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# Horribly bleak study sees ‘empty landscape’ as large herbivores vanish at startling rate

By [Fred Barbash](#) and [Justin Wm. Moyer](#) May 4



A rhino at a private game reserve in South Africa in 2013. (Christophe Beaudufe/AFP via Getty Images)

They never ate anybody — but now, some of planet Earth’s innocent vegetarians face end times. Large herbivores — elephants, hippos, rhinos and gorillas among them — are vanishing from the globe at a startling rate, with some 60 percent threatened with extinction, a team of scientists reports.

The situation is so dire, according to a new study, that it threatens an “empty landscape” in some ecosystems “across much of the planet Earth.” The authors were clear: This is a big problem — and it’s a problem with us, not them.

“Growing human populations, unsustainable hunting, high densities of livestock, and habitat loss have devastating consequences for large, long-lived, slow-breeding, and, therefore, vulnerable herbivore species,” reads “Collapse of the world’s largest herbivores” in [Science Advances](#), a publication of the American Association for the Advancement of Science.



A ranger from the Kenya Wildlife Service in front of 15 tons of elephant tusks that were set on fire during an anti-poaching event at Nairobi National Park on March 3. (Khalil Senosi/AP)

As if humanity's bottomless appetite for land and meat weren't enough, organized crime and the endless hunt for body parts from elephants and rhinos is also a major factor in Africa and southern Asia, the study said. Between 2002 and 2011 alone, the number of forest elephants in central Africa declined by 62 percent. Some 100,000 African elephants were poached between 2010 and 2012. And the western black rhinoceros in Africa was declared extinct in 2011.

"This slaughter is driven by the high retail price of rhinoceros horn, which exceeds, per unit weight, that of gold, diamonds, or cocaine," according to the study.

Prince William urges 'cooperation' against poaching(2:14)

During his first visit to D.C., Prince William spoke at the World Bank about his family's long-held dedication to fighting wildlife trafficking and the global dangers poaching presents. (AP)

This slaughter and its consequences are not modest, the article said. In fact, the rate of decline is such that "ever-larger swaths of the world will soon lack many of the vital ecological services these animals provide, resulting in enormous ecological and social costs."

Herbivores, it turns out, don't just idle about munching on various green things. They play a vital role as "ecosystem engineers," the paper said — expanding grasslands for plant species, dispersing seeds in manure, and, in the ultimate sacrifice, providing food for predators.

"The big carnivores, like the charismatic big cats or wolves, face horrendous problems from direct persecution, over-hunting and habitat loss," David Macdonald, an Oxford scholar and co-author, [told the BBC](#), "but our new study adds another nail to their coffin — the empty larder. ... It's no use having habitat if there's nothing left to eat in it."

To take stock of this great dying, the team studied 74 wild herbivore species with body masses greater than about 220 pounds. Most are found in Africa, Southeast Asia, India and China. “Notably,” said the study, “all of the threatened species are found in developing countries, with the exception of the European bison, with developed countries having already lost most of their large mammals in the ongoing megafauna extinction.”

The animals are suffering from range collapse, a contraction of the land available for them to survive. Currently, the study said, they have only 19 percent of their historical ranges on which to roam, with the elephant, hippopotamus and black rhinoceros now living on “tiny fractions” of their previous empires.

“The main threats ... are hunting, competition with livestock and land-use change such as habitat loss, human encroachment, cultivation and deforestation,” the researchers found, noting that “extensive overhunting for meat across much of the developing world is likely the most important factor.”



The main herd of elephants at Zakouma National Park in Chad in 2013. Ninety percent of the elephants in the park have been poached in the last decade. (Michael Lorentz/AFP via Getty Images)

This was unexpected.

“I expected that habitat change would be the main factor causing the endangerment of large herbivores,” William Ripple, an Oregon State professor who led the study, said in a [university news release](#). “But surprisingly, the results show that the two main factors in herbivore declines are hunting by humans and habitat change. They are twin threats.”

Researchers found the number of great herbivores sacrificed for tchotchkes and “luxury wildlife products” particularly galling.

“It’s inconceivable that we allow demand for horns and tusks to drive the extirpation of large herbivores from otherwise suitable habitat,” [said Taal Levi](#), a co-author from Oregon State. “We need to intensify the reduction of demand for such items.”



A bull elephant at the Ol Jogi rhino sanctuary in Kenya in 2014. (Tony Karumba/AFP via Getty Images)

The solution to these many problems? Oh, nothing big: lowering human birth rates, improving opportunities for young women, eating less meat, ending poaching, better managing protected areas and addressing climate change.

“Now is the time to act boldly,” the article concluded. But it offered a gloomy assessment of what can actually be achieved through conventional conservation methods, changes in land-use patterns and law enforcement, particularly in the absence of significant funding for such efforts in the developing world.

“Saving the remaining threatened large herbivores will require concerted action,” the study concluded. “The world’s wealthier populations will need to provide the resources essential for ensuring the preservation of our global natural heritage of large herbivores. A sense of justice and development is essential to ensure that local populations can benefit fairly from large herbivore protection and thereby have a vested interest in it.”