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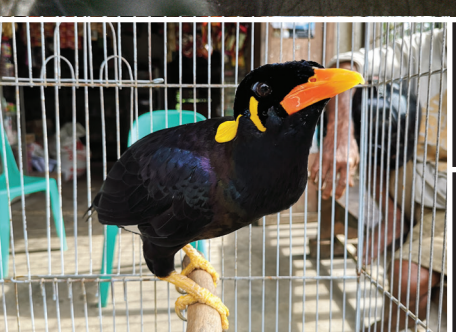
A GIANT CHALLENGE

PLANNING FOR OUR ELEPHANTS' FUTURE



FREEING THE BIRDS

TACKLING THE DEVASTATING SONGBIRD TRADE

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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

There is a common saying that 'time flies by faster as we get older'. I am sure I am not alone in experiencing this and I definitely know I am not the only person currently saying, 'How did it get to be April already?' I wanted to investigate this phenomenon more and found expert opinions confirming that our perception of time changes as we get older. This perception is affected by how much you experience and memories of those experiences. One explanation that I read said that because the number of experiences and memories increases over time, 'for a 10-year-old, one year represents 10 per cent of their entire life and even 15 to 20 per cent of their conscious memory. But one year for a 50-year-old represents less than two per cent of their recallable life.' Therefore, for a 50-year-old, the first few months of 2023 are a smaller proportion of their life, and this contributes to the feeling of those months passing quickly. I am not sure how much this brings me comfort, or just makes me long for the extended perception of lovely never-ending summers in childhood!

Another aspect to the perception of time is that months feel different when they contain lots of new and exciting things. These multiple experiences set the months apart in our memory and make them seem longer. Writers on this subject suggest that you have fewer new and exciting events in adulthood, and this is also why time seems to fly by faster when you are older. I could agree somewhat with this, but also wanted to add my own caveat; often as we get older, we don't take the time to pause and reflect on new events and this is another reason why there may seem to be fewer of them and/or the time is going past quickly. This brings me nicely to my next thought. Traditionally my first Director's Chair of the year includes a look back at the past 12 months. My initial reaction was that 2022 sped past; however, when I took the time to think back, I realised how much had happened and thus my perception changed to feeling that 2022 was a long year.

It is still a little surprising to me to remember that at the start of 2022 we were still experiencing COVID-19 restrictions. My memory of this was strongly overshadowed by the invasion of Ukraine in February. I am sure those directly involved have their very own unique perception of time in relation to this. One year of the war is one year too many. I would like to thank all our Members and those private and institutional donors who have mobilised so much help and support for our colleagues in Ukraine. Our Ukraine Zoos Emergency Fund has been able to give out most of the €1.8 million already donated to multiple zoos and aquariums in need. We will continue our support as much as we can and ask everyone to consider making (another) donation to the Fund. You can find out more on the EAZA website.

As we continued through 2022, there were many EAZA events and activities where we were able to reconnect, share experiences and contribute to making memories, not least at the in-person Animal Welfare Forum and Conservation Forum, originally postponed from 2020, and our highly successful Annual Conference. We approved updates to the EAZA Research Standards, new Field Conservation Standards, and Guidelines to help Members improve sustainability in their supply chains; we carried out workshops and published many Long-term Management Plans and Regional Collections Plans; we delivered in-person, online and self-paced training across a range of topics; and we represented EAZA and our activities in many regional and global forums, including CITES and the Convention on Biological Diversity. I can easily go on adding to this list.

To circle back to my starting point about perception of time, what has become apparent is that while it feels as if time is flying by, there is no shortage of impactful EAZA activities filling this time. In order not to be daunted by the speed, it is important to make time to reflect back on experiences and achievements. Lastly, we should not spend all our time looking back; 2023 is already proving to be a busy time and I wish everyone a year full of new and exciting things.

Myfanwy Griffith
Executive Director, EAZA

NOTICEBOARD

EAZA GUIDELINES

EAZA recognises and is concerned about the negative impacts that deforestation and loss of habitat have on global biodiversity. We realise the importance of the role that zoos and aquariums play in protecting habitats and conserving biodiversity across our membership. This is why, in the last year, we released two sets of guidelines for EAZA Members, providing recommendations on how to get involved at an institutional, association and political level with the topics of meat, soya and timber.

The EAZA Guidelines on Meat and Soya and EAZA Guidelines on Timber are the two latest sets of guidelines released in 2022 for Member zoos and aquariums based on extensive research and collaborative work. (See also page 25.) You can find these and other valuable guidelines on www.eaza.net.

WAZA CARBON GUIDE

Following the urgent concerns about the impacts of climate change that were raised in the Sixth Assessment Report (AR6) by the United Nations Intergovernmental Panel on Climate Change (IPCC), last year the World Association of Zoos and Aquariums (WAZA) came out with the WAZA Carbon Guide, which aims to lead by example in the fight against climate change. According to the Report, if the emission of greenhouse gases, including carbon, is not rapidly reduced, the global temperature will rise above 1.5°C or even 2°C. This can be very problematic for all life on Earth. Moreover, if these emissions are not controlled and decreased, there is little chance of meeting the UN Sustainable Development Goals (SDGs) by 2030 as planned.

WAZA recognises its role in the climate crisis and believes that proper communication and education on this matter are necessary to inspire the 700 million people who visit member zoos and aquariums every year. In addition, members need to make internal changes to reduce greenhouse gas emissions in a systemic and organised way. This is why WAZA created the WAZA Carbon Guide, which offers steps and strategies for its members to implement across their operations and play their role in combating climate change. Essentially, it outlines ways for zoos and aquariums to measure and reduce their greenhouse gas emissions along with their respective carbon footprints. This concise guide also has a checklist to keep participants on track on their journey to carbon reduction and is divided into relevant and easy-to-navigate sections.

Find the WAZA Carbon Guide at www.waza.org/priorities/sustainability/a-guide-reducing-measuring-and-offsetting-carbon

EAZA EMERGENCY FUND FOR UKRAINIAN ZOOS UPDATE

It has now been more than a year since the war in Ukraine started. As our Members will know, EAZA established an Emergency Fund for Ukrainian Zoos. Over the year, many private and institutional donors have stepped up to donate to the Fund and for that we thank them dearly.

Collectively, the Fund has so far accumulated €1,831,660, of which more than €1.4 million has already been distributed for essential care and food for the animals. To tackle the harsh winter, six generators were also recently sent to the zoos to keep the animals and zookeepers warm and safe. These generators will also help to power life-support systems, fences and refrigerators during energy cuts and bombings.

Unfortunately, the war in Ukraine continues with no end yet in sight. This is why we ask you to consider donating more and sharing the Fund on your network too. You can find more information on the fund at www.eaza.net.

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SAVE THE DATE FOR OUR NEXT EVENTS

25–28 April	EAZA Directors' Days 2023, hosted by Bergen Aquarium, Norway
12–16 September	EAZA Annual Conference 2023, hosted by Helsinki Zoo, Finland
2024	
19–22 March	EAZA Animal Welfare Forum 2024, hosted by Parco Natura Viva, Italy
24–26 April	EAZA Directors' Days 2024, hosted by Fota Wildlife Park, Ireland
4–7 June	EAZA Conservation Forum 2024, hosted by Ostrava Zoo, Czechia
8–12 October	EAZA Annual Conference 2024, hosted by Leipzig Zoo, Germany

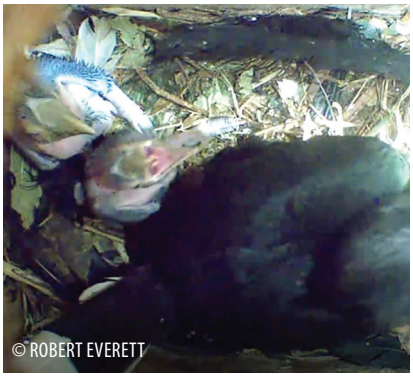
Find out more about these conferences on the Events page of the EAZA website.

NEW ARRIVALS

BLACK HORNBILL HATCHINGS AT PARADISE WILDLIFE PARK

AT PARADISE WILDLIFE PARK (UK), 2022 was a really exciting year for new arrivals, and one species in particular made headlines across the world for a very special reason.

Black hornbills (*Anthracoceros malayanus*) Mulu and Darwin at Paradise Wildlife Park are two of only 24 black hornbills included in the EEP across all EAZA zoos. With such a small population in human care, the park was delighted when in April 2022 the pair bred for the first time, resulting in the hatching of two chicks. This was a very special moment both for the zoo and for the population programme; not only did the event increase the population size, but also this was the first black hornbill hatching within the EEP in two years. The pair was monitored closely on CCTV by the zoo's dedicated bird team and was observed to be doing extremely well for first-time parents. Although one chick sadly passed away prior to the fledging stage, the second chick, named Biru, now lives happily with his parents.


© ROBERT EVERETT

However, this was not the only exciting hornbill event in 2022. On 6 September of the same year, Paradise Wildlife Park announced a rare event, which we think has not previously been documented or known about in black hornbills. In June, keepers at the zoo noticed that Mulu had once again sealed herself into the nest box just 12 days after leaving it with her chick Biru. The CCTV showed that Mulu had laid more eggs, and some time later two chicks hatched successfully in the nest box. One chick made it through the fledging stage and left the nest box

with Mulu in late October 2022. Both are currently living with Biru and Darwin.

The bird team at Paradise Wildlife Park has worked very hard to create a favourable breeding environment, building nest boxes, installing misting systems to replicate rainfall and providing a carefully managed diet, all of which has resulted in this unprecedented breeding behaviour for the species. These hatchings will increase genetic diversity in the Vulnerable (IUCN Red List) black hornbill species while raising awareness for the wild population.

BLACK LION TAMARINS MOVE BACK FROM THE BRINK


© RACHEL HUGHES

THE BLACK LION TAMARIN (*Leontopithecus chrysopygus*) was once thought to have gone extinct but was rediscovered in 1970. It is found in the last remaining fragments of interior Atlantic rainforest to the west of São Paulo state. A conservation assurance population is a critical part of the species survival plan and attempts have been made over the last 30 years to establish one in a similar way to the successful populations of the golden lion tamarin (*Leontopithecus rosalia*) and golden-headed lion tamarin (*Leontopithecus chrysomelas*). For many reasons the black lion tamarin has not flourished *ex situ*, and by January 2023, the global population stood at just 73 individuals; but the good news is that they are breeding once again in Europe, largely thanks to the efforts of Jersey Zoo (Jersey), the only place outside Brazil that currently holds the species and where recent births have helped to rekindle the European population.

The first population of black lion tamarins in human care was established in the 1970s and reached a peak of 112 animals in 11 institutions worldwide in 1999. In 1990, Jersey Zoo received and bred black lion tamarins, which was the first time this had taken place outside Brazil, and the EEP was formed. In 1999, tamarins bred at Jersey Zoo were taken back to Brazil for the first ever reintroduction of the species into the wild. At first the population grew well and found homes in several institutions outside Brazil, but eventually it started to fail thanks to infertility and high infant mortality. By 2016 there were just four individuals left in the EEP.

Since then, every effort has been made to re-establish the European population and to build up numbers in Brazil. With the increasing threat of stochastic events in the wild such as fires and disease, building a secure *ex situ* population is imperative.

FIRST COMMON HILL MYNA OFFSPRING AT GÖRLITZ ZOO

ONCE COMMONLY KEPT both in zoos and privately, the hill myna (*Gracula religiosa intermedia*) is becoming increasingly rare. Their talent for imitating noises and voices is their undoing; hill mynas are a widely traded bird species worldwide, and in some countries the myna is also considered a delicacy, which further depletes stocks.

Since the monogamous hill myna is very demanding when it comes to choosing a suitable partner and the birds raise offspring only as compatible breeding pairs, it is a challenge to breed these birds successfully. Fortunately, Görlitz Zoo (Germany) has recently created an effective strategy for increasing its hill myna population.

