effective means against crashes, along with careful demographic management.

The focus of the LTMP was to investigate these previous crashes, their potential causes and the differences between species to understand why some are more sensitive than others. It became clear that a lot of the best practice and expertise is based on anecdotal evidence (which doesn't make them less valuable for management). The LTMP process highlighted the importance of a number of key best practices, above all good communication with the Coordinators and stability in terms of environmental factors and staffing. It also initiated further investigations into additional factors that may affect population growth and resilience, including microclimates (especially temperature, humidity and light exposure), diseases, diet and genetics. Most of the populations have been in human care for multiple generations and are expected or known to stem from small numbers of founders or went through severe

bottlenecks. The EEP is therefore investigating options to do molecular genetic testing to find out how much genetic diversity is maintained within and between groups.

WHERE DO WE WANT TO BE IN 10 YEARS?

Some species have been lost in the past and are now completely extinct. We want to prevent future population crashes and grow all populations to robust sizes of more than 1,000 individuals to act as permanent sources for reintroduction. To reach this aim, the EEP is looking for additional participants. Adding Partulas to your species plan is relatively simple because it doesn't require much space or money to get started. The EEP can provide you with easier and more robust species to get you started and help you gain experience. In return, EEP participation will boost your institution's direct conservation output by regularly contributing to reintroductions of hundreds of animals and conveying a powerful success story to your visitors.

GIRAFFE

While Partulas are often overlooked, this is hardly possible for the grand giraffe. It's one of the most iconic species and currently counts almost 800 individuals at ~170 holders. Ten years ago, this was one of the first programmes with an LTMP. The biggest challenge back then was finding holding spaces in the EEP, and consequently, a lower birth rate was implemented. This strategy was effective, leading to an improved space situation. Now a boost in births is needed to rejuvenate the population, which means it is a good time for a second LTMP to determine how to do this.

WHAT IS THE MAIN POINT OF THE LTMP?

Giraffes breed easily and have a long reproductive lifetime. However, due to the long gestation time, rejuvenating the EEP population will take multiple years. On the plus side, holders and visitors can look forward to many individuals being recommended to breed, and as a consequence, many offspring being born. Holders can furthermore contribute to the transition by considering temporary changes to their herd size. This will provide the EEP with more flexibility to match pairs and provide more holders with animals. Additionally, it is an opportunity for institutions to change or upgrade their facilities because there is space to (temporarily) relocate animals. The EEP continues to focus on insurance populations for the Reticulated (*G. c. reticulata*), Rothschild's (*G. c. rothschildi*) and Kordofan subspecies (*G. c. antiquorum*). Only these are recommended to breed, the others are to be phased out in the mid- to long-term (see table, above).

Common Name	Scientific Name	Red List Status	Population size	RCP decision
Rothschild's giraffe	*G. c. rothschildi*	NT	429	Grow towards Insurance role ↗
Reticulated giraffe	*G. c. reticulata*	EN	144	
Kordofan giraffe	*G. c. antiquorum*	CR	87	
Angolan giraffe	*G. c. angolensis*	LC	13	Phase-out ↘
Cape giraffe	*G. c. giraffa*	-	20	
Hybrids and unknown subspecies	-	-	87	
		Total	780	

WHERE DO WE WANT TO BE IN 10 YEARS?

The aim is to reach a combined population size of ~750 individuals for the three insurance populations. The Rothschild's and reticulated populations are genetically and demographically healthy and well prepared for the coming years thanks to their large sizes and relatively robust genetic diversity. The Kordofan population needs more attention. As a Critically Endangered subspecies, it is all the more important to grow the EEP population to demographic stability. The genetic diversity is the lowest of all insurance populations, and opportunities for improvement are currently investigated.

HOW DOES THE EEP CONTRIBUTE TO CONSERVATION?

The EEP aims to maximise the number of holders that contribute to the species' conservation, directly and indirectly. All giraffe populations in EAZA fulfil roles for conservation education, research, fundraising and exhibit. The EEP has several subgroups and advisers to assist and support the Coordinator and holders in conservation, nutrition and veterinary matters. The EEP furthermore closely collaborates with *in situ* partners. Successful conservation efforts provide a positive story to tell and the EEP encourages all holders to educate about and fundraise for giraffes.

THE BIG (AND SMALL) PICTURE

The Partula and Giraffe EEPs highlight two examples of how the LTMP process identifies the most important challenges and response strategies for an EEP. In accordance with their different sizes, the Partula LTMP zoomed in on preventing population crashes, while the Giraffe LTMP zoomed out to align the breeding strategies for all populations. They are connected by showcasing the importance of active collaboration between Coordinators and participants to ensure the continued success of the programme, no matter the size.

Aims for 2033

Partula: Grow all populations to at least 1,000 individuals to be able to regularly provide individuals for reintroductions
Giraffe: Grow the three Insurance populations to at least ~750 individuals, phase-out other populations with ~40 individuals remaining

The king of the island

A MULTI-PRONGED PROGRAMME COMBINING CURRENT RESEARCH, PAST EXPERIENCE AND NEW STRATEGIES SHOULD ENSURE A BRIGHTER FUTURE FOR THE KOMODO DRAGON

Gerardo Garcia, Komodo dragon EEP Coordinator, Chester Zoo; Vanessa Almagro, Veterinary Advisor for the Komodo dragon, Barcelona Zoo; Bongot Huaso, Vice President, Lifesciences TSI

Sir David Attenborough, on his first trip to film Komodo dragons (Varanus komodoensis) in 1956, described his initial encounter with this exceptional animal: '…he was standing high on his four bowed legs, his heavy body lifted clear of the ground, his head erect and menacing…as king of the island, he feared no other creature'. More than half a century later, this species' future is precarious, but the zoo community is supporting it both ex situ and in situ, working with strong in-country partners.

Described in 1912, the species has been present in zoos for more than 100 years. Although considerable research has been carried out on dragons' reproduction in the wild, little is known about it in *ex situ* settings. Despite the advances in husbandry for this species, there remain key questions to address.

The first four Komodo dragons were brought into European institutions in 1927 and the population remained quite small (fewer than 15) until the late 1990s when hatchings became consistent. Since then, the population has shown mostly consistent growth alongside an increase in the number of EEP participants. Today, just under 100 individuals are housed in EAZA institutions. To meet the EEP's target population size in the future, the population must be demographically stable, with more consistent reproduction, so that it becomes a growing population. According to Studbook data collected since 1990, it shouldn't be a difficult to achieve this, but we are facing serious challenges in our zoos.

