

QUARTERLY PUBLICATION OF THE EUROPEAN ASSOCIATION OF ZOOS AND AQUARIA

ZOOQUARIA

AUTUMN 2026

ISSUE 131

AVIAN AMBITION

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EXPERIENCES FROM GIVSKUD ZOO - ZOOTOPIA



Zookeeper Stephanie Maria Lanchow from GIVSKUD ZOO – ZOOTOPIA completed a thesis project investigating changes in animal behaviour and air quality in an antelope enclosure before and after the introduction of Biobed.

The project provides a fascinating and comprehensive insight into how a bioactive bedding system can positively influence both animal welfare and the indoor climate. Read the full project at www.biobed.dk

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A QUICK GUIDE TO FREQUENTLY USED ACRONYMS

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

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Zooquaria is the quarterly magazine of the

European Association of Zoos and Aquaria (EAZA).

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Email: info@eaza.net ISSN 2210-3392. For information on print subscriptions to

Zooquaria visit: <https://www.eaza.net/zooquaria>

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

The paper used for printing is FSC quality (sustainable). Organic inks are used.

Plates for printing are free of chemicals. All waste is disposed of in an

environmentally friendly manner. Printed by Euro Mail BV.

Cover image: Yellow-billed storks © A Joris





FROM THE DIRECTOR'S CHAIR

This issue of *Zooquaria* highlights a theme that is embedded in EAZA's vision: the power of collaboration to achieve meaningful conservation impact. Across our Association, Members are working together and with partners in increasingly innovative ways to address biodiversity loss, strengthen animal populations, support habitat conservation and engage society in building a more sustainable future.

It is not only *Zooquaria* that shares our collective successes; I am also delighted that our 2025 Annual Report is now available on our website. Last year was the final one of the strategic period, and a vast amount of work was completed and/or initiated. This included a comprehensive review and updating of one of our core documents, the EAZA Population Management Manual (PMM). You can read more about the updates on page 22.

Within this issue you will also find examples of how EAZA's population management structures, RSPs, EEPs and LTMPs contribute to species recovery efforts, demonstrating the vital role they play within the wider conservation landscape. Alongside these updates, I would be remiss if I did not highlight the conservation database infographics on pages 14 and 15. They provide a powerful snapshot of the essential and diverse contributions to conservation made by EAZA Members. Sharp-eyed readers may query why there is a drop in the Euro and staff hours totals between 2024 and 2025. This is a result of the timing of data input. We set a deadline each year for completion of these infographics to coincide with the publication of the Annual Report. Some data comes in after this deadline, hence why the 2024 value reported at this point last year was €32.1 million, and it rose to over €40 million by year end when it was incorporated into the

five-year graph. I have no doubt that our 2025 data will follow a similar increasing trend.

Continuing the theme of collaboration, there are articles that remind us that conservation does not happen in isolation. Features exploring environmental tipping points, sustainable practice, wetlands conservation and the design of modern zoological institutions illustrate how interconnected our work has become. Protecting species requires us to think beyond individual institutions and consider the wider ecological and societal systems on which both wildlife and people depend.

The spirit of collaboration remains one of EAZA's greatest strengths; however, I'm sure you are all aware it is not always easy. It takes time and due diligence to make sure partners share the same values and ethical approaches. Making thoughtful decisions about who to work with and why helps strengthen our community and contribute to credible conservation outcomes.

Meeting at conferences and events is one of the main ways in which we foster trust in collaborations, exchange knowledge and resources and advance our collective conservation ambitions. Such opportunities occurred at the EAZA Conservation Forum, Joint TAG meeting and EAZWV Zoo and Wildlife Health Conference, and their outcomes are included in this issue. I look forward to seeing many of you at the EAZA Annual Conference in Paris and continuing the collaborations that make a real difference for species, habitats and future generations.

Myfanwy Griffith
Executive Director, EAZA



Page 12 Delegates at the 6th Joint TAG Meeting, held at Taipei Zoo in May © Taipei Zoo

NOTICEBOARD

EAZA ANNUAL REPORT 2025

The EAZA Annual Report for 2025 is now available on our website! It summarises the excellent collaborative work carried out by our Committees, Working Groups, Taxon Advisory Groups (TAGs), EEP coordinators and individual Members over the last year within the five Strategic Focal Areas that guide EAZA's work. We are proud to share once again an array of achievements that help support our vision of progressive zoos and aquariums saving species together with you. EAZA's achievements are our Members' achievements and we invite you to celebrate them with your teams and partners. To access the report, go to www.eaza.net/publications.



STRENGTHENING COLLABORATIONS

We are delighted to announce our Memoranda of Understanding with two new EAZA Cryopreservation Network partners, who bring exceptional expertise and a strong commitment to advancing cryopreservation science within the European zoo community!

- **Chester Zoo** (North of England Zoological Society, UK), an internationally recognised conservation charity and long-standing leader in reproductive science, launched 'United Kingdom's Wildlife Cryobank' in 2024 with Toronto Zoo (Canada) and Dublin Zoo (Ireland). They currently hold sperm, somatic tissues and cultured somatic cells and are committed to method development, best-practice sharing and fostering inclusivity and innovation across the global cryobanking community.
- **Dublin Zoo** is a registered charity and hosts the IUCN Centre for Species Survival: Ireland. It is establishing Ireland's Wildlife Cryobank with Toronto Zoo and Chester Zoo to cryopreserve semen and oocytes in support of integrated *ex situ* conservation programmes, including participation in the Great Ape Gamete Recovery Initiative.



CRYOPRESERVED SAMPLES © CHESTER ZOO

Why do we need a Cryopreservation Network?

The EAZA Biobank plays a vital role in storing non-living biological samples for genetic and scientific research. However, the preservation of live cells and tissues, including gametes and cell lines, falls outside our current resources and scope.

The EAZA Cryopreservation Network was established to meet this need, building partnerships with institutions that can provide the dedicated resources and expertise, ensuring our community's access to live cell storage in support of conservation and population management goals.

EAZA

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BIRTHS & HATCHINGS

JOEY AT APPROXIMATELY 262 DAYS OF AGE CHEWING ON EUCALYPTUS WHILE THE MOTHER IS FEEDING AT KEEPER HEIGHT © ZÜRICH ZOO, ALBERT SCHMIDMEISTER



INCREASED CHOICE AND CONTROL IN KOALA HUSBANDRY RESULTS IN SUCCESSFUL BREEDING

Having choice and control are vital to positive animal welfare, and Zürich Zoo (Switzerland) has been seeking ways to increase the agency of the animals in its care. In many cases, positive reinforcement training can help. Unfortunately, koalas (*Phascolarctos cinereus*) are notoriously hard to positively reinforce. Therefore, the team had to find a new approach to increase the koalas' control when being handled. They decided to try using keeper withdrawal as a reinforcer.

Koalas in Zürich Zoo use the high trees in their habitats as safe retreat options from visitors and keepers and to perform natural motor patterns. If they had to be brought to keeper height before handling, the koalas often displayed significant signs of stress. This made health monitoring challenging, and handling was rare. Furthermore, the female tended to be underweight (despite otherwise being healthy and showing appetite), so the team had concerns about her breeding ability. As removing the high trees was not an option, they had to rethink their koala management.

Ignoring aversive reactions (in this case retreating from keepers) can lead to distress and amplified aversive reactions in the future or learned helplessness. To break that circle, it was decided to build trust between keepers and koalas by using negative reinforcement, i.e. the reduction of stimuli that caused aversive reactions. Thereby, the koalas were allowed to make choices and exhibit more control over their environment.

The strategy was successful; after a few weeks, the koalas stopped retreating when keepers entered the enclosures and allowed themselves to be weighed occasionally. In addition, the underweight female gained

about 5% of body weight and the team allowed her to voluntarily walk to the male for breeding. Mating was successful on first trial and her first young was born in May 2025. Keepers are carefully habituating the joey by interacting with it only when it is at keeper height, and it shows no signs of distress.

This newly implemented policy has improved the quality of life of the koalas at Zürich Zoo. The team is now working on further improvements, such as allowing automated remote weighing during feeding.

LITTLE TRUNKS, BIG NEWS: HERTFORDSHIRE ZOO CELEBRATES UK'S FIRST BLACK AND RUFIOUS SENGI BIRTHS

Hertfordshire Zoo (UK) was delighted to welcome a remarkable new species in October 2025 with the arrival of a pair of six-month old black and rufous sengi (*Rhynchocyon petersi*).

The animals came from Leipzig Zoo (Germany) and Prague Zoo (Czechia); and along with a pair imported to ZSL London Zoo (UK) at the same time, these animals represent the only individuals of their species currently housed in the UK.

Native to south-eastern Kenya and north-eastern Tanzania, including the offshore islands of Zanzibar and Mafia, black and rufous sengis inhabit dense lowland forest with thick understorey vegetation. In the wild, they rely on leaf litter, fallen logs and woody debris for shelter and nesting, maintaining multiple nest sites across their territories.

With these natural behaviours in mind, Hertfordshire Zoo transformed an underused visitor area into a purpose-



© HERTFORDSHIRE ZOO

built habitat tailored specifically to the species' needs. Drawing on expert advice from colleagues at Leipzig Zoo, the enclosure was designed to provide a climate-controlled, high-humidity environment with extensive planting, UV lighting, sprinkler systems, off-show holding areas and CCTV monitoring.

A particularly important feature has been the deep substrate, consisting of topsoil and sand topped with bark mulch and deep leaf litter (minimum of 40 cm), allowing the sengis to construct natural nests beneath the surface cover. To minimise disturbance to nesting areas, fixed concrete stepping plinths were installed so keepers could avoid walking directly across the substrate.

Daily weight monitoring of the female allowed keepers to track her gradual increase in weight, followed by a sudden drop that indicated she had given birth. Staff identified the nest using CCTV monitoring to avoid disturbance.

On 23 February 2026, two pups were born – the first black and rufous sengis ever born in the UK. Weighing approximately 30 g at birth, the pups are born semi-precocial and open their eyes at around 11–12 days old. Females nurse their young for only around one or two minutes each day.

Young are typically weaned between two and four weeks of age, become increasingly independent by six weeks, and may be dispersed from the parents' territory from 6.5–9.5 weeks.

Hertfordshire Zoo is pleased to report the successful birth of a second litter on 22 April 2026. Working closely with the EAZA Small Mammal TAG, it is hoped that these successes will help to establish a sustainable UK population of this striking species, with data collection happening at the zoo throughout development to further inform species management.

TERRA NATURA BENIDORM CELEBRATES THE BIRTH OF ENDANGERED PRIMATES

Terra Natura Benidorm (Spain) is delighted to welcome the second Goeldi's marmoset (*Callimico goeldi*) to be born at the zoo. Several Goeldi's marmosets had previously lived at Terra Natura, but for various reasons had never bred. The team was therefore very excited when an infant was born on 1 November 2025. Its parents, Tuta and Jerez, arrived from other EAZA institutions in June 2023. In May 2025, nearly two years after their arrival, the pair had their first young, Boni, and now the family cares together for the new member, Santi, who is growing very fast. Both offspring are males.

While many New World primate species give birth to twins, Goeldi's marmosets typically give birth to one infant at a time. But they breed biannually, potentially producing two offspring per year. By giving birth to a single offspring rather than twins, parents can invest more energy into the young, and the time to reach sexual maturity is shorter compared to other new world primates.

In the wild, their diet consists primarily of fruits, insects and small vertebrates. Groups will travel and feed in fruiting trees, but these monkeys also hunt individually, leaping to the ground to find small vertebrates. Unlike any other New World monkeys, Goeldi's marmosets are known to rely heavily on mushrooms during the dry season when fruit is scarce.

At Terra Natura Benidorm Zoo, Goeldi's monkeys eat fruit and vegetables, high-fibre monkey chow and a variety of other items. They are extremely agile and can leap from one tree to another, turn in flight and grab their target. They can reportedly jump a distance of about 4 m horizontally without losing height.

These monkeys sleep close together in hollow trees and rest in groups many times a day, sunbathing and grooming. Their vocalisations include long-distance cries that travel more than 100 m. At Terra Natura, you can hear them all along the tamarin path.

Goeldi's marmoset is listed as Vulnerable by the IUCN and their populations are decreasing. With these births, Terra Natura reaffirms its commitment to the EEP and to the conservation of threatened species.



© ROSA SERRANO

JAVAN GREEN MAGPIE
(*CISSA THALASSINA*)
© ANDREW OWEN

and many others around a shared ambition: to halt and reverse biodiversity loss by accelerating the recovery of threatened species. At the heart of this movement is a simple question: **How are your conservation actions contributing to the recovery of wild populations, and who else is working towards the same goal?**

WHAT IS THE REVERSE THE RED SPECIES PLEDGE?

