2023
02

WAZA
World Association of Zoos and Aquariums

NEWS

WAZA CPM Takes First Step Towards WAZA Population Management Goal

First IUCN SSC Centers for Species Survival Summit

A Campaign for the African Penguin – Not On Our Watch #NOOW

Reversing the Red for the Northern Leopard Frog

WAZA

World Association of Zoos and Aquariums

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Layout and design:
smithandbrown.eu

This edition of WAZA News is also available at: www.waza.org

Printed on FSC-certified paper

Cover Photo: African Penguin © Steve Benjamin

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WAZA Membership

WAZA Members as of 15 June 2023

Affiliates	8
Associations	21
Corporates	28
Institutions	289
Life	102
Honorary	35

Future WAZA Conference

2023: San Diego Zoo Wildlife Alliance, San Diego, United States, 8-12 October www.waza2023.org

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President's Letter

Dr Clément Lanthier
WAZA President

Dear WAZA Members,

As I write this letter, I am heartened by your support in unanimously approving the new vision and strategic priorities that WAZA has set for itself. As many of you are aware, over the past year, the WAZA Council, Committees, Executive Office and members undertook the strategic planning process. Over the course of this collaborative process, our aim was to set an ambitious and brave role for the future of WAZA, capitalising on its niche value as a global voice, providing distinct services to WAZA members. This has led to the unanimous approval of the new vision and strategic priorities. With your support, I am confident that WAZA will strengthen and further enhance our role as a recognised and dynamic leader in animal welfare and conservation for zoos and aquariums.

I am also excited by the candidates that have been nominated for the WAZA Council Elections and am eager to see the election of the new WAZA Council members who will be entrusted with implementing the new vision.

I hope that many of you will join us in San Diego this year, where we will meet old friends and new at the 78th WAZA Annual Conference. I look forward to invigorating and insightful discussions that will no doubt inspire the zoo and aquarium community.

As we continue to share stories of success and achievements from our community, I invite you all to get in touch with the WAZA Executive Office to share your news and stories with us, so that we can disseminate them to our wider community.

Yours sincerely,

Dr Clément Lanthier
WAZA President

CEO's Letter

Dr Martín Zordan
WAZA Chief Executive Officer

Dear Reader,

I write this letter immediately after the 2023 Virtual WAZA Extraordinary General Assembly that took place on 13 April. As far as I could find in our WAZA archives, extraordinary assemblies at WAZA are extremely rare. The fact that it is possible to hold these events virtually is a sign of how much our world keeps on changing.

At this recent extraordinary general assembly, members unanimously supported our new vision and strategic priorities. Our new vision is "To be a globally recognised and trusted leader advancing Conservation and Animal Welfare". To me, this vision calls on making our contributions and expertise recognised on a global scale, and beyond being seen, it urges society to believe and trust in our work so that we can continue to progress where we excel: caring for wild animals – conservation and animal welfare. This vision is guided by four priorities: Transformative leadership, Species impact, Global members and Reputation. You can learn more about each of them in this issue.

After the assembly, I arrived home and paused to reflect on why this new vision and the work of our members means so much to me.

The first time I felt the power of a zoo or an aquarium, I was a 16-year-old zoo volunteer at one of our members' institutions (Chile National Zoo). It was a Saturday morning in spring, a grandfather was in a wheelchair being pushed by his daughter and his very young grandson. They stopped in front of the white-handed gibbon habitat. "How deftly these monkeys moved across the branches!" the mother observed, prompting me to engage them in conversation. "They are a couple of white-handed gibbons, and if you pay close attention, you will see the female has a baby in their arms." "You are right, the way the mother cares for the baby is so similar to the way humans behave, how can that be?"

I ended up walking with them through the zoo for more than an hour until it was time for them to leave. I explained to them the work that the zoo was doing with Andean condors conservation and shared many stories about the animals they were getting to know.

Why do we find it hard to resist from trying to convert others to share our enthusiasm for wildlife? I no longer ask myself this question, nowadays I just succumb to this passion!

Science-based progressive zoos and aquariums have the power to make untold stories visible. The individual experience of visiting a zoo or aquarium can vary greatly. When we do our job well, the luckiest visitors will be moved by the beauty of what they perceive, the scientific knowledge they learn, or even be puzzled by existential questions like the one the mother I met had. We do not need to come up with all the answers, but we need to provide opportunities for people to connect with wild animals from their own unique perspective, to lead to them becoming wildlife advocates.

I am convinced that we are privileged to bring to light the stories of spectacular but yet marginalised beings. As we state in our vision, now is the time for WAZA to become more visible.

Becoming globally recognised will result in an increase of trust and more doors will open to us. I believe that each one of our members and partners has the power to collectively make this vision a reality for WAZA.

Finally, the 2023-2025 WAZA Council elections will take place between 24 July to 22 August. I encourage particularly voting members to follow the process and cast their votes.

Sincerely,

Dr Martín Zordan
WAZA CEO

Towards a New Vision for WAZA

Tania Kahlon

Communications Coordinator, WAZA

Founded in 1935 as the International Association of Directors of Zoological Gardens (IADZG later IUDZG), WAZA has a long history of working with the international community to promote best practices in animal welfare and conservation in zoos and aquariums. Over the years, however, it became apparent that there was a need to reimagine what WAZA would look like, what its potential impact could be and how it could better support its membersin being pioneers.

Against this background, the WAZA Council and Executive Office, with support and guidance from Ecoleaders, embarked on a journey toward a new strategy for WAZA. Over the course of 2022, the WAZA Council and Executive Office met several times, both virtually and in-person to develop the strategic plan. Meetings took place at ZooParc de Beauval (France) in April 2022, at the Denver Zoo (US) in July 2022 and finally at Loro Parque (Spain) in October 2022. To ground the strategy discussions in an understanding of stakeholder perspectives, data was gathered by the Executive Office, on beliefs, values and aspirations for WAZA through the annual member survey. Additionally, a process of consultation with various focus groups including non-members, former members, association members, and institutional members further informed the conversations.

As we began to gain perspective on the enduring parts of WAZA – who we are, what we stand for, and the impact we would want to have on the world – we invited members of the WAZA Committees and Subcommittees to share their feedback on our initial progress. Prior to the 77th WAZA Annual Meeting in Tenerife, the WAZA Council and Executive Office met again to further progress the new strategy for WAZA, based on feedback received from the different focus groups and the WAZA Executive Office. This then culminated in the strategic planning workshop held during the WAZA Annual Conference. Attendees were presented with a draft of WAZA's conceptual framework, which includes our purpose, guiding principles and niche. This is the long-term part of our strategy that helps us to understand what we will and will not do.

- The purpose is the heart of why we do what we do. It is the overarching statement that expresses why we (WAZA) exists.
- WAZA's guiding principles describe how we show up to the work. These present what we believe, what we stand for, and what we expect our members to adhere to.
- WAZA's niche is the unique space that we occupy from which we can demonstrate our global voice, leverage our scale, and provide distinct services to WAZA members, partners and stakeholders to achieve our purpose. This is the role that we play that differentiates how we deliver on our purpose from other organisations.

↑ Towards a New WAZA Strategy © WAZA

A new reason for hope

WAZA's vision is our aspiration for who we want to become and what we want to achieve together; it's our chosen future. A great vision should stretch us and inspire us to achieve more than we thought possible. It should be transformational, for ourselves and our shared purpose.

WAZA Annual Conference attendees were then invited to divide into breakout groups to share their feedback on the conceptual framework, including any changes they would like to see reflected in it. As a demonstration of commitment to WAZA's guiding principle of Global Diversity and Inclusion, Council members hosted breakout groups in a variety of languages, including Spanish, German, French, Japanese and Mandarin.

Building on WAZA's niche, additional feedback on the conceptual framework and vision was welcomed before the WAZA Executive Office began the process of working on the new operational plan for WAZA. On 13 April 2023, during a WAZA Extraordinary General Assembly, 68 WAZA voting members unanimously approved the following vision and four strategic priorities:

WAZA's Niche: Our Unique Role

Better together
We leverage opportunities for members and partners to form global connections, actively work together, share knowledge, and increase collective impact.

Using our voice
We are an international voice for animals and people thriving together, and we advocate for our members at a global level.

Inspiring excellence We enable all members to achieve high standards for conservation, animal welfare, sustainability, and social change.

Vision

To be a Globally Recognised and Trusted Leader Advancing Conservation and Animal Welfare

Four strategic priorities

1) Transformative leadership - Lead the way in constantly redefining excellence in zoos and aquariums.

This ensures we are proactively addressing the emerging global opportunities and challenges and contributing effectively and impactfully to animal welfare and conservation.

2) Species impact - Promote and facilitate global cooperation for species conservation and sustainability.

This harnesses the collective power of our global network to advance the shared mission of our member institutions.

3) Global members - Retain and grow our members to have true global representation, engagement, participation and voice.
This increases our resources, capacity, and impact potential.

4) Reputation - Build a reputation as an indispensable voice in forums where global conservation and welfare policy is set.

This increases our influence over policy outcomes and opens up new funding and partnership opportunities for our members.

Over the course of this year, the Executive Office has been and will continue working towards developing and implementing the operational plan to breathe life into WAZA's new vision and work with our members to ensure that we achieve the mandate entrusted to us by the global zoo and aquarium community.

↑ Workshop with members on strategic planning at WAZA Annual Conference © WAZA

SAVE THE DA

5TH JOINT TAG CHAIRS MEE

6-9 May 2024

RZSS Edinburgh Zoo

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Zoos and Aquariums

EUROPEAN ASSOCIATION OF ZOOS AND AQUARIA
EAZA

ASSOCIATION OF ZOOS & AQUARIUMS

RZSS
THE WILDLIFE CONSERVATION CHARITY

WAZA CPM Takes First Step Towards WAZA Population Management Goal

WAZA CPM Workshop © Paula Cerdán

Paula Cerdán[1], David Field[2], Candice Dorsey[3], Danny de Man[4]

[1]Animal Welfare and Conservation Coordinator, World Association of Zoos and Aquariums, [2]CEO, Royal Zoological Society of Scotland, Chair of the WAZA CPM, [3]Senior Vice President of Conservation, Management & Welfare Sciences, AZA; Vice Chair of the WAZA CPM, [4]Deputy Executive Director & Director Conservation and Population Management, EAZA; Vice Chair of the WAZA CPM

Animals are the very essence and the very foundation of our work. We invest in their welfare, in their habitats, and through our mission work for their future. But are we making sufficient investment and indeed the right investment?

How many times have we heard about the importance of having demographically and genetically resilient populations for zoos and aquariums? This is becoming increasingly challenging.

Zoos and aquariums have the scientific tools and knowledge and probably the resources to face and resolve these challenges but only if we as a community collaborate, coordinate, and commit to effective population management.

Our goal is to define the concept of population management and what our community's role and commitment should be to achieve those thriving zoo and aquarium populations which deliver on our unique contribution to the Convention on Biological Diversity (CBD) and our ultimate conservation mission.

A first step forward

The WAZA Council, during their meeting prior to the 77th WAZA Annual Conference, approved the WAZA Committee for Population Management (CPM) to explore and define the elements essential for effective population management for WAZA member Institutions and Associations, as per the Committee's discussions during their Annual Meeting in Long Beach, California (US) on 24 April 2022.

Kindly hosted by the EAZA Executive Office, WAZA CPM Members met in Amsterdam on March 13-14, 2023, to take a first step towards developing a framework for the WAZA Population Management Goal (PMG) in a workshop facilitated by the Conservation Planning Specialist Group (CPSG) Europe.

> **"WAZA brought together key species managers from across regional associations to start defining the WAZA Population Management Goal (PMG). Reflecting the needs, aspirations and capacities of member associations is vital in progressing and ensuring the success of this new WAZA goal."**
>
> **David Field, Chair of the WAZA CPM**

Similar to WAZA's 2023 Animal Welfare Goal (23AWG), the WAZA PMG will establish common ground among regions for science-based population management and will aim to enhance the role that WAZA member zoos and aquariums have in supporting the implementation of such frameworks.

↑ The two-day workshop was attended by CPM Members which includes representatives of the Latin American Association of Zoos and Aquariums (ALPZA), Association of Zoos and Aquariums (AZA), the European Association of Zoos and Aquaria (EAZA), the Pan African Association of Zoos and Aquaria (PAAZA), the Southeast Asian Association of Zoos and Aquariums (SEAZA), the Zoo and Aquarium Association Australasia (ZAA) and the World Association of Zoos and Aquariums (WAZA).

The foundation of the WAZA Population Management Goal (PMG)
While the final framework for the WAZA PMG has yet to be fully defined and approved, the following specific areas of population management were identified and focused on in the discussion during the workshop:

1) Goal driven, species selection, Regional and Institutional Collection Plans
Population management activities must be prioritised following a robust species assessment and selection process that identifies specific roles and goals for the population, and that considers the needs, feasibilities and risks associated with managing the population. Institutions and regional associations must develop regional and institutional species plans where such roles and goals for each species are clearly defined.

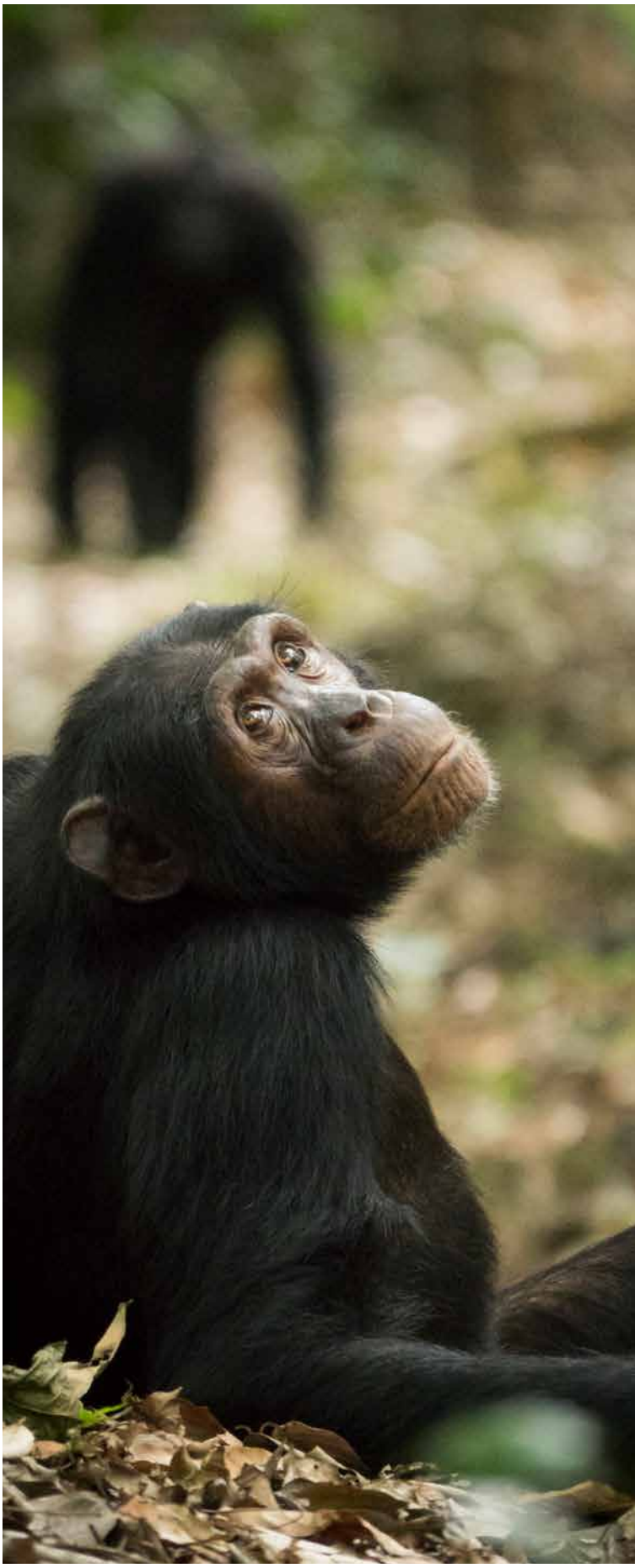
2) Sourcing, transfer and destination policy
Population management activities must be based on and contribute to legal, sustainable, and ethical sourcing and placement of animals.