REPRODUCTIVE CYCLES

The reproductive seasons of Komodo dragons in EAZA zoos differ between the southern and northern hemispheres. This is due to different environmental conditions compared to the strict breeding season in the wild. The situation has resulted in a significant increase in females' deaths between the ages of six and 12, related to ovarian diseases. As in other lizards, these are related to pathological and environmental factors, but specific data around the reproductive period in female dragons is missing. Human care can also affect their normal cycle, which can result in fatal reproductive complications. So it is crucial to collect more data on this topic to keep healthy and viable *ex situ* populations.

Our veterinary advisers are leading a study describing the standard reproductive cycle using ultrasonography together with hormonal determination, and establishing a global monitoring programme for females over two years old in the EEP. This will give us some useful tools to continue working for the species' conservation. To ensure the best welfare for the animals, training to perform the ultrasound examination also needs to be standardised. Training enables us to monitor the reproductive cycle using non-invasive methods, although manual restraint may sporadically be necessary for health evaluation in some animals.

GENETIC DIVERSITY

The current population's diversity is 89.2%, equivalent to almost five unrelated individuals. Projection analyses predict that it will retain 50.3% genetic diversity for the next 100 years. The limited number of dragons in the reproductive age classes could limit the population growth. More focus should be put into consistent production of offspring to ensure a stable number of animals entering the reproductive age classes. To reach the target population size of 200 individuals in the next five years and fill the first and future age classes, a rapid growth rate of 16% will be temporarily necessary. This would predict a retention of 51.1% gene diversity for 100 years.

One of the strategies for maintaining a high genetic diversity is the arrival of new bloodlines from other regions. The American Association of Zoos and Aquariums (AZA) region has dragons originating from the western part of the Komodo National Park (Indonesia) while the EAZA individuals are mostly from its eastern part or West Flores. The initial approach is not to interbreed them due to their different origins. Indonesia is the next option, where at least 12 conservation institutions around Java and Bali Island are caring for more than 100 Komodo dragons. One foreseen challenge is to have a centralised database to help develop a strategic national plan for the management of the populations and secure the genetic health of Komodo dragons in Indonesia.

IMPLEMENTATION OF FACILITIES AND HUSBANDRY

During the last two decades, a lot of work has been done to build upon the first studies from the 1980s. The Komodo Survival Programme – the EEP's in-country partner for more than 15 years – has conducted many biology and ecology studies, providing a strong baseline of information to help develop husbandry standards to care for the species in our institutions. The 30+ years of keeping the species in the EAZA region gives us a clear picture of the most important areas of implementation. Komodo dragons exhibit the greatest range in body size of any lizard, creating unique challenges in properly managing the species' thermoregulation in human care, as body temperatures range from 28°C to 40°C. Holding facilities should be able to accommodate these varied thermoregulatory needs at different growth stages to mimic those of wild dragons.

Additionally, dragons move from very arboreal behaviour in their first three years, where they prey on insects and small lizards, to spending more time on the ground when their dietary requirements increase and they begin feeding on mammals and birds. These

first years of development are vital for their future. Their diet is closely related to their body size; as they get larger, they will eat larger prey items (either hunted or scavenged). In these vital initial years, Komodo dragons spend much of their day actively searching for food and often walk several kilometres to find it.

While the visitor experience may be improved by seeing several Komodo dragons together, immature dragons, like many reptiles, are not particularly social and rarely interact with one another, even if their use of space may overlap considerably.

All these requirements explain why caring for this species goes beyond what a 'typical' facility for reptiles provides. Their needs more closely resemble a mammalian carnivore that can't adapt to low temperatures and requires the most delicate lighting conditions when kept indoors.

ADDRESSING THE CHALLENGES

Based on this scenario from the last decade, the EEP developed a strategy to address the key challenges in *in situ* and *ex situ* conservation of the species, and a workshop was held last year to bring together stakeholders in Komodo dragon conservation from Indonesia and Europe.

The two-day workshop, based in Java, consisted of presentations, discussions and practical sessions with leading experts in *ex situ* conservation research on veterinary, husbandry and population management of dragons in Europe and Indonesia. Research proposals focusing on reproductive pathology and replicating seasonal environment parameters in human care were presented. Current research was incorporated to develop a collaborative monitoring programme under the EEP between EAZA and the Indonesian zoos.

Lecturers and participants came from the government of Indonesia represented by the Ministry of Environment and Forestry (KLHK), Taman Safari Indonesia, the Indonesian Zoo and Aquarium Association (PKBSI), the Indonesia Institute of Sciences and Research (BRIN) and the Komodo dragon EEP. Representatives from the 13 institutions were present, of which 11 were Indonesian zoos.

Given the importance of enhancing the management efforts based on the One Plan Approach to achieve a healthy global population of Komodo dragons, the following topics were addressed:

- Introduction to the Regional, National and International Population Management Model for Komodo dragons and the use of ZIMS
- Capacity-building for animal keepers, curators and veterinarians managing Komodo dragons in their respective institutions to ensure high standards in the daily care and health management of the animals (nutrition, heating and lighting, housing design, daily husbandry and record-keeping, handling, anaesthesia, monitoring reproduction and pathology)
- Conducting health assessments in Komodo dragons at Taman Safari Indonesia (Bogor and Bali) – this will serve as a reference for conducting individual assessments in the conservation institutions participating in the workshop
- Exchange of knowledge and experience between Indonesia and Europe regarding the maintenance and health of Komodo dragons to standardise health protocols and management – this will be disseminated globally to establish a healthy long-term population under the management of the national and International Studbook (ISB) Coordinators

As a result of this first phase of the ISB development, Indonesian institutions will participate in this management programme and follow its recommendations. In parallel, a genetic study to determine the origin, pedigree and sex of all Komodo dragons in Indonesian institutions is underway, to build the first national breeding programme in the country in support of the long-term management at the national and international levels.

Following the successful engagement of the Indonesian government and zoological institutions, the current initiative is continuing the health screening and recording of the Komodo dragons in Indonesian institutions, centralising the information using the global system ZIMS and strengthening the work with the other regional programmes.

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SAVING KOMODO DRAGONS TOGETHER

The initiative attracted the attention of, and brought the support and active participation of, the Indonesian government and partners in the regional, national and global management programmes. EAZA institutions are direct custodians of the species and must follow their recommendations.

