2021
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WAZA
World Association of Zoos and Aquariums

NEWS

Zoos and Aquariums as Centres for Species Survival

Philippine Crocodile Repatriation

German-speaking Zoos Announce Species of the Year

WAZA

World Association of Zoos and Aquariums

Imprint

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Layout and design:
Smith&Brown.eu

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

Printed on FSC-certified paper

Cover Photo: Juvenile Cuban crocodile. © Dr Robin Moore/Global Wildlife Conservation

Back cover Photo: Asian small-clawed otters. © Laura Moore/Edinburgh Zoo

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WAZA Membership

WAZA members as of 10 March 2021

Affiliates	**10**
Associations	**23**
Corporates	**18**
Institutions	**277**
Life/Honorary	**132**

Future Events

2021: Moscow Zoo, Moscow, Russia, 10-14 October
2022: Loro Parque, Tenerife, Spain
2023: San Diego Zoo Global, San Diego, United States

President's Letter

Prof Theo B. Pagel

President of WAZA

Dear colleagues,

Unfortunately, for many of our members, 2021 has begun with numerous challenges. In addition to Covid and the various restrictions, some of our colleagues in the United States of America have had to deal with extreme cold weather conditions. A number of our members in Texas faced widespread blackouts caused by the unprecedented cold weather. In the midst of this chaos, our member, the Texas State Aquarium, took in over one thousand cold-stunned sea turtles at their Wildlife Rescue Centre. It is believed to be the largest cold-stunning event ever recorded in US history. It was an enormous challenge that they were able to overcome thanks to their professionalism and passion, and as a result they saved hundreds of endangered sea turtles – WAZA heroes.

Many of us are still suffering from the past year. We have all had fewer visitors and had to deal with the repercussions of less income being generated as a result. There are currently many zoos and aquariums around the globe that are closed – and a few will, unfortunately, never open their doors again. Nevertheless, we need to remain optimistic. Vaccinations have begun in many countries – there is light at the end of the tunnel. Let us keep our fingers crossed that we will soon be able to return to some sense of normality in our lives.

In January, we held the first WAZA Council meeting for 2021, and we discussed whether it will be possible to meet in person in Russia in October. Our friends and colleagues at Moscow Zoo are already working enthusiastically to organise everything for the 76th WAZA Annual Conference. However, with all the uncertainty that still exists in our current world, we plan to make a definitive decision on the format of the conference at the Council mid-year meeting. If we are able to meet in person, we assure our members that you will also have the option of being able to join the conference online.

The 2021 WAZA conference will be a significant one, as we will once again have an election. I will be ending my term as WAZA President. I strongly recommend, WAZA Vice-President, Clément Lanthier, as WAZA President for the 2021-2023 period. Additionally, we will have many new people on the Council as quite a number of us will be coming to the end of our terms following the WAZA Bylaws. With the new WAZA Bylaws, I would like to bring to your attention that every representative of a WAZA member institution can run for a position on the Council. We expect that the regional associations will suggest representatives. I have asked Jenny Gray, our Past-President and Chair of the Nominating Committee, to start the election process.

Please consider joining the WAZA Council in its increasingly important role of playing an active part in global policy and shaping our future to further develop WAZA as the global umbrella of scientific and conservation-based zoos and aquariums around the world.

I am happy to inform you that the *WAZA Short Guide: How to Choose Responsibly Sourced Forest Products at Your Zoo* or Aquarium has been finalised and launched. It is another important tool for our members. I want to thank Elaine Bensted and her team warmly for all their hard work on this short guide. You may remember that in 2018, at the 73rd WAZA Annual Conference, we signed a Memorandum of Understanding (MoU) with the Forest Stewardship Council (FSC). Our member institutions strive to engage people on the need to protect the ecosystems upon which wildlife depends. Therefore, WAZA members should actively champion the appropriate use of sustainably sourced paper and wood products. With 700 million visitors annually (in pre-pandemic years), we have a unique opportunity to promote the issue of sustainability. As written in the guide, "Together, we can make a significant difference for wildlife". That is our mission and passion.

Let me finish with a personal comment. As I write this letter, my zoo is still closed to the public, and local and global problems are all ending up on my table. However, I would like to share with you that when taking a short walk through my zoo, I can observe the critically endangered Philippine crocodiles breeding – a species that we were recently able to send back to the Philippines – and this gives me back the energy I need. I have always wanted to conserve animals and these moments make me aware of why I am doing all of this. I hope for all of you that you also experience these rewarding moments to replenish your belief in what we are doing/or what we are trying to achieve.

Take care, yours,

Prof Theo B. Pagel

Will We Change our Consumption Behaviours after Covid-19?

Martín Zordan
WAZA Chief Executive Officer

In the context of the pandemic, many people have argued that a 'return to normal' post-pandemic would leave societies in a dangerous position. While Covid has devasted global economies, it has reportedly had some short-term beneficial impacts on the environment, with initial reductions in carbon emissions, air and noise pollution and reduced pressure in tourist destinations, which may give ecosystems an opportunity to restore. In fact, history tells us that there have been important social changes after previous pandemics, so trying to return to life as it was before the pandemic might be questionable. Covid comes at a time when a growing number of people are aware of the threats that the life on our planet is facing but had not yet necessarily experienced the disruptive consequences.

The pandemic has highlighted the extent to which nature and humans are intertwined, with this variant of coronavirus being one of many zoonotic pathogens which has emerged as a result of the unprecedented, aggressive consumerist relationship our societies have with nature.

Zoos and aquariums are becoming increasingly crucial to species survival, and as **Reverse the Red** and the Species Survival Centres are showing, zoological institutions can play a major role in aiding global systemic change for species conservation (you can read more about this in this issue of the magazine). Progressive zoos and aquariums have unique skills and expertise which are beneficial to species conservation. But we also play a vital role in empowering those who are not necessarily at the forefront of species conservation, but can have a positive effect on biodiversity through their consumption choices.

Zoos and aquariums alone cannot change the consumption model, but they are part of a larger narrative that can help to enhance visibility, and their actions can serve as great examples for hope. Many WAZA members already have programmes with a strong focus on changing consumption behaviours and have employed staff with the necessary expertise to address these issues. From the pervasive threat of plastic in our oceans, to the illegal wildlife trade, our community is doing its part to create awareness, drive behaviour change, and influence policy in matters that have consumption at their core. Certainly, in the upcoming years, WAZA members will further engage and use more sophisticated methods to share our message and continue pushing for change.

In a vital effort for coherency, many members have made changes within their own organisations. They have established internal sustainability policies and pushed their providers to improve their practices. At a collective level, WAZA is creating resources to share those experiences and lessons after signing a number of agreements. One of the newest WAZA tools which has recently been made available is the *WAZA Short Guide: How to Choose Responsibly Sourced Forest Products*, which has a special article in this issue.

Consumption is not bad per se, but with the impact of a growing human population, leading to increasing purchasing power, particularly among the growing middle-class in developing regions (that tend to have higher biodiversity) it can have devastating consequences.

As organisations committed to wildlife conservation, zoos and aquariums can empower their audiences to critically think about the current way in which their consumption habits have evolved and to analyse their impacts on nature, and encourage positive behaviour changes. We can contribute to creating a critical mass of people and organisations supportive of, and demanding change. Partnerships with other organisations, industries, and governments, can create new opportunities.

The younger generations are already questioning whether they will experience a similar ease of life, comparable to the one their parents had. This is becoming a vital matter for them, and to serve them better and maintain our relevance, we need to be among those organisations that are genuinely committing to their future by preparing the ground for them.

Dr Martín Zordan

Zoos and Aquariums as Centres for Species Survival

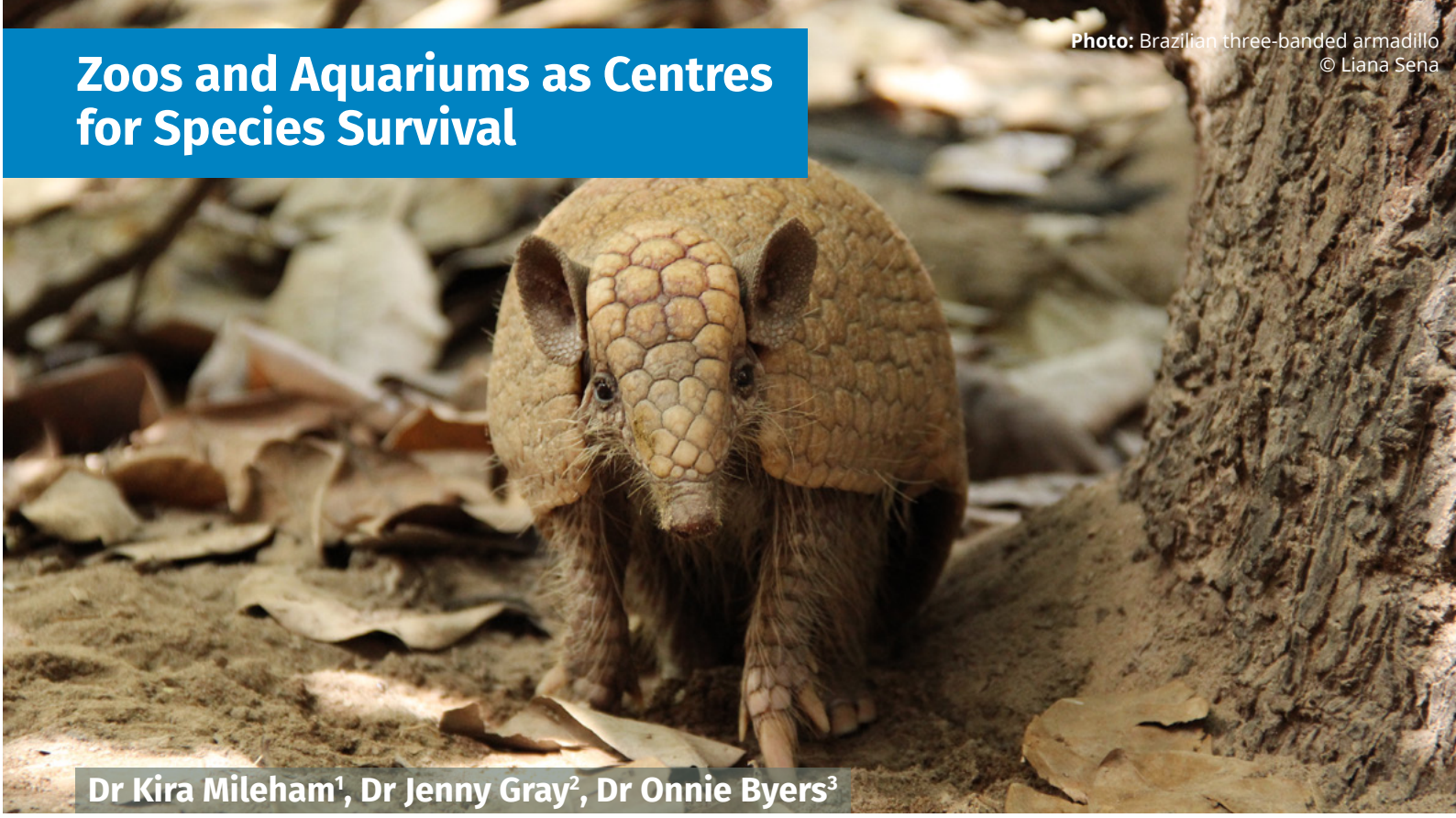

Photo: Brazilian three-banded armadillo
© Liana Sena

Dr Kira Mileham[1], Dr Jenny Gray[2], Dr Onnie Byers[3]

[1]IUCN Species Survival Commission, [2]Zoos Victoria, [3]IUCN SSC Conservation Planning Specialist Group

Zoos and aquariums work with conviction and scientific knowledge to conserve species and ecosystems. Our role is to protect and connect environments, through the recovery of wild fauna, flora and fungi, and the consolidation of protected natural areas. This is done in conjunction with local communities, resulting in positive, harmonious relationships with nature.

Zoo and Aquarium species conservation work is achieved by having an experienced team of experts who are highly skilled in the daily and long-term management of species. Successful species conservation requires state-of-the-art facilities, the staff expertise to rehabilitate, reintroduce and protect species in their natural habitats; alongside scientific research, partnerships, education and awareness campaigns.

Despite many concerted efforts to protect and restore species and ecosystems, conservation continues to be outweighed by a magnitude of threats such as deforestation and land conversion, pollution and climate change, poaching and illegal wildlife trade, disease outbreaks, and the overriding threat of the repercussions of a growing human population. Furthermore, conservation is often driven at the project, rather than at a systematic level and all too often is plagued by competition for resources, lack of collaboration and reactionary approaches.

Reverse the Red aims to unite the expertise, approaches, facilities and programmes of zoos and aquariums with the expert community, tools and processes of the Species Survival Commission of the International Union for Conservation of Nature (IUCN SSC) to expand the remit of the global zoo and aquarium community by creating Centres for Species Survival.

Driving a Global Movement of Optimism, Action and Impact

Reverse the Red (*www.reversethered.org*) is a global movement focused on igniting strategic action and optimism to ensure the survival of wild species and ecosystems with which we share our planet.