As part of the 'Zoo Animal of the Year 2020' campaign, a 'Hill Myna Dating Centre' was set up in the Marlow Birdpark (Germany), where the EEP for this species is kept. There, unpaired hill mynas get the chance to meet their perfect partner. Various zoological gardens and private individuals submit their mynas to the Dating Centre so that the birds can choose suitable partners in a large communal aviary. These pairs are then transferred to facilities participating in the population programme.

The hill myna pair that moved into Görlitz Zoo in 2020 derives from the Marlow pool. The two birds hit it off from the start, and in April 2022, intense courtship behaviour was observed. From the two nesting boxes that were offered (25 cm x 25 cm x 40 cm with an entry hole of 7cm) the pair chose the one in the outdoor aviary, protected from the eyes of visitors by living vegetation. The mynas share their aviary with 1.1 Temminck tragopans (*Tragopan temminckii*).

On 6 May 2022, there were two eggs in the nest. The female incubated the clutch for 14 days, then the two chicks hatched and were cared for in an exemplary manner by the parents. The birds tolerated the nest box inspection every three days by the animal keepers without any problems.

On day eight we made a fatal mistake: we took out the two chicks, weighed them, leg-banded and returned them. The action lasted less than 10 minutes but led to the chick's deaths four days later. The autopsy confirmed our concerns: the two had starved to death as the parents stopped feeding them after the disturbance.

Ten days after the death of the first chicks, there were again three eggs in the nest. This time we did not carry out a nest box check or a direct check of the chicks. A single young myna fledged after 30 days and was fed by the parents for about two more weeks until it fed completely on its own.

During rearing, the mynas were offered freshly prepared food five times a day consisting of thawed frost insects (pinkies, buffalos, hermetia), a homemade soft food mix (Delicat + Complete Fat feed/Claus + grated carrots, grated boiled eggs + wheat grist), T16 (Versele Laga), fruit and vitamin and mineral supplements (Nekton).

Cleaning work in the aviary was reduced to a minimum during the nestling period, and the tragopans, which were also incubating at the same time, did not seem disturb the mynas.

The first surviving hill myna to hatch in Görlitz Zoo is now living where its parents met, in the 'Hill Myna Dating Centre'. This is the perfect place for this bird to choose a suitable partner and to move as part of a compatible pair to a zoo taking part in the population programme, where, with luck, they will one day raise their own offspring.

In 2017, after many years of preparatory work, a long-awaited shipment of black lion tamarins arrived at Jersey Zoo from Brazil. This import was vital to reinvigorate the European population for the species. There have been nine healthy offspring since the import, including two offspring born during 2022. One notable event was an infant named Grace, born in December 2021, who had to be hand-reared as she was very weak at birth. Staff wore masks and gloves to make sure the infant did not imprint on them; they also played vocalisations of the group in the early days and then reared her in a satellite cage within the enclosure of the family group. All of these actions enabled Grace to rejoin her natal group successfully, and she has every chance of becoming a normal breeding mother in the future.

Further imports of black lion tamarin from Brazil are planned for 2023, with the aim of establishing new breeding pairs in zoos throughout Europe. In the longer term we are aiming to have a viable *ex situ* population that mimics the success enjoyed by the two other kinds of lion tamarin in human care.

For several decades the Durrell Wildlife Conservation Trust has been working with the Brazilian NGO IPÊ (Instituto de Pesquisas Ecológicas) to restore areas of the interior Atlantic rainforest and connect the remaining fragments of habitat for the black lion tamarin. In 2021 Durrell launched Rewild Carbon, a nature-based climate solution that addresses the urgent need to solve both the climate and biodiversity crisis. The funding generated from this programme has accelerated this work of restoring the Atlantic rainforest. More information on Durrell's Rewild Carbon initiative can be found at www.durrell.org/get-involved/rewild-carbon/.

Freeing the birds

HOW EAZA IS WORKING CLOSELY WITH MONITOR TO TACKLE THE TRADING OF SONGBIRDS

Dr Chris Shepherd, Executive Director, Monitor Conservation Research Society

The Monitor Conservation Society, know as Monitor, was established in 2017 with the aim of tackling the illegal and/or unsustainable trade in lesser-known species. A small organisation, Monitor is made up of dedicated professionals who have decades of combined experience working on wildlife trade issues. Among the many species and species groups with which Monitor works are songbirds.

The songbird trade involves hundreds of species, and millions of birds are traded every year, largely for their song, appearance and often for their perceived rarity. A growing number of songbird species are being pushed towards the brink of extinction, and many of them are already considered to be threatened with extinction according to the IUCN Red List.

Monitor works closely with EAZA's Silent Forest Working Group, sharing information on a regular basis, communicating news and research findings to each other and collaborating on numerous songbird conservation initiatives.

Most recently, the Silent Forest Working Group funded Monitor to carry out research into the trade of the crested jayshrike (*Platylophus galericulatus*), formerly called the crested jay. It is the sole member of the genus Platylophus and the family Platylophidae and is native to southeast Asia, found in Brunei, Indonesia, Malaysia, Myanmar and Thailand. This songbird is much sought-after for its singing abilities, especially in Indonesia, where it is used to 'train' other songbirds that are used in singing competitions. This is done by placing crested jayshrikes in adjacent cages to songbirds such as the white-rumped shama (*Kittacincla malabarica*), which then imitate pieces of the crested jayshrike's call. Adding these notes to their own repertoire enhances their chances of success in the competitions.

Monitor is working to better understand the drivers of the trade in this species, the scale of the trade and the effectiveness of existing legislation in preventing trade from threatening the survival of this unique bird. It is very likely that the results of this study will point towards the need to include the crested jayshrike in Appendix II of the Convention on International Trade in Endangered Species (CITES) to allow for international regulation, monitoring and control of the trade.

MONITOR AND EAZA ALSO PARTNERED FOR THE SIDE EVENT AT CITES COP19 (SEE NEXT PAGE). FROM LEFT TO RIGHT: ROGER SAFFORD (BIRDLIFE), SIMON BRUSLUND (EAZA SILENT FOREST WG), DALIA CONDE (SPECIES360), BIBIANA SUCRE (IUCN SSC), DANNY DE MAN (EAZA) © TOMASZ RUSEK

EAZA has also generously provided funds to Monitor to further investigate the trade in songbirds, looking at species where data on trade, and the impact of trade, is lacking. Monitor is examining the recent popularity of butcherbirds in Indonesia, which were hardly seen in the trade a decade or so ago, but there is evidence that they are now are heavily traded and increasingly popular in Indonesia. This study is an excellent example of the need for early-warning research, as sudden trends or changes in what is fashionable can cause irreparable harm to species, especially species with limited ranges like many of the butcherbird species. Our findings will be used to support stronger policies to reduce demand and ultimately protect these species from decline.

With the same support from EAZA, Monitor is looking into the little-known trade of songbirds from North America into the EU. Warblers, bluebirds and jays from North America appear to be increasingly common and available within the EU, and, as such, the findings of this work will be used to inform and encourage the governments in North America and the EU to strengthen their policies, laws and enforcement efforts.

Monitor will continue to focus on the illegal and unsustainable trade in songbirds by collecting and making available data and evidence to support stronger policies and enforcement, investigating and promoting effective deterrents and catalysing conservation actions. Information will be provided to CITES authorities and other key stakeholders to support better use of CITES as a conservation tool for songbirds, encouraging the listing of more species in the CITES appendices and supporting the implementation and enforcement of this convention.

Positive impact

AT THE COP19 FOR CITES IN PANAMA, EAZA DELEGATES SUPPORTED SIGNIFICANT CHANGES THAT WILL IMPROVE CONSERVATION EFFORTS AROUND THE WORLD

Danny de Man, EAZA Deputy Executive Director, and Tomasz Rusek, EAZA Director of Advocacy and Communication

From 14–25 November 2022, EAZA took part in the 19th Conference of the Parties (CoP) to CITES in Panama City. Our five delegates were part of a 30-member zoo and aquarium group, the biggest ever to attend a CITES CoP. The two weeks of negotiations brought together more than 2,500 people: official delegates from most of the 184 CITES parties (countries, territories and the EU as a regional organisation), NGO observers including the World Association of Zoos and Aquariums (WAZA), EAZA and our counterparts from North America and Australasia, journalists and many others.

EAZA is involved in CITES to present our Members' viewpoint on rules that affect zoo animal transfers as well as to share the expertise of the TAGs and lobby for adequate protection for species threatened by trade. Our CoP19 delegates represented the Executive Committee, the Conservation Committee and its working groups and the EAZA Executive Office.

CLARITY FOR ZOO TRANSACTIONS

An important outcome for zoos and aquariums concerns the purpose codes, i.e. the one-letter symbols that indicate the purpose of the transaction on CITES permits and certificates. For example, M stands for medicinal purposes, G is for botanical gardens, and Z is 'our' code, for which CoP19 approved a new definition:

'Purpose code "Z" (zoo) should be used where the transaction is for the purpose of movement of a specimen to a zoo and/or aquarium or by a zoo and/or aquarium for public display, care, reproduction, public education and awareness, scientific research, rescue, rehabilitation or conservation.'

This clear guidance should finally make the application of the codes more consistent, improve analyses of types of transaction and, most importantly for EAZA Members, reduce confusion and delays in paperwork. We worked together with WAZA and the Association of Zoos and Aquariums (AZA) to inform this decision.

SHARING EAZA'S BEST PRACTICE

One of the challenges for CITES is how to know whether a recipient of a live wild animal can care for it properly. Another is whether a CITES transaction is contributing to *in situ* conservation of the species in question. In recent years, these questions came up in heated debates about exports of African elephants (*Loxodonta africana* and *L. cyclotis*) and southern white rhinos (*Ceratotherium simum simum*).

CoP19 adopted two non-binding guidance documents for these species that will help CITES officials to assess the receiving facility and the contribution to conservation. They explicitly recognise and refer to EAZA Best Practice Guidelines for the African elephant and the white rhinoceros as well as EAZA's guidance and definitions for conservation. This is a great example of how EAZA's best practice not only guides animal husbandry and care in EAZA Membership, but also contributes to good results in international policy. There will probably be more opportunities in the future for sharing our Best Practice Guidelines for many different taxa.

PROMISING SIGNS FOR SONGBIRDS

Most *Zooquaria* readers will know CITES through working with species that are listed in its Appendix I, II or III (and EU's Annexes A to D). The Conference of the Parties is where changes in the appendices are made, tightening or relaxing trade controls. CoP19 considered 52 proposals for changes in listing status and approved 46 of them, in line with most of EAZA's voting recommendations.

Off the back of the EAZA Silent Forest campaign, Asian songbirds were at the top of our agenda for this CoP. We were particularly happy to see parties reach consensus for listing the white-rumped shama (*Kittacincla malabarica*) in Appendix II, allowing for better monitoring and regulation, and upgrading the straw-headed bulbul (*Pycnonotus zeylanicus*) from Appendix II to I, which bans commercial trade altogether.

CoP19 also agreed on a course of action for future songbird protection. To inject some fresh energy into this topic, EAZA held a seminar together with the US, IUCN SSC Asian Songbird Trade Specialist Group, TRAFFIC, Red Siskin Initiative, BirdLife International, Monitor Conservation Research Society, Wildlife Conservation Society, Species360 and our WAZA and AZA colleagues. We demonstrated our organisations' expertise as well as our dedication to working with CITES to turn the decisions made at this Panama summit into long-term success for songbirds.

OTHER OUTCOMES OF COP19

- **Animal transports**: CITES will engage with the International Air Transport Association (IATA) to lobby for making the Live Animal Regulations (LAR) more accessible to relevant authorities as well as animal transporters, importers and exporters.
- **Zoonotic diseases**: CITES' role in preventing future zoonoses is a big new topic since COVID-19. CoP19 chose a balanced path of collaboration and coordination, with respect for the One Health Approach. This should open numerous opportunities for EAZA and European Association of Zoo and Wildlife Veterinarians (EAZWV) to contribute.
- **Appendix I**: For selected species that are listed in App. I for a long time, CITES will assess their status, threats, trade impacts, conservation strategies and funding available or required. Parties as well as experts will be consulted, so the EAZA community will be able to offer our input.