3) Data, tools, and science
Population management activities must be data driven and science based and use appropriate record-keeping and analytical tools to inform decision making. Tools and systems need to be in place to enable the dissemination of information that will help to build knowledge and successfully implement a species management programme.

4) Animal Welfare
Population management activities consider and seek to maximise individual animal welfare during decision making processes at both the regional and institutional levels.

5) Engagement, participation and member uptake
Population management activities are in accordance with rules and procedures that contribute to achieving set goals and that encourage cooperation and participation by members and other stakeholders. National and regional associations must have a system in place to optimise member implementation of recommendations and to validate programmes and the stakeholders involved in them. While institutional preferences in species selection are relevant and important, they must be well supported and have clear goals.

6) Capacity building and staff
Population management activities must be appropriately resourced and supported by trained and capable staff, both in the regional associations and in the zoological institutions. For the latter, institutional support of the zoo or aquarium staff leading a programme is essential for its success. The collaboration between regional associations to contribute to the collective knowledge will be an essential component for the success of the WAZA PMG.



↑ Chimpanzee in Budongo Forest, Uganda © RZSS

The PMG supporting WAZA's Strategic Pillars
Under its new strategy, WAZA identifies four strategic pillars: Transformative Leadership, Species Impact, Global Members and Reputation. The implementation of the WAZA PMG supports and strongly aligns with the delivery of three out of these four pillars within WAZA's strategy and contributes to the fourth remaining pillar by bringing together our members around the world towards a jointly shared goal.

Transformative Leadership

"Lead the way in constantly redefining excellence in zoos and aquariums."

Through the WAZA PMG, we will work with regions to establish a goal that strengthens and collectively advances global zoo and aquarium practices in regard to the way we manage species and populations at the institutional, regional and global levels.

Species Impact

"Promote and facilitate global cooperation for species conservation and sustainability."

Through the implementation of the WAZA PMG we can coordinate and strengthen our community's scientific knowledge and practical experience that supports effective population management. Enhancing our practices globally through a collaborative approach, we can maximise our impact on public engagement and species conservation.

Reputation

"Build a reputation as an indispensable voice in forums where global conservation and welfare policy is set."

The achievement of WAZA's collective goals, such as the 23AWG and the PMG, will make our community a global benchmark representing impactful conservation and scientifically-minded organisations guided by best practices. Thus enhancing the trust and credibility of WAZA members and raising our collective profile to support our role in international forums as trusted advocates for conservation.

The WAZA PMG links to the Kunming-Montréal Framework of the Convention on Biological Diversity, which emphasises the need to "maintain and restore genetic diversity within and between populations of native, wild and domesticated species." Building frameworks that may support and link to global conservation forums like these can play an important role in creating the space we want in these forums and effectively showcasing the work we are doing to the conservation community.

The WAZA PMG is undoubtedly an exciting next step for WAZA members to continue to position ourselves as the global benchmark for conservation-minded zoological organisations. Our institutions play a critical role in the management and conservation of endangered species, and by taking these important steps and committing to WAZA Goals, WAZA members will help secure a better future for the world's wildlife and their habitats.

↑ Spotted Eagle Ray © Georgia Aquarium

2022 - April
CPM and 4th joint TAG chairs meeting in Long Beach

2022- October
WAZA Council Approves for WAZA CPM to define a PMG

2023 - March
WAZA CPM meets in Amsterdam and starts developing a framework

2023 - May
WAZA CPM reports back to WAZA Council

2023 - October
WAZA CPM develops tools and resources to support the implementation of the PMG

↑ Figure: Timeline and future plans of the WAZA CPM leading to the implementation of the WAZA PMG Goal.

First IUCN SSC Centers for Species Survival Summit

Kira Mileham[1], Mayerlin Ramos[2]

[1]Global Director, Strategic Partnerships, IUCN Species Survival Commission, [2]Partnerships and Grants Officer for SSC Chair's Office, IUCN Species Survival Commission

Species conservation teams from 16 countries and 17 organisations convened this April for the first IUCN Species Survival Commission's (SSC) Center for Species Survival (CSS) Summit. These Centers are hosted within leading conservation organisations, most of whom are WAZA members, who employ teams of staff working in partnership with the SSC's global network on priority species conservation assessment, planning and action.

The meeting was convened by the SSC Chair's Office and hosted by the Global Center for Species Survival at the Indianapolis Zoo. "Centers for Species Survival, working together with SSC Specialist Groups, are bringing much needed capacity, expertise, and connection to species survival efforts around the world," according to Dr Kira Mileham, SSC Strategic Partnership Director.

> **"It is exciting to see these teams come together in-person for the first time to share ideas and experiences and scale up joint priorities. We know how to save species, we just need to do more of it, and in a more coordinated way. This is what these partnerships and efforts are all about."**

The focus of this meeting was to strengthen the vision and priorities of the Center for Species Survival network, to identify further opportunities for collaboration, capacity and synergy across the global conservation community.

The topics included: effectively engaging with the SSC global network of volunteer species expert groups, building capacity along the Species Conservation Cycle (Assess - Plan - Act - Network and Communicate), collaborative fundraising, engaging communities and behaviour change, working with governments and supporting the post-2020 Global Biodiversity Framework of the Convention on Biological Diversity in connection with the Reverse the Red (RtR) movement.

Sessions were based on examples and experiences from the work carried out by the different CSSs, according to their scope, followed by interactive workshops and discussions. The results were productive and energetic, highlighting the importance of the vision of the centers and organisations, the relationships with governments, communities and local indigenous populations.

The rest of the sessions centred around discussions on how their work can be used to reduce extinction risk, measure impact, and create national networks to support conservation. In addition, the need to coordinate existing actions, align efforts towards common targets and lead processes such as evaluation, conservation planning and action were also discussed. The importance of refining the future collaborative fundraising strategy and priorities, including the identification of funding needs and donor opportunities was emphasised.

↑ Group photo at first IUCN SSC CSS summit. © Indianapolis Zoo

Brief history of the Centers for Species Survival

The SSC Chair's Office has been working through a focused effort for more than a decade to strengthen relationships between the zoo, aquarium and botanical garden communities and the SSC Network. Simultaneously the SSC Network's diverse volunteer expert groups function most effectively when partnered with dedicated staff teams and institutional capacity. In response to these needs, the SSC Chair's Office established the Centers for Species Survival partnership model which has been gaining momentum globally. This model aims to help address the biodiversity crisis and paradox and reverse the threat to species globally through strategic species assessments, conservation planning and action. These partnerships have grown from one staff member to teams across 13 partner organisations in eight countries across five continents. All working with the shared purpose of building scientific capacity and impactful species conservation action in parts of the world where it is most needed.

The IUCN SSC is eager to continue expanding both the network and the impact of these partnerships around the world.

On the following page there is a brief history of how this CSS Network has evolved over the past 14 years.

↑ Poecilotheria metallica © Indianapolis Zoo

2009

Exploring Partnerships and Program Officers

- SSC Chair's Office – Simon Stuart, Rachel Hoffmann and Jeremy Harris led SSC Network Support and Partnerships.
- Explored stronger relationships with Taxon Advisory Groups (TAGs).
- Built model for zoo-based Program Officers working with SSC Specialist Groups through partnerships, for example with Chester Zoo and the Zoological Society of London.

2014

Director of Strategic Partnerships

- SSC Chair's Office and EAZA partnered to create a new SSC role focused on strengthening zoo and aquarium partnerships. Dr Kira Mileham commenced in the role.
- Surveyed Specialist Groups' partnership needs and engagement with the zoo, aquarium and botanic garden community.
- Began three years of intense liaison with >250 zoos, aquariums and botanic gardens from >30 countries.
- Extended zoo-based Programme Officers for Specialist Groups in partnership with Bristol Zoo, Marwell Wildlife Park, Honolulu Zoo, Montgomery Botanic Garden and Arizona Desert Botanic Gardens.

2015

Zoo and Aquaria Advisory and Adoption of Assess - Plan - Act

- The SSC Chair's Office began holding annual WAZA and AZA conference presentations, while also joining as an advisor to the WAZA, BIAZA and AZA Conservation Committees.
- SSC Leaders Meeting intense interviews with >100 SGs.
- Began long-term plan for IUCN SSC Position Statement on role of Zoos, Aquariums and Botanic Gardens.
- Adopted the SSC's Cat Specialist Group's model of Assess - Plan - Act to help frame and articulate opportunities for partnerships.

2016

First Partnership Hub and SSC Chair Transition

- Established the first Red List Hub at The Deep Aquarium for marine IUCN Red List assessments and to grow the partnership model globally.
- SSC Chair Transition to Prof Jon Paul Rodriquez and Venezuelan SSC Chair's Office

2017

- Partnered with Georgia Aquarium as a Shark IUCN Red List Hub.
- Worked to add captive animal data to IUCN Red List and raise awareness of the need to prioritise Extinct in the Wild Species.
- SSC Director of Partnerships officially invited to become an observer to WAZA Global Council.

2018

- Partnership launched with Oceanario de Lisboa: Marine Hub focused on IUCN Red List assessments.
- Partnership launched with Albuquerque Biopark as first Species Survival Hub, first multi-person team and first botanic garden CSS across APA.
- Nahomy de Andrade commenced as SSC Grants and Partnership Officer.

2019

- Transitioned language to Centers for Species Survival.
- Partnership launched with Parque das Aves: CSS Brazil as the first CSS with pre-existing relationship with the SSC Conservation Planning Specialist Group (CPSG) as a CPSG Regional Resource Center.
- Partnership launched with Paradise Wildlife Park: CSS UK.
- IUCN SSC, WAZA and other partners introduced the Reverse the Red movement with CSSs as key partners.
- Introduced the conceptualised partnership with Indianapolis Zoo: Global CSS as a 7+ staff team working in partnership with all SSC taxonomic Specialist Groups.

2020

- Partnership launched with Temaiken CSS: Argentina.
- SSC Strategic Partnership Director joined ZAA Wildlife Conservation Committee as advisor.

2021

- The Global Center for Species Survival at Indianapolis Zoo was officially launched.
- Partnership launched with Loro Parque: CSS Macaronesia.
- Mayerlin Ramos replaced Nahomy de Andrade as SSC Grants and Partnership Officer.

2022

- Partnership relaunched with Georgia Aquarium: CSS Marine.
- Partnership launched with Mandai Nature: CSS Southeast Asia.
- Partnership launched with Zoo and Aquarium Association of Australasia (ZAA): CSS Australasia.
- Work underway to strengthen the relationship between all CSSs and CPSG on conservation planning.
- Moved to an application process for new organisations to propose the establishment of a new CSS partnership.
- Integrating continuity between CSS teams on target setting and impact reporting.

2023

- Partnership launched with Shedd Aquarium: CSS Freshwater.
- Partnership launched with Morton Arboretum: CSS Global Trees.
- First in-person CSS Global Meeting.
- Waiting list of 28 organisations interested in becoming a CSS.

Reversing the Red for the Northern Leopard Frog

Northern leopard frog – Rocky Mountain population
© Wilder Institute/Calgary Zoo

Rebecca Stanton

Interim Conservation Research Population Ecologist at the Wilder Institute/Calgary Zoo

The northern leopard frog *(Lithobates pipiens)* plays an important role in transferring nutrients between terrestrial and aquatic ecosystems. They are an indicator species that reflect the health of the wetland ecosystems where they live. The Rocky Mountain population of northern leopard frogs is listed as endangered under Canada's Species at Risk Act. The decline of this sensitive population is likely a result of habitat loss and degradation, invasive species, and disease. The Wilder Institute/Calgary Zoo is working to prevent the extinction of this amphibian in British Columbia (B.C.) as part of the B.C. Northern Leopard Frog Recovery Team. Together, they are implementing multiple recovery actions supported by research including conservation breeding, wild-to-wild translocations, and head-starting – a management technique that raises early-stage amphibians to later life stages under human care before releasing them into native habitats. These combined actions will boost northern leopard frog populations.

Assess-Plan-Act

Leveraging its role as a leading authority on wildlife conservation, and reintroducing threatened species to the wild, the Wilder Institute/Calgary Zoo adopted the IUCN's Assess-Plan-Act model to halt the decline of this vital species.

Northern leopard frog – Rocky Mountain population
© Wilder Institute/Calgary Zoo

Assess: With only one wild population remaining in B.C., the endangered Rocky Mountain population of the northern leopard frog is at risk of disappearing from the province.

Plan: To use a combination of recovery tools informed by research to reintroduce a new population of northern leopard frogs in B.C.

Act: Following the development of a habitat selection tool in collaboration with the B.C. Government and other partners, a new reintroduction site was selected. The Wilder Institute/Calgary Zoo released a total of 1929 tadpoles into four wetlands at the new site. Thanks to collaborative efforts, frogs were translocated through head-starting to wild and wild-to-wild at this new site.

Over the course of the visual surveys in late 2022, 326 unique individuals were detected, resulting in a minimum tadpole to young-of-year (species younger than one year of age) survival rate of 16.9% (often reported at ~4% in the literature). All 56 young-of-year captured on the final survey were large enough to have reached reproductive maturity (determined by size in northern leopard frogs), something typically not achieved until years two to three. The team is optimistic that they may see wild breeding this year.

Mobilising National Networks

The team worked to involve a variety of diverse stakeholders in achieving its aim. This included the British Columbia Northern Leopard Frog Recovery Team, the B.C. Ministry of Water, Land and Resource Stewardship and Ministry of Forests, Creston Valley Wildlife Management Area, Edmonton Valley Zoo, the Fish and Wildlife Compensation Programme, Nature Conservancy of Canada as well as Vancouver Aquarium. In addition to this, since a part of the new B.C. release site is on private land, success at this site would not have been possible without the ongoing contribution and participation of these community members.

Leveraging Regional Networks to Facilitate Success

The Wilder Institute/Calgary Zoo is a member of the IUCN Species Survival Commission Amphibian Specialist Group. They also chair the North American Oregon Spotted Frog and Northern Leopard Frog Captive Husbandry Group which has members with expertise in conservation breeding, genetics, and animal welfare which has contributed to the success of the translocation efforts. Through these networks, they are able to leverage expertise, advice and recommendations on conservation translocations specifically for amphibians.

Measuring success and planning for the future

Northern leopard frog survival and young-of-year size were key indicators of success for this release survival between life stages (i.e., tadpole to young-of-year) was calculated through the estimation of population size from capture-mark-recapture data. Moving forward, overwinter survival and breeding in the wild will be used as success metrics for this population.

Thus far, 1929 tadpoles were released, 326 young of year observed, minimum survival from tadpoles to young of year is 16.9% (typically 3-6% for other ranid species; Berven 1990, Biek et al. 2002). In addition to this, 855 total northern leopard frog observations, 569 captured/photographed, 326 individuals observed (based on number of unique spot patterns). Tadpoles released into four wetlands, had dispersed into 23 (out of 25) wetlands in the area by late September. Lastly, the average size of frogs at the new site was 20% larger and 114% heavier than at the previous reintroduction site.