While conservation efforts have historically focused either on *ex situ* or *in situ* programmes (see *Zooquaria* 109), the IUCN One Plan Approach to conservation provides a framework for integrating knowledge, skills, resources and efforts in conservation from the *in situ* and zoo communities to secure the future healthy populations. These efforts are part of a long journey in which everyone has their role and responsibility. Progressive zoos and aquariums take seriously the welfare of the animals in their care. It is vital that they provide equal resources to fulfil the fundamental requirements of all species, including large reptiles, other large carnivores or scavengers whose complex biology was once ignored.

YOUNG *BUBO BUBO*
© RASA MIKULIČIENĖ

Basic instincts

THE EURASIAN EAGLE-OWL BREEDING AND ADAPTATION PROJECT AIMS TO INCREASE WILD POPULATIONS IN LITHUANIA, AND ENCOURAGING NATURAL HUNTING INSTINCTS IS A CRUCIAL PART OF THE PLAN

Kristė Stravinskaitė, Scientific Curator; Meda Pikūnaitė, Scientific Coordinator; Rasa Mikuličienė, Project Researcher; and Gintarė Stankevičė, Director, all from Lithuanian Zoological Gardens

Between 2020 and 2023, the Lithuanian Zoological Gardens, together with the Ecosystem Protection Center and the Lithuanian Environmental Protection Agency, collaborated on a project called 'Breeding of the Eurasian eagle-owl (*Bubo bubo*) and its release into the wild'. The project's aim is to increase the population of *B. bubo* in Lithuania by conducting breeding, adaptation and tracking of individuals. This is known as a conservation introduction by assisted colonisation – in other words, the intentional movement and release of an organism outside its indigenous range to avoid extinction of populations of the focal species.

The project followed the IUCN guidelines for reintroductions and conservation translocations at each stage, from collecting all the necessary information about the species, its distribution, planning the feasibility, designing the study and assessing the risks to the implementation of the release, monitoring of the individuals and continued project management.

In this article, we describe this challenging project, which demanded a lot of work, knowledge and patience – from preparing the birds for survival in the wild to the soft release of 18 owls – and discuss the birds' possible adaptation difficulties.

THE SPECIES

B. bubo is native to Eurasia. It has been listed as Least Concern in the IUCN European Red List since 2016. However, in the Red Data Book of Lithuania, its status is Endangered and it has a very high risk of extinction in the wild. The greatest threats to this species are disturbance of nesting birds during the breeding season, destruction of clutches by predators and deforestation. In Lithuania, *B. bubo* populations are very small and fragmented, so their survival mainly depends on individuals immigrating from neighbouring countries.

AWAKING HUNTING INSTINCTS

B. bubo juveniles bred at the Lithuanian Zoological Gardens were fed an appropriate diet similar to natural prey: rodents, rabbits and birds (mostly rock doves). Beef was also part of the diet. Live prey was preferred, as it helped to maintain their hunting instincts and reduce the risk of imprinting on humans.

Usually, juveniles tended not to eat if they were observed. It was essential to monitor their feeding habits and provide the necessary care until they were more self-sufficient and were able to hunt prey for themselves.

One of the most successful methods for teaching hunting skills to juveniles was making a ravine in the enclosure. A small layer of gravel was added to cover the bottom, and dry tree leaves, moss, grass tufts, pieces of turf and branches were added to the edges and part of the bottom to disguise the ravine and 'extend' the natural environment. The juveniles needed some time to get used to this unfamiliar environment. Once they were comfortable with it, several live small rodents were released into the ravine. The rodents' sounds, such as rustling in leaves or squeaking, recall the noises that prey animals make in the wild, and they naturally triggered a hunting response in the juveniles. It was observed that they were learning to hunt successfully. This method was also used for younger (approximately three-week-old) juveniles, but instead of a ravine, a closed container was used and the live prey was smaller.

Inside their habitat, juveniles were hunting live rock doves and quails and chasing rabbits. As their wild counterparts do, the young removed the heads, ate a part of the prey and hid the remainder under stumps. In nature, the owls return to feed periodically on the carcass. This is an instinctive behaviour.

Bird experts from Kaunas Tadas Ivanauskas Museum of Zoology were consulted with regards to *B. bubo*'s

natural behaviours and the best release locations.

ADAPTATION ENCLOSURE

The adaptation enclosure was built in Kaunas district, on the edge of the Karalgiris forest. One side faces the forest, while the other faces open ground. The enclosure measures 4 × 10 × 4 m and includes wooden constructions. The sides are made of metal mesh covered with plastic and the top is covered with fabric mesh. One side is covered with a non-transparent tarp, so that birds can't see people.

Three stumps, branches and perches were added to the enclosure. A natural hiding place was a canopy of fir branches allowing juveniles to hide from precipitation or sunlight. Fresh water and live prey were placed inside. The live prey also had hiding places made of branches, so that the owls would have to hunt them.

Before the release to the adaptation enclosure, OrniTrack-NR40 transmitters were attached to the birds, with the help of experts from the Ventės Ragas ornithological station, to track their exact GPS location. Video surveillance camera allowed the team to monitor the enclosure 24/7.

SOFT RELEASE…

After about one month, a window on the side of the enclosure was opened in the evenings from 7 pm to 8 pm. This release is called 'soft' because the individuals have become familiar with the surrounding environment and its sounds and have practised their hunting skills and can fly out of and back into the enclosure. The owls did not immediately fly out and were hesitant. This may have been due to the absence of a perch near the open window, which would have allowed them to view the unfamiliar outside environment, so we added a perch made of branches.

The juveniles did not leave the enclosure on the first evening of the soft release. The earliest they flew out was after 24 hours. We kept the video surveillance camera active for a week to see if the birds were flying back to the enclosure, but they never did.

We tried to soft release in spring and autumn. A better adaptation of the juveniles was observed in the spring, possibly due to a higher availability of prey in the forest at that time of year.

… AND BEYOND

From the time of release, the tracking transmitters sent location data every two hours informing the team of the birds' activity and allowing them to make predictions about their hunting success and survival in the wild.

Most of the juveniles stayed near bodies of water (e.g. rivers and ponds) inhabited by waterfowls such as wild ducks and seagulls. When the amount of prey decreased, individuals stayed closer to farms and hunted at dusk. This could negatively impact their adaptation and the probability of finding a mate. It is thus essential to avoid animal-human contacts prior to the release as much as possible.