Visit www.cites.org for all decisions and species listing changes approved at CoP19

New tools for conservation

THE NEW FIELD CONSERVATION STANDARDS ARE A USEFUL TOOLBOX WITH WHICH TO SAVE SPECIES TOGETHER – AND EAZA WANTS TO SUPPORT EVERY MEMBER ON THEIR JOURNEY TO IMPLEMENTATION

Simon Bruslund, EAZA Conservation Committee Vice Chair, Marlow Birdpark; Scott Wilson, EAZA Conservation Committee member, Chester Zoo; Friederike von Houwald, EAZA Conservation Committee member, Bern Zoological Park; Merel Zimmermann, Animal Programmes and Conservation Coordinator, EAZA Executive Office

During the Annual General Meeting in Albufeira in Portugal in September 2022, the first EAZA Field Conservation Standards were adopted. But why does a conservation organisation like EAZA need Field Conservation Standards? We already have well-established standards on *ex situ* conservation within EAZA institutions through the EAZA Population Management Manual and EAZA Conservation Education Standards, both of which help to govern our joint practice and impact in these key areas. But as there was no guidance for all the conservation activities that were not covered by either of these existing Standards, the EAZA Conservation Committee was asked to form a subgroup to review the existing Conservation Standards (2015). Between 2019 and 2022, the subgroup developed the new Field Conservation Standards; this was followed by feedback from, and discussions held with, the Executive Committee and Council to ensure that the Standards are achievable, scalable and auditable.

A particular challenge was how to capture these activities in a single word or term, because we are talking about a wide range of conservation activities that happen outside our institutions as well as within. Some activities are being led and shaped by EAZA Members; others are primarily financed by them. A good example is when *ex situ* conservation activities are supported outside the EAZA institutions but within the species' range. Other examples include conservation breeding or conservation translocations, but also policy development, habitat restoration, conservation research in the field – the list goes on. Many of these activities are difficult to view in isolation and are overlapping with other EAZA Standards. As such the task at hand was not straightforward, but the title 'Field Conservation Standards' seems to cover it best.

The main expectation of these Standards is that conscious efforts are made by EAZA Members to ensure that field conservation actions delivered or supported are of high quality and have a positive impact, no matter the scale or amount of support given. The Standards can be seen as a checklist of steps to take and best practices to adopt to achieve the best possible outcome for field conservation activities that are supported or initiated by EAZA Members. The Field Conservation Standards should be considered alongside all other EAZA Standards, Guidelines and the Strategy (www.eaza.net/about-us/eazadocuments) to guide the development and delivery of integrated holistic strategies for positive conservation impact.

By creating the Field Conservation Standards, our intention is that in the near future all EAZA Members will be engaged in and/or supporting diverse and effective conservation activities, as well as increasing their confidence and competence in sound project selection, design and delivery to achieve and document positive conservation impact.

The Conservation Committee is dedicated to supporting EAZA Members on their journey towards meeting these Standards and is collecting and developing guidance material to share among the Membership. Each of the Field Conservation Standards are accompanied by interpretation guidance and how this can be audited. This will be expanded over time, with your help as well. We want a clearer identification of Members' activities and what support they need, so that we can better save species together.

EXAMPLES IN ACTION

The scale and scope of each EAZA Member's field conservation activity differs, but they all should meet the EAZA Field Conservation Standards, which reflect best practice in the sector. Many good examples can be found within our community already. To illustrate how some of our Members are meeting specific parts of the Field Conservation Standards in their own way, here are some case studies shared by Marlow Birdpark (Germany), Bern Zoological Park (Switzerland) and Chester Zoo (UK) to inspire you.

Have a plan and measurable targets

Marlow Birdpark currently works with a philosophy instead of a plan, to direct where to focus their efforts: *partnerships in projects, worldwide focus, have close contact with partners to make every euro count and respond rapidly, go for birds and more species without an existing lobby*. It is more a checklist than a conservation strategy but captures the fundamental institutional philosophy for Field Conservation. Their target is to raise funds to support conservation partners and to develop a sturdy network to ensure long-term support for projects. With active involvement, partners are supported to work effectively – for example, by relieving them of time-consuming tasks and freeing up project partners' time, which they can instead spend in the field, or by supporting the acquisition of funds from a third party and sometimes by providing technical advice where appropriate. Achievements are mainly measured in funds and time provided directly, but also in additional partners gained and growth of the network.

Select your field conservation activity and determine how you track and evaluate the success

The Nature Conservation Strategy of Bern Zoological Park focuses on five habitats, and for each habitat 'flagship' species are selected. Each selected species must meet one or more specific criteria: for instance, the species is kept, shown or bred on site at the Bern Zoological Park and/or is listed in the IUCN Red List of Threatened Species in Switzerland and/or a national Action Plan for the species exists, and so on.

Once a flagship species is selected, regional NGOs or government organisations are approached that work in accordance with the National Action Plans mentioned above. Success is measured by the targets set in the MoU with the partners involved. A few examples include: successful *ex situ* breeding of endangered species, number of translocated species/ individuals, results of pre- and post-release monitoring, number of environmental education programmes and evaluation of their acceptance by local people and the initiation of veterinarian research projects in the field followed by publication of the results.

A quality checklist was developed to help find partners to work with as well as partners the zoo wants to support, and it focuses on partners that are acknowledged and supported by the government and regional authorities. The commitment to any partnership aims for long-term support and must involve people living in and around the project area.

Bern Zoological Park works in close cooperation with various regional partners as well as with other departments of the city of Bern and departments of the canton. The aim is to link expertise from various fields when working together in saving regional species and to create a new and open-minded consciousness in the local community for the urgent needs of regional conservation activities.

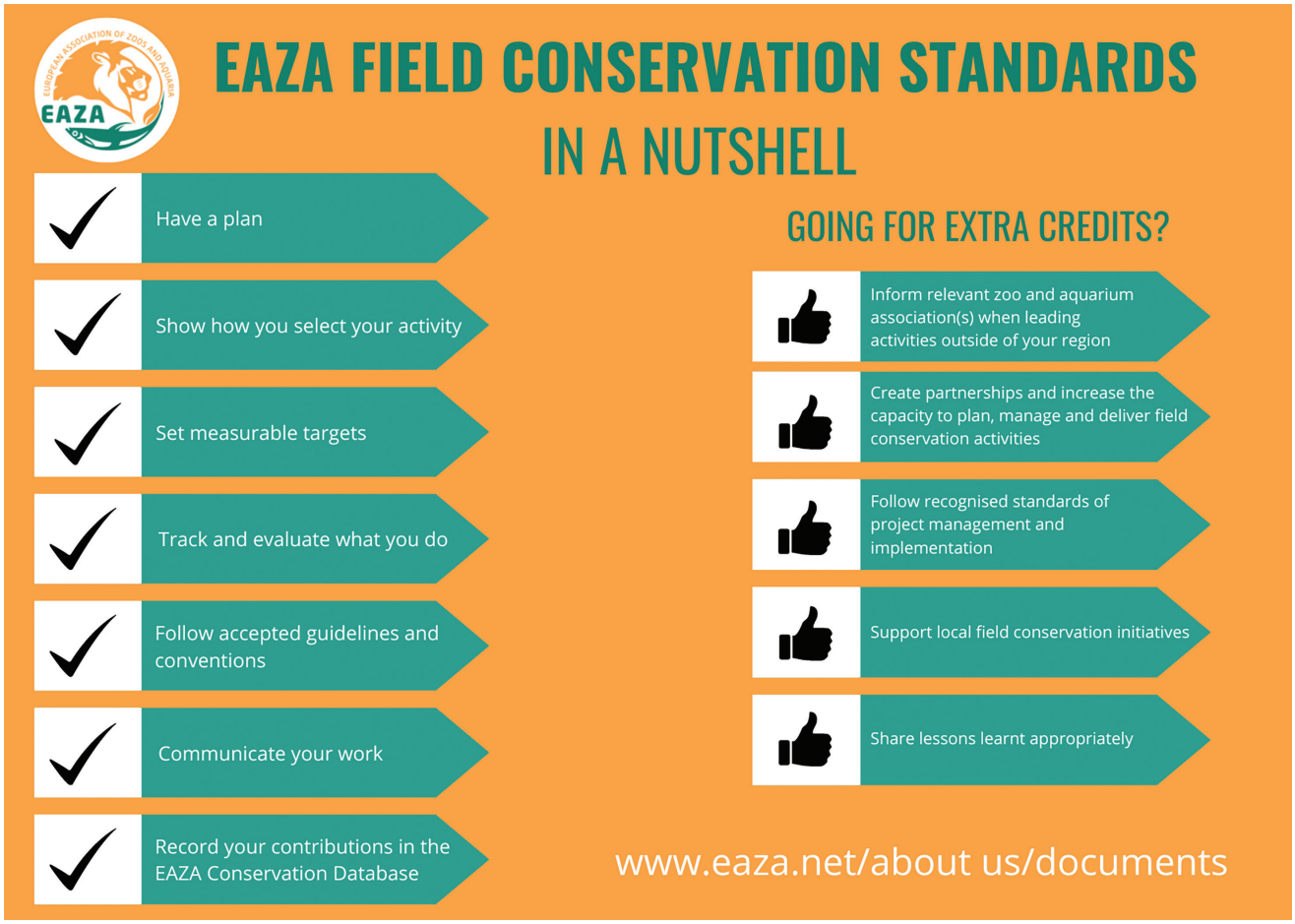
Follow guidelines and communicate your work

Chester Zoo developed a transparent peer review system to ensure that project methods used are sound and guidelines are followed. For key areas, such as ethics (where poor practice could have major reputational or legal implications), an audit system is in place, often through trustee-led committees, to make sure the project decision systems are robust and ask the right questions.

Communicating a conservation strategy throughout a large and diverse organisation such as Chester Zoo is an ongoing task. Their 10-year masterplan document is accessible for all staff to see (but who has time to read that!) but is also used to communicate the strategy externally. Internally the strategy is consistently referenced in zoo communications (e.g. weekly newsletters, quarterly All Staff Briefings), ensuring that the strategy is more than a document on the shelf; instead it is a dynamic framework used to guide decisions and priorities throughout the organisation. The strategy, importantly, also has key targets within it, and a transparent reporting system against these targets allows all stakeholders, from staff to trustees, to see progress and ensure accountability.

WHAT'S NEXT?

Leading up to and during their next mid-year meeting, the EAZA Conservation Committee will continue discussing the support material and integration of these new Field Conservation Standards in EAZA's accreditation process. As part of the EAZA21+ campaign, an online event this summer will offer opportunities to further discuss how the Membership can best learn how to fulfil the new EAZA Field Conservation Standards. In the meantime, feel free to share your own approaches with the conservation committee via merel.zimmermann@eaza.net.



EURASIAN GRIFFON VULTURE (*GYPS FULVUS*) © ZOOSNOW

Raptor action plan

A SERIES OF WORKSHOPS HAVE CLARIFIED THE ACTIONS NEEDED TO PROTECT OUR RAPTORS

Kirsi Pynnönen-Oudman, EAZA Raptor TAG Chair, Helsinki Zoo; Joost Lammers, subgroup leader Vultures, Avifauna Birdpark; Marleen Huyghe, subgroup leader Vultures, Planckendael Zoo; Jan Hanel, subgroup leader Hawks and Eagles, Liberec Zoo; Graeme Dick, subgroup leader Falcons, Jersey Zoo; William van Lint, EAZA Manager Animal Programmes and Conservation

Since the implementation of the new population management structure in January 2018, the EAZA Raptor TAG has been actively working on reviewing the species falling under their remit and discussing a list of selected species during three workshops. In March 2020 the Raptor TAG worked on the owls and carefully reviewed the 42 selected owl species, leading to eight proposed EEPs (see Owl RCP article in *Zooquaria* 112, Summer 2021). The first EEPs – for example, for the snowy owl (*Bubo scandiacus*) and scops owl (*Otus spp*) – have now been established. An EEP for the Ural owl (*Strix uralensis*) is expected to be established soon.

