

# Humans causing shrinking of nature as larger animals die off

**Average size of wild animals predicted to fall by a quarter in 100 years through extinctions**

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Larger animals such as rhinos are particularly vulnerable as they are more frequently targeted by humans.  
Photograph: Baz Ratner/Reuters

Humanity's ongoing destruction of wildlife will lead to a shrinking of nature, with the average body size of animals falling by a quarter, a study predicts.

The researchers estimate that more than 1,000 larger species of mammals and birds will go extinct in the next century, from rhinos to eagles. They say this could lead to the collapse of ecosystems that humans rely on for food and clean water.

Humans have wiped out most large creatures from all inhabited continents apart from Africa over the last 125,000 years. This annihilation will accelerate

rapidly in the coming years, according to the research.

The future extinctions can be avoided if radical action is taken to protect wildlife and restore habitats, and the scientists say the new work can help focus efforts on key species.

Animal populations have **fallen by 60%** since 1970, suggesting a **sixth mass extinction** of life on Earth is under way caused by the razing of wild areas, hunting and intensive farming. Scientists **said this month** that human society was in danger from the decline of the Earth's natural life-support systems, with half of natural ecosystems now destroyed and a total of a million species at risk of extinction.

“It is worrying that we are losing these big species when we don't know their full role,” said Robert Cooke, at the University of Southampton, who led the new research. “Without them, things could begin to degrade quite quickly. Ecosystems could start to collapse and become not what we need to survive.”

Chris Carbone, of the ZSL Institute of Zoology in London, said: “This study predicts extinction rates that dwarf those recorded between recent ice ages and suggests that larger species are the most vulnerable. I wouldn't be surprised if the situation for many larger animals is worse than the researchers suggest as their decline is exacerbated by selective poaching and the illegal wildlife trade.”

The research, **published in the journal Nature Communications**, analysed five traits of 15,500 species of mammals and birds, including body mass, breadth of habitat, diet and the length of time between generations. They combined these with data from the International Union for Conservation of Nature's **red list of threatened species**, which estimates the likelihood of extinction.

The results showed the survival of far more small, highly fertile and adaptable animals, such as rodents and songbirds, than larger creatures such as rhinos, tigers and eagles. “If all these extinctions [of larger animals] take place, we are fundamentally restructuring life on this planet,” said Cooke.

Research in 2018 showed that the **average size of wild animals has fallen by 14%** in the last 125,000 years, as behemoths including mammoths and giant sloths were exterminated by humans. The new study predicts a further shrinking of 25% in just 100 years.

Larger animals are particularly vulnerable to humans as they are more frequently targeted and need much more wild space to survive. Their loss has

big knock-on effects as they are vital in creating stable and productive ecosystems. Elephants distribute large plant seeds, for example, while vultures dispose of big carcasses before they rot and harbour disease.

Songbirds, which tend to be smaller and require less habitat than plant-eating and predatory birds, do relatively well in the new analysis. However, most songbirds eat insects, and **huge reported declines** in their prey could lead to further extinctions in this group, the scientists say.

Amanda Bates, of Memorial University in Canada, who worked with Cooke on the research, said: “As long as a species that is projected to become extinct persists, there is time for conservation action and we hope research such as ours can help guide this.”

Paul De Ornellas, the chief adviser for wildlife at WWF, said: “This study is another worrying warning sign of the impact we are having on nature.” He said nature could recover, “but we need global leaders to agree an urgent and comprehensive **New Deal for Nature and People** to make that happen”.

The research did not look at whether members of individual species were getting smaller, but examples of human pressure changing wildlife have been found. The **wings of cliff swallows are becoming shorter**, enabling them to avoid being killed by cars. Other changes have been recorded too, such as mammals including boars, coyotes and antelopes **becoming more nocturnal to avoid people**.