



WAZA

*World Association
of Zoos and Aquariums*

2021

02

NEWS

**First Global Center
for Species Survival**

**The Crucial Role of Global
Cooperation Among Zoos
and Aquariums**

**The Science of
Immersive Learning**



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WAZA Membership

WAZA Members as of 16 July 2021

Affiliates	10
Associations	23
Corporates	18
Institutions	280

Future Events

- 2021:** 76th WAZA Annual Conference, Online, 11-14 October
2022: Loro Parque, Tenerife, Spain
2023: San Diego Zoo Global, San Diego, United States of America

President's Letter

Prof Theo B. Pagel

President of WAZA

Dear colleagues,

Let me begin this letter with a personal comment. I must express my deep disappointment that we will not welcome you in person at the 76th WAZA Annual Conference in Moscow, Russia, this year. The Moscow team, under the leadership of Svetlana Akulova, Moscow Zoo CEO, working together with the WAZA Executive Office, did their best to organise a hybrid meeting. But, at the beginning of July, given the current situation regarding Covid, the WAZA Council had no other choice than to make the difficult decision to move to a virtual meeting. We believe this to be the best solution in these still challenging times, but we are confident that we will be able to offer you a thought-provoking and productive WAZA Annual Conference in October 2021. I would like to thank our colleagues in Moscow for all their hard work preparing for the conference.

I am sorry to say there will not be a handover of the conference flag from Moscow Zoo to Loro Parque, next year's conference host in Tenerife, Spain, and that there will not be an in-person handover of both the awards and the Presidency – the first time in WAZA's history for the Presidency. This brings us to the WAZA Council elections. We have a truly impressive list of people and associations running for seats on the Council, and it makes me proud and confident that we will have an excellent new Council to keep WAZA on track.

Additionally, I am pleased to welcome six new members to our global community: Poema del Mar, Assiniboine Park Zoo, Lucknow Zoo, Dartmoor Zoological Society, Biodôme de Montreal and Worldwide Zoo Consultants. You can read more about them in the magazine. As I always say, we need more good zoos, aquariums and partners, and for our growing global network to be a key player in the One Plan Approach.

I know it has been an incredibly challenging period for our members. Covid changed the world, but from my point of view, it changed the world in a way where we, the scientifically run, education and conservation orientated zoos and aquariums, can demonstrate our importance. Please read my thoughts on that in this issue.

There are many other important topics in this magazine which will be of interest to you, such as our Memorandum of Understanding with the International Zoo Educators Association (IZE) or the progress being made towards the WAZA 2023 Animal Welfare goal



– looking at the Zoo and Aquarium Association Australasia (ZAA) and Pan-African Association of Zoos and Aquaria (PAAZA) pilot programme.

We can also be proud that the Reverse the Red initiative won a Webby Award – helping to raise awareness of this conservation movement. I briefly want to mention that a new issue of The Zoological Garden – our joint magazine with the Association of Zoological Gardens (Verband der Zoologischen Gärten – VdZ) – is now available to read online.

Let me end with a big thanks to our Executive Office team. Under the leadership of Dr Martin Zordan, they did a great job in difficult times, and today especially thanks to Gavrielle Kirk-Cohen, who has again put together an interesting magazine for you.

Yours,

Prof Theo B. Pagel

CEO's Letter

Martín Zordan

WAZA Chief Executive Officer

The new United Nations (UN) Decade has started. The UN Decade on Ecosystem Restoration 2021-2030 is rallying call for the protection and revival of ecosystems all around the world, for the benefit of people and nature.

A repercussion of the global challenges of the pandemic has resulted in the beginning of the new decade being somewhat overlooked. Luckily, the Convention of Biological Diversity (CBD) is close to producing a final version of the post-2020 global biodiversity framework, which will give us a renewed opportunity to consider how, within this decade, we can put the world on track to protect species, their habitats, and ultimately ourselves.

From WAZA's perspective, we see that supporting the implementation of this framework can further evolve the global roles that progressive zoos and aquariums have. While the final framework has not yet been approved, behind it we find a genuine willingness to internationally collaborate and learn from previous attempts.

How can our global zoo and aquarium community help? Under the post-2020 framework there are expectations that specific species conservation goals will remain in the final version of the framework. Additionally, the latest versions of the document show that the aim of mainstreaming biodiversity forms an integral part of the guiding principle. As experts in species conservation, who are dedicated to protecting the natural world, this global framework is basically a calling for our global community of zoos and aquariums.

As zoological institutions, one of our strengths is developing and implementing strategies that answer both ambitious conservation and animal welfare goals. The Reverse the Red strategy and the tools and partnerships it encompasses, allows us to offer our expertise and services to governments to mobilise local action in response to global priorities.

At WAZA, we also have more work to be done to align ourselves with the UN Sustainable Development Goals within which this framework supports. In recent years WAZA has increased its focus on SDG12 (Sustainable Production and Consumption) encouraging more members to commit to this goal. You can read more



about the opportunity zoos and aquariums have to embrace sustainability in their practices in this issue of the magazine.

This past year and a half has shown us that time continues to pass quickly despite our efforts to pause some actions as we wait for a new normal. Whether we have reached normality or not, it seems we no longer have the luxury of waiting. Climate change and biodiversity loss are accelerating at an alarming speed. Let us make the best use of our time and initiate the changes we believe in. Our global community has a crucial role to play in this new UN Decade and we need to ensure our contributions are recognised on the international stage.

A stylized handwritten signature in black ink, appearing to read 'M Zordan'.

Dr Martín Zordan



The First-ever Global Center for Species Survival at the Indianapolis Zoo

By Bill Street, Indianapolis Zoo, and Kira Mileham, IUCN Species Survival Commission

In the first edition of the WAZA News Magazine of 2021, we shared information about Reverse the Red – the global movement focused on igniting strategic action and optimism to ensure the survival of wild species and ecosystems – and the role that zoos and aquariums can play in this movement by becoming Centers for Species Survival. Under the umbrella of Reverse the Red, strategic conservation in regions around the world can be taken to a whole new level by creating a network of National and Regional Centers for Species Survival. Here we take a look at the world's first Global Center for Species Survival.

The Global Center for Species Survival is a groundbreaking partnership between the IUCN Species Survival Commission (SSC) and the Indianapolis Zoological Society. Conceived in 2019, the Global Center was designed to increase the existing capacity of the SSC Network by seeking opportunities to devise strategies to better manage the challenges the SSC Specialist Groups encounter, that often impede conservation progress. This collaboration was made possible through a grant from Lilly Endowment Inc. The Global Center demonstrates the effectiveness of the way in which the zoological community joins forces to support worldwide conservation efforts.

In early 2021, the Global Center hired a team of seven internationally known experts to focus on supporting, connecting and communicating the work and efforts of more than 10,000 conservationists of the SSC. These Conservation Coordinator positions align with how the SSC Specialist Groups are loosely organised. Five of the seven coordinators each concentrate on one of the following taxonomic groups: invertebrates, plants and fungi, mammals, reptiles and amphibians, and birds. Two additional coordinators will focus on marine and freshwater species and also address issues that arise where there is an overlap with the taxonomic coordinators. In June 2021, the Global Center added a Media Specialist position to work directly with the SSC Chair's Office to amplify communications and build audiences interested in connecting to worldwide conservation efforts.

The Global Center will also recruit a Behavior Change Coordinator position later in 2021 to focus on the human dimensions of conservation and work with grassroots communities and the audiences that most directly affect species conservation and protection. They will organise campaigns to encourage human behaviour change in order to benefit species. They will need to have a deep understanding of the many cultural

and social beliefs that influence human behaviour. Many conservation action plans developed under the guidance of the IUCN SSC's Conservation Planning Specialist Group (CPSG) have specific activities to adapt human behaviour, so this position will be influential in connecting conservation science with social engagement efforts.

"This new team at the Indianapolis Zoo will bring unprecedented capacity to scale up the efforts of the SSC's world-leading conservation experts who are working to secure a future for plants, fungi and animals in more than 160 countries," said Professor Jon Paul Rodríguez, Chair of the IUCN Species Survival Commission." The Global Center will help us to bridge the gaps and support leading conservationists as they tackle critical planetary issues leading to biodiversity loss due to global climate change, invasive species, habitat degradation, overexploitation, and illegal wildlife trade."

The species and issues the Global Center will prioritise will be informed by the SSC Chair's office and input from the Chairs and members of each of the Specialist Groups. The Global Center team works with the ultimate goal of increasing impact across assessing, planning and implementing action for species conservation, with particular emphasis on accelerating the planning and implementation of conservation action. Having coordinators that facilitate efforts working side by side will increase networking across taxonomic areas. The Global Center also draws on the expertise of the zoological community by expanding

the communications and "storytelling" to the public to inspire and engage them in actions that benefit wildlife and wild places.

Serving as the home for the Global Center, the Indianapolis Zoo will also host international meetings and conferences to support the work of the IUCN SSC. Through this partnership, the Zoo will expand economic benefit to the community and its ability to connect science and scientists with the public, as it has for decades through internationally recognised exhibits and programming, and through the Indianapolis Prize, the world's leading award for animal conservation.

The Global Center will assist in bridging the gap between *ex situ* and *in situ* conservation. This team of conservation coordinators focused on advancing *in situ* conservation efforts is embedded within what would be considered a primarily *ex situ* conservation organisation. *Ex situ* conservation efforts provide emergency and often last resort assurances for some of the most critically endangered populations of plants, fungi and animals. They also provide opportunities to gain critical knowledge and experience in the needs and management of these species (and others like them), improving *in situ* efforts. Many *ex situ* scenarios, such as those provided at zoos and aquariums, provide opportunities to educate and engage the public in ways that can bring attention to *in situ* conservation. The Assess, Plan, Act model of the SSC is predicated on implementing the conservation action plans,



Photo: Guests and sea lion at the Indianapolis Zoo.
© Jordan Whitt.

ideally under a One Plan Approach model that seeks to unite the complementary efforts of *in situ* and *ex situ* communities. Through this model, the Global Center will support and accelerate species conservation and initiate the collaborations needed to achieve success.

However, this effort doesn't come without challenges,

"I believe our biggest challenges will be assessing the diverse needs of the Specialist Groups and prioritising our work to have the greatest impact," says Bill Street, Senior Vice President of the Indianapolis Zoo and the Director of the Global Center. Is an incredibly large, dynamic, active and ever-changing network, and the Global Center will need to remain nimble to meet the ever-changing needs of this conservation community. There is so much that can and needs to be done that prioritisation and focus will be critical."

The Global Center will consistently reflect on the responsibilities of serving a global community and be mindful of the cultural, socio-economic, governmental and other differences that comprise a global community. The team will need to identify opportunities to engage our next generation of conservation leaders and provide pathways to incorporate them in large numbers into international conservation efforts.



Photo: Tigers and child at Indianapolis Zoo. © Kerrie Best.

Get Involved

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 Partnership, kira.mileham@iucn.org, to join the growing network of Center for Species Survival and Reverse the Red partners.



Reverse the Red Wins the Webby Award for Internet Excellence

Valy Gourdon

WAZA

The World Association of Zoos and Aquariums (WAZA), a founding member of the Reverse the Red movement, is proud to announce that the Reverse the Red website has been crowned one of the best of the internet. This victory was made possible by the mobilisation of the international zoo and aquarium community.

Created in 1996, the Webby Awards, awarded by the International Academy of Digital Arts and Sciences (IADAS), reward the best of the internet. This judging body comprises over 2,000 executive and associate members. In line with the growth of the internet in recent years, the Webby Awards honour seven major media types, namely websites, video, advertising, media and public relations, social networks, applications, mobile and voice, games and podcasts. Each category is represented by two distinctions, the Webby Award and the Webby People's Voice Award.

The Reverse the Red website was awarded the People's Voice Winner 2021 in the Websites and Mobile Sites

Community category and was also a Webby Honoree in the Websites and Mobile Sites Sustainability and Environment category. The win was made possible by the global network of WAZA members and the conservation community that mobilised to vote for Reverse the Red.