With support from leading partners, including the IUCN SSC and the World Association of Zoos and Aquariums (WAZA), this effort will unite tools and partnerships to catalyse conservation action and support countries to reverse the negative trends in species survival we see documented in the IUCN Red List.

To reverse the trends in species and ecosystem loss we need systemic change.

Reverse the Red is a call for action for us to imagine, and then create a world in which governments, NGOs, zoos, aquariums, botanic gardens, universities and communities as a whole work together within each country under a united strategy. The ultimate aim of **Reverse the Red** is to establish, or expand upon, diverse yet united species conservation networks in each country or region, working in partnership with leading conservation organisations to:

- Use globally recognised, consistent tools (such as the IUCN Red Lists) to systematically identify species and ecosystem conservation priorities.
- Use consistent, proven methods to collaborate, communicate and plan comprehensively to ensure unique skills, resources and efforts of different stakeholders collectively deliver effective species recovery and protection.
- Scale up the training, capacity and long-term impact of species conservation efforts nationally.
- Support Government and other decision-makers in communicating and reporting on successes in species conservation and the establishment and delivery of strong targets and policy for the conservation of species and ecosystems.

Global Goals, National Action

A key component to the future success of **Reverse the Red** is for leading conservation organisations within each region and country to join the movement as Centres for Species Survival. These Centres will act as catalysers; working with the SSC and other partners, across NGOs, government agencies, academia and other organisations, to understand the key networks, stakeholders and conservation efforts that are (or could be) underway in the country or region, to identify priority gaps and ensure that efforts are connected effectively and have access to the necessary tools and resources required to maximize impact.

As leading conservation organisations, zoos and aquariums are ideal for this role; with their breadth of expertise spanning *in situ* and *ex situ* conservation, science, communication, relationship management, community engagement and animal welfare.

Under the umbrella of **Reverse the Red**, strategic conservation in each region can be taken to a whole new level by creating a network of National and Regional Centres for Species Survival. Centres will be manned by a team of Species Survival Officers who, in partnership with the IUCN SSC Specialist Groups, will support the regional and national community in conducting extinction risk assessments, organising training, providing support with communications, and mobilising conservation planning and action to save species.

Photo: Andean condor release by Fundación Temaikèn. © Gabriela Gurtner

What is Involved in Establishing a National or Regional Centre for Species Survival?

Establishing a Centre for Species Survival starts with the vision and capacity to establish a team of professionals, working in and supported by your organisation. Teams can be located in a single facility, distributed across a number of zoos or aquariums in your country or region and/or coordinated by your country or regional association. A team of Species Survival Officers provides enormous scope and specialisation for the Centre to drive forward conservation efforts across all species.

The composition of a Species Survival Team can vary between Centres. Some Centres create teams focused on key stages of the Assess-Plan-Act cycle – hiring an Assessment Officer, a Planning Facilitator and an Action Coordinator, each of whom support species conservation momentum across all taxonomic groups. Other Centres build teams with a strong taxonomic specific focus who catalyse assessments, planning and action efforts for species within their remit, for example a Terrestrial Vertebrates Species Survival Officer, Invertebrates Species Survival Officer, Plants and Fungi, etc.

Species Survival Officers are trained in IUCN Red Listing for both species and ecosystems, Conservation Planning Facilitation (through the SSC Conservation Planning Specialist Group (CPSG)) and Key Biodiversity Area (KBA) identification. In turn they become qualified to train others in using these tools and processes.

In partnership with the IUCN SSC and other key stakeholders, the National Species Survival Centre teams work to:

- Help coordinate with national and global experts, and other stakeholders to deliver targets around species assessments for the National IUCN Red List processes.
- Work in partnership with IUCN SSC Conservation Planning Specialist Group to support One Plan Approach species planning efforts to prioritise and align conservation needs across *in situ* and *ex situ* initiatives and engage stakeholders with diverse expertise to contribute.
- Identify needs required to implement conservation action plans, work with stakeholders on priority policy changes and help support this effort through, for example – grant writing, communication, community engagement, programme management, evaluation, etc.
- Act as catalysts to connect complementary efforts in species conservation at the national, regional and global levels.
- Support National Red List and conservation planning processes to connect efficiently with global tools and tracking to maximise support and opportunities for international target setting and reporting.
- Early and ongoing engagement with relevant government stakeholders and first nation representatives for local recognition of IUCN Red List Assessment outcomes and conservation recommendations.
- Work with national stakeholders to scope the status, progress and gaps in the National Biodiversity Action Plan and priority species recovery planning and action.

Regional Centres for Species Survival often undertake the work of the National Centres for the country in which they are based with an additional, wider remit to build capacity across the region. Regional Centres for Species Survival catalyse assessment, planning and action efforts throughout their region with a focus on establishing capacity at the national or local level and ideally providing training and support for the establishment of National Centres for Species Survival.

Photo: Implementing measurable conservation programmes to reverse negative trends is one of the three essential steps – Assess, Plan, Act – to Reverse the Red. © Alex Mas/Barcelona Zoo

Benefits of Creating a Centre for Species Survival

While the main benefit of a Centre for Species Survival is amplifying the efficiency, effectiveness and reach of our shared conservation mission; the model offers an opportunity to provide a high return on investment approach and drive a true systemic shift in our collective ability to conserve species across the region. Early indications and models have shown a willingness for third party funding to Centres for Species Survival from donors, national governments and visionaries. For zoos and aquariums, the establishment of a Centre for Species Survival offers the opportunity to increase profile and reputation, while at the same time saving endangered species from extinction.

Benefits of creating a Centre for Species Survival broadly include:

- **Strengthening brand, positioning and reputation**
  - Increase your profile as a leader in strategic species conservation and biodiversity protection. Further position your organisation as a key conservation decision-maker and actor at the national and international level.
  - Expand your stories of success and leverage your position for future collaborative conservation opportunities.
- **Bolstering knowledge and understanding**
  - Combine your current strengths, knowledge, resources and expertise with the IUCN assessment tools, strategic planning, priority action and public engagement.
  - Gain efficient access to world leaders in species conservation.
- **Creating opportunities for staff and communities**
  - Networking with the national and world leading species experts, involvement in IUCN Red Listing species assessments, co-authorship on peer-reviewed journal articles for every Red List Assessment, participation in workshops, training, conservation strategic planning and joint field projects.
  - Empowerment of local communities to engage in programmes to protect native species.
- **Increasing productivity and resource access**
  - Ensure that every dollar spent on conservation is targeted to well considered and networked solutions.
  - Grow knowledge by sharing stories of success and failure.
  - Leverage additional resources through wide engagement and strong planning.
- **Sharing risk and investment**
  - Collaborative support on *ex situ* and *in situ* measures, policy intervention efforts and public positions relating to species conservation.
- **Accessing new audiences and partners**
  - Connecting with new partners and reaching new audiences through both WAZA and IUCN's brand credibility.
  - Access to IUCN's unmatched network of conservation scientists and practitioners, protected area managers, government officials, corporate and NGO stakeholders, etc.

Other Opportunities to Partner with Reverse the Red

There are many ways to involve your organisation in the **Reverse the Red** movement; creating a Centre for Species Survival is one of them. Many WAZA members have already joined as event partners by sponsoring the *Reverse the Red Pavilion* at the IUCN World Conservation Congress, see who has joined here: *https://www.reversethered.org/#partners.*

Throughout 2021 we will be working with a growing group of partners to create a **Reverse the Red** social movement and we look forward to working together to engage communities and visitors with the vision that we can **Reverse the Red**. WAZA members have been profiled in **Reverse the Red** webinars, further strengthening the important role WAZA has to play in ensuring the survival of wild species and ecosystems.

Taking the Plunge

If you are interested in joining **Reverse the Red**, in committing your team to a more structured and supported role in conservation and saving species, please contact Kira Mileham, Director of IUCN SSC Strategic Partnerships, *kira.mileham@iucn.org* to join our growing network of Centres for Species Survival and **Reverse the Red** Partners.

REVERSE THE RED

Zoos and Aquariums as Centres for Species Survival: Leadership in Practice

Photo: Dr Rob Shumaker, Dr Jon Paul Rodriguez and Dr Grethel Aguilar signing the proclamation for the Global Centre for Species Survival (GCSS) © IUCN SSC

Dr Kira Mileham[1], Dr Jenny Gray[2], Dr Onnie Byers[3], Dr Katy Duke[4], Lynn Whitnall[5], Núria Baylina[6], Julie Miller Rugg[7], Dr Rob Shumaker[8], Dr Alistair Dove[9], Dr Carmel Croukamp[10], Dario Lareu[11], Nicola Craddock[12], Dr Sonja Luz[13]

[1]IUCN SSC, [2]Zoos Victoria, [3]IUCN SSC CPSG, [4]The Deep, [5]Paradise Wildlife Park, [6]Oceanário de Lisboa, [7]New Mexico Biopark Society, [8]Indianapolis Zoo, [9]Georgia Aquarium, [10]Parque das Aves, [11]Fundación Temaikèn, [12] Zoo and Aquarium Association Australasia (ZAA), [13]Wildlife Reserves Singapore

Working in close partnership with the IUCN Species Survival Commission, leading zoos and aquariums worldwide are shaping what it means for them to become Centres for Species Survival.

So far, across five continents, ten WAZA Members have partnered with the IUCN SSC to become a Centre for Species Survival and have been growing their teams and committing to expanding their structured, collaborative role in conservation and saving species. Remarkably, many have managed to establish or maintain these efforts even in the face of unprecedented challenges brought on by the Covid pandemic.

These organisations are building relationships with the vast networks of IUCN SSC experts and other key stakeholders related to their focal taxa, country or region to catalyse more collaborative assessment, planning and action for species conservation. This global team has collectively helped assess more than 6,000 species and are working to prioritise, mobilise, and measure future conservation efforts.

Here we share more information about the 10 WAZA member Centres for Species Survival:

Europe

The Deep Aquarium, United Kingdom
Leadership at The Deep was instrumental in creating the vision of a global network of aquarium and zoo-based experts working to catalyse assessments and take a more collaborative approach to integrated species conservation planning and action – this resulted in what is now known as Centres for Species Survival. In 2016, The Deep hired a Marine Red List Officer who initially worked with the IUCN Marine Biodiversity Unit to assess marine species for inclusion on the Red List. This role rapidly evolved to support a global strategy for engaging other organisations in similar partnerships and providing training and management support to the Species Survival Centres network based at other partner organisations. Unfortunately, due to the impact of the pandemic, this role is temporarily paused, but The Deep remains a key partner in this global effort.

Paradise Wildlife Park, United Kingdom
A part-time Species Survival Officer was hired at Paradise Wildlife Park in 2019 to work in partnership with the UK's Joint Nature Conservation Committee, a public body that advises the UK Government on national and international nature conservation. Together they are working on merging information from national assessments with the IUCN Red List to address gaps in species knowledge and to look for opportunities for greater collaboration on species recovery planning and action for native UK species.

Oceanário de Lisboa, Portugal
In 2018, a full-time Species Survival Officer was hired to work with the IUCN Marine Biodiversity Unit to assess the extinction risk of marine species, for inclusion on the Red List, with a particular focus on species in aquarium collections and supporting specific assessment projects on seahorses. This work aims to better inform species conservation and collection planning efforts for marine species. The Oceanário de Lisboa team are beginning to expand their work to include bringing together key stakeholders and organisations to mobilise national efforts for Portugal and updating the Portuguese marine species assessments.

North America

ABQ BioPark, United States
A team of three full-time Species Survival Officers has been established at ABQ BioPark. Each is aligned with one of the Biopark's three facilities; the Aquatics Species Survival Officer, aligned with their Aquarium, has helped lead extinction risk assessments of freshwater fish across Mexico and Central America and has been instrumental in species recovery efforts for identified priority species. The Botanical Species Survival Officer, aligned with their Botanic Garden, has contributed to a greater understanding of the conservation status of medicinal plants, while the Invertebrate Species Survival Officer focuses on the conservation of pollinator species across North America to align with one of the Zoo's priority conservation flagship initiatives.

This team is now taking a global leadership role in training and providing management support to the network of Species Survival Officers based at other partner organisations, the remit previously overseen by The Deep. The extent of their work, which the New Mexico BioPark Society funds, has also enabled ABQ BioPark to become an IUCN Red List Partner and, therefore, hold a seat on the global Red List's governance board.

Georgia Aquarium, United States
As a result of one of their staff's dedicated assessment work, Georgia Aquarium was a key partner in the IUCN Shark Specialist Group's Global Shark Trends project to reassess the status of all shark species globally. Now that the assessments are complete, the Georgia Aquarium team is working with the IUCN Shark Specialist Group to mobilise the multi-stakeholder, One Plan Approach action planning for priority species and scale-up priority actions to reverse declines in shark species globally.

