

# SOILS & BIODIVERSITY

## SOILS HOST A QUARTER OF OUR PLANET'S BIODIVERSITY

Soil is one of nature's most complex ecosystems: it contains a myriad of organisms which interact and contribute to the global cycles that make all life possible.

A typical healthy soil might contain:

- vertebrate animals
- earth worms
- nematodes
- 20-30 species of mites
- 50-100 species of insects
- hundreds of species of fungi
- thousands of species of bacteria & actinomycetes

Over **1000 species** of invertebrates may be found in **1 m<sup>2</sup>** of forest soils.

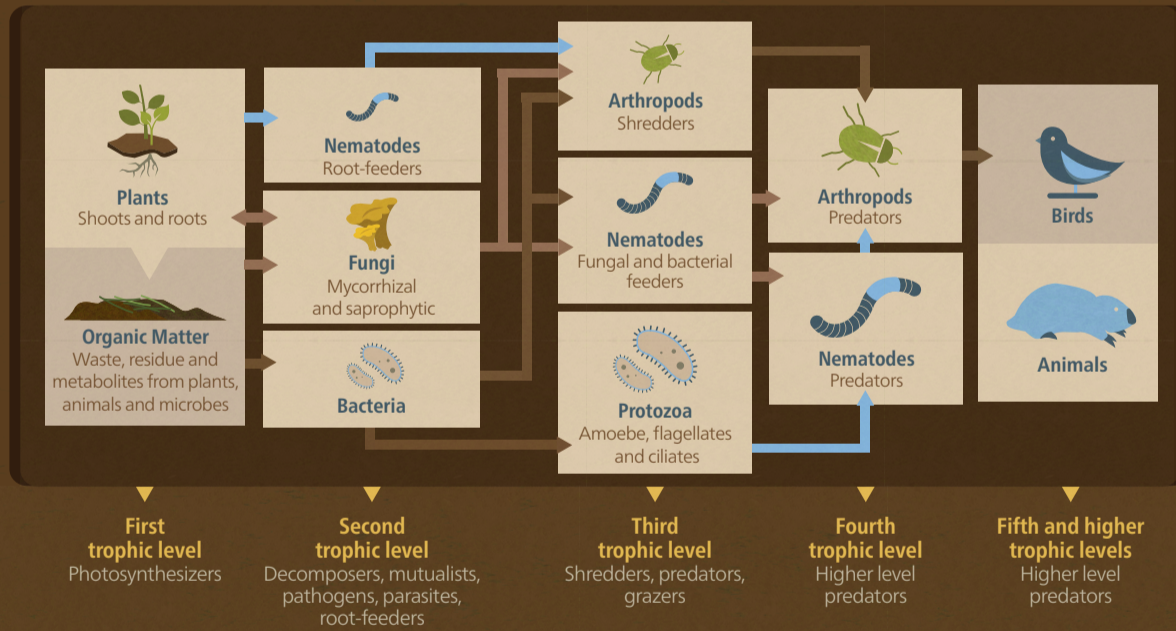
Biodiversity is essential for **food security and nutrition.**

Soil organisms are responsible for performing vital functions in the soil ecosystem:

- Maintenance of soil structure
- Nutrient cycling
- Sources of food and medicines
- Regulation of soil hydrological processes
- Soil detoxification
- Symbiotic and asymbiotic relationships with plants and their roots
- Gas exchanges and carbon sequestration
- Decomposition of organic matter
- Suppression of pests, parasites and diseases
- Plant growth control

## THE SOIL FOOD WEB

When these diverse soil organisms interact with one another and with the plants and animals in the ecosystem, they form a **complex web of ecological activity.**



## SOIL BIODIVERSITY AND AGRICULTURE

Clearing forested land or grassland for cultivation affects the soil environment and drastically **reduces the number and species of soil organisms.**

Agricultural systems and agro-ecological practices such as: **agroecology, agroforestry, conservation agriculture, organic farming and zero-tillage** can sustainably increase farm productivity without degrading the soil and water resources.

The overuse or misuse of **agro-chemicals** has resulted in environmental degradation, particularly of soil and water resources.