The Reverse the Red Species Pledge provides a practical way for organisations to document and share the conservation actions they are taking to recover species in the wild. Rather than asking organisations to make aspirational commitments, the Species Pledge captures actions that are already underway or planned, provided they are supported by clear intent and directly contribute to the recovery of a wild population. Each pledge focuses on a single threatened species in a single country, creating a consistent and meaningful record of conservation action that allows for collaboration and the identification of gaps.

Pledges are designed to answer a simple but important question: who is doing what, where? By mapping recovery actions in a shared global platform, the Species Pledge helps make this work more visible, revealing opportunities for collaboration, knowledge exchange and stronger partnerships.

WILL YOU TAKE THE SPECIES PLEDGE?

REVERSE THE RED SPECIES PLEDGES MOBILISE THE POWER OF COLLECTIVE ACTION ACROSS THE EAZA COMMUNITY, HELPING US TO SHARE KNOWLEDGE AND RESOURCES SO THAT TOGETHER WE CAN ACHIEVE OUR CONSERVATION GOALS

Megan Joyce, Outreach and Engagement Coordinator, Reverse the Red

Every day, EAZA Members contribute to species recovery through breeding programmes, field conservation, research, education, advocacy and partnerships. Collectively, these efforts represent one of the world's most powerful conservation networks. Yet many of these actions remain disconnected from the broader global story of species recovery.

Reverse the Red created the Species Pledge to help change that.

As an action partnership chaired by the IUCN Species Survival Commission and World Association of Zoos and Aquariums, Reverse the Red brings together conservation organisations, governments, Indigenous peoples and local communities, businesses, zoos, aquariums, botanic gardens

HOW EAZA MEMBERS ARE LEADING THE WAY

Several EAZA Members have already demonstrated how Species Pledges can showcase collaborative conservation. These pledges help illustrate the diverse conservation actions being undertaken across institutions while highlighting the importance of partnerships.

Zebra shark (*Stegostoma tigrinum*)

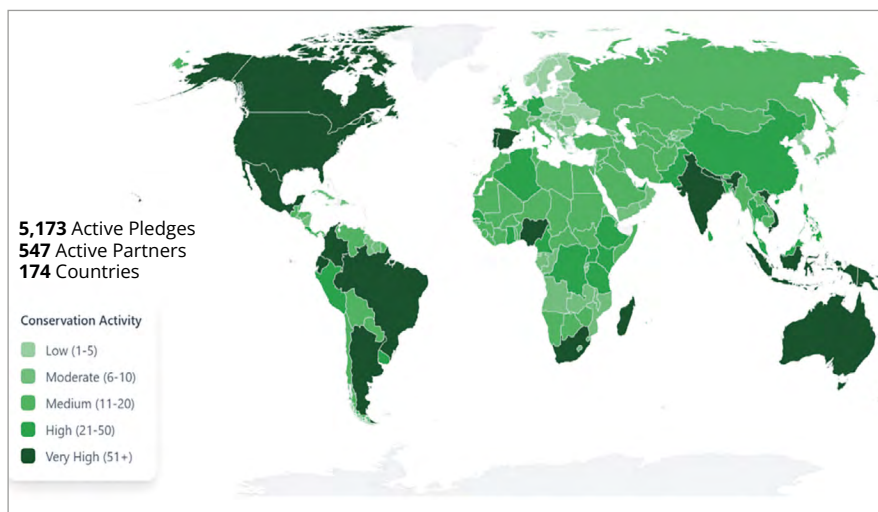
Oceanário de Lisboa (Portugal), alongside several other organisations around the world, has made a Species Pledge supporting zebra shark recovery, both through contributions to the population dynamics assessment of *ex situ* individuals, as well as through recovery planning, rescue and monitoring, and translocations. This pledge showcases the breadth of expertise contributing to the conservation of the species – from conservation breeding and genetics to public engagement and reintroduction initiatives. They are working alongside EAZA and the *Stegostoma tigrinum* Augmentation Recovery Project (StAR Project) on this effort. This project enhances the resilience of the species, re-establishes self-sustaining wild populations and expands collaboration and knowledge-sharing among global partners.

Javan green magpie (*Cissa thalassina*)

Chester Zoo (UK) is one of several organisations that have made Species Pledges supporting the recovery of this remarkable bird.

The zoo has worked with the Cikananga Conservation Breeding Centre (Indonesia) since 2010 to establish and strengthen the conservation breeding programme for the species, providing technical and financial support while developing husbandry best-practice guidelines. Chester Zoo and its partners are also surveying remaining habitats, engaging local communities to reduce pressures from the songbird trade, and laying the groundwork for future conservation translocations back into suitable protected forests.

The commitment to supporting species assessments, recovery planning, *ex situ* and genetics, and recovery implementation is made possible by collaborating with partners such as IUCN SSC Asian Songbird Trade Specialist Group, Cikananga Wildlife Centre, Manchester Metropolitan University (UK), BKSDA (Natural Resource Conservation Center, Indonesia), EAZA, Mandai Nature (Singapore) and Munich Zoo (Germany).



Together, Species Pledges create an increasingly comprehensive picture of the global effort to reverse species declines – connecting organisations, highlighting complementary expertise and demonstrating the collective action needed to assist the recovery of threatened species.

WHY SPECIES PLEDGES MATTER FOR EAZA MEMBERS

For EAZA Members, Species Pledges offer an opportunity to showcase the breadth of conservation work already taking place through the EAZA Ex situ Programmes (EEPs).

EEPs are much more than managed populations. Most of them support integrated conservation programmes that combine *ex situ* population management with field recovery, scientific research, habitat restoration, capacity building, advocacy and partnerships in range countries. These coordinated efforts are exactly the type of collaborative conservation that Reverse the Red aims to highlight and strengthen through Species Pledges.

A Species Pledge allows institutions to demonstrate how their work contributes to the recovery of an EEP species while connecting with other organisations making complementary contributions. Multiple organisations can make pledges for the same species, reflecting the reality that successful recovery depends on many partners working together.

Pledges also help to tell a more complete story about EEPs – moving beyond the management of insurance populations to highlight the wider conservation outcomes they support. They provide a simple mechanism for communicating conservation leadership to visitors, funders, partners and policymakers while contributing to global efforts

to deliver the ambitions of the Kunming-Montreal Global Biodiversity Framework (GBF), particularly Target 4 on halting human-induced extinctions and enabling species recovery.

BUILDING A STRONGER RECOVERY NETWORK

Every Species Pledge strengthens the global picture of conservation action.

When multiple EAZA institutions make pledges for the same species, they create a visible network committing to a shared recovery outcome. This not only celebrates the work already happening across the EAZA community, but also helps find opportunities for collaboration, knowledge sharing, funding and strategic partnerships, as well as identifying gaps where a species may need more help.

Whether your institution leads an EEP, drives field conservation, contributes research, advances conservation breeding or participates in reintroduction programmes, your work can help to demonstrate the collective effort required to recover threatened species.

JOIN THE MOVEMENT – AND CELEBRATE ON REVERSE THE RED DAY

Reverse the Red invites every EAZA Member to consider making at least one Species Pledge – for an EEP species they support – and to join the upcoming Reverse the Red Day.

Celebrated annually on **7 February**, it provides an ideal opportunity to announce new pledges alongside conservation organisations from around the world, share stories of hope, celebrate conservation successes and inspire others to take action for threatened species.

By launching your pledge as part of

BUILDING A STRONGER RECOVERY NETWORK

Who can make a pledge?

Any organisation or group committed to specific actions aligned with a larger strategy to see populations of threatened species recovered in the wild.

Why make a pledge?

To showcase your conservation impact; connect with organisations working on the same species or in the same country; support global species recovery efforts and EEP goals; demonstrate contributions towards the GBF.

What can you pledge?

Your pledge can recognise existing or planned conservation actions that advance the recovery of the wild population, including:

- species assessments (Red List, Green Status, national status)
- developing and implementing recovery plans
- maintaining or establishing coordinated *ex situ* breeding or propagation programmes
- reducing and managing human-wildlife conflict

How to submit a pledge

1. Identify the threatened species your organisation supports.
2. Describe the conservation actions your organisation is taking and the objectives you have for that project.
3. Submit your Species Pledge at pledge.reversethered.org.
4. Announce your pledge as part of Reverse the Red Day on **7 February**.

Every pledge adds another piece to the global picture of species recovery!

Reverse the Red Day, your institution can join a global celebration of species recovery while showcasing the important role that EAZA Members play in reversing biodiversity loss.

Species recovery is only possible with collaboration. Every breeding programme, field project, research partnership, education initiative and conservation action contributes to a larger story of hope. A Reverse the Red Species Pledge helps make that story visible – and invites others to become part of it.

STEPPING BACK FROM THE BRINK

A CLOSE EXAMINATION OF CORAL REEF TIPPING POINTS AND THE WIDER OCEAN CRISIS REVEAL THE URGENT ACTIONS WE MUST TAKE TO AVOID CATASTROPHE

Paul Pearce-Kelly, Senior Curator, Invertebrates and Fish, Zoological Society of London; Björn Källström, Development Manager, Sjöfartsmuseet Akvariet; and Lauren Florisson, Support Officer, European Union of Aquarium Curators

The last few years have seen concerted efforts to clarify the tipping-point thresholds of the world's major physical and biological systems. The results of this ongoing initiative, led by Exeter University (UK), are detailed in the 2023 and 2025 Global Tipping Points reports and associated publications.

The warm water coral reef tipping-point assessments focus on the increasingly severe impacts of ocean warming and heatwaves, but also consider a range of co-occurring and often interacting stressors. These include coastal development, water-quality reduction, invasive species and disease spread, which have already tipped some reefs from coral-dominated to macroalgae-dominated ecosystems, most notably in the Caribbean.

Additional stressors include increasing storm severity, which can impact even healthy reefs. Ocean acidification (OA), caused by the increasing absorption of atmospheric CO₂ by the surface seawaters, reduces the calcification rates of most stony, reef-forming corals. Although the latest research suggests the OA threat to corals is less than initially feared, some key reef-forming coral genera (including *Acropora*) may be significantly more susceptible, especially when interacting stressors are considered.

Ocean stratification (the layering of water masses based on density) is



REEF SLOPE ON SALOMON ATOLL, CHAGOS ARCHIPELAGO, BEFORE AND AFTER THE MASS MORTALITY CAUSED BY THE WARMING OF 2015 © CHARLES SHEPPARD

strongly linked with warming oceans and magnifies the warming effect at the upper ocean layers, increasing thermal stress to reefs and other ecosystems. This can create a vicious circle as warming oceans further increase stratification, which in turn reduces CO₂ uptake, resulting in additional global warming.

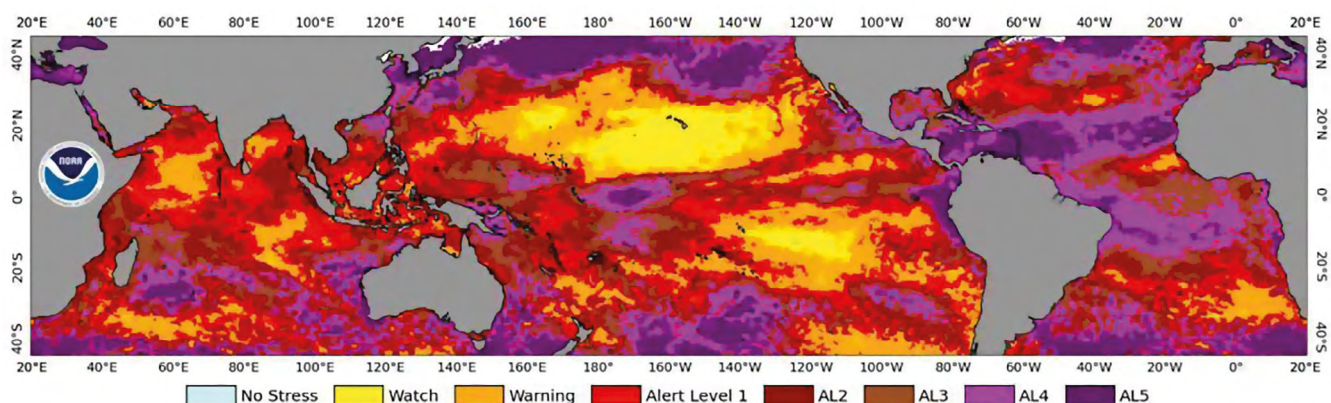
Deoxygenation is another stressor to consider; there is sufficient evidence that dissolved oxygen is a critical resource on coral reefs and that oxygen limitation (i.e. hypoxia) contributes to ecological tipping points. It is worth noting that previous mass extinctions have been linked to deoxygenation, indicating the potential severity of this threat.

The cascading effects of other major earth system changes – such as accelerating West Antarctic Ice Sheet melt, increasing methane emissions and Arctic sea ice decline – have the potential to increase the rate

and magnitude of stressor impacts on coral reefs, including rises in temperature and sea level.