For the remaining species falling under the TAG it was decided to go for two separate one-day online workshops. The first workshop focused on vultures and took place in June 2022; a second workshop for hawks, eagles and falcons followed a little later in the year.

During the first workshop, all 23 vulture species, both Old World and New World, were discussed. Given their threat status, there was a clear focus on the Asian and African species. The 'European' vulture species had already been discussed during a LTMP meeting in Jerez in 2019, and the relevant conservation roles were discussed and agreed upon. The focus on the Asian and African vultures is clearly linked to the current vulture crisis, first in Asia and more recently in Africa. As Birdlife states: 'Asia's vultures have suffered some of the fastest population declines ever recorded in a bird, and Africa's recent severe declines mean that now most "Old World" vultures are on the edge of extinction.' Although we have hardly any populations of the Asian vultures in Europe, we luckily have good populations of the African vulture species among others due to past confiscations. With input from the IUCN Vulture Specialist Group, clear roles were selected for the conservation of these species, and EEPs selected for our populations to work towards fulfilling those roles.

For the Asian vultures, fundraising and technical and veterinary support for the facilities and *ex situ* populations in range were selected. To combine efforts and proactively work on this, an EEP is suggested for all Asian vultures.

As a result, 12 EEPs are proposed (see Table 1), one of them for the multiple Asian species.

The last workshop was dealing with the remaining taxa that fall under the umbrella of the EAZA Raptor TAG, comprising the three families that fall under the order of Accipitriformes respectively the family of Sagittariidae (secretary bird), family of Pandionidae (ospreys) and the larger family of Accipitridae – hawks and eagles (240 species, excl. 16 vulture species) and the family of Falconidae falling under the order of Falconiformes with 65 species of falcons.

The focus for this group was more difficult to establish, as most eagles and falcons are by nature challenging to keep and breed within a zoo environment, and off-show facilities might be required to provide the necessary rest and prevent disturbance so that they can breed successfully.

Table 1: Proposed vulture EEPs

Common Name	Scientific Name	RCP category
Cinereous vulture	*Aegypius monachus*	**EEP**
Eurasian griffon vulture	*Gyps fulvus*	**EEP**
Bearded vulture	*Gypaetus barbatus*	**EEP**
Egyptian vulture	*Neophron percnopterus*	**EEP**
White-rumped vulture	*Gyps bengalensis*	**Asian vulture EEP**
Indian vulture	*Gyps indicus*	
Slender-billed vulture	*Gyps tenuirostris*	
Red-headed vulture	*Sarcogyps calvus*	
Himalayan vulture	*Gyps himalayensis*	
African white-backed vulture	*Gyps africanus*	**EEP**
Rüppell's vulture	*Gyps rueppelli*	**EEP**
White-headed vulture	*Trigonoceps occipitalis*	**EEP**
Lappet-faced vulture	*Torgos tracheliotos*	**EEP**
Hooded vulture	*Necrosyrtes monachus*	**EEP**
Andean condor	*Vultur gryphus*	**EEP**
King vulture	*Sarcoramphus papa*	**EEP**

***In red*, programmes that are still in need of a coordinator.**

With this in mind and the TAG's focus on European and/or threatened species already in human care, 19 species were selected for an individual assessment. As a result, eight EEPs are proposed (see Table 2) one of which is for two species, the tawny eagle and the Steppe eagle.

Most of these species were managed already, but there are also a few new species that appeared to be in need of active management. An interesting example is the bateleur eagle, a species that was suddenly uplisted in 2020 from Near Threatened to Endangered, given the rapidly declining populations in the wild, which is mostly due to habitat loss, use of herbicides and pesticides and trapping (for international trade). With 40 birds in 20 institutions, it was felt that we have a good population to start working with. However, with only two hatches since 2015, work has to be done before we can reliably breed with the species. Therefore, research as an indirect conservation role was selected, as we have to work on solving the husbandry issues and knowledge gaps. As the species might potentially need *ex situ* support in the future, it was decided to prioritise this action and establish an EEP to proactively work on this. The EEP will initiate active communication with the holders, collate the available information, define the knowledge gaps in its husbandry and initiate relevant research. In addition, a programme might also help to set up new pairs and swap birds, as that might help to answer some of the research questions.

During the workshop we also reviewed a number of the European eagle species (e.g. greater spotted eagle/*Clanga clanga,* Spanish imperial eagle/*Aquila adalberti*, Bonelli's eagle/*Aquila fasciata*, short-toed eagle/*Circaetus gallicus* and booted eagle/*Hieraaetus pennatus*). Given the rather small populations we have in our collections, the limited number of institutions involved and the challenges involved in breeding them, the overall recommendation for these facilities is to use the birds they have to educate the public about the important role that birds of prey play in our ecosystem, their biology and the threats they face. But more specifically the institutions are encouraged to use their birds to inform the public about the risk of using poison bait and the impact of lead in the ecosystem and how this is impacting birds of prey as top predators, as these are still the main threats for these birds. Given that these are European species, this clearly indicates our responsibility to save these birds. The institutions involved can even consider suggesting solutions or alternatives about how the visitors can help these species (e.g. assisting in surveys, nest protection, and so on).

In addition, EAZA and the Members involved are encouraged to continue lobbying in Brussels – and/or via National Zoo Associations on key issues as a supporting process – to ban lead ammunition in EU and to work with partners such as BirdLife on this issue. It was also concluded, as part of the workshop, that there is a need for more updated Species Action plans at a European level to get more clarity on what *ex situ* conservation actions are required. This is also something to continue pushing for in Brussels, along with other options that may potentially emerge to protect these magnificent birds (e.g. linked to EU Bird and Habitat directives).

If you want to get involved, please get in touch with the TAG or one of the subgroup leaders to discuss this further.

Table 2: Proposed EEPs for the group of hawks, eagles and falcons

Common Name	Scientific Name	RCP category
Secretary bird	*Sagittarius serpentarius*	**EEP**
Bateleur eagle	*Terathopius ecaudatus*	**EEP**
Tawny eagle	*Aquila rapax*	**EEP**
Steppe eagle	*Aquila nipalensis*	
Steller's sea eagle	*Haliaeetus pelagicus*	**EEP**
White-tailed sea eagle	*Haliaeetus albicilla*	**EEP**
Harpy eagle	*Harpia harpyia*	**EEP**
Imperial eagle	*Aquila heliaca*	**EEP**
Lesser kestrel	*Falco naumanni*	**EEP**

***In red*, programme still in need of a coordinator.**

A future for elephants

THE LONG-TERM MANAGEMENT PLAN FOR ASIAN AND AFRICAN ELEPHANTS CELEBRATES OUR SUCCESS TO DATE AND PREPARES FOR FUTURE CHALLENGES FOR THESE CHARISMATIC ANIMALS

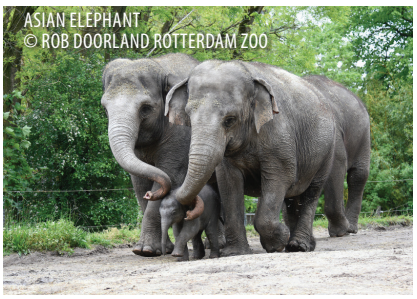
Raymond van der Meer, Manager Population Management Centre, EAZA Executive Office; Harald Schmidt, EEP Coordinator Asian elephants, Rotterdam Zoo; Arne Lawrenz, EEP Coordinator African elephants, Wuppertal Zoo

Like any other TAG, the Elephant TAG had to go through the renewed EAZA Regional Collection Planning process, leading to new-style EEPs. These EEPs will then be taken through a cyclical LTMP process. Because there are only three species in the Elephant TAG (*Elephas maximus, Loxodonta Africana and Loxodonta cyclotis*), it was decided to adapt this process by incorporating the necessary elements of the RCP methodology into the LTMP process for each of the species separately.

The challenges and opportunities for these charismatic animals are as large as the elephants themselves, and many developments are ongoing in both EEPs. The LTMPs give a good overview of all the discussions that have been held and the rationale behind the decisions made that have led to a management strategy for the coming years. There is too much going on to cover in full in two pages, so this article will highlight just a few interesting parts of the strategy and we encourage readers to further explore the LTMP reports that can be found in the online EAZA Member Area.

HOW ELEPHANTS IN ZOOS HELP TO SAVE ELEPHANTS IN THE WILD

In adherence to the philosophy of the One Plan Approach, roles for *ex situ* management of Asian elephants (*Elephas maximus*) and African elephants (*Loxodonta Africana*) will be explored through a process involving *ex situ* and *in situ* representatives. While such integrated evaluation and discussion among multiple stakeholders is lacking at the moment, information extracted from existing documents (e.g. Red List Data, Elephant Specialist Group Action plans) and the expertise of EAZA Members through cooperation with multiple stakeholders has helped to generate a list of potential direct and indirect *ex situ* conservation roles for both Asian and African elephants.


ASIAN ELEPHANT
© ROB DOORLAND ROTTERDAM ZOO

Holistic decisions on which (if any) of these roles are most useful and appropriate for Asian and African elephant conservation, and which are best delivered by a population or community with characteristics like the EEP, requires a planned, step-by-step process of strengthening relations with relevant *in situ* authorities and range states, including face-to-face contact and workshops.

The zoo community has a lot of expertise in managing small populations and that expertise can be used to **build capacity** or **train** managers in regions with small, isolated populations of African elephants or to support existing *ex situ* populations of Asian elephants in range states.

Zoos are well positioned to do **research** and/or cooperate with researchers and disseminate results that could have an impact on mitigating threats. As an example, this could be the development of techniques that could help to control Human Elephant Conflict (e.g. improve or develop more research on radio collars for tracking elephants that break fences).

Fundraising and **conservation education** were both flagged as indirect conservation roles, taking advantage of the 144 million annual visits coming through the gates of EAZA zoos. **Advocacy** through contributions to conventions such as the Convention on Biological Diversity (CBD) and CITES was selected as a role that will impact the conservation of elephants and specifically African elephants.

There is debate about the taxonomic clarity of Asian elephants and the existence and number of subspecies. Genetic research is necessary to clarify the genetic status and determine the value of an **insurance** role as a potential direct conservation role. A PhD study has been started by Jeroen Kappelhof (Rotterdam Zoo/Wageningen University), and the results from this study might influence strategies for both *in situ* and *ex situ* populations and could feed into the conversation that is needed with the *in situ* partners. In the meantime, both Asian and African populations will be managed as insurance populations to support the conservation roles.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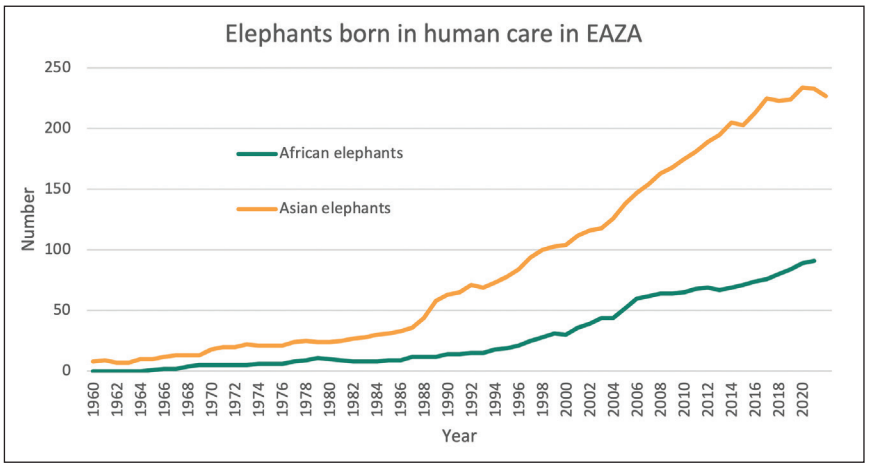


CELEBRATIONS…

Recommendations in the 2013 masterplan for both species focused on breeding as much as possible to aim for sustainable populations. At that point, the Asian elephant population was getting close to being demographically sustainable, as the number of births were almost at the level of replacing the number of elephants dying. The situation has improved significantly since that plan was published, and thanks to the hard work and investments of all the stakeholders, the population in EAZA has now achieved a comfortable level of self-sustainability and improved welfare for the individuals involved.

