

UM study abroad students fuel understanding of gaps in conservation data

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Animals around the globe face rising extinction rates, but there is often a lack of data about the causes of population declines, as well as ecological and biological considerations for conservation.

For example, the International Union for the Conservation of Nature (IUCN) provides a catalog of the [conservation](#) status for [species](#) around the globe, but many species are listed as "data deficient" because of this lack of information.

A new collaborative study between students from University of Montana and the Universidad de Concepcion in Chile seeks to understand the type and magnitude of gaps in [scientific information](#) as a way to improve conservation planning.

The authors used Chile—a biodiversity hot-spot where 55 percent of plants and nearly 15 percent of mammals are endemic—as a case study to assess trends in available ecological and biological information relevant to conservation planning for threatened and endangered terrestrial mammals. Specifically, the team read and assessed scientific literature for 22 IUCN red-listed species in Chile and categorized it by topic and species.

Although the number of published articles increased over the past 19 years, they found that seven species (31 percent), including the one critically endangered species, had little available research and over 25 percent of species were missing critical information regarding basic

biological and life history characteristics. Their finding of substantial gaps in information for at-risk Chilean mammals highlights the importance of developing strategic research agendas for at-risk species in Chile, as well as across the globe.

"This study is important because it highlights knowledge gaps in the literature and research for specific at-risk species," said first author Sarah Gaulke, who graduated from UM in 2017 with a major in wildlife biology and a minor in [ecological restoration](#). "To effectively conserve species, there is certain essential knowledge about the habitat and ecology of the species. Without that knowledge, efforts to save a species may be misguided. With this study, researchers and managers are better able to target areas for research and funding to gather necessary information.

"I think it's important for the public to understand that there is still a lot of unknown information about some at-risk species," Gaulke said. "We may not have the information and research currently to properly conserve these species, which is a time sensitive issue. While this review focuses on Chile, it can be used as a [case study](#) for other countries to emphasize where research gaps may be."

"The research has important implications for mammal conservation but also demonstrates the importance of study abroad experiences," said Cara Nelson, a UM professor of restoration ecology who mentored the research team.

Nelson spent a sabbatical year in Chile, teaching at the Universidad de Concepcion and conducting research on forest restoration. In addition, she taught a UM study abroad course on Patagonian ecosystems, in which Gaulke participated as a Franke Sustainability Fellow. The Franke Sustainability Fellowship supports undergraduate students in UM's W.A. Franke College of Forestry and Conservation studying or practicing

sustainability projects off-campus.

Co-author Luke Johnson, also a Franke Fellow, spent a semester at the Universidad de Concepcion in 2017, took the Patagonia course in 2018 and graduated with a degree in wildlife biology in 2019.

"I got involved with this study while studying abroad at the University of Concepcion in Chile," Johnson said. "Sarah and Cara had done some preliminary research on the topic but excluded articles written in Spanish. I was initially brought on board to help review Spanish articles and then proceeded to assist in the drafting and editing process."

Two students from the University de Concepcion, Enzo Martelli and Carlos Letelier, were also instrumental to the research team. Martelli spent a semester working in Nelson's lab at UM in 2016 and served as a teaching assistant in the Patagonia course in 2018; he is now a master's student in UM's Restoration Ecology Lab.

"The opportunity to participate in the study abroad program was fundamental to my development as a scientist," he said. "It helped me to develop critical thinking skills by exposing me to different perspectives about science and conservation, as well as to build an international collaborative network."

The study, "Threatened and endangered mammals in Chile: Does research align with conservation information needs?" was published in the September issue of *Conservation Science and Practice*, a new journal of the Society for Conservation Biology.

More information: Sarah Gaulke et al, Threatened and endangered mammals of Chile: Does research align with conservation information needs?, *Conservation Science and Practice* (2019). [DOI: 10.1111/csp2.99](https://doi.org/10.1111/csp2.99)

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