

Humans' meat consumption pushing Earth's biggest fauna toward extinction

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Credit: Oregon State University

At least 200 species of large animals are decreasing in number and more than 150 are under threat of extinction, according to new research that suggests humans' meat consumption habits are primarily to blame.

Findings published today in *Conservation Letters* involved a study of

nearly 300 species of "[megafauna](#)."

Of those species' populations, 70 percent are in decline, and 59 percent of the species are threatened with disappearing from the globe, said the study's corresponding author, William Ripple, distinguished professor of ecology in the Oregon State University College of Forestry.

"Direct harvest for human consumption of meat or [body parts](#) is the biggest danger to nearly all of the large species with threat data available," Ripple said. "Thus, minimizing the direct killing of these vertebrate animals is an important conservation tactic that might save many of these iconic species as well as all of the contributions they make to their ecosystems."

Ripple and colleagues in the College of Forestry were part of an international collaboration that built a list of megafauna based on [body size](#) and taxonomy—qualifying for the list were species unusually large in comparison to other species in the same class.

The mass thresholds the researchers decided on were 100 kilograms (220 pounds) for mammals, ray-finned fish and cartilaginous fish and 40 kilograms (88 pounds) for amphibians, birds and reptiles since species within these classes are generally smaller.

"Those new thresholds extended the number and diversity of species included as megafauna, allowing for a broader analysis of the status and ecological effects of the world's largest vertebrate animals," Ripple said. "Megafauna species are more threatened and have a higher percentage of decreasing populations than all the rest of the vertebrate species together."

Over the past 500 years, as humans' ability to kill wildlife at a safe distance has become highly refined, 2 percent of megafauna species

have gone extinct. For all sizes of vertebrates, the figure is 0.8 percent.

"Our results suggest we're in the process of eating megafauna to extinction," Ripple said. "Through the consumption of various body parts, users of Asian traditional medicine also exert heavy tolls on the largest species. In the future, 70 percent will experience further population declines and 60 percent of the species could become extinct or very rare."

Nine megafauna species have either gone extinct overall, or gone extinct in all wild habitats, in the past 250 years, including two species of giant tortoise, one of which disappeared in 2012, and two species of deer.

"In addition to intentional harvesting, a lot of land animals get accidentally caught in snares and traps, and the same is true of gillnets, trawls and longlines in aquatic systems," Ripple said. "And there's also habitat degradation to contend with. When taken together, these threats can have major negative cumulative effects on vertebrate species."

Among those threatened is the Chinese giant salamander, which can grow up to 6 feet long and is one of only three living [species](#) in an amphibian family that traces back 170 million years. Considered a delicacy in Asia, it's under siege by hunting, development and pollution, and its extinction in the wild is now imminent.

"Preserving the remaining megafauna is going to be difficult and complicated," Ripple said. "There will be economic arguments against it, as well as cultural and social obstacles. But if we don't consider, critique and adjust our behaviors, our heightened abilities as hunters may lead us to consume much of the last of the Earth's megafauna."

More information: William J. Ripple et al, Are we eating the world's megafauna to extinction?, *Conservation Letters* (2019). [DOI:](#)

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