Frequent causes of death were capture by predators, such as white-tailed eagles (*Haliaeetus albicilla*), or illnesses. We tried soft releasing individuals of different ages and noticed that one-year old juveniles had better chances of survival than five- or six-month-old juveniles, as they had more time to learn hunting skills.

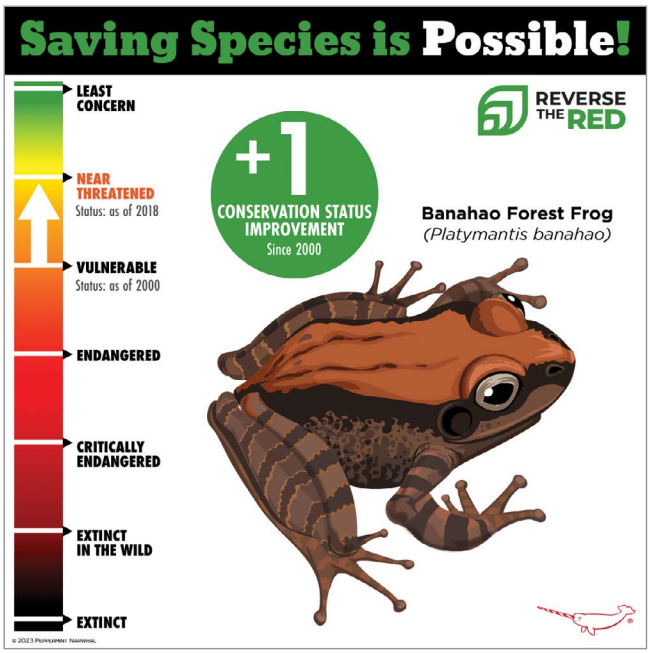
IN CONCLUSION

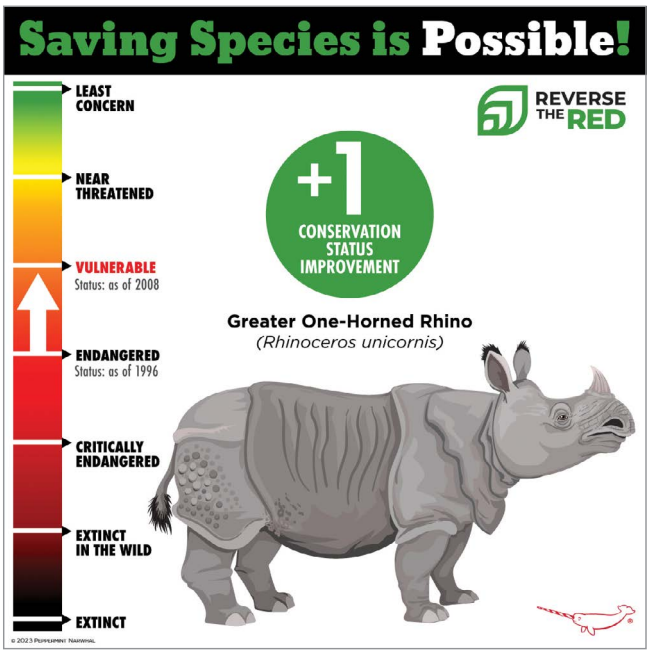
Proper rearing of juveniles and good training in hunting skills do not guarantee a good adaptation of the individuals in the wild. Sometimes they do not catch enough prey to survive. Adaptation is a very individual process, and it is difficult to predict whether or not the owls will have adequate hunting skills and adapt in the wild, even when they are raised in the same conditions.

ADDITIONAL INFORMATION

The project 'Breeding of Eurasian eagle-owl (*Bubo bubo*) and its release into the wild' (05.5.1-APVA-V-018-01-0018) was funded by the 2014–2020 Operational Programme for the European Union Funds Investments in Lithuania. It was implemented between 2020 and 2023 by the Lithuanian Zoological Gardens in partnership with Ecosystem Protection Center, with the authorisation of the Environmental Protection Agency.

THE EAGLE-OWLS' ENCLOSURE © RASA MIKULIČIENĖ





Our role in reversing the red

THE FIRST WORLD SPECIES CONGRESS HIGHLIGHTED THE CRUCIAL ROLE PLAYED BY ZOOS AND AQUARIUMS IN THE BATTLE TO REVERSE THE DECLINE IN BIODIVERSITY

Tania Kahlon, Head of Communications, World Association of Zoos and Aquariums

The inaugural World Species Congress took place on 15 May 2024, a historic gathering aimed at addressing the urgent challenges facing our planet's biodiversity. We saw people from 203 countries and territories joining the online event, 96 satellite events, more than 9,000 registrations and 12,000 social engagements. With themes ranging from climate action to indigenous leadership, this event represented a pivotal moment in our collective efforts to safeguard our planet's biodiversity.

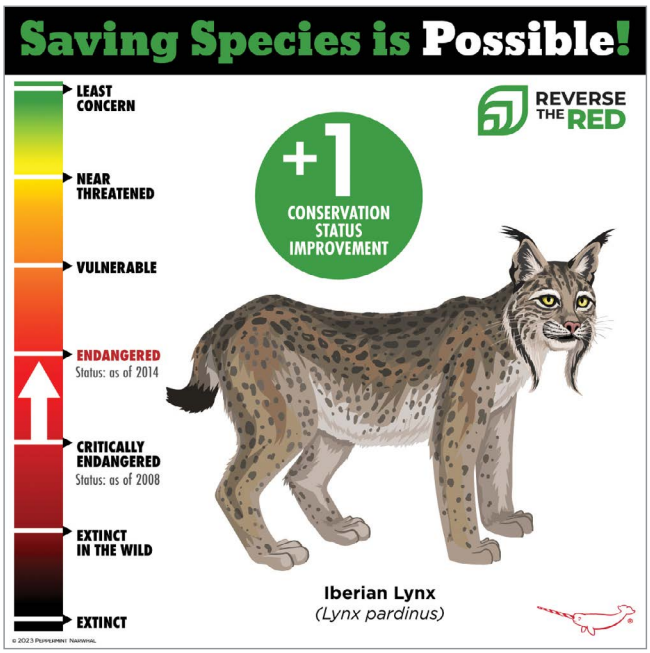
Organised by Reverse the Red, the landmark event was the result of the WAZA Resolution 73.1 adopted in 2018 which states '*WAZA assumes a leadership role in a Global Species Congress, as approved by the International Union for the Conservation of Nature (IUCN) resolution 4.019 in 2008, which calls on all sectors of society, including but not limited to governments, multi-lateral agencies, foundations, non-governmental organisations, accredited zoos and aquaria, botanic gardens, academia, the media and the business sector, to convene a World Species Congress within a reasonable timeframe "to highlight the status of the planet's species, articulate and review the consequences of the threats that they face, and chart their future conservation."*'

