

Biodiversity

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Biodiversity is defined as the variety of life in the world or in a particular habitat or ecosystem. Biodiversity can be broadly categorized into four groups: genetic diversity, species diversity, ecosystem diversity, and functional diversity.

Genetic diversity is the variation of genes within a single species, allowing populations to adapt to environmental changes. Examples of genetic diversity include different dog breeds, the variety of apple species, and different blood types in humans. This type of diversity is important because it allows species to adapt to threats or changes in their environment, ensuring a continually varied pool of genes with potential survival traits.

Species diversity is the number of different species present in a specific area or ecosystem. Examples of species diversity include all the species found in rainforests, such as frogs, jaguars, and insects, as well as those found in coral reefs, such as sea turtles, corals, and fish. This diversity supports ecosystem productivity and resilience, maintaining a stable food supply for organisms and preserving the food web.

Ecosystem diversity is the variety of different habitats or ecological communities present in a region. Examples include tundra, grasslands, and deserts. Higher ecosystem diversity directly correlates with a wider range of species supported and, in turn, equates to higher biodiversity levels that maintain environmental health, prevent species extinction, and regulate Earth's climate.

Functional diversity is the different roles and interactions species have within an eco-system. Examples include pollinators, decomposers, seed dispersers, and predators. Functional diversity is crucial to a healthy ecosystem because if ecosystems are limited in function, they will struggle to adapt to changes, reducing resilience and services within those ecosystems.

