

# The New York Times

## *Humans Are Speeding Extinction and Altering the Natural World at an ‘Unprecedented’ Pace*



*Fishing nets and ropes are a frequent hazard for olive ridley sea turtles, seen on a beach in India's Kerala state in January. A new 1,500-page report by the United Nations is the most exhaustive look yet at the decline in biodiversity across the globe. Credit Soren Andersson/Agence France-Presse — Getty Images*

By [Brad Plumer](#), May 6, 2019

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WASHINGTON — Humans are transforming Earth's natural landscapes so dramatically that as many as one million plant and animal species are now at risk of extinction, posing a dire threat to ecosystems that people all over the world depend on for their survival, a sweeping new United Nations assessment has concluded.

The 1,500-page report, compiled by hundreds of international experts and based on thousands of scientific studies, is the most exhaustive look yet at the decline in biodiversity across the globe and the dangers that creates for human civilization. A [summary of its findings](#), which was approved by

representatives from the United States and 131 other countries, was released Monday in Paris. The full report is set to be published this year.

Its conclusions are stark. In most major land habitats, from the savannas of Africa to the rain forests of South America, the average abundance of native plant and animal life has fallen by 20 percent or more, mainly over the past century. With the human population passing 7 billion, activities like farming, logging, poaching, fishing and mining are altering the natural world at a rate “unprecedented in human history.”

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At the same time, a new threat has emerged: Global warming has become a major driver of wildlife decline, the assessment found, by shifting or shrinking the local climates that many mammals, birds, insects, fish and plants evolved to survive in.

As a result, biodiversity loss is projected to accelerate through 2050, particularly in the tropics, unless countries drastically step up their conservation efforts.



*Cattle grazing on a tract of illegally cleared Amazon forest in Pará State, Brazil. In most major land habitats, the average abundance of native plant and animal life has fallen by 20 percent or more, mainly over the past century. Credit Lalo de Almeida for The New York Times*

The report is not the first to paint a grim portrait of Earth's ecosystems. But it goes further by detailing how closely human well-being is intertwined with the fate of other species.

"For a long time, people just thought of biodiversity as saving nature for its own sake," said Robert Watson, chair of the [Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services](#), which conducted the assessment at the request of national governments. "But this report makes clear the links between biodiversity and nature and things like food security and clean water in both rich and poor countries."

A [previous report by the group had estimated](#) that, in the Americas, nature provides some \$24 trillion of non-monetized benefits to humans each year. The Amazon rain forest absorbs immense quantities of carbon dioxide and helps slow the pace of global warming. Wetlands purify drinking water. Coral reefs sustain tourism and fisheries in the Caribbean. Exotic

tropical plants form the basis of a variety of medicines.

But as these natural landscapes wither and become less biologically rich, the services they can provide to humans have been dwindling.

Humans are producing more food than ever, but land degradation is already harming agricultural productivity on 23 percent of the planet's land area, the new report said. The decline of wild bees and other insects that help pollinate fruits and vegetables is putting up to \$577 billion in annual crop production at risk. The loss of mangrove forests and coral reefs along coasts could expose up to 300 million people to increased risk of flooding.

The authors note that the devastation of nature has become so severe that piecemeal efforts to protect individual species or to set up wildlife refuges will no longer be sufficient. Instead, they call for "transformative changes" that include curbing wasteful consumption, slimming down agriculture's environmental footprint and cracking down on illegal logging and fishing.

"It's no longer enough to focus just on environmental policy," said Sandra M. Díaz, a lead author of the study and an ecologist at the National University of Córdoba in Argentina. "We need to build biodiversity considerations into trade and infrastructure decisions, the way that health or human rights are built into every aspect of social and economic decision-making."

Scientists have cataloged only a fraction of living creatures, some 1.3 million; the report estimates there may be as many as 8 million plant and animal species on the planet, most of them insects. Since 1500, at least 680 species have blinked out of existence, including the Pinta giant tortoise of the Galápagos Islands and the Guam flying fox.

Though outside experts cautioned it could be difficult to make precise forecasts, the report warns of a looming extinction crisis, with extinction rates currently tens to hundreds of times higher than they have been in the past 10 million years.

"Human actions threaten more species with global extinction now than ever before," the report concludes, estimating that "around 1 million species already face extinction, many within decades, unless action is taken."

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Unless nations step up their efforts to protect what natural habitats are left, they could witness the disappearance of 40 percent of amphibian species, one-third of marine mammals and one-third of reef-forming corals. More than 500,000 land species, the report said, do not have enough natural habitat left to ensure their long-term survival.

