

Nature Notes

Forest Soils



Looks can be deceiving. At first glance soil looks like a simple substance but this is far from the truth. Every handful of soil is filled with a complex of bacteria, viruses, algae, fungi, worms, insects and small animals numbering in the millions. These organisms interact with the non-living material to support a dynamic web of life.

Soil starts as fine, pulverized rock which is then changed by the action of the climate and topography. With the addition of organic material from plants and animals and a great deal of time, a soil is formed that can support plant life and is the basis of terrestrial ecosystems.

A very small percentage of soil is composed of living organisms but their impact is large indeed. Plant roots create tunnels that allow air and