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Biodiversity and Extinction

Heather Brennan 9.1K reads

The biodiversity of an area is literally the number of species, both plant and animal, inhabiting the environment being examined. When a species is no longer found in a region, it is locally extinct. When it is no longer found anywhere, the species is considered extinct.

The extinction rate is the rate at which species are becoming extinct. The development of new species and extinction of existing species are natural processes that have always occurred.

The issue that is concerning is that our current extinction rate is much higher than the background (ie normal) extinction rate that would be expected. It would seem to indicate that we are in a period of mass extinction.

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Mass Extinctions

There have been five mass extinction events in the past. The last one was at the end of the Cretaceous period over 65 million years ago. This is when the dinosaurs disappeared.

Mass extinctions are often linked to dramatic climate changes such as an ice age. There are many potential causes but the reasons behind a mass extinction are not fully understood. There are many things that can contribute to mass extinctions including:

- changes in sea levels

- continental movement
- geologic events like volcanic eruptions
- global warming and cooling
- meteor impact
- etc.

What makes the current extinction rate so alarming is that in the past mass extinctions have been linked to natural events not caused by another species.

This extinction period, while it does have natural contributors, is also being heavily influenced by human activity. It is the direct result of the actions of a single species.

Through pollution, deforestation, overfishing, global warming, and massive habitat destruction, humanity is directly influencing how many species go extinct.

Why Should We Care?

Over 98% of the species that have ever existed are extinct.

We discover thousands of new species each year and even by the most conservative estimates, thousands become extinct each year.

Most of the discovered species are small invertebrates and prokaryotes. That doesn't mean we aren't still discovering mammals though. More than 53 new species of primate have been identified since 2000. The world is vast and there are many environments that we are only just beginning to explore including remote rainforest canopies and oceanic trenches.

There are over 1.8 million identified species at the moment. Most of them are invertebrates, bacteria, fungi, and prokaryotes. Many of them are microscopic and live in very specific, small ranges of the Earth.

Although the ones that are most often thrust into the spotlight as being at risk are the big mammals like elephants, tigers, giant pandas, and whales, many of the at risk species are plants, trees, invertebrates, reptiles, fish and amphibians. They don't make as great a media picture to put on the news but they are every ounce as important.

Ecosystems rely on all parts from the smallest bacteria to the largest vertebrate. Everything is interconnected. Some produce oxygen that others breathe. Some provide food for bigger species which in turn become prey for still bigger species. Every living organism has a role to play in maintaining the balance. When you remove one element you change the balance and can ultimately lose far more than that one species.

Although humanity tends to think of itself as being the top of the food chain, it too is dependent on the other elements of the chain. If the lower parts of the chain disappear, the effects will be felt all the way to the top.

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