Both reports concluded that the mid-range tipping-point temperature is 1.2°C (range 1–1.5 °C) above pre-industrial global average temperature, and atmospheric CO₂ concentrations above 350 ppm. However, the reports also acknowledged that the effects of other interacting stressors and temperature overshoot have yet to be assessed and, when included, are likely to further increase tipping-point sensitivity.

The 2023–2024 El Niño, intensified by long-term climate change, caused the fourth global coral bleaching event. By mid-2024, about 84% of the world's coral reefs were affected. A new El Niño began in summer 2026, and is expected to drive up ocean temperatures to record levels and put coral reefs at high risk of severe bleaching again.



NOAA CORAL REEF WATCH SKM BLEACHING ALERT AREA MAXIMUM (V3.1) 1 JANUARY 2023–20 MAY 2025 (NOAA 2025). THREE NEW HIGHEST ALERT LEVELS HAD TO BE ADDED IN DECEMBER 2023.

THE ZOO AND AQUARIUM COMMUNITY IS UNIQUELY PLACED TO EDUCATE VISITORS, ENGAGE POLICYMAKERS AND TRANSLATE THE SCIENCE INTO ACTIONABLE MEASURES

CAN WE SAVE THEM?

Concerted efforts to reduce local stressors to reefs through best conservation management combined with the urgent phase-out of fossil fuel emissions and the reduction of atmospheric CO₂ concentrations to below 350 ppm are essential mitigation actions.

The zoo and aquarium community is uniquely placed to educate visitors, engage policymakers and translate the science into action. Exhibiting and breeding corals supports other direct coral conservation efforts such as *ex situ* biobanking initiatives, as advocated by the World Coral Conservatory initiative (Zoccola, 2020) and the EAZA Biobank. Our *ex situ* facilities and care expertise significantly contribute to ensuring that all coral species are biobanked and cryopreserved. Both of these actions will be helped by improved species-level identification, genetic diversity assessments and associated record-keeping, which our community is also helping to advance.

A FAR WIDER GLOBAL OCEAN ENVIRONMENTAL CRISIS

The severity of the threat facing coral reefs is unfortunately symptomatic of a much wider environmental crisis, which needs our community's urgent attention and active engagement.

Oceans cover more than 70% of the Earth's surface and are vital for sustaining life. They regulate the planet's climate and generate most of the oxygen we breathe, in addition to supporting millions

of species and providing food and livelihoods for billions of people. Yet oceans are facing an unprecedented environmental crisis. Pollution, overfishing, disease, invasive species, habitat loss and degradation have long threatened marine ecosystems. Climate change exacerbates all of these and is now the most significant and far-reaching impacts driver and conservation challenge.

Although the ocean and its biodiversity play a vital role in mitigating our fossil fuel emission impacts, through the absorption of atmospheric CO₂ and heat, it is at the cost of increasingly stressed marine systems. As these systems become degraded, their carbon sink efficiency has weakened, which may create a dangerous feedback loop, further accelerating climate change. Additional major system tipping-point risks, such as a collapse (or major decline) of the Atlantic Meridional Overturning Current (AMOC), would have profound global impacts, not least for Northern Europe, which could experience severe regional cooling, elevated sea level rise and greatly disrupted agriculture.

Although the scale of the problem is immense, solutions are available. In addition to phasing out fossil fuel emissions as rapidly as possible, protection and restoration of key marine habitats and biodiversity, including mangrove, salt marsh and seagrass 'blue carbon' ecosystems, are important actions that we need to be advocating for and actively supporting.

FOREST AND OCEAN RESTORATION ARE INTERCONNECTED IMPERATIVES

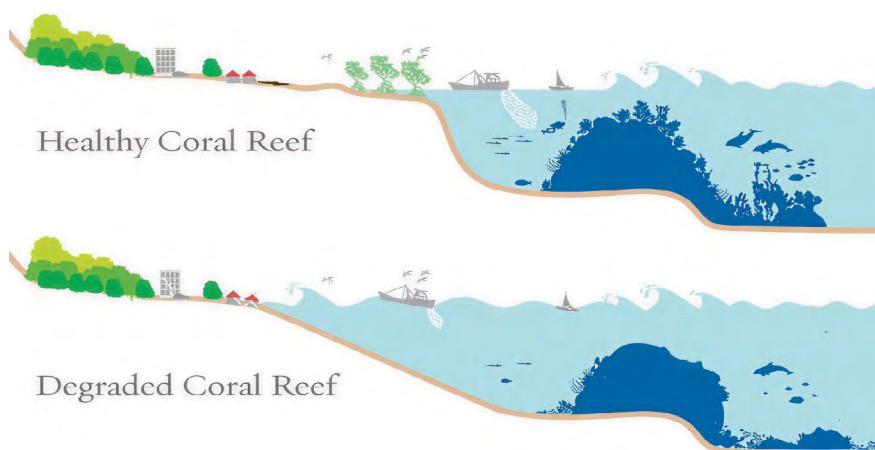
Because of the carbon sequestration significance and essential planetary cooling role of healthy forests (which is largely sustained by ocean-driven hydrological connectivity), their protection and restoration need to be recognised as urgent imperatives. Halting and reversing tropical forest loss of course means ensuring that existing financial systems are fully resourced and strengthened to tackle the main driver of deforestation – livestock agriculture.

REALISING OUR UNEQUALLY POWERFUL PUBLIC ENGAGEMENT POTENTIAL

With millions of visitors, our community has a vital role to play in raising awareness of these threats and policy response imperatives. We need to alert our visitors to the fact that current climate change mitigation action is falling far short of what's necessary and to help channel their power to demand that essential policy action is realised. To support zoos and aquariums, the European Union of Aquarium Curators (EUAC) has launched the Ocean Crisis Working Group to help translate the latest science into educational messages and actions and bring the wider community together. Mitigation choices made today and in the very near future will determine whether coral reefs as we recognise them, along with wider ocean systems, can continue to function for the benefit of biodiversity and humanity alike. There is every incentive to realise our tremendous collective potential to ensure that the world acts while there is still time.

FURTHER READING

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SEVERELY DEGRADED REEFS LOSE MUCH OF THEIR ECOSYSTEM SERVICES, SUCH AS COASTAL PROTECTION AND FOOD PROVISION (ADAPTED FROM: GERMANWATCH 2023)

EVENT

WORKING AS ONE

THE 6TH JOINT TAG MEETING IN TAIPEI BROUGHT TOGETHER CONSERVATION COLLEAGUES FROM ACROSS THE WORLD TO MEET, LEARN AND FORGE STRONGER CONNECTIONS

Raymond van der Meer, Conservation and Population Management Director, EAZA Executive Office

For the first time in its 12-year-history, the Joint TAG meeting was held in Asia and was excellently hosted by Taipei Zoo (Taiwan) from 25–28 May. The event brought together 118 participants with nearly 50% of attendees from that region, creating a stronger platform for truly global collaboration beyond the usual networks of the European (EAZA), American (AZA) and Australasian (ZAA) Associations of Zoos and Aquariums. Organised biennially by the WAZA Committee for Population Management (CPM) and the regional associations, the four-day meeting focused on strengthening collaboration to increase conservation impact.

CONNECTION FOR COLLABORATION

The meeting officially opened with a traditional dance performance, giving participants a glimpse into the local culture. This was followed by Sonja Luz's (Mandai Nature, Singapore) keynote entitled 'Two Sides of the Same Species: Working as One!' whose message resonated throughout the week.

While a strong integration between *ex situ* and *in situ* conservation is essential (as stated in the 2023 IUCN SSC position statement on the role of zoological and botanical gardens) and collaboration opportunities are increasing, many institutions still face challenges in turning ambition into coordinated action across their collections. Sonja's presentation guided the audience through Mandai Wildlife's journey to develop a philosophy where people 'do well' and animals 'do good'. Visitors enjoy conservation-focused experiences that aim to combine recreation with financial sustainability, while also providing opportunities for education and behaviour change.

For the animals, Mandai applies six core principles to ensure optimal care and advance conservation efforts, including the selection of species suited for *ex situ* interventions that align with *in situ* conservation goals. By successfully



balancing benefits for both people and animals, Mandai strives to achieve recovery and stabilisation of species and their natural habitats.

During the week, well-organised lunches and breaks created informal opportunities for attendees to connect and continue the conversation.

A PROGRAMME BUILT AROUND INTERACTION

Alongside presentations, the programme included workshops, breakout sessions and open discussions that encouraged active engagement and dialogue between regions. Rather than focusing only on information-sharing, the format supported more meaningful collaboration across regions.

Across all sessions, this collaborative approach was consistently reflected in the topics discussed, ranging from global conservation frameworks and population management strategies to practical challenges such as limited resources and data-sharing. Initiatives such as Reverse the Red and the Convention on Biological Diversity were considered in terms of how they can be better aligned with regional efforts.

Participants also emphasised the importance of shared tools, data sets and expertise to improve decision-making and strengthen collective impact. Interactive discussions and panels further explored barriers and opportunities for cross-regional collaboration, while a strong emphasis was

placed on the 'One Plan Approach', integrating *in situ* and *ex situ* actors to support more coordinated conservation strategies.

The role of leadership and strategy was also highlighted. Dolf de Jong, CEO of Toronto Zoo (Canada) and the new Chair of the WAZA CPM, shared perspectives from his organisation, demonstrating how conservation strategy can be strengthened by embedding local Indigenous communities and cultural perspectives, reinforcing the importance of inclusive approaches when building future-focused conservation programmes.

A STRONG SENSE OF MOMENTUM

Following two days of plenary sessions, TAG meetings were facilitated by colleagues from the Southeast Asian Zoos and Aquariums Association (SEAZA). Specialists from around the world met in their respective groups to share updates and explore future collaboration across taxa, including ungulates, birds, carnivores, primates and aquatic species. The sessions' practical focus enabled participants to build on the broader discussions and translate ideas into concrete next steps.

The meeting concluded with a farewell dinner, offering a final opportunity to connect in a relaxed setting. Participants left Taipei with a clear sense of momentum and renewed commitment, reflecting the value of shared experiences and strengthened collaboration with Southeast Asian colleagues.

CONSERVATION COLLABORATION IN ACTION

THE EAZA CONSERVATION FORUM 2026 CONFIRMED THE ENDURING MESSAGE THAT THE MORE WE WORK TOGETHER, THE GREATER OUR CONSERVATION IMPACT WILL BE



Merel Zimmermann, Field Conservation Coordinator, and Mirko Marseille, Event Coordinator, both EAZA Executive Office

In May, another successful EAZA Conservation Forum brought 155 participants from 28 countries to Opel-Zoo (Germany) for three days of inspiration. The programme explored how conservation impact can be strengthened through wider partnerships, social science, ethics and local action.

A clear message ran through the Forum: conservation depends on relationships between zoos, aquariums and field partners, communities and wildlife, funders and practitioners, scientists and educators, policymakers and species specialists. Sessions also addressed ethical dilemmas, funding barriers, legal requirements and sustaining work beyond individual champions.

FROM INNOVATION TO ACTION

The opening day began with a keynote by Vincent Nijman (Oxford Brookes University, UK and Ecoverde Global Consulting), who challenged the EAZA community to use its influence, expertise and networks to address illegal wildlife trade and support conservation at greater scale.

Presentations showed how zoo records, academic expertise and local field knowledge can support passive bioacoustic monitoring of lemurs in Madagascar, and how collaboration can increase reach through initiatives such as Lion Landscapes and Frankfurt Zoological Society's global programme (Germany).

Long-term partnerships offered concrete stories. Work with cattle ranchers in Bolivia's Beni savannas has helped create shared responsibility for the Blue-throated macaw (*Ara glaucogularis*), while Cologne Zoo's (Germany) support for Ambatotsirongorongo Special Reserve

in Madagascar has grown from tree planting into research, ranger support, local capacity-building and human-dimensions work.

Workshops explored the Zoo Sphere of Influence Model, ETHAS and the PARTNERS Principles, conservation funding, legal and sustainable acquisition, and Conservation Connect.

ETHICS AND EMPOWERMENT

Day two focused on inclusive conservation practices. Barbara de Mori (University of Padova, Italy) highlighted that biological knowledge is essential, but not enough. Conservation decisions also involve values, relationships, welfare, cultural contexts and fairness.

Examples included participatory monitoring of parrots and toucans in French Guiana, which showed how local operators, educators and visitors can support long-term data collection. Rotterdam Zoo's (the Netherlands) RoffaReefs programme connected aquarium-based research, technology and fisherfolk knowledge on Bonaire, while projects in northern Kenya and South Africa underlined empowerment in human-wildlife coexistence.

Further sessions linked sustainable beekeeping in Botswana with livelihoods, monitoring and restoration and explored how zoos can evaluate their influence on visitor perceptions of biodiversity loss.

Workshops continued the practical focus, introducing ethical reflection tools and exploring non-traditional partnerships through Copenhagen

Zoo's (Denmark) Green Gateway project in Morocco.