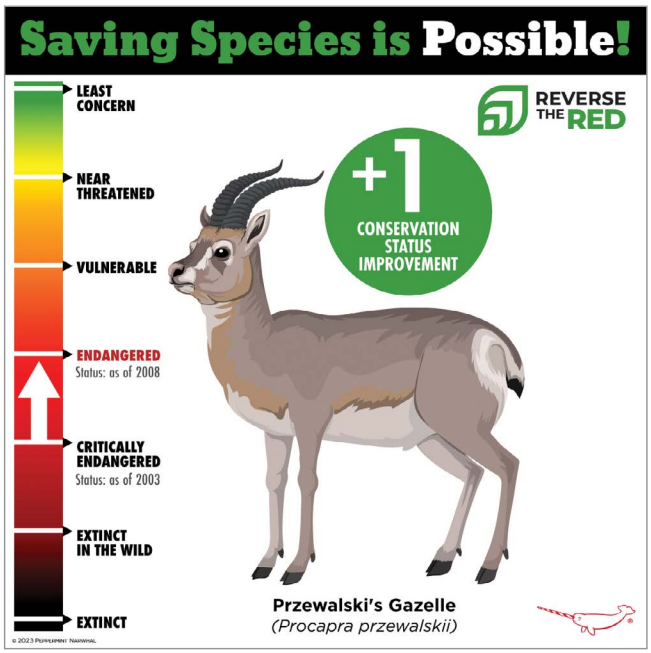
The agenda for the 24-hour online event included conversations on financing biodiversity, technological innovations and behaviour change; downlisting species like the Iberian lynx (*Lynx pardinus*), mountain gorilla (*Gorilla beringei beringei*), grey-crowned crane (*Balearica regulorum*) and saiga (*Saiga tatarica*); actions for species aligned with the Global Species Action Plan; tools such as the Global Tree Portal; and inspiring ways to accelerate impact and achieve big goals in conservation strategy. Attendees included government officials, conservation practitioners, species impact personnel and storytellers, creating a vast network of people sharing their expertise, successes, failures and commitments to the future and driving momentum towards the goals set out in the Biodiversity Plan.

"*Through its global reach and unprecedented participation, this World Species Congress brought together the world's conservationists to celebrate the incredible work already being done and serves to motivate us all towards achieving more species recovery*," said David Field, WAZA Vice-President and co-chair of the Reverse the Red Executive Committee.

GLOBAL ACTION

National and regional conversations took place across 96 satellite events, engaging tens of thousands more in direct, relevant discussions with local networks of experts. Some organisations hosted watch parties with staff, others convened partners for coalition-forming activities, and still others created programmes to engage thousands of visitors in their specific conservation efforts. Government representatives from 16 countries spoke to the global Congress audience, but many more attended national satellite events, directly engaging with the network of partners in their respective countries working to reduce extinction risk and recover species.





The goals and targets of the Convention on Biological Diversity's Biodiversity Plan are ambitious, and with just over five years to achieve the first targets, the urgency is only increasing. But attendees of the World Species Congress came away from the event with the reassurance that saving species is possible, and with insights, tools, strategies and frameworks to accelerate their efforts. They were also connected to the more than 10,000 other conservation experts dedicated to the same goal. The first-ever World Species Congress was a pivotal moment in conservation: an attestation of what we can do together to save species.

WAZA members play a crucial role in halting biodiversity decline and this was taken further during the Congress with several of our members making species pledges, organising satellite events and sharing their impactful work.

At the New Zealand satellite event hosted by Te Nukuao Wellington Zoo, 30 conservation organisations from across Aotearoa pledged to protect 50 different species from population decline. In addition to this, the IUCN Species Survival Commission's (SSC) Antelope Specialist Group committed to assessments of 95 species. Twycross Zoo, in the UK, also committed to reversing declines of 15 threatened species by 2030. These are only a few examples of how WAZA members came together to accelerate their impact in halting biodiversity decline, and further highlight how crucial zoos and aquariums are to this effort.

THE ROLE OF ZOOS AND AQUARIUMS

Our member institutions act as spaces for some of the world's most endangered species, providing a safe environment where they can thrive, and contribute to the genetic diversity of their populations. Given the escalating threats to biodiversity, the IUCN SSC emphasises the significance of zoos and aquariums in global conservation efforts through the One Plan Approach as highlighted in their recent Position Statement on zoos, aquariums and botanic gardens.

During the World Species Congress, the challenges of conserving biodiversity were highlighted as being both complex and urgent. The role of zoos and aquariums in supporting conservation is crucial, but they cannot do it alone. It will take the collective efforts of individuals, communities and governments to ensure that the world's diverse species thrive for generations to come. By attending the Congress and engaging with its discussions, the participants contributed to a broader movement that seeks to protect our planet's irreplaceable biodiversity.

You can find more examples of zoos and aquariums that are 'reversing the red' in the WAZA x RtR Short Guide. We thank everyone who participated in and presented at the World Species Congress. WAZA especially thanks all the members who contributed financially to the success of the Congress. We hope that the momentum for this movement to Reverse the Red continues to grow through the second half of 2024.

EAZA Conservation Forum 2024

THE TAKE-HOME MESSAGE FROM EAZA CONSERVATION FORUM 2024 WAS THAT THE CONSERVATION CRISIS IS LIKE HAVING A TIGER BEHIND US – SO WE'D BETTER START RUNNING!

Merel Zimmermann, Animal Programmes and Conservation Coordinator; Mirko Marseille, Events and Corporate Member Coordinator; and

The 10th edition of the EAZA Conservation Forum was hosted from 4 to 7 June 2024 by Ostrava Zoo (Czechia). This was a small landmark itself, as it was the first time the zoo had hosted an official EAZA event and the first time a Czech Member hosted the EAZA Conservation Forum. And what wonderful hosts they were!