For the African elephant, the future in 2013 looked grimmer and there was a strong call to action to collaborate and maximise the reproductive output of females. Establishing family herds, monitoring reproductive cycles and creating bull facilities within the holding institutions were among the recommendations that were listed. Arne Lawrenz started as coordinator in 2016, and with help from others in the EEP and the hard work of all stakeholders, it now looks as if the tide is starting to turn. The population of African elephants in EAZA has greatly improved in the past few years within the demographic and genetic parameters and there seems to be potential for the EEP population to become demographically and genetically self-sustainable in the next five to ten years.

…AND NEW CHALLENGES

Elephant survivorship is improving as we are becoming better at their management. But with success come new challenges. Having an equal sex ratio at birth, half of all calves produced will be male. As the rate of *ex situ* births increased, so did the number of males in the population. Because it takes a considerable resource investment to house bull Asian elephants according to modern insights into their welfare needs, the number of bull elephants will to an important degree determine the carrying capacity of the population. This effect is already very much apparent in the Asian elephant EEP and led to the decision to deliberately reduce birth rates by aiming for eight years as the first age of reproduction for females, a last age of reproduction of 25 years and an interbirth interval of seven years. In the meantime, the EEP population already comprises 99 males, 67% of which are 12 years of age or younger. Providing appropriate housing and social development and interaction for the increasing number of males is one of the key challenges for the Asian elephant EEP and a communal problem and shared responsibility of the EEP coordinator and all the EEP Member institutions. The African elephant EEP is not yet at this alarming stage and could learn from the Asian elephant EEP by creating conditions that will bring solutions for this challenge. However, the right way to tackle this is the same for both EEPs.

FUTURE BREEDING FACILITIES

The breeding facilities of the future will be able to accommodate a matriarchal, multi-generational group of breeding cows and calves, as well as one adult bull and a minimum of two sub-adult bulls. For Asian elephants there have been positive experiences from keeping more than one adult bull, which makes different pairing combinations possible without transfers. For proper socialisation of young bulls, it is important that males born in the family group can, as they become older, easily shift between enclosures and housing spaces in a fission/fusion-type management, to sometimes spend time with the adult bull(s) and/or other young bulls at the institution, and at other times reside within the family herd. The young bulls can stay in these natal fission/fusion herds until the family group signals that it is time for them to leave or they negatively influence the breeding herd. They would then move to an institution with a bachelor herd and, from there, to a breeding herd when they are needed as an adult breeding bull. This implies two things: that breeding institutions have a responsibility to house their male offspring for a considerable time (possibly up to ~12 years) if they are to develop appropriate behaviours as adults, and that the whole facility should be made adult bull proof.

BACHELOR HERDS 2.0

Zoos that do not have the space and resources to build multiple large enclosures for a breeding herd can play a truly critical role in the EEP and offer their visitors a very educational and engaging experience by keeping a bachelor group.

Each bachelor group of the future should have a minimum of three males, of which at least one should be an older adult male ('guiding bull') and the rest younger bulls of varying ages. This is important for the social education of the younger males, as they learn to respect dominance and establish male social bonds. Institutions that want to build bachelor herds are most welcome in both EEPs and can play an important role in helping the EEP to fulfil its roles successfully.

A ROADMAP FOR THE FUTURE

Having these two LTMPs finalised provides a nice roadmap for both EEPs to navigate into the future and facilitate the achievement of the roles and goals for these populations. A big thanks to all who have been involved in creating these two enormous (elephant-sized) documents and to all who will help with the implementation of the plan.

Making waves

CARIBBEAN MANATEE © WROCŁAW ZOO

IN A MARINE MAMMAL RCP WORKSHOP, EIGHT NEW EEPS WERE ESTABLISHED WHICH AIM TO PROTECT A RANGE OF SPECIES UNDER THREAT

Claudia Gili, EAZA Marine Mammal TAG Chair, Parco Natura Viva; Agustin López Goya, EAZA Marine Mammal TAG Vice Chair, Madrid Zoo Aquarium; Merel Zimmermann, Animal Programmes and Conservation Coordinator, EAZA Executive Office

During the online Marine Mammal RCP workshop held in 2021, 33 species were discussed and the following eight EAZA Ex situ Programmes were proposed and will be established and managed to fulfil the following roles.

EEP	Direct conservation roles	Indirect conservation roles	Non-conservation roles
Patagonian sea lion (*Otaria flavescens*)		Conservation education (pinnipeds)	Education, exhibit
California sea lion (*Zalophus californianus*)		Conservation education (pinnipeds)	Education, exhibit
Grey seal (*Halichoerus grypus*)		Conservation education (pinnipeds), research (model species)	Education, exhibit, research (husbandry)
Harbour seal (*Phoca vitulina*)		Conservation education (pinnipeds	Research (husbandry), education, exhibit
Fur seal EEP South American fur seal (*Arctocephalus australis*) South African fur seal (*Arctocephalus pusillus*)		Conservation education (pinnipeds)	Exhibit
Antillean manatee (*Trichechus manatus manatus*)	Insurance, capacity building	Research (methods, reproductive physiology, AI), conservation education, fundraising	Research (biology)
Bottlenose dolphin (*Tursiops truncatus*)		Fundraising, research (model species)	Exhibit
Lahille's bottlenose dolphin (*Tursiops truncatus gephyreus*)		Capacity building, fundraising, research	

The new EEP programmes include Lahille bottlenose dolphins (*Tursiops truncatus gephyreus*) and harbour seals (*Phoca vitulina vitulina*), which we will look at in more detail here.

LAHILLE BOTTLENOSE DOLPHIN

The Lahille bottlenose dolphin EEP will focus on developing in-range activities to support the conservation of the species *in situ*. It is too early to consider supporting rescue and insurance roles (e.g. support towards sanctuaries in range and small population management expertise), but this may well happen in the future. The programme will explore the different ways in which EAZA can contribute with its expertise and knowledge in the area of capacity building, fundraising and research to support the conservation of these dolphins. With the lessons learnt from the vaquita, it is essential to be ready to implement early *ex situ* efforts for the Lahille bottlenose dolphin to increase the chances of success.

The TAG will discuss the opportunities and the right form for giving recommendations to EAZA Members to raise funds to support the implementation of Ex situ Options for Cetacean Conservation (ESOCC) or to support other projects that will come up within the TAG. It is important to develop a clear message about the vaquita project and what was learned from it. *In situ* conservation did not help enough, and therefore we considered taking other tools on board, such as *ex situ* solutions. It is relevant to show people that *ex situ* can be an important tool and we need our partners to spread this message.

The programme will focus on raising funds within EAZA and beyond to be able to deliver the conservation efforts of the programme, but will also focus on the larger conservation initiatives for this subspecies. Funds need to be raised specifically for an awareness raising and communication campaign in range, which includes local fisherman and tries to address the threats.

It will coordinate the collection of samples from bottlenose dolphins within EAZA in collaboration with the Bottlenose dolphin EEP. The samples will help to validate research methods to be used *in situ*. To be able to deliver on this role, cooperation needs to be established with universities and other scientific institutions.

HARBOUR SEALS

For harbour seals, one of the new roles will be conducting and collating research through the harbour seal holders to maintain and grow husbandry expertise to support rescue and rehabilitation (husbandry) techniques for harbour seals. This will require connections to be created with existing rescue and rehabilitation centres within the EAZA region to explore how and what information from harbour seals can be useful. The TAG is looking for a new coordinator to take this programme on.

To ensure the TAG has a good insight into (potential) *ex situ* needs for conservation, they will work on a better connection with the relevant IUCN SSC Groups (cetacean, pinniped, sirenia). For pinnipeds in particular the TAG wants to work on establishing a relationship with the IUCN SSC Pinniped Specialist Group to confirm the essential messages for visitors to EAZA Members and any further potential *ex situ* conservation needs and actions.

For further information on ESOCC, go to: https://portals.iucn.org/library/sites/library/files/documents/SSC-OP-066-En.pdf

HARBOUR SEAL (*PHOCA VITULINA*)
© MARCEL BURKHARD

Solving a canine mystery

WHEN A PACK OF EUROPEAN GREY WOLVES DEVELOPED A STRANGE AND PERSISTENT COUGH, THE WILDWOOD TRUST SET OUT TO DISCOVER THE CAUSE AND FIND A SOLUTION

Jack Ponce, Qualified Animal Keeper, Wildwood Trust

At the Wildwood Trust (UK), we have a pack of 4.1 European grey wolves (*Canis lupus lupus*), which consists of a breeding pair, Odin and Nuna, and their male offspring. Beginning in June 2020, one of the young males, Maximus, was observed coughing and clearing his throat, both during and shortly after feeding. This unusual behaviour was quite sporadic, with intervals of up to a couple of weeks between keepers observing it. After consulting with our veterinary team, it was decided that if these behaviours continued, he would be anaesthetised for a closer examination.

On 6 August 2020, Maximus was anaesthetised, and upon close inspection of his mouth, we discovered that he had a hole on his upper palate, with several ulcers surrounding it. Apart from this issue, Maximus's overall condition was good. One potential diagnosis was a cleft palate, which is quite common in many breeds of domestic dog. Biopsies of the ulcers and area around the hole were taken, and bloods were drawn for examination. These results came back, and Maximus was diagnosed with a rare auto-immune disorder called Eosinophilic Stomatitis. Eosinophils are white blood cells, which are a component of the immune system. When eosinophils are activated by an immune stimulus, they release cell-killing proteins capable of damaging tissues, ideally those of the parasites and infecting pathogen. When they infiltrate and accumulate in the lungs, oesophagus or respiratory tract, they are often associated with an immune dysfunction and may damage the canine's own tissues ('Eosinophilic Syndromes and the Cavalier King Charles Spaniel'). Maximus began a course of an immune-suppressive steroid drug called Prednisolone, and was given half of a 25 mg tablet twice daily (morning and afternoon).

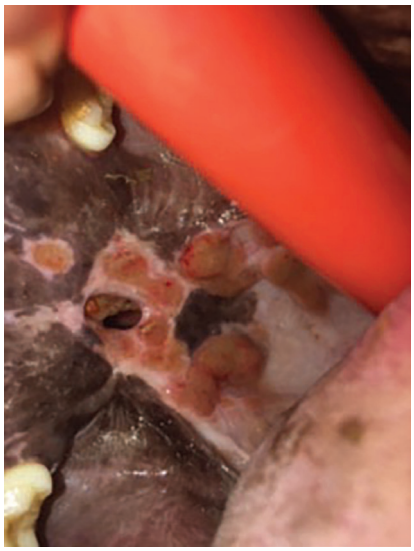
Shortly after this diagnosis, Maximus's father Odin began showing comparable behaviours, coughing and clearing the throat. We were now aware of what symptoms to look for and acted promptly to anaesthetise Odin and conduct an oral examination on 16 August 2020. During the procedure, we discovered the same condition, a hole and ulcers on his upper palate, although in Odin's case, the hole wasn't as severe and developed as Maximus's. Biopsies and bloods were taken from Odin to assess the eosinophil levels, and the results came back with the same diagnosis. Odin started the same steroid treatment and dosage as Maximus immediately. In discussion with our veterinary specialist, we agreed to carry out a further examination of both wolves in December 2020/January 2021 to assess if the condition was improving or deteriorating. However, in the weeks leading up to the procedure, two of the other young males in the pack Tiberius and Augustus, started showing similar symptoms. We agreed to examine these two males in the next procedure alongside Odin and Maximus. This procedure was carried out on 6 January 2021, and the overall results were reasonably positive. The ulcers around the holes in both Odin's and Maximus's palate had reduced considerably, although a small number were still present. Odin's hole had not increased in size, although Maximus's hole had increased slightly. We were reassured that the steroid treatment was having a positive effect, although our concerns about Maximus were still greater than the others due to the size of the hole. Unfortunately, both Tiberius and Augustus were diagnosed as being in the early stages of the condition as well, although in both cases they had only some minor ulcers in the hard palate but had not developed a hole. Tiberius and Augustus began the same steroid treatment that Maximus and Odin had started on; by this point, Odin and Maximus's dosages had been reduced

to half a 25 mg prednisolone tablet once a day.