The Reverse the Red website was designed to be simple and easy to access and use. The site presents the vision and the mission of Reverse the Red. The partners page shows the range of partners from all continents, many of which are WAZA members. In addition, the website features several case studies to highlight species conservation successes, showing that cooperation and strategic action together can save species and ecosystems. Webinars organised by Reverse the Red are also available on the website. During these webinars, panels of experts from all over the world discuss and show examples of teamwork, tools and partnerships to reverse the negative trends in species decline.

Reverse the Red is a global movement launched by WAZA, the International Union for Conservation of Nature (IUCN) Species Survival Commission (SSC) and additional partners.

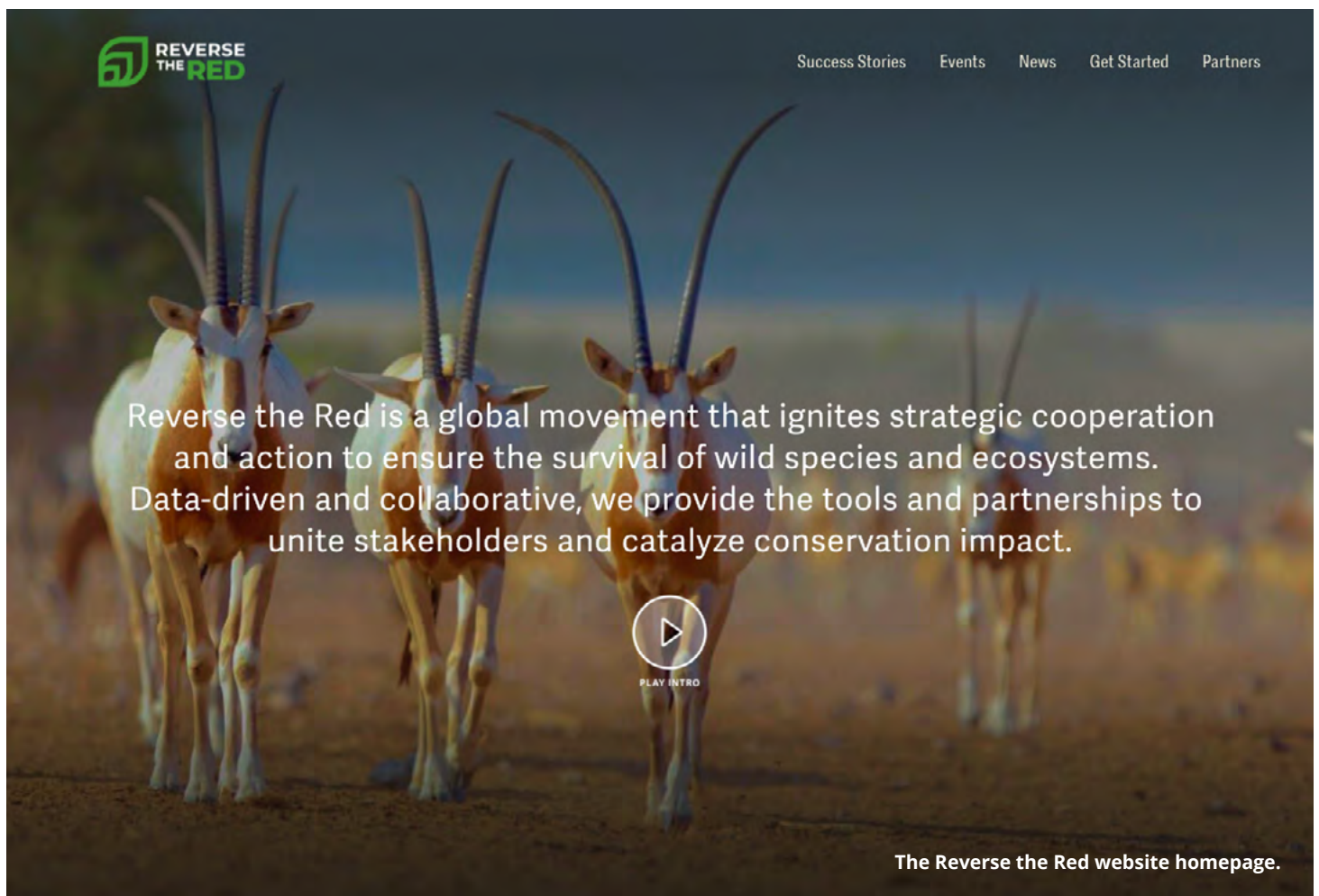
The primary mission is to bring together tools, partnerships and efforts to ensure the survival of wildlife and ecosystems. The movement is based on three essential steps to halt the decline of biodiversity: Assess, Plan, Act. The first step is to document the status of species and biodiversity trends using standardised tools. The second step is to develop collaborative, inclusive, and science-based conservation strategies and policies. And the third stage is to implement measurable conservation programmes to reverse negative Red List trends.

The movement is based on scientific data and tools and is driven by international collaboration, NGOs, zoos, aquariums, government agencies, multinational agreements, etc.

For more information, please visit:
www.reversethered.org



Photo: Conservation education. Families interacting with and learning more about a lizard.
© Javier Melgar/Oklahoma Zoo.





The Crucial Role of Global Cooperation Among Zoos and Aquariums

Prof Theo B. Pagel

President of WAZA and CEO of Cologne Zoo

Dear WAZA members, colleagues and friends,

Covid is still omnipresent and the devastating result of the lockdowns has seen some zoos having to close their doors to the public permanently. In the face of these challenges the role of zoos and aquariums as conservation leaders tasked with preserving species is more critical now than ever. I hope that this article succeeds in addressing these points.

It is essential that biodiversity is protected for the future of the human race, to ensure human beings survive as a species. The role of zoos and aquariums is an essential element in achieving this. With our expansive breeding programmes, reintroductions of species into the wild and educational and research projects, WAZA's contribution to preserving biodiversity is impressive.

WAZA member institutions around the globe receive millions of visitors each year so the educational role that zoos and aquariums play in respecting biodiversity is vital, in addition to our remit in

recreation, conservation education, animal welfare and conservation.

The last few decades have seen the role of modern zoos and aquariums change dramatically. Although some people still view our institutions mainly as leisure attractions, zoos and aquariums now act as sites of conservation learning, conservation action and research.

We are living in a changing and increasingly challenging world. We, as zoo professionals, intrinsically know and are aware of how vital biodiversity is for our planet.

Although we have experienced different zoonotic diseases in the past, the Covid virus is unprecedented in the toll it is causing at a global level. With incredibly high contagion rates it spread around the globe in a very short time, devastating lives and economies.

A WAZA supported paper "Impacts and implications of the COVID-19 pandemic and human health on the

IUCN Programme Nature 2030", states: "COVID-19 highlights the severity of novel zoonotic disease emergence and alerts us to the dangers of future emerging infectious diseases."

It further details our challenges as follows: "The COVID-19 pandemic has had a dramatic, if still to be fully understood, impact on society and global progress in advancing the Sustainable Development Goals (SDGs). In addition to the 120 million cases and 2.6 million deaths worldwide (as of March 2021), the pandemic has cut life expectancy in several countries by a year at least... According to the International Labour Organization, almost 9% of global working hours were lost in 2020, equivalent to 255 million full-time jobs... All this means that the impacts of the COVID-19 pandemic may persist for years, exacerbating inequality, reducing public expenditure on social spending, including conservation, and undoing some of the progress made against global goals, including the SDGs, over the past decade. At a time when nature is declining at a rate unprecedented in human history and with much to be learned regarding the links between human health, the environment, and the role of nature, the imperative to conserve nature is more vital than ever."

All these repercussions of the pandemic should have made clear to our world leaders and societies in general how vital access to nature is, and how fundamental biodiversity and a healthy environment is for human health. On the upside the pandemic has highlighted that it is imperative for humans to change and adapt our behaviour and follow the UN (SDGs).

The pandemic has also emphasised the importance of the members of the World Association of Zoos and Aquariums. Our scientifically run zoos and aquariums, or 'Nature Conservation, Education and Research Centres'.

During the Rigi Symposium, a special conference of WAZA and ZooSchweiz, held last year, I gave a talk on 'Zoos and Their Contribution to Species Conservation'. The conference proceedings outlined the many breeding programmes we have established as a result of the Global Management Species Programmes, and show that we are becoming increasingly more active in both *in situ* and *ex situ* conservation.



Photo: Dr Josh Ennen with alligator snapping turtle.
© Tennessee Aquarium.



Photo: Cologne Zoo's Aquarium Curator & Coordinator of Biodiversity and Nature Conservation Projects Vietnam and Laos works with a student in Vietnam. © Cologne Zoo.



Photo: Guests take part in an educational animal experience. © Tennessee Aquarium.

As modern, scientifically run zoos and aquariums, we are significant players in conservation through the One Plan Approach (OPA). We undertake scientific research in our zoos and increasingly in the field. We educate people on the grounds of our facilities and through zoo schools. We participate in biobanking and have the greatest collection of wild animal data on the planet through Species360.

In addition, we have had many successes. For example, we know that more than 200 regional or locally extinct animal species were reintroduced back into the wild because of the intensive work of zoos and aquariums. In my European region, these include the examples of the marmot, ibex, bearded vulture, European beaver, Northern bald ibis and the European wildcat, among others. So, this illustrates that, yes, we are on the right track.

We, as the community of WAZA, reach out to hundreds of million people around the globe every year. On the one hand, this gives us the opportunity to inform, educate, and drive behaviour change, and on the other hand it shows that we have the responsibility to do so. WAZA and its national and regional associations not only raise the standards of keeping and breeding animals in our care but also in reaching out to the public with these important topics.

In order to achieve our goals, we need zoos and aquariums to support the following:

- Sustainable recovery approaches that put nature and equity at the heart of economic policies.
- The One Plan Approach, as well as the One Health Approach.
- Better illegal wildlife trade monitoring.
- Increased sustainable use.
- More environmental/conservation education.
- Intact natural freshwater systems.
- Protection and restoration of natural biodiversity.
- Mitigation of climate change and support of the goals agreed under the Paris Agreement.
- To connect more people with nature.

From the viewpoint of a zoo director, WAZA President and conservationist, I acknowledge that all of the topics and problems mentioned above are a new challenge for all of us – but we, the scientific and conservation-based zoos and aquariums, should see it as our duty and an opportunity to improve our mission – to save biodiversity, educate, conserve and encourage positive behaviour change. Let us all face this challenge together, working on a local, regional and global level. I highly encourage institutions that are not currently members of WAZA and meet our standards, to join us, because together we are stronger and more effective.