On Tuesday evening, the icebreaker took place at the zoo's Saola restaurant, where delegates enjoyed a tasty buffet while overlooking the Philippine deer (*Rusa marianna*) habitat. On Wednesday, the Forum was officially opened. As a follow up to the 'Developing your Conservation Strategy' workshop held during the last edition of the Forum, four EAZA Members – Rotterdam Zoo (the Netherlands), Ostrava Zoo, Halle Zoo (Germany) and Colchester Zoo (UK) – shared their experiences of developing and implementing their new conservation plans. Throughout the rest of the day, presentations revolved around how to make sure your precious resources committed to field conservation are well invested, and what tools and approaches can help you design or select appropriate projects and partners. An introduction to the 'Open Conservation Standards' by Rebecca Young (Durrell Wildlife Conservation Trust) showcased a set of principles and practices for conservation project design, management and monitoring. In the evening, a selection of conservation documentaries was shown, and delegates could taste coffee made with the ground beans from the Kukang Rescue project, initiated by Ostrava Zoo, in Sumatra. Verdict from the EAZA office: this coffee has a beautiful and strong taste. Approved!

Day two focused on exploring effective narratives for conservation: for better partnerships and for understanding that brings about change and positive impact. Invited speakers, Jon Taylor (Conservation Optimism) and Julian Fennessy (Giraffe Conservation Foundation) reflected on the opportunities, and maybe more importantly the weaknesses, related to engaging with the different audiences of zoos and aquariums. Our biggest chance of being effective is to communicate positively, adapt our message to the targeted audience and make sure they do not disconnect or get discouraged. All this, while still making sure everybody knows there is a roaring tiger behind us that is about to jump, and we should be running!

In the afternoon, delegates started off with a short tour of the city of Ostrava before visiting the zoo on their own or joining guided tours. Drinks and meals were then provided at the zoo's food stations.

FACING THE DEADLINE

On the last day of the Forum, opportunities offered by EU policies and legislation on biodiversity were discussed. The main focus was given to the EU Biodiversity Strategy and the Global Biodiversity Framework, the EU Action Plan Against Wildlife Trafficking (introduced in a video message by Astrid Schomaker, European Commission) and the EU Pollinators Initiative (presented by Nicolas Manthe, European Commission). This time, the roaring tiger is the 2030 deadline to reach many EU and global conservation goals. EAZA zoos and aquariums have a high chance of winning this ambitious race, thanks to their knowledge and skilled staff who can support their countries in fulfilling their national tasks – such as prioritising species and habitats that are not in a good conservation status[1] – and to the broad networks they can rely on to mobilise coordinated actions towards common objectives. As Astrid Schomaker said in her message: 'Zoos and aquariums

WELCOME SPEECH © OSTRAVA ZOO

Alice Albertini, EU Policy Coordinator, all from the EAZA Executive Office

are not just places of wonder and learning. They are and should be critical partners in the global efforts to conserve biodiversity.' Integrating our conservation work with the wider policy frameworks while building a stronger narrative is essential for the EAZA community to be fully recognised as a critical partner.

The day continued with workshops (see 'EAZA 2024 Forum Workshops', right) and more inspiring presentations on getting involved in European biodiversity conservation. The overall programme offered an opportunity to present and reflect on how to best deliver conservation activities of high quality and positive impact, no matter what the scale. This way a wide range of participants could take home implementable ideas and approaches to escape the tiger!

The participants got to say goodbye during a farewell dinner at the Tripple Hall Karolina, a historical area offering original opportunities for hosting various events. The heritage-protected buildings were used for industrial purposes as they produced electricity for the surrounding shafts, mines and smelters.

Those wanting to enjoy Ostrava and its surroundings a bit longer took a post-conference excursion to the unique restored wetland area of Kozmice bird meadows. The conservation project has been supported by Ostrava Zoo for several years and its observation tower was named the 'Observation Tower of Petr Čolas' in honour of the former Ostrava Zoo director and lifelong conservationist.

A SUCCESSFUL FORUM

The EAZA Conservation Forum 2024 was well attended by 129 delegates from across Europe and the world, including Costa Rica, Australia, Indonesia and the USA. Twenty-one per cent of them represented non-EAZA institutions, including NGOs, universities and research institutions. The overall experience for the event was rated with an 8.7, an impressive and well-deserved score. Congratulations and huge thanks to the wonderful hosting team in Ostrava Zoo!

The proceedings are available on the EAZA Member Area and the recordings on the EAZA Youtube channel.

REFERENCES

[1] The EU Biodiversity Strategy includes the '30% conservation improvement target' for habitats and species under the Birds and Habitats Directives.

EAZA FORUM 2024 WORKSHOPS

Protecting European Species and Engaging Local Communities

This workshop, led by Andrea Bracko (Zagreb Zoo, Croatia), was part of a series conducted under the European Species Initiative (ESI), which promotes and advances conservation efforts for European species in zoos. Participants developed skills in project design, stakeholder engagement and collaborative planning, which enabled them to initiate or enhance their own conservation initiatives. First, by using four example cases to allow participants to go deeper into topics such as engaging local communities and forming partnerships. Second, by collaborating in four groups to develop plans for conservation projects focusing on European species – this was highly productive, and interesting plans were developed.

Strategic Species Planning: a conservation perspective

Strategic species planning is vital to the success of a zoo or aquarium and its impactful contribution to conservation. As part of a PhD thesis, Hannah Jenkins (Nottingham Trent University, UK) wanted to collect data to understand what criteria are important to consider in species planning and how to best include a robust conservation focus to the framework. This information will support zoos in maximising their conservation output through their species plans. She will organise a follow-up workshop at the EAZA Annual Conference for anyone who would like to participate.

Planning and Design of Conservation Breeding Facilities

Russell Ploutz (Zoodesign Inc.) led participants through the process of designing a breeding centre from planning to concept design. In the planning phase, he explained how designers use as a guide an animal management plan, written by conservationists. The workshop participants wrote an animal management plan for a fictional species *Draco conflictio*, the Fighting Dragon. Freed from the realities of budgets and real-world limitations, they were then able to focus on designing the ideal facility for the species. The workshop helped participants understand how the design process leads to design solutions and how they can better collaborate with designers in the future.

Inside the Fish Ark

PLZEŇ ZOO'S NEW AQUATIC EXHIBIT WILL IMPROVE THE CARE AND PROSPECTS FOR MANY ENDANGERED SPECIES OF FISH

Tomáš Peš, Curator, formerly of Plzeň Zoo, now at Walsrode Birdpark

In autumn 2023, Plzeň Zoo (Czechia) opened 'Fish Ark', a new exhibition dedicated to the conservation of threatened freshwater fish and invertebrate species. The building also includes a new breeding facility with aquariums. The old breeding facility is still in operation and serves as a reserve for keeping offspring.

