

There are more mammal species than we thought

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A recent study published in the *Journal of Mammalogy*, at Oxford University Press, highlights that over 1000 new species of mammals have been described globally during the last dozen years, a finding that contradicts the notion that our mammalian relatives are well known. This rate of species discovery parallels that seen in global amphibians, and is driven by advances in DNA analysis methods and field exploration. This new listing of all living mammal species is now publicly accessible in the Mammal Diversity Database, a website funded by the American Society of Mammalogists and National Science Foundation that seeks to continue updating mammal species data to reflect newly published research.

The number of recognized [mammal species](#) has increased over time from 4,631 species in 1993 to 5,416 in 2005, and now to 6,495 species. This total includes 96 species extinct within the last 500 years, and represents nearly a 20% increase in overall mammal diversity. The updated tabulation details 1,251 new species recognitions, at least 172 unions, and multiple major, higher-level changes, including an additional 88 genera and 14

newly recognized families. The new study documents a long-term global rate of about 25 species recognized per year, with the Neotropics (Central America, the Caribbean, and South America) as the region of greatest species density, followed closely by tropical regions of Africa, Asia, and the Indo-Pacific.

Previous sporadic releases of the Mammal Species of the World series, the latest edition of which was published in 2005, have resulted in the major time gap among estimates of mammal species number. Yet the continued steady flow of taxonomic changes proposed in peer-reviewed journals and books means that changes proposed more than a decade ago have yet to be incorporated centrally, until now. The lag between the publication and synthesis of research can hamper conservation efforts, since management decisions often depend upon the precise designation of distinctive animal populations.

"A big part of what we are aiming to do is centralize known information about mammal species diversity, and thereby democratize access to studying them," said Nathan Upham, the study's senior author and a postdoctoral researcher at Yale University.

To update the count of global mammal species, the researchers reviewed more than 1,200 taxonomic publications appearing after the end-2003 cutoff date for Mammal Species of the World. These changes are recorded in a variety of monographs, books, and periodicals, many of which are difficult to access.

The group of researchers included two students as co-first authors, Connor Burgin of Boise State University and Jocelyn Colella of the University of New Mexico, as well as a web programmer from Berkeley, California, Philip Kahn.

"Connor started keeping a list of known [mammal species](#) when he was 16," said Upham, who was

introduced to an 18-year-old Burgin by Don Wilson, curator at the Smithsonian Natural History Museum in Washington, DC. Comparing Burgin's list to Upham's tally of species described from DNA data formed the basis for this new database.

Efforts on the Mammal Diversity Database now focus on digitally linking species names to their original descriptions and to geographic populations, with the goal of establishing more accessible histories of taxonomic change. The group hopes to model the database on the real-time taxonomies already online for amphibians, birds, reptiles, and fishes.

"Mammals have lagged behind other groups in their taxonomic record-keeping," said Upham, "which is surprising given their relevance as models for disease and human origins. It's convenient to ignore taxonomy, so many people do—but it's the essential language for how researchers communicate through time to study biological diversity."

More information: Connor J Burgin et al, How many species of mammals are there?, *Journal of Mammalogy* (2017). DOI: [10.1093/jmammal/gyx147](https://doi.org/10.1093/jmammal/gyx147)

The database is available at: mammaldiversity.org

Provided by Oxford University Press

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