

# More than just menageries: First look at zoo and aquarium research shows high output

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Most of us think of zoos and aquariums as family destinations: educational but fun diversions for our animal-loving kids. But modern zoos and aquariums are much more than menageries. According to a new

study, the institutions are increasingly contributing to our knowledge base on biodiversity conservation and other scientific topics.

Through an analysis of scientific literature, the study's authors determined that researchers at zoos and aquariums have contributed at least 5,175 peer-reviewed articles to conservation, zoology, and veterinary journals over the past 20 years.

"This paper is the first quantification of research productivity of zoos and aquariums. It shows a trend of substantial and increasing publishing through time," says Eric Larson, a freshwater ecologist in the Department of Natural Resources and Environmental Sciences at the University of Illinois. "Zoos and aquariums are definitely players in scientific research."

The 5,175 papers came from 228 zoos and aquariums, all of which are members of the Association of Zoos and Aquariums. As part of its accreditation standards, the AZA requires conservation and research activities. Larson and his co-authors wanted to see if these standards were having an effect in terms of research output. Clearly, they were.

Other factors mattered, too. The authors looked at the age, size, financial status, type, and mission statements of the 228 institutions in their sample. Of those, age, size, and the inclusion of research in mission statements were most important.

Larson thinks older zoos and aquariums have had more time to build endowments that support research. "We also found that larger organizations have more capacity to do research, but there's some control at the organizational level about that - choosing to put research in your mission statement does matter," he says.

Publishing in conservation journals doesn't necessarily translate to

adoption of conservation practices on the ground, Larson notes. That so-called implementation gap is hard to quantify and is not unique to zoos and aquariums. However, unlike other research institutions, zoos and aquariums often participate in [conservation](#) activities like species survival plans, including captive breeding to ensure genetic diversity.

"Zoos and aquariums also have much greater impact in terms of public outreach and education than traditional research institutions," says Tse-Lynn Loh, lead author and visiting tutor at Quest University Canada.

Larson says he and his co-authors would like to dive deeper to get an even better sense of the research output of zoos and aquariums. But for now, he says, the reaction from zoos and aquariums to the paper has been very positive. "Based on some of the reactions on social media, I think we found a much larger volume of papers than researchers at those institutions had expected."

The article, "Quantifying the contribution of zoos and aquariums to peer-reviewed scientific research," is published in *Facets*, an open-access journal [[DOI: 10.1139/facets-2017-0083](https://doi.org/10.1139/facets-2017-0083)]. Larson's co-authors include Tse-Lynn Loh, Solomon David, Lesley de Souza, Rebecca Gericke, Mary Gryzbek, Andrew Kough, Phillip Willink, and Charles Knapp. The research was done while Larson, Loh, and David were postdoctoral researchers at Shedd Aquarium.

**More information:** Tse-Lynn Loh et al, Quantifying the contribution of zoos and aquariums to peer-reviewed scientific research, *FACETS* (2018). [DOI: 10.1139/facets-2017-0083](https://doi.org/10.1139/facets-2017-0083)

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