The exhibition area aims to capture the attention of the general public and provide an opportunity to get involved in citizen conservation. Unlike for large charismatic vertebrates, often all it takes to save one of these species is one small tank. And with proper documentation and collaboration with other breeders, both institutional and individual, many Critically Endangered or Extinct in the Wild species can be preserved *ex situ* in the long term.

Behind the walls of the exhibit are breeding rooms with different temperatures. The cooler part mimics the habitats of Mexico and the Caribbean, the Mediterranean and the Atlantic Forest of southeast Brazil. The warmer part simulates the waters of New Guinea, Australia, West Africa, Madagascar, Sulawesi and Sri Lanka. An example of the zoo's work in this field can be seen by looking at the background through the glass doors. Visitors can book an appointment to see behind the scenes and the many breeding successes of the aquarists. These include the offspring of Extinct in the Wild La Palma pupfish (*Cyprinodon longidorsalis*), Roberta´s toothcarp (*Valencia robertae*), Critically Endangered Lake Kuromai rainbowfish (*Melanotaenia parva*) or difficult to breed Swallowtail killifish (*Fundulopanchax fallax*). It is also the only place where it is possible to see the Extinct in the Wild *Scardinius rakovitzai*, which used to live in a single hot spring in Romania. Unfortunately, this habitat has now dried up due to human activity.

THIS MADAGASCAR RAINBOWFISH (*BEDOTIA MADAGASCARIENSIS*) BRED IN PLZEŇ ZOO WAS PHOTOGRAPHED AS PART OF THE UNIQUE PHOTO ARK PROJECT © JOEL SARTORE, WWW.JOELSARTORE.COM

The exhibition consists of two aquarium walls with biotope tanks, inhabited by a number of species that enthusiastic breeders from individual organisations are trying to save. The walls are covered with information about the species' habitats and the threats they face, as well as opportunities for everyone to get involved in their conservation, such as the few described below.

Since 2009, the Goodeid Working Group (GWG) has been bringing together breeders of goodeids, the endangered fish of Mexico. The core of the GWG include zoos, scientific institutions, schools and many

committed breeders. In 2023, more than 50 breeders and institutions were involved in preserving this endangered family of fish. Not only are they maintaining back-up populations in their aquariums, but they are also working with Mexican experts to return them to the wild whenever possible. For more information, visit www.goodeidworkinggroup.com. Here, you can also learn more about the return of the Tequila splitfin (*Zoogoneticus tequila*) to the Mexican waters. This beautiful species is also exhibited at Plzeň Zoo.

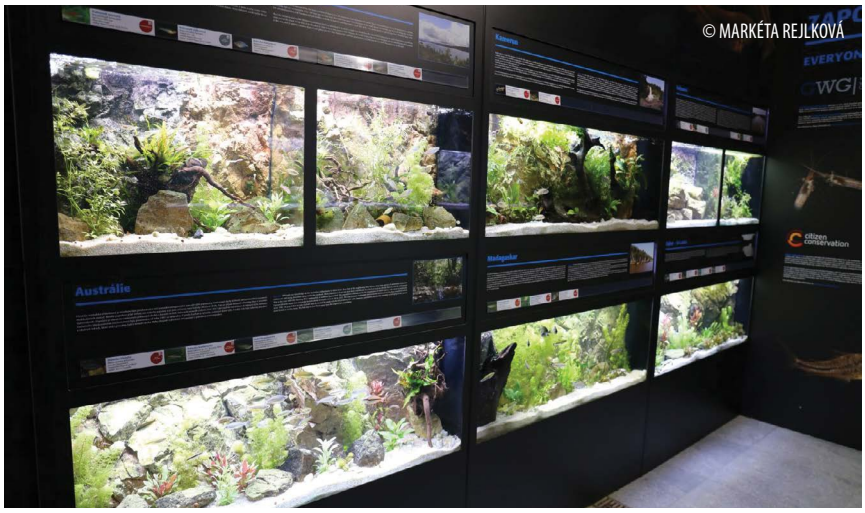
In the Fish Ark, you can also see the Monterrey platyfish (*Xiphophorus couchianus*), which only survive in human care under one of the projects of the Austrian Association for Vivaristics and Ecology (Österreichischer Verband für Vivaristik und Ökologie, ÖVVO). After the Bento Rodrigues dam (Brazil) broke in 2015, causing massive damage to river ecosystems and killing millions of fish, Austrian aquarists founded the platform Erhatungszuchtprojekte. There are many ways to get involved in this effort: by participating in an existing project, starting your own, helping to cover financial expenses, or sharing your contacts or skills that are needed elsewhere. Whatever support you can bring, we all have the common goal to preserve our fish 'fellow citizens' for future generations.

The following ÖVVO projects are currently running:

- 'Allotoca – Mesa Central' for goodeids of the *Allotoca* genus in Mexico
- 'Chromidotilapiine Cichlids Conservation Project' for the Cichlids of West Africa
- 'Moliwe River' for the endangered species living in this river in Cameroon
- 'Scleromystax – Mata Atlántica' for catfishes of the genus *Scleromystax* in the Atlantic Forest in Brazil
- 'Xiphophorus – Northern Platyfish' for these Mexican species

Visit www.conservation.oevvoe.org to find out how you can support these efforts. Everyone can help!

A MALE MANGARAHARA CICHLID (*PTYCHOCHROMIS INSOLITUS*) FROM ZSL LONDON ZOO, TAKEN AT A TIME WHEN THERE WERE ONLY TWO KNOWN MALES IN LONDON AND ONE IN BERLIN ZOO. THANKS TO A BBC CAMPAIGN, THE SPECIES WAS REDISCOVERED AND IS NOW BRED UNDER HUMAN CARE, MAINLY IN EUROPEAN ZOOS, NUMBERING AROUND 900 INDIVIDUALS© TOMÁŠ PEŠ



© MARKÉTA REJLKOVÁ

Sulawesi Keepers is a Czech-based organisation that brings together aquarists, scientists, zoos, conservation organisations, local communities and anyone who cares about saving the unique freshwater fauna of Sulawesi, an island in Indonesia. The incredibly endemic communities inhabiting its lakes and rivers are facing extinction. Logging and mineral extraction, dam construction and especially the invasion of introduced non-native fish species are threatening the unique communities of endemic fish, snails and shrimp. Come to Plzeň Zoo to discover the beautiful ricefish, shrimps or freshwater snails of the Sulawesi lakes and learn more about the conservation efforts to save them at www.sulawesikeepers.org.