Photo: Dr Rob Shumaker announcing the Global Centre for Species Survival at the IUCN SSC Leaders Meeting in Abu Dhabi.
© Indianapolis Zoo

Photo: The team of Species Survival Officers at ABQ BioPark.
© ABQ BioPark

Photo: Ocean Voyager exhibit at Georgia Aquarium.
© Georgia Aquarium

South America

Parque das Aves, Brazil
In partnership with both the IUCN SSC Chair's Office and the SSC Conservation Planning Specialist Group (CPSG), Parque das Aves established the Centre for Species Survival Brazil. They have hired three staff members (two full-time and one part-time) who facilitate and build capacity for the IUCN Red List in Brazil. They are currently tutoring 60 Brazilian government officials in the Red List methodology to build capacity, improve the National Red List, and better integrate national and global assessments. As a CPSG Regional Resource Centre, they facilitate planning workshops and support conservation skillset training for the region. Under the 'Birds of Atlantic Forest' flagship project, Parque das Aves and partners carry CPSG's strategic plans forward by creating and executing fieldwork initiatives and projects to save species.

Fundación Temaikèn, Argentina
In late 2020, Fundación Temaikèn committed to establishing a Centre for Species Survival Argentina with the aim of creating a team of five staff in 2021. This centre will provide strategic support and capacity to bring together SSC experts, government and NGO stakeholders across Argentina to further catalyse assessments, planning, and action for species conservation nationally, and provide capacity and training support for species conservation assessments, planning, and action across Latin America.

Asia

Wildlife Reserves Singapore, Singapore
Although not yet formally a Centre for Species Survival, Wildlife Reserves Singapore (WRS) has long been working in partnership with the SSC to grow capacity and catalyse efforts for species assessments, planning and action across South East Asia. WRS employs a team of full-time staff members who collectively run the CPSG Southeast Asia Regional Resource Centre and they have hosted many red list assessment workshops and processes for priority taxa across the region. WRS also hosts the Secretariat of the IUCN SSC Asian Species Action Partnership, which catalyses conservation action through mobilising resources, partnerships and capacity building to prevent the extinction of land and freshwater vertebrate species in the region.

Australasia

Zoo and Aquarium Association (ZAA), Australia
A team of three Threatened Species Assessors (Species Survival Officers), one part-time and two full-time, will commence species assessment work for the IUCN Red List and the Australian Government's Environment Protection and Biodiversity Conservation Act assessment listing. This team will initially focus on determining the conservation status of bushfire affected species, then they will follow the CPSG One Plan Approach model to prioritise and drive future conservation outcomes. Beginning in March 2021 in Australia, these ZAA roles will be located in Sydney at Taronga Zoo, and in Melbourne at Zoos Victoria. Once established, ZAA aims to expand this model to include a presence in New Zealand. This work is also in collaboration with CPSG's long-standing Australasia Regional Resource Centre.

Global

Indianapolis Zoo, United States
The Indianapolis Zoo created the Global Centre for Species Survival in partnership with the SSC upon receiving a grant from the private philanthropic foundation Lilly Endowment, Inc. The Global Centre works with the SSC's network of international conservation experts to amplify their impact and empower the public to take action. In 2021, the Zoo hired a team of accomplished conservationists focused on mammals, amphibians and reptiles, invertebrates, birds, plants and fungi, freshwater species and marine species. The Zoo is also adding a Behavioural Change Specialist and Public Relations Specialist to support conservation communication efforts. This entire team will support, connect and communicate the efforts of 10,000+ global conservationists of the SSC network.

Each Centre for Species Survival is unique, created to best meet the priorities of the country or region within which the zoo or aquarium is based, and best aligned with the strengths and focus of those organisations and those of the IUCN SSC network. They share a commitment to catalysing science-driven, collaborative species conservation efforts systematically through assessment, planning and action, and uniting efforts between zoos, aquariums, IUCN networks, governments and NGOs; so that together we can **Reverse the Red.**

Repatriation of Philippine Crocodiles from Europe for Reintroduction into the Wild

Photo: The Philippine crocodile team at Cologne Zoo (left) with Cologne Zoo's transfer coordinator Bernd Marcordes (outermost right) and transport crates for Dodong and Hulky. © J. Nicolaudius

Thomas Ziegler[1], Theo B. Pagel[1], Rainier Manalo[2], Vicente Mercado[2], Nermalie Lita[3], Anson Tagtag[3]

[1]Cologne Zoo, [2]Crocodylus Porosus Philippines Inc, [3]Biodiversity Management Bureau, Department of Environment and Natural Resources, Philippines

The Philippine crocodile (*Crocodylus mindorensis*), endemic to the Philippines, is among the world's rarest crocodilians, with only about one hundred individuals remaining in the wild. It is listed as critically endangered on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species and on Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Due to its precarious status in the wild, the IUCN Crocodilian Specialist Group (CSG) has recommended *ex situ* management for the species.

Following the Memorandum of Agreement with the Philippine Department of Environment and Natural Resources (DENR) and zoos in the USA, Australia, and Europe, international breeding programmes for this species were established.

For conservation breeding in Europe, 15 young crocodiles were transferred in 2006 from the Palawan Wildlife Rescue and Conservation Center (PWRCC) based on a Memorandum of Agreement between the DENR, Biodiversity Management Bureau (BMB), and the Danish Krokodille Zoo. In 2009, 10 of the 15 Philippine crocodile hatchlings were transferred to other European zoos.

The first Philippine crocodile conservation breeding programme in Europe was officially initiated in April 2012, when the European Studbook (ESB) was established by the European Association of Zoos and Aquaria (EAZA), administered by Cologne Zoo, Germany. The goal of the ESB was to build up a reserve population in Europe.

Since its first breeding in Europe, which took place at Cologne Zoo in Germany in July 2013, further breeding successes in Europe occurred in the Czech Republic (Protivín Crocodile Zoo), the UK (ZSL London Zoo), and Denmark (Krokodille Zoo). Due to these recent breeding successes, the number of Philippine crocodiles within the ESB has increased from 15 individuals initially, held in six institutions, to 52 individuals distributed among 12 institutions.

Genetic screening of the Philippine crocodiles held in Europe was undertaken in cooperation with Omaha's Henry Doorly Zoo, USA, and the Zoological Institute of the Technical University of Braunschweig, Germany, eight years ago. These and further tests were necessary to demonstrate the genetic purity of the ESB individuals, as molecular studies had revealed the existence of phenetically indistinguishable hybrids between Philippine crocodiles and saltwater crocodiles (*Crocodylus porosus*) among farms in the Philippines, putting the origin and purity of farm-held crocodiles in question.

During recent field research conducted by Crocodylus Porosus Philippines Inc. (CPPI), a new population was discovered in the South of the Philippines. To support the few remaining natural populations, namely to restock Philippine crocodiles in their natural habitats, CPPI was on the search for purebred individuals. CPPI, a not-for-profit NGO, is committed to the sustainable use of commercially farmed saltwater crocodiles and the research and conservation of the two crocodile species (*C. mindorensis, C. porosus*) in the Philippines. Thus, the genetic testing of the European population was very timely to support and replenish the few remaining wild populations of Philippine crocodiles in natural habitats.

CPPI visited Cologne Zoo in June 2019 to inspect potential ESB individuals for the first repatriation. CPPI selected Hulky and Dodong, two crocodiles that hatched in the Cologne Zoo in July 2015.

The hatchlings occurred from a natural breeding event, which allowed the Cologne Zoo's Philippine crocodile team to observe and document the parental care and breeding behaviour, such as mouth transfer and nest guarding behaviour of this elusive species. Dodong and Hulky grew up under their mother's care and are thus well socialised and perfectly suited for repatriation.

After a formal agreement between the German Federal Agency for Nature Conservation and the DENR, Philippines, the transfer of the crocodiles was organised by Cologne Zoo's animal transfer coordinator, Bernd Marcordes, in coordination with the animal travel agency, Gradlyn, at Frankfurt Airport, a company specialised in the transfer of exotic animals.

Initially, Hulky and Dodong were to depart in March 2020; however, the Covid-19 pandemic thwarted the plan a few days before the transfer was due to happen. It took nine months to find a new transfer option.

Hulky and Dodong finally departed from Cologne Zoo on 14 December 2020 and arrived the next day at the DENR National Wildlife Research and Rescue Center, Ninoy Aquino Parks and Wildlife Center, Philippines. After an acclimation period, they will build up a genetically pure colony in the Philippines for subsequent reintroduction into the wild.

This is another successful example of the One Plan Approach to conservation supported by the IUCN and aimed at developing integrative strategies to combine *in situ* and *ex situ* measures with groups of experts for species conservation. This example shows that conservation breeding projects, coordinated by scientifically led zoos, can actively support *in situ* conservation measures in the country of origin. DENR, in collaboration with CPPI, has plans for further repatriation of offspring from the European conservation breeding programme to the Philippines, as there is sufficient space and suitable habitat in the South for supplementing the wild population of Philippine crocodiles.

Photo: Dodong next to transport crate. © A. Rauhaus

Inset Photo: Meeting at Cologne Zoo, June 2019. *From left to right: Vicente P. Mercado (President CPPI), Rainier Manalo (Program Director CPPI), Prof Theo B. Pagel (CEO and Cologne Zoo Director), Prof Dr Thomas Ziegler (Philippine crocodile ESB keeper, Cologne Zoo). © A. Rauhaus*

The Philippines Assistant Secretary for Climate Change and concurrent Director of BMB, Ricardo L. Calderon, welcomed the repatriation of the Philippine crocodiles from Europe with high hopes that they shall contribute to enhancing the species' wild population.

The Philippine crocodile also plays a primary role in the 'Species of the Year' campaign 2021, which aims to raise awareness about the threats and conservation needs of lesser-known wildlife species kept in zoos, as well as raise funds for conservation projects working directly with these species. You can read more about this annual campaign in this magazine.

We sincerely hope that the crocodile Species of the Year campaign 2021 will be successful and that the zoo community can broaden *in situ* conservation efforts based on their *ex situ* engagement, which is the rationale behind the One Plan Approach of improving conservation efforts by integrating species conservation planning across a range of partnerships/ stakeholders.

Photo: Dodong submerged, in December 2020, a few days before repatriation. © T. Ziegler

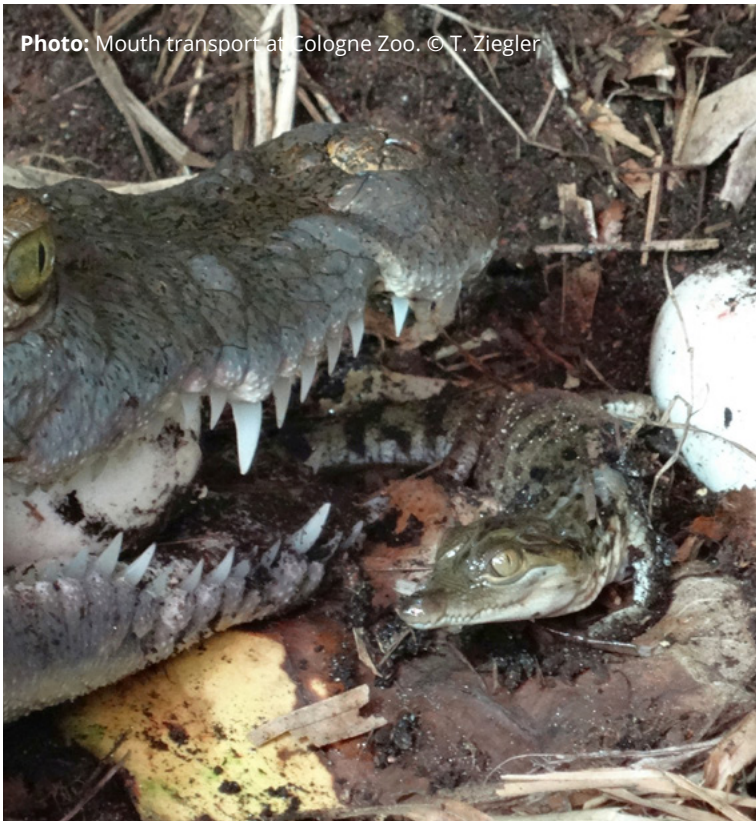

Photo: Mouth transport at Cologne Zoo. © T. Ziegler

Photo: Habitat and release site at Siargao Island Protected Landscapes and Seascapes. © R. Manalo/ Crocodylus Porosus Philippines Inc

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Photo: Juvenile Cuban crocodiles.
© Robin Moore/Global Wildlife Conservation

Announcing the Species of the Year Campaign 2021

Viktoria Michel
Project Coordinator Zootier des Jahres

German-speaking zoos have announced that the species in focus for this year's Species of the Year (Zootier des Jahres) campaign is endangered crocodiles.

The annual campaign was launched to raise awareness of the threats and conservation needs of lesser-known wildlife species kept in zoos and to raise funds for conservation projects working directly with these species.

Seven of the at least 26 species of crocodilians are currently listed as critically endangered on the IUCN Red List of Threatened Species, among them the Cuban crocodile (*Crocodylus rhombifer*), Philippine crocodile (*Crocodylus mindorensis*) and Siamese crocodile (*Crocodylus siamensis*). They are under immense threat from habitat loss, hybridisation and intensive hunting for their skins.

Crocodiles are fascinating animals but are often not perceived as such by many people.

Unfortunately, they are predominantly neglected by large species conservation organisations.

