



2015  
International  
Year of Soils

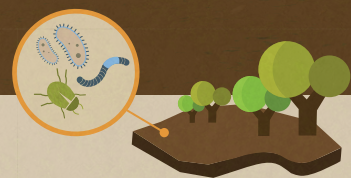
# SOILS & BIODIVERSITY

## 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.



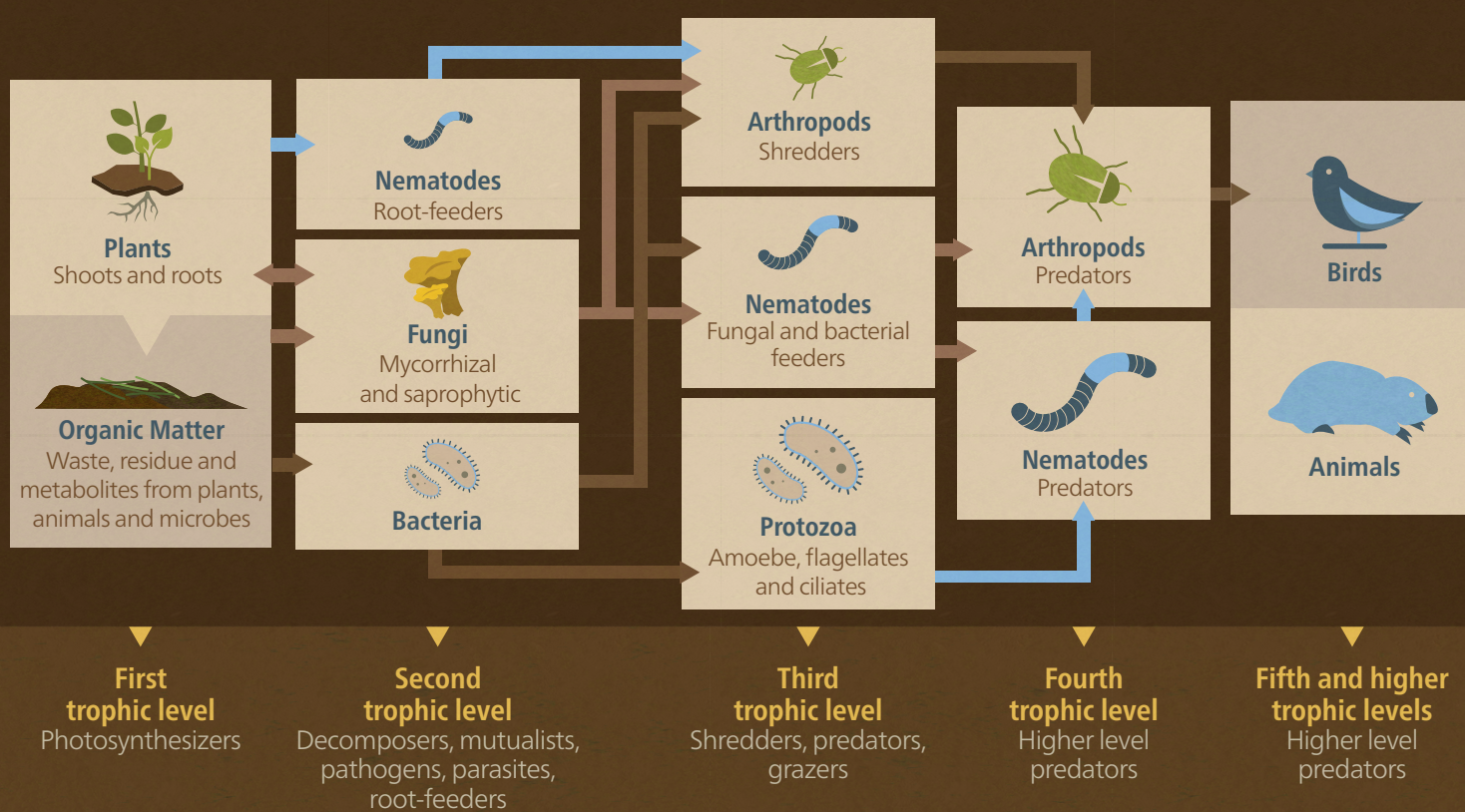
Biodiversity is essential for **food security and nutrition**.

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
- Plant growth control**
- Suppression of pests, parasites and diseases**

## 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**.

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



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.



[fao.org/soils-2015](http://fao.org/soils-2015)



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