

What is biodiversity?

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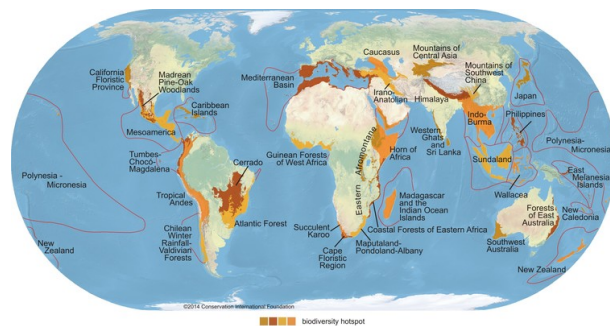
A toucan in Guanacasta, Costa Rica. Costa Rica is one of the world's most biodiverse countries. Photo by: Flickr

Biodiversity or biological diversity means all the different kinds of plants, animals and other living things that live in an area.

Scientists think about biodiversity in three ways. First, it is all the plants and animals living in an area.

The second way scientists think about biodiversity is genetic diversity. All living things have genes. Genes are responsible for different characteristics, like eye color and whether our hair is curly or straight. Genetic diversity in a species means that there are many different traits individuals in that species can have. Genetic diversity is important to biodiversity. That's because more genetic diversity gives a species a greater chance of surviving.

The third way scientists think about biodiversity is the number of different ecosystems in a region. An ecosystem is all the living and nonliving things in an environment. An area with high



Conservation International (conservation.org) defines 35 biodiversity hotspots — extraordinary places that harbor vast numbers of plant and animal species found nowhere else. All are heavily threatened by habitat loss and degradation, making their conservation crucial to protecting nature for the benefit of all life on Earth.

biodiversity includes many different species and makes an ecosystem stronger. When the number of species decreases, it means the area is in danger.

Some areas are more biodiverse than others. Tropical areas have more types of plants and animals than polar regions and deserts.

The Rise Of Conservation Biology

Conservation biologists are scientists who study life on Earth. Their goal is to protect living things and their habitats. In the 1980s, they began thinking about biodiversity. At the time, plants and animals were going extinct at high rates because of human actions. People were cutting down rain forests, polluting the air and waterways. Many species that lived within these environments died out.

Edward O. Wilson is an American scientist. In 1988, he came out with an important book, called "Bioersivity." He said that biodiversity was important. The more species an ecosystem has, the more likely it can survive different threats. In 2011 scientists estimated that 8.7 million species lived on Earth. Of these, about 9 out of 10 species have not been discovered yet.

Threats To Biodiversity

The planet is experiencing a die-off, which is a mass extinction. About 65 million years ago, three-quarters of the species on Earth suddenly went extinct, including the dinosaurs. Today, scientists think many species are quickly going extinct because of human actions. Plants and animals are disappearing at an alarming rate. It is happening about 1,000 to 10,000 times faster than normal. There are five major reasons.

The first is habitat destruction. When a habitat is destroyed, plants and animals are not able to survive. Humans cut down trees to clear land for houses and farming. Some of those areas have great biodiversity, like the Amazon rain forest. Much of the Amazon rain forest has been destroyed to make room for farming.



Another reason for the loss of biodiversity is climate change. Climate change is the average increase in global temperatures. Some experts say that as many as 1 in 4 land species could die out by 2050. Many species can only survive in certain temperatures. If the temperature in their habitat changes, they could die out. Climate change is also causing the ocean levels to rise. Scientists predict the ocean water will causing flooding to land along the coasts.

The third reason for lower biodiversity is invasive species. These are plants and animals that have been brought to an area on purpose or by accident. They have no natural predators and they may be stronger than local species. In the 1800s, settlers brought many animals to Australia, like cane toads, camels, goats, water buffalo and pigs. Many native plants and animals were wiped out.

Overexploitation is the fourth reason. This is when a resource is overused. For instance, the Maori people of New Zealand hunted so many moa, a large flightless bird, that it died out. A type of eagle

also became extinct, because the moa was its main source of food. When one resource is used too much, an entire food chain can be hurt.

Pollution is the fifth reason. Exhaust from automobiles is a kind of pollution. So are chemicals that factories dump into rivers. Even fertilizers, pesticides and manures from farms can pollute the soil and water.

The Convention On Biological Diversity

The Convention on Biological Diversity is an international treaty. It is an agreement between countries designed to conserve biodiversity. It calls on countries to make plans that protect ecosystems.

The convention was opened for signature at the Earth Summit in Rio de Janeiro in 1992. Since then, every nation in the world except the United States has signed and ratified it. It took effect in 1993.

Conserving Biodiversity By Giving It Economic Value

Many conservation biologists think the best way to preserve biodiversity is to show that people can make money from it. Protecting ecosystems helps us meet our own needs. Water powers some electricity plants. A variety of plants and animals give us more options of foods to eat.

Biodiversity can be valuable in other ways, too. One example is the opportunity to enjoy amazing places in nature.

According to one study, the benefits of biodiversity are worth many trillions of dollars. In fact, preserving biodiversity is far less expensive than having to adjust to a less biodiverse world.

You can help protect biodiversity by supporting conservation organizations. You can also learn more about conservation and what your government is doing to maintain biodiversity. Finally, you can support companies that protect the environment.