To finally place crocodiles in the limelight, they were chosen for the title 'Species of the Year 2021'. During the yearlong campaign, German-speaking zoos will be engaged in lobbying activities for this captivating species and simultaneously collect funding to support three *in situ* conservation projects:

- Cuban crocodiles in the Zapata Swamp in Cuba – Global Wildlife Conservation
- Philippine crocodiles on Siargao Island in the Philippines – Crocodylus Porosus Philippines Inc.
- Siamese crocodiles in Kalimantan, Borneo – Yayasan Kolaborasi Inklusi Konservasi

In Cuba, the project brings Cuban crocodiles back from the brink of extinction by implementing identified priority conservation actions by the IUCN SSC Crocodile Specialist Group, including efforts to increase population numbers via reintroduction and by tackling poaching, in combination with close monitoring of wild Cuban crocodiles in the Zapata and Lanier swamps.

In Siargao Island, the project aims to establish a Philippine crocodile semi-wild breeding facility for future release programmes and community nature-based education. The breeding programme will be supported with Philippine crocodiles bred in European Zoos.

While in Borneo, the project team is searching for remnant populations of the Siamese crocodile in East-Kalimantan using environmental DNA.

The Species of the Year campaign was founded in 2016. The first species chosen was the leopard, followed the next year by the cockatoo and then the Asian box turtle. In selecting a suitable animal for the title, the sequence of fur, feathers and scales is used. In 2019 a new cycle began with the gibbon, followed by the hill mynah and the crocodile.

Over the past few years, the campaign has been able to develop a positive image nationwide. It presents, in particular, the species protection and conservation breeding work of zoos, i.e. the *in situ* and *ex situ* components of the IUCN One Plan Approach to Conservation, for zoo visitors.

This is the very first German inter-association campaign that enables not only the major zoological institutions but also the smaller ones to sensitise their visitors to the important field of biodiversity through a joint *in situ* conservation project.

With easily understandable and tangible examples, the campaign promotes the critical work of zoos and other partners in species conservation.

In order to achieve as much as possible for the species in focus, in the form of public relations work and concrete species conservation measures, four partners who are active in species conservation have joined forces. The main campaign partners are the Zoological Society for Conservation of Species and Populations (ZGAP), the institutions and members of the Deutsche Tierpark-Gesellschaft e.V. (DTG), the Association of Zoological Gardens (VdZ) and the Community of German Zoo Patronisers (Gemeinschaft der Zooförderer, GdZ).

Zoological gardens as a driving force in species conservation

Many zoos in Germany, Austria, Switzerland, Netherlands and Luxembourg take part in this annual campaign by installing posters, organising events, generating media coverage and informing their visitors about the importance of conservation work for the selected species.

The success of the campaign is achieved by providing visitors with unique experiences to engage with zoo animals, which take on the important role of ambassadors for their endangered species living in the wild. Species conservation and environmental education are one of the main tasks of modern zoological institutions. Together, the zoos in German-speaking countries reach more than 42 million zoo visitors every year.

We sincerely hope that this years' crocodile campaign, and its much-needed conservation projects, will be as successful as previous Species of the Year Campaigns.

Photo: Gustavo Sosa from the captive breeding facility in Zapata Swamp cradles a young Cuban Crocodile under the water.
© Robin Moore/Global Wildlife Conservation

Photo: Adult Philippine crocodile.
© Crocodylus Porosus Philippines

CPSG Principles and Steps of Species Conservation Planning

Photo: Brown Kiwi in Australasia

Jamie Copsey, Onnie Byers, Caroline Lees
Conservation Planning Specialist Group (CPSG)

Of the more than 128,500 species assessed through the global IUCN Red List, 28% are considered to be threatened with extinction (IUCN, 2021).

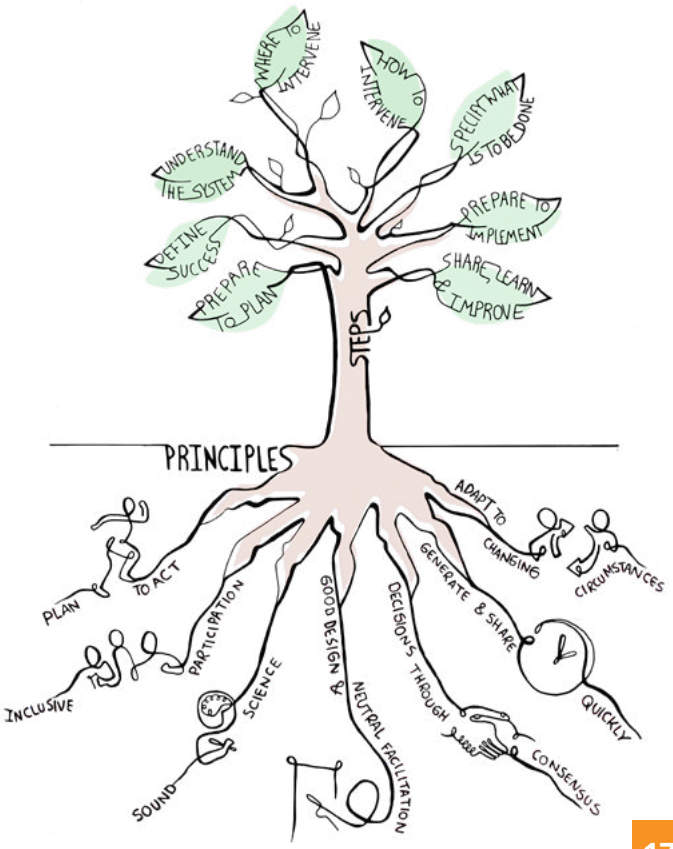
This significant figure represents only a small fraction of the estimated one million species facing extinction, many of which may be wiped out from our planet within only a few decades (IPBES, 2019). Never before have we faced such a biodiversity cliff edge. However, there has also never been greater diversity of life on earth (Ceballos et al., 2020).

For more than forty years, the Conservation Planning Specialist Group (CPSG) of the IUCN Species Survival Commission has supported zoos, aquariums, other SSC Specialist Groups, governments and non-governmental organisations around the world in planning for the recovery of threatened species. The hundreds of collaborative workshops that CPSG has run have led to plans whose implementation has stabilised and improved species status.

The CPSG approach is captured in a new publication, 'Species Conservation Planning Principles and Steps' (CPSG, 2020), outlining a set of values which CPSG feels should underpin any approach to developing an effective plan and a series of steps by which to get there. In this article, we take the opportunity to introduce you to this document, highlighting its relevance to zoos and aquariums worldwide.

Roots and Leaves

CPSG's species conservation planning principles and steps are analogous to the roots and leaves of a tree (*see below*). The roots (or principles) provide the tree with solid foundations and nurture its visible growth. The leaves (or steps) are what you see in action, moving with the elements, shifting to maximise effectiveness.



Begin with the Roots: Principles of Planning

CPSG recognises seven principles of species conservation planning. These principles describe the underlying philosophy of planning that has underpinned CPSG projects for decades and which are crucial to their longevity and success. Together, they set the tone for any CPSG-led planning conversation and guide when and how different planning elements are introduced and addressed. With these seven principles in place, designers and facilitators of planning processes can be confident that the resultant plan will likely be implemented effectively.

Nurture the Leaves: Steps to Planning

Rooted in these seven principles, the steps provide a practical framework for building a planning process. For clarity, the steps are portrayed as discrete and sequential. In reality, there are often multiple feedback loops, and steps may sometimes be moved around, combined or truncated, depending on the needs and opportunities of the particular planning context. However, in general, following these eight steps can ensure that the plan to be implemented is practical, defensible and well-communicated to all involved.

Principles and Steps: Relevance to Zoos and Aquariums

The 'Principles and Steps' support the One Plan Approach (Byers et al., 2013) to planning for threatened species management in the wild, in captivity and at the interface between the two (see Box for a sample output of one of the eight steps, as applied to planning for an *ex situ* programme for the brown kiwi). This year is a critical one for species conservation. It ushers in new global aspirations and targets for biodiversity conservation in the form of the Post-2020 Biodiversity Framework (OECD, 2019), to which WAZA, CPSG and many other organisations have contributed. At the same time, it is the start of the new IUCN quadrennium and the accompanying SSC strategic plan. As a community, we must be ready for a more ambitious and better-coordinated push for species.

Vision for the *Ex situ* Management of Brown Kiwi (*Apteryx mantelli*) in Australasia

The captive brown kiwi population is demographically stable and self-sustaining, genetically healthy, and maintained in facilities that model excellence in kiwi husbandry. The programme through which this population is managed is strongly supported and valued by all holders. It delivers key advocacy messages widely and effectively, has the capacity to provide captive-bred kiwi for targeted release to the wild and provides a resource for recovery-directed training and research.

Welfare and Husbandry Goals

- All holders have on- and off-exhibit facilities that are 'fit for purpose' and the New Zealand Department of Conservation (DOC) permitting process supports the consistent implementation of approved husbandry standards.
- The challenges to health and breeding success of kiwis in nocturnal houses are well understood and effectively managed.
- All kiwi in the programme have the potential both to breed and to be released successfully.

Population Management Goals

- High levels of gene diversity are maintained, and inbreeding accumulation is minimised.
- Target population size and stable age structure are maintained.

Advocacy and *In situ* Conservation Goals

- DOC-approved priorities and plans for restoration and release are supported.
- Key advocacy messages are widely accepted and used.
- Programme participants are encouraged to channel institution-based conservation initiatives towards the Kiwis for Kiwi Trust and their local kiwi projects.

Programme Support Goals

- The captive management strategy meets both population-level goals and the display needs of participating institutions.
- Among holders there is a shared understanding of, and support for, all programme goals.

From: Barlow (2018) Captive Management Plan for Kiwi 2018 – 2023. Zoo Aquarium Association, NSW, Australia.

WAZA is a lead partner in 'Reverse the Red' which provides us all with an exciting opportunity to work together to assess, plan, and act for species worldwide. Additionally, IUCN's Global Species Action Plan operationalises the WAZA-endorsed Abu Dhabi Call for Global Species Conservation Action and will provide a roadmap for how governments can achieve the targets agreed to in the Post-2020 Global Biodiversity Framework. Ensuring synergies between these initiatives, and collaboration among all stakeholders will be critical if we are to ensure that all we have to offer is effectively integrated, from global policy through planning to effective, species-saving action on the ground.

Many threatened species for which no plans currently exist would benefit from the support that good planning can bring, and CPSG will be working hard to fill this gap over the next four years. The publication of the 'Principles and Steps' is a milestone in this effort, but in order to instigate more planning, more quickly, for more species, we also need more collaborators to be trained and experienced in their application.

Many zoos, aquariums and zoo associations are already significant supporters of these efforts, either as donors, as hosts for CPSG Regional Resource Centres around the globe, or as the primary initiators and sponsors of species planning projects. In the next quadrennium, we hope to expand these partnerships, engaging more zoo and aquarium conservation professionals as planning leaders, facilitators, population modellers and wildlife disease risk experts, to help amplify this much-needed expertise around the globe.

The close collaborations already in place through regular application of planning processes such as the One Plan Approach and Integrated Collection Assessment and Planning (ICAP) are an excellent foundation for this, as are the existing bodies of knowledge and expertise within the zoo and aquarium community, but capacity building will also play a key role. CPSG's species conservation planning training and mentoring programmes are now up-and-running and will be expanded over the coming year. Since 2018, more than 700 conservation professionals have joined the training programme, including more than 250 from zoos and aquariums internationally. A growing number of these individuals are now reporting back to us on their expanded role in designing and facilitating collaborative species conservation planning processes. We will need to multiply this effect to achieve the conservation planning revolution envisaged.

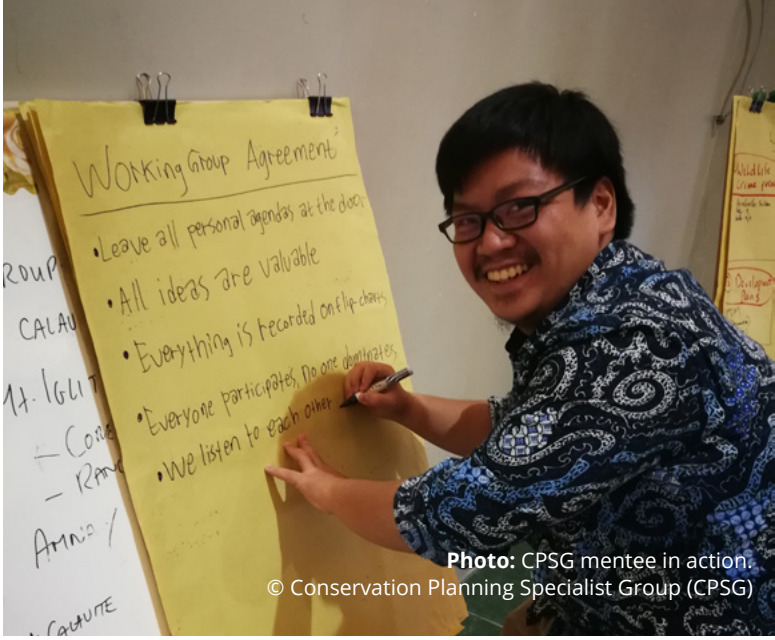


Photo: CPSG mentee in action.
© Conservation Planning Specialist Group (CPSG)

It is the opportunity to apply the training received that will build this international cohort of confident, competent species conservation planners. Though specifically designed for species conservation planning, the concepts and tools described in the 'Principles and Steps' are also relevant to other planning situations and to the design and delivery of meetings that are not aimed at generating a plan. With regular opportunities to test and grow their experience, we envisage zoo conservation professionals playing an increasing role in designing and facilitating species conservation planning processes worldwide.