In the summer of 2022, the Wilder Institute/Calgary Zoo opened the Archibald Biodiversity Centre, their new conservation facility. This new facility sits on 333 acres of land in rural Alberta providing greater space for conservation activities. Through this, and their research into improvements in conservation breeding, they hope to contribute to releasing greater numbers of tadpoles in the future.

↑ Northern Leopard Frog - tadpole release © Wilder Institute/Calgary Zoo

↑ Northern Leopard Frog © Wilder Institute/Calgary Zoo

Reverse the Red's Year of Action

Megan Joyce

Communications Officer, Reverse the Red

Reverse the Red Day Event at Johannesburg Zoo © Johannesburg Zoo

Reverse the Red's Year of Action is well underway! For 2023, we are seeking to increase and galvanise action around reversing the red, with efforts touching upon all four of the Reverse the Red pillars. By highlighting the impact that actions can make for the health of the planet, we hope to inspire diverse and creative engagement from across the spectrum of stakeholders. This Year of Action is all about looking optimistically towards the future as we strive to make a difference for biodiversity, and in each of the four pillar areas below of Reverse the Red we've been making great strides.

Mobilising National Networks

The Centres for Species Survival met at the Indianapolis Zoo in Indianapolis, USA, in April along with International Union for Conservation of Nature (IUCN), Species Survival Commission (SSC), WAZA and Reverse the Red staff. The meeting was productive and helped to strengthen the network of Centers working to reverse the red, accelerate conservation, and deliver on national biodiversity targets agreed upon at COP15 to the Convention on Biological Diversity in Montreal in December 2022. The Centres build and strengthen national level networks that coordinate expertise, resources and capacity, and as more Centers commit capacity increasing numbers of scientists and species experts are engaged in collaborative and strategic conservation efforts.

Measuring Impact

To help prioritise and measure the impact of conservation actions, Reverse the Red created and released an approach to Conservation Status Improvement. This approach enables conservation practitioners to increase the impact of their work by systematically selecting species, setting targets, and successfully acting to move species from a higher category of threat within the IUCN Red List to a lower one. These guidelines can help practitioners applying for the Indianapolis Zoo Saving a Species Challenge, where a requirement is to submit a detailed plan to improve the conservation status of a species.

Empowering Communities

The first Reverse the Red Day, held on 7 February, was a heartening way to see how organisations, communities and individuals around the world are taking action for threatened species. Over 100 organisations participated online, sharing stories and messages of conservation hope and success from 45 countries, four regional associations and 12 international bodies. Zoos and aquariums also held events in person to celebrate Reverse the Red Day, using costumes, staff pledges, animal ambassadors, presentations and more to highlight the important role they play in conservation efforts for species threatened with extinction.

At the European Association of Zoos and Aquaria (EAZA) Education Conference in March, Tania Kahlon, Communications Coordinator for WAZA, presented 'Reverse the Red Day: A Campaign With Global Engagement' to the many attendees, which was well received and will garner more support for Reverse the Red Day in 2024 as well as to increase the continued efforts during the Year of Action.

Amplifying Success

Throughout the Year of Action, Reverse the Red is highlighting stories of success from zoos, aquariums, botanic gardens and other partners. Reverse the Red launched new graphics with the help of Peppermint Narwhal to help showcase some of the successful efforts that led to change a species' conservation status. Featuring the IUCN Red list and current category of the species, along with the change in status, online audiences have been very receptive to these conservation success stories.

This Year of Action is featuring taxonomic themes, with a focus on a different taxonomic group each month. Help continue to grow this movement by sharing your own stories of success with the Reverse the Red team and with your audiences. To continue to grow the movement, use messaging that amplifies the impact your efforts have for species, and include the story of the people and partners doing the work. Find the schedule for the year and connect with Reverse the Red on social media!

Reverse the Red Day Event at Johannesburg Zoo © Johannesburg Zoo

A Campaign for the African Penguin

Not On Our Watch #NOOW

Dr Judy Mann

Executive – Strategic Projects, Two Oceans Aquarium Foundation

African Penguins © Steve Benjamin ↑

There are many people and organisations dedicated to the survival of the African penguin. Their incredible commitment and hard work must be commended, and we are grateful for their dedication.

However, saving a species needs action on the ground, the support of people and enabling legislation. To date there has not been a public action campaign for the African penguin *(Spheniscus demersus)*. With our experience in penguin care, communication and campaigns, we at the Two Oceans Aquarium Foundation in Cape Town, South Africa, decided that this was where we could contribute to helping the African penguin – so we initiated a partnership campaign – *#NOOW*. The name was carefully chosen as 'Not On Our Watch' will we allow this special bird to become extinct. We are grateful to Georgia Aquarium, Florida Aquarium and Zoos Victoria for their funding and support, without them the campaign would not be possible.

Our goal is to **create a movement** and **raise awareness** about the need for urgent action to reverse the decline of the African penguin population in the wild. Through this campaign we are calling for support to ensure that wise decisions concerning the future of the African penguin are made by the relevant authorities. We are creating a movement to build pride in African penguins as part of South Africa's unique biodiversity and we are assisting penguin colony managers by ensuring that visitors to the colonies behave in a way that supports penguin wellbeing.

The African Penguin

The African penguin (*Spheniscus demersus*) is the only penguin species found on the African continent. This penguin is known for its black and white plumage, black spots on their chests and their characteristic 'bray' resembling the sound of a donkey. In fact, many people still know the bird by its old name – the Jackass penguin.

But all is not well for the African Penguin

At the beginning of the 20th century, it is estimated that there were between 1.5 and 3 million individual African penguins across the species' range along the Namibian and South African coast. Figures indicate that there were close to 1 million pairs on the West Coast's Dassen Island alone. However, by the mid-1950s, only about 300,000 pairs were remaining due to egg harvesting and guano removal for fertiliser.

Very worryingly, since 1979, when the first full count of the major South African colonies was conducted, the current breeding population has declined from ~55,200 pairs to a mere ~10,000 breeding pairs in 2021.

Today the current African penguin population has only about 10,000 breeding pairs in South Africa and 4,000 breeding pairs in Namibia, the lowest numbers ever recorded.

The species has been classified as Endangered on the International Union for Conservation of Nature (IUCN) Red List since 2013. **The time for action is NOW. If we wait any longer, it will be too late**. We need healthy oceans to support marine life now and into the future, especially if we want our children to see African penguins in the wild.

So, what is the problem?

African penguins are faced with multiple pressures that are cumulatively contributing to their decline. Historically, egg harvesting and guano collection led to their decline. However, the more recent decline has been attributed to food shortages caused by shifts in the distributions of their prey species; namely declining small pelagic fish stocks (such as anchovies and sardines) and direct competition with commercial purse-seine fishery for food.

The island closure experiment, which was undertaken over 10 years ago, revealed the value of closing some areas to fishing that were in close proximity to breeding colonies of African penguins. However, despite many years of negotiation, no long-term decisions have been implemented.

Many African penguin colonies occur in areas that are near existing or planned major shipping routes or ports. A growing threat is the expansion of harbours and an increase in ship traffic. Another emerging threat for the African penguin, is ship-to-ship bunkering, which has started in Algoa Bay and is planned to expand to the West Coast. A large oil spill in the proximity of a breeding colony could destroy much of the remaining population. For example, four oil spills have already occurred in Algoa Bay since 2016, when bunkering started. In some areas, marine noise pollution is another emerging threat to African penguins, with evidence suggesting the scale of this impact could be large. The maritime industries use of seismic surveys to identify potential oil and gas reservoirs below the seafloor is a further looming threat.

In the past, penguins made their nests in the burrows of guano. Harvesting guano removed the penguin nest material. Although guano harvesting is no longer allowed, a lack of nesting habitat is a concern. This is being addressed through revegetation efforts at some colonies and deployment of artificial nests is currently being tested at several colonies.

Other threats include disease outbreaks, extreme weather events, localised predation, and human disturbance at breeding colonies. All of these threats require carefully implemented management plans for each penguin colony.

The threat of extinction has other repercussions

This beloved bird, together with other penguin species, holds an important role in ensuring a balanced and healthy marine environment. They are sentinels of ecosystem health and play an important role in the functioning of marine ecosystems.

African penguin colonies provide an indication of the status of other marine top predators that target the same prey (sardines and anchovies) and are thus important indicators of the status of pelagic marine ecosystems.

The possible extinction of African penguins will not only lead to the loss of a charismatic species but will also have far-reaching environmental and economic impacts through job losses for tourism and conservation. Areas like Boulders Beach in Simon's Town and Stony Point in Betty's Bay on the Cape coast will lose this iconic species that attracts many people to visit these areas, and Africa will lose the only endemic penguin species on the continent.

How you can support the African penguin and #NOOW – NotOnOurWatch

This collaborative campaign was launched on 1 March. We would love fellow WAZA members to join us:

Visit our website www.africanpenguinnotonourwatch.org Follow us on **Facebook** and **Instagram** and share our *#NOOW* campaign posts. Or even better – ask your Communication Team to follow us.

Share your organisation's love for penguins by sharing your photos and videos on social media using the hashtags *#AfricanPenguin #NOOW*.

Mobilise a *#NOOW* Penguin Event at your organisation to celebrate African penguin day in October.

Please contact Dr Judy Mann judy@aquariumfoundation.org.za if you would like to be involved in the *#NOOW* campaign. We would love to hear from you.

African Penguins © Steve Benjamin

Looking back at the WAZA Gharial Resolution

Ivan Rehak

EAZA Reptile TAG Chairman and Gharial ESB keeper, Prague Zoo

GEP researcher sits near a guardian male gharial, surrounded by hundreds of hatchlings. Chambal River, India. © Gharial Ecology Project

The WAZA Resolutions adopted at the Annual Conferences are essentially WAZA's manifesto. They are adopted with the aim of effectively supporting the solution of urgent and highly serious biodiversity conservation problems. What is their real response, influence, impact and contribution? Are they able to fulfill the declared ambitions?

At the annual meeting in Budapest in 2007, WAZA - in response to alarming reports from field specialists about the catastrophic decline of the gharial (also known as gavial or fish-eating crocodile) population in the wild and to the recommendations of the then IUCN SSC CBSG Gharial Conservation Working Group - adopted a Resolution on the Gharial Extinction Crisis to help avert the threat of the complete disappearance of this morphologically, evolutionarily and culturally unique crocodile. Let us look back at what this resolution has brought about in the past fifteen years.

The WAZA Gharial Resolution was adopted at a time when there was a widespread perception of gharials as a species whose existence was successfully guaranteed by the excellent results of the world-famous Government of India/UNDP/FAO Crocodile Conservation Project launched in mid-1970s, which was touted as one of the most successful species conservation projects ever conducted. Unfortunately, interest in the gharial's fate gradually faded over the following decades. Only a very narrow circle of dedicated specialists was aware that the situation had changed dramatically in the first decade of our millennium and that the forgotten gharial found itself on the very edge of its existence due to an incomplete conservation strategy and a complex of negative anthropogenic influences. They faced isolation, loneliness, indifference, and lack of resources.

The gharial is an EDGE species (Evolutionarily Distinct and Globally Endangered) and its protection should be a conservation priority that goes beyond the national borders of range countries.

An adopted resolution, urging its members, both associations and individual institutions, to support conservation efforts to ensure the future survival of gharial, changed that radically. This is expressed by the immediate reaction of one of the protagonists of efforts to save the gharial Rom Whitaker (Gharial Multi-Task Force) to the adoption of the resolution: "This has brought the whole issue of the threats to the gharial and what we are trying to do about it to a much large international audience. The world now knows that India and her neighbours have a huge responsibility to save the gharial (and the very rivers that they are found in) and that help in the form of funds and expertise is urgently needed." The urgency of the resolution was underscored soon after its adoption by reports of a sudden apocalyptic unprecedented mass die-off of the last gharials in their most important refuge on the Chambal River, raising fears of the worst-case scenario.

WAZA Gharial resolution was not ignored by its members and very soon a group of zoos was formed ready to support the conservation and research of gharials in the wild. It gradually found concrete expression mainly in the joint support of the Gharial Ecology Project, which was created in response to the mass die-off of gharials in the winter of 2007/2008, in order to obtain the missing information about the situation of gharials in nature. The GEP fulfilled this mission and fulfills it extremely successfully. It was possible to significantly refine the knowledge about the conservation status of gharials in the wild, to define the key elements of their conservation and to reveal valuable knowledge about their biology, including the fascinating complex social parental care of offspring. Zoos in cooperation with the GEP were also able to apply their educational experience in activities, aid work and cooperation with local communities, which was previously a fatally overlooked element of the complex conservation of gharials. The GEP, which exists and works consistently mainly thanks to the support of zoos, has also become an important bearer of know-how, which it makes available to other partners - for example, in the implementation of an ambitious programme to save the gharial in Nepal.

↑ Kids in riverside Barechha village (Chambal, India) indicate whether they know the difference between mugger and gharial. School outreach programs focused on providing information on river conservation and important river animals. © Gharial Ecology Project

The resolution not only fundamentally changed the awareness of the extinction crisis of gharials and initiated aid to conservation programmes to save them. Its implementation in the protection of gharials and its results also became used as a valuable learning and argumentative tool in the search for solutions to complex problems for gharial survival, such as the devastating mass mining of river sand, unscrupulous commercial fishing and problematic modifications of river flows.

The resolution also stimulated zoos' interest in establishing an insurance population of gharial under human care. Indian zoos included gharials in the "List of the identified endangered wild animal species to be taken up for the planned coordinated conservation breeding" at the International Conference on "India's Conservation Breeding Initiative" organised by the Central Zoo Authority in New Delhi in 2008. While the AZA kept a small number of gharials at the time of the resolution adoption and established a regional studbook for them (1st edition 2007), no gharials were kept within the EAZA at that time. Today, there are 25 of them in five EAZA zoos, and an EAZA regional studbook was also established for gharials (1st edition 2019). Currently, according to the new Regional Collection Plan for crocodiles in the EAZA, it is transformed into an EAZA *Ex situ* Programme. After all, international zoo cooperation in gharial breeding has its own fine tradition. In 1979, the Frankfurt Zoo sent a male (kept in Frankfurt since 1958) to colleagues in Hyderabad, India, who then became the father of the first ever gharials born in the zoo.

As the proposer of the then WAZA Gharial resolution and the initiator of the then Gharial Conservation Working Group, I can state with great satisfaction years later that the resolution played (and in its consequences continues to play) a significant role in the international effort to save gharials. Today the legacy of the Gharial resolution is alive, continuously developed and bringing important results to save the critically endangered gharial. However, this is due to the exemplary broad international collaboration in the spirit of the One Plan Approach. Contributing organisations included involved zoos, the Gharial Ecology Project, Madras Crocodile Bank Trust, Gharial Conservation Alliance (originally Gharial Multi-Task Force), IUCN SSC Conservation Planning Specialist Group (CPSG), Crocodile SG, AZA Crocodile TAG, EAZA Reptile TAG and other organisations and initiatives, as well as the necessary support from official authorities such as the Central Zoo Authority India.

Judging by the gharial case, we can conclude that the WAZA resolutions are not just a formal declaration, but significantly stimulate the allocation of attention and resources to the problem and perfectly fulfill their purpose and mission. In accordance with the organisation's previous motto: United for Conservation!