Throughout 2021, the symptoms were observed less frequently. Tiberius and Augustus showed no physical symptoms at all, but Odin and Maximus were still coughing and clearing their throats (although the frequency and severity had reduced) and both exhibited exaggerated nasal discharge and were consistently sneezing, especially after eating. This is caused when small amounts of food pass through the nasal cavity via the holes in their hard palates. All four males had responded well to taking the steroids, but this wasn't without its challenges. Approximately four weeks into the steroid treatment, all four wolves exhibited an increased appetite for food and aggression began to increase between all members within the pack. The two wolves with no symptoms at all, Nuna and Minimus, were having to compete with the other males around food, as these four were much more aggressive when hungry. This was becoming more frequent and intense as the steroids took effect. Due to their increased appetite, we decided to increase the food for the whole pack, and decrease the interval period between large feeds (usually every three to four days, but sometimes only two days apart). This helped to ensure that all wolves were receiving their fair share and ease the tension between them. This seemed to work well and as the initial transition on to the steroids plateaued, the wolves' desire for food reduced, aggression decreased and we returned to a normal feeding regime.

Throughout this whole scenario, the two remaining wolves, Nuna and Minimus, showed no symptoms of the condition. This was reassuring, but to be on the safe side, we agreed to examine both wolves under anaesthesia in September 2021. Thankfully, the outcome of this procedure was positive as neither wolf showed any ulcerations or holes on their palates. We did discover a small remnant of an ulcer on the soft palate of Nuna, but our vet was confident that this wasn't a serious issue and was unrelated. Bloods and biopsies from their palates were taken as a precaution and the results confirmed that neither had any signs of eosinophilia. The next re-examination

MAXIMUS'S PALATE CONDITION 6 AUGUST 2020



MAXIMUS'S PALATE CONDITION 20 JANUARY 2022

of the males was on 20 January 2022, and we agreed to examine Nuna again to reassess the small ulcer on her soft palate. Minimus, however, was deemed to be in perfect condition, and wasn't anaesthetised.

The overall procedure couldn't have gone better, and the results were very positive. Both Odin and Maximus's holes had not deteriorated, and remained the same size since the previous examination on 6 January 2021, and all of their ulcers had cleared up and were no longer present. Tiberius had a single ulcer remaining, but the previous ulcers observed had also cleared up. Nuna was re-examined to assess the ulcer on her soft palate, which had disappeared with no additional ulcers appearing. Unfortunately, the other male Augustus passed away from an unrelated issue in February 2021, but the post mortem showed that his ulcerations had already reduced significantly in just under two months since beginning the steroid treatment. As a result of the positive results from this examination, we reduced the dosages of the steroids to half a 25 mg tablet every other day. A further procedure on 20 July 2022 was conducted, all males had no ulcerations present, and the holes in the palates of Odin and Maximus were stable. It was decided we would remove all steroids and reassess again in early 2023, but would act immediately if any issues reoccurred before this date.

Identifying and dealing with this rare disorder has presented diverse challenges. From initially identifying symptoms, understanding the diagnosis, trying to consistently administer treatment and adapting to the changes in the pack dynamic as a result of this treatment while constantly evaluating their welfare has not been easy, not least because we are still not sure what the initial cause is of this condition. There may be several causes, including parasites, traumatic, idiopathic, inflammatory, allergic and possibly genetic (Cordon, 2020). The Grey wolf EEP coordinator, EAZA Canidae and Hyaenidae TAG and International Zoo Veterinary Group specialists were all contacted and none had heard of this condition before in wolves in human care. It is a strong possibility that we will never know what the cause of this condition is, or whether our wolves will continue to be exposed to whatever triggered it. Our objective now is to disseminate as much information as we can to others within the community. The main literature and resources on the disorder are related to sporadic cases in domestic dogs, specifically King Charles Cavalier spaniels. It will be beneficial for us to share our information and experience of this condition, and if other collections encounter this same issue, there is now some guidance and literature available.

REFERENCES

• 'Eosinophilic Syndromes and the Cavalier King Charles Spaniel' (2022). *Cavalierhealth.org*, https://cavalierhealth.org/eosinophilic.htm

• Cordon, R. (2020). Veterinary adviser for Grey wolf EEP

• Croucher, R. (2022). Veterinarian at Burnham House veterinary surgery

Small creature, big challenge

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A CONSERVATION PROJECT TO PROTECT NATIVE HERMIT BEETLES HAS FOUND SUCCESS IN THE HEART OF LITHUANIA'S SECOND-LARGEST CITY

Kristina Guzaitienė, Project Researcher; Martin Schwarz, Zookeeper and Research Intern; Kristė Stravinskaitė, Scientific Curator; Gintarė Stankevičė, Director, Lithuanian Zoological Gardens

In the centre of Kaunas, Lithuania's second-largest city, lies an 84-hectare oak park named Ąžuolynas. This is the largest urban park of mature oaks in Europe and is not only a favourite place for locals to enjoy outdoor activities, but also an especially important habitat for rare species related to veteran trees. Beefsteak fungus (*Fistulina hepatica*) and hen-of-the-woods (*Grifola frondosa*) grow under many of the century-old oak trees. Middle spotted woodpeckers (*Dendrocoptes medius*) peck the old tree trunks while in the hollows of the trees hides the pride of the park – the hermit beetle (*Osmoderma barnabita*), which is strictly protected in Lithuania and the EU. This beetle is a classic umbrella and indicator species, so a specifically designed conservation project protects not only the hermit beetle but also other species dependent on the same habitat.

The main goal of the project was to create a functional ecological network for *Osmoderma barnabita* and the other species dependent on deciduous veteran trees. This was done by managing the main habitats of the species, developing the essential elements within the network area, breeding in human care and re-establishing hermit beetle populations in their historical habitats.

THE SPECIES

Osmoderma barnabita belongs to the *Scarabaeoidae* family and is one of the biggest European beetles. The hermit beetle is black or blackish-brown with a slightly metallic emerald shine and its body length ranges from 22 mm to 32 mm. The species is listed in the IUCN European Red List as Near Threatened and is included in the Red Data Book of Lithuania as vulnerable because of the lack of suitable habitats or the too-great distances between patches of suitable habitats. It is truly rare to see a hermit beetle in nature by chance. Adult beetles take flight searching for mates from June to August and live for about one month. In Lithuania, the beetle's larvae most often evolve inside the cavities of old (more than 100 years in age) broad-leaved trees, usually oaks. The larvae development takes two to four years. They are found in both relatively open old-growth woodland and traditional cultural landscapes. This species has very poor dispersal capacity (it is a weak flier), and consequently linear habitat features (e.g. avenues of veteran trees) are critically important for retaining connectivity and viable populations. In our climatic conditions, the trunks of such oak trees must be warmed by sunlight for successful larvae development.

THE *EX SITU* PROJECT

The main project role of the Lithuanian Zoological Gardens was to establish an *ex situ* population of *Osmoderma barnabita* and release the bred individuals to the species' restored historical habitats. In the process, a methodology of rearing and breeding the hermit beetle has been developed to ensure successful breeding of this species. The project began by collecting adult beetles during the summer months from 2019 to 2021. Adult beetles were captured using pheromone traps. Beetles were attracted using a synthetic (+)-γ-decalactone substance, mimicking the pheromone produced by the male beetles. These pheromone traps were attached to old, hollow oak tree trunks growing in the open sunny locations at a height of 2–3 metres. During the project, traps were set up in the Oak Park and the adjacent territory of the Lithuanian Zoological Gardens. This area has the largest population

of the hermit beetles in Lithuania, but sadly the species has a very little opportunity to spread on its own as the park is surrounded by the city. This was the reason why we chose this area for the project. The hermit beetles fly on warm and sunny summer days, so pheromone traps were installed in June, when the average air temperature reached 20°C, and removed in August when the air temperature cooled down. On sunny and hot days, when the temperature was 20°C or higher, the traps were checked daily. On cooler days, when air temperature dropped below 20°C, traps were checked every other day as the beetles become less active and very rarely fly.

Before the hermit beetles were placed into containers prepared for breeding, they were examined, biometrically measured and sexed. After the data was recorded, the beetles were transferred to breeding containers, which were 40–60 litre plastic containers with tightly fitting lids. Ventilation openings were cut out of the lid of the container, to provide sufficient air flow and to prevent the substrate from drying out, as a dry substrate can negatively affect the breeding. A humidity level of 75–85% was maintained in the containers. The containers were filled with a substrate specially prepared to recreate breeding conditions for the beetles that were as natural as possible. The main part of the substrate (50–60%) consisted of oak leaves. The largest percentage of the foraging diet of larvae are decayed leaves, so collected leaves were composted for 6–12 months to imitate natural conditions. At the end of the composting period the leaves were shredded mechanically. The remaining substrate (40–50%) was made of oak rot affected by brown-rot fungi, which was collected from the cavities of old or fallen oaks. Larger segments were also shredded to smaller fractions because the beetles need fine wood rot to thrive.

In these breeding containers, mating took place from June to August, when the temperature was maintained between 20–22°C. The female beetles laid eggs in the substrate. The eggs were left undisturbed until they hatched. After 60–90 days, the larvae were examined and transferred to the rearing containers. These containers were prepared in the same way as the others, except that approximately 5–6 litres of the old substrate was added from the breeding container. This was important because the older substrate contained microorganisms that greatly benefit the larvae.

One rearing container could house around 30–50 larvae. The larvae grew and overwintered in the containers for one to three years before they were ready for release. They were transferred to a natural habitat during May and June, when the average air temperature reached 12°C or higher. The larvae were placed in specially crafted nesting boxes containing the same substrate as the rearing containers. At the time of transfer, the nesting boxes were also supplemented with 20–40 litres of the substrate from the breeding container in which the larvae were grown. Larvae were carefully placed in the nesting boxes and there they completed metamorphosis. *Osmoderma barnabita* once again became an integral part of the natural habitat.


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BRIGHT FUTURE

Although the project was relatively short, over the three-year period we achieved significant results. Ninety-two collected beetles had produced 1,447 larvae, and 758 of those larvae and 160 pupae were released to their former and now restored habitats in Verkiai Regional Park in the Vilnius Municipality. After larvae and pupae were released into the artificial nesting boxes in Verkiai Regional Park, adult beetles and larvae were observed during successive years. This showed that the beetles laid eggs in the nesting boxes from which the larvae hatched and overwintered successfully. We hope that in the near future we will continue to introduce *Osmoderma barnabita* to more of their historical habitats.

Further details of the project can be found at www.osmoderma.lt/homepage.

ACKNOWLEDGEMENT

The project 'Ecological network for *Osmoderma eremita* and other species dependent on veteran trees' (LIFE OSMODERMA LIFE16 NAT/LT/000701) was implemented from 2017 to 2022 by the Lithuanian Fund for Nature, in partnership with Lithuanian Zoological Gardens, Daugavpils University Nature Studies and Environmental Education Centre (Latvia) and Kaunas City Municipality. The project was funded by the EU LIFE programme and the Ministry of Environment of the Republic of Lithuania.

LITHUANIAN ZOOLOGICAL GARDENS

NATURA 2000

LITHUANIAN FUND FOR NATURE

Life Osmoderma

Operation Beluga

WHEN A BELUGA WHALE FOUND ITSELF STRANDED IN THE SEINE, AN EXTRAORDINARY AND INSTRUCTIVE RESCUE WAS MADE, INVOLVING EVERYONE FROM THE FRENCH STATE TO ZOOS AND MARINE ASSOCIATIONS AND EXPERTS

Isabelle Brasseur, Head of Education, Research and Conservation, Marineland

In August 2022, a beluga whale (*Delphinapterus leucas*) was spotted in the Seine in Normandy, France, apparently lost and unable to find its way home. Very quickly a mission was launched to attempt to rescue the creature and return it to its natural habitat. The attempt, involving a huge number of experts and agencies, sadly failed despite everyone's best efforts. But the incident shone a spotlight on the difficulties and ethics of the rescue of wild animals.