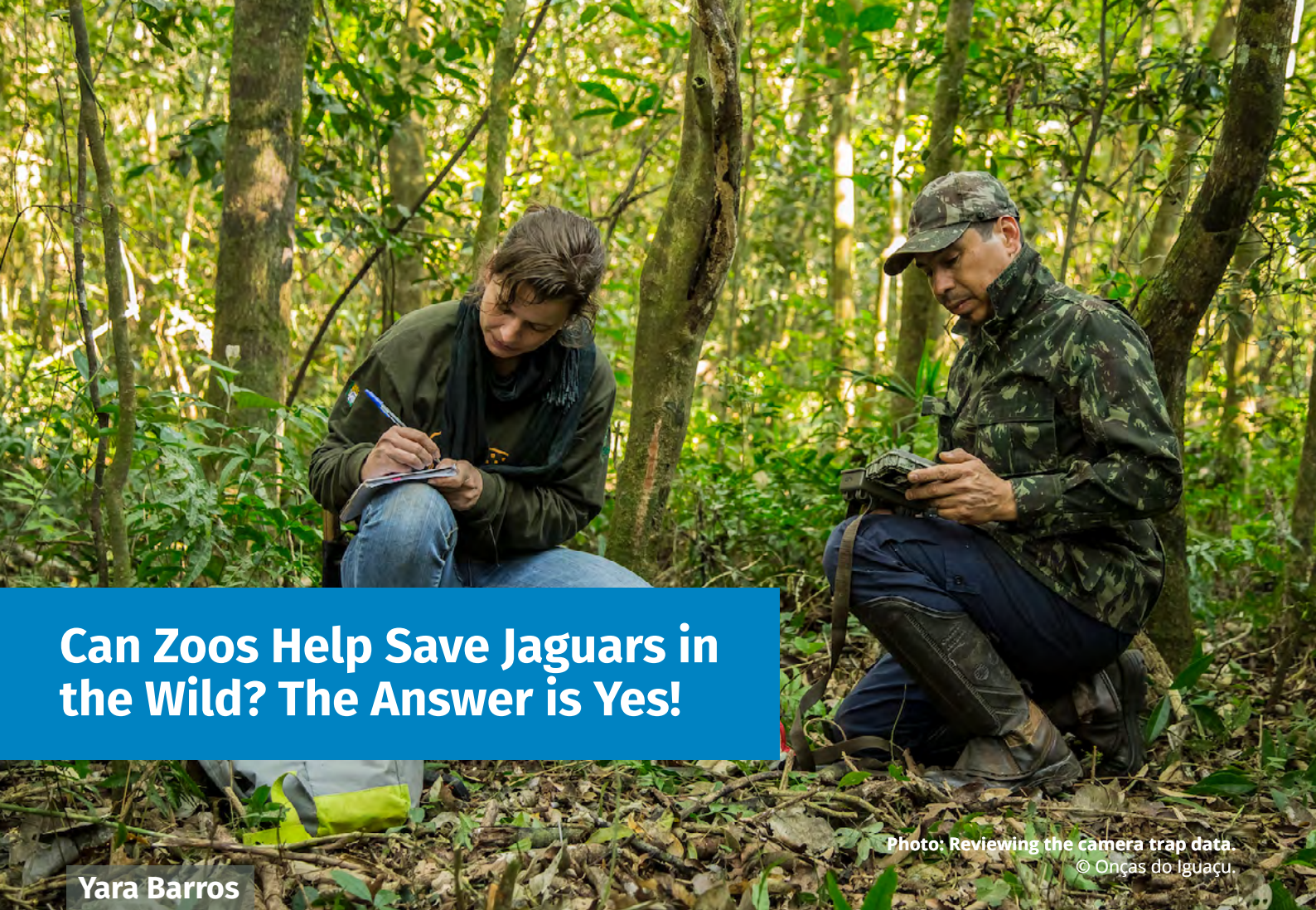
In addition to collaboration between zoos and aquariums, the benefit of joining forces with a wide variety of partners is also evident in the One Plan Approach. WAZA has many essential partners – on an international level, the IUCN Species Survival Commission (SSC), the IUCN SSC Conservation Planning Specialist Group (CPSG), Amphibian Ark, Wild Welfare, Disney Conservation Fund and Species360 have all been integral in achieving our aims. The implementation of the Reverse the Red initiative would not have been possible without some of these close collaborations.

At the WAZA Annual Conference last year, Ms Ivonne Higuero, the Secretary-General of the Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES), gave a keynote where she highlighted the role of zoos and aquariums in keeping wildlife trade legal and sustainable and in providing significantly important input. We are encouraged by the long-term cooperation between WAZA and CITES. Additionally, WAZA has a seat at the International Air Transport Association (IATA), Advisory Panel of the Live Animals and Perishables Board (LAPB) ensuring we represent our members' best interests and strive to ensure the best practices for the transportation of our animals.

Colleagues and friends, we need to send messages and examples of hope to the world, to stand together more than ever before, to support each other and cooperate at a global level as intensively as possible because, with these synergies, we will be much more effective. Let us tell positive stories of optimism and success because, yes, we can. We must do our part to save nature and humanity in the long run.



Photo: Eastern bristlebirds rescued from the Australian bushfires being released back into the wild.
© Zoos Victoria.



Can Zoos Help Save Jaguars in the Wild? The Answer is Yes!

Yara Barros

Executive Coordinator of Project Jaguars of Iguaçu

Photo: Reviewing the camera trap data.
© Onças do Iguaçu.

Imagine a waterfall so beautiful it is considered to be one of the seven natural wonders of the world. Now place it in the middle of a lush rainforest on the border of Brazil and Argentina, and you have a glimpse of the majestic Iguaçu National Park. In this remarkable region, we have one of the most important jaguar populations of the Atlantic Forest. This is one of the world's most biodiverse biomes, but unfortunately, it is also one of the most threatened. Only around 12% of the Atlantic Forest remains intact and yet is home to 72% of the Brazilian population of jaguars. Within this ecosystem of life, you can find two-thirds of all threatened species in Brazil.

The Projeto Onças do Iguaçu (Project Jaguars of Iguaçu), based in the Iguaçu National Park in Brazil, has been working to increase the jaguar population in the region. But how exactly are we doing that? Of course, we conduct extensive research, but this is not enough.

One of our main priorities is working with local people in the area to change their perceptions of jaguars – replacing fear with enchantment. People will not help you to save any species if they do not fall in love with it. Therefore, we focus our communication activities on the magnificence of the jaguars and their importance to the environment. We use information to replace misconceptions. We do this by regularly visiting the 14 municipalities bordering the National Park. The pandemic has had some impact on the engagement activities, as we had to suspend activities that gathered people together, but we continued to visit the properties, respecting sanitary protocols. In 2020 we made 191 visits to monitor predation and keep the community involved and engaged in jaguar conservation efforts.

This close contact with the community generates confidence in the project and helps to reduce perceived risks. We work to promote coexistence between big cats and humans (we also have cougars here) by helping the residents of the community make changes in their cattle management to prevent predation and encourage farmers to install anti-predation devices.

We do not have funds to reimburse farmers for cattle losses due to predation, so we have to come up with creative solutions to ensure the local people are not losing income. We work with a different type of compensation: on each property that experienced losses due to predation, we identify a talent that already exists. Then we help to develop this talent to produce a product that generates an alternative source of income, which aggregates value to keeping the jaguars and cougars alive. We call this initiative “Jaguar Pay off” (Onça Compensa). One example is Marcos, a local, small farmer in a city on the border of the National Park. He lost three cattle to cougar predation. When we arrived there, we noticed that he and his wife produce cheese, just a small amount to sell locally. We named the cheese ‘the Jaguar Cheese’, created many advertisements, found him clients in the town, and boom – he became “Cougars Marcos”. He now makes regular trips to town to sell not only the Jaguar Cheese but also bread, honey, pickles and many other products that they are now producing. Additionally, as his land is on the border of the National Park, he set-up a small kiosk, Rancho Yaguareté (Jaguar Ranch), and now sells food and drinks to bikers or tourists that pass by. He has been known to say that he never imagined that a cougar could bring him so much happiness.

People who are socially, economically or culturally excluded are fed up being invisible. When you take the time to visit them, and witness their lives first hand, valuing their knowledge, they open up to you, and together you can build a strategy to save the jaguars. We always say that we are not only interested in saving the jaguars but also the people that share this land with them.

Every two years, we conduct a census, together with Proyecto Yaguareté, in Argentina, it runs simultaneously in both countries. It is with pleasure and absolute joy, that we are delighted to say we are observing the jaguar population increasing. From 11 jaguars in 2009, we now have an estimated 28 jaguars inside the National Park. If we consider Brazil and

Argentina together (the Green Corridor region), we now have 105! The whole Atlantic Forest has around 250-300 of these beautiful big cats. It means that we have one-third of all the jaguars in the biome, and it is the only jaguar population increasing in the Atlantic Forest. In 2020, we carried out another census, and the results will be available in the coming months – fingers crossed for good results. Over the course of 2020, we registered 26 jaguars on our camera traps: 15 of them were new records, including cubs, which is a very encouraging result.

Additionally, sustainability is an essential aspect of the project. It is aligned with the UN Sustainable Development Goals 1, 2, 3, 4, 5 and 15 and aligns with the WAZA Sustainability Strategy.



Photo: Projeto Onças do Iguaçu's work with school children
© Onças do Iguaçu.

The role of zoos

During 2018 Parque das Aves, in Brazil, was one of the main sponsors of the project. In 2020 we received a lot of support from WAZA member zoos; as you know, the pandemic caused, among other things, a crisis in funding for conservation projects. Without help, we could not have survived this terrible year. World Wildlife Fund (WWF) was our main sponsor last year, but zoos were also critical in keeping us alive throughout the pandemic.

Houston Zoo, in the US, provided funds for our participation in the Zoos and Aquariums Committing to Conservation (ZACC) conference, which unfortunately did not take place, but we will attend when it does. This helps us increase our network, exchange knowledge, and hopefully establish new partnerships.

Kansas City Zoo, in the US, donated camera traps which are fundamental to our work. Last year we lost 30 camera traps: 14 broke, as they were too old, and 16 were stolen, possibly by illegal hunters inside

the national park. Every new camera is a blessing. Beauval Zoo, in France, was one of the most significant sponsors of the project for a second consecutive year. They have also committed to supporting us in 2021. In addition, due to the support from Beauval Zoo, we were certified as a Latin American Association of Zoological Parks and Aquariums (ALPZA) Conservation Project, as a leading effort in conservation in Latin America.

This year new help arrived through the Ron Magill Conservation Endowment (Miami Zoo), which is funding our new initiative called "Scratching the Future". We will implement hen houses and equipment in five pilot properties so that they can produce eggs with the 'jaguar brand'. This initiative will be run predominantly by women, so besides generating an alternative source of income linked to jaguar conservation, we will be empowering women in the region and providing a food supply in these uncertain times.

Some people often ask me if the only way that zoos can help to support us is solely by providing donations. Well, funds are always gratefully received, but there are many more ways that they can support us. For example, we produce a lot of printed material, such as logos for our programmes, booklets, folders etc., and we would love to enlist the help of your graphic designers to produce this material. Zoos can also create and send us materials that we can sell to raise funds. When the pandemic is under control, you could invite us to share our work with your staff and visitors.


Your education teams can help us to produce educational material. We are preparing a small book with pictures obtained from camera traps in the region to distribute to local people who allow us to work on their land, as a recognition of their help. We are looking for funds to print it. Another way of supporting us is when we identify talents in the local properties, to help us foster and develop these talents to generate an alternative source of income.

An additional critical issue that you can engage with us on is an international campaign we are preparing to fight the trafficking of jaguar parts, which is becoming a grave threat to the species across its range. Again, zoos are welcome to help us produce material and assist in extensively promoting our campaign worldwide. With a public of 700 million people per year, zoos and aquariums are the biggest classrooms in the world. No other institution has the opportunity to convey the message to reach so many hearts.

And finally, help us by spreading the word: we want people to fall in love with jaguars. I did during my first jaguar capture after staring at the mesmerising golden eyes of Croissant, a male that we captured and collared. The project does not have jaguars to exhibit and generate the enchantment that leads to connection and care, but you do!



Photo: Capturing and installing a collar on a jaguar.
© Emilio White.



Operationalising Sustainability in Zoos and Aquaria

Henry James Evans

Photo: Visiting children touch a rhino horn while understanding the threat of poaching and habitat destruction, all taking place in front of the rhino enclosure. © Copenhagen Zoo.

Henry James Evans is a PhD student at the University of Copenhagen in Denmark, researching sustainability education in out-of-school settings, such as zoos, aquaria, museums and science centres. He has extensive experience in science communication through his education business Magnificent Ocean.

Visiting a zoo or aquarium has always brought me great joy, and I passionately believe in the role these institutions can play in aiding society towards achieving a more sustainable future. These trusted sites connect visitors with nature in unique and powerful ways, through emotional experiences leading to feelings of concern, hope and empathy. They drive and participate in action-focused global and local initiatives to conserve the future of biodiversity. Their worldwide distribution, large visitor numbers and appeal for a diverse age range all provide zoos and aquaria worldwide with great potential to change the present-day mindset threatening the future of humanity on Earth. These institutions are under pressure to prove their worth to society, with people becoming increasingly aware of the importance of sustainability, i.e., regarding biodiversity conservation and sustainable behaviour. Zoos and aquaria have a tremendous opportunity to stake a strong claim within these critical discussions by fully embracing sustainability into their internal and external practices. This is an exciting, but daunting opportunity

for zoos and aquaria, one, which my research aims to operationalise and illustrate.