The publication of the 'Principles and Steps' represents a natural progression for CPSG from an organisation that provides expertise to support species conservation planning efforts, to one that also helps develop the capacity of organisations to be able to plan for the recovery of threatened species themselves. We hope you find this document of value and look forward to engaging further with the zoo and aquarium community, to determine how we can continue to work together to ensure that, 'every species that needs a plan is covered by an effective, implemented plan'.

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Charismatic Collection Planning for Visitor Attendance and Conservation

Photo: Giant panda.
© Wildlife Reserves Singapore

Dr Andrew Mooney
Trinity College Dublin, Ireland, Guest PhD Researcher with Species360

The release of Blackfish in 2013 sent ripples through the zoo and aquarium world, highlighting the significant ethical and welfare concerns over the maintenance of large, charismatic animals (e.g. elephants, great apes and cetaceans) in zoos and aquariums.

Since then, we have seen numerous legal battles and the implementation of legislation to prevent the display and breeding of such species in zoos and aquariums. This can be seen by the now resolved but lengthy battle between Vancouver Aquarium and the City of Vancouver and its Park Board over a ban on the display of cetaceans at the aquarium. This has ultimately resulted in several institutions removing such species from their collections entirely. These are often very controversial decisions, fuelled by genuine public concern and emotion. However, the conservation consequences of such decisions have not been adequately discussed.

These examples are all part of a growing trend to remove large charismatic species from zoo and aquarium collections. While at the same time, there is clear evidence that large, charismatic species are the most popular with visitors, potentially increasing visitor attendance and subsequently allowing zoos and aquariums to allocate more financial resources to *in situ* conservation efforts. Collectively, the global zoo and aquarium community attracts over 700 million visitors every year and invests more than US$350 million in wildlife conservation *in situ*, representing the third-largest conservation organisation contributor globally. The argument that there are immovable visitor preferences and that zoos must exhibit large vertebrates to attract visitors and remain economically viable has yet to be systematically assessed. However, if by housing large vertebrates, zoos and aquariums can contribute more to *in situ* conservation, protecting not only individual species but their extended habitats, then their presence in collections may represent an optimal conservation strategy, and their recent removals may be both premature and potentially dangerous for the future of *in situ* conservation efforts.

Although there is evidence for the flagship approach of using popular, large vertebrates in zoo and aquarium collections to drive public education and *in situ* conservation fundraising, such as the Congo Gorilla Forest exhibit at the Bronx Zoo, work to date has yet to unequivocally link collection species composition to attendance and *in situ* contributions globally, with most studies limited by the range of species, institutions and countries assessed. Similarly, the relative influence of socio-economic and collection composition variables on attendance has not been assessed, inhibiting informed collection planning decisions and policy formation.

In a study, titled: 'A system wide approach to managing zoo collections for visitor attendance and *in situ* conservation', published in *Nature Communications*, we used zoo composition data from 458 Species360 member institutions to assess how zoo species composition and socio-economic factors influence visitor attendance and *in situ* conservation project contributions, both directly and indirectly. This allowed us to test for the first time whether zoos must exhibit large vertebrates in order to attract visitors and fund *in situ* conservation activities.

We found that zoos with many varieties of animals (and particularly mammal species), large animals, or zoos which are dissimilar to other zoos, achieve higher visitor numbers and subsequently contribute to more *in situ* conservation projects. However, we also reveal a very strong trade-off between the number of animals and body size, indicating that alternative composition strategies, such as including many small, unique animals, may also be an effective strategy.

Our results demonstrate the key role of large vertebrates in promoting both visitor attendance and *in situ* conservation investment but also highlights that they are only one part of a complex system of determinants. Furthermore, we also find a direct link between the proportion of threatened species within a collection and the institutional *in situ* contributions, suggesting that greater institutional investment in threatened species *ex situ* is linked to higher *in situ* conservation activity. However, we found no evidence to support that threatened species increase visitor numbers.

Our results indicate that institutions with numerous large-bodied species, particularly mammals, are more likely to achieve higher annual visitor numbers and contribute to a greater number of *in situ* conservation projects.

This provides the first global indication that the flagship approach of using popular, large, charismatic animals in zoo and aquariums to increase visitor attendance and *in situ* conservation fundraising is being utilised effectively to increase the *in situ* conservation contributions of zoos globally significantly. We, therefore, caution that the removal of such species from collections may be premature and result in decreased visitor attendance and subsequently *in situ* conservation investment, exacerbating global biodiversity loss.

Photo: Researchers found that zoos with mammal species or large animals achieve higher visitor numbers and subsequently contribute more to in situ conservation projects. Sumatran tiger.
© Adrian Mann/Adelaide Zoo

Photo: Western lowland gorilla.
© Bristol Zoo

Our results indicate that institutions with numerous large-bodied species, particularly mammals, are more likely to achieve higher annual visitor numbers and contribute to a greater number of *in situ* conservation projects.

Dr Andrew Mooney

Photo: Polar bear.
© David Roberts/Yorkshire Wildlife Park

These results do suggest that ethical, management and welfare considerations may also conflict with attendance increasing strategies. It is imperative to highlight that these results do not discount or diminish the clear ethical and welfare concerns associated with the continued inclusion of large, charismatic vertebrates in zoo and aquarium collections.

In fact, we have already seen that increased concerns over the welfare of large vertebrates under human care can cause significant decreases in visitor attendance. Therefore, these concerns must be investigated and addressed accordingly. However, consideration of potential conservation benefits and public expectations should be included in these discussions.

This study highlights the importance and collective power of globally shared zoological records in the Zoological Information Management System (ZIMS), and we sincerely thank all Species360 member institutions for their continued data recording efforts. In reality, each individual's institution must make difficult decisions regarding their collection composition in order to fulfil institution-specific goals and to ensure the sustainability of *ex situ* populations. We hope that the evidence presented within this study can help guide such collection planning processes and increase the *in situ* contributions from zoos and aquariums, helping to conserve global biodiversity.

Article: https://www.nature.com/articles/s41467-020-14303-2

We hope that the evidence presented within this study can help guide such collection planning processes and increase the *in situ* contributions from zoos and aquariums, helping to conserve global biodiversity.

Dr Andrew Mooney

Photo: Dave Morgan (left) from Wild Welfare attends an audit visit to a zoo in Brazil.
© Association of Zoos and Aquariums of Brazil (AZAB)

Roadmap to the 2023 Animal Welfare Goal

The Association of Zoos and Aquariums of Brazil's (AZAB) Animal Welfare Certification Programme

Dr Claudia Igayara de Souza

President of the Association of Zoos and Aquariums Brazil (AZAB)

Brazil is a country of continental dimensions, rich in both biodiversity and cultural diversity. In Brazil, we have 102 institutions open to the public in the country, including zoos and aquariums, most of which are of a public and non-profit nature, managed by municipal governments, distributed in different regions of the country.

Given the great diversity observed in standards and management practices between institutions and regions, the establishment of national standards proved to be a great challenge, and the need for an assessment and certification process for members of the Association of Zoos and Aquariums of Brazil (AZAB) was an urgent need.

As part of the Association's reorganisation process in 2014, we invited animal welfare NGO, Wild Welfare to participate in the drafting of our code of ethics and welfare. Following on from that, we formed a partnership for the development and implementation of AZAB's Certification Programme in animal welfare, which formally began in 2017. We decided to start a certification process for animal welfare because it is an essential element of all zoo and aquarium activities, and without which we cannot move forward in conservation, education, and research. At the time, the implementation of *ex situ* management programmes in partnership with the Chico Mendes Institute for Biodiversity Conservation (ICMBio) – the government agency responsible for the conservation of endangered species – was also under discussion, and it required us to establish minimum standards for AZAB member institutions to guarantee implementing programmes with the highest standards. Another critical factor in starting the certification process was AZAB's affiliation with WAZA, and the need to have an animal welfare evalutation process in place by 2023, with all WAZA members in the country evaluated by that date.

The partnership with Wild Welfare resulted in the drafting of AZAB's Welfare Assessment Procedure Standard and audit form, auditors' training, and a Wild Welfare expert's attendance during the first cycle of audits. After analysing the material made available by Wild Welfare, AZAB opted to adopt its methodology, adjusting the standards to better align with the Brazilian reality, but without changing any of the central concepts. The tested methodology provided by Wild Welfare proved to be fully applicable to what AZAB envisioned, with the added benefits of allowing us to start the process faster than if we had developed our own system, as well as being able to rely on Wild Welfare's experience and monitoring during audits, and practical training provided to Brazilian auditors.

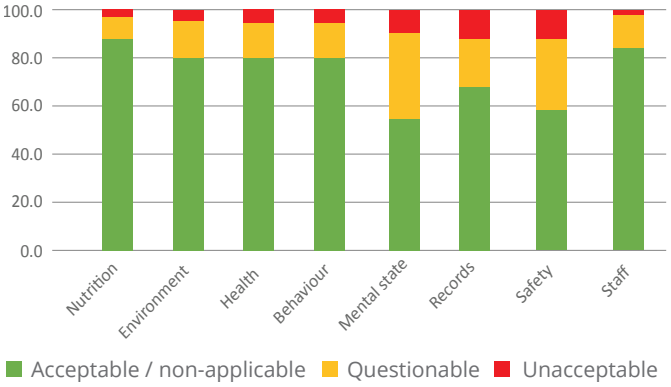
The methodology we have adopted is based on the Five Domains Model and ensures that a reassessment occurs every five years. After 2023, all members will have to be certified in order to keep their membership status, and all new candidates will have to undergo the assessment and certification process before being accepted as a member.

From 2017 to 2019, two audit campaigns were carried out per year, totalling 29 institutions, which is 72% of AZAB's current membership. Due to the Covid pandemic, we could not conduct any visits in 2020, but fortunately, this delay will not affect the goal of having all member institutions audited by 2023.

We attended the WAZA Animal Welfare Summit held in Barcelona in 2019, where we were able to compare our assessment programme with those of other associations, and to identify gaps in our process, however, in general, the AZAB programme largely meets the requirements established by WAZA. Participating in the Summit was an excellent opportunity to discuss concepts and exchange experiences with other associations, and thus improve our own processes. We identified the need to implement a self-assessment system, to be carried out in the interval between re-evaluations, to ensure that welfare conditions are continuously maintained and improved. We also identified the need to implement a 'complaint and denunciation' procedure which is available to everyone, so we are working to create an ombudsman, linked to the welfare committee, to handle these cases.

After conducting 29 audits, it was possible to establish a pattern of the main issues that affect animal welfare in Brazilian institutions and thus outline strategies to mitigate problems and promote the improvement of well-being standards and management practices.

Partial results of welfare assesment in Zoos and Aquariums in Brazil, 2017 - 2019



By analysing the data obtained, we observed that the welfare issues are similar in different institutions, and mostly related to some common practices in Brazilian zoos and aquariums. The lack of a culture of maintaining written and reviewing protocols for day-to-day activities was evident at different times during the evaluation, such as for euthanasia policies,

Photo: AZAB conducting on site welfare audits.
© Association of Zoos and Aquariums of Brazil (AZAB)

Photo: AZAB conducting on site welfare audits.
© Association of Zoos and Aquariums of Brazil (AZAB)

Photo: AZAB conducting on site welfare audits.
© Association of Zoos and Aquariums of Brazil (AZAB)

quarantine procedures, review of diets, and in cases of illness. This also reflects the lack of population management planning, with the absence of collection plans in most institutions, many animals in temporary housing and overpopulation, since many zoos receive animals from the local fauna rescued due to accidents.

Another consequence of this situation is isolated social animals or animals in groups of inadequate composition, which accounts for most of the deviations in behaviour and impairment of mental status.

Finally, the lack of records on behaviour and attention to essential aspects of species-specific requirements, results in poorly structured environments, with inadequate substrates or lack of furniture, as well as the absence of documented environmental enrichment programmes aimed at stimulating natural and positive behaviours, which accounts for most non-compliances in the domains of environment, behaviour, and mental state.

The assessment process proved to be an opportunity to detect critical points common to several institutions, and thus direct the Association's efforts to minimise these deficiencies and promote the collective improvement of zoos and aquariums in Brazil, through training workshops, courses and by activities held by the committees, particularly those on nutrition and welfare.

Even before all institutions have been audited, some significant changes are already taking place, like those related to collection plans, which was the subject of a workshop and resulted in most zoos and aquariums creating their plans and changing their culture regarding species and animals held or intended to be held in the future.

As part of the partnership established with ICMBio for the implementation of *ex situ* management programmes for 25 endangered species, AZAB is preparing husbandry and care manuals with a specific component on welfare, to strengthen the concepts used in the Animal Welfare Standard and promote its application.

So far, we have ten certified institutions and confidence that the adoption of this programme has effectively improved and will continue to improve the quality of life of thousands of animals kept in Brazilian zoological institutions, a more than necessary advance for us to fulfil our role in society.

