

Rethinking population management in zoos: New policy suggests natural reproduction and culling

January 8 2025, by Nathalie Huber



Male European bison (*Bison bonasus*) fed to a Polar bear (*Ursus maritimus*).
Credit: Timo Deible, Zoo Karlsruhe

Until now, contraception has been the method of choice for zoos to

avoid surplus animals. Researchers are now calling for a paradigm shift: zoos could preserve their breeding populations, raise awareness of conservation challenges and improve animal welfare and their carbon footprint by allowing animals to reproduce naturally and culling surplus animals.

Unlike animals in the wild, animals in zoos are not limited by [food shortages](#) or predators, allowing individuals to live much longer than they would in the wild. This poses a challenge for zoos, as it puts pressure on their finite holding capacities.

As a result, many zoos restrict [animal breeding](#) for both logistical and financial reasons. Other zoos have risked a public backlash by culling surplus animals: Ten years ago, the culling of Marius, a healthy two-year-old giraffe, sparked an international debate about what zoos should do with their surplus animals, with many people upset at the idea of euthanizing healthy animals.

Aging zoo populations

In a recent [policy statement](#) led by the University of Zurich and published in the *Proceedings of the National Academy of Sciences*, researchers argue that the widespread use of contraception is changing the age profile and welfare of zoo populations—and not for the better.

"Without births, adult animals are deprived of one of their most basic evolutionary drives," says Marcus Clauss, lead author of the report.

"Over time, zoo populations are also aging, jeopardizing one of the core principles of zoos: maintaining self-sustaining populations."

Often, surplus animals cannot be moved elsewhere, because zoos are filled to capacity and reintroducing animals to the wild requires dedicated release programs and availability of suitable habitats. Rather

than limiting the reproductive ability of zoo animals, the authors advocate for the planned and respectful culling of surplus animals.

"This is a rational and responsible approach to zoo population management. What's more, such an approach can help zoos fulfill their educational mission in addition to their conservation mission," adds Clauss.

Educating the public about the natural life cycle

"Each year, more than 700 million people visit zoos around the world," says co-author Andrew Abraham from Aarhus University. "Zoos have an incredible opportunity to shape the public's understanding of animal mortality and natural processes. But by moving death to the margins, zoos perpetuate unrealistic expectations about life in the wild."

However, zoos are also critical for conservation. "Already today, numerous animal species are threatened with extinction, and many more are likely to follow in the coming decades. It is essential that zoos maintain reproductively active populations, along with zoo staff experienced in caring for young animals. What we don't need is a collection of geriatric animals and veterinarians preoccupied with palliative care," Abraham adds.

In-house meat supply improves carbon footprint

As births increase, surplus zoo animals will have to be culled—a practice that can also make zoos more environmentally sustainable. Thus, one zoo in Germany is able to feed its carnivores with up to 30% of meat from animals within its own institution, reducing its [carbon footprint](#) and the need for commercially slaughtered animals.

While the culling of charismatic mammals often sparks controversy, evidence suggests that public opinion is more balanced than portrayed in the media. "Zoos have a responsibility to educate visitors about the realities of life and death in animal population management," says Clauss. "Transparent communication can help shift [public perceptions](#) and align attitudes with long-term, sustainable approaches."

More information: Marcus Clauss et al, Zoos must embrace animal death for education and conservation, *Proceedings of the National Academy of Sciences* (2024).

www.pnas.org/doi/10.1073/pnas.2414565121

Provided by University of Zurich

Citation: Rethinking population management in zoos: New policy suggests natural reproduction and culling (2025, January 8) retrieved 9 January 2025 from <https://phys.org/news/2025-01-rethinking-population-zoos-policy-natural.html>

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