

Seven Billion Wolves: Why the Human Head Count Matters

Jeffrey K. McKee

Even with well over seven billion people on this planet, our human population is still growing at a dramatic rate. Every day we add at least 210,000 people to the planet; that's the net gain: births minus deaths. That amounts to a lot of mouths to feed, a lot of people to supply with clothes, shelter, and dignity. Meanwhile, there is an equally profound trend for other species on this planet—they are going extinct at the highest rate since the extinction that wiped out most dinosaurs sixty-five million years ago. In the geological past, Earth has witnessed five mass extinctions. There is little scientific doubt that we are now in a sixth mass extinction—the first one caused by a single species.

It turns out that these two trends—human population growth and extinctions of plants and animals—are closely related. Although the relation is entirely logical, and written about often, there has been little empirical analysis. It needed scientific verification. In the year 2000, my colleagues and I gathered data from 144 continental nations on human population densities and the number of species of mammals and birds that were threatened with extinction. We found a frighteningly close correlation. From these data, it was possible to derive a fairly accurate equation that predicted the number of threatened species on the basis of just two variables: human population density and the number of species present in each country. Basically, more people and more animals packed together in the same space were bound to come into competition, and the humans won . . . for now.

In 2010, we revisited that equation with updated data to see if our model held true. Hypothetically, if a nation's population density had risen, then its numbers of threatened species of mammals and birds should have increased as well. We found that our equation had accurately predicted the rise in the number of threatened species, based upon human population growth. While we celebrated our scientific success as the tables and graphs confirmed the model, our joy quickly turned to despair as the implications set in. Great science can mean bad news.

Should these current trends hold, they paint a dire picture for our future. The average nation should expect nearly 11 percent more threatened species of mammals and birds by 2050. This is on the basis of human population growth alone, not counting factors such as global climate change that will exacerbate the extinction problems.

Longer-term studies show that the impacts of humans and their predecessors have been felt by other species for nearly two million years. Species extinctions accelerated in the past ten thousand years with the origins of agriculture and is still picking up speed today. These trends have been detailed in

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my 2003 book, *Sparing Nature—The Conflict between Human Population Growth and Earth's Biodiversity*. Yet even in my lifetime, the human species has more than doubled in population size to over seven billion people, and we have gone fast into Earth's sixth mass extinction. A conservative estimate would be that we are losing at least one species per hour.

This should be cause for great consternation, but few people other than academics and a handful of others even talk about it. The topic of human overpopulation is not a common subject of political or social discourse, and in some quarters it is even considered impolite. We don't want to talk about it because we are humans, and the subject conjures up such complicated issues as cultural norms, reproductive responsibility, family rights, family planning, birth “control,” abortion, and more.

So I decided to think about this issue on a different level and use a thought experiment in which we take humans, along with all of their cultural and emotional baggage, out of the equation. Let's substitute some other animal for humans and see where it takes us. My first thought was seven billion lions. That's fun to envision, but it just doesn't work, because lions are such different creatures from humans. I decided against other primates. They are much closer to us biologically, but we need to think further outside the box.

So I settled on wolves—seven billion wolves on planet Earth. Why wolves? Well, they are similar to humans in many ways. They are about the same body mass and eat about the same weight of food per day as humans. Wolves are also social and territorial, like most humans. They are not an exact match for our species, as we will see, but they are useful for getting us beyond our discomfort with discussing *human* overpopulation.

With all that in mind, I embarked upon the thought experiment. I took the lowest pack size and the lowest territory size for a pack, calculating individual wolf needs across the total land surface area of Earth. On that basis, I figured that we would need 464 planet Earths to sustain seven billion wolves. That didn't make sense to me, and it probably doesn't to you. But I like to play with numbers, so I recalculated greater wolf efficiency with the maximum number of wolves in the smallest territory, according to the best wolf data I could find. In this latter scenario, seven billion wolves would need only 112 planets with the land surface area of Earth. Keep in mind that in this simple thought experiment we have wolves living in deserts, mountains, Antarctica, and so on. But it is clear that seven billion wolves would be a problem.

So how do humans get away with having so many people on just one planet, if we have a similar body size and a similar amount of daily food consumption? There are many potential explanations, but here we'll concentrate on only a few. First of all, we eat lower on the food chain. A wolf can't live on nuts and berries, so it needs more territory to find meat. Second, we have agriculture to concentrate nature's energy into a host of consumable foods. Wolves are not likely to domesticate the animals they eat. We also have artificial energy to do a lot of our work for us. A pack of wolves can't use fossil fuels to carpool to the site of a kill or even harness a horse to get there.

One could take this thought experiment much further, but I want to get to the main points. I just asked how we were getting away with such large numbers when wolves could not. Well, the fact of the matter is that we are not getting away with anything, not even for ourselves. Over 11 percent of humans around the globe are undernourished. More than 10 percent of our population lacks access to safe drinking water. Despite the best efforts of many, such statistics grow

worse on a daily basis for the simple reason that we cannot keep up with 210,000 more people each day.

We are also not doing well for the other species on this planet. Mass extinctions seem to move in slow motion in the framework of a human lifetime, but in geological time, what is happening today is a mere instant of an eon. Yet in this eye-blink moment, we are truncating millions of years of biological evolution. Our own species has evolved to live in the here and now, to react quickly to the threat of a nearby predator, and to seize an opportunity at the moment it presents itself to gather food, slake our thirsts, or have sex. The long-term consequences were of no concern to our evolutionary ancestors, and so they tended to be far from the forefront of our human minds.

Yet if wolves were overrunning the planet in the way we humans are, the animal extinctions would probably happen more quickly, and it might better awaken the human instinct for survival. We would cull the wolves or plot ways to disrupt their reproduction. Already, we cull elephants in South Africa's Kruger National Park, because their unbridled population growth would wreak havoc on the ecosystem. Yes, African elephants, endangered by humans elsewhere on the continent, need smaller populations for the parks ecosystems to be sustainable. Why can't we see our own havoc on the global ecosystem and act responsibly?

Finding responsibility is not all that difficult. No, we don't need to cull humans. I tell my students that there are two ways to curb the growth of the human population: increase the death rate or decrease the birthrate. The vast majority of those students join me in preferring the latter. Let's disrupt our reproductive patterns with the responsibility that comes with knowledge. Our head count matters to the sustainability of our planet, and we can reduce that by simply reproducing less. Reducing the number of babies born is easy, because we know how they are made. Reproductive responsibility is not tough science.

If we are to minimize the consequences of the mass extinction we are in, conservation efforts must continue and even expand, but it is now clear that all conservation must factor in the effects of our growing human population. Environmentalists and conservationists tend to dislike my suggestion that if we don't curb the rate of human population growth, all of their noble efforts will come to naught. But they would be the first to act in the prevention of such a calamity as seven billion wolves. Seven billion humans is too many as well. **FI**

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