FROM POLICY TO PRACTICE

Friday's theme connected policy, capacity and species work. Keynotes by newly elected IUCN Council members Ann-Katrine Garn (Copenhagen Zoo) and Ruben Khachatryan (FPWC, Armenia), and an update from the EAZA Brussels Office, highlighted how legislation, funding and political attention shape conservation opportunities.

European case studies ranged from Zoo LIFE Pollinators and local species work in Bern (Switzerland) to European salamander arks and a planned thornback ray (*Raja clavata*) translocation in the North Sea. They underlined the need to work across research, authorities, EEP structures, legal frameworks and local communities.

Opel-Zoo presented national and local reintroduction projects, while Gdańsk Zoo (Poland), Alpenzoo Innsbruck-Tirol (Austria) and Landau Zoo (Germany) showed that conservation opportunities are often found close to home. Workshops focused on institutional capacity, long-term partnerships, coexistence between people and large carnivores, and the EAZA Wetlands for Life campaign. The final panel introduced several IUCN SSC Centres for Species Survival hosted by EAZA Members.

We would like to thank Opel-Zoo, whose warm hospitality and excellent organisation were greatly appreciated.

Could you offer a welcoming setting for the EAZA Conservation Forum?

We are looking for Members to host the 2028 EAZA Conservation Forum. To learn more, please contact Mirko Marseille at mirko.marseille@eaza.net.

CONTRIBUTIONS TO CONSERVATION

TOTAL SUPPORT 2025

i Based on information available in the EAZA Conservation Database on 5 June 2026



285,549 HRS
STAFF TIME



€37.9 MILLION



273
MEMBERS

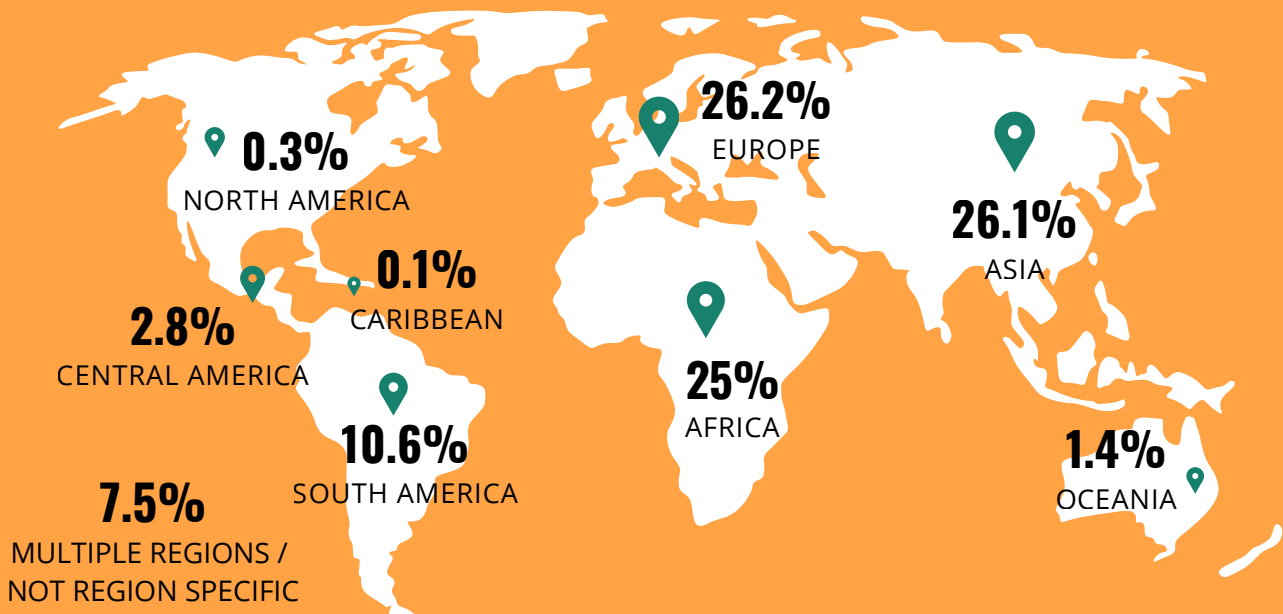
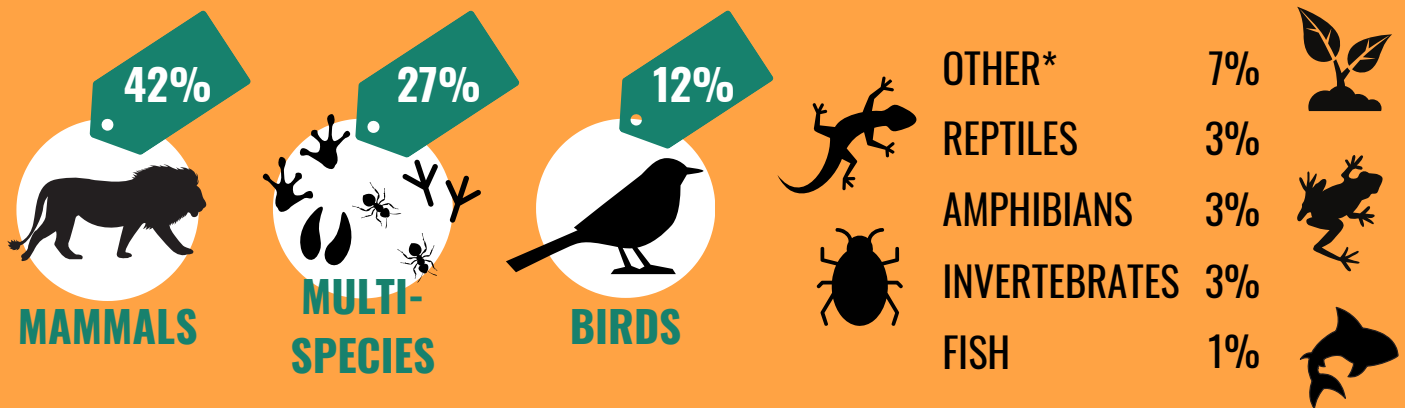


>500
PARTNERS



>900
SPECIES

AREAS OF FINANCIAL SUPPORT



**includes plant, habitat conservation, conservation tools and advocacy*

Progressive Zoos and Aquariums Saving Species Together with You

CONTRIBUTIONS TO CONSERVATION

TOTAL SUPPORT 2021 - 2025

i Based on information available in the EAZA Conservation Database on 5 June 2026



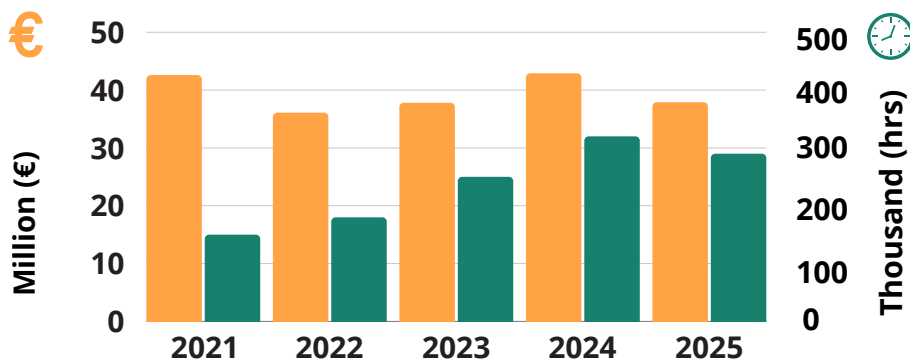
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MEMBERS



>1000
PARTNERS



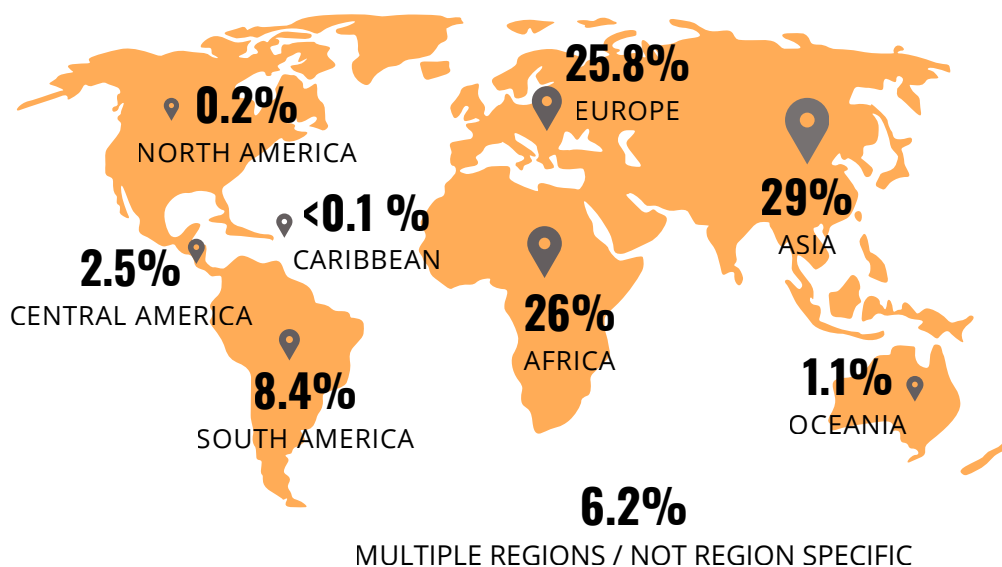
>1000
SPECIES



€197.3 MILLION
FINANCIAL SUPPORT



1.2 MILLION
STAFF TIME (HRS)



TAXA TOP 5
supported
by highest
number of
Members



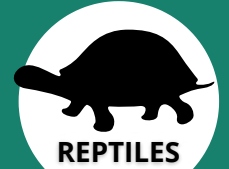
FELIDS

151 MEMBERS



**SMALL
CARNIVORES**

144 MEMBERS



REPTILES

137 MEMBERS



RAPTORS

113 MEMBERS



PROSIMIANS

106 MEMBERS

Progressive Zoos and Aquariums Saving Species Together with You

BUILDING A SQUIRREL ACTION PLAN

HOW ZOOS ARE JOINING FORCES FOR THE CONSERVATION OF EUROPEAN GROUND SQUIRRELS IN CZECHIA



YOUNG SOUSLIKS
© MARKÉTA JARIABKOVÁ

Jitka Matoušová, Coordinator of the Ground Squirrel Species Action Plan, Nature Conservation Agency of the Czech Republic; Markéta Jariabková, General Curator, Hluboká Zoo; Jan Matějů, Zoologist, Muzeum Karlovy Vary

The European ground squirrel (*Spermophilus citellus*), or European souslik, is a rodent inhabiting central and south-eastern Europe. It is originally associated with steppe habitats, but it gradually expanded into secondary grasslands and other human-modified habitats as a result of deforestation and agricultural development.

European ground squirrels (EGS) live in colonies, hibernate for half the year and reproduce only once during the active season. The most essential factor for their survival is the presence of short grass vegetation, which allows visual contact among colony members and gives them a chance to notice an approaching predator. EGS were once common in the lowlands and lower uplands of Czechia.

Since the 1950s, populations have declined rapidly, probably because of landscape changes, new ways of farming (fewer grazed and mowed areas, extremely large crop fields) and persecution as an agricultural pest. As a result, EGS were present on only 28 sites in 2005, irregularly distributed over Czechia. Moreover, most of these populations were isolated with very low numbers, making them extremely vulnerable to any negative environmental or stochastic factors. In response to this decline, the EGS



LIVE TRAP © MICHAELA JERHOTOVÁ

received legal protection in 1992 and a complex conservation action plan was prepared and approved by the Ministry of the Environment in 2008. Similar developments took place in other parts of the EGS distribution range, resulting in many conservation efforts and in EGS being listed as globally Endangered on the IUCN Red List.

BUILDING A CONSERVATION TEAM

The main goal of the Czech Action Plan is to preserve EGS as a wild species in the country. The project is coordinated by the Nature

Conservation Agency of the Czech Republic and includes habitat management, monitoring, research, education and public outreach. Jan Matějů (Karlovy Vary Museum, Czechia) the main author of the EGS plan, works closely with the Agency on its implementation, especially on regular monitoring. Activities regarding *ex situ* breeding and release to selected sites in the wild also represent an important part of the plan. The first – largely experimental – EGS colony in human care was established in Prague Zoo (Czechia) in 2006, using animals

from four wild populations. In 2015 and 2016, Brno Zoo, Wildlife Rescue Station Vlašim and Wildlife Rescue Station Rozovy/Hluboká Zoo (all Czechia) joined the breeding efforts in cooperation with the Nature Conservation Agency, using funding from the EEA and Norway grants and animals sourced at Bratislava airport, where one of the largest wild EGS colonies in Slovakia can be found.

In all these four examples, EGS are kept in 100–200 m² enclosures, with robust wire mesh extending 2 m underground, located in quiet areas away from visitors. In these semi-natural conditions, the animals can dig their own burrows, hibernate and reproduce, but, unlike wild colonies, they are protected from predators and provided with supplementary feeding. This husbandry practice is essentially the same as the one applied in zoos where EGS are kept in regular visitor exhibitions. Hluboká Zoo has been caring for these rodents since 2013 and they provided the first individuals to be released within the Action Plan activities in 2016.

