

What is Species Diversity? - Definition, Importance & Examples

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Have you ever wondered how many species live on Earth? Earth is full of amazing creatures. In this lesson, you will learn about the importance of species diversity. At the end, test your knowledge with a quiz.

Definition of Species Diversity

Imagine chasing a horned lizard, and it uses a bizarre tactic to deter you, squirting blood at you out of its eye. Imagine scuba diving and encountering one of the ugliest fish in the world, called the anglerfish. This is not science fiction; this is real. There are some bizarre creatures that call Earth home. The diversity of creatures roaming Earth is absolutely astounding.



A horned lizard squirts blood to scare predators



An anglerfish smiles for the camera

Species diversity is defined as the number of species and abundance of each species that live in a particular location. The number of species that live in a certain location is called **species richness**. If you were to measure the species richness of a forest, you might find 20 bird species, 50 plant species, and 10 mammal species. **Abundance** is the number of individuals of each species. For example, there might be 100 mountain beavers that live in a forest. You can talk about species diversity on a small scale, like a forest, or on a large scale, like the total diversity of species living on Earth.

Species Diversity of Earth

How many species do you think live on Earth? There are approximately 1.8 million different species classified on Earth. Of all the species identified, nearly one million are insects! New species are being discovered each year. Scientists estimate that there may be between 5 to 30 million species that actually live on Earth. Each year, approximately 13,000 more species are added to this growing list of known species. For example, in 2013, a species of a venomous snake called the green palm-pit viper was discovered in the country of Honduras.



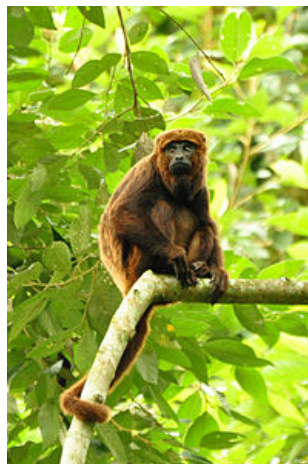
A venomous green palm pit viper waits for its prey

In 2014, a carnivorous mammal species called olinguito was discovered in Colombia and Ecuador. Who knows what weird creature might be discovered this year!



The cute olinguito hangs out in a tree

The hottest spots for species diversity are tropical rainforests. Tropical rainforests comprise only 7% of all land on Earth yet are home to nearly 50% of all the species on Earth! In Costa Rica, there are over 1,400 species of orchids, 1,200 species of butterflies, and 600 species of birds! Interesting species of mammals live here as well, like howler monkeys, jaguars, and sloths.



A howler monkey waits in a tree

Importance of Species Diversity

There are numerous reasons why species diversity is essential. Each species has a role in the ecosystem. For example, bees are primary pollinators. Imagine what would happen if bees went extinct. Fruits and vegetables could be next, and subsequently the animals that feed off them - this chain links all the way to humans. Various species provide us not only with food but also contribute to clean water, breathable air, fertile soils, climate stability, pollution absorption, building materials for our homes, prevention of disease outbreaks, medicinal resources, and more. Let's look at some examples.

Species diversity contributes to ecosystem health. Each species is like a thread holding together an ecosystem. If a species disappears, an entire ecosystem can start to unravel. Species diversity is crucial for ecosystem health. For example, in the Pacific Northwest, salmon holds together the entire ecosystem. Salmon carry rich nutrients from the ocean back to the stream environment. When salmon die, those nutrients are gobbled up by insects, plants, mammals, and birds. If salmon were to disappear, the impacts would be felt through the entire food chain.

Species diversity also contributes to medicine. Scientists have discovered that over 3,000 plants have cancer-fighting properties. For example, a plant called rosy periwinkle has natural chemicals that help treat childhood leukemia. Also, the fruit of a tree called the Chinese star anise is an ingredient in flu vaccines. The list goes on: aspirin, codeine, and pseudoephedrine all are sourced from plants. There are medicinal treasures still yet to be discovered. Perhaps hidden in some forest is the cure to cancer.



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Overview of Animal Reproduction and Development

6:31

Spermatogenesis: How the Male Reproductive System Produces Sperm

6:21

Oogenesis: How the Female Reproductive System Produces Eggs

7:55

Early Embryonic Development: The Morula and Blastula

6:26

Embryo Implantation and Placenta Formation

8:08

The Placenta and the Fetus: Structure and Function

6:57

Amniotic Fluid, The Amnion, and the Yolk Sac

6:48

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| Gastrulation and the 3 Germ Layers (Ectoderm, Endoderm & Mesoderm) | 7:58 |
| Spemann's Organizer: Controller of Cell Fate | 8:55 |
| Concentration Gradients, Signaling Molecules & Inhibitors in Development | 7:59 |
| How Signaling Molecules Control Differentiation | 10:21 |
| How Fate Mapping Is Used to Track Cell Development | 7:24 |
| Allotransplantation, Allografts & Xenografts | |
| Animal Asexual Reproduction | |
| Ectoderm Layer: Definition & Derivatives | |
| Sexual Reproduction: Definition & Overview | |
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| Next Lesson Thyroid Problems During & After Pregnancy | |
| Do Animals Use Tools? | |
| Characteristics of Chordata Reproduction | |
| Extraembryonic Membranes in Humans | 4:56 |
| Go to Animal Reproduction and Development: Help and Review | |
| 17 - Genetics - Principles of Heredity: Help and Review | ▲ |
| Go to Genetics - Principles of Heredity: Help and Review | |
| 18 - Principles of Ecology: Help and Review | ▼ |
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