

# Save the Vegetarians, Save the World

**A new review of the world's largest herbivores shows 60 percent face extinction—and that's bad news for everyone.**

BY [Jason Bittel](#) | [@BittelMeThis](#) | 20 hours ago



Photo: Matt Biddulph

Of the 74 species of large herbivores left lumbering across the earth, 44 are threatened with extinction. This is even worse news than you think because, according to a [new paper](#) published in the May issue of *Science Advances*, the leaf-eaters are linchpins in the web of life. Y'see, big vegetarians aren't just passive prey for meat-eaters; they are ecosystem engineers.

Take the elephant.

When elephants forage, they bulldoze thorny trees and create pathways into otherwise impenetrable forests. The resulting shrubland becomes habitat for [lizards](#), browsing grounds for impalas and black rhinos, and corridors for lions seeking to hunt such animals.

Elephants are also [seed-dispersal machines](#). These consume up to 600 pounds of plant matter (including seeds), resulting in about [300 pounds of poop](#) dispensed over a distance of up to [50 miles](#)—every day! Their droppings are nutrient-rich land mines and godsend for species such as [Balanites wilsoniana](#), a canopy tree that relies on these beasts to spread their seeds far and wide. The poop pods also provide food for ground hornbills, banded mongooses, velvet monkeys, baboons, and, of course, [dung beetles](#).

Even in death, the elephant sustains life. Beneath its floppy ears and brilliant tusks lie [six million calories](#) for hyenas, leopards, vultures, jackals, wasps, and maggots to pick apart. There's a little something for everyone, because these calories, it should be noted, don't stick around as long in smaller carcasses that can be consumed in one sitting.

“It’s surprising the various ways that the large herbivores secure their ecosystem,” says biologist [William Ripple](#), the herbivore study’s lead author and a professor of ecology at Oregon State University.

Basically, if you pick any large herbivore and survey the scientific literature, you’ll find all sorts of these [Circle of Life](#)-like impacts.



Photo: Alessandro

Hippopotamuses blaze paths through swamps that change water flows and [expand wetlands](#). Their grazing cultivates more nutritious patches of grass for Kob antelope appetites, and hippo bodies provide habitat and food for several species of [hitchhiking birds](#) (and [brave fish](#) who like to pick their teeth).

White rhinos mow down grass, making the blades easier to get to for wildebeests and zebras. This in turn prevents wildfire fodder from building up. So when the savannah does go up in smoke, patches of vegetation cropped short by rhinos helps keep [the blazes in check](#) (It seems ol’ Smokey was wrong—rhinos can prevent forest fires, too.)

Ripple refers to all these herbivorous habits as “ecological services,” and many of the duties can’t be performed by smaller herbivores should the big guys go bye-bye.

“Without these large animals,” he says, “the world would be in a much poorer state.”

Sadly, it’s a state we made be heading toward. Twelve of the 74 species surveyed by Ripple are critically endangered or already extinct in the wild. The populations for another 43 are on the downswing.

While habitat loss is among the worst threats facing these animals, the largest is plain, old hunting. People are killing large herbivores more quickly than the animals can reproduce. Bigger animals tend to have longer gestation times. For instance, an elephant is pregnant for nearly [a](#)

[year and a half](#), and though the females can live as long as 70 years, they may only produce four calves in their lifetime.



Photo: Clive Reid

So when poachers attack an elephant herd or a hippo pod for ivory, a long time would need to pass for any surviving members to repopulate their family group. Poachers also kill zebras and tapirs for their skin, gorillas for their heads and hands, and rhinos for their horns.

Meat, of course, is also high on a poacher's wish list. Carnivores eating herbivores may seem like the natural order of things, but more humans are alive now than ever before. A 2013 [study](#) shows that since 1961, the world's appetite for meat has steadily increased, largely a result of developing countries like China and India becoming richer. This protein push—whether met by wild animals (a.k.a. “bushmeat”) or livestock—has a devastating impact on the environment. According to a 2009 [report](#) by the World Bank, livestock production tripled in developing countries—where most endangered herbivores live—between 1980 and 2002. And each year, we add [25 million more farm animals](#) to the equation.

So is saving veg-heads more important than protecting predators? Ripple says no, and he actually published a [paper](#) in *Science* last year making a case for conserving carnivores.

“I do think the herbivores are underrepresented, though,” he says. “They haven't received nearly as much attention as the carnivores.”

The solution? Thinking about conservation strategies, Ripple says, that consider how both types of animals interact and affect their ecosystems. “It's the interconnectedness of nature,” he says. “That's why saving these species becomes so important.”

And it wouldn't hurt if we all ate a few more salads.