Photo: AZAB conducting on site welfare audits.
© Association of Zoos and Aquariums of Brazil (AZAB)

IUCN Presidential Candidate Endorsement

Humanity is at a crucial crossroads. Though there has been some positive progress in biodiversity conservation in some areas, the natural world is still largely under threat. Much more needs to be done to address these issues and drive sustainable and actual change. Biodiversity is facing a dual crisis of rapid climate change and unprecedented biodiversity loss.

With more than one million species at risk of extinction, and the lives of humans inextricably linked to the health of the planet, we need action and strong leadership. Which is why, for the first time in the World Association of Zoos and Aquariums' (WAZA) 86-year history, we are endorsing a candidate for the International Union for Conservation of Nature (IUCN) Presidential Candidate.

WAZA and the IUCN Species Survival Commission invited the three Presidential Candidates, Razan Al Mubarak, Malik Amin Aslam Khan and John Gwilym Robinson, to speak on the Reverse the Red webinars in 2020, to hear their thoughts on biodiversity conservation, their vision for the IUCN Presidency, and to introduce them to the Reverse the Red movement.

While we believe all three to be strong candidates, WAZA is officially endorsing Razan Al Mubarak for the IUCN Presidency.

Ms Al Mubarak has over 20 years of progressive conservation experience, leading a large government agency, an NGO focused on citizen engagement, and an international philanthropic organisation. She is the Managing Director of the Environment Agency Abu Dhabi (EAD) – the largest environmental regulator in the Middle East, as well as Managing Director of the Mohamed bin Zayed Species Conservation Fund and Managing Director of Emirates Nature-WWF.

Her life-long love of nature has seen her dedicating her career to wildlife conservation. She has been a strong advocate and supporter of the IUCN for nearly two decades and is committed to making the IUCN the foremost scientific authority on environmental matters.

Photo: Razan Al Mubarak.
© Mohamed bin Zayed Conservation Fund

Her fresh perspective and vision for the IUCN Presidency, which aims to involve collaborative work with all constituencies, youth and local communities, with a focus on sustainable development, is vital and aligns with what WAZA and the IUCN Species Survival Commission hope to achieve with the Reverse the Red movement.

In her role on the Board at Al Ain Zoo, Ms Al Mubarak experienced first-hand the important role of zoos in outreach and global conservation efforts. She played an instrumental role in managing the collaboration between the Environment Agency Abu Dhabi and the Smithsonian's National Zoo, Fossil Rim Wildlife Centre, the Royal Zoological Society of Scotland, and the Zoological Society of London to successfully reintroduce the scimitar-horned oryx into Chad.

WAZA is confident that Razan Al Mubarak will be an outstanding leader as IUCN President and will play a pivotal role in leading the IUCN in the critical decade that lies ahead for conservation. WAZA believes that Ms Al Mubarak represents a much-needed new style of leadership for global conservation, and will be able to inspire, empower and unite people in this role.

We would like to encourage our WAZA members, who are also members of the IUCN, to vote for Ms Al Mubarak in the upcoming IUCN Presidential Elections in September.

How to Choose Responsibly Sourced Forest Products

Photo: Sumatran rhinos are one of many species which live in forests and depend on them for their survival. Unfortunately, forest fragmentation is one the main threats threating this critically endangered species. © Willem v Strien

Elaine Bensted

Member of the WAZA Conservation and Environmental Sustainability Committee and Chief Executive of Zoos South Australia

Background

At the 73rd WAZA Annual Conference in October 2018, WAZA signed a Memorandum of Understanding (MoU) with the Forest Stewardship Council (FSC). The MoU included a goal that 50% of WAZA members would develop a policy by 2021, expressing a clear preference for FSC-certified products and source at least 70% FSC-certified materials in their procurement of paper and wooden products.

We all use wood products for construction projects, office supplies, food services and more. As zoos and aquariums are concerned about the state of the forest habitats that are home to many of our cherished wildlife species, we should all ask ourselves, "how do we make the best choices in our purchasing?"

Forests are home to 80% of the world's remaining terrestrial biodiversity, but they are under significant threat. The use of forest products (including timber and paper) contributes to this threat. Zoos and aquariums play a critical role in conserving biodiversity and wildlife, both in the field and in our own facilities.

Conservation and Environmental Sustainability Committee

This Committee consists of representatives from a broad range of WAZA members. It is a subcommittee of the WAZA Council that meets via online meeting platforms at all sorts of odd hours due to the global diversity of the Committee members.

In 2020, the Committee discussed the MoU with the FSC, with an emphasis on how we could support members in achieving the targets that had been agreed to. I am certainly very conscious of the significant impact that Covid has had (and continues to have) on WAZA members. We decided that the creation of a resource in the form of a guide, would be a valuable tool to make it easier for members.

A few members of the Committee agreed to draft a resource document, and I offered to lead this task. I will admit that my work on this was a little 'stop-start' as the impact of Covid tended to divert my attention! In my drafting stage, I drew upon a couple of key resources.

The first was the British and Irish Association of Zoos and Aquariums (BIAZA) Forest Zoos Pack, and the second was the WAZA Short Guide on how to reduce single-use plastics. Using these two documents for inspiration, I wrote the first draft, and then my writing committee members (Karen Fifield, Wellington Zoo, and Becca Hanson, Studio Hanson/Roberts) reviewed and improved the draft with their comments. Once we got to this point, we sent the draft to the Committee, and the WAZA Office put out a call for case studies.

The Guide
We made the Short Guide to act as a resource for members. It covers the following:

- Background
- Implementing a policy on responsible sourcing of timber products (including a template if your organisation doesn't currently have a policy)
- Overview of the key forest-sourced products we use
- Tips on conducting your own audit
- Communication and partnership ideas
- A section on common barriers that are raised
- How to engage visitors in this issue
- A section with further resources
- Throughout the guide, there are also several case studies from WAZA members.

Case Studies
One of the key benefits of being a WAZA member is the ability to draw on others' experience. When we put out the call for case studies, I was amazed at the depth and diversity of responses. I am very grateful to the WAZA members for sharing their experiences, especially when I know the challenges everyone is facing. We wanted to include case studies that had a diversity of geography and scale of the initiatives. Our aim has always been to have members make whatever improvements they can – each step is a step in the right direction.

The guide contains case studies from the following WAZA Members:

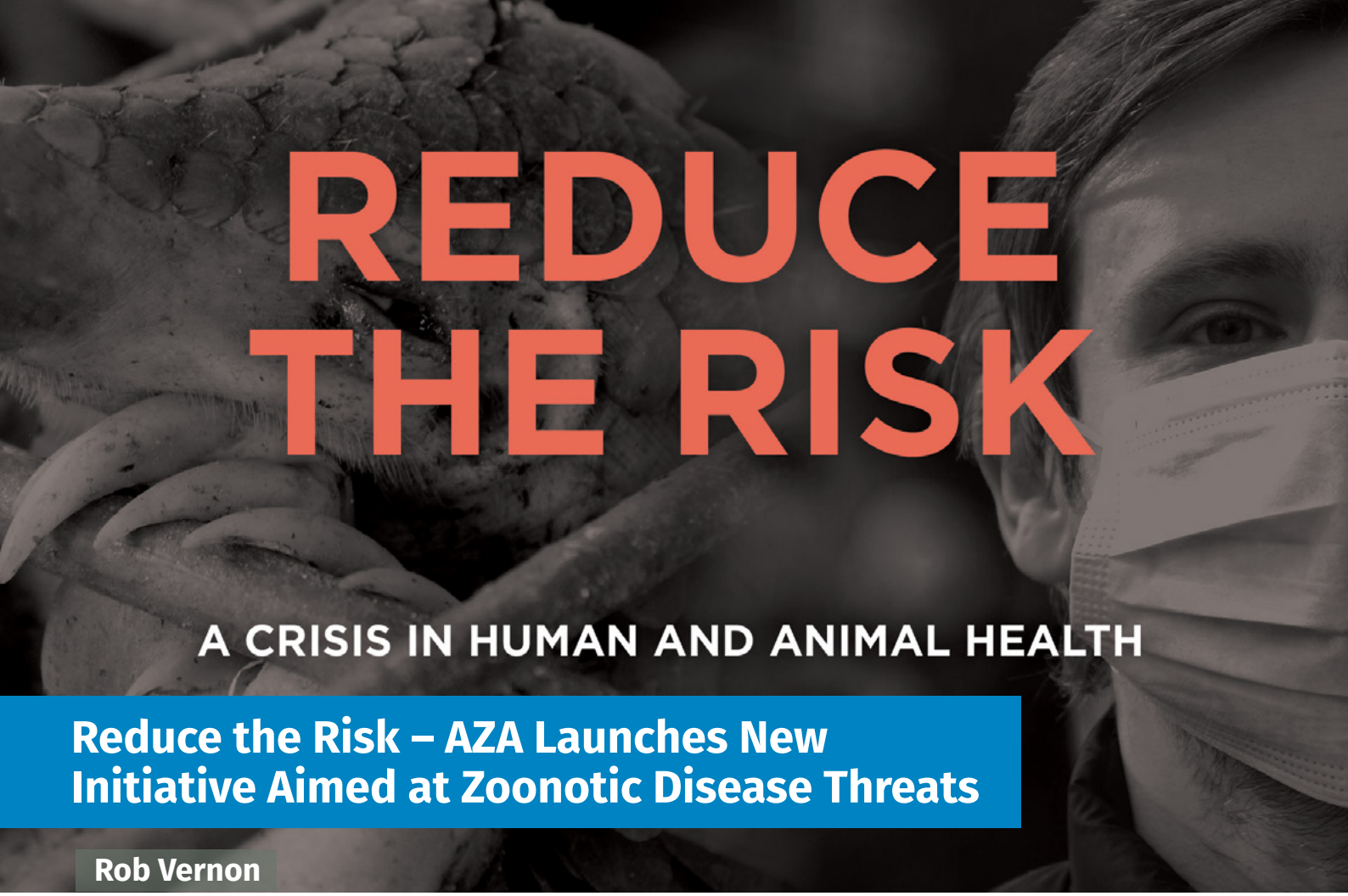
- **Wildlife Reserves Singapore**
- **Calgary Zoo**
- **Houston Zoo**
- **Zoo Zürich**
- **Wellington Zoo**
- **Oregon Zoo**
- **Osnabrück Zoo**
- **Sedgwick County Zoo**
- **Taronga Zoo**
- **Ocean Park**
- **Papiliorama Foundation**

Photo: Deforestation and the degradation and fragmentation of the red panda habitat are the main threats to red panda survival in the wild. © Wellington Zoo

Personal thanks
This was an opportunity for me to learn more about the FSC process. I want to thank Karen and Becca, who assisted with the drafting, the WAZA Office for coordinating the case studies, those who took time to draft and submit case studies and my amazing graphic designer at Zoos SA, Ryan Thomas, who converted my boring Word document into the attractive looking and user-friendly guide that it became!

Please visit waza.org to download your copy of the short guide.

Remember, every small step is a step towards a better planet.



Reduce the Risk – AZA Launches New Initiative Aimed at Zoonotic Disease Threats

Rob Vernon

Association of Zoos and Aquariums (AZA)

Zoonotic diseases are a threat to human and animal health worldwide, as more than two-thirds of all emerging human infectious diseases are zoonotic. To address this crisis, the Association of Zoos and Aquariums (AZA) and its members are launching a new initiative. 'Reduce the Risk: A Crisis in Human and Animal Health' aims to reduce zoonotic disease threats by combatting wildlife trade that poses a risk to human and animal health.

"The current COVID-19 crisis was knowable, predictable, and preventable. AZA members are experts in safely and effectively importing, exporting, and transporting animals, and have expertise in preventative veterinary care, including quarantine, and measures to enhance resiliency to animal disease and pathogens," said Dan Ashe, President and CEO of AZA. "This expertise can provide critical input into national and global policy conversations around wildlife trade, and inform the public that zoos and aquariums are safe places to visit."

"COVID-19 has been a global wake-up call for One Health action," said Dr Sharon Deem, DVM, PhD, Dipl ACZM, Director of the Saint Louis Zoo Institute for Conservation Medicine. "This pandemic tragically reminds us of the ties that bind the health of human and non-human animals, and the environments that sustain all life. Through the collective work of AZA institutions that ensure the health, welfare, and conservation of non-domestic animals, we combat zoonotic spillover events, such as COVID-19, that threaten human public health."

Reduce the Risk builds upon existing AZA initiatives, connects these efforts across the community, and provides AZA members and partners with a comprehensive framework through which they can take collective action.

The initiative was developed with input from wildlife trade and animal health experts from inside and outside of the AZA community and will utilise four strategic pillars:

- Strengthen national policy on wildlife trade
- Advocate for stronger wildlife trade policies at the global level
- Increase AZA programmes and efforts that support the Reduce the Risk initiative goal
- Educate and mobilise the public to help us reduce the risk of zoonotic diseases.

Photo: Pangolins are the most trafficked animal in the world.
© San Diego Zoo

"While it is very important to develop vaccines, like the Covid vaccine, they are not the sole solution, and we also need to do preventive work," said Darin Collins, DVM, Director of Animal Health Programmes at the Woodland Park Zoo. "Like preventive medicine, if we don't have a preventive treatment for our planet, we are going to continue to cause human health problems. It's the same with pandemics. If we don't find solutions to wildlife trafficking, deforestation and habitat fragmentation, the pandemic zoonotic disease threats will continue."