Sustainability across research, policy and practice

We are all familiar with hearing the term 'sustainability'. However, sustainability is rarely well defined and can mean different things to different people, such as referring to living standards or the future of humanity. In addition, we are aware that education plays a major role in moving towards a greener future. A pressing question needs answering: what does sustainability actually look like in science education in zoos and aquaria? The educational efforts of these institutions are often challenged by the fuzziness and complexity of sustainability. This means that educational initiatives may be governed as much by serendipity and local opportunities, as a strong alignment between institutional characteristics and sustainability objectives. My recently published scientific paper provides concrete suggestions from a perspective of research, policy and practice, to critically discuss and attempt to operationalise sustainability in ways that are meaningful to the specific educational missions of zoos, aquaria, museums and science centres. Below, I briefly outline the features of sustainability

science and policy particularly relevant for zoos and aquaria, then provide illustrations within the context of sustainability education and institutional practice.

Sustainability Science

This relatively young field of sustainability research is transdisciplinary. The incorporation of different forms and modes of knowledge takes place, with scientific knowledge being one element of the many considered. The research places a focus on real-world problems (i.e., climate change and biodiversity loss) and the inter-connections at play.



WAZA's Sustainability Strategy 2020-30, titled 'Protecting our Planet'. Photo credit: WAZA.

Sustainable Development Goals

One of the most important and current conceptions of sustainability are the United Nations Sustainable Development Goals (SDGs). The SDGs were created through a participatory and inclusive bottom-up process that involved input from more than 70 governments and many societal representatives. The resulting 17 goals have been lauded for their potential

in becoming the guiding vision for action across governmental, corporate and civil societies. The SDGs simultaneously shape the focus of specialised organisations and individual institutions, while constraining them to the themes involved. Even so, progress towards achieving the goals has been slow, with the majority of the 169 targets off track. In fact, the goals related to climate change and biodiversity are showing negative progress.

WAZA's Sustainability Strategy

The SDGs can be viewed as being abstract and difficult to disseminate, and are aimed at global application. Adaptation by more specialised organisations is necessary and WAZA has recently incorporated aspects of the SDGs into its work. During its 2020 annual conference, WAZA released its 2020–2030 sustainability strategy, titled *Protecting our Planet*. The report places a strong emphasis on guiding WAZA institutions to most effectively use their unique conditions in contributing to the achievement of the SDGs, through recommendations tailored for each of the 17 goals. Over the next decade, the SDGs will continue to play an influential role in shaping sustainability policy, with numerous organisations of direct relevance to zoos and aquaria absorbing them into their practices.

Sustainability Education in Zoos and Aquaria

Seeing wild animals in person is one of the main educational parts of a visit to a zoo or aquaria, and coming into contact with aspects of nature plays a vital role in sustainability education. Zoos and aquaria are not limited by the disciplinary boundaries that characterise school subjects, but instead have more systems-based perspectives, i.e., by often using the concept of biome to organise their content. This means these institutions can enhance the integration of multiple scientific disciplines, a crucial feature of sustainability science. Biome focused exhibits allow several biodiversity species to coexist in a manner closely resembling the habitats on Earth. For instance, the Rainforest exhibit at Copenhagen Zoo is an indoor multi-sensory experience, with a high level of humidity and thick mass of vegetation. The exhibit has educational programmes and activities focused on associated sustainability challenges, including deforestation and climate change.

Zoos and aquaria can play a vital role in deconstructing sustainability science and policy, by using their unique position of stalwarts of global conversation and collections of live animals. These institutions engage with and disseminate aspects of science at both global and local scales; i.e., at the governmental and community level, dependent on the challenges faced by society. This takes place in zoos and aquaria working at a global level to protect the world's biodiversity, while simultaneously contributing to projects focused on protecting local ecosystems. Sustainability challenges such as climate change can be expressed by showing the historical interactions that have occurred between nature and humanity, thereby re-shaping the challenge as a cultural issue, rather than one just for the scientific community. Not only are zoos and aquaria well placed to contribute to this re-shaping, but they also disseminate sustainability challenges in a manner that covers the past, present and future. For instance, zoo specimens and living collections allow them to disseminate the past conservation history of a species, its present status and the conservation efforts required to preserve it for the future. Their collections give these institutions a unique historical consciousness of sustainability problems.

I will conclude by reiterating the importance of zoos and aquaria incorporating related policies and practices into their internal and external workings. This article has mostly focused on external practices, however these institutions should concurrently look inwards. By doing so, these globally distributed and trusted sites of out-of-school science education can lead from the front as catalysts for a sustainable future. We hope this research will inspire you to engage further in facing some of the greatest global challenges.

Further information: Evans, H.J & Achiam, M (2021): Sustainability in out-of-school science education: identifying the unique potentials, Environmental Education Research, DOI: 10.1080/13504622.2021.1893662

Photo: Visiting children touch a rhino horn while understanding the threat of poaching and habitat destruction, all taking place in front of the rhino enclosure. © Copenhagen Zoo.



Photo: A visiting school class to Copenhagen Zoo discuss the SDGs most relevant to the conservation of the white rhino, while sat in front of the rhino indoor enclosure. © Henry James Evans.





WAZA 2023 Animal Welfare Goal – Update for Members

By Nicola Craddock, Zoo and Aquarium Association Australasia (ZAA), John Werth, Pan-African Association of Zoos and Aquaria (PAAZA), Paula Cerdán, WAZA.

Photo: Participants at the 2nd WAZA Animal Welfare Summit in Barcelona in 2019.
© WAZA.

The WAZA 2023 Animal Welfare Assessment Goal has been the subject of a great deal of debate over the past couple of years. The WAZA Ethics and Animal Welfare Committee (EAWC) in collaboration with the Associations and Members Committees has been working tirelessly to compile and develop the Animal Welfare Assessment Tool for implementation through the regional associations.

Since the WAZA Annual General Meeting (AGM) in Buenos Aires in 2019, there have been two joint Committee (EAWC, Membership, and Associations) Chair meetings with the WAZA Executive Office, as well as various meetings with a dedicated EAWC working group to refine the WAZA Assessment Tool for the Animal Welfare Evaluation Processes and to define the next steps in the action plan to meet the WAZA 2023 Animal Welfare Goal.

The WAZA 2023 Animal Welfare Goal and its joint development

As you know, the WAZA 2023 Animal Welfare Goal states that:

"By 31 December 2023,

1. WAZA national and regional associations must have an animal welfare evaluation process in place and such process must include specific elements approved by WAZA.

2. WAZA institutional members must be compliant with this process."

To start building up to the goal and to ascertain what would be required by the regional and national associations' Animal Welfare Evaluation Processes, two WAZA summits were hosted in Singapore and in Barcelona. The focus of these summits was on the animal welfare aspects of accreditation/certification programmes, in line with the World Zoo and Aquarium Animal Welfare Strategy to "make animal welfare-based accreditation a priority". The objective of the summits was to inspire zoos and aquariums in

all regions of the world to embrace modern zoological practices and raise their standards of animal care through credible accreditation programmes administered by association members of WAZA.

After the Barcelona summit, which was attended by representatives of 18 different WAZA member regional and national associations, four principles and eight elements were determined. These principles and criteria outline how the different associations' Animal Welfare Evaluation Processes could operate and what elements these processes should include in order to comply with the requirements. These eight elements were presented to the membership at the WAZA Annual Conference in Buenos Aires, in November 2019.

The eight elements of an association's Animal Welfare Evaluation Process

1. Welfare model

- A. The process must be science-based and based on best practices.**
- B. It should also be tied to WAZA's Animal Welfare Strategy.**
- C. It should be moving towards output-based measures.**

2. Standards are required

- A. Members' animal welfare would be measured against standards or a set of criteria set by each association.**
- B. These standards or criteria must be developed with input from experts on animal welfare.**
- C. The standards must be under continuous development and updated using the latest science.**

3. WAZA peer review

- A. WAZA will verify the evaluation process of each association to make sure they are acceptable. A panel of experts could verify the processes.**
- B. WAZA will explore if fellow associations can peer review each other's process.**

4. Verification

- A. Auditing/on-site visit.**
- B. Requires a list of animal welfare policies (e.g. collection management plans must include animal welfare considerations).**
- C. Requires evidence to prove compliance (e.g. documented records, visual recordings etc).**
- D. Consistency in verification in terms of an established set of criteria for evaluation. (It is expected that the association will verify through standardised methods that their members zoos and aquariums have their own Animal Welfare Evaluations in place based on those criteria).**
- E. Cyclical process (members are evaluated based on a cycle).**
- F. There needs to be self-assessment in between on-site visits or audits.**

5. Capacity of the Associations: associations must be able to prove that their Animal Welfare Process has

- A. Accountability: who is responsible (identify commitment to process through staffing).**
- B. Evidence that there is capacity to carry out the programme, or if not, a plan in place to do so.**
- C. A clearly defined operational structure for decision on passing or failing.**

6. Training

- A. A consistent approach to continuous training on animal welfare is needed.**
- B. Training for auditors/inspectors is needed.**

7. Disciplinary process: there needs to be a process of warnings, suspension, and termination process for non-compliance.

8. Complaints process: this process must be documented and actionable.

Following the member presentation of the principles and elements, an action plan for 2020 was drafted at the combined Ethics and Animal Welfare, Membership, and Associations Committee meeting in Buenos Aires, which tasked the three committees involved and the WAZA Executive Office with identifying next step actions to deliver and roll out a plan for the WAZA membership. The actions included the development of a gap analysis of the existing associations' processes, and more importantly the need to develop a WAZA Assessment Tool for each of the regional and national associations' Animal Welfare Evaluation Processes.

The WAZA Assessment Tool for associations' Animal Welfare Evaluation Processes

The WAZA Assessment Tool will help assess compliance with the eight criteria that Animal Welfare Evaluation Processes will need to meet to help achieve the goal. The Tool was developed with the work from the EAWC, Membership and Associations Committees.

The development and review of the Assessment Tool approved by the WAZA Council has led to the following being achieved:

- New action plan for 2021 and next steps.
- Development of documentation for associations to formalise their reliance on other association's Animal Welfare Evaluation Processes, for example national associations opting for reliance on a relevant regional association.
- Clarity on some definitions in the Animal Welfare Evaluation Process – WAZA Assessment Tool glossary.
- A pilot test of the WAZA Peer Review Evaluation Process to test the Animal Welfare Evaluation Process WAZA Assessment Tool.

One of the key elements arising from those discussions and meetings between the three committee chairs was the need to do a pilot review to test the practicality and functionality of the WAZA Assessment Tool for associations' Animal Welfare Evaluation Processes. The main aim of the pilot review was to test the process, the definitions, and clarity of the requirements. As both Nicola Craddock, Zoo and Aquarium Association Australasia (ZAA) and John Werth, Pan-African

Association of Zoos and Aquaria (PAAZA) are members of the EAWC and had been actively involved in the development of the document, the logical first step was to start with PAAZA and ZAA doing a pilot test to review PAAZA's Animal Welfare Evaluation Programme.

This process has led to very valuable findings and has helped to inform the best approach to take in the assessment of each association's programme, taking into account the capacity of WAZA members, as well as the knowledge of other associations' programmes.



Photo: Nick de Graaff, Zoo and Aquarium Association Australasia (ZAA) presenting at the 2nd WAZA Animal Welfare Summit. © WAZA.

How will the review of the associations' Animal Welfare Evaluation Processes work? Below we use an example of the ZAA-PAAZA pilot to demonstrate the process.

1. Association peer review process:

A. Application to WAZA Executive Office (Animal Welfare and Conservation Coordinator) for review.

For example, PAAZA applied to WAZA to confirm they were ready to commence their Peer Review Process.

B. Self-evaluation by the reviewee (association being reviewed), using the Animal Welfare Evaluation Process WAZA Assessment Tool.

For example, PAAZA self-assessed their Animal Welfare Evaluation Programme using the WAZA Assessment Tool.

C. Appointment of a reviewer (another association) by the WAZA Executive Office and / or EAWC.

D. Validation of the self-evaluation by the reviewer.

In this instance, ZAA as the selected reviewer, received PAAZA's self-assessment information i.e., the completed questionnaire on the WAZA assessment tool, and accompanying documents as evidence. ZAA reviewed PAAZA's self-assessment submission as received.

