

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.

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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.