↑ Gharials have tweezer jaws well adapted to catching fish. Young gharial at Prague Zoo. © Prague Zoo/Tereza Mrhalkova

Gharials have a remarkable care for their offspring. A large male gharial with a massive ghara at the end of its snout provides protection to its young. Chambal River, India. © Gharial Ecology Project

Dublin Zoo's Conservation Master Plan

A journey to becoming a zoo-based conservation organisation

Dr Andrew Mooney

Conservation and Research Officer, Dublin Zoo

Western lowland gorillas at Dublin Zoo © Dublin Zoo ↑

Opened in 1831, Dublin Zoo has transformed into a world-class zoo, with substantial conservation impact through our breeding of threatened species, our support for conservation and research projects in the wild, and our conservation education and advocacy work. Simultaneously, we are one of the most-visited attractions in Ireland, welcoming over 1.25 million visitors annually. However, in response to the global biodiversity crisis, a paradigm shift is required to both meet the conservation needs of the 21st century and to achieve the ambitious goal, set out in our 10-year vision 'Dublin Zoo 200', of becoming a zoo-based conservation organisation of national and global significance by the time we celebrate our bicentennial in 2031.

This paradigm shift requires us to rethink what we do, and what we as a zoo can achieve. It has resulted in the creation of the first-ever Conservation Master Plan for Dublin Zoo, which aims to build on our conservation successes to date, and provides a clear roadmap to help us transition into a zoo-based conservation organisation. At its core are seven strategic areas of conservation where Dublin Zoo has the potential to increase our impact and achieve defined and measurable conservation outcomes. Each of these areas is underpinned by a set of clear actions, which will help us tackle the threats to biodiversity and support both national and international conservation initiatives, such as Ireland's National Biodiversity Action Plan, the UN Sustainable Development Goals and the post-2020 Global Biodiversity Framework of the Convention on Biological Diversity.

Developing this Conservation Master Plan was not undertaken lightly, and required extensive engagement with all departments within Dublin Zoo, ranging from Retail and Marketing, to Animal Care and Education. Over the course of a year, we took inspiration from other Conservation Master Plans (such as Bristol Zoo, Chester Zoo and Los Angeles Zoo) to create a plan that everyone could stand behind and engage with, integrating conservation action into every aspect of our daily operations. Understanding the Irish context, and our own conservation ambitions, were key to developing the strategic areas and actions outlined in the plan. Similarly, understanding where our strengths as a zoo already lie, and where we need to increase our efforts, also further guided the development of the plan. For example, as a zoo, it was clear that we have a taxonomic bias towards exotic mammals. To tackle this, our plan will see us widen the taxonomic scope of the animals in our care to include conservation-dependent species of amphibians, fish and invertebrates, as well as native Irish species, which will be able to contribute to reintroduction or head-starting projects in the wild.

Central to our Conservation Master Plan is the IUCN SSC CPSG's 'One Plan' approach, which will see us further integrate our expertise and skills in animal care, conservation breeding, visitor engagement and education, with conservation efforts in the wild, working with local communities to conserve wildlife and promote human-wildlife co-existence. For example, Dublin Zoo participates in the EAZA *Ex-situ* Programme (EEP) for the regionally extinct waldrapp ibis (*Geronticus eremita*), having successfully hatched ibis chicks many times. Historically ranging across the European Alps, Northern Africa, and the Middle East, only approximately 500 waldrapp ibis now survive in the wild in Morocco. As a champion for this species, last year Dublin Zoo began partnering with Proyecto Eremita, a joint collaboration between Zoobotánico Jerez and the Ministry of the Environment of the Junta de Andalucía, which is reintroducing birds from the EEP to try and establish a sedentary and self-sustaining population of waldrapp ibis across Southern Spain.

↑ Bornean orangutan at Dublin Zoo © Dublin Zoo

This project is a great example of bringing together *ex situ* partners, conservation practitioners, local politicians and researchers to restore a regionally extinct species, something which we can then share with our visitors. As part of our plan, we will work in closer collaboration with our local conservation partners (currently >25 partners across >20 countries), and utilise our technical skills and expertise, to co-design and lead *in situ* conservation projects. This will allow us to build on our existing, and successful, conservation partnerships and assume a proactive leadership role in the conservation of global wildlife.

With over 31,000 recorded species, Ireland has a rich biodiversity spanning terrestrial, freshwater and marine habitats. However, a significant proportion of our biodiversity is currently threatened with extinction, and 91% of our assessed habitats have an unfavourable conservation status (NPWS, 2019). As an Irish conservation stakeholder, Dublin Zoo is committed to protecting Irish wildlife, and we have already built lasting partnerships with several Irish conservation organisations, such as BirdWatch Ireland and the Irish Peatland Conservation Council. Over the lifetime of our plan, we will become a recognised leader in the conservation of native Irish species and their habitats.

Key to our success will be the creation of an IUCN National Centre for Species Survival at Dublin Zoo. This centre, due to open later this year, will give Dublin Zoo the capacity for species conservation assessment, conservation planning and action. Working with the IUCN SSC, various government departments and State bodies, and Irish universities and conservation groups, we will increase capacity at the national level for each of the three conservation cycle steps, uniting stakeholders to catalyse action and mobilising a national conservation network. This centre will also allow us to develop as a political advocate for our sector at a national, European, and global level, working to protect wildlife and ensuring that the value of *ex situ* conservation is understood and appreciated. Initial efforts in this area have been incredibly successful, working with Ireland's National Parks and Wildlife Service to support the development of Ireland's next National Biodiversity Action Plan, due to be published later this year.

We realise that our conservation potential extends far beyond conservation breeding and wildlife. In fact, our plan focuses as much on people as it does on animals, appreciating the role we all can play in protecting biodiversity. In reality, conservation is a people problem, and we have an obligation to make the conservation issues we highlight relevant to our staff's and visitors' lives, inspiring people to choose pro-environmental behaviours and to take direct and indirect action for wildlife and the natural world. Over the lifetime of our plan, we will run at least three dedicated social action campaigns, underpinned by behavioural theory, creating measurable behaviour change among our 1.25 million visitors annually. These campaigns will focus on issues in Ireland where our visitors can make a direct difference to conservation, allowing them to become advocates for the natural world. Similarly, greater emphasis will be placed on creating the next generation of conservation scientists, through the new Dublin Zoo Conservation Scholarship Programme, our enhanced internship programme, and by creating stronger academic links with local universities and research institutions.

The targets and actions set out in our Conservation Master Plan are both bold and ambitious; however, now is the time to take action and assume a leadership role in the conservation of wildlife, both in Ireland and around the world. However, this plan is not a static document, and will evolve and change as we begin transitioning into a zoo-based conservation organisation. We will review our progress annually and place a greater emphasis on transparency, accountability and reporting, allowing us to continually monitor the impact of our conservation actions towards their intended outcomes. In 2031, we will celebrate our bicentennial. When we look back on the 200-year history of Dublin Zoo, we want to be able to say we have done everything we can to conserve wildlife and empower people to take action. We can do more, and this Conservation Master Plan is our first step on that journey.

The President of Loro Parque, Wolfgang Kiessling receives recognition by the Canary Islands Government for achieving the negative carbon footprint. © LP

Loro Parque Recognised as the World's First Zoo to Achieve a Negative Carbon Footprint

Loro Parque

Loro Parque has become **the first zoo in the world to achieve a negative carbon footprint**. A distinction that the Government of the Canary Islands awarded the park in April 2023. This achievement is the result of an effort to implement working systems and waste management aimed at achieving optimal results in terms of CO_2 emissions and the use of energy-efficient equipment to reduce emissions.

This negative carbon footprint achieved by Loro Parque is mainly calculated through the computation of a series of values for consumption, but also through the measurement of waste generation. In order to measure this footprint, Loro Parque calculates the consumption of fuel, water and resources that translate into CO_2 emissions. To compensate for this possible carbon footprint Loro Parque uses several tools. They generate their own clean electricity through photovoltaic and wind power plants, at zero CO_2 cost. This means that they do not emit the CO_2 that would be generated using electricity from fossil fuels. The implementation of this highly energy-efficient equipment generates 20.8 MW of green energy.

This is a major milestone, not only for the company itself, but also for the zoological community and the fight against climate change. It is the culmination of decades of work by the Canary Islands-based zoo to achieve energy self-sustainability.

A global commitment to the planet

In addition to this approach to energy efficiency, Loro Parque demonstrates its commitment to the environment in many other ways. It has been developing strategies for years to eliminate the use of single-use plastics, alongside the introduction of a purchasing and procurement policy, which is based on the choice of Kilometre 0 products, with its own sustainable agricultural production, thanks to the ecological farms located next to the zoo. Compost is even made from the organic waste generated in the park, obtaining a 100% natural fertiliser for the crops.

The commitment to environmental quality is implemented at all levels of the organisation.

Working towards a circular economy, they have implemented ways of working in which suppliers who use plastic or aluminium cans must collect them to send them for recycling.

Loro Parque's sustainability model showcases an example of a modern zoo, with the definition of a modern zoo being those whose work goes far beyond teaching the population about the wonders of the animal world. The zoos that form part of this new approach are nowadays considered to be authentic nature preservation centres with the work and dedication of the best professionals in the care and handling of animals. But, most importantly, these new zoos are centres for biodiversity research, where they carry out in-depth work to protect wildlife, especially endangered species.

> **"Since our creation, we have developed a special sensitivity towards the care of our planet. The delicate situation suffered by animals in the wild as a result of human action has made us reaffirm the urgent need to get down to work to reverse all the damage we have done to the world,"**
>
> **Wolfgang Kiessling, President and Founder of Loro Parque**

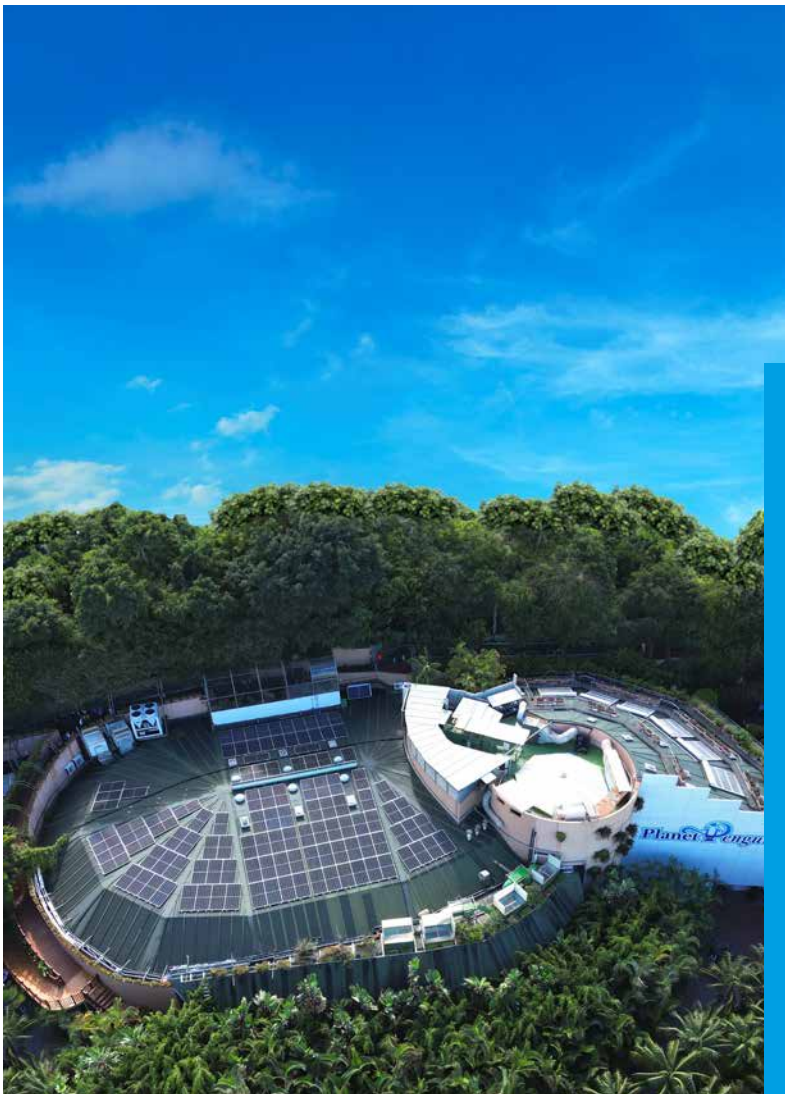

Solar Panels at Loro Parque © LP

525,000m³ of fresh water produced per year in its desalination plants.
The Poema del Mar aquarium, owned by the Loro Parque Group, is home to the world's largest curved window, and Siam Park, the incomparable water kingdom, are aligned with the company's philosophy, while also following Loro Parque's strategy in the aforementioned areas. Poema del Mar, Loro Parque and Siam Park have an advanced reverse osmosis plant that allows them to convert salt water from the ocean into drinking water for use in their facilities. The quality of the desalinated water is high enough to be used for animal and human consumption. An investment in environmental quality that allows the Loro Parque Group to produce more than 525,000 m³ of desalinated water per year (500,000m³/year with maintenance cuts), including the 625m³/day produced by Siam Park and Loro Parque and the 200m³/day produced by Poema del Mar.

Recognition in all areas
Loro Parque's extraordinary work in environmental matters has led it to receive numerous awards and distinctions. Loro Parque has held the European Certificate of Environmental Responsibility since 2005. This is in addition to the prestigious Biosphere Sustainable Lifestyle certification from the Institute for Responsible Tourism (ITR).

Furthermore, in terms of animal welfare, Loro Parque has the 'Humane Certified' certification from Global Humane, one of the largest certifiers of animal welfare practices in the world. For this and much more, Tripadvisor has named Loro Parque as the best zoo in the world on two occasions, thanks to the positive ratings of its visitors.

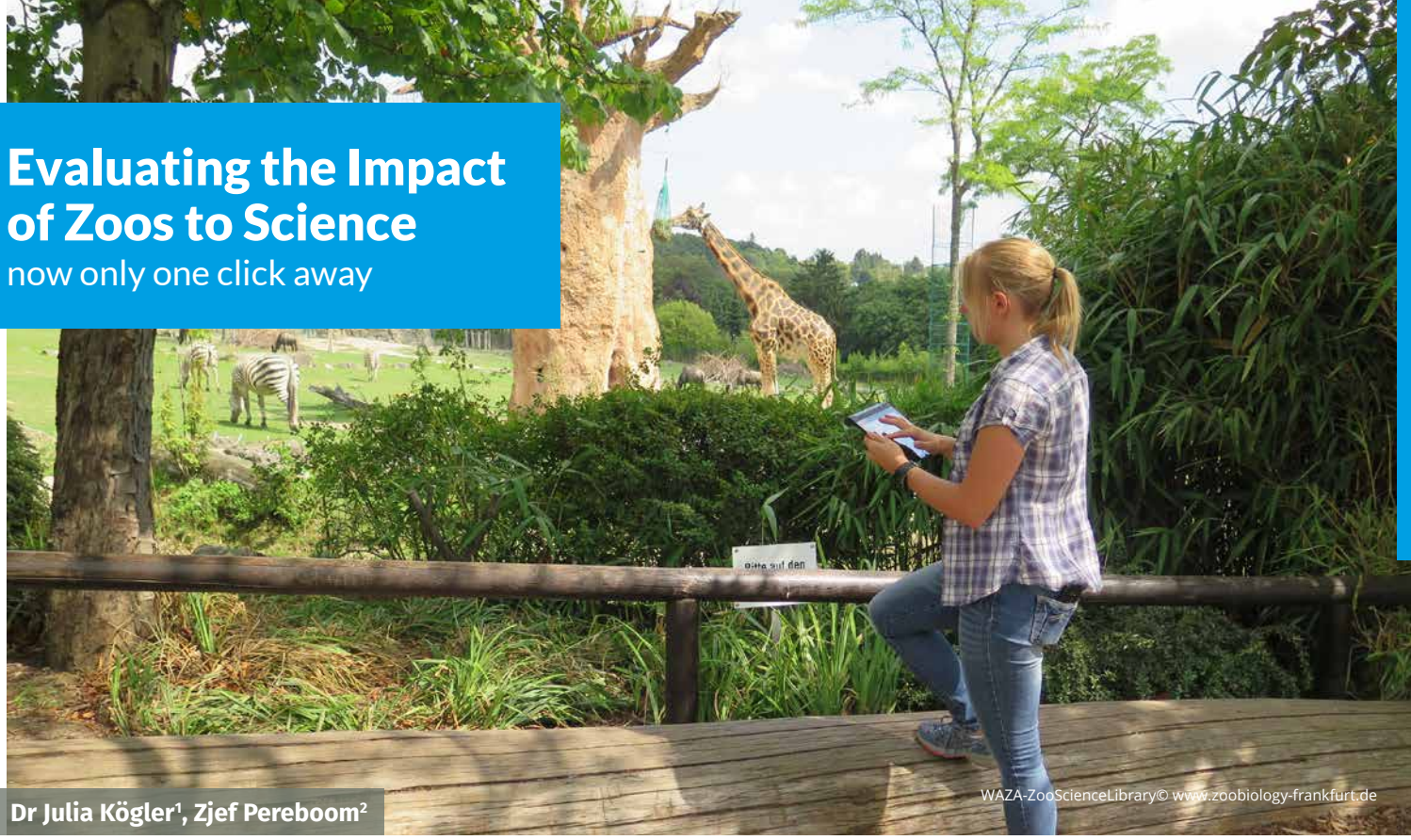
Loro Parque's example is ideal to show the world the work of modern zoos in the fight against climate change. Achievements such as this encourage the zoological community to follow the path of sustainability and environmental protection. All this, in a context where modern zoos are more necessary than ever given the grave situation facing the planet's ecosystems.



