

## **KEEPING WILD ANIMALS IN CAPTIVITY – TRADITIONAL ENTERTAINMENT OR MODERN CONSERVATION APPROACH?**

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### **ABSTRACT**

Growing global populations are increasingly dependent on natural resources, such as food, water and land to supply their demands. At the same time, urban environment has made its population curious of their surrounding nature, including wildlife. Zoos appear to be an appropriate tool to introduce wild animals to people in a safe and interesting way, providing new experiences and even education to several generations. With the development of animal ethics and nature protection, zoos started to play another important role as centres for wildlife conservation. International regulations were set in order to ensure standards for proper treatment of zoo animals. However, there are still places where wild animal welfare is in question. This paper aims to discuss the arguments for and against keeping wild animals in captivity and to emphasize the impact zoo conservation programmes could have on both animals and humans.

**Key words:** zoo animals; biodiversity conservation; ethics of animal use.

### **Introduction**

Keeping wild animals in captivity has been a common pastime ever since Ancient Egyptian menageries were used as a display of power in 3500 BCE (EC, 2015). With animal sports' increasing popularity, animal health became a greater focus in the Middle Ages (Dunlop & Williams, 1996). Although historical chronicles revealed how lack of veterinary knowledge led to abuse. One such example was when an ostrich was fed metal nails in the Tower of London in the 13th century (Hahn, 2003). With these practices being common, animals often died earlier in captivity than in the wild.

It was only in the last two centuries that modern zoo establishments were built (Rees, 2011; Bruce, 2017; Uddin, 2017). While the earliest zoos understood animals' dietary needs, they often kept animals in small barren enclosures without considering their mental health (Wolfensohn et al., 2018; Sherwen & Hemsworth, 2019). This suggests that responsible authorities did not think of elaborating legislation to encourage zoos to promote conservation and welfare until deforestation, poaching, capture, and illegal trade threatened global biodiversity (Ceballos et al., 2017). These issues gave rise to legislation that sought to make zoos improve captive animal welfare, educate the public, and enable breeding programs to combat species loss.

Despite these efforts, some have questioned whether the limited nature of zoos and their role in entertainment is harmful towards animals' mental and physical health (Wolfensohn et al., 2018). This article will explore whether keeping wild animals in captivity to conserve species is justified, as opposed to just leaving wild animals in their dangerous natural habitats.

## **Materials and methods**

An analysis was made on the existing legislative framework for zoo management to determine their main objectives, with an emphasis on animal welfare. This involved evaluating official international documents, including Bern Convention, CITES, EU directives, good practice guides, and EAZA manuals. As well as further evaluating national British and Bulgarian Acts. Additionally, SWOT analysis was used to investigate the strengths and weaknesses of keeping wildlife in captivity using related scientific literature.

## **Results and Discussion**

### **1. A Brief Analysis on Developing Legislation for Protecting Wild Captive Animals**

In order to address captive animal welfare and conservation worldwide, legislation had to be made at different levels. At a regional level, European countries set up the Bern Convention to conserve European wildlife and natural habitats through national conservation policies, education, and research (Council of Europe, 1979). Additionally, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), set out terms to prevent trading exotic species to conserve resident and migratory species (CITES, 2019). In cases of illegal endangered wildlife trading, the animals are confiscated and sent either to wildlife rehabilitation centres or zoos with conservation programmes. The EU further protected animals through Council Directive 1999/22/EC. This form of legislation finally defined what a zoo had to be as an establishment, and the zoo's role in protecting wild fauna in the name of biodiversity. According to The Zoos Directive, zoos are described as "all permanent establishments where animals of wild species are kept for exhibition to the public for 7 or more days a year" (EC, 1999).

All member states under this Directive are subsequently responsible for implementing their own inspection and licensing systems to ensure that they adhered to set requirements for conservation programs, public education, animal welfare and accurate record keeping (EC, 2015). Laws such as the UK's Zoo Licensing Act, 1981 (UKPGA, 1981) and Bulgaria's Ordinance No. 1/2006 on zoo licensing guided these inspections in their respective countries (MOEW, 2006; Glanville & Draper, 2013; Tyson, 2021). Research and official control checks are also used to improve these systems (Casamitjana, 2012; Draper et al., 2013). With all this reassurance, the public could assume that the contemporary zoo establishment is not only suitable, but beneficial for captive wild animals.