Following this success, other foreign and Czech zoos began to provide the Czech conservation efforts with animals that need to be outplaced and are genetically suitable. Successful cooperation has been established with Nuremberg Zoo (since 2017) and Opel-Zoo (since 2019) in Germany, Nordens Ark (Sweden, since 2021), Bern Animal Park (Switzerland, since 2024) and Na Hrádečku Zoo (Czechia, since 2024). Future collaborations are also under discussion with GaiaZOO (the Netherlands) and Blumengärten Hirschstetten (Austria).

THE SQUIRREL STRATEGY

The Czech efforts aim to maintain EGS at as many known locations as possible, and to create at

least five stable and functional metapopulations. The Action Plan uses two main release strategies:

- 1) **reinforcement** – adding individuals to an existing small, isolated colony, and
- 2) **reintroduction** – release at a suitable selected site without current EGS occurrence, but typically within its historical distribution range and close to an existing colony.

Similar methods are used for both types of releasing. Basic data regarding the animals are recorded (source, target site, sex, age and, when possible, weight) and the individuals are implanted with microchips for later recognition. To increase the chances of the EGS remaining at the target site, they are released individually into pre-drilled holes that are temporarily closed by a heavy plastic bottle. In the case of reintroductions, extra protection is provided for the first few days in the form of an enclosure with a wire mesh barrier placed along the inner perimeter.

In addition to shelter, food is also provided (such as pellets with hay) to help the animals settle at the selected site. In the case of reinforcements, the new animals are sometimes released directly into existing burrow entrances that are again temporarily closed.

The number of released individuals per release event varies depending on available sources and character of the target site. Typically, 20 to 30 animals with balanced sex ratio are used for the purpose of a reinforcement event and 40 to 80 individuals in the case of a reintroduction event. In both cases, the releasing is usually repeated in future seasons as needed – depending on monitoring results.

Since 2016, a total of 843 EGS individuals from 10 different zoos

or breeding programmes have been released into the wild in Czechia as part of the Action Plan implementation. These efforts involved reinforcement of small colonies at eight different localities and reintroductions at five localities.

POSITIVE OUTCOMES

Reinforcements seem to be quite successful. At four localities, the release of an average of 40 individuals in two consecutive years resulted in a substantial increase in population size – from an estimate of only a few individuals to several hundred within a few years. At other localities, overall population sizes also increased after reinforcement, although not as noticeably. Moreover, an ongoing genetic study is also confirming positive effects of reinforcement on typically low genetic variability of isolated EGS colonies.

Reintroductions, on the other hand, are proving to be considerably more challenging. In our experience, it takes up to four repeated releasing events involving a rather larger number of individuals to establish a new stable colony of around 100 animals. Most of the reintroduction efforts have been focused on the České středohoří Protected Landscape Area, with the aim of creating a functional EGS metapopulation near the current occurrence at Raná – Hrádek. Out of four newly established colonies in this area, so far only two can be considered relatively stable without the need of further releases. However, these colonies still do not show the expected spread into surrounding suitable habitats, meaning the intended metapopulation structure has not yet been achieved.

Future efforts will therefore be directed – among other things – to closer monitoring to understand the reasons behind the slow development of newly established EGS populations.

We would like to thank all of the partners mentioned above for their invaluable support and contribution to the Czech European Ground Squirrel Action Plan.

For more information, visit:
www.zachranneprogramy.cz/en/european-ground-squirrel.



SIGEAN'S GRAND AVIARY

THE RÉSERVE AFRICAINE DE SIGEAN SHARES THE VALUABLE LESSONS LEARNED FROM ITS RECONSTRUCTION OF AN AFRICAN WETLAND



GRAND AVIARY VIEW © A. JORIS

Antoine Joris, General Curator, Réserve Africaine de Sigean

Opened in 2018, the immersive grand aviary at the Réserve Africaine de Sigean in southern France is one of Europe's largest walk-through bird facilities. Across 9,000 m² of functioning wetland, 250 African birds of 25 species cohabit with a naturally established fish community, freshwater turtles, crocodilians and a small troop of monkeys. Eight years on, the facility offers as many lessons in unforeseen complexity as in successful design. It also highlights the significant links that can exist between locally invasive alien species and the wetland bird community.

STRENGTH AND LIGHTNESS

This wetland aviary is a technical feat. Designed by the French engineering firm Bioparc® and built on soft ground, its metal structure is anchored by micropiles sunk into the bedrock at depths of 10–30 metres. Its thick steel posts support over 15,000 m² of stainless-steel netting, the panels of which are hand-sewn together and to the cables running through the structure at heights from 6–12 m, creating a volume of over 80,000 m³. The net's 50 mm mesh fabricated with 1.6 mm wire has withstood storms of over 180 km/h without incident. It can support 5–10 cm of snow – a weather condition that has become highly unusual on the Mediterranean coast.

A FUNCTIONING WETLAND, NOT A LANDSCAPED ENCLOSURE

The aviary's 3,000 m² water bodies comprise a functioning wetland. They are shallow, silted, biologically active systems with naturally varying depths (10–120 cm) and muddy substrates colonised by reeds (*Phragmites australis*), typhas (*Typha latifolia*), water lilies (*Nymphaea* sp.) and bulrush (*Cyperaceae* sp.). Although Sigean's facility was built above a pre-existing water body, similar systems can be created from scratch, provided sufficient surface area is allocated and the structural complexity of a natural wetland is replicated: wide variation in depth, natural substrates and progressive bank vegetation. Once ecological equilibrium is reached, the only maintenance input required, apart from plant trimming, is water to compensate for evaporation. No artificial filtration is needed and the biological community does the rest.

The wetland supports an abundant self-sustaining fish community that colonised naturally: invasive mosquitofish (*Gambusia affinis*), pumpkinseeds (*Lepomis gibbosus*) and Louisiana crayfish (*Procambarus clarkii*) among populations of local crucian carps (*Carassius carassius*) and mullets (*Mugil* sp.). For the aviary's piscivorous residents, this has been transformative. Saddle-billed

(*Ephippiorhynchus senegalensis*) and yellow-billed (*Mycteria ibis*) storks, goliath (*Ardea goliath*) and night (*Nycticorax nycticorax*) herons, sacred (*Threskiornis aethiopicus*) and hadada (*Bostrychia hagedash*) ibises express the full repertoire of their foraging behaviours: active pursuit, patient still-hunting and tactile bill-sweeping in shallow margins, driven by genuine prey availability rather than scheduled feeding.

SPECIES COMPOSITION: ACHIEVEMENTS AND NECESSARY ADJUSTMENTS

The aviary's structural heterogeneity – freshwater ponds surrounded by reedbeds, open grounds and hundreds of tamarisks (*Tamarix gallica*) and ash trees (*Fraxinus angustifolia*) forming a multi-layered canopy – supports a broad range of ecological guilds. Mixed breeding colonies have formed spontaneously, with yellow-billed, marabou (*Leptoptilos crumeniferus*) and Abdim's storks (*Ciconia abdimii*) nesting in close proximity, mirroring associations typical of African wetlands. Numerous and noisy hamerkops (*Scopus umbretta*) build their huge nests in the stronger trees. Western plantain-eater (*Crinifer piscator*), grey parrots (*Psittacus erithacus*) and black-and-white-casqued hornbills (*Bycanistes*

subcylindricus) occupy the upper canopy. Goliath herons and black-crowned cranes (*Balearica pavonina*) command vantage points at the water's edge while marabous and palm-nut (*Gypohierax angolensis*) and white-headed vultures (*Trigonoceps occipitalis*) are on the lookout for any forgotten food scraps. On the water, small flocks of whistling ducks (*Dendrocygna viduata*, *D. bicolor*) squabble among themselves and fly noisily from one water body to another, alongside a few other species of African and European ducks.

Not all the species initially chosen proved suitable. The relatively small-sized African spoonbills (*Platalea alba*) were quickly removed because they repeatedly bounced against the flat ceiling, although huge marabous and the other storks never do. Hooded vultures (*Necrosyrtes monachus*) proved unable to withstand the territorial aggression of palm-nut vultures during the breeding season; they now successfully share another habitat with smaller species. The ground-nesting lapwing and francolin species were too vulnerable to persistent predation by invasive American minks (*Neovison vison*) and local common genet (*Genetta genetta*), both capable of passing through the 50 mm stainless steel mesh.

MANAGEMENT CHALLENGES: REPTILES, MONKEYS AND AVIAN INFLUENZA

Even more reptiles than birds live in this aviary. The 300 to 400 red-eared sliders (*Trachemys scripta elegans*) are surrendered individuals received as an alternative to releasing this invasive turtle into the wild. They find themselves in an ecological dead end: every clutch of eggs laid is systematically consumed by the resident aviary birds, precluding natural reproduction. The two massive 50-year-old alligators (*Alligator mississippiensis*) that had lived in these water bodies for decades before the aviary was built are still there and maintain a diffuse state of alertness among the birds without ever trying to eat one. They have even developed a form of commensalism with the yellow-billed storks that accompany the crocodilians when they move, capturing the aquatic invertebrates the alligators flush as they swim through the shallows.

A growing family of Gabon talapoin (*Miopithecus ogouensis*) adds both dynamism and persistent husbandry complexity. These small, dexterous mangrove primates often raid the feeding stations of frugivorous bird species. Reliable monitoring of diets of both the birds and the monkey remains a daily challenge. Feeder design and placement have been adapted iteratively, with variable success. The experience suggests that primate-bird cohabitation in immersive settings is manageable but demands a high level of adaptive management. However, the complexity and richness of such a habitat for a family of smaller primates is priceless and has no equivalent other than in their natural environment.

Perhaps the most logistically demanding constraint is the annual highly pathogenic avian influenza (HPAI) vaccination campaign, which French regulations require for birds in human care. The birds in the aviary have been vaccinated every winter since 2018. In a densely planted, free-flight aviary of nearly one hectare, individually capturing, vaccinating and releasing several hundred birds requires careful planning and an experienced team mobilised over several consecutive weeks. The operation carries stress for the birds and must be timed to avoid disrupting active nesting. It does however enable us to carry out an accurate census of our bird population, perform health check-ups on every individual and remove the birds that need to be relocated to other zoos. Four permanent

perimeter structures are used for recapturing, isolating and overwintering birds as needed, although the larger species never enter them and temporary recapture structures must be erected at the start of winter for the vaccination campaign.

At a time when emerging diseases are placing significant pressure on the health system, HPAI is a constraint that should not be underestimated. The virus has been detected in our zoo twice since the aviary was built, but none of the vaccinated birds succumbed to it.

MOVING FORWARD IN BIRD DISPLAY

The grand African aviary is our most significant investment in bird habitat design. The ecological functionality of the wetland, the naturalistic behaviours it enables and the spontaneous formation of mixed breeding colonies are real achievements. Species removals and unforeseen management burdens are not failures but the inevitable calibrations of an ambitious system. Beyond these few zootechnical challenges, the welfare benefits to the animals are inestimable. Flight is not merely a means of locomotion for birds. It is a fundamental ability that enables them to express countless courtship, social, foraging and defensive behaviours, which form an integral part of each species' repertoire. The zoo community should encourage this and lead by example, certainly with animal welfare now taking centre stage in zoo management.



YELLOW-BILLED STORK UNBOtherED BY THE CROCODILIAN NEARBY © A. JORIS

BACK TO THE FOREST

HOW AN INTERNATIONAL CONSERVATION PARTNERSHIP IS WORKING TO SAFEGUARD THE VIETNAM PHEASANT AND RESTORE IT TO ITS NATURAL HABITAT

Veronika Zahradníčková, Vietnam pheasant EEP Coordinator and Vietnam Pheasant Recovery Team member, Prague Zoo; Jan Dams, Vietnam Pheasant Recovery Team Chair, Antwerp Zoo; Katharina Herrmann, Vietnam Pheasant Recovery Team Vice Chair, Berlin Zoo

For more than 25 years, the forests of central Vietnam have been missing one of their most remarkable inhabitants. The Vietnam pheasant (*Lophura edwardsi*), once native to the dense, humid lowland forests of the region, has not been recorded in the wild for decades. But an international alliance of conservation organisations, zoos and Vietnamese partners has come together with a shared goal: to return the Vietnam pheasant to the forests where it once lived.

The Vietnam pheasant is one of the rarest birds in the world and a striking example of the dramatic consequences of human impact on natural ecosystems. The species is classified as Critically Endangered on the IUCN Red List, with the designation 'Possibly Extinct in the Wild', as no bird has been sighted in the wild since 2000, despite intensive camera-trapping efforts.