↑ Solar Panels on the roof of Planet Penguin at Loro Parque © Loro Parque

Evaluating the Impact of Zoos to Science

now only one click away



Dr Julia Kögler[1], Zjef Pereboom[2]

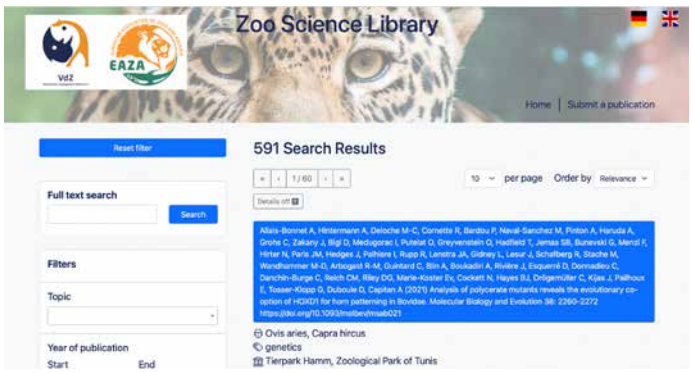
[1]Deputy CEO - Verband der Zoologischen Gärten (VdZ - Association of Zoological Gardens), [2]Research Manager - Antwerp Zoo Centre for Research and Conservation and Chair of the EAZA Research Committee

The Verband der Zoologischen Gärten (VdZ, Association of Zoological Gardens) and the European Association of Zoos and Aquaria (EAZA) celebrated this year's World Wildlife Day on 3 March by launching the Zoo Science Library. The new website enables users to easily find publications from international peer-reviewed journals to which zoos and aquariums contributed.

Research is one of the pillars of zoos and aquariums, along with conservation, education and public engagement. Accordingly, the call for scientific research and publication of results is firmly embedded in the EAZA Research Strategy and the WAZA Conservation Strategy. Both strategies point out that, over the past decades, zoological institutions have generated vast amounts of scientific data and made meaningful contributions to the knowledge of species, including husbandry, reproduction, life history, genetics, behaviour, cognition, veterinary medicine, breeding of small wildlife populations, education, social science and many more. Therefore, zoos and aquariums involved in scientific studies can proudly claim to contribute to fundamental research as well as to research that can be applied in practice and that supports science-based decision making. As authors, co-authors or by granting access for external research teams to animals, data or biological samples deriving from their respective *ex situ* animal collections, zoos and aquariums have made significant contributions to science over time.

Members of the zoo community are inherently aware of their value and the value of the animals in their care to the global science community. However, evaluating and making the quantitative contribution of zoos and aquariums to science transparent and visible to the public has been difficult so far (Loh et al. 2018, Conde et al. 2019, Hvilsom et al. 2020, Kögler et al. 2020). Hence, a team deriving of staff from VdZ and EAZA built a new website, the Zoo Science Library. It lists publications from the international, peer-reviewed literature in which modern zoos and aquariums were involved. The website is accessible to the public, with user-friendly search options to locate relevant publications. Hyperlinks lead to the papers that are available online as abstracts or full texts. Furthermore, filters allow users to sort publications by overall numbers, countries, contributing institutions, year of publication and key words such as topic or species. Search results can be downloaded and exported for further analytics or use.

The databank is under permanent development and does not claim to be exhaustive. Currently, it contains around 600 publications from the years 2020 and 2021. New papers will be added regularly and historic records will be included over time – depending on staff resources. The Zoo Science Library is also open to publications from outside EAZA and VdZ membership. The website has an upload option so that scientists can easily contact VdZ and EAZA and suggest peer-reviewed publications which are not yet included in the databank.



↑ EAZA ZooScienceLibrary © Zoo Leipzig

With this new online tool, we hope to achieve several goals. Most importantly, to make the contribution of zoos and aquariums to science visible, public and transparent in one click. Communicating about the existence of the Zoo Science Library to a wide audience will hopefully help us to convince politicians, media, the public, critics and further scientists of the importance of progressive zoos and aquariums as valuable contributors to science and as global research partners. Furthermore, none of the studies could have been carried out if it wasn't for the existence of the animals in our care and their valuable use for research. This forms yet another strong argument of why we keep animals in addition to conservation and education purposes. The Zoo Science Library can help to make this clearer to society, politicians and decision makers.

Last but not least, the Zoo Science Library will help you as a member of the global zoo community to implement global and regional biodiversity conservation strategies and to fulfil relevant legal regulations. For example the 'EU Council Directive 1999/22/EC of 29 March 1999 relating to the keeping of wild animals in zoos' calls upon European zoos and aquariums to participate in research and to exchange scientific information. Under this rationale, we cordially invite you to make use of, and contribute to the Zoo Science Library!

The Zoo Science Library is available at: www.zoosciencelibrary.org

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Honouring the Protectors of Wildlife on our Planet

And the winner is… all of us!

Judy Palermo

APR, Director of Public Relations, Indianapolis Zoo

2023 Indianapolis Prize winner, Dr Pablo Borboroglu

For nearly 20 years, the Indianapolis Prize, the world's leading award for animal conservation has reached a global audience with the stories of hope, inspiration, and dedication turning attention to the planets most successful protectors of wildlife. The conservation champions honoured with the Indianapolis Prize have saved lemur species in Madagascar, polar bears in Manitoba, elephants in Africa, sea horses in our oceans, and many more species on the brink of extinction.

It is with great pleasure that this year's Prize introduces the WAZA readers to another champion for our planet. The 2023 Indianapolis Prize winner is Dr Pablo Borboroglu, an internationally recognised expert on penguin ecology and land and sea conservation. Dr Borboroglu, known as Popi, has spent more than three decades studying penguins and leading conservation efforts across four continents. In 2009, he founded and currently serves as the president of the Global Penguin Society, which has protected 32 million acres of penguin marine and terrestrial habitat. Through gaining an understanding of breeding, feeding and migration, his team can better understand the habitat needs of the species, which leads to improved protection of penguin populations.

> **"Dr Pablo Borboroglu is responsible for major achievements in understanding penguin behaviour and ecology. He has preserved millions of acres of critical penguin habitat, which is an astonishing achievement. He is a powerful, optimistic and expert voice for animal conservation and is extremely deserving of this year's Indianapolis Prize,"**
>
> **Dr Rob Shumaker, President and CEO of the Indianapolis Zoological Society, Inc.**

Borboroglu is the co-founder and co-chair of the International Union for Conservation of Nature's Penguin Specialist Group, which helps to assess the conservation status and advance international penguin conservation action. He has been instrumental in creating protected wildlife areas in Argentina and implementing conservation strategies in several countries. In the same year that he founded the Global Penguin Society, he discovered only six breeding pairs of penguins at the El Pedral colony on the eastern coast of Argentina. After successfully designating that area as a wildlife refuge and reducing human impacts, the area is now home to 4,000 pairs.

"I am incredibly humbled and grateful to be named the 2023 Indianapolis Prize Winner. This prestigious award will be instrumental in supporting efforts to protect penguins and their habitat," said Dr Pablo Borboroglu, president of the Global Penguin Society. "Needing both land and sea, penguins face unprecedented threats requiring large-scale change. Through this award, we hope to inspire and encourage people around the world to take decisive action in safeguarding the environment. It is only through our collective efforts that we can ensure our environment and its wildlife are able to thrive."

Borboroglu also led efforts to create 'Blue Patagonia' – a UNESCO Biosphere Reserve – which protects 40% of the global population of Magellanic penguins and the most biodiverse area of Argentina. Home to 67 species of animals, more than 120 species of birds and nearly 200 species of marine invertebrates, this is Argentina's largest UNESCO Biosphere Reserve, encompassing 200 miles of coastline and 7.6 million acres of land and ocean. In total, Borboroglu has coordinated the development of management plans for eight protected areas since 1998 in Chile and Argentina. In the creation of these plans, he focuses not only on penguins, but also on supporting local communities. Protected areas are drivers of ecotourism and sustainable development, resulting in job creation.

Borboroglu is also dedicated to educating the next generation. His Global Penguin Society education programme has reached more than 200,000 students and community members across Latin American nations. Efforts have included leading field visits for 7,000 students who live near penguin colonies as well as the creation of free books and educational material in both English and Spanish.

"Pablo's commitment and dedication to protecting penguins is unwavering," said Edward Whitley Founder of the Whitley Fund for Nature. "His decades of perseverance, research and leadership are profoundly inspiring to us all."

Borboroglu studied biological sciences at the National University of Patagonia and received his Ph.D. in biology from the National University of Comahue in Argentina. He is a researcher at Argentina's National Research Council (CONICET) and an affiliate professor at the University of Washington.

Borboroglu is the ninth winner of the Indianapolis Prize and the first from South America. Founded in 2006, the Indianapolis Prize recognises and rewards conservationists who have made significant progress in saving an animal species, or multiple species, from extinction. Winners receive an unrestricted USD250,000 – the largest individual monetary award in the world that supports conservationists. Borboroglu, five 2023 Indianapolis Prize finalists and the inaugural Emerging Conservationist Award winner will be celebrated at the Indianapolis Prize gala presented by Cummins on 30 September, 2023. The five finalists will each receive a USD50,000 award to further their work.

Newly introduced this year, the Indianapolis Prize created the Emerging Conservation Award. The biennial award recognises and supports conservationists under 40 years of age with the talent and drive to make a significant impact on saving an animal species or group of species.

The inaugural winner of the award is Peruvian primatologist and anthropologist Fanny M. Cornejo

Over the past 15 years, Cornejo has devoted her professional life to primate conservation and research. She leads Yunkawasi, a conservation organisation she founded with her mother, the late Fanny Fernández Melo. Yunkawasi works with Amazonian and Andean communities for the conservation of threatened species through sustainable economic development, education and a protected area management approach.

"Fanny is leading the next generation of conservationists to protect nature and inspire people to care for our world. The depth of accomplishments set her apart from the other nominees. I can't wait to see the impact of her career in conservation," said Shumaker.

The Emerging Conservationist Award is supported by the Kobe Foundation and as Winner, Cornejo will receive a $50,000 award to continue with the Yunkawasi conservation work for endangered species through engaging participation from more than 20 rural and indigenous communities to sustainably manage territories and create protected areas. To date, more than 15,000 people have been reached through Cornejo's conservation education programmes focused on Peruvian endangered wildlife.

She has also authored more than 100 scientific articles and congressional presentations.

"I am very honoured and grateful for this recognition that is not only for me, but also for my entire team, the people we work with, our partners in local communities, governments and our donors. Undoubtedly, being the first winner of the Emerging Conservationist Award and from an organisation as important as the Indianapolis Prize is a great recognition for our work in Peru," said Fanny Cornejo, Winner of the Indianapolis Prize's inaugural Emerging Conservationist Award.

Cornejo will be formally recognised as the 2023 Emerging Conservationist at the Indianapolis Prize Gala in September.

The Indianapolis Prize also honours a person or celebrity who has utilised their voice, status and efforts to advance animal conservation with the Jane Alexander Global Wildlife Ambassador Award. Past winners include Jane Alexander, Harrison Ford, Sigourney Weaver and His Serene Highness Prince Albert II of Monaco. The 2023 winner will be announced in July.

For more information, go to IndianapolisPrize.org.

↑ Fanny M.Cornejo © GersonFerrer-Yunkawasi

↑ Magellanic penguin © Global Penguin Society

King penguin © Global Penguin Society

School students track box turtles in Forest Park, experience ecology first-hand, and learn basic field skills.

Forest Park Living Lab

Wildlife Conservation, Research, and Outreach in the Heart of St. Louis

Dr Stella Uiterwaal

Biodiversity Postdoctoral Fellow, Living Earth Collaborative, Washington University in St. Louis

The proportion of the global population living in cities has been steadily rising for decades and with it, sprawling urban landscapes (Zhang, 2016). In this time of increasing urbanisation, climate change, and a related biodiversity crisis, there is an ever more urgent need to understand the role of cities in the conservation of global biodiversity. By connecting urban ecology, animal movement, and conservation medicine, the Forest Park Living Lab (forestparklivinglab.org) is doing just that.

The project, based in St. Louis, Missouri, USA, was born out of the St. Louis Box Turtle Project from the Saint Louis Zoo, Saint Louis University, Tyson Research Center at Washington University in St. Louis (WUSTL), and Forest Park Forever, a nonprofit conservancy that partners with the City of St. Louis to restore, maintain and sustain Forest Park. For over a decade, this project has been studying box turtle health and ecology in Forest Park, an incredible urban park in the heart of St. Louis. Since then, the Forest Park Living Lab has expanded tremendously as the research team grew to include biologists from the National Great Rivers Research and Education Center (NGRREC), the World Bird Sanctuary, and WUSTL's Living Earth Collaborative. The taxonomic focus has grown too.

Study animals in Forest Park now include an ecologically diverse set of native species, including snapping turtles, mallards, raccoons, owls, coyotes, and more. As one of the six partner institutions of the Forest Park Living Lab, the Saint Louis Zoo – located within Forest Park itself – has been able to share staff expertise in conservation medicine to enhance urban wildlife conservation and health, human connection to nature, and environmental stewardship: all of which fit into the Zoo's mission.

Studying the movement patterns of diverse species is a major theme of the project, which helps to better understand how city living impacts urban wildlife. Wildlife in Forest Park are fitted with GPS trackers suited to the individual species. Lightweight tags are attached to turtles' shells with non-toxic glues, fitted onto collars for mammals, and attached via 'backpacks' to birds. The resulting movement data are invaluable, providing glimpses into the everyday lives of St. Louis' non-human residents. In one especially charming example, the data from a tagged raccoon shows that he frequently visits a dumpster outside of the park, using a culvert tunnel to safely travel under the otherwise impassable interstate highway that defines Forest Park's southern border.