"As we continue to navigate the devastating human loss and economic impact caused by the COVID-19 pandemic, and as we chart a course toward recovery, we must acknowledge the origin of our current and tragic circumstance: the spillover and transmission of a zoonotic disease, quite possibly in a live animal market in Wuhan, China.

But even more important than acknowledging this, we must act now to avert another similar event," continued Ashe. "Unless we learn from these lessons and take steps to reduce related risks, the same will be true of the next pandemic and the next."

Additional information on Reduce the Risk can be found on the AZA website at:

www.aza.org/reduce-the-risk

Photo: Celebrating the 70th anniversary of the South African Association for Marine Biological Research (SAAMBR) © SAAMBR

SAAMBR Celebrates 70 Years of Helping People to Care for the Ocean

Dr Judy Mann-Lang

Conservation Strategist, South African Association for Marine Biological Research (SAAMBR)

Seventy years ago, our organisation started an incredible journey – the founding of a new non-profit NGO dedicated to ocean research and conservation in South Africa. Amazingly, this journey continues today as the South African Association for Marine Biological Research (SAAMBR) celebrates its 70th Anniversary.

The dream of helping people to secure food sustainably from the sea has developed into the largest and oldest NGO dedicated to marine conservation in South Africa. SAAMBR is the parent organisation of the Oceanographic Research Institute, uShaka Sea World and uShaka Sea World Education. Since we were founded, SAAMBR has introduced over 20 million people to the wonders of ocean life – firstly at the Durban Aquarium and, since 2004, at uShaka Sea World. For many, a visit to the aquarium is their first opportunity to experience the wonders of the ocean. We work to Inspire our visitors to CARE for the ocean, CONNECT them to life in our seas and EMPOWER them to act for nature.

For the millions of children who have participated in our educational activities, the aquarium represents an opportunity to experience a new world, ponder new career opportunities and become ambassadors for the ocean. In fact, many current marine scientists in South Africa attribute their love of the ocean to a visit to the Durban Aquarium at a young age.

The Oceanographic Research Institute, SAAMBR's research division, has undertaken applied marine research along much of the east coast of Africa. Our scientists are active in many fields including research on fisheries, estuaries, coral reefs, marine protected areas (MPAs) and coastal zone management. We are especially proud of our contribution to policy through close working relationships with various government agencies. Many of the protected areas along our east coast were declared with input from our scientists and several fish species owe their continued existence to the timely research conducted by our scientists.

Our animal rehabilitation efforts have enabled us to care for stranded seals, turtles, sea snakes, penguins, and many other marine species. Each year our dedicated staff care for many animals that have washed up along our shores. Thanks to our teams' experience and dedication, most of these animals have been returned to the ocean.

Photo: The Durban Aquarium in 1959. © SAAMBR

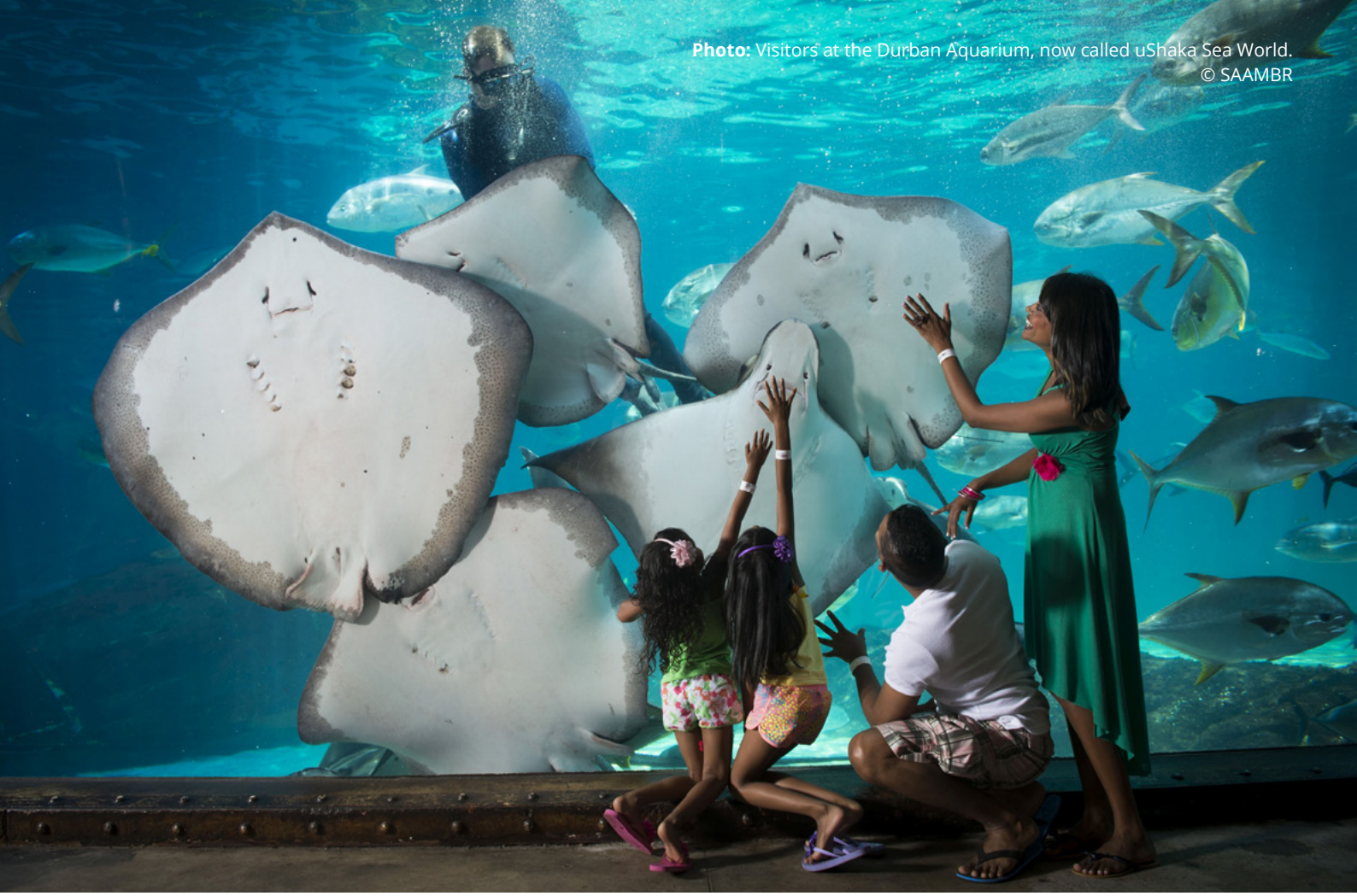


Photo: Visitors at the Durban Aquarium, now called uShaka Sea World. © SAAMBR

We are quite sure that our founders had no idea that their dream would grow to reach so many millions of people and have such direct, positive impacts on the ocean. In 1951, people thought that the ocean was too big for humans to ever impact. We now know differently, as our impact has reached every part of the ocean through pollution, habitat destruction, overfishing and climate change. But we also know that the health of human beings depends on the health of the oceans – it is imperative that we care for the ocean. SAAMBR has been advocating ocean care for over 70 years – truly an NGO established before its time!

We pay tribute to our Council members, staff, volunteers, and animals, past and present. And thank you to all our partners for being an essential part of our journey.

We look forward to the next 70 years of helping people to care for the ocean, never has this been as critically important as it is now!

Photo: Aerial view of the expanded Durban Aquarium in 1977. © SAAMBR

Photo: Visitors to the Durban Aquarium in 1959. © SAAMBR

Experiencing Nature from a Different Perspective: the 'Floating Classroom'

Photo: Vechtezomps are historical flat-bottomed boats which carry excursions of up to 25 people, with a unique experience of the ecosystem of the river Vechte. © Samtgemeinde Emlichheim

Dr Rebecca Schulte-Iserlohe

Scientific co-worker of the Zoo School, Tierpark Nordhorn, Germany

On a boat, surrounded by nature, spotting wild animals, examining water samples and detecting small creatures in the water: the Floating Classroom enables German and Dutch pupils to switch from their classrooms to active hands-on lessons directly in nature – a truly memorable learning experience which the pupils will definitely never forget.

Rivers are often used as waterways and are important for commercial shipping. To simplify shipping, stream courses were straightened which led to a massive loss of biological diversity. Since most of the small rivers are no longer used for commercial shipping, many were renatured and restored to their original state. One of these small rivers is the "Vechte" which begins in Germany and ends in the Ijsselmeer in the Netherlands. In recent years, agriculture next to the river has been reduced, walkways were created and nature has once again colonised the banks. Rare species have returned and tourists can enjoy them by walking or cycling next to the river.

But there is also another option to experience the Vechte and its nature: in the border region between Germany and the Netherlands, a cooperation project between the two countries has launched a way to explore the Vechte from the water. Historical flat-bottomed boats, the Vechtezomps, cruise the border region between Emlichheim in Germany and Hardenberg in the Netherlands. Tickets for public tours can be booked, but also renting a whole boat for groups of up to 25 people is possible.

Furthermore, a unique project for classes of German and Dutch elementary schools, the Floating Classroom (Schwimmendes Klassenzimmer) was cooperatively developed by the Tierpark Nordhorn, the municipality of Emlichheim, Germany and the Natuuractiviteitencentrum De Koppel, Netherlands. It enables the classes to switch from their classrooms to the Vechtezomp and to experience nature using all their senses. The excursions are led by Nature Conservation Rangers from the zoo school of Tierpark Nordhorn or the Natuuractiviteitencentrum De Koppel.

The Floating Classroom enables German and Dutch pupils to switch from their classrooms to active hands-on lessons directly in nature – a truly memorable learning experience which the pupils will definitely never forget.

Photo: Fishing for animals with scoop-nets is not only fun for the kids! © Tierpark Nordhorn

The pupils experience an interactive and adventurous lesson: they turn into natural scientists and detect different species on land, in the air and in the water. Each boat has a treasure chest aboard and its contents ensure a vivid education for the pupils: an otter's fur, foot and beak of a stork and a swan's egg are only some examples of the demonstration material. The children are allowed to touch and hold these exhibits making it is a truly interactive experience. Unique bilingual specifying cards for animals and plants living in the ecosystem Vechte help the children to identify different species. The highlight for many children is being able to investigate the water and its inhabitants. With the help of bowls of Vechte water on board the boat and scoop-nets for the kids they can identify insect larvae, water beetles, mussels, and with luck, small fish can also be observed closely with the help of magnifying bug viewers.

The goal of this project is to give children a hands-on understanding of the flora and fauna of local waterbodies and to learn about ecosystems in general and the Vechte in particular. Learning in a different environment with a direct contact to nature reinforces learning success and raises empathy. Most importantly, the children learn to appreciate nature, develop environmental awareness and will hopefully become the next generation of nature lovers and protectors.

Photo: Animals which have been caught can be observed closely with the help of magnifying bug viewers. Such intensive hands-on learning reinforces learning success and creates a connection between children and nature. © Samtgemeinde Emlichheim

Zoo Miami's Conservation Action Center

Photo: The entrance to Zoo Miami's new Conservation Action Center. © Ron Magill

Ron Magill
Zoo Miami Goodwill Ambassador/Communications Director

After more than five years in the making, Zoo Miami unveiled its new Conservation Action Center in January, an engaging interactive experience designed to connect guests to wildlife conservation efforts in a fun and inspiring way. Combining hands-on games with impactful visuals, this state-of-the-art exhibit not only features some of the many conservation efforts introduced by Zoo Miami around the world, it also shows the visitor how they can make a positive difference in protecting the environment in their own homes and backyards on a daily basis.

Guests are able to crawl through a larger-than-life Burmese python and learn how this and other invasive species labelled as "Florida's Most Wanted", have negatively affected our environment and illustrates to them what they can do to help.

They will also be introduced to some of the zoo's live native species in the 'Meet Your Neighbours' section where zookeepers give regular interactive presentations with animals such as an indigo snake, gopher tortoise and box turtle.

Keeper Corners throughout the exhibit feature revolving images of zoo staff working behind the scenes and in the field as well as show casing some of the amazing animals that call Zoo Miami home.

Guests can explore 'What it Takes to Save a Species' by sitting in a golf cart to take a virtual behind-the-scenes tour of Zoo Miami's Animal Hospital, Nutrition Center and Butterfly Research Lab.

In addition, several interactive games have been designed to expose visitors to some of the interesting challenges faced by zoo staff such as 'What's the Poop' where visitors can compete to see who can scoop the most poop into a compost bin or act as a game show host in 'The Mating Game' and pair a gorilla with the best possible mate. They can also see how high they can score in a game called 'Habitat Whack-A-Mole' where they try to eliminate environmental threats as quickly as possible.

Finally, guests will be able to walk through a typical house and learn how they can best share their habitat in a way that supports wildlife and its conservation.

The exhibit was designed and constructed by Split Rock Studios based in St. Paul, Minnesota. Their in-house team is highly regarded in the zoological field for designing and constructing custom exhibits that provide transformative experiences by telling powerful stories.

