

Creature culture: What animal behavior can teach us about saving nature



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Studies show that different elephant populations, even those living near each other, may use subtly distinct "rumbles" to communicate. But what if these differences are more than just noise? What might the elephant language gap reveal about the relationship between human civilization and the animal kingdom? To explore questions like these, researchers at the University of Arizona have launched the Animal Culture Database, a new tool to support further research in animal behavior.

Animal conservationists often move elephants between herds to improve biodiversity and group health, but what if the elephants don't speak the same language?

Studies suggest that populations, even those living relatively close to one another, may speak in subtly different "rumbles."



Kiran Basava

What if those differences were more than noise? What if different dialects made it harder for new elephants to make friends, form alliances or even warn others of danger?

The elephant language gap is just one example of a growing body of research examining a wide range of behavioral differences in wild animals – differences that may be cultural, not just biological. This could help answer countless questions: Why don't all elephants understand each other? Why do some chimpanzees master stone tools while others don't? How did rats specialize in eating pinecones?

And most importantly: What can these behaviors tell us about the relationship between human civilization and the animal kingdom?

Researchers from the University of Arizona have launched what they believe is the first open-access catalog of animal traditions to explore how social learning both shapes – and is shaped by – human-driven environmental change. A new study **published in** (<https://www.nature.com/articles/s41597-025-05315-y>) Scientific Data introduces **The Animal Culture Database** (<https://datadiversitylab.github.io/ACDB/>), a collection of vocal communications, mating displays, play and other social behaviors observed in dozens of species from around the world.

"There is a consensus among animal behavior researchers that cultural traditions and socially learned behaviors are important to conservation," said Kiran Basava, the study's lead author and postdoctoral research associate in the **College of Information Science** (<https://infosci.arizona.edu/>). "There are decades of research investigating these behaviors across different species that are scattered throughout the literature. We synthesized that work to facilitate creative research and discussions about how culture is defined across different species, as well as how animals respond to different environmental disturbances caused by humans."



The Animal Culture Database world map.

At the heart of the database is an interactive world map with markers representing various populations of animals and revealing details about that species' behavior. Data can also be searched by species, behavior or location – allowing users to explore the grooming habits of gorillas, the breeding songs of birds and the migratory patterns of whales, to name a few.

Basava developed the database alongside College of Information Science colleagues Cristian Román-Palacios, an assistant professor; Kristen Martinet, a postdoctoral research associate; Hector Garcia-Verdugo, a research associate; and Paige Cherry, an undergraduate student studying information science. They were joined by Md Alam, a graduate student in the **School of Plant Science** (<https://spl.s.arizona.edu/>) in the **College of Agriculture, Life and Environmental Sciences** (<https://cales.arizona.edu/>), and Liam Roberts, a graduate student in **Entomology and Insect Science** (<https://gidp.arizona.edu/academic-programs/entomology-insect-science>).

To build the database, researchers reviewed thousands of studies on animal behavior published over the last several decades. From that research, more than 1,000 papers were selected to develop parameters. The database currently includes information from 121 of those studies, cataloging the behaviors of 30 mammalian species, 30 avian species and one insect species into a searchable, online database.

Basava said work is ongoing to add information from more than 600 additional papers. There are also plans to allow other scientists to add their own research to the database.

"The Animal Culture Database will assist in teaching and understanding basic science," Román-Palacios said. "You can investigate the origins of culture by not just tracing it back to humans, but by seeing how much variance there is between different species and asking what drives those differences. Culture is not just a human phenomenon, and this database can help investigate what drives culture across the animal kingdom."

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