But individual species do not live in a vacuum: they affect and are affected by other species. For example, predators may seek out areas with dense prey populations or fewer competitors (Schmitz et al., 2017). How these processes play out to affect patterns of biodiversity likely looks very different in a place like Forest Park, where busy streets criss-cross restored patches of native plants, compared to non-urban or non-restored areas. In studying the movement of an entire local community of urban wildlife, the Forest Park Living Lab provides a one-of-a-kind perspective on how city life and ecological relationships shape animal movement.

Integrated with the Forest Park Living Lab's movement data is a unique look at the health of urban wildlife. As part of the study, animals receive full physical examinations, including health assessments and tests for toxins and diseases. As the Covid-19 pandemic has shown us, wildlife health is inextricably linked with human and environmental health (Deem and Brenn-White, 2020). In the city, studying wildlife health helps us understand the prevalence of zoonotic diseases like Highly Pathogenic Avian Influenza or the poisoning of non-target wildlife via pest control efforts like rodenticide use. Forest Park Living Lab's wildlife health data provide a much-needed integrative look at the wellbeing of urban animal communities.

Dozens of students, many from local St. Louis universities, are involved with the study. They are getting their hands dirty in the park tracking animals and conducting surveys. It is a unique opportunity for undergraduate students to get a taste of the life of a scientist as they are involved throughout the research process, from conception to field work to analysis. The students also create outreach activities, teaching St. Louis public school students and Children's Hospital patients about wildlife and providing opportunities for underrepresented groups in STEM to explore the biology of their local park.

Engagement with the public is crucial to the success of the project. In its second consecutive year as the United States' greatest urban park and with over 15 million visitors per year (Jansky, 2023), Forest Park is the perfect site for such an ambitious study. Public enthusiasm has been tremendous, with particular excitement for 'Astrid' the Great Horned Owl, the first GPS-tracked bird in the study. The public also supports the project by documenting biodiversity, such as by submitting species observations in the park to platforms like iNaturalist and eBird.

Urban parks are truly a gem – a taste of the wild in an otherwise concrete jungle. Through studies like the Forest Park Living Lab, we discover how urban wildlife use these parks, determine how city living impacts animal wellbeing, and share the wonder of natural spaces with diverse people. In our changing world, urban greenspaces are becoming increasingly important to conservation efforts and, as perhaps the most important outcome of studies like this, we must learn how best to protect these places for animals and humans alike.

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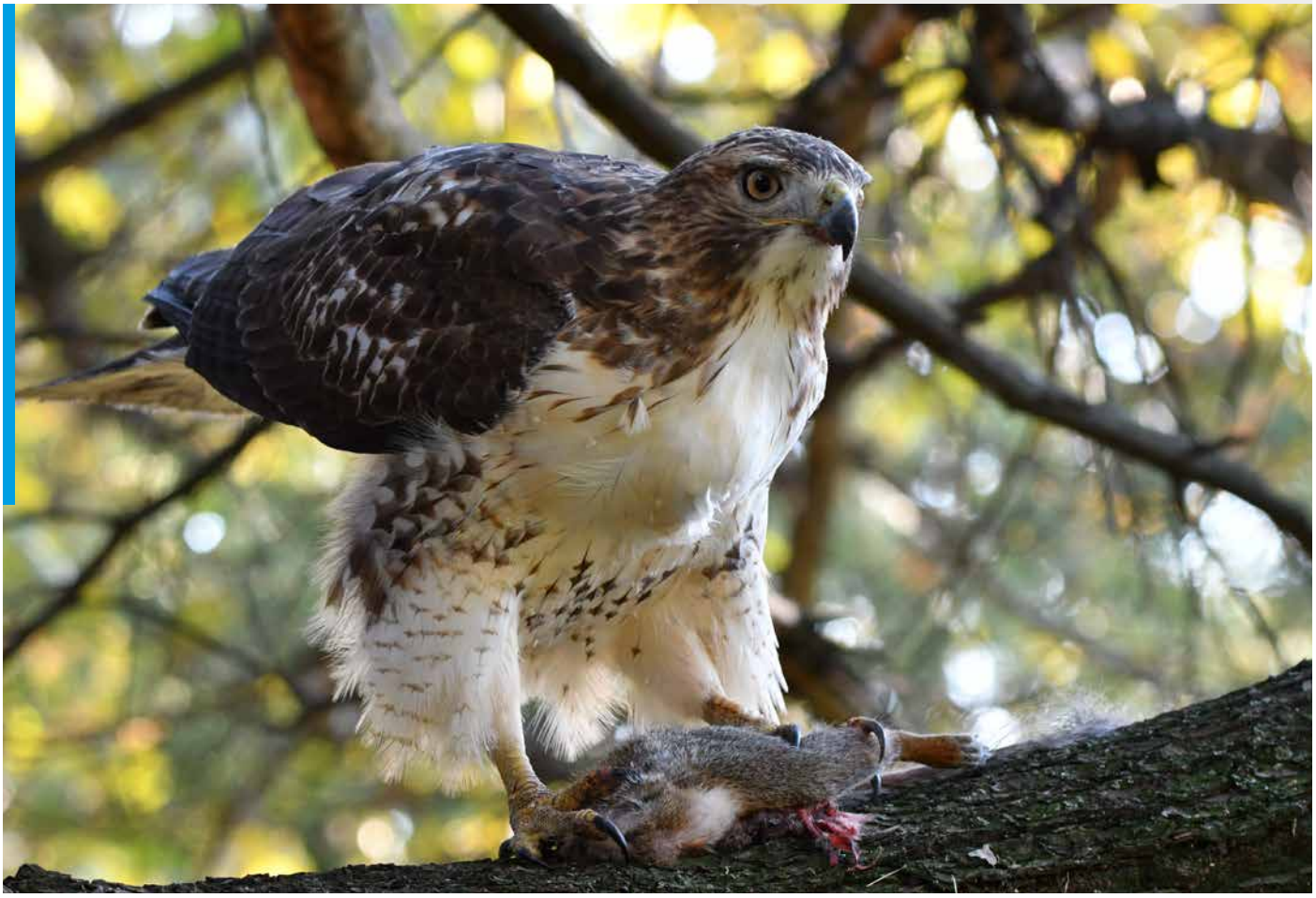

↑ The movement patterns of predators and prey play an important role in the species interactions that structure ecological communities. Here, a Red-tailed Hawk in Forest Park eats a squirrel. © AlpenZoo

Zoo Species of the Year 2023: *The macaw*

Viktoria Michel

Project Coordinator- Naturschutz-Tierpark Görlitz

ARALANDIA macaw dating Center at Wuppertal Zoo © C. Philipp

The Zoological Society for Conservation of Species and Populations (ZGAP) and its partners, the German Association of Zoological Gardens (VdZ), the German Zoo Society (DTG) and the Community of Zoo Supporters (GdZ) decided that the species in focus for this year's 'Species of the Year' campaign are endangered macaws.

In the past decades, different macaw species have experienced a significant decrease in their population due to habitat loss, poaching (including killing as pests) and a variety of other anthropogenic threats. Besides deforestation, selective logging has reduced food availability and nesting habitats. In many of the remaining forests, large, valuable trees have been logged for timber. As a result, fewer large trees that play a key role in the species' diet remain and suitable tree cavities for nesting have become increasingly scarce.

The campaign places macaws into the spotlight for one year. To launch the macaw as 'Species of the Year', a press conference was held in 'Aralandia', the famous free-flight aviary at Wuppertal Zoo. The event generated a wide reach of media and the macaw was used to demonstrate the commitment of zoos to species conservation, both *in situ* and *ex situ*.

Using the example of the macaw as their ambassador species, zoological gardens and zoo supporter associations have the opportunity to provide information about the threats and conservation needs of the different macaw species and to encourage donations specifically for macaw conservation projects in their habitats.

The focus of the campaign in 2023 is on the following macaw species:

Saving the red-fronted macaw palm breeding population in Bolivia Partner: Armonía

The Bolivian endemic red-fronted macaw (*Ara rubrogenys*) with less than 1,200 individuals left in the wild is Critically Endangered. Their numbers have plummeted due to the illegal pet trade and the increasing destruction of their foraging habitat. As the red-fronted macaw is known to breed in cavities within steep isolated rock cliffs, their breeding sites have lower risks of habitat destruction. However, this is not the case for the recently discovered palm breeding red-fronted macaw population that is found within El Palmar National Park. In this park, red-fronted macaws are using the endemic and highly threatened Pasoyapa palm for nesting cavities. The palm is only found in the dry Andean valleys of Bolivia. Even within the National Park boundaries, the palm habitat is being destroyed at a rapid rate due to the burning of forests for agricultural expansion. As all known breeding sites are within El Palmar Park, it is crucial to implement strong measures that will protect both the endemic palm and macaw from extinction. To increase the overall population size of these threatened species, Armonía aims to focus its conservation efforts on directly protecting important breeding sites and increasing nest availability via nest boxes.

Furthermore, environmental education has been implemented with local Quechua communities and the nesting sites are protected by rangers.

To increase the numbers of the red-fronted macaws and to bring the population out of a highly vulnerable state, Armonía has secured a long-term presence within El Palmar National Park.

Protecting great green and military macaws in Ecuador
Partner: Fundación Jocotoco

The great green macaw (*Ara ambiguus*) is Critically Endangered , due to extremely rapid and ongoing population declines. Worldwide, only 500-1,000 individuals remain. In Ecuador, less than 70 remain in two disjunct populations (Birdlife 2022). Deforestation has strongly reduced the distribution of great green macaws over the past decades. The most recent national survey of macaws only yielded records in two sites, the reserves Canandé and Las Balsas, managed by Jocotoco. Canandé holds the largest flock ever reported in Ecuador with 24 individuals. Due to habitat loss and a strong gradient in rainfall, both populations are isolated from each other (Birdlife, 2022). The subspecies *Ara ambiguus guayaquilensis* is endemic to Ecuador and restricted to the dry forests. It is very close to extinction with less than 25 individuals remaining.

The military macaw (*Ara militaris*) has a wide distribution range, from Mexico to northern Argentina. Internationally listed as vulnerable, this species is classified as endangered in Ecuador. Similar to the great green macaw, the military macaw is in decline with habitat loss as one of the main drivers.

The overall goal is to safeguard and increase the populations of both macaw species: the great green macaw population at the Canandé Reserve, the last remaining nests of the population of the subspecies *A. ambiguus guayaquilensis* that persist at Las Balsas Reserve, and of the vulnerable military macaw population at the Narupa Reserve. The project hopes to achieve these aims by improving protection through patrolling, by erecting nest boxes for the macaws and by acquiring land to halt deforestation in the Choco region.

Conservation Programme for the blue-throated macaw in Bolivia
Partner: Loro Parque Fundación Bolivia, Aves Bolivianas

Blue-throated macaws (*Ara glaucogularis*) are a Critically Endangered species and endemic to northeastern Bolivia, where they depend on the forest islands of motacú palms. In order to secure their habitat, the remaining forest islands are consistently protected from being destroyed by cattle. In addition, the illegal trade of the birds and their products has been reduced.

To provide further habitats for the blue-throated macaws, their needs are examined and research is conducted into which animal and plant species they live alongside. In addition, environmental education activities and dialogues with local communities are strengthened in order to reconcile cultural traditions with parrot conservation.

Funding from the campaign will provide the project team with important equipment such as laptops, hard drives, meteorological stations, binoculars, spotting scopes, GPS devices and drones. Moreover, further nesting boxes are offered to the macaws to increase the reproduction rate.

Ex situ conservation work in Zoological Gardens

In 2020, the 1,234 m² 'Aralandia' aviary in the Wuppertal Green Zoo was completed ('Ara' is the German translation for macaw). Efforts to preserve biodiversity and endangered habitats are among the most important tasks of modern zoological gardens. Designed as a conservation facility, Aralandia aims to improve the zoo community's hitherto inadequate efforts to maintain a stable reserve population of endangered macaws in captivity and to strengthen the existing European *Ex situ* Programme (EEP). A key component to successful reproduction in parrots is the voluntary selection of an appropriate breeding partner. As a kind of dating platform, Aralandia allows macaws to form harmonious pairs independently, which promises successful breeding. Young hyacinth macaws (*Anodorhynchus hyacinthinus*) are currently being transferred from various zoos to Wuppertal. As soon as a pair has formed, it is given to a zoo with suitable breeding facilities as part of the EEP.

As important management tools the macaws were equipped with specifically developed radio-collars and a sophisticated location system was installed in order to allow the localisation of individuals and the identification of naturally formed couples. This management system is a unique way of managing social birds in a dating aviary and allows for the trial and evaluation of radio collars in macaws in a captive environment. These *ex situ* experiences may be transferred to future *in situ* projects focusing on the ecology and behaviour of birds in their natural environment by using tracking devices and bio-loggers.

↑ Blue throated macaws in Bolivia © Loro Parque Fundación

Conservation Education of the Future: From ideas to measurable outcomes

2023 EAZA Education Conference hosted by Wroclaw Zoo

Antonieta Costa[1], Laura Myers[2]

EAZA Education Conference © Wroclaw Zoo and EAZA

[1]Lisbon ZOO Chair, EAZA Conservation Education Committee, [2]EAZA Conservation Education Committee Liaison

The EAZA biannual education conferences are always an opportunity, not only to share experiences, but also to gather colleagues and friends to work together. The 2023 edition of the EAZA Education Conference was hosted by Wroclaw Zoo in Poland from 13 to 17 March. This was the first opportunity for educators from across Europe, Western Asia and beyond to meet in person since 2019, and a very welcome opportunity to reconnect with old friends and make new connections to build a realistic vision and plan for our future.

Approximately 155 delegates joined from 32 countries across the EAZA region with a few global representatives participating too. More than half of the delegates were first time attendees, perhaps reflecting the substantial changes and staff turnover that occurred in many teams as a result of the Covid-19 pandemic, but there was also a small group of veterans who have attended at least six previous conferences. Although the conference was not a fully hybrid event, presentation sessions were live streamed through EAZA social media and attracted several hundred views throughout the duration of the conference.

The conference was preceded by an EAZA Academy workshop on the topic of Exploring Digital Tools for Educators, led by Lizzie Seymour and Beccy Angus from the Royal Zoological Society of Scotland. The workshop saw 35 participants partaking in hands-on exploration of different educational tools, ranging from collaborative whiteboards to augmented and virtual reality tools, and also discussing how those different tools could be practically applied in their work to engage with a range of different audiences.

The theme of the conference '**Conservation Education of the Future: From ideas to measurable outcomes**' was chosen to encourage participants to think more about how we can harness the creativity, innovation and passion displayed by so many educators and marry that with the tools and frameworks we have available to support and guide our work (such as the EAZA Conservation Education Standards, the World Zoo and Aquarium Conservation Education Strategy, and the UN Sustainable Development Goals).

The importance of evidence-based approaches is increasingly important, not only because it is essential for us as educators to continuously improve our own work, but also in our current context where zoos and aquariums are increasingly called upon to concretely demonstrate their contribution to biodiversity conservation. This theme also matched the spirit of the EAZA 21+ Campaign, an internal campaign that focuses on the role that EAZA and its members can play in the implementation of the post-2020 Global Biodiversity Framework of the Conventionon Biological Diversity.

The keynote speech was delivered by the President of the International Zoo Educators Association (IZE) Dr Judy Mann, Executive – Strategic Projects with the Two Oceans Aquarium Education Foundation in Cape Town, who gave a talk titled '**Effective Communication for Conservation Action – from Strategy to Impact**'. Dr Judy Mann, in this inspirational talk, shared with the audience the most important lessons learned, tips for impact and a call to.