TO ACT OR NOT TO ACT?

When an animal becomes stranded far from its home, should we intervene or let Mother Nature do its thing? How to intervene? What means do we have to help a weakened cetacean return to the sea when it is many kilometres from its home?

Four months before the stranded beluga appeared in the Seine, a similar extraordinary event occurred when a weakened killer whale also made its way up the Seine. A handful of scientists spontaneously set up a multidisciplinary group (MDG) made up of biologists, researchers, veterinarians and acoustic specialists, including GECC (Cotentin Cetacean Study Group), Marineland, Cerema, OFB (French Biodiversity Office) and the Ecole Nationale Supérieure de Techniques Avancées (ENSTA), all based in France, as well as the Norwegian Orca Survey, to help the state services manage the crisis.

From the first day, the media as well as the general public were so gripped by the event that it gradually became the top news item in France. Cetaceans attract such a strong emotional response from the public that even if the chances of survival are minimal, it is not possible for the stakeholders to do nothing. On the strength of its experience with the orca, as soon as the wandering beluga was announced, the MDG was immediately made operational to support the authorities.

ACTION PLAN INSPIRED BY ZOOS

During the normal daily routine of a zoo, the priority is to ensure the wellbeing and health of the animals. This is why a prophylaxis programme is systematically implemented in order to reduce the occurrence of health problems. Intervention protocols are defined in advance to be applied if necessary. Despite this preparation, experience shows that there is a high probability of having to adapt the action plan according to the situation, the animal, and many other parameters which always test the ability of the zoo staff to react quickly and effectively while ensuring the safety of animals, staff and sometimes even visitors. This is a crucial skill in the world of zoos which has developed over time, and which in certain cases, such as the stranded beluga, can be put at the service of a cetacean in difficulty in the natural environment.

Zoos hosting cetaceans have unique skills in terms of assessing the state of health of their cetaceans and understanding how to handle and transport them. Marineland, Planète Sauvage (France), Oceanogràfic Valencia (Spain) and wildlife veterinarian Florence Ollivet-Courtois as well as Apex Research Cetacea (an NGO based in France whose director is a former animal keeper) all made their expertise, personnel and equipment available to the French state for the event, which quickly became 'Operation Beluga'.

A protocol for location, monitoring and remote health assessment of the stray animal can be swiftly implemented. For the lost beluga, from 6 August, 24-hour surveillance was made possible when the whale voluntarily entered a lock in which it was enclosed. At that point,


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OPERATION BELUGA – HOW IT HAPPENED

2 August: A cetacean is observed in the Seine 160 km from the sea.

4 August: The species is identified as a beluga. The GECC and the OFB are responsible for locating and monitoring the animal to ensure its protection and allow an assessment of its health. Specialists from Marineland, Planète Sauvage and Oceanogràfic Valencia and Florence Ollivet-Courtois, a veterinarian specialising in wildlife, put their expertise at the service of the state. Given that the animal is underweight, the priority is for it to regain its strength before either returning to the sea by its own means or being relocated.

5 August: Apex Research Cetacea and Sea Shepherd (USA), who are already onsite, are responsible for following the animal, ensuring its safety and trying to feed it.

6 August: The animal enters the lock of Notre Dame de la Garenne where the authorities decide, on the advice of experts, to keep it under observation.

7 August: The beluga receives treatment by tele-injection. The various experts involved propose that the beluga be removed from the Seine and the Prefecture (local government area) gives its permission.

8–9 August: Marineland and Planète Sauvage arrive at the site, bringing human resources and equipment.

9 August, At 8am, the operational command post of the Prefecture is activated. Preparations are made throughout the day, and the intervention is launched at 10pm.

10 August: At 4am, the beluga is made available to the veterinary team and the whale is transferred to a barge to be transported back to the sea. However, after one hour on board with the whale, the animal trainers and veterinarians notice signs of hypoxia – the beluga is in pain. His euthanasia is carried out.

observations revealed that it was an adult measuring ± 4.5 m with an estimated weight of 700 kg. The beluga was calm, his behaviour was stable and his condition was not moribund. His respiratory rate was 5–8 breaths/5 minutes, which is normal. All attempts at feeding – with herring, squid and live trout – failed. Treatment was administered by remote injection (antibiotics and corticosteroids) by veterinarians from France's Biotropica and CERZA animal parks who were dispatched to the site. Without food intake and no reaction to treatment, it became essential to carry out a thorough medical examination in restraint to allow veterinarians specialising in cetaceans to make a diagnosis. At the end of this examination, either the animal would be found to be in pain and would have to be euthanised, or, despite its thinness, its translocation would be organised.

As the medical examination did not contradict the transport of the beluga, it was decided to relocate it to a lock near the mouth of the Seine for four more days in order to continue to monitor it, treat it and then encourage it return to the ocean by simply opening the lock towards the sea.

THIRTY INTENSE HOURS

From 8am on 9 August, all the stakeholders were busy preparing for the intervention. No fewer than 80 people were onsite from many different professional backgrounds: gendarmes, rescuers, divers, Red Cross, animal keepers and veterinarians, all of whom had to be coordinated. At 10pm, we decided that we were ready and the starting signal was given. The coordination of the intervention, entrusted to Marineland, was fluid and efficient between the teams.

A net 27 m wide and 5.5 m high, weighted with a chain and equipped with fender buoys, was slowly lowered at one end of the lock and passed under the animal in order to hold it as if it were in a hammock. The five animal trainers got into the water and secured the animal in the net before transferring it to a barge placed on the other side of the lock. The animal was calm.

The veterinary team stood ready to carry out the planned examinations. The Marineland veterinarian took a blood sample and gave the whale a physical, ocular and dental examination, followed by an ultrasound of the various organs. No anomaly was observed. The Prefecture gave its agreement for the animal to be transported.

After an hour's journey, the animal trainers and veterinarians observed that the animal was in hypoxia. He showed signs of discomfort and then suffering, so the decision was taken to euthanise the animal to shorten its suffering. The body of the animal was made available to the state veterinary services for an autopsy, to reveal the causes of the beluga's deteriorated state of health.

LEARN AND ACT TOGETHER

This extraordinary event demonstrated the benefits of bringing together experts from different backgrounds and agencies to work together to save an animal in distress. Although the outcome was tragic, this event was a unique opportunity to create an intervention protocol for lost or distressed cetaceans thanks to an immediately operational multidisciplinary network, acting on the basis of scientific data, supported by crucial forces and the logistical abilities of NGOs, in addition to the experienced network of European zoos. The experience and the new protocol means that we will be able to take action again in the future to rescue a valuable cetacean.

Sustainable supply chains

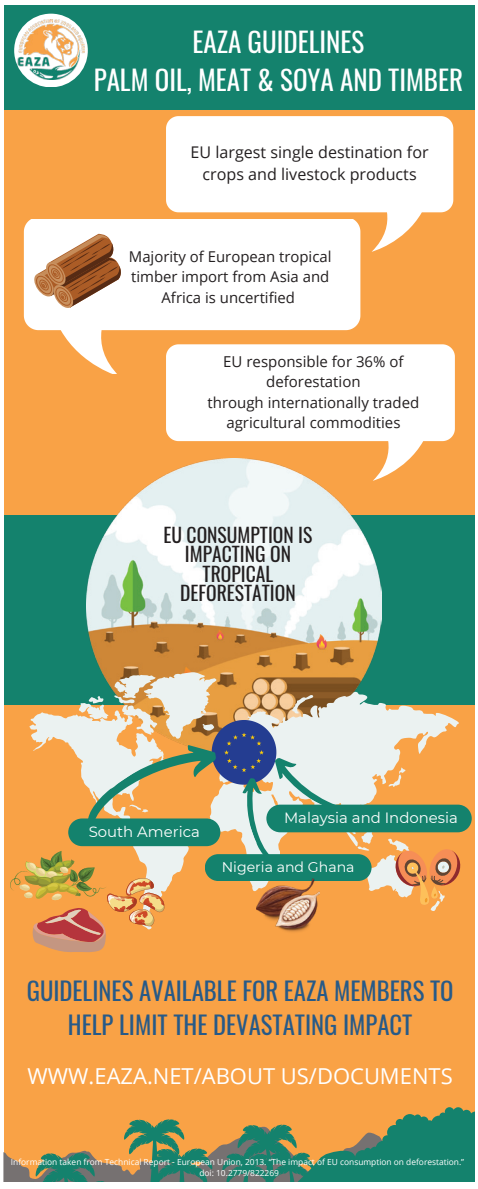
AN EAZA WORKING GROUP HAS CREATED NEW GUIDELINES TO HELP MEMBERS IMPROVE SUSTAINABILITY IN THE SUPPLY CHAINS FOR TIMBER, SOYA AND MEAT

Catherine Barton, Imported Deforestation and Sustainable Agriculture Working Group Chair, and Merel Zimmermann, Animal Programmes and Conservation Coordinator, EAZA Executive Office

Over the past two decades the EU market has been a major driver of tropical deforestation. To meet the EU market's demand for crops, livestock products and timber, nine million hectares of forests have been cleared, an area the size of Portugal, for a region that has just 7% of the world's population*.

The EAZA Imported Forestry and Sustainable Agriculture Working Group wants to guide Members through supportive actions to limit imported deforestation in our supply chains, through government consultations, scientific research and wider NGO sector initiatives aiming to improve certification schemes. In September 2022, two new Guidelines were published and provide concrete recommendations on how to get involved at an institutional, association and political level with the topics of meat and soya, as well as timber. Please also check out the guidelines on palm oil and the extensive background information on each of the topics in the document 'Background Information on Imported Forestry and Sustainable Agriculture' – all available on the public EAZA website https://www.eaza.net/about-us/eazadocuments/.

* European Union (2013). *The impact of EU consumption on deforestation*. ISBN 978-92-79-28926-2 doi: 10.2779/822269




SUBADULT ANIMAL AVIARY
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HYACINTH MACAWS
© ZÜRICH ZOO,
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VIDEO MONITORING OF NESTING BOXES
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Behind the scenes

BUILDING AN ENTIRE FACILITY THAT WILL NEVER BE ACCESSIBLE TO VISITORS MAY SOUND LIKE A STRANGE IDEA FOR A ZOO. BUT THAT'S JUST WHAT ZÜRICH ZOO DID – AND IT IS PROVING ITS WORTH

Basil von Ah, Curator, Zürich Zoo

Until a few years ago, the focus of our animals kept at Zürich Zoo (Switzerland) was primarily for them to be ambassador animals living in large nature-like habitats and mixed species biomes. They provided visitors with a tangible experience that would elicit their empathy for animals and nature and open them up to learn about conservation.

Education, though, is just one of the four central goals of a scientifically led modern zoo. Considerable contributions to *in situ* conservation projects have been a cornerstone of Zürich Zoo's activities for years and continue to be so. Other core tasks, however, such as research and *ex situ* conservation, demanded a shift in resources and focus to reach their full potential. This brings us to off-show facilities, as they play a vital role in *ex situ* conservation as a means of holding and successfully breeding endangered animals, in alignment, of course, with the RCPs and EEPs.

Zürich Zoo has had background holding facilities for years. In the 1980s they were mainly used to breed snow leopards and after that were used as greenhouses for plants and/or temporary housings for various species. Around 10 years ago, two of them were adapted to hold and breed selected birds, which were mainly the same species as the ones kept on show. The goal was to have more than one breeding pair per species within the zoo, especially for smaller birds with shorter lifespans, such as passerines.

To be able to intensify our *ex situ* conservation activities, as outlined in our Development Plan 2050, we finally decided to repurpose, remodel and expand these buildings and combine them into one. The new centre became operational in January 2022, and is called 'Ornis – Centre for Species Conservation'.

Ornis' units are numbered from 1 to 3, and are managed by two keepers on a daily basis. It is worth mentioning at this point that it is vital to carefully assemble a team with specialist keepers who have a great affinity for and experience in aviculture.