Photo: Children attend a 'Meet Your Neighbours' presentation at the Conservation Action Center. © Ron Magill

Photo: Children having fun playing Scoop the Poop. © Ron Magill

Prior to becoming the Conservation Action Center, the exhibit was known as Dr Wilde's World, which was a museum type facility that hosted a variety of traveling exhibits providing visitors with the opportunity to have new experiences on an annual or bi-annual basis. The premise was that this facility was home to the fictional Dr Beatrice Wilde and that she would constantly be "redecorating" with objects and stories from her travels around the world to protect wildlife and the environment.

Wildlife conservation goes beyond simply protecting animals, it is about protecting the quality of life for humans as well. From the insects that pollinate the plants which provide us with food, to the coral reefs that help filter our oceans and protect our coastlines, to the rainforests that help produce the air that we breathe and the medicines that cure our illnesses, the future of wildlife and wild places has a direct impact on the future for all of us. By conserving and protecting wildlife, we are indeed conserving and protecting ourselves. Zoos must play an important educational role in teaching this message.

The bottom line of the new exhibit is that conservation connects us all, and the goal of the new Conservation Action Center is to demonstrate this to all its visitors, while inspiring them to make positive changes in an effort to protect our natural environment for future generations!

Photo: Animals have a habitat and so do you. In this section of the Conservation Action Center, guests learn more about how the actions they take within their own homes affect the environment around them. © Ron Magill

Photo: Visitors can crawl through the giant Burmese python. Portions of the snake feature some of the animal populations in the Everglades that have been affected by Burmese pythons.
© Ron Magill

Photo: Pygmy hippopotamuses. © Torben Weber/Basel Zoo

Update on International Studbooks (ISBs)

Changes between 2 December 2020 and 17 March 2021

ISBs published ISBs (11)

- **Malayan tapir** *(Tapirus indicus)*, 2019 ed. – Sharmy Prastiti (Taman Safari Indonesia Cisarua-Bogor, Indonesia)
- **Persian leopard** (*Panthera pardus saxicolor*), 2019 ed. – Susana Nolasco (Jardim Zoológico de Lisboa, Portugal)
- **Buffon's macaw** (*Ara ambiguus*), 2019 ed. – Sandrine Silhol (Zoo des Sables d'Olonne, France)
- **Asian small-clawed otter** (*Aonyx cinereus*), 2020 ed. – Sarah Duncan (Tulsa Zoo, United States of America)
- **Greater bamboo lemur** (*Prolemur simus*), 2020 ed. – Dr Delphine Roullet (Cotswold Wildlife Park and Gardens, United Kingdom)
- **Tiger** (*Panthera tigris sspp.*), 2020 ed. – Dr Peter Müller (Zoo Leipzig, Germany)
- **Scimitar-horned oryx** (*Oryx dammah*), 2020 ed. – Dr Tania Gilbert (Marwell Wildlife, United Kingdom)
- **Pygmy hippopotamus** (*Choeropsis liberiensis*), 2020 ed. – Beatrice Steck (Basel Zoo, Switzerland)

ISB Transfers

- **Bonobo** (*Pan paniscus*) – Intra-institutional transfer from Dr Zjef Pereboom to Sarah Lafault (Royal Zoological Society of Antwerp, Belgium)
- **Asian small-clawed otter** (*Aonyx cinereus*), – The International Studbook Keeper, Sarah Duncan, moved from Mesker Park Zoo & Botanic Garden to Tulsa Zoo (United States of America)
- **Goeldi's monkey** (*Callimico goeldii*) – Intra-institutional transfer from Mark Warneke to Sheila Wojciechowski, at the Chicago Zoological Society (United States of America)
- **Red panda** (*Ailurus fulgens*) – Intra-institutional transfer from Angela Glatston to Janno Weerman (Rotterdam Zoo/Diergaarde Blijdorp, Netherlands)
- **Black lemur** (*Eulemur macaco*) – Inter-institutional transfer from Peggy Hoppe (Loveland Living Planet Aquarium, United States of America) to Richard Brown (Dudley Zoological Gardens, United Kingdom)

ISB Archived

- **Spix's macaw** (*Cyanopsitta spixii*) International Studbook

Would you or someone in your team like to become an International Studbook Keeper? The following studbook is currently vacant:

- **Giant eland** (*Taurotragus derbianus gigas*) ISB

Get in touch with the WAZA Executive Office at conservation@waza.org to find out more.

Photo: Grizzly bear at the Greater Vancouver Zoo.

The World Association of Zoos and Aquariums (WAZA) is delighted to welcome its first new member of 2021, the Greater Vancouver Zoo. The Zoo joined as a new Institutional Member in March.

Established in 1970, the Greater Vancouver Zoo has grown from being a small drive-through to one of Canada's premier zoological destinations and a dedicated contributor to species conservation over the past half a century.

The 120-acre zoo, situated in British Columbia, is dedicated to education and conservation and is home to many rescued, donated and orphaned animals.

Serge Lussier, General Manager of the Greater Vancouver Zoo, said: "It is with much pride that the Vancouver Zoo has joined the World Association of Zoos and Aquariums, this is an important organisation in the world of animal care and welfare, education and global conservation. The next people that will have their heart for protecting the environment, that will go into politics and have an influence — they need to come to our zoo and realise the importance of our zoo".

"There's more to it than animals, but animals are the centre of it. What we're doing is not only something that will be great for families in British Columbia, but also something that is important for the future of our society."

Serge Lussier, General Manager of the Greater Vancouver Zoo

Photo: A guest enjoys a behind-the-scenes experience at the zoo.
© Greater Vancouver Zoo.

"There's more to it than animals, but animals are the centre of it. What we're doing is not only something that will be great for families in British Columbia, but also something that is important for the future of our society."

Supporting conservation efforts is one of the primary missions of the zoo, and this is implemented on different scales. At the local level, its commitment is aimed at protecting some of British Columbia's native species, such as the Taylor's checkerspot butterfly, the Oregon spotted frog and the western painted turtle. Additionally, the Greater Vancouver Zoo supports the creation of conservation breeding programmes for the recovery of populations such as the woodland caribou, an emblematic animal of North America, which is unfortunately on the verge of extinction.

The Zoo aims to be a leader in conservation through active onsite rehabilitation programmes of endangered local species, head-start and release programmes, participation in global conservation initiatives, and public education. It was recognised for its conservation efforts and twice awarded the Peter Karsten *In Situ* Conservation Award for its work on the Salmon River Restoration Project and the Western Painted Turtle Recovery Programme, respectively.

The Greater Vancouver Zoo is also a member of Canada's Accredited Zoos and Aquariums (CAZA).

Photo: The Greater Vancouver Zoo is working with an Oregon spotted frog recovery team to help save this species from extinction
© Greater Vancouver Zoo

Photo: Hana Siberian Tiger
© Greater Vancouver Zoo

In Memoriam

The global zoo and aquarium community has unfortunately recently lost several people. We remember and honour the legacies of **Vladimir Spitsin, Jeremy Mallison, Karl Peter Trebbau Millowitsch and Józef Skotnicki.**

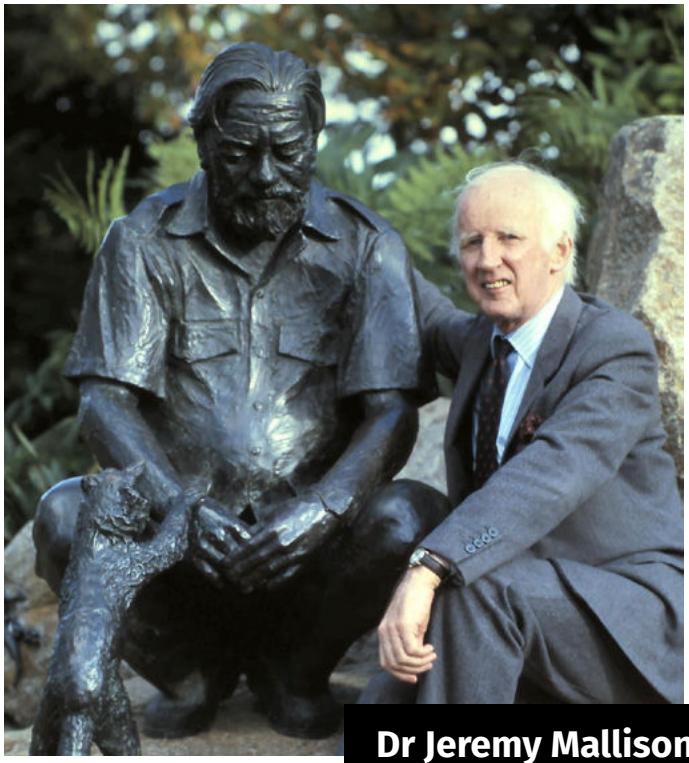
Vladimir Spitsin

The President of Moscow Zoo and Chairman of the Eurasian Regional Association of Zoos and Aquariums (EARAZA), Vladimir Vladimirovich Spitsin passed away earlier this year, in January. He had a long career in the zoo world having started working at the Leningrad Zoo when he was just 17 years old. He later transferred to the Moscow Zoo in 1974, where he was appointed deputy director for scientific affairs, before eventually becoming the zoo's director.

He was known as a determined, enthusiastic and kind man, who transformed the Moscow Zoo and placed it on the international stage. He was never worried about getting his hands dirty and participated in all kinds of work, such as renovation works himself. Passionate and invested in the welfare of his animals, he would go to collect vegetables thrown away by market vendors in the midst of food shortages.

He has been widely acknowledged with numerous awards and titles such as Honored Worker of Culture of the RSFSR, Academician of the Russian Academy of Natural Sciences, Order of Honor and Order of Friendship. Spitsin spearheaded the creation of the Center for the Reproduction of Rare Animal Species near Volokolamsk, as well as the setting up of EARAZA.

Vladimir Spitsin has left a legacy of many notable achievements and accomplishments, however he will always be remembered for the remarkable impact he had on so many people who knew him. His lifelong dedication to animals, conservation and the zoological community will surely inspire new generations of young professionals.



Dr Jeremy Mallison

Dr Jeremy Mallinson, OBE, Director Emeritus of the Durrell Wildlife Conservation Trust and a WAZA Life Member passed away at the age of 83 in February.

A great animal lover with a penchant for primates, he became director of the Durrell Wildlife Conservation Trust. He served for decades on the strategic committee of the IUCN SSC Conservation Planning Specialist Group and throughout his life he contributed to the conservation of many species such as Brazil's golden lion tamarins.

With over 210 articles, books and a novel to his credit, he became a pioneer in his belief in the importance of zoos for conservation. He had been awarded and decorated for his service to conservation. Dr Mallinson was awarded The Most Excellent Order of the British Empire (OBE) in 1997, as well as the Heini Hediger Award in the same year, when WAZA was formerly known as the World Zoo Organisation. In recognition of a lifetime of dedication to conservation, especially to primates, he became the 13th recipient of the Conservation Planning Specialist Group's (CPSG) Ulysses S. Seal Innovation Conservation Award.

Dr Pedro Trebbau

Dr Pedro Trebbau (born Karl Peter Trebbau Millowitsch) a German-Venezuelan zoologist who dedicated his life to the conservation and construction of zoological parks whose legacy is a reference in the zoological world, passed away in January.

Passionate about the animal world, he left Germany for Venezuela as a veterinary student to discover the country's fauna. He worked as an apprentice at the veterinary school of Maracay and deepened his knowledge thanks to the biological station of Rancho Grande. On his first expedition with professors and students, they collected about 150 animals and 700 plants and discovered new animal species. He completed his studies in Germany, did internships at the San Diego Zoo and wrote a dissertation on animal surgeries. Appointed technical director of the El Pinar Zoo, he set himself the task of creating an open park without cages. His influence is reflected in almost all Venezuelan zoos.

He used television as a medium of transmission and information and produced various television programmes. He also wrote articles, including a book containing scientific information and expedition stories.

Dr Józef Skotnicki

Dr Józef Skotnicki, Director of the Krakow Zoo in Poland for 25 years, passed away in October 2020. With a doctorate, he accepted the position of director of the zoo, giving up his position at the Max Planck Institute. An enthusiastic and courageous person, he modernised the Krakow zoo, starting with the 500-hectare Las Wolski garden. Under his leadership, he reformed the zoo's breeding, giving priority to rare and endangered animals. During the 2000s, numerous investments were made to improve the animals' living conditions. He was rewarded in 2016 when the zoo won the national award "Modernisation of the Year 2016" for the Humboldt penguin exhibit.

He joined WAZA when it was still the International Union of Directors of Zoological Gardens (IUDZG). He also promoted the protection of wild animals by giving courses to students. Additionally, he co-founded the Board of Directors of Polish Zoos and Aquariums and was a member of various councils and commissions. He is the author of nine books, over 100 popular science books and several dozen scientific works. He was a well-respected member of the community, and for his professional and social activities, he was awarded the bronze, silver and gold Cross of Merit, the Commander's Cross of the Order of Polonia Restituta and the bronze Cracoviae Merenti Medal.

According to him, the support of his family enabled him to succeed and overcome all obstacles.

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