### **2. Arguments for keeping wild animals in captivity**

#### **2.1. Saving endangered species**

In 1983, the Golden lion tamarin (*Leontopithecus rosalia*) was upon the brink of extinction and was classed as critically endangered by IUCN accordingly. This species was saved by well-coordinated European Endangered Species Programs (EEPs) that bred these animals in captivity until their status changed to endangered in 2003 (Kierkluff, et al., 2012).

These EEPs are orchestrated by species coordinators that evaluate studbook databases with details about the sex, age, and ancestry of every animal in the programme. Depending on the health of the animals and available funds, the mating can be carried out naturally or by artificial insemination (AI) (EAZA, 2020). Naturally, this would not be possible without the wildlife veterinarians who are always on site to prevent any health disorders that may occur (Braverman, 2018).

#### **2.2. Zoos playing a role in education**

A study among zoo visitors found that 78% of the respondents could recall new information they learned from the zoo that day (Smith & Broad, 2008). Such cognitive results could be achieved

through reading plaques and interactive materials at animals' enclosures encouraging visitors to actively learn (Fig. 1). The less dangerous animals can even be enriched by providing positive learning experiences through human-animal interactions (Fig. 2) (Esson & Moss, 2013; Melfi, 2013; Adetola & Oluleye, 2017; Godinez & Fernandez, 2019). Besides the important educational role to the public about animals and their plights, these experiences inspire visitors to contribute to conservation program funding (Yilmaz & Alpak, 2019).



**Figure 1: Interactive learning by children at Cologne Zoo, Germany (EAZA, 2013)**



**Figure 2: Children learning about animals by feeding them with a zookeeper (PERTH ZOO, 2021).**

Although childhood conservation schemes fostered positive perceptions about conservation and scientific interests later in life (Cuddeback et al., 2019), human-animal interactions have been barely researched, without knowing whether they negatively impact animal welfare (Binding et al., 2020).

### **2.3. Consideration towards wild animals**

With growing animal welfare knowledge in the past decades, the “Five Freedoms” were developed to evaluate animals' mental and physical wellbeing, including welfare of captive animals in European zoos (NA, 2002; UKPGA, 2006; NA, 2008). More updated research has then been used to further improve captive conditions:

1. Freedom from hunger and thirst.
2. Freedom from discomfort.
3. Freedom from pain, injury, or disease.
4. Freedom to express normal behavior.
5. Freedom from fear or distress.

Four of the Freedoms cover issues related with the physical health of the individual animal, while the fifth one addresses its psychological health. One issue commonly found in captivity was how limited enclosures suppressed tigers from stalking prey as they would normally do. This resulted in abnormal repetitive behaviors, such as pacing (Vaz, et al., 2017). To combat this, zoos introduced naturalistic enclosures with enrichment and possibilities for social interaction (Mellor et al, 2015; Yilmaz & Alpak, 2019). As a matter of fact, London zoo's Amur tiger promotional video features tigers climbing a tree to retrieve food during feeding time. This is doubly beneficial, as it functions as a spectacle while also stimulating the tigers mentally and physically (ZSL, 2021).

## **3. Arguments against keeping wild animals in captivity**

### **3.1. Zoos are not suitable for wild animals**

Despite animal welfare legislation being in place, captive animals are still deprived of some of their freedom in the name of entertainment (Sunstein & Nussbaum, 2004). A well-known example

is the orca, Tilikum, who was captured as a calf in Iceland to entertain visiting customers with other orcas at Florida’s SeaWorld. Being from different pods brought about difficulties with echolocation, leading to daily physical aggression (Stokes & Atkins-Sayre, 2018).

To prevent this, whales were often housed in pools just large enough to house their bodies, without the freedom to swim at all. Even when they were released to perform tricks, the warm round pool they swam in deformed their dorsal fins and caused echolocation sounds to reverberate, deafening the whales. This meant that they could not hear the commands they were supposed to obey and were therefore starved. Naturally, these grueling conditions resulted in many orcas dying early, as well as Tilikum in 2017 (Stokes & Atkins-Sayre, 2018).

### 3.2. Inconsistent research

One common feature of captive animal welfare research was found to be the tendency to anthropomorphize animals, primarily focusing on more charismatic species that are easier to relate to or domesticate, such as elephants, primates, and dolphins (Beres, 2019; Binding et al., 2020).

