

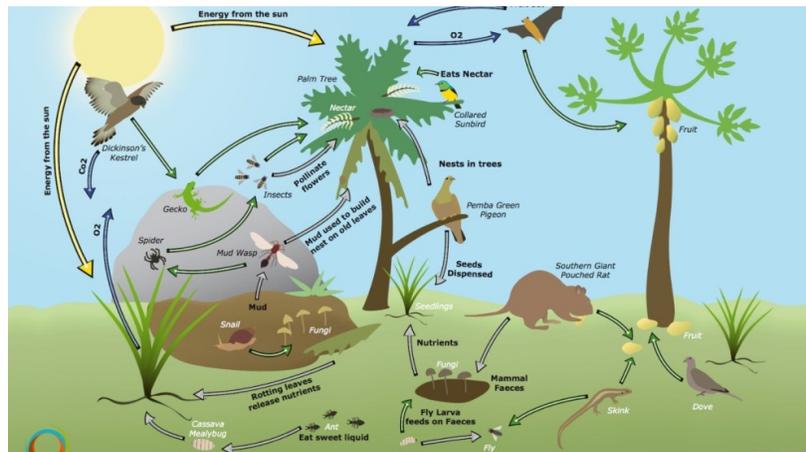


THINK GREEN



EAT GREEN

WHAT IS BIODIVERSITY AND WHY IS IT IMPORTANT?



Biodiversity is an extremely broad term meaning the variety of life on earth, in all its forms, in all its interactions, and at all levels. How diverse is biodiversity? Approximately 1.7 million living plant, animal and fungi species have been identified; it's estimated that there are at least 8 or 9 million species on earth.

Why is biodiversity important? Biodiversity is essential to the health of the planet as well as our own; the innumerable interactions

What causes biodiversity loss? Since life began on earth, there have been five major extinctions, or sudden and massive decreases of biodiversity, the most well-known of these being the Cretaceous-Paleogene of 65 million years ago. This extinction event removed **three quarters of all plants and animals on earth**, including the dinosaurs. **The Anthropocene** ("recent human") is the proposed term for our current human-dominated era, otherwise known as the **Holocene** ("entirely new") **epoch**. Many wonder if we in the Anthropocene are living through the Sixth Mass Extinction, due to the significant loss of species and ongoing loss of biodiversity - specifically through wildlife habitat destruction - since the emergence of humans on earth.

within and among ecosystems are what make life on earth possible. Ecosystem “products” include fresh water and food, vital to human health. Biodiversity loss affects ecosystems and thus, in turn, us. *The Guardian* published [this article](#) on biodiversity in 2018, which clearly and thoroughly explains the importance of biodiversity to all life on earth.

What is lost? Approximately 10,000 years ago, humans abandoned a hunting-gathering way of life and took up farming. Since we were good at it, our population - and our appetite for animal products - exploded. The clearing of forests to enable livestock farming and its feed requirements is a prime example of “**land-use change.**” Large-scale animal agriculture now uses three-fourths of the world’s arable land. Waste from industrial livestock and feed production causes massive nutrient pollution, while pesticides, herbicides, and fertilizers migrate into our fresh waters. This type of land-use change can eliminate carbon-sequestering forests, contributing indirectly to climate change; its direct contribution to climate change occurs with ruminating livestock belching greenhouse gases, including methane, with far more warming potential than carbon dioxide.

FOOD BIODIVERSITY

Let’s talk more specifically about **food biodiversity**. This term is defined as the diversity of plants, animals, and other organisms used for human food. This covers genetic resources within a species (think different types of apples) and between species (think bees pollinating apple tree flowers), as well as support provided by ecosystems (think nearby woodland forest).



Food biodiversity means simply the diversity of foods in human diets and how those foods contribute to good nutrition. But how diverse is the human diet?

The Food and Agriculture Organization (FAO) of the United Nations estimates there are 250,000 plant varieties available for agriculture, with less than three percent in use today. Since 1961, human diets around the planet have become more homogeneous, with declining consumption of locally important crops and increasing reliance on a small number of commodity crops (wheat, rice, sugar, corn, soybeans). Many nations used to consume larger proportions of regional crops; now wheat has a global dominance, becoming a staple crop in 97% of the world’s countries.



Eat-a Rainbow. Diversity in food results in higher levels of micronutrients in our diet. The island nation of Samoa has a perfect climate for growing produce, yet most of their food is imported. The World Health Organization (WHO) estimates that 70% of deaths in Samoa are caused by non-communicable disease, such as diabetes and high blood pressure. The World Bank is collaborating with the

Samoa Ministry of Health and local farmers to improve the quality and quantity of locally produced foods. To encourage healthier eating habits, the “Eat-a-Rainbow” initiative is present in all Samoan schools, teaching children the health benefits of eating colorful, nutritious, and (most importantly) locally-produced food.

Sustainable Agriculture. Diversity in the human diet has benefits for both public health and sustainable agriculture, important facts to keep in mind if we hope to feed the planet’s expected population of nearly 10 billion by 2050.

As has been discussed previously in this space, the monoculture form of agriculture practiced in many parts of the world has little, if any, biodiversity, while a small farm with a variety of crops, orchards, livestock, etc. is rich in biodiversity. The single largest contributor to climate change (and, likely, biodiversity loss) in terms of land use, water use, and pollution production, is the farming of animals. *Faunalytics.org* published an analysis of the *Humane Party’s* 2017 strictly economic study “Farming Animals vs. Farming Plants.” They presented this succinct finding: “plant-based agriculture grows 512% more pounds of food than animal-based agriculture on 69% of the mass of land that animal-based agriculture uses.”

INSECTS



Disappearing species. Environmentally speaking, diets based on a variety of species will place less pressure on a single species. When a species disappears, it may weaken the chances for survival of another species. We now know how important bees, including honey bees and native bee species, are in food production. **Foods that are richest in micronutrients (fruits, vegetables, seeds) rely on pollination.** Pollinators include not only bees and many other insects, but birds, moths, beetles, even bats, and *many are threatened with extinction.* Once lost, these species critical to our food systems cannot be recovered. [An article](#) from Kansas Rural Center discusses neonicotinoid pesticide effects on

pollinators.

Let's end with **The Half-Earth Proposal.**

E. O. Wilson penned an article in *Sierra* magazine entitled "Fifty-Fifty," in which he proposes **committing half of the earth's surface to nature ... NOW.** The Half-Earth proposal, asserts this renowned biologist, is exactly the level of emergency plan needed to stabilize our biosphere in order to hold on to the species that remain.

SOME GREEN THOUGHTS



"Whether we consciously realize it or not, the biodiversity with which we are most familiar, and the biodiversity with which we have most intimate historical, cultural and biological connections, is that associated with food plants."

Cary Fowler, conservationist and agriculturalist

"Uniformity is not nature's way; diversity is nature's way."

Vandana Shiva, environmental activist, scholar, and food sovereignty advocate

"The one process now going on that will take millions of years to correct is the loss of genetic and species diversity by the destruction of natural habitats. This is the folly our descendants are least likely to forgive us."

E. O. Wilson