The main theme also included several sub-themes, such as Breaking Boundaries in Conservation Education, Cooperation in Conservation Education and Conservation Education Campaigns which were used to create thematic presentation sessions for the conference programme. These thematic sessions incorporated a wide range of topics and presenters, showcasing good practice and creative ideas.

We highlight Tania Kahlon's, WAZA's Communications Coordinator, presentation about the 'Reverse the Red Day: A Campaign with Global Engagement' that discussed opportunities to galvanise a variety of audiences, create a truly global movement, and inspire behaviour change as Reverse the Red's campaign continues throughout 2023.

↑ Group photo at EAZA Education Conference © Wroclaw Zoo and EAZA

When building the conference programme, the organising committee wanted to allow plenty of space for discussion as well as sharing examples of good practice and lessons learned through presentation sessions. To facilitate this, the programme included two plenary workshops where participants gathered in regional groups to define what education looks like now, the changes we would like to be implemented by 2030, and the steps we need to take to get there. The top five themes emerging from the discussions were: engaging different audiences, the perception and influence of education and educators, networking and collaboration between educators, resource availability and engagement with conservation activities. Delegates discussed areas where it would be beneficial to change the current approach. Indeed, many of the discussions in the workshops centered around this topic. Also, to intensify and maintain our current collaborative approach of networking, perception and influence and engaging different audiences. It was also suggested to initiate new work on engagement in conservation. The workshop outputs were summarised during the conference and will be used by the EAZA Conservation Education Committee to shape their future work.

The programme also included some semi-structured discussion panels where panellists and audience members shared their opinions and ideas on different topics. A returning feature from previous conferences was an Open Space session where all delegates had the option to propose and lead a discussion around a topic of their choice. Discussion topics ranged from the power of play to developing ocean literacy. After the formal sessions of the conference were completed, the final half day consisted of informal sessions where small groups of participants gathered to discuss ideas and engage in some fun activities – topics included the use of signage in zoos and aquariums, planning for the next EAZA Conservation Campaign, and playing the EAZA 21+ game 'Walk a mile in my shoes'.

Of course, the conference wasn't all focused on presentations and panels, with planned social events like the karaoke icebreaker session, an unexpectedly snowy zoo visit, and a beautiful gala dinner including a very special song prepared by the German speaking contingent. Delegates also made full use of breaks to explore all parts of the zoo, and spent free evenings exploring the city of Wroclaw with friends old and new.

The conference was also bookended by meetings of the EAZA Conservation Education Committee, where committee members discussed progress with their strategic actions, and the impact that the conference workshops will have on planning future activities. This in-person conference celebrated our successes, explored the different journeys we are on, and built consensus about where we are heading. Our ability to inspire people to act in favour of biodiversity for the next several decades depends on how we create the future learning.

↑ EAZA Education Conference © Wroclaw Zoo and EAZA

PKHS, an Association in the Heart of the Forest

Tatiana Beuchat

In situ Conservation Officer, Bioparc - Zoo de Doué-la-Fontaine

Teacher and students © PKHS

The Bioparc of Doué-la-Fontaine acts throughout the world by supporting actions in the field called "Nature Projects". These projects are dedicated to the preservation of wildlife and threatened ecosystems. To guarantee their success and ensure their long-term survival, they take into account the interests of the human communities in the areas concerned thanks to sustainable solutions that promote development.

Since the early 2000s Bioparc has supported the Indonesian association Program Konservasi Harimau Sumatera (PKHS), whose *raison d'etre* is to fight for the preservation of the Sumatran tiger, a species which has been present in the Bioparc Zoo de Doué-la-Fontaine since 1983. PKHS operates in the Way Kambas and Bukit Tiga Puluh National Parks, which are the territory of the Sumatran tigers. Bioparc provide €5,000 to 6,000 per year to the association, and from 2023 the Bioparc and its fund, Bioparc Conservation will become the main financial support mechanism of PKHS. They will provide €30,000 to 40,000 per year to PKHS!

According to the latest estimates, the Sumatran tiger population is estimated at less than 400 individuals in the wild, in a territory that is constantly shrinking and occupies barely 10% of the island. However, the work of PKHS, in collaboration with the government authorities, seems to have halted the decline in numbers.

PKHS is active on several fronts, including:

- Conflict resolution (which is required due to the close proximity of humans and tigers).
- Supporting local development.
- Raising awareness of tiger protection.
- Safeguarding forests to ensure a natural habitat for the animal.
- Fighting against poaching.
- Conducting census documentation.
- Studying their behaviour.

PKHS works in collaboration with two National Parks: Way Kambas (WKNP) and Bukit Tiga Puluh (BTNP) under a memorandum of understanding.

What are they doing for Sumatran tigers?
In BTNP, the PKHS team has four different missions:

1. Survey, patrol and monitor the tiger population, prey animals and their habits.
2. Provide education (elementary school level) for children in the heart of the BTNP forest.
3. Train the PKHS and BTNP Patrol Teams on Patrol Techniques and Snare Sweep.
4. Support the conservation campaign activities for the community led by the BTNP officer through a running competition, "THE GRANIT MARATHON 10K".

In WKNP, they also study the wildlife and environment, and train on patrol techniques, but they have three additional missions:

1. Monitor wildlife in the sampling plot of grazing area of animal prey in Kali Biru swamp.
2. Facilitate students' research master degrees.
3. Provide guidance to undergraduate students who are doing conservation practical work in the WKNP.

↑ Teacher helps students cross the river (back from school) © PKHS

How education can protect the Sumatran tiger, the Sadan example.
The inland community of BTNP is a marginal community group that lives traditionally and most of them still rely on forest resources to fulfil their daily needs such as fruit (durian, petai, jernang), rattan and rubber. In the field of education, they are also lagging behind. The majority of rural people are illiterate. Typically, only children under 20 years old are able to write, read and count.

Educational activities for tribal children have been initiated since January 2004 in BTNP, first in Datai Hamlet, and in May 2007 in Sadan Hamlet. The PKHS Study Center is in Sadan hamlet which is located in the middle of the Bukit Tiga Puluh National Park area. This school is a place for children in the interior of BTNP from four hamlets (Suwit, Sadan, Air Bomban and Tanjung Lintang) and was established to provide the same level of access to basic knowledge as children who are located outside of the forest area.

It is vital to help improve people's lives in this region by providing access to education and health care and to improve the economy. If dependence on nature decreases, their activities will decrease in harvesting the forest resources of BTNP.

Besides managing the school in Sadan hamlet, PKHS also helps to manage the Marginal Private Elementary School in Datai hamlet. This school was originally built and managed by PKHS, and then continued to be managed by the Education Office who built a new, more appropriate building. PKHS participates in the management of this school by providing their own teaching staff. This is done because the teachers provided by the education office are very inactive in teaching (often not attending) so that schools are unable to carry out learning activities.

PKHS also focuses on managing the Sadan school, while schools in Datai are managed directly by the Education Office. The management activities of the Sadan school were carried out by the Yayasan Pelita Talang Mamak (PETAMA) which is a non-profit institution initiated and formed by PKHS to manage and develop educational activities in the interior of the BTNP area. The PETAMA Foundation is managed by young people from rural areas who are alumni of Sadan school. Thanks to the very good relations established with the Talang Mamak, the team was able to obtain knowledge about the forest and information about poaching activities.

Since the start of the new school year in July 2022, school management in Sadan has been carried out by the regional government of Indragiri Hulu Regency, namely the Education Office. It has been 15 years since the commencement of the educational activities. The ultimate goal for PKHS and Bioparc was that education for children in the interior of the BTNP area would be managed by the government. This goal has been achieved, which is a significant result. The collaboration between PKHS and Bioparc has succeeded in providing help and funds for education to protect the Sumatran tiger by raising awareness, advocacy and empowering the community.

In the long term, PKHS and Bioparc believe that communities in Indonesia and around the world can become the first defenders of their wildlife if they are listened to, if we understand their needs, and from there we can build a conservation strategy for a species together. Thanks to this community and citizen mobilisation, we believe that it is achievable for more global policies to be implemented in favour of biodiversity.

Facilitating Animal Welfare Standard and Accreditation System for JAZA Members

Simon Marsh

Director, Wild Welfare

Attendees at the training workshop © Wild Welfare

Starting with bear parks and expanding to other captive facilities, international animal welfare charity, Wild Welfare, has been working to improve animal welfare in Japan for over 10 years.

Over the course of the decade, Wild Welfare has worked towards changes at a legislative level, as well as incremental improvements for individual animals, building a working relationship with the Japanese Association of Zoos and Aquariums (JAZA) along the way. The charity has carried out many training programmes and workshops with JAZA and its members, which has led to a trusted partnership.

Wild Welfare emphasises their collaborative approach and has supported the World Association of Zoos and Aquariums (WAZA) in their 2023 Animal Welfare Goal, to ensure that all national and regional zoo and aquarium associations have an animal welfare evaluation process in place by the end of 2023.

Throughout 2022, Wild Welfare was working with JAZA member facilities to develop their own Animal Welfare Standard and accreditation system. Based on Japanese legislation, and using the charity's own Core Standard of Welfare Practice for Captive Animals, Wild Welfare and JAZA teams worked together to achieve attainable standards and a robust process for accreditation.

Wild Welfare was therefore invited to assist JAZA in person towards the end of 2022 to further develop and implement their animal welfare accreditation scheme.

In December, Wild Welfare's Founder and Field Director, Dave Morgan, and Director, Simon Marsh, carried out two separate training workshops in different locations to make the training more accessible to JAZA members from across Japan. There were nearly 50 JAZA members in attendance, and members of the JAZA Animal Welfare and Ethics Committee and executive office staff also attended.

Hosted first by Ueno Zoo, Tokyo, and then by Kyoto City Zoo, Kyoto, each training workshop took place over the course of two days. The training was made up of both practical and theory-based sessions and was mostly focused on training members on how to conduct effective welfare audits in line with the new JAZA Animal Welfare Standard.

On the first day, participants were introduced to animal welfare concepts and completed classroom-based exercises.
Wild Welfare's Director, Simon Marsh, said,

"We are very honoured to be working with JAZA in assisting them to develop their own animal welfare standards. At Wild Welfare we always work in collaboration and we are focused on capacity building with each country or region we work in. By building the skills and resources within Japan we can ensure long-term improvements to how animals are cared for and that their welfare is a priority."

The second day of the training saw participants split into small groups to conduct their own mock welfare audit of the respective host facility (either Ueno Zoo or Kyoto City Zoo). This included an inspection of veterinary facilities, food preparation areas, animal nutrition, and the facility's record keeping. The groups also took into account the environment and behaviours of individual animals within the facility. This encouraged participants to consider whether the animals had, or could be given the opportunity to experience a life where they can thrive through the provision of a varied and healthy diet, a stimulating habitat, and a good system of health care. Training animal care staff to carry out their own welfare audits increases the reach of guidance on how to improve animal welfare, which allows more gaps in animal welfare to be identified, and more opportunities for improvements as a result.

For example, animal welfare audits can identify the need to provide species-appropriate apparatus or substrate in a habitat. We know that increasing the provision of good environmental enrichment gives captive wild animals the opportunity to play, forage, investigate and interact with a more stimulating and comfortable environment, which is proven to improve their welfare.
Dave Morgan, Founder and Field Director of Wild Welfare, said, "When we train auditors we are teaching them to check that the primary animal care of a facility is compliant with the Association's Standard for Welfare.

By training JAZA members to conduct effective audits against their Association's Standard, they can systematically assess the welfare provision across a facility, identify non-compliances with the Standard and require – under the articles of the Association – such non-compliances to be addressed. Thus, animal welfare is improved for thousands of animals over time.

JAZA has the potential to improve animal welfare in Japan significantly, and we're delighted to support them with our training workshops and other resources."

Participants of the training sessions learned how to apply the new JAZA Animal Welfare Standard when carrying out mock welfare audits at the host facilities, Ueno Zoo and Kyoto City Zoo. They also learned how to ask critical questions and interpret whether guidance specific to the new Standard is being met. Lastly, members were trained on how to describe the necessary corrective actions to be undertaken to bring the facility up to compliance with the Standard, when reporting the audit results back to them.
Hirofumi Watabe, Chair of the JAZA Ethics and Welfare Committee and Director of Tama Zoological Park in Tokyo, said,

"Wild Welfare's instructors have exceptional knowledge, skills and experience in captive animal welfare. The opportunity to meet face to face and share experiences made this course extremely beneficial for JAZA auditor candidates. These efforts have accelerated JAZA's commitment to animal welfare."

There are thought to be around 3,000 wildlife facilities across Japan that we know of, ranging from zoos, farm parks, animal cafés, and many other types. In comparison, there are approximately 140 JAZA member facilities across Japan. By working with JAZA, Wild Welfare can support improved welfare for thousands of animals in member facilities, and yet the numbers highlight the scope of the challenge: ensuring good welfare for all animals across a country.
Wild Welfare has a proven track record of delivering training to individual facilities, associations and NGOs across the globe, which results in better welfare standards for the animals. The charity uses bespoke training materials and resources, such as the recently updated Core Standard of Welfare Practice for Captive Animals (March 2023), to facilitate the changes needed to give captive animals the opportunity to thrive, and not just survive.

↑ Attendees at the training workshop © Wild Welfare

How Zoos Can Benefit from Zoo Thinking

A Creative Approach to Modern Zoo Design and Architecture

Project Rhino Pagoda at Berlin Zoo
© Dan Pearlman Experience Architecture Berlin, Germany

Kieran Stanley

Founder, CEO, Creative Director dan pearlman Experience Architecture

Zoos have a vital role in safeguarding biodiversity. By implementing activities within their premises and initiatives around the world, they actively advocate for and raise awareness about the importance of conserving wildlife.

As architects for zoo design, our responsibility is to aid them in this critical endeavour by designing zoo facilities that prioritise animal welfare and motivate visitors to commit to biodiversity and nature conservation. The work we undertake for zoos establishes a context for wildlife conservation that tries to bring this crucial issue to the forefront of society.

Our "Zoo Thinking" mentality approach is a holistic approach to planning sustainable, innovative, and immersive zoos, wholly or partially. The zoo is a "living organism," defined by the interactions between animals, visitors, and operations. Therefore, the model sees the zoo as a unit made up of three building blocks: animal, operations and visitor. It is based on a three-sided equilibrium, in which the three organs are assigned equal weight. These organs work together to create a dynamic and immersive experience for visitors while ensuring the health and wellbeing of the animals in their care.

One result of this method is to create architectural landmarks such as the new Rhino Pagoda at Berlin Zoo with a far-reaching impact that extends beyond the confines of its own circular walls or the boundary of the zoo, communicating a lasting message to the world at large.

At the core of our approach are nine specialised cells, each of which is assigned to one of the three organs and performs a central task. By organising the zoo in this way, we ensure that every aspect of the institution is aligned with its overall mission and goals. At the center of the organism is the DNA, which is affected by the cells and organs and forms the unique identity of the zoo as a holistic organism. This unique selling point is essential in creating a memorable and engaging experience for visitors, while also providing a clear and compelling vision for the institution's future.

For the Berlin Zoo we have been assigned by Zoo Director, Dr Andreas Knieriem, to co-create the Rhino Pagoda project. The Rhino Pagoda is envisioned to be a lighthouse for conservation by the Berlin Zoo. The facility is dedicated to the endangered Indian rhinoceros and will substantially boost the profile of the zoo's wildlife conservation efforts, even far beyond its boundaries. Visitors are taken on a journey to the rhinos' home in the Northeast of India, where they find out about their natural habitat, and can contribute directly to the zoo's project in the Assam region in protection of the Indian rhinos by donating at a wishing well.