While we may know more about these species than other taxonomic groups, it is still difficult for us to use “The Five Freedoms” to assess welfare (Binding et al., 2020). Fig. 3 shows us how the elongated jawline of a dolphin predisposes the public to believe that it is expressing normal behavior (Rally & Frohoff, 2019). However, we can assume it is in discomfort due to its injury. This suggests that animals generally express their emotions very differently compared to humans and may seem “happy” while they are suffering.



**Figure 3: An injured dolphin appears to be “happy”, due to its naturally elongated jawline, despite its injured teeth (orange circle) (Rally & Frohoff, 2019)**

Several animal welfare reviews have stressed how our human sensibilities naturally compromise animals during research. For example, it is easier for us to monitor behavioral changes with environmental enrichment, while neglecting issues like climate quality (Melfi, 2009; Binding et al., 2020). Noise level alone affects the behavior of more than 80% of mammals and aquatic species (Boyle et al., 2020; Hashmi & Sullivan, 2020). This example likewise highlights how some zoos, like SeaWorld, ignore scientific findings. Zoos are also not necessary for wild animal research since important expeditions to natural habitats have been funded in the past.

### 3.3. Flawed legislation

In 2014, Copenhagen zoo received well deserved criticism after killing a young healthy male giraffe. Their justification was that EAZA deemed that he could not contribute to the genetic diversity of his species' gene pool (Braverman, 2018). Therefore, the existing legislation we have is not preventing zoos from going beyond their capacity and euthanizing animals for this reason. This seems hypocritical since zoos claim to save animals but are also free to kill those that do not generate enough revenue. This example raises the question if zoos ever do want to release animals into the wild, or to just keep them for display like the Ancient Egyptians did.

The fact of the matter is that "The Five Freedoms" are too subjective (Mäekivi, 2018). We also cannot assume that natural wild behaviors are not detrimental in unnatural zoo settings (Learmonth, 2019). Consequently, it is naïve for our current research to suggest that a lack of negative behaviours implies that animals have positive welfare (Melfi, 2009).

For these reasons, animal rights activists suggest that animals have the same rights as us to autonomy and should be left alone. Although this would eliminate concerns about zoo animal welfare, it will be a long time before we can overcome all the legal, historical, and psychological obstacles needed to eradicate zoos (Sunstein & Nussbaum, 2004; Ward et al., 2020).

### 3.4. Breeding programs set animals up for failure

EEPs are probably the most vital resources zoos have to offer but sometimes benefits from them are in doubt when it comes to welfare issues. Given that AI is routinely used when natural mating is not possible, the risks of the procedure must be considered. The anesthetic alone can cause hypothermia, even death, making older animals from warmer climates especially vulnerable.

While some utilitarians argue that the discomfort of a few animals is necessary for conservation, AI is not always successful and is often done for the monetary gains. In the case of successful AI, the subsequent offspring's lack of genetic diversity may render them more susceptible to disease and unable to adapt to the wild. This has been seen in many species' studies, such as the Asian woolly-necked stork (Jangtarwan et al., 2019). This issue is worsened by the fact that solitary housing and captive living inherently makes it harder for animals to adapt to the wild (Learmonth, 2019). Some animals raised in captivity appear to be unable to survive by themselves (Morimura & Ueno, 1999), like the captive orca, Keiko, who was so dependent on being fed by humans that he spent his last days in a Norwegian fishing village before succumbing to pneumonia at the age of 24 (Simon et al., 2009).

Overall, EEPs depend on just a few animals to rebuild a population. No matter how many conservation experts are involved, genetic and epigenetic drift is inevitable (Learmonth, 2019).

## Conclusion

Based on the above discussion, not only are there more arguments against zoos, but even the reasons for keeping zoos cannot be fully justified.

The educational purpose of zoos is debatable, as most customers visiting zoos desire entertainment (Ogle, 2016). Additionally, conservation awareness efforts that zoos make to instill in visitors, like the idea of improved enclosures designs, have a negligible impact (Pavitt & Moss, 2019). While we may need to research this area more, our current research is generally lacking.

The public only allows zoos to remain open for human interest, justifying it by saying we are saving species. This is a short-term fix that is not working. A more lasting solution lies in shifting our focus on the deforestation and poaching at the root of the species loss problem. The most suitable

compromise may be to leave animals in wild territories with continuous surveillance, research, and veterinary care, while continuing to educate the public.

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