HYACINTH MACAW HUB

Ornis 1 is the former snow leopard breeding station. We enhanced and rebuilt it in 2021, adding an upper floor to the existing building among other measures. For now, this unit is dedicated exclusively to hyacinth macaws (*Anodorhynchus hyacinthinus*).

The upper floor consists of 30 identical breeding aviaries and two separation sections. The lower floor has eight indoor and six outdoor aviaries which can be used as separation units as well as to give sub-adult animals the opportunity to build up the flight muscles they'll need later in the vast Pantanal aviary.

We currently keep 30 breeding pairs of this species. We keep this large number to enable us to tackle the very low breeding success for this species, especially with parent-reared juveniles, and because we want to show them flying in flocks in our planned Pantanal aviary. As a bonus, this setting offers huge potential for research projects, as it allows researchers to compare quite a sizeable number of animals.

Since the arrival of the last hyacinth macaws in April 2022, we've observed more than 60 egg-laying events in 17 pairs. Eleven of these eggs hatched and six of them have fledged by the time of writing. We feel ambivalent about this; there could have been more hatching events, particularly in relation to the number of eggs laid, but nevertheless we have been able to increase our population by 10% in a very short time.

BUILT TO MATCH DIFFERENT NEEDS

Ornis 2 is a greenhouse that contains 12 identical aviaries as well as a bigger one with an attached outside enclosure. In Ornis 2 we currently breed red-legged honeycreepers (*Cyanerpes cyaneus*), red siskins (*Spinus cucullatus*), ultramarine grosbeaks (*Cyanocompsa brissonii*), and Brazilian tanagers (*Ramphocelus bresilius*). The

FEED SILOS
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HEALTH CHECK OF HYACINTH MACAW CHICK © ZÜRICH ZOO, JENNIFER SCHWERE


FEED PREPARATION
© ZÜRICH ZOO, NICK SOLAND


ULTRAMARINE GROSBEAK (*CYANOCOMPSA BRISSONII*). © ZÜRICH ZOO, ENZO FRANCHINI

other aviaries we use as separation units for juvenile birds that need to be separated or which will move to other institutions. In the bigger aviary we'll soon start a breeding group of sun conures (*Aratinga solstitialis*). One goal for them is to assemble a bigger flock for the new Pantanal aviary.

Ornis 3 is a concrete building with polycarbonate roofing. It has slightly bigger aviaries, with two outside enclosures that we can combine with three indoor areas.

In Ornis 3 we currently breed Montserrat orioles (*Icterus oberi*), crested quail-doves (*Geotrygon versicolor*), blue-headed quail-doves (*Starnoenas cyanocephala*) and again Brazilian tanagers (*Ramphocelus bresilius*). In the case of the tanager, we hold a very prolific pair which has raised 10 and 11 juveniles respectively in each of the last two years. Other species in Ornis 3 are the channel-billed toucan (*Ramphastos vitellinus*), the green-backed trogon (*Trogon viridis*) and the wattled jacana (*Jacana jacana*). The birds of these species are either too young to breed or did breed but have had no hatching success until now.

SOME PREFER IT MORE COMPLEX

Breeding success has much improved with many species since they moved into Ornis 2 and 3. In the case of the blue-headed quail-dove, for instance, we were able to hatch four juveniles within the last couple of months, which is the first recorded breeding success of this species in Switzerland. Naturally, there are always husbandry details that we need to adjust and further optimise. Such improvements are generally implemented more quickly and easily in the more controlled, calmer and strictly functional environment of off-show facilities, which is one of the great advantages of these facilities.

Having said that, I'd like to emphasise that we're not saying that every species is best kept and bred off-show. Some species thrive much better in complex habitats. Examples for that at Zürich Zoo are the crested ibis (*Lophotibis cristata*), the Meller's duck (*Anas melleri*) and the Bernier's teal (*Anas bernieri*). We very probably would not have the high breeding success we have with these species in a setting like Ornis. Our 11,000 m^2 Masoala Rainforest ecosystem suits them much better.

IT'S A PROCESS

You may have noticed that not all species we currently keep at Ornis are threatened according to IUCN. Consequently, our bird collection at Ornis will change over time. As part of our Development Plan 2050 we've evaluated a new collection plan, in correspondence with our on-show exhibits, that will focus on species conservation exclusively.

While the passionate aviculturist might feel sad to give up species that are almost lost in the European *ex situ* population (such as *T. viridis* or *C. brissonii*), it makes sense to focus our collection on threatened species and align it with the RCPs of EAZA. Keeping least concern species, as beloved as they may be, takes up resources that should be used otherwise; in many *ex situ* programmes we need more holders and animals.

Species we plan to add to Ornis in the future include the yellow cardinal (*Gubernatrix cristata*), the red-tailed amazon (*Amazona brasiliensis*), and the red-fronted macaw (*Ara rubrogenys*).

WHY OFF-SHOW FACILITIES MATTER

Keeping animals purely and deliberately off-show, as counter-intuitive as it may sound for a zoo, ticks many boxes for our shared goals within EAZA. Your investors may criticise that you're spending money and resources on something your visitors don't profit from or won't even see. But especially in taxa other than mammals, it's an important thing to do with regard to our role in *ex situ* conservation. Off-show breeding facilities allow us to focus on output (breeding success), to systematically figure out crucial husbandry issues and to gain experience of how best to keep sensitive species. They also allow for research in a controllable setting and with bigger sample sizes. Furthermore, with their purely functional design they are easily adapted to accommodate new species. Having the space, resources and keepers with the necessary specialist qualifications enables you to focus on specific species in bigger numbers whenever it's needed. And you have the flexibility to quickly accommodate a new species that urgently needs more holding capacity or special attention.

With the advent of the new-style EEPs we are on our way to coordinating a lot more species. To be able to create sustainable, healthy *ex situ* populations for all of those, we need more holders and successful breeding. Off-show facilities are one crucial factor that will help us to reach that goal within EAZA.

DIETARY INSPIRATION

THIS YEAR'S EUROPEAN ZOO NUTRITION CONFERENCE OFFERED WORKSHOPS AND PRESENTATIONS THAT WILL IMPROVE OUR KNOWLEDGE AND PRACTICE WHEN FEEDING THE ANIMALS IN OUR CARE

Lauren Samet, European Nutrition Group Chair; Sarah Byrne, European Nutrition Group Co-Chair; Lauren Florisson, Animal Programmes and Conservation Coordinator, EAZA Executive Office

In January 2023, Riga Zoo (Latvia) hosted the 12th European Zoo Nutrition Conference (EZNC), a biennial conference based on all aspects of nutrition and dietary management to ensure high zoo animal welfare standards. This was the first time the EZNC has taken place in a Baltic state and the first time ever that Riga Zoo has hosted an EAZA conference, making it a particularly special event.

Prior to the conference, a nutrition-based EAZA Academy Workshop took place, entitled 'Incorporating Behavioural Management into Diet Design and Feeding Systems'. The EAZA Academy Workshop Day included work within teams to develop species-specific diet and feeding strategies using an innovative tool – a chart designed by European Nutrition Group (ENG) member Sarah Depauw (Odisee University of Applied Sciences) – and peer-reviewed research as a guide. This helped participants to identify which diets and feeding methods would be best practice for specific species, and allowed discussion of how such plans could be implemented within a zoo. Participants were then able to see how these strategies could be put into place with these species during the tours of Riga Zoo on Saturday morning of the conference. (The Riga Zoo team gave conference delegates a warm welcome and even provided traditional Latvian hot drinks during the zoo visit, which were much appreciated on that frosty morning.) Workshop participants fed back how useful the workshop approach was for developing and improving animal feeding strategies in their zoos, and we hope that it brings about positive changes to current practice and development for all those involved.

The conference began on 20 January and was attended by 120 international delegates from all types of animal background and representing Europe, Asia, Africa, North America and Australia. Each year the EZNC's programme themes change and this year the first conference morning was dedicated to aquarium feeding and nutrition – a refreshing change for many of us who largely work with terrestrial species. Professor Kendall Clements (University of Auckland) kicked off the session with a keynote talk on the nutritional ecology of marine herbivorous fishes. This was followed by a talk by Awot Teklu Mebratu (Ghent University) about viewing the fish tank as a 'rumen' of sorts, and a presentation by Johan Schrama (Wageningen University) on feeding a diversity of fish species and husbandry conditions related to nutrition. Aquarists from Rotterdam Zoo (the Netherlands) were represented with talks by Ton Weber and Sander van Lopik. Sander's talk highlighted the urgent need for review and reform of the ingredients used in fish feed, as it is often made using wild-caught fish, which can potentially include endangered species. The morning highlighted the complexities of feeding and successfully keeping reef fish and the need for improving *ex situ* breeding strategies via good nutrition.

The second day's presentations focused on feeding insectivores and folivores in human care and challenges faced by keepers and nutritionists alike when cultivating and providing these food types for animals. Ida Bähler's (University of Zurich) talk on scatter-feeding meerkats using automated feeders demonstrated how these feeding techniques can promote natural behaviours and reduce aggressive interactions – food for thought when feeding many of our social species! On the third day, sessions concentrated on primates, raptors and amphibians among other species. The ENG's Geert Janssens (Ghent University) spoke of success in a pilot study using hair samples to analyse primate vitamin D status – a more accessible, less invasive and surprisingly affordable method for obtaining this data.

The presentations and research posters showcased the inspiring work that is going on across the globe to improve how we care for species in zoos and aquariums. We would like to thank everyone who contributed to the conference programme and we are already looking forward to EZNC2025!

We would also like to say a huge thank you to our conference sponsors, without whom none of this would be possible, and who themselves are dedicated to improving the status of zoo animal feed and nutrition. The ENG thanks Kasper Faunafood, Granovit Zoo Feed, Kiezebrink International, St Laurent and Versele-Laga for their sponsorship of EZNC2023 and for their contributions to this important field of animal husbandry.

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Action for a blue planet

AQUARIUMS TOOK A STAND FOR MARINE CONSERVATION AT THE MUCH-POSTPONED 11TH INTERNATIONAL AQUARIUM CONFERENCE AT NAUSICAÁ

Lauren Florisson, Animal Programmes and Conservation Coordinator, EAZA Executive Office

On a sunny Monday morning in October 2022, 250 people travelled from five continents to attend the 11th International Aquarium Conference (IAC) at Nausicaá in Boulogne-sur-Mer (France) along with 300 people who joined online. Originally scheduled for 2020 and then 2021 but postponed twice because of the COVID-19 pandemic, the conference finally went ahead as a face-to-face event in 2022, with online elements scheduled from 31 October until 4 November. The event was attended mostly by European aquarium members from EAZA and EUAC (European Union of Aquarium Curators). The welcoming and opening speeches were held in front of the large tank at Nausicaá and delegates who were less than fluent in French were given headphones with live translation in English, Spanish and Chinese. After a warm welcome by (among others) Frédéric Cuvillier (Mayor of Boulogne-sur-Mer), Philippe Valette (Chair of the International Aquarium Network) and Vladimir Ryabinin (Secretary General of UNESCO), the conference got underway.

Eighty presentations were scheduled around the overarching theme of aquariums being engaged and active on behalf of the blue planet. All five EAZA aquatic TAGs (corals, jellyfish, freshwater teleost, marine teleost and elasmobranch) were well represented with chairs and TAG members attending and giving presentations. Talks focused on all the areas in which aquariums engage: animal care, reproduction, conservation, collaboration, societal role, education and sustainability, as well as the future of aquariums. The high standard of talks showed the equally high level of expertise and highlighted the importance of aquariums as trusted authorities.

Sustainability, reefs and corals were hot topics and proved that, despite the challenges of climate change and the dire position of the oceans, there were positive stories to tell. The strong collaborative work between aquariums showed their capacity and unique position in the world as centres of specialised knowledge and expertise. To further strengthen that position, 200 aquariums made a declaration to raise more awareness and mobilise their audiences, commit to the United Nations Sustainable Development Goals through the Decade of Ocean Sciences, and to set up educational and scientific programmes. With this commitment the IAC came to an inspirational close with aquariums collaborating more closely than ever to help protect, educate, conserve and inspire others to safeguard the world's oceans and the life within them for future generations.

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