The disappearance of the pheasant from its natural habitat is due to multiple interacting factors, including habitat loss, the use of defoliants

during the Vietnam War and illegal hunting. Without the efforts of the French ornithologist Jean Delacour, who brought the first pheasants to Europe during his five expeditions to Vietnam between 1924 and 1930, laying the foundation for the entire current species population, this species might have been irretrievably lost. Due to careful management of the species' Studbook, there is now a stable population of Vietnam pheasants under human care. Over the last 100 years or so, the global *ex situ* population has grown to more than 1,000 individuals.

A PHEASANT RECOVERY NETWORK

Developed in 2014, the species conservation action plan provides the foundation for strategically coordinated recovery efforts. The implementation of the actions is driven by an international network, the Vietnam Pheasant Recovery Team (VPRT), and associated partners who bring together expertise in breeding management, veterinary science,

habitat and species conservation, and long-term monitoring across Europe and Vietnam. The network's efforts follow a multi-step approach in line with existing guidance from the IUCN on species reintroductions.

For 30 years, the local NGO Viet Nature Conservation Centre has carried out extensive camera-trapping surveys in historic Vietnam pheasant habitats in search of the bird, and has prepared suitable areas in Dong Chau (Khe Nuoc Trong, Phong Dien and Ke Go nature reserves) for potential reintroductions. As part of its ongoing efforts to secure habitat for the pheasants, Viet Nature holds a 30-year lease on 768 hectares of natural forest in the Dong-Chau Khe Nuoc Trong nature reserve. This milestone agreement guarantees space for scientific research, conservation and the potential release of the species.

To combat the severe threat of snaring, Viet Nature and protected area rangers carry out snare removal in selected areas. The rangers patrolling these sites are recruited

PHONG DIEN NATURE RESERVE
© VERONIKA ZAHRADNÍČKOVÁ; INSET: VIETNAM
PHEASANT MALE © MARCEL STAWINOĞA



from local communities, which fosters local engagement and a shared interest in the species and protection of the selected sites. Their efforts in removing traps have considerably reduced the threat, keeping the areas safer for local wildlife. For local communities, participating in the conservation activities offers a suitable alternative to hunting or snaring.

A WORLD FIRST BREEDING CENTRE

In 2021, Viet Nature obtained a 30-year lease of 4.5 hectares of land to build a breeding centre for the species. As the first facility of its kind, in the middle of its historical distribution range, the Rare Pheasants Breeding Centre (RPBC) combines conservation breeding with research and nature education while also engaging local communities in protecting their natural heritage. The first block of breeding aviaries and an exhibition aviary are already built. Construction of the second block is underway and expected to be completed in the autumn of 2026. The goal is to keep 50 breeding pairs and to release their parent-reared offspring to selected forest sites in the future.

In parallel with the construction of the RPBC, significant progress was made towards kick-starting the establishment of a breeding population in Vietnam. Within this collaborative framework, the EEP coordinated by Prague Zoo (Czechia) plays a key role in ensuring the genetic health and long-term viability of the newly established *ex situ* conservation breeding population in Vietnam. 22 birds were selected from the EEP population maintained within EAZA zoos and the World Pheasant Association. The selection process followed clearly defined criteria, including genetic diversity – DNA analysis was done by Antwerp Zoo's Centre for Research and Conservation (Belgium) – minimal relatedness, good health status, appropriate age and natural behavioural traits. This careful selection ensures that the *ex situ* conservation breeding population in Vietnam is built on a strong and viable genetic foundation.

BUILDING A NEW BREEDING POPULATION

Serving as the project's European central quarantine and transportation hub, Tierpark Berlin (Germany) gathered the selected birds and handled all preparations for their



journey. The complex transport was organised jointly with Vinpearl Safari Phu Quoc, the key in-country zoological partner for the transport. Before their overseas departure to Vietnam, all animals underwent extensive preparations, including veterinary examinations, health checks and diagnostic testing and a quarantine period. For the transport, the pheasants were housed in specially designed transport crates, ensuring maximum safety, proper ventilation and minimal stress aboard the cargo aircraft. Throughout the journey, the birds were accompanied by experienced personnel.

The pheasants will be managed and bred at two locations in Vietnam: half of them at the RPBC and the other at Vinpearl Safari Phu Quoc. Further transports are already in preparation, including offspring from the two Asian satellite populations established in Taipei Zoo (Taiwan) and Singapore Zoo (Singapore), and an additional batch of birds from the European region.

NEXT STEP: RELEASE AND MONITOR

While the transport was taking place, a structured decision-making workshop in collaboration with the IUCN SSC Conservation Translocation Specialist Group and the Zoological Society of London (ZSL, UK) was held in Vietnam. It brought 25 national and international experts together to develop recommendations for a trial release of pheasants in central Vietnam. The event focused on three key aspects of the reintroduction programme: pre-release conditioning and husbandry, release methodology and post-release monitoring.

Participants agreed on soft-release methodology combining two release timings and aviary designs. The trial release will evaluate four alternative

treatment combinations, providing valuable information on how release age, release season and pre-release social and housing conditions influence post-release success. Post-release monitoring efforts will include trialling GPS and VHF telemetry devices on the birds in the natural environment along with the use of camera trap networks. Telemetry attachment methods were trialled on Vietnam pheasants at ZSL Whipsnade Zoo and Chester Zoo (both UK) to ensure any impact on behaviour is negligible. Field observations and systematic data collection on behaviour and survival will be part of the post-release monitoring activities and adaptive management of release methods applied where needed.

The recovery efforts for the Vietnam pheasant are carried out in close cooperation with governmental authorities in Vietnam, who officially declared the species a conservation priority for the country in 2025. The involvement of national and regional authorities is essential to ensure the long-term protection of habitats and to integrate the project into existing conservation strategies.

The return of the Vietnam pheasant is a rare opportunity to reverse a loss that once seemed final, with zoos and private breeders from the WPA at the centre of the change-making. It highlights the role that long-term conservation breeding can play in safeguarding species, and it demonstrates the importance of international collaboration in addressing global biodiversity challenges.

Financial and other support for the project is warmly welcomed. Detailed and up-to-date information about the project is available in the Vietnam Pheasant Recovery Project Newsletter.

MANUAL UPDATE

A RECENT AND THOROUGH REVIEW OF THE EAZA POPULATION MANAGEMENT MANUAL LED TO A NUMBER OF CHANGES AND IMPROVEMENTS – READ ON FOR A SUMMARY OF THE KEY UPDATES



Danny de Man, Deputy Executive Director, EAZA Executive Office

EAZA's Population Management Manual (PMM) is one of our core governing documents, providing a thorough overview of our population management framework, rules, procedures and guidelines. The manual is aimed at all EAZA Members, with particular guidance for TAG Chairs and those managing EAZA Ex situ Programmes (EEPs). This manual is a living document and is regularly updated.

In the past two years, the EEP Committee has coordinated a full review and update of the PMM with input from many colleagues across our community. This article provides an overview of the recent changes approved by the Annual General Meeting in April this year.

The PMM was reviewed as part of the cyclical process in place for reviewing all EAZA Standards and Guidelines. Particular emphasis was placed on:

- a **legal review of selected parts of the PMM**, a process undergone by all EAZA Standards and Guidelines
- development of a **section on conflict of interest** for TAGs and EEPs, and a section on the process of authorising official decisions to prevent unauthorised **signing of official documents** on behalf of EAZA
- guidance on the scientific background for using **management euthanasia for population management**, and related veterinary considerations, including when using carcasses for feeding
- **technical reviews** of the Regional Species Planning (RSP) process, the non-EAZA EEP participation procedure and the conservation translocation procedure
- **editorial updates** and miscellaneous changes

The changes under these five points are explained in more detail in the sections below.

LEGAL REVIEW

Following the EAZA Executive Committee's decision, all EAZA



ROCKHOPPER PENGUINS (*EUDYPTES MOSELEYI*) ARE MANAGED THROUGH AN EEP COORDINATED BY VIENNA ZOO © DANIEL ZUPAN

Standards have been through a **legal review by the EAZA solicitors** in recent years. The PMM was the last remaining Standards for EAZA Members to undergo such a process. The EEP Committee and EAZA Executive Office (EEO) identified sections in the PMM that were prioritised for this legal review, which led to the following changes:

- **EEP Complaints and Sanctions document**
 - ✓ The **definition of an EEP** was reviewed and emphasis was added on its 'cooperative and collaborative' nature.
 - ✓ The paragraphs outlining the **responsibilities for TAGs** with regards to the performance of EEPs (including Coordinators) were updated, including potential consequence of malperformance.
 - ✓ The **EEP Complaint section** was reviewed and updated.
 - ✓ The **EAZA Sanctions document** was extensively reviewed and the updated version was included as an appendix in the PMM.
- **Rules for Joint Population Management**
 - ✓ The section describing the **expectation of EAZA Members to participate in EEPs** was clarified to avoid

misinterpretation and risk of litigation.

- ✓ Several substantive changes were made in the **ownership of EEP** animals section to seek appropriate balance while also making more explicit what is expected from EAZA Members in terms of following EEP procedures when they hold EEP animals that are owned by another entity.
- ✓ **EEPs are non-commercial**: the language in this section was found to be robust, except for the term 'live cells' which has now been clarified.
- ✓ **(Non) breeding and transfer recommendation status**: a reference to complaint procedures was added in the section to make it clear these should be followed when insurmountable problems are encountered with EEP recommendations.
- **Governance process for TAG Chairs and EEP Coordinators**
 - ✓ The text more clearly articulates that TAGs are EAZA bodies and that the EEP Committee is ultimately responsible for the establishment, governance and oversight of TAGs.

- ✓ The new text makes it more explicit that TAG Chairs are appointed in a personal capacity and what the process is when a TAG (Vice) Chair loses support for resources to perform their duties.
- ✓ Changes in the text clarify the process for establishing EEPs and appointing and removing EEP Coordinators.

CONFLICT OF INTEREST AND AUTHORITY TO SIGN OFFICIAL DOCUMENTS

The need to add a section on 'conflicts of interest' for TAG- and EEP-related positions and the need to make it more explicit that TAGs and EEPs do not have authority with regards to official documents and commitments were identified.

- New sections on conflict of interests were introduced in consultation with the EAZA solicitors in the TAG and EEP sections of the PMM.
- Rephrasing of a few sentences clarify that, in performing their tasks and duties, TAG (Vice) Chairs, TAG members, TAG advisors, EEP Coordinators, EEP Species Committee members and EEP advisors must act in the **best interests of EAZA**.
- New paragraphs introduced in consultation with the EAZA solicitors in the TAG section and EEP section explicitly state that TAGs and EEPs cannot sign any official documents on behalf of EAZA.

GUIDANCE ON MANAGEMENT EUTHANASIA

Various EAZA Committees, jointly collaborating in the Management Euthanasia Task Force, developed a series of guidance documents in relation to management euthanasia (ME). Two of these documents were added to the PMM, combined with a review of the EEP procedures relating to management euthanasia.

- Appendix 26 was added, providing the **scientific background** of management euthanasia for population management.
- Appendix 27 was added, providing **veterinary considerations** for management euthanasia.
- The section describing management euthanasia for EEP animals not required for population management needs was updated to clarify the role of the EEP Coordinator and to align with the ME-related guidelines on

scientific background, veterinary considerations and communication.

- The section in the chapter for EAZA Members on management euthanasia was updated to align with the position statement, Welfare Accommodation and Management Standards and the three ME-related guidance documents developed.

TECHNICAL UPDATES AND CHANGES IN RULES AND PROCEDURES

In the past couple of years, the EEP Committee reviewed and discussed several technical processes as part of the cyclical review process, resulting in various changes in the PMM related to Regional Species Plans (RSPs), non-EEP participation and conservation translocations.

- **Regional Species Planning**
The RSP process was thoroughly evaluated by the EEP Committee in 2024–2025 with input from TAG Chairs, EEP Coordinators and external partners (e.g. researchers and IUCN Specialist Groups). While the overall process was concluded to be fit for purpose, several changes were identified to help fine-tune it in practice.
- **Non-EAZA EEP participation**
The procedures for outplacing EEP animals within the EAZA region and outside the EAZA region were found to lack clarity and needed more flexibility with regards to the

latter. Hence changes were made in this section of the PMM. Various other changes were made for consistency and clarity of wording.

- **Conservation translocations**
 - ✓ It was clarified that animals transferred from an EAZA Member to an *ex situ* destination for breeding and subsequent release of offspring must adhere to the same rules and procedures as direct release.
 - ✓ The roles of EAZA bodies with regard to EEP species was also better defined: the TAG is responsible for reviewing project quality and alignment with conservation goals, whereas the EEP Committee holds final responsibility for approving such conservation translocations.

GENERAL EDITORIAL UPDATES AND MISCELLANEOUS CHANGES

Various editorial updates and more straightforward changes were made to the PMM. These are not listed here for the sake of brevity. However, these changes, along with all other changes (including references and page numbers of the relevant sections), were made available to Members via the mailing circulated on 10 June 2026.

The updated PMM is openly accessible on the EAZA website (www.eaza.net/operational-documents).



