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Biodiversity 101



By [Gemma Alexander](#)

© SEP 26, 2022 [biological diversity](#), [habitat restoration](#)



When you hear about habitat destruction, invasive species, and extinctions, what you're hearing about is the loss of biodiversity. And we are facing an unprecedented loss of global biodiversity. In 2019, 1 million animal and plant species were [reported](#) to be threatened with extinction.

Biodiversity

The word biodiversity is a combination of the words [biological and diversity](#). Usually, it means the number of species in a habitat. But it can also describe genetic variability within a species and ecosystem diversity in a geographic region. Biodiversity applies to systems of any size, from a cup of seawater to a local watershed or the entire biosphere of planet Earth. Coined by ecologist Raymond Dasmann in his 1968 book "[A Different Kind of Country](#)," the word biodiversity was not widely used until the 1980s, when people began to understand just how important biodiversity is.

The Value of Biodiversity

Each of the diverse types of organisms that have evolved in the world has an intrinsic right to exist. But biodiversity also has [utilitarian value](#) to both humans and ecosystems. According to the insurance group Swiss Re, more than [half of global GDP](#) – \$41.7 trillion – is dependent on functioning ecosystems. Ecosystems

What Do You Think?

Are you considering moving because of climate change?

- I'm researching my options to decide
- No
- Yes

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with greater diversity generally have a greater capacity to provide the [ecosystem services](#) like food, fuel, shelter, pollination, and pest control as well as climatic services like temperature regulation, water purification, and nutrient cycling. Biodiversity plays a key [role in the stability](#) of ecosystems over time. Genetically diverse populations are better [able to survive](#) disasters such as climate change. There is immeasurable potential for additional benefits, such as new medicines, from species that haven't been identified or studied yet.

Biodiversity Hotspots

Key regions around the globe contain an amazing concentration of species. These 36 recognized [biodiversity hotspots](#) comprise 2.5% of Earth's land surface but account for [35% of the ecosystem services](#) that vulnerable human populations depend on.

And perhaps because they are so biologically rich, they tend to host some of the world's densest human populations. Home to around [2 billion people](#), including some of the world's poorest, these areas are also some of the world's most vulnerable. Some hotspots have already lost 95% of their vegetation but the local people are not always responsible. According to one recent study, over the past 12,000 years, nearly [three-fourths of terrestrial ecosystems](#) have been shaped by humans according to traditional land uses that encourage biodiversity.

But in [hotspot Borneo](#), for example, international corporations have extracted lumber, coal, rubber, precious metals, and minerals from formerly forested areas. Massive [palm oil](#) plantations have replaced more forest. In 40 years, these activities destroyed 30% of Borneo's forests.



Biodiverse forests are cleared and burned to make way for palm oil plantations in Southeast Asia. This is just one of many examples of how human activities can destroy ecosystems that harbor genetically diverse species.

Convention on Biological Diversity

At the Rio Earth Summit in 1992, the United Nations presented the [Convention on Biological Diversity](#), which was signed by 168 countries, including the United States. Every 10 years, governments agree on new targets to protect biodiversity. Most recently, governments pledged to halve the loss of natural habitats and expand nature reserves to 17% of the world's land area by 2020. So far, [none of](#)

[the targets](#) have been met. Among [participating nations](#), only about 5% came close, while around 25% of countries made no significant progress. The next round will take place in December 2022 at COP15 in Montreal.

Restoring Biological Diversity

The early environmental movement focused on environmental conservation, which aimed to preserve ecosystems by eliminating human impacts. This view artificially separated humans from nature. In light of past environmental destruction, the conservation of remaining healthy ecosystems is insufficient to protect biodiversity. [Habitat restoration](#) is the process of reclaiming habitat and ecosystem functions by restoring the lands and waters on which plants and animals depend. As Millie Kerr explains in "[Wilder](#)," habitat restoration is not always enough to restore biodiversity. Sometimes the expensive and risky process of reintroducing [keystone](#) animal species (often but not always "[charismatic megafauna](#)") is necessary to restore self-sustaining, functional ecosystems.

How You Can Protect Biodiversity

Eliminate pesticides from your yard to improve habitat for insects and birds and replace your grass monoculture with a [clover lawn](#) or other [lawn alternatives](#) to create a backyard [wildlife habitat](#). Work to [protect bees](#) in your community.

As a consumer, your choice to [shop your values](#) can make a difference on the other side of the world. Beef consumption is responsible, [directly](#) and [indirectly](#), for deforestation in Brazil, and [palm oil](#) plantations destroy tropical forests around the world. Support local and organic farmers, and for products like [coffee](#) that are not grown locally, look for certifications like Forest Stewardship Council or Rainforest Alliance.

As a citizen, you can let your [elected representatives](#) and the [responsible officials](#) know that you expect the United States to meet its commitments under the Convention on Biological Diversity. Don't forget to [vote](#), especially in local elections, which affect land use decisions. Find out what habitat restoration projects are underway near you and support them, financially or as a volunteer. Local parks and green spaces also benefit from volunteer work parties that remove invasive plants and install natives.

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By [Gemma Alexander](#)

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