The architectural, landscape and interpretive design will feature environmentally enriching activities for both animals and visitors, using creative and immersive design. The new construction of Berlin Zoo's rhinoceros habitat ensures that the area conforms to modern animal welfare principles, presenting the animals in their natural habitat. The rhinos live inside an Indian-style pagoda and an exotic, marshy landscape together with warty pigs and tapirs.

The 14,000-square metre enclosure, which includes boggy areas for wallowing, numerous bathing pools and an underwater bathing area that can be observed through the large, armored glass, allows the zoo's guests to get closer to the animals than ever before. In the interior area, the rhinoceros and warty pigs will inhabit an enclosure with natural flooring, while the tapirs will be housed in an adjoined enclosure.

The entire interior of the rotunda will be covered by an EFTE foil roof, a transparent material, which is UV-permeable, meaning that the animals can enjoy generous free-range areas with plenty of daylight. The pagoda will also be surrounded by lush outdoor areas, with high grass and idyllic streams in the shade of the zoo trees.

Since the first stone of the pagoda was laid, the construction site has been a hive of activity. Less than 12 months later, the finishing touches have been made to the centerpiece of the new habitat, a 25-metre-tall tower, which consists of 68 stacked concrete elements weighing up to 10 tonnes each, topped with a crown made of golden metal. The design pays homage to some of the zoo's historical buildings, like the Elephant Pagoda, which was destroyed during WWII. The Rhino Pagoda is an ode to biodiversity and the protection of endangered animal species. At the same time, the zoo follows its 175-year tradition.

The Rhino Pagoda opened in late June 2023 and hopefully the enclosure will immerse visitors in the habitats of captivating and frequently endangered animal species, enabling them to experience these remarkable creatures up close and on a deeply personal level. Such emotional experiences, when coupled with engaging interpretive design about species conservation, leave indelible impressions on the hearts and minds of visitors. This can lead to individuals feeling empowered to contribute, whether by tossing a coin into a wishing well or adopting a more sustainable lifestyle over the long term.

I am convinced that zoos and aquariums have a future as holistic educational, research and species protection institutions as well as leisure attractions. The "Zoo Thinking" model co-creates efficient and sustainable animal and human-friendly spaces that focus on the well-being of animals and humans alike whilst fulfilling and future proofing this mandate. Our goal in all our work is not only to achieve functional efficiency, but also to bring visitors closer to animals on both physical and emotional levels, inspiring them to develop a deeper appreciation for nature and its wildlife.

↑ Project Rhino Pagoda at Berlin Zoo
© Dan Pearlman Experience Architecture Berlin, Germany

↑ Project Rhino Pagoda at Berlin Zoo © Dan Pearlman Experience Architecture Berlin, Germany

Explore new dimensions with Raptor Expedition

Anja D'Hondt

Managing Partner & Queen of Happy Hearts, BoldMove Nation

A new type of attraction that combines augmented reality with an immersive walkthrough full of excitement. Guests will meet dinosaurs in a whole different way, bringing surprising moments with a gameplay adapted to every player through artificial intelligence. Discover the mysterious island and try to survive as players will discover first-hand how dangerous the dinosaurs were in prehistoric times.

Raptor Expedition is a thrilling attraction that offers a stunning adventure to observe and discover ancient creatures on an exotic and mysterious island. It features a compact physical environment that combines strong theming with digital technologies and creative gameplay. Visitors are invited to take a digital logbook to search for lost treasures and encounter over 40 different species along the way. They can explore different environments such as a volcano, beach, valleys, caves, and other facets of the island in another time dimension. Just like a videogame, they can lose lives when attacked by dinosaurs! Luckily, they can respawn and continue to become the best explorer of the island.

The attraction is designed to be enjoyable for children, teenagers and adults. With many special effects, from sound to smoke and wind, visitors can expect a high level of interactivity that will engage their senses. The walkthrough lasts for 20 thrilling minutes, during which they need to collect as many treasures as possible. Depending on how well they play, the dinosaurs will interact differently to ensure that every player has a unique experience. The entire attraction can be installed indoors, with some extensions outside, and is fully scalable to be built into any kind of venue, allowing a very high throughput.

One of the key components of Raptor Expedition is the AR Portal, which BoldMove Nation demonstrated at the past IAAPA Expo in London. The portal gives visitors access to different areas of the island where the dinosaurs can be spotted. Through mixing the physical scenery with augmented reality, players will be amazed by the exciting gameplay.

Raptor Expedition is a new generation of walkthroughs that offers multiple dimensions through a 'phygital' and multisensory approach. "Our main mission is to offer something outstanding and impressive to visitors. We use advanced yet proven technologies and existing modules which can be adjusted towards the venue and visitor profiles to make every installation unique," says CEO Benoit Cornet. "Our expert team is investing in the brand experience and storytelling, so the adventure is convincing from start till finish. It's a unique combination of a high-level haunted house experience with special effects, and an entertaining adventurous quest."

The entire experience is self-explanatory after a short mission briefing and can be operated by one person. Several options to extend the experience are available, from a Raptor Expo and Shop with expedition and dino merchandising, a snack corner with Raptor Burgers, or even an entire themed restaurant, to Instagramable areas for social outreach.

According to Benoit Cornet, the BoldMove expert team supports all installed attractions with a bespoke branding and digital marketing programme so the outreach for the park or zoo can be maximised. "We do not just drop an installation somewhere but go all-in with the customer to ensure a successful opening and operation. Our main mission is to deliver a fun experience for their visitors that fully engages them in and beyond the moment."

About BoldMove Nation

Together with a global network of expert partners, BoldMove Nation creates happy worlds for zoos, theme and waterparks, leisure venues. Its interactive media dark rides and virtual and augmented reality attractions are based on proven technologies and engaging gameplay, with compelling stories for exhilarating experiences. With the customer interest at heart, the team offers turnkey experience design services from master planning to implementation, with a broad choice of fun IPs and theming.

Established early 2021, the company headquarters are based in the heart of Europe, Brussels (Belgium). This spring their first media based dark ride "Champi'Folies" opened its doors at attraction and animal park Le PAL in France. Website: www.boldmove-nation.com

Behind the ZIMS
A Q&A with WAZA International Studbook Keepers

Paula Cerdán

Animal Welfare and Conservation Coordinator, WAZA
WAZA Office liaison to the Committee for Population Management

Behind the ZIMS aims to showcase the behind the scenes work of International Studbook Keepers and their management using Species360's Zoological Information Management System (ZIMS), to show the relevance and contributions of WAZA International Studbooks in the work we do in wildlife conservation and professional population management.

Q&A with Sheila Wojciechowski

Sheila Wojciechowski
Small Mammal Keeper, Chicago Zoological Society
Callimico International Studbook Keeper
Geoffroy's Marmoset and Callimico SSP Coordinator

ISB kept: *Callimico goeldii*
ISB Host Organisation: Chicago Zoological Society / Brookfield Zoo
Year Started as ISBk: 29 January 2021

For how many years have you been acting as the species' International Studbook Keeper (ISBk) and why did you become an ISBk?

I have been working in a zoological facility that houses multiple groups of *Calliimico* for 25 years. Much information has been gained about this species through me and my predecessors. I was honoured to be given the opportunity to take on the role of International Studbook Keeper and Species coordinator two years ago, to continue my passion of collecting/disseminating scientific information about this species.

↑ *Callimico goeldii* © Matthias Buehler

How has the International Studbook (ISB) contributed to the species' conservation? What do you see as the value of your ISB?

The *Callimico goeldii* International Studbook is one of the earliest created studbooks. It was started in 1970 and has tracked individual Callimico back to their wild ancestors. Callimico existed in zoos on five continents, and this studbook has enabled a cooperation between all the regions for the best care of this species. The Callimico belongs to the Callitrichids primate group. For a species with a short generation time, such as Callitrichids, genetic diversity between generations is lost at a much quicker rate. An International Studbook is more critical to maximise genetic diversity within each region, and then allows for occasional crossing of genetics between the regions to create a globally sustainable population.

The detailed information collected on this species has piqued interest in researchers and other zoological professionals. The AZA Species Survival Plan (SSP) has sponsored research of this species in the wild to provide more information about their social organisation and dietary needs. Also, a curriculum was developed by a zoological specialist to present to school children in Bolivia, where Callimico live practically in their back yards.

How has the ISB contributed to *ex situ* conservation in practical terms?

*Callimico goeldii i*s one of the few monotypic primate species. The way they share some characteristics with Callitrichids and some characteristics with Cebids, make them a unique species of great scientific and educational potential. The International Studbook has allowed for tremendous compilation of data and sharing of information. Over 25 articles have been published from the studbook keeper's institution with the data we have accumulated on this species, and more are in progress. Some examples are listed on the following page:

Altmann, J., Warneke, M., Ramar, J. (1988). Twinning in Callimico goeldii. International Journal of Primatology,9, 165-168.

Vazarhelyi, K. (2000). Is Callimico monotypic? A reassessment in the light of new data. Dodo, 36, 20-29.

Vàsàrhelyi, K. (2002). The nature of relationships among founders in the captive population of Goeldi's monkey (Callimico goeldii). Evolutionary Anthropology: Issues, News, and Reviews, 11(S1), 155-158.

Nuss, K., Warneke, M. (2010). Life span, reproductive output, and reproductive opportunity in captive Goeldi's monkeys (Callimico goeldii). Zoo biology, 29(1), 1-15.

Kleinschmidt, L. M., Langan, J. N., Warneke, M. R., Kinsel, M. J., Allender, M. C. (2015). Retrospective review of the prevalence of myelolipoma in Goeldi's monkeys (Callimico goeldii). Journal of Zoo and Wildlife Medicine, 46(2), 273-278.

McCoy, DE. Frye BM, Kotler J, et al. (2019). A comparative study of litter size and sex composition in a large data set of callitrichine monkeys. Am J Primatol.

Jenna Epstein, Jennifer N. Langan, Mark R. Warneke, Matthew C. Allender, Michael J. Kinsel. (2022). Global retrospective analysis of pathological findings in zoo-managed Goeldi's monkeys (Callimico goeldii), 1965–2018. Journal of Zoo and Wildlife Medicine, 53(2), 339-348.

How do you see your work as an ISBk supporting conservation action for the species in the wild?

As the International Studbook keeper, the communication, compilation, and dissemination of this information is of utmost importance. The studbook keeper fosters inter-zoo cooperation. It is amazing how many zoos contribute information above and beyond what is required by the basic studbook listing. This has made in depth research on the captive population possible, including behaviour, medicine, genetics, and much more.

While there is basic information that is collected from every species in a studbook, the studbook keeper has the unique opportunity to compile additional information specific to the needs of this species from zoos all over the world. Managing this large quantity of data aids in the maintenance of a healthy population. With world conservation being unpredictable, managing this in zoos would always provide the opportunity for a reintroduction to the wild programme, should that ever be necessary.

What do you see as the next chapter or role for International Studbooks?

As we are constantly learning new things about all animal species, being able to spread new information and encourage zoos to adapt their practices will continue to be an important role.

As an International Studbook keeper for only two years, I have the utmost appreciation for those that came before me, shared their knowledge with me, and continue to assist to this day.

"As a studbook keeper, you not only have the responsibility of conservation for your particular species, but also to prepare to train the next generation of studbook keepers and conservationists."

Collecting and organising information throughout your career as a studbook keeper should always be done in a way that will benefit your successor.

↑ *Callimico goeldii* © Matthias Buehler

Update on International Studbooks (ISBs) and Global Species Management Plans (GSMPs)

Changes between 26 January and 28 April 2023.

ISBs Published

- **Somali wild ass** (*Equus africanus somaliensis*), 2022 ed. – Beatrice Steck (Zoo Basel, Switzerland)
- **Greater one-horned rhino** (*Rhinoceros unicornis*), 2022 ed. – Beatrice Steck (Zoo Basel, Switzerland)
- **Visayan spotted deer** (*Rusa alfredi*), 2022 ed. – Christina Schubert (Zoo Landau in der Pfalz, Germany)
- **Scimitar-horned Oryx** (*Oryx dammah*), 2022 ed. – Tania Gilbert (Marwell Wildlife, UK)
- **Hartmann's Mountain Zebra** (*Equus zebra hartmannae*), 2022 ed. – Tanya Langenhorst (Marwell Wildlife, UK)

ISB Transfers

- **Slender horned gazelle** (*Equus hemionus kulan*). Intra-institutional transfer from Brigid Randle to Wendy Enright at the The Living Desert Zoo and Gardens, US.
- **Banteng** (*Bos javanicus*). Inter-institutional transfer from Steve Metzler (formerly at Dallas Zoo, US) to Amy Humphreys at Chester Zoo, UK.

Vacant Studbooks

- **Buff-crested bustard** *(Lophotis gindiana)*
- **Edward's pheasant** *(Lophura edwardsi)*

Global Species Management Plans

Convenor changes

- **Anoa** (*Bubalus spp*). From Terry Hornsey to Marcel Alaze at Allwetterzoo Münster, Germany.
- **Banteng** (*Bos javanicus*). From Steve Metzler to Joseph T. Svoke at Zoo Miami, US.

→ Akeno the greater one horned rhino calf © Chester Zoo

Would you or someone in your team like to become an International Studbook Keeper? Are you interested in any of these vacancies? Would you like to know more about Global Species Management Plans?

Get in touch with the WAZA Executive Office at conservation@waza.org or visit www.waza.org to learn more about these programmes and how to get involved.

AIZA Annual Congress

Paula Cerdán

Animal Welfare and Conservation Coordinator

From March 2-4, the Iberian Association of Zoos and Aquariums (AIZA) held its annual congress at the WAZA-member Poema del Mar Aquarium, on the Canary Island of Gran Canaria, Spain.

The AIZA Congress brings together the Iberian zoo and aquarium community each year, bringing together more than 100 professionals from different management areas of zoo and aquarium facilities to participate in three days of meetings, presentations, roundtable discussions and expert talks.

Under the theme "Promoting Conservation", the congress was dedicated to making visible the impetus that zoos and aquariums give to the conservation cycle proposed by the International Union for Conservation of Nature (IUCN).

WAZA had an active participation in the congress, delivering presentations on WAZA's 2023 animal welfare goal, WAZA's latest efforts on environmental sustainability and participated in a roundtable on the role of zoos and aquariums in halting the sixth mass extinction.

↑ Attendees to AIZA's Annual Congress, held at the WAZA-member Poema del Mar Aquarium, on the Canary Island of Gran Canaria, Spain. © Josh More

WAZA Welcomes New Members

© Roger Williams Park Zoo

Roger Williams Park Zoo, United States

The World Association of Zoos and Aquariums (WAZA) is pleased to welcome a new Institution Member to the global zoo and aquarium community - Roger Williams Park Zoo.

Established in 1872, Roger Williams Park Zoo was one of the first three zoos to be opened in the US and is home to 47 species of mammals, 32 species of birds, and 25 species of reptiles.

Roger Williams Park Zoo and its staff are also active members in programme leadership and/or advisory roles for nine AZA Species Survival Plans, three SAFE Programs, and seven Taxon Advisory Groups. The Zoo also collaborates with state and federal wildlife agencies, and it has been recognised at the national level as a hub in reproductive and reintroduction efforts for three native North American species.

Roger Williams Park Zoo has also been accredited by and is a member of the Association of Zoos and Aquariums (AZA).

Triotech Amusement Inc., Canada

The World Association of Zoos and Aquariums (WAZA) is pleased to welcome a new Corporate Member to the global zoo and aquarium community- Triotech Amusement Inc.

Founded in 1999, Triotech is a leader in digital interactive attractions and the creator of award winning immersive and interactive media-based attractions for both the entertainment and edutainment markets.

© Triotech Amusement Inc

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