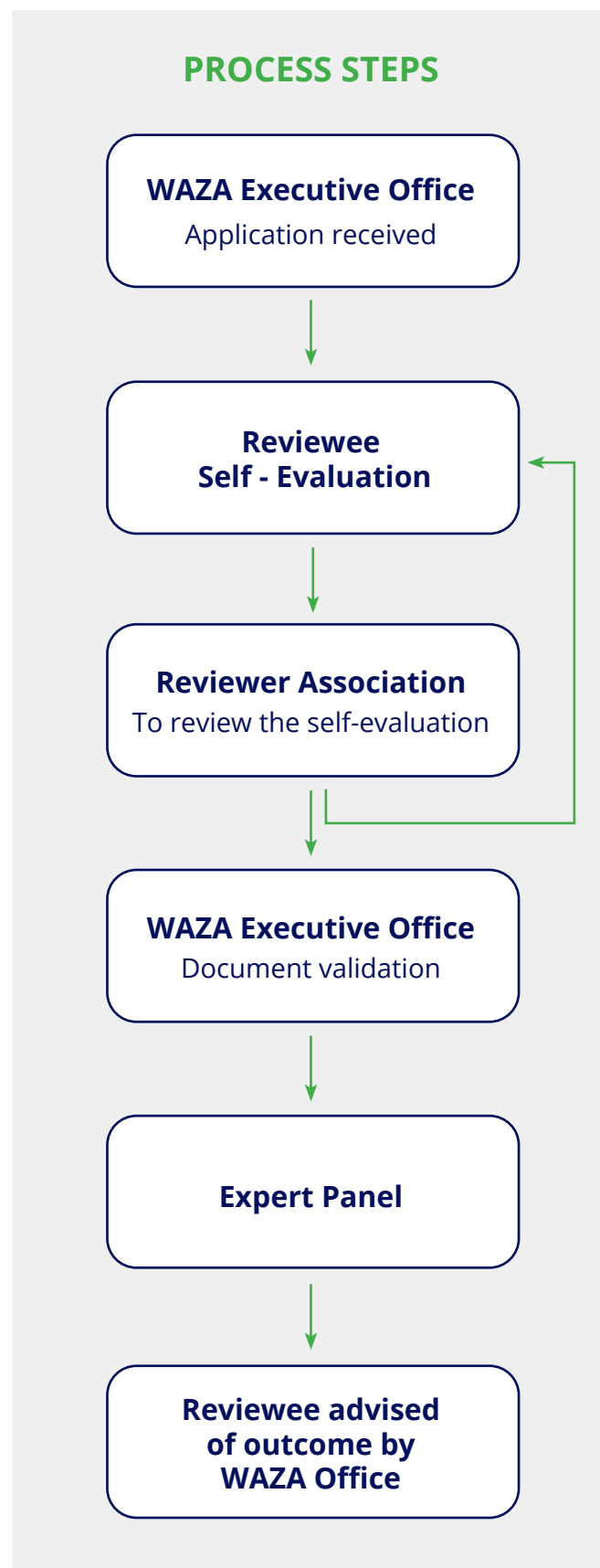
E. Reviewer to initiate any interim follow up with the reviewee and advise the WAZA Executive Office.

For example, ZAA responds to PAAZA with feedback and seeks clarity on any queries. ZAA's feedback is entered into the WAZA Assessment Tool, forming a final Peer Review Report.

F. Once the report is finalised by the reviewer, it is shared with the WAZA Executive Office for processing to the next stage.

G. The final reports are shared with an expert panel for a decision on meeting or not meeting the WAZA 2023 Animal Welfare Goal.

This process seems manageable from a capacity perspective, as the reviewee association will be providing the documents and referencing them per requirements, and the reviewer's task will be to validate that the evidence provided meets the requirement.



The EAWC working group is using learnings from the pilot review to strengthen the Tool, and the committee has worked on some additional changes to increase its operational effectiveness:

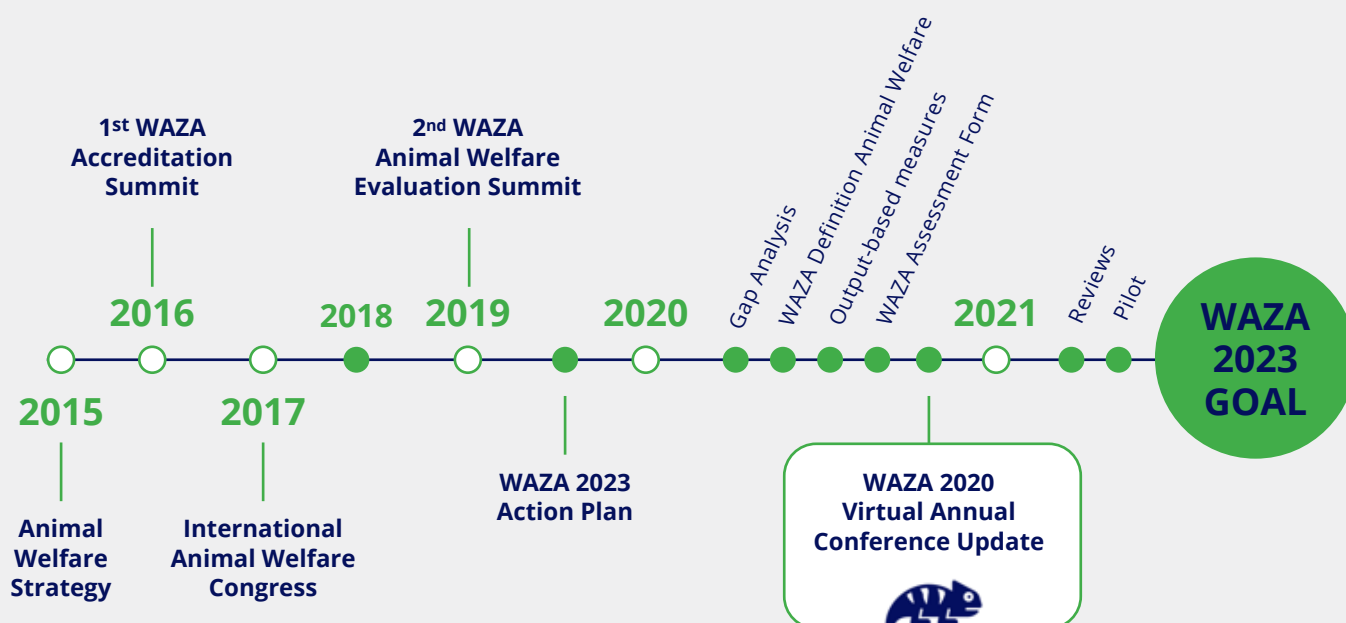
- 1. Definitions:** add clarity to some of the definitions to ensure their measurability.
- 2. Rating system:** Instead of using 'exceptional' and 'acceptable', we will use 'met' and 'partially met', which are not as subjective and are more quantifiable.
- 3. Examples:** Reviewer is encouraged to document any 'exceptional' examples as they carry out the review. This data will be valuable for benchmarking and broader learnings.
- 4. Evidence Guide document** (to support both the reviewee and reviewer): outlining what documents can serve as evidence that a requirement is being met.

Next Steps

After discussions between the EAWC, Associations, Membership Committees and Council, it has been decided to run another Pilot Assessment with a larger association. This will begin in July 2021. It has been proposed that the reviewing will be done by ZAA and PAAZA in conjunction with the WAZA Animal Welfare and Conservation Coordinator.

The finalised Assessment Tool will be ready for presentation at the 76th WAZA Annual Conference, later this year.

WAZA 2023 GOAL TIMELINE



Join us for the 76th WAZA Annual Conference, which will occur virtually from 11-14 October 2021. We will explore a range of topics related to conservation, sustainability, animal welfare, governance, inclusivity and more.

We will hear from global organisations that will help us look to the future without losing sight of the challenging situations we are all still facing due to the pandemic. We will provide updates on WAZA's work and partnerships and welcome a new WAZA President and Council members.

For this year's conference logo, we picked a Guam kingfisher, an extinct in the wild species, which can only be found in zoos and aquariums. More than 30 years after its disappearance from the wild, several zoos are working together with the IUCN Conservation Translocation Specialist Group, federal agencies, scientists and indigenous people in Guam to hopefully reintroduce this species back to its natural habitat. The conference logo serves as a reminder of the vital role that progressive zoos and aquariums have in wildlife conservation and in bringing species back from the brink of extinction. While our community consists of individual organisations spread around the world, our joint action saves species. This is highlighted in the conference logo, with the individual pieces coming together to form a vibrant community dedicated to ensuring the preservation of biodiversity.

And just as conservation needs a holistic approach, the WAZA Annual Conference will provide a holistic view of various topics relevant to the global zoo and aquarium community.

The 2021 Virtual Annual Conference will follow a similar format to last year's conference, with short daily sessions across the four days and different opportunities for attendants to connect with each other. There will be a small fee to register for the conference. However, this year, WAZA is innovating and wants to include more of your staff, so each registration will allow WAZA members to register up to 10 attendees for one registration fee.

We look forward to virtually seeing you at the 76th WAZA Annual Conference.

For more information and to register, please visit: www.waza2021.org.



76th WAZA Virtual Annual Conference

11 - 14 October 2021



WAZA and IZE Formalise Long-standing Partnership

Valy Gourdon

Photo: Ornithology in practice as part of Zoo Praha's Nature Connect programme. © Petr Hamernik/Zoo Praha.

WAZA

The World Association of Zoos and Aquariums (WAZA) and the International Zoo Educators Association (IZE) have formalised their long-standing cooperation with a Memorandum of Understanding (MoU). The two organisations will jointly strengthen their collaboration to continue to enhance the capacity of members in biodiversity conservation through communications, visitor engagement and a large variety of educational and interpretive programmes for all ages.

The MoU establishes a strategic partnership and framework to promote and amplify joint communication activities focusing on conservation education, interpretation and behaviour change. IZE will additionally assist WAZA's mission by providing expertise and guidance on conservation education. Both organisations will share knowledge and materials to extend the reach and impact of both entities' work.

WAZA and IZE have a close working relationship as they shared a central office from 2004 to 2010 in

Switzerland. Since then, the organisations have continued to work on complementary missions with the same vision for global biodiversity conservation, which included a multi-year effort to establish nature play programmes at zoos and aquariums around the world. In this respect, IZE and WAZA published in 2020, Social Change for Conservation – The World Zoo and Aquarium Conservation Education Strategy, the first unified global strategy on conservation education. Through its set of recommendations, the strategy guides zoos and aquariums to achieve educational, behavioural social outcomes crucial to their organisational missions.

WAZA's Chief Executive Officer, Dr Martín Jordan, said: "We are delighted to strengthen our relationship with IZE, an organisation with whom we share the same values for the future of biodiversity conservation. Both IZE and WAZA are committed to helping and supporting our members to develop and foster visitor engagement."

“As we continue to face the challenges of climate change, habitat alteration, invasive species and other factors that affect biodiversity, our partnership with WAZA is even more important,” said IZE President Debra Erickson. “As we work together to provide the resources our members need to connect people to wildlife and conservation, they will continue to develop an empathy and caring in their guests for animals and plants, which will lead to our global audiences’ support of efforts to protect biodiversity.”



Photo: School children learn about cheetahs.
© Cango Wildlife Ranch.

Founded in 1972, the International Zoo Educators Association is an international organisation committed to engaging its more than 300 members worldwide to achieve biodiversity conservation by encouraging sustainable behaviours in people that visit zoos and aquariums. The association’s vision is the conservation of the world’s biodiversity through effective zoo and aquarium education programmes.

Find out more at: www.izea.net



Cover of the IZE/WAZA Conservation Education Strategy.

Download the strategy at www.waza.org.
New translations will be made available there.



Photo: Zoos Victoria's Nature Connect programme in action. © Zoos Victoria.