Over the past 50 years, global biodiversity loss has primarily been driven by activities like the clearing of forests for farmland, the expansion of roads and cities, logging, hunting, overfishing, water pollution and the transport of invasive species around the globe.

In Indonesia, the replacement of rain forest with palm oil plantations has ravaged the habitat of critically endangered orangutans and Sumatran tigers. In Mozambique, ivory poachers [helped kill off nearly 7,000 elephants](#) between 2009 and 2011 alone. In Argentina and Chile, the introduction of the North American beaver in the 1940s [has devastated native trees](#) (though it has also helped other species thrive, including the Magellanic woodpecker).

All told, three-quarters of the world's land area has been significantly altered by people, the report found, and 85 percent of the world's wetlands have vanished since the 18th century.

And with humans continuing to burn fossil fuels for energy, global warming [is expected to compound the damage](#). Roughly 5 percent of species worldwide are threatened with climate-related extinction if global average temperatures rise 2 degrees Celsius above preindustrial levels, the report concluded. (The world has already warmed 1 degree.)

"If climate change were the only problem we were facing, a lot of species could probably move and adapt," Richard Pearson, an ecologist at the University College of London, said. "But when populations are already small and losing genetic diversity, when natural landscapes are already fragmented, when plants and animals can't move to find newly suitable habitats, then we have a real threat on our hands."

The dwindling number of species will not just make the world a less colorful or wondrous place, the report noted. It also poses risks to people.



*Volunteers collected trash in March in a mangrove forest in Brazil. The loss of mangrove forests and coral reefs along coasts could expose up to 300 million people to increased risk of flooding. Credit Amanda Perobelli/Reuters*

Today, humans are relying on significantly fewer varieties of plants and animals to produce food. Of the 6,190 domesticated mammal breeds used in agriculture, more than 559 have gone extinct and 1,000 more are threatened. That means the food system is becoming less resilient against pests and diseases. And it could become harder in the future to breed new, hardier crops and livestock to cope with the extreme heat and drought that climate change will bring.

"Most of nature's contributions are not fully replaceable," the report said. Biodiversity loss "can permanently reduce future options, such as wild species that might be domesticated as new crops and be used for genetic improvement."

The report does contain glimmers of hope. When governments have acted forcefully to protect threatened species, such as the Arabian oryx or the Seychelles magpie robin, they have managed to fend off extinction in many cases. And nations have protected more than 15 percent of the world's land and 7 percent of its oceans by setting up nature reserves and wilderness areas.

Still, only a fraction of the most important areas for biodiversity have been protected, and many nature reserves poorly enforce prohibitions against poaching, logging or illegal fishing. Climate change could also undermine existing wildlife refuges by shifting the geographic ranges of species that currently live within them.

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So, in addition to advocating the expansion of protected areas, the authors outline a vast array of changes aimed at limiting the drivers of biodiversity loss.

Farmers and ranchers would have to adopt new techniques [to grow more food on less land](#). Consumers in wealthy countries would have to waste less food and become more efficient in their use of natural resources. Governments around the world would have to strengthen and enforce environmental laws, cracking down on illegal logging and fishing and reducing the flow of heavy metals and untreated wastewater into the environment.

The authors also note that efforts to limit global warming will be critical, although they caution that the development of biofuels to reduce emissions could end up harming biodiversity by further destroying forests.



*An elephant in the Lewa Wildlife Conservancy at the foot of Mount Kenya, outside Nairobi. More than 500,000 land species do not have enough natural*

*habitat left to ensure their long-term survival. Credit Tony Karumba/Agence France-Presse — Getty Images*

None of this will be easy, especially since many developing countries face pressure to exploit their natural resources as they try to lift themselves out of poverty.

But, by detailing the benefits that nature can provide to people, and by trying to quantify what is lost when biodiversity plummets, the scientists behind the assessment are hoping to help governments strike a more careful balance between economic development and conservation.

“You can’t just tell leaders in Africa that there can’t be any development and that we should turn the whole continent into a national park,” said Emma Archer, who led [the group’s earlier assessment of biodiversity in Africa](#). “But we can show that there are trade-offs, that if you don’t take into account the value that nature provides, then ultimately human well-being will be compromised.”

In the next two years, diplomats from around the world will gather for several meetings under the Convention on Biological Diversity, a global treaty, [to discuss how they can step up their efforts at conservation](#). Yet even in the new report’s most optimistic scenario, through 2050 the world’s nations would only slow the decline of biodiversity — not stop it.

“At this point,” said Jake Rice, a fisheries scientist who led an earlier report on biodiversity in the Americas, “our options are all about damage control.”

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