ENGAGED DISCUSSIONS AT EAZA DIRECTORS' DAYS WHERE THE PMM UPDATES WERE APPROVED © EAZA

A CHANGE OF PLANS

HERE WE HIGHLIGHT FOUR PROGRAMMES THAT PUBLISHED A NEW LONG-TERM MANAGEMENT PLAN (LTMP) THIS SPRING

Elmar Fienieg, Manager of the Population Management Centre; Nora Hausen, Population Biologist; and Iva Martincová, Population Biologist, all EAZA Executive Office

LAHILLE'S BOTTLENOSED DOLPHIN © YAQU PACHA E.V.
INSET: SOUTHERN GROUND HORNBILL © ANNA KAZAZOU



The **Atlantic puffin EEP** focuses on practical actions that directly link to conservation in the wild. Institutions contribute to coordinated research, including a long-term mortality study and a genetic project using samples stored in the EAZA Biobank. Beyond research, the programme actively advocates for sustainable fisheries and climate action affecting puffins (*Fratercula arctica*). It also works with Icelandic rescue centres through staff exchanges while encouraging modern exhibits to boost breeding and strengthen puffins' role as charismatic ambassadors for marine conservation.

The **Bottle-nosed dolphin EEP** is in a transition period and aims to come out better on the other side. The number of individuals will be rapidly decreased in the coming decade to avoid space issues while the facilities of EEP participants are modernised. The EEP population is still healthy and resilient, and one focus point for this period is to keep it this way. Last but not least, the EEP wants to be much more involved in research and encourages institutions to contribute

to the fundraising and research projects for Lahille's bottle-nosed dolphin (*Tursiops truncatus gephyreus*) as well as animal welfare science.

The **Silvery-cheeked hornbill EEP** and the **Black-casqued hornbill EEP** focus on large African hornbill species that are significantly threatened by habitat loss and illegal international trade in body parts. Their conservation status in the wild is probably more precarious than indicated by the IUCN Red List. These programmes aim to establish long-term insurance populations and require additional holders to provide sufficient space for population growth. Institutions interested in keeping silvery-cheeked (*Bycanistes brevis*), black-casqued (*Ceratogymna atrata*) or any other species of hornbill are encouraged to contact the respective EEP Coordinators.

The **Southern ground hornbill EEP** integrates the management of a viable *ex situ* population with active support for *in situ* conservation initiatives. To maintain a sustainable long-term

insurance population under human care, the programme has shifted from housing birds in pairs to managing them in family groups, thereby increasing space availability, reducing first-year mortality and producing behaviourally competent adults.

Consequently, hand-rearing of chicks is strongly discouraged. The EEP collaborates closely with the Mabula Ground Hornbill Project, an initiative dedicated to securing and restoring Southern ground hornbill (*Bucorvus leadbeateri*) populations in South Africa through threat mitigation, species reintroduction, community-based conservation and capacity-building, and uses the species as a flagship for broader savannah ecosystem protection. In support of these efforts, the EEP raises funds to expand conservation capacity, provide resources and facilitate knowledge exchange through staff placements and training opportunities between EAZA institutions and South African conservation partners. Nevertheless, support remains insufficient, and programme holders are encouraged to contribute to conservation efforts.

HOT TOPICS FOR ZOO AND WILDLIFE VETS

EAZA'S HIGHLIGHTS FROM THE EAZWV ZOO AND WILDLIFE HEALTH CONFERENCE 2026 RANGED FROM POPULATION MANAGEMENT DECISIONS TO CONSERVATION BEYOND ZOO BOUNDARIES



Mirka Friedman, Animal Programme and Conservation Coordinator, EAZA Executive Office

From 11–13 June 2026, Dublin Zoo (Ireland) hosted the European Association of Zoo and Wildlife Veterinarians (EAZWV) Zoo and Wildlife Health Conference 2026, bringing together 380 delegates and nearly 70 online participants.

The conference addressed some of the most pressing challenges in zoo and wildlife medicine, conservation and population management. A strong emphasis was put on collaboration and practical learning, starting with a full workshop day. Participants took part in hands-on training and case-based discussions covering anaesthesia, pathology, reproduction management, bird nutrition, avian orthopaedics and communication skills. The aim was to translate scientific knowledge into practical tools for both clinical and field applications.

POPULATION FOCUS

One of the core themes was population sustainability and the evolving role of vets in maintaining genetically and demographically healthy populations. In his opening plenary, Marcus Clauss (University of Zürich, Switzerland) challenged participants to consider how zoos can balance individual animal welfare with long-term demographic stability and genetic integrity.

His presentation led to a highly engaged panel discussion on veterinarians' responsibility at the interface of individual and population-level decision-making, and the methods at their disposal, including population management euthanasia. With interventions from Katrin Baumgartner (Nuremberg Zoo, Germany), Javier Martínez Gimenez

(Bioparc Valencia, Spain), Marcus Clauss, Yedra Feltre Rambaud (Chester Zoo, UK) and myself, the discussion highlighted the ethical, emotional and operational dimensions of population management decisions and emphasised the importance of transparency, institutional support and interdisciplinary collaboration. The need for clear communication frameworks when addressing complex population management decisions within or outside institutions was strongly accentuated.

CONNECTION AND COLLABORATION

Conservation beyond zoo boundaries was another key focus. Julie Swenson's (Fossil Rim Wildlife Center, USA) plenary on conservation work in Chad demonstrated how veterinary expertise directly supports *in situ* conservation and species recovery. Complementing this, Jamie Copsey's (IUCN Conservation Planning Specialist Group) closing plenary, 'The Facilitative Vet: Fostering Collaboration for Threatened Species Recovery', emphasised the 'connector' role of vets, enabling communication and strengthening conservation outcomes through collaboration.

The first Vet Advisor Flash Talks session revealed the importance of the joint work of the EAZA Veterinary Advisors and EEP Coordinators. This fast-paced format provided concise updates on conservation breeding programmes across a wide range of species. It demonstrated both the diversity of managed populations and the growing complexity of coordinated conservation efforts.

Across the oral and poster sessions, the breadth of zoo and wildlife medicine was evident, covering an

array of various taxa.

Early-career professionals and students played an active role throughout the conference, contributing to the scientific programme and participating in networking events such as the Student Mentor Mixer. These opportunities, along with scientific awards recognising excellence, reinforced the field's commitment to mentorship and professional development.

A SHARED COMMITMENT

Working group meetings, poster discussions and social events – beautifully organised against the backdrop of Dublin Zoo and the city of Dublin – encouraged ongoing exchange and collaboration beyond formal sessions. The conference once again highlighted the strength of the EAZWV community and its shared commitment to advancing animal welfare, population sustainability and global wildlife conservation.

We are proud to announce the continuation of the Memorandum of Understanding between EAZA and EAZWV, which was formally reaffirmed prior to the conference. Building on the long-term collaboration between the two organisations, this renewed agreement reinforces our shared commitment to advancing zoo and wildlife health, supporting coordinated veterinary expertise across member institutions and ensuring closer integration of veterinary perspectives within the conservation and population management frameworks. Special thanks go to Dublin Zoo and to the organising team for their excellent warm hospitality. We look forward to the next edition on 13–18 September 2027 in Munich (Germany).



BRINGING CONSERVATION TO LIFE

HOW IMMERSIVE STORYTELLING IS A VITAL PART OF A NEW EXHIBIT AT ZOOPARC OVERLOON

Klaas-Jan Leinenga, Head of Education and Conservation, Libéma Zoos

The take-over of ZooParc Overloon by Libéma (both the Netherlands) in 2015 marked the beginning of a new phase focused on growth, quality and impactful visitor experiences. This started with the development of a comprehensive masterplan in 2018 to secure a healthy and sustainable future. This masterplan was built around seven geographically themed expedition areas, each representing a different part of the world. A key strategic decision was that each expedition would convey its own unique educational theme. For example, the Asian expedition named 'Jangalee' addresses the issue of poaching for traditional medicine, while the South American expedition of 'Madidi' focuses on deforestation.

Developing the new exhibits and educational programmes was a collaborative process within the organisation. The Education and Conservation team were actively involved from an early stage, working closely with the animal department and Libéma's zoo designers. Together we shaped how the masterplan was translated into both physical environments and educational experiences. This integrated approach ensured that each new area offered not only a high-quality habitat for animals but also an engaging and meaningful learning experience for visitors.

Storytelling plays a central role in this approach. Visitors are taken on a journey that has conservation at its

heart. Interactive storytelling elements had already been successfully implemented in several expedition areas, including Madagascar, Madidi and Ngorongoro. In 2025, this concept reached a new level with the opening of the expedition zone 'Ngyuwe'.

INSIDE NGYUWE

Ngyuwe covers approximately two hectares and focuses on tropical Africa, specifically the region stretching from Ivory Coast to the Democratic Republic of Congo. Ngyuwe is home to 19 animal species, most of which are part of EEPs.

Ngyuwe includes a variety of habitats and mixed-species enclosures. Drills (*Mandrillus leucophaeus*), red river hogs (*Potamochoerus porcus pictus*) and De Brazza's monkeys (*Cercopithecus neglectus*) share a habitat. The building also houses species such as pygmy hippos (*Choeropsis liberiensis*), sitatungas (*Tragelaphus spekii*) and Williams' dwarf geckos (*Lygodactylus williamsi*). An integrated nocturnal section features emperor scorpions (*Pandinus imperator*), northern galagos (*Galago senegalensis*) and African brush-tailed porcupines (*Atherurus africanus*).

A second building in Ngyuwe is home to three male okapis (*Okapia johnstoni*), as well as yellow-backed duikers (*Cephalophus silvicultor*) and Kirk's dik-diks (*Madoqua kirkii*). Additionally, a large aviary houses a

range of bird species, including turacos, African spoonbills (*Platalea alba*), hamerkops (*Scopus umbretta*), and yellow-billed storks (*Mycteria ibis*). This diversity of species and habitats creates a dynamic and immersive environment for visitors.

The educational focus of Ngyuwe reflects the challenges of tropical Africa. Dense rainforests and poor infrastructure make many areas difficult to access and explore. At the same time, the region faces significant challenges, including poverty, corruption, drought and crime. The education focuses primarily on the illegal bushmeat trade and the mining of minerals. In addition, the importance of scientific field research is highlighted, alongside explanations of both *in situ* and *ex situ* conservation efforts supported by the zoo.

AN IMMERSIVE CONSERVATION EXPERIENCE

As in all expedition areas, visitors begin their journey with an introductory panel that explains the location, the species they will encounter and the main threats to the region. Clear actions are provided to empower visitors to contribute, including supporting our conservation foundation, Stichting Wildlife, refraining from consuming bushmeat, recycling mobile phones to recover valuable minerals such as coltan, and choosing lab-grown diamonds over mined alternatives.



LEFT TO RIGHT: THE FICTIONAL VILLAGE OF BODI; CAFÉ EMMANUEL, WHERE VISITORS 'MEET' MICKEL THE RANGER; INSIDE THE BUTCHER'S SHOP. INSET: MICKEL THE RANGER

Storytelling begins in the fictional village of Bodi, which represents the last settlement before entering the dense tropical forest. The village includes elements such as a moped workshop, a butcher and a café, and signage shows that the next village, Bonépoupa, is 15 km away, reinforcing the sense of remoteness.

Bodi Fresh Meat (the butcher's shop) and Café Emmanuel form a connected walk-through experience. Visitors entering the butcher shop overhear a staged conversation on a screen behind the counter (designed to resemble a window into a back office), in which a trader places a large order of bushmeat destined for urban markets and international customers. The butcher expresses hesitation, showing concern for local wildlife and fear of a ranger called Mickel. As the conversation ends and the men leave, a traffic light draws visitors towards a hallway, where they hear ranger Mickel speaking. From behind a barrier, he invites visitors into the café. Through a small window (a hidden video screen), Mickel explains that he has been sent by ZooParc Overloon and its foundation to document conservation projects in the region.

These projects include partnerships with organisations such as Limbe Wildlife Centre (Cameroon), the Institute for Breeding Rare and Endangered African Mammals (UK, for pygmy hippos) and the Okapi Conservation Project (Democratic Republic of Congo). Mickel explains that while local consumption of bushmeat from non-endangered species may not pose a major problem, increasing demand from outside the region is placing severe pressure on wildlife populations.

Visitors can explore Mickel's sleeping hut, where they can watch video footage on his laptop. Throughout the area, visitors can read his research notes, which are presented on clipboards. These notes include observations on wildlife, evidence of poaching activities such as snares, and reports of illegal moped use for transporting bushmeat. Mickel actively encourages children to search for these clues, making the experience interactive and engaging.

USING VARIETY FOR GREATER IMPACT

Recognising that not all visitors engage equally with storytelling, the area also includes traditional educational materials, such as species signs and detailed information panels. In the okapi house, for example, large displays explain the role of EAZA and the different objectives of EEPs. This helps visitors understand the complexity of zoo-based conservation.