WAZA Sustainable Palm Oil Website

Valy Gourdon

Photo: Palm fruit. © Ricky Martin/CIFOR

WAZA

In April, the WAZA Palm Oil Subcommittee launched the WAZA Sustainable Palm Oil Website to foster the Memorandum of Understanding (MoU) signed with the Roundtable on Sustainable Palm Oil (RSPO) in November 2017.

The website: Sustainable Palm Oil Resources for Zoos and Aquariums was created as a resource to help WAZA members understand and support the WAZA/RSPO MoU. The site provides an understanding of sustainable palm oil as well as tools to help WAZA members start changing the way their organisations think about palm oil.

The website provides an overview of palm oil, the RSPO, WAZA Palm Oil Subcommittee and includes some of the most commonly asked questions about palm oil. It also contains an extensive resource library to help WAZA members start their own palm oil awareness campaigns.

WAZA and the RSPO are certain that members can make a difference in protecting biodiversity by tackling the issue of unsustainable palm oil production by raising awareness of Certified Sustainable Palm Oil (CSPO) and driving consumer demand.

WAZA and the RSPO signed an MoU in November 2017 focusing on a framework of cooperation and understanding between WAZA and RSPO to further their shared goals and objectives regarding the transformation of markets to make sustainable palm oil the norm.

Palm Oil is the most widely-used edible vegetable oil around the world. It is inexpensive and efficient, making it the world's most widely used vegetable oil — and global consumption is rising. Although native to Africa, oil palms were brought to Southeast Asia, and Indonesia and Malaysia currently account for 84% of the world's palm oil supply. Millions of

families depend on the palm oil sector in producing countries. However, unsustainable means of growing and processing palm oil has resulted in widespread devastation and biodiversity loss across Southeast Asia, Equatorial Africa, and Latin America.

Palm Oil Subcommittee

The WAZA Palm Oil Subcommittee, a subcommittee of the WAZA Conservation and Environmental Sustainability Committee (CESC), consists of representatives from a broad range of WAZA members. This subcommittee comprises eight members from the United States, New Zealand, UK, Singapore and Australia.

Members of the subcommittee agreed to discuss and create a first step to help WAZA members support the MoU with an emphasis on the use of sustainable certified palm oil within WAZA member organisations. Each member of the subcommittee provided input and resources to improve and complete the content of the website. The website is the outcome of many months of hard work by the Subcommittee and Executive Office, and there is more yet to come!

The subcommittee is currently working on a WAZA Short Guide on Sustainable Palm Oil which will be launched later this year.



Visit the Sustainable Palm Oil Resources for Zoos and Aquariums website at:
www.wazapalmoil.org



Photo: A woman working on an oil palm plantation.
© Ricky Martin/CIFOR



Queen's University Belfast, Animal Behaviour Centre, School of Psychology

The concept of connectedness is familiar in the zoo world, but it is difficult to define. Here, we use an adapted definition from Hagerty et al., (1993), that addresses the benefits to the individual of feeling connected. They identified that connectedness occurs when a person is actively involved with another person, animal, group or environment. Furthermore, that involvement promotes a sense of comfort and well-being. When people visit zoos or aquariums, a feeling of animal connectedness can be achieved in a variety

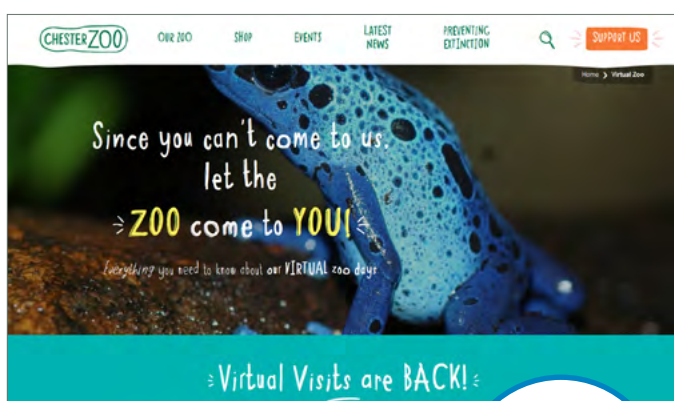
of ways, from animal encounters and engaging interpretation, to speaking with staff. An opportunity for social connectedness is evident as most people visit with others; these shared experiences can become key in bonding and memory making (Therkelsen & Lottrup, 2015).

When physical sites are closed, zoos and aquariums must rely on other means for promoting feelings of connectedness. The provision of online content, including webcams, websites and social media, has kept visitors involved in the daily lives of the animals. To enhance a sense of social connectedness, education resources have offered households a way to learn together, and social media allows friends to reshare zoo stories among their own social networks.

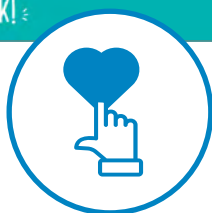
So, we know what zoos and aquariums are providing, but are people using these resources? Who is choosing to stay connected? How are they staying connected, and why have they chosen to do so?

Methods

To explore if, how and why people stayed connected to zoos and aquariums during the first Covid lockdown in March 2020, we developed a short questionnaire. This survey was part of a larger study designed to explore animal connectedness while visiting animal attractions. The survey included questions about visitors' age, gender, pet ownership, zoo membership, zoo work or volunteer experience and home composition (i.e., children in the home or not). In addition, an 'Existing Connection to Wildlife (ECW)' scale was used to determine how strongly people were connected to wildlife. This scale included four statements, such as, 'I actively seek opportunities to view wildlife' that were scored from 1 = strongly disagree to 5 = strongly agree. The four items were averaged to produce a mean score out of five (Skibins & Powell, 2013). Participants were then asked if they had stayed connected to a zoo or aquarium, how they stayed connected, and why.



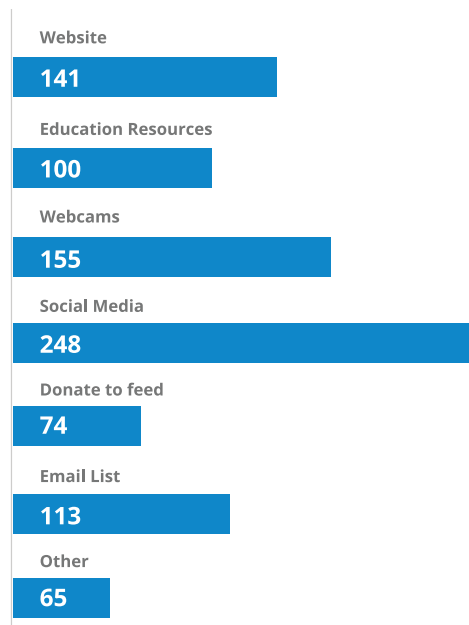
Chester Zoo's 'Virtual Zoo Days' had 18.5 million views in 2020.



To further support the data collected in the survey, several WAZA zoos and an aquarium were contacted to ascertain information on the uptake of their offerings during restrictions. Chester Zoo, England; Dublin Zoo, Ireland; North Carolina Zoo, USA; Royal Zoological Society of Scotland (Edinburgh Zoo and the Highland Wildlife Park) and Two Oceans Aquarium in South Africa all kindly provided data analytics about their virtual media.

Who stayed connected?

In total, 302 (55%) participants out of a sample of 548 chose to stay connected to a zoo or aquarium during the initial Covid lockdown. These 'connected' participants scored significantly higher on the 'Existing Connection to Wildlife' (ECW) scale (Mean = 4.39) than those who did not stay connected (Mean = 3.70). Most individuals were under the age of 40, female, and currently owned pets. Respondents were also more likely to be a current or past zoo member or adopter, and there was a near equal split between people who had zoo work or volunteer experience and those who did not.



Selected ways of how people chose to stay connected to zoos/aquariums

How and why did people stay connected?

The most popular way to stay in touch with a zoo or an aquarium was through social media (82%). Other methods included watching webcams and frequently visiting the institute's website. It is also pleasing to note that about 25% made donations to support the zoos or aquariums they stayed in contact with. The 302 participants indicated 468 reasons why they stayed in contact with a zoo or aquarium. Most stayed in touch because of their own interest in animals (74.5%) and to discuss the subject in conversations with family and friends (35.8%). 'Other' reasons included sharing zoo posts on social media within their networks, and for their own education or to teach others.

Associations between the who, how and why

Statistical analysis was used to identify if any significant associations occurred between those who stayed connected, how they connected and why they did so. For example, people who were zoo or aquarium members were also more likely to be on emailing lists (85%). However, some relationships were more intriguing. For example, people without children in the home were more likely to use zoo information for social reasons than others (70%) and they were also more likely to donate to feed animals (68%).

Benefits of animal connectedness

To discuss the benefits of 'animal connectedness' on individuals we will focus on factors that highlight feeling connected to an animal or a group, with the group in this case being the zoo or aquarium.

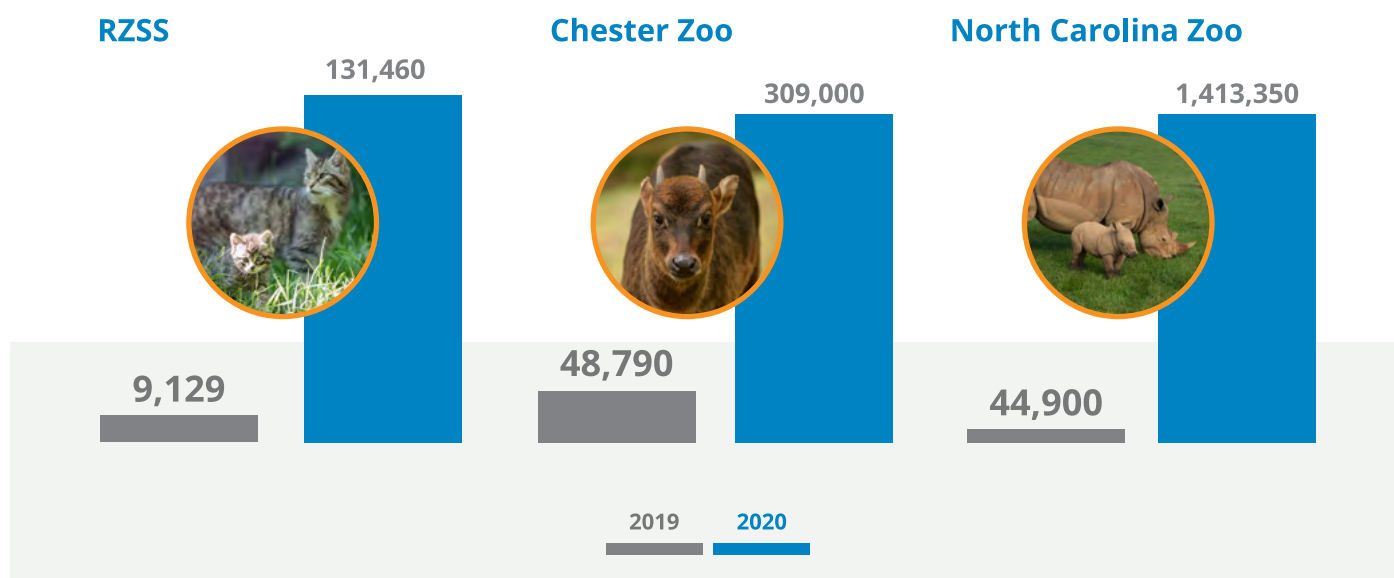
Most of the participants (75%) indicated that they stayed connected to a zoo or aquarium because of their interest in animals. It could be argued that these individuals have maintained a sense of animal connectedness for their own well-being. Biophilia theory suggests that humans have an innate tendency to seek out a connection with nature, and this desire to connect can be greater in some people (Wilson, 1984). This is well illustrated by our 302 'connected' individuals' scores on the Existing Connection to Wildlife scale (Mean = 4.39). Furthermore, the participants who indicated they stayed connected for their 'own reasons' had an even

higher 'ECW' (Mean = 4.43) than those who did not select this (Mean = 4.26). This further supports the idea that these individuals were seeking a sense of animal connectedness for their own benefits.