The Madagascar Aquarium is home to Mangarahara cichlid (*Ptychochromis insolitus*) and Madagascar rainbowfish (*Bedotia madagascariensis*). Both species are cared for by Citizen Conservation. This organisation gathers both professional and amateur breeders, with the goal of creating back-up populations of endangered species in human care. Citizen Conservation empowers citizens to be species' protectors, by guiding them, motivating them and giving them the opportunities to contribute together to the protection of biodiversity. The goal is to increase the capacity of breeding programmes, gain knowledge about endangered species, and create stable *ex situ* populations. As the number of breeders increases, the risks of sudden events or diseases decrease. Citizen Conservation also works to protect endangered amphibian species. For more information, please see www.citizen-conservation.org.

More EAZA Members are needed to strengthen these efforts. We will be happy to provide our experience, and especially our offspring. If you are interested in taking part, please contact Tomáš Peš at tomas.pes@weltvogelpark.de.

From data to decisions

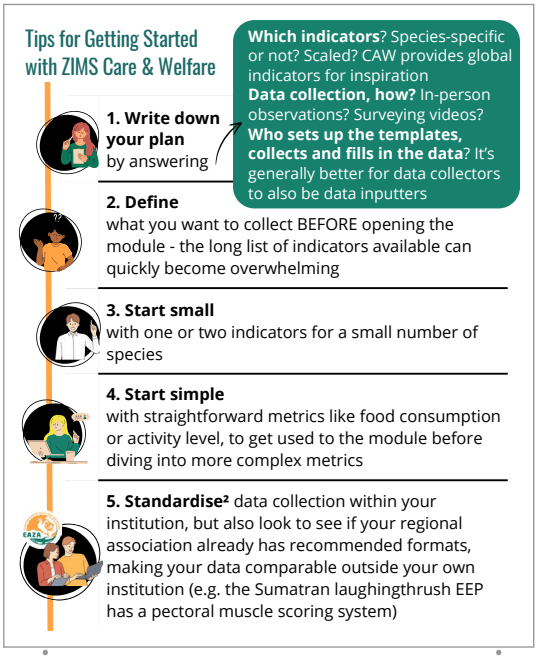
HOW ZIMS CARE AND WELFARE CAN HELP ZOOS AND AQUARIUMS TO STANDARDISE WELFARE DATA

Laura Graham, EAZA Records Working Group (RWG) Vice Chair, Bristol Zoo Project; Hannah Jenkins, RWG Chair, Species360; Samantha Ward, member of the RWG, Nottingham Trent University (NTU); Rikke Øgelund Nielsen, Biologist, Terrariet – Reptile Zoo

As a community, we are moving towards evidence-based care, relying on data to make informed decisions about animals at our institutions. Welfare data is an important part of modern zoo practice and comes in many shapes and forms. By standardising this data, we can enhance information sharing and ensure greater continuity of care.

To provide true evidence-based care we must think holistically, pulling different inputs and outputs together to paint a full picture of the animals' lives. But when welfare data is not stored alongside our usual animal data, it can be difficult to analyse holistically.

ZIMS Care & Welfare (CAW) is one tool available to our institutions for monitoring and standardising the key indicators of animal welfare. These data can be analysed alongside additional data in ZIMS to help provide that holistic view.



GETTING STARTED

CAW works best when you capitalise on the skills available within your institution. Pooling the knowledge of vets, curators, animal staff, record-keepers, research and welfare officers before you start can help prioritise module outputs and ensure that decisions are considered from multiple perspectives.

Once your team is assembled: make a plan. The answers to the questions in the infographic will form part of your institutional operating procedure.

BRISTOL ZOO PROJECT CASE STUDY

At Bristol Zoo Project (BZP, UK), data entry started tentatively. Initially, we used a single indicator to support a wider quality of life assessment, scoring an animal's response to daily treatment for a chronic condition. We then focused on simple data from a few indicators to measure a baseline for a group of geladas. Variables that are applicable to a range of species were created, including '% food consumption', whether physical condition appeared typical for the individual, and whether the individual had a complete response to the usual husbandry routine. Binary (typical/atypical, yes/no) observations that can be made by keepers as part of their daily husbandry routine were essential for us, reducing the time needed. The ability to overlay additional variables in the graphing tool, such as group introductions, diet changes and enclosure works, and even to plot visitor numbers, allows us to visualise any potential relationships in the data and investigate trends further.

KOMODO DRAGON EEP CASE STUDY

At Terrariet - Reptile Zoo (Denmark), we are using CAW to support a Komodo dragon EEP research project on reproduction. We compare behaviours such as food interest, digging, mating and intraspecific or human-focused aggression recorded in CAW to results from ultrasonic examinations of the ovaries and faecal samples. We found that having behaviours predefined in an ethogram helped us to get started, as the list of indicators available in CAW was a little overwhelming at first. Entering data using CAW templates, coupled with video surveillance that allows observations at scheduled times, has optimised our data collection and reduced the transcription time that accompanies paper-based recording. When additional data like faecal sample results are also recorded in ZIMS Medical, standardised data that are clearly linked to each animal can be easily exported and sent to the EEP vet adviser.

REGIONAL VALUE

For institutional decision-making and small-scale observational research, CAW can be a quick win. Beyond that, institutions like Terrariet are advocates for excellent data management in cross-institutional research projects. Just as the global-sharing ability of ZIMS elevates our husbandry and medical data to serve conservation, the real potential of CAW will be realised when we as a community introduce greater standardisation across our species metrics. Do EEP vet advisers wish they had a standardised lameness score to compare ungulates kept on different substrates? Could we record comparable faecal scores? Are hand-reared birds showing different levels of parental care to parent-reared individuals? CAW gives us a way to record this data using shared templates, and present it dynamically, synthesising the qualitative and quantitative. With a multidisciplinary approach to records-keeping discussions, we can get even closer to standardised, comparable data that really makes a difference to conservation.

To find out more, Species360 has an excellent series of webinars on CAW on its YouTube page. Whether you're just getting started or want to promote standardised data collection to help inform your EEP, join the EAZA Records Google Group to connect with others using the module by clicking here or scanning the QR code above.

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