Over the past six years, Libéma zoos have increased the use of audio and video technologies in their educational strategies. One key lesson learned is the importance of collaborating with experienced partners to ensure reliable and effectively operated technology.

The addition of video footage has proven particularly fruitful. The inclusion of visual elements in Ngyuwe helps visitors to better understand the context and origin of the story. As a result, more visitors engage with the narrative.

The project also benefited from in-house talent. Ranger Mickel and



the trader are played by Beekse Bergen staff, another Libéma zoo, which helped to reduce costs. Mickel's scenes were filmed using a green screen, allowing real footage from conservation projects to be integrated into the story. The clipboard drawings were made in-house by the Libéma marketing team.

ASSESSMENT AND ADAPTATION

During the first year, the educational impact of Ngyuwe was carefully evaluated. We observed and assessed how visitors interacted with the installations, and used questionnaires to measure whether educational objectives were achieved. Overall, the results were positive, particularly regarding the walk-through storytelling experience.

We noticed that some clipboards and signs were initially overlooked by visitors, so these elements were woven into a scavenger hunt, encouraging more active exploration. This significantly increased engagement.

The overall conclusion is that Ngyuwe has been a successful addition to ZooParc Overloon. The combination of immersive design, storytelling and conservation messaging has created a powerful visitor experience. Investments like this have contributed to a strong increase in visitor numbers, growing from 100,000 in 2015 to 250,000 in 2025. This growth means that ZooParc Overloon is reaching more people than ever before with its important conservation messages.



SUSTAINABILITY IN ACTION

HOW EUROPE'S ZOOS AND AQUARIUMS ARE TURNING AMBITION INTO MEASURABLE CHANGE

Myfanwy Griffith, Executive Director, and Diana Trejos, Funding Coordinator, both EAZA Executive Office

Five years after establishing a sustainable operations baseline, EAZA's latest survey reveals a community that is moving beyond good intentions and embedding environmental responsibility into everyday operations. Progress is evident, but challenges remain as institutions seek to turn awareness into systemic change.

Zoos and aquariums are champions of biodiversity conservation and are working together to ensure sustainable animal populations. Increasingly, their focus is expanding to embed sustainable operations that reduce their environmental footprint. Supporting this focus was a strategic priority for EAZA over the last period. The 2025 EAZA Sustainability Survey, conducted five years after the Association's first comprehensive sustainability assessment, offers a clear picture of how Member institutions are responding to environmental challenges.

Responses to the survey were received from more than 30 countries, representing over 62% of EAZA membership countries. This wide geographical representation provides a comprehensive understanding of sustainability practices and reveals a community in transition. Across Europe and beyond, zoos and aquariums are making significant

gains in energy efficiency, water management and sustainable mobility. Reporting on governance and environmental measurement shows a clear shift from awareness to structured implementation and growing institutional maturity. Sustainability is increasingly becoming embedded within organisational strategy and decision-making.

FROM AWARENESS TO IMPLEMENTATION

One of the most striking conclusions from the survey is the extent to which sustainability has shifted from aspiration to implementation. Survey respondents with active solutions in place for water management increased from 56% to 71%, travel and mobility rose from 30% to 55% and energy management improved from 57% to 65%.

Perhaps the most important development is the growing integration of sustainability into organisational governance. Reporting institutions measuring environmental initiatives rose from 24% to 60%. This is potentially supported by 60% of institutions with a dedicated sustainability/green team. Those with a formal sustainability strategy increased from 15% to 34%, while 77% now have a strategy either in place or under development.

EDUCATION EVOLVES BEYOND INFORMATION

As conservation education organisations, EAZA Members have always played a role in raising public awareness about environmental issues. The survey suggests that educational approaches are now evolving from information-sharing towards encouraging behavioural change.

Traditional sustainability education remains widespread, with around three-quarters of institutions providing onsite information about environmental issues. Climate-change education is similarly well established.

However, the most notable change is the rise of action-oriented engagement. Institutions encouraging visitors to take specific sustainability actions increased from 28% in 2020 to 54% in 2025. This represents a subtle but important shift. Rather than simply explaining environmental challenges, zoos and aquariums are increasingly helping audiences understand how they can contribute to solutions themselves. For institutions seeking to maximise conservation impact, this behavioural focus could prove just as important as operational improvements behind the scenes.

PROCUREMENT: THE PERSISTENT CHALLENGE

While many sustainability indicators show strong progress, procurement remains one of the community's most complex challenges. Documents such as EAZA Guidelines on Meat and Soya, EAZA Guidelines on Timber and EAZA Guidelines on Palm Oil help to improve sustainable purchasing practices, but cost continues to be the primary barrier to change. Product availability and limited staff capacity were also commonly cited challenges.

Overall, more than half of institutions reported that fewer than 50% of their purchases meet sustainable procurement criteria. Nevertheless, nearly one in five respondents now applies sustainable procurement criteria to all purchases, demonstrating that comprehensive implementation is achievable.

THE SDGS: STRONG AWARENESS, LIMITED REPORTING

The United Nations Sustainable Development Goals (SDGs) have become an increasingly important framework for organisations seeking to demonstrate their broader societal contribution. Awareness of the SDGs remains strong, with more than 70% of respondents familiar with the framework, reflecting widespread recognition of their relevance to environmental and societal stewardship.

Priority SDGs have also remained remarkably consistent; SDG 15 (Life on Land), SDG 13 (Climate Action) and SDG 14 (Life Below Water) continue to be viewed as the goals most closely aligned with EAZA's mission. New in 2025 is the more prominent emergence of SDG 4 (Quality

Education), reflecting the community's growing emphasis on public engagement and societal impact.

Yet despite strong awareness, formal documentation remains limited. Only 22% of responding institutions currently document their SDG contributions in a structured way. While this still represents evidence of emerging institutionalisation, it highlights a gap between recognising the SDGs and systematically reporting against them. As sustainability reporting expectations continue to evolve across Europe, this may become an increasingly important area for future development.

SHARING SUCCESSES

The improvements observed between 2020 and 2025 did not happen in isolation. During the strategic period, EAZA undertook a range of initiatives designed to share best practice, support Member institutions and strengthen sustainability across the Association.

These included the development and approval of the EAZA Guidelines on Managing Operations to Reduce Your Environmental Footprint,

product Guidelines mentioned already, regular sustainability-focused content in *Zooquaria*, visibility for Member-led case studies and the integration of sustainability discussions into conferences. The Association also strengthened external engagement by joining the EU4Ocean Coalition in 2024, reinforcing links between marine conservation and broader sustainability agendas.

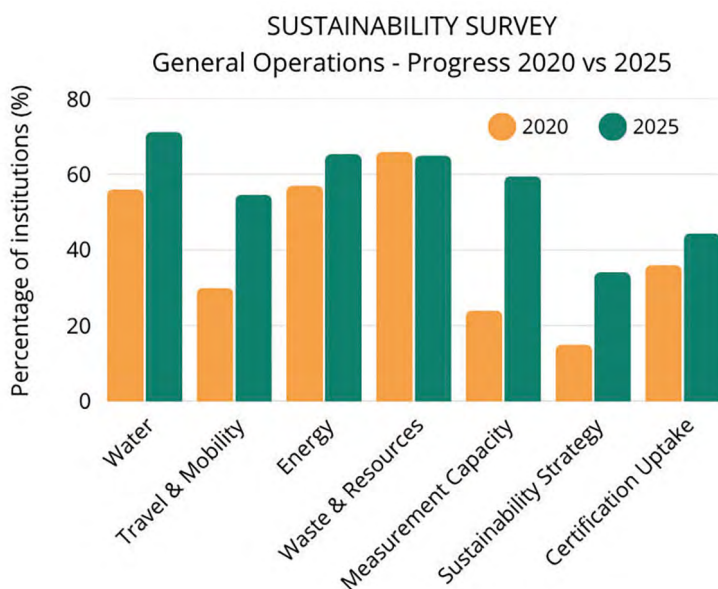
Collectively, these efforts have helped maintain sustainability as a visible and relevant topic across the EAZA community.

LOOKING AHEAD

The 2025 survey offers an encouraging picture of progress, but it also demonstrates that the journey is far from complete. Looking ahead, the challenge for the next strategy cycle will be to build on these foundations. Greater consistency in measurement, wider adoption of environmental management systems, stronger procurement frameworks and improved sustainability reporting will be key. Most importantly, sustainability must continue to become part of core organisational management rather than remaining a specialist activity.

The survey responses tell a positive story. Over five years, EAZA Members have demonstrated a clear willingness to adapt, learn and improve. The community is increasingly measuring what matters, embedding sustainability into governance structures and taking practical action to reduce environmental impact.

For institutions dedicated to protecting wildlife and inspiring public engagement with nature, that progress matters. Conservation credibility increasingly depends not only on what institutions advocate, but also on how they operate.





A POLAR BEAR (*URSUS MARITIMUS*) FORAGING ON GRASS AND HERBACEOUS PLANTS IN A WILDLIFE PARK, AN EXAMPLE OF A STRICT CARNIVORE BENEFITING FROM PLANTS IN ITS ENVIRONMENT; ALL IMAGES © KÅRE JENSEN

CONNECTING HORTICULTURE WITH ANIMAL WELFARE

HOW PLANTING IN ZOOS IMPACTS THE ANIMALS IN OUR CARE

Kåre Thomas Jensen, Zookeeper and Landscape Architect, Zoo & Landscape Design

Considering that the evolutionary history of all animal species is intrinsically linked with the flora in the biomes around them, it's not much of a leap to consider that plants are a major contributor to animal welfare, from a physiological, psychological and behavioural perspective. Live plants provide not only food for herbivores but also a whole array of other stimuli, such as seasonality, natural variety, improved gut biomes and more naturalistic feeding

behaviours. Even strict carnivores such as big cats and polar bears forage on plants when given the chance. Plants also provide secondary foraging opportunities for animals that feed off the invertebrates that they attract.

Plantings give more choices in microclimates and can greatly expand the useful area of an enclosure. Some zoo professionals still argue against using too many plants in the enclosures, to keep the animals

visible to the visitors. This argument is often counter-intuitive, since many shy species are actually more visible in habitats featuring prospect-refuge opportunities, where they are able to dash back into semi-transparent cover if needed. For forest-dwelling species prone to UV damage to their eyes, filtered sunlight through the canopy cannot be faithfully recreated by anything other than actual trees. Especially for arboreal species, trees and shrubs provide complexity and teach the animals the essential skills of unpredictable locomotion needed to develop the behavioural competency required for optimal welfare as well as the individual's value to conservation goals *in situ* and *ex situ*.

Having live plants in enclosures with animals will almost always include trade-offs. Traditionally, the logic has been 'Animals first, plants second'. However, if plantings are indeed essential to welfare, then the adverse effects of temporarily reducing animal access to parts of their enclosure may well be outweighed by the increased welfare that results from a more complex and naturalistic habitat. A living environment with well-designed and well-maintained plantings provides enrichment that does not depend on keepers, allowing the animals to benefit from their surroundings outside working hours as well. Most importantly, and especially in regard to foraging and locomotion, plantings can provide the animals in our care with more meaningful choices and even give them the opportunity to fail, thus making them an essential component of the next frontier of zoo animal welfare.



MULTITUDE OF MICROCLIMATES ARE PROVIDED BY A WELL-PLANTED ENVIRONMENT

A MANED WOLF (*CHRYSOCYON BRACHYURUS*) VISIBLE IN ITS HABITAT WITH PLENTY OF PROSPECT-REFUGE OPPORTUNITIES



ANOTHER SUCCESSFUL EAZA ZOO HORTICULTURE CONFERENCE

Philip Esseen, Head of Plants, Chester Zoo

The 2026 EAZA Zoo Horticulture Conference was held from 1–4 June at Randers Rainforest (Denmark), and brought together horticulturists from nine EAZA zoos to share knowledge and best practice.

Sessions explored the challenges and rewards of creating and maintaining tropical environments in temperate climates. Practical topics included protecting tree roots from damage by large ungulates, designing planting schemes that support animal welfare – with an excellent talk from

Kåre Jensen – and the importance of collaboration between animal and horticultural teams.

Innovative projects highlights included Artis Zoo's (the Netherlands) landscape solutions to address climate-related hydrological challenges, and Ny Vraa's (Denmark) production of high-quality organic compost from willow and grass. Delegates also examined the value of Zooplants.net as a platform for sharing information on suitable browse and enclosure plants.

Conservation was a central theme throughout the conference. The hosts showcased plans for a National Centre for Biodiversity and efforts to establish a UNESCO Biosphere Reserve in the Randers River Valley. Discussions emphasized how plant conservation supports wider zoo conservation goals, with Randers' rainforest reserve in Ecuador highlighted as a successful example of zoo-led field conservation.

Delegates thanked Sergio Pacinotti, Leon Lynnerup, and the rest of Randers Rainforest horticultural team for hosting an excellent event.



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