Furthermore, the 225 people who stayed connected to a zoo or aquarium for their 'own reasons' were also highly likely to utilise the organisation's social media (84.4%) while some (47.6%) were using the webcams. Viewing animals has long been known to reduce stress, however new research from Michigan State University highlights the physiological impact this can have on aspects of well-being (Alhabash et al., 2019). In one study, participants were purposefully stressed in a lab and then shown exhibits at the Detroit Zoo. Researchers found that their biological indicators of stress were reduced after viewing animals such as giraffes, otters, and butterflies. In addition, another set of participants viewed videos of zoo animals, and researchers found that the 18-24 year-olds had the most notable decrease in stress after viewing videos. This may explain the considerable level of web-camera use by this age range in this study.

Is it possible that watching zoo animals through webcams, and seeing their stories on social media can act as a stress reliever for animal lovers in these restrictive times? More research is required to answer this. However, one thing is for certain, the use of webcams and social media is on the rise for many facilities. e.g. Chester Zoo saw an increase of 112% in their Facebook followers.

Education Resources Views



Other than the potential for stress relief, there could also be a benefit of increased feelings of happiness for those who chose to donate (Park et al., 2017). Seventy-four individuals from this study did so, but they are not alone in their generosity. There has been a significant increase in donations from zoo supporters. For example, the 'Just Giving' page for Dublin Zoo has received €2,870,043 from 31,364 supporters, and Chester Zoo has received £2,867,865 from 127,794 supporters (as of March 25, 2021). Chester Zoo has also reported an increase in adoptions generating an extra £1 million. RZSS noted that in 2019 they had 17 people setting up their own fundraisers, whereas in 2020, 1043 people set up their own campaigns to support the society. Although it is a difficult time for everyone, people are striving to support their zoos and aquariums by assisting in the care of the animals. This in turn, may bring a sense of well-being to people, in knowing that they did all they could to help.

Benefits of social connectedness

Feeling socially connected is of the utmost importance to our mental health (Hare-Duke et al., 2019) and this sense of social connectedness can be encouraged by staying connected to zoos and aquariums in two ways. Firstly, educational resources can help promote bonding within a household, and secondly, knowledge gained from online content can be shared with others outside the household.

Within the household

The fact that a quarter of the participants chose to stay connected for the 'whole household' may be indicative of families using resources for group activities. One hundred people in this study used the educational resources from zoos and aquariums, which illustrates how children have made the transition from classroom-based learning to home-schooling during the lockdowns. However, there is a great deal of evidence showing many more are using these resources. RZSS, Chester Zoo and North Carolina Zoo all saw significant increases in views of their resources from 2019 to 2020. In addition, the number of RZSS registered Zoodle ('Zoo Digital Learning Environment') users increased from approximately 2,000 to 24,000 in 2020 compared to the year before.

Beyond the Household

Many people chose to use zoo knowledge as a discussion point for chats with family and friends, 70% of those choosing to 'use for chat' did not have children and were also likely to own pets (84%). These findings illustrate how these individuals might share their love of animals with family and friends through novel talking points – an outlet not used as often by people with children.

Interestingly, 63% of the participants who were using the zoo knowledge for chat had zoo work or volunteer experience, with one participant stating that "People look to me to hear zoo news". Comments like this may be indicative of these individuals feeling proud of their animal experiences, which can in turn make them feel valued in social relationships (Hare-Duke et al., 2019). Furthermore, many people with zoo experience were staying connected by keeping in touch with staff. One participant stated, "Friend works there and other zoos, we try and help each other (sic)" and another wrote: "I used to work there so I am connected with people currently working there". These statements evidence how the zoo community are staying in touch via their shared passion for wildlife.

Conclusions

Despite the closure of zoos and aquariums, some for months at a time, these institutions are striving to promote connections. The findings from this study show that these efforts are not in vain, with many people seeking a connection with animal attractions either as a source of relaxation and enjoyment or to strengthen social ties between family and friends and to promote feelings of well-being and comfort during the pandemic. The results of the survey show that despite an uncertain future zoos and aquariums foster feelings of solidarity in times of uncertainty.

Action Indonesia GSMPs for Anoa, Banteng and Babirusa – Update on Progress Made and Invitation to Get Involved in Action Indonesia Day

By Yonathan, PKBSI-GSMP Programme Officer, Indonesian Zoo and Aquarium Association (PKBSI), Charlotte Smith, Head of Conservation Education and Engagement, Chester Zoo, Corinne Bailey, Programme Officer, IUCN SSC Asian Wild Cattle Specialist Group

The Action Indonesia Global Species Management Plans (GSMPs) are an international collaboration to conserve the anoa, banteng and babirusa. Over fifty institutions from the global zoo community and *in situ* conservation partners combine their skills and resources to achieve stable and secure populations of these species.

The Action Indonesia partnership is structured according to the WAZA Global Species Management Plans (GSMP) framework. It follows the One Plan Approach to conservation developed by the IUCN Conservation Planning Specialist Group (CPSG). Since 2018, we have also worked closely with the Sumatran tiger GSMP to align our activities wherever possible. The coordination of Action Indonesia is carried out by the Indonesian Zoo and Aquarium Association (PKBSI) and the IUCN SSC Asian Wild Cattle Specialist Group.

Highlighting some successes

One of the primary goals of the Action Indonesia partnership is to 'reach a demographically and genetically healthy global *ex situ* population'. This is particularly important for Indonesian zoo populations of these species, as they contain several founder animals whose genetics are underrepresented in the global zoo population. International population biologists work with Indonesian studbook keepers and zoos to produce cooperative breeding and transfer recommendations in Indonesia. Since the recommendations began in 2016, there have been at least 30 recommended births, including four babirusa, eight anoa, and eighteen banteng. These births are important steps towards maintaining healthy global *ex situ* populations, which is critical to the long-term conservation of the species. We appreciate all the efforts from Indonesian zoos to implement the recommendations.

We have adjusted many of our planned activities to a virtual setting to allow us to keep supporting zoos from a distance. Activities included PKBSI and GSMP experts delivering ten virtual webinar sessions about key husbandry topics. The webinars were very successful in providing the opportunity for experts from Indonesia and around the world to present to a wide range of Indonesian zoo staff, with an average of 60 participants from 26 institutions joining the sessions. We were grateful that WAZA CEO, Dr Martín Zordan, presented on the 'Roles of Zoos in Conservation' in the webinar session.

Action Indonesia Day

In 2019, we launched the first Action Indonesia Day, a global awareness-raising day that aims to increase public support for the conservation of the GSMP species. In 2020, thirty zoos and institutions from three continents got involved virtually by sharing their animal facts, images, keeper talks and more on social media using the #ActionIndonesiaDay hashtag, with approximately 530 posts and gaining over 70,000 likes and views on our Instagram account @action_indonesiagsmp.

In 2021, we observed our third global Action Indonesia Day on 15 August. The GSMP Education Working Group prepared a set of resources to support even more organisations in getting involved on social media and, where possible, through hosting in-person activities in their zoos and other settings. The resources are available on our website www.actionindonesiagsmp.org.

Action Indonesia Day is a significant opportunity to shine a light on the conservation needs of these often overlooked but highly threatened species. We encourage you to get involved!

Other activities in 2021

This year, we continue to engage with zoos through interactive education training and updated breeding and transfer recommendations. We are initiating an *in situ* banteng monitoring project in East Java, and sampling is underway to assess the genetic status of the Indonesian zoos populations of anoa, banteng and babirusa.

Please find out more about Action Indonesia by visiting our website and reading our most recent publication reviewing the progress of the Action Indonesia GSMP since 2016.

The hard work of all those involved in activities and the amazing generosity of our supporters is a testament to the collaboration of the Action Indonesia GSMPs and the motivation of our partners. To find out more, contact Corinne Bailey, IUCN SSC Asian Wild Cattle Specialist Group Programme Officer, at c.bailey@chesterzoo.org.

There is still a lot of work to do, here are some ways that your institution can get involved in Action Indonesia:

- 1 Become a holder of these charismatic, threatened species.**
- 2 Raise awareness of the Action Indonesia species in your institution. Visit our website for resources and ideas to help: www.actionindonesiagsmp.org.**
- 3 Contribute to our activities by sharing knowledge and helping to build capacity in training workshops.**
- 4 Please help us by raising funds to support our *in situ* and *ex situ* projects.**
- 5 Take part in Action Indonesia Day on 15 August!**



The Science of Immersive Learning

Immotion Group Plc.

WAZA Corporate Member

Encouraging active and long-lasting engagement with the natural world is one of the prime goals of zoos and aquariums. Though some worry that technology will undermine their mission, keeping people at home and on their screens, others say that new technologies can strengthen the offering, guiding guests to a deeper understanding of animals in their natural habitats. Virtual reality (VR) has emerged as one of these game-changing new technologies.

Immotion Group is one of the acknowledged leaders in the world of immersive edutainment, specialising in live-action virtual reality. "VR allows guests to live an experience they might not normally be able to do in the real world, from swimming with whales, diving with sharks or communing with gorillas," explains Immotion's Group Commercial Director, Rod Findley. "But the impact is so much greater than a simple video because you are transported to their actual habitat." Over the past three years, Immotion has partnered with over 20 institutions worldwide. Their 360°, stereoscopic

experiences are viewed on VR headsets synced with motion-enabled seats, giving a level of immersion that's as close as you can get to actually being there. Directed by Emmy Award-winning directors and guided by marine biologists and conservation experts, these six-minute immersive films are each captivating in their own way.

But is the experience more than just an exhilarating motion ride? The answer is "yes."

Recent studies suggest that education is more impactful when combined with a "hands-on" experience with the subject matter. Using virtual technologies, learning is enhanced by the immersive process as more areas of the brain are stimulated. The science behind "muscle memory," whereby learning and information are seemingly retained in the whole body, forms the foundation for immersive learning.

When we are immersed in new environments where all our senses drink in information, we are more

likely to hold onto that experience for a longer time. For example, we understand the humpback whale mother /calf bond because our bodies have virtually witnessed this relationship in the breeding grounds of Tonga. We remember the ecological importance of tiger sharks with vivid detail because we have dived on the ocean floor with these incredible marine animals. And we cannot forget the power and nobility of a gorilla family after visiting their mountain conclave in the Rwanda highlands.

Additionally, the thrill of the VR experience triggers a dopamine response in the brain that accentuates the retention of information. Perhaps virtual reality is the purest form of “edutainment,” whereby education and entertainment brilliantly complement each other.

Because immersive learning accelerates and accentuates our ability to comprehend and retain information about the natural world, it has become an important tool for many institutions to amplify their conservation messaging. For example, zoos and aquariums are educational centres, connecting the general population with information to protect the planet’s wildlife and biodiversity. By tapping into virtual reality and the power of immersive learning, we can celebrate the conservation success stories of humpback whales; we can view first-hand the tragic decline of coral reefs around the world, and we can appreciate the need to protect sharks and other misunderstood predators in fragile ecosystems.

Immotion typically combines its VR theatres with an interactive pre-show providing guests context to the adventure they are about to embark upon. “Every experience we create is a journey of exploration for us as well. Our team researches and explores every aspect of the animals we feature. We distil this down to its essence to present to the guests. They have to be transported and excited by what we’re presenting, or they won’t engage. At its basic level, it is an educational experience, but if you ask guests on the way out, they’d most likely say, ‘It was awesome.’ And that’s what we’re going for.”

The path is only just beginning for immersive learning, and technologies like virtual and augmented reality could be keys to not only driving more attendance at zoos and aquariums but also engaging more deeply with the guests during their visit.



Photo: Diver with tiger shark near Tiger Beach, Bahamas
© Immotion Group Plc.



Photo: Humpback whale in Tonga
© Immotion Group Plc.



Photo: Turtle in Tonga
© Immotion Group Plc.



New Exhibit Feature

ZooParc de Beauval's Tropical Biodome – Le Dôme Équatorial de Beauval: A Successful Bet!

Delphine Delord

Photo: ZooParc de Beauval's new Tropical biodome.
© ZooParc de Beauval.

Associate General Manager, ZooParc de Beauval - Translated by Valy Gourdon, WAZA

Last year, Zooparc de Beauval in France unveiled its latest development – a giant tropical biodome – called Le Dôme Equatorial de Beauval (the Equatorial Dome). When planning started for the new exhibit, the guidelines for the Equatorial Dome built in the heart of the ZooParc de Beauval were: “To offer visitors an immersion in a tropical bubble where fauna and flora live together in a natural biotope.” It is a daring but necessary challenge to enable ZooParc de Beauval to maintain its rank of excellence and its place among the top five most beautiful zoos globally. For 40 years, the French Zoo, located in the heart of the Loir-et-Cher region, has demonstrated its ability to innovate on many occasions with various developments such as the construction of amphitheatres, a vast pool with underwater vision for hippopotamuses and, since 2019, a gondola flying over the park – a very first for a zoological park!

Nevertheless, the challenges presented by the biodome were immense and unprecedented in France. According to Rodolphe Delord, the Director of Beauval, it is undoubtedly the Zoo's “craziest project, but impossible is not Beauval! So, we got to work.” On paper, the project seemed simple enough – to create a globe cut in two at the centre to house equatorial animals and plants in their natural living conditions.

However, the reality was somewhat different. The construction of the Dome was subject to unprecedented and even revolutionary technological innovations in France. Architects, design offices and technicians were called upon to design this monumental greenhouse whose main characteristic is that it is self-supporting. Rodolphe Delord's watchword was “no poles!” “The visitors have to enter a bubble, not be hindered by pillars. They must have an overall view of the species housed and the lush vegetation.”

From laying the foundation stone in 2017 up to the opening to the public in February 2020, everyone involved in the project has been working towards the same goal: to make this sphere a singular and immersive place. The dimensions are unique, and the figures are dizzying: one hectare of floor space, 38m high, 100m in diameter, 15,000m² of double glazing, 16,000 tonnes of concrete, 13,000 tonnes of metal, 1.7 million litres of water, 48 master beams, a rainwater retention tank (which can hold 1.2 million litres) used to supply the twenty or so pools, all for an investment of 40 million euros.

From its conception to its opening, nothing was left to chance. Everything was designed and thought out down to the last centimetre so that every living thing can flourish thanks to the combined action of natural light, heat – the temperature is maintained at 26°C year-round – watering of plants with filtered rainwater, an ingenious system of air currents, etc. Thus, the public can admire both the bioclimatic architectural prowess and the extraordinary species housed in the aviaries and ponds. Some species are rare or even unique in France, and several of them are on the IUCN Red List of Threatened Species because they are endangered in the wild. The Dome is home to species classified as vulnerable, such as the False gharial (*Tomistoma schlegelii*), or the sailfin water lizard (*Hydrosaurus pustulatus*), but also species classified as critically endangered, including the red-shanked douc langur (*Pygathrix nemaeus*), Bourret's box turtle (*Cuora bourreti*), Lesser Antillean iguana (*Iguana delicatissima*) and Malaysian giant turtle (*Orlitia borneensis*). The list is much longer, with 95 different species representing over 23,000 individuals!

Each year, the Zoo welcomes more than 1.6 million visitors who come to discover the extraordinary richness of our biodiversity. With the Equatorial Dome and the presentation of these endangered species “from the ends of the earth”, ZooParc de Beauval is preparing to receive more visitors in winter, and thus, increase awareness of the importance of conservation and the vital role played by zoos and aquariums.

In the heart of the Dome, visitors will be able to stop off at the Bivouac, which showcases the conservation programmes in which Beauval Nature, the association created by Zoo de Beauval, is involved in, in order to preserve global biodiversity. Each year, Beauval donates 1% of its turnover to conservation.



Photo: Squirrel monkey. © ZooParc de Beauval.



Photo: Somali Wild Ass. © Torben Webel/Zoo Basel



Update on International Studbooks (ISBs)

Changes between 18 March 2021 and 7 July 2021

Published ISBs

- **Hartmann's mountain zebra** (*Equus zebra hartmannae*), 2020 ed. – Tanya Langenhorst (Marwell Zoo, United Kingdom)
- **Somali wild ass** (*Equus africanus somalicus*), 2020 ed. – Beatrice Steck (Basel Zoo, Switzerland)
- **Gorilla** (*Gorilla sp.*), 2020 ed. – Sabrina Linn (Zoo Frankfurt, Germany)
- **Visayan spotted deer** (*Rusa alfredi*), 2020 ed. – Christina Schubert (Zoo Landau, Germany)
- **Grevy's zebra** (*Equus grevyi*), 2020 ed. – Tanya Langenhorst (Marwell Zoo Wildlife, United Kingdom)
- **Persian leopard** (*Panthera pardus saxicolor*), 2020 ed. – Susana Nolasco (Jardim Zoológico de Lisboa, Portugal)

ISBs Transfers

- **Blue-eyed black lemur** (*Eulemur flavifrons*) – The International Studbook Keeper, Peggy Hope, moved from Indianapolis Zoo to Loveland Living Planet Aquarium (United States of America)
- **Persian onager** (*Equus hemionus onager*) – inter-institutional transfer from Florian Sicks at Tierpark Berlin-Friedrichsfelde to Dr Adriane Prahel at Tierpark Hagenbeck (Germany)
- **Greater one-horned rhino** (*Rhinoceros unicornis*) – Intra-institutional transfer from Friederike von Houwald to Beatrice Steck at Zoo Basel (Switzerland)

Archived Studbooks

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

Would you or someone in your team like to become an International Studbook Keeper? Reach out via the email below to enquire about establishing new International Studbooks or checking the current vacancies.

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

WAZA Welcomes New Members

The World Association of Zoos and Aquariums (WAZA) is pleased to have recently welcomed six new members to the global zoo and aquarium community. Assiniboine Park Zoo, Biodôme de Montréal, Dartmoor Zoological Society, Nawab Wajid Ali Shah Zoological Garden Lucknow, and Poema del Mar Aquarium have been accepted as WAZA Institutional Members, and Worldwide Zoo Consultants has been accepted as a WAZA Corporate Member.





The Assiniboine Park Zoo

Located in Winnipeg, Manitoba, the Assiniboine Park Zoo was founded in 1904 and is the oldest zoological facility in Canada. In 2009, the Assiniboine Park Conservancy unveiled a visionary redevelopment plan that laid the groundwork for the revitalisation and modernisation of Assiniboine Park Zoo. The Zoo has since been transformed into a world-class destination and leader in environmental and wildlife education, research, and conservation. Today, the 32-hectare (80 acres) Zoo is home to more than 180 species with a focus on native and cold-hardy species and the recreation and celebration of Manitoba wildlife, geography, and culture.

At Assiniboine Park Zoo, conservation and research go hand in hand. The Zoo focuses on conservation in three areas: Arctic and subarctic species, Manitoba species, and international species at risk. With this in mind, the Zoo, with financial support from the Province of Manitoba, opened the Leatherdale International Polar Bear Conservation Centre (IPBCC) in 2012, a hub for wildlife education, research, and conservation. The centre provides a home for polar bears that would not survive in the wild, and houses the Conservancy's Conservation and Research department. This team coordinates and leads wildlife conservation and research projects focusing on many species of importance to both the Zoo and its visitors.

The Assiniboine Park Zoo is also committed to education and public awareness. The Zoo's mission is to protect and celebrate biodiversity both locally and internationally. Its vision is for people to share the wonders of nature in a way that inspires them to conserve it for the future.

Learn more: www.assiniboinepark.ca





The Biodôme de Montréal

The Biodôme de Montréal is one of five institutions in Space for Life (Espace pour la Vie) – Canada's largest natural science complex, located in Montreal.

The Biodôme was inaugurated in 1992, followed by a period of closure for construction works in which the institution was radically redesigned. The renovated Biodôme offers visitors a unique sensory experience, blending science, art, and emotion to enable them to experience the climatic conditions of each of the five American ecosystems represented under one roof. Biodôme de Montréal is home to over 3,000 animals from 200 different species and 800 plant species.

Based in the former velodrome of the 1976 Summer Olympics, the Biodôme supports people to better experience nature through educational activities, research and conservation initiatives. In addition to conservation programmes for indigenous species, the Biodôme is involved in habitat restoration programmes and is currently planning conservation projects related to the St. Lawrence River ecosystem.

Learn more: www.espacepurlavie.ca/biodome

The Dartmoor Zoological Society

The Dartmoor Zoo located near Plymouth in the United Kingdom, opened in July 2007. The Zoo's voluntary CEO, Benjamin Mee, and his family rescued the formerly privately owned and dilapidated Zoo by buying and transforming it. The story of the Zoo was documented in Mee's book "We Bought a Zoo", which was also adapted into a movie.

The charity's vision is for a future where no animal species face extinction, and its mission is to educate, inform, inspire and empower people to be more connected with the natural world and take greater responsibility for their impact.

Research is one of the Zoo's key objectives, and it has launched the Dartmoor Institute of Animal Science, a research, conservation and education centre, in partnership with Plymouth University. Dartmoor Zoo's research includes both animal-based and visitor studies.

The Zoo is also committed to sustainability and environmental protection and works closely with the Green Tourism Award to inspire the highest standards of sustainability, efficiency and working practices.

Learn more: www.dartmoorzoo.org.uk



The Nawab Wajid Ali Shah Zoological Garden, Lucknow

Also known as the Lucknow Zoological Gardens, was established one hundred years ago to commemorate the arrival of the Prince of Wales to Lucknow, India. Since 1966, the Zoo has been under the administrative control of the Forest Department. Spread over 29 hectares in the heart of the city, the Zoo is home to over 1,000 animals of more than 100 different species, as well as over 5,000 trees and plants, some older than the Zoo itself. In 2018, it opened the first butterfly park in the state. More than 80 species of plants and about 28 types of butterflies are found in more than two hectares. The Zoo also has a state-of-the-art animal hospital equipped for the treatment and care of rescued wild animals.

Lucknow Zoological Gardens was established with the primary objective of education, research and conservation of indigenous endangered species. With more than 1.5 million visitors each year, the Zoo is committed to raising awareness among its visitors of the importance of all animals and plants for the environment. In 2017, the Zoo opened the Nature Learning Centre.

A true national pioneer, it is the only Zoo in the country to have received three ISO certificates simultaneously since April 2018.

Learn more: www.lucknowzoo.com

Poema del Mar Aquarium

Opened in January 2018, Poema del Mar Aquarium is located in the city of Las Palmas de Gran Canaria, in Spain. The Aquarium is the latest addition to the Loro Parque Foundation's collection of attractions, which includes Loro Parque and Siam Park, all run by the Kiessling family.

The Aquarium's name pays tribute to local artist Néstor de la Torre for his paintings entitled Poema del Mar. Spread across an area of 12,500m², the Aquarium contains more than 35 different marine and river ecosystems, and is home to 450 species. Poema del Mar is committed to protecting and preserving marine wildlife and their habitats through conservation, research, education and engaging experiences.

Conservation and sustainability are the core values of the Aquarium. The Poema del Mar Aquarium supports the Loro Parque Foundation, which carries out several conservation projects focused on endangered species. In its sustainability endeavours, the Aquarium has implemented various measures to save energy, reduce contamination, optimise the sustainable use of resources, and produce renewable energy for the Aquarium. Additionally, through the CanBIO project, the Foundation has established a state-of-the-art marine monitoring network to evaluate climate change, ocean acidification and underwater noise in the Canary Islands.

Learn more: www.poema-del-mar.com/en



Worldwide Zoo Consultants

Established in 2011, Worldwide Zoo Consultants, based in the United Arab Emirates, is a global leader in the creation, development and management of a wide variety of specialised animal facilities, attractions and projects, from zoological parks, public aquariums, animal sanctuaries, living museums and immersive animal-based educational centres. With two offices in the United Arab Emirates and one in South Africa, the company works internationally to offer a wide variety of specialised services to cater for all stages of the development of zoos and aquariums.

The company's vision is to develop, design and manage zoos, aquariums and other animal living museums that consistently prioritise the well-being, safety and prosperity of animals.

Worldwide Zoo Consultants is already working with WAZA members, such as with the Al Ain Zoo, on their grand expansion plan.

Learn more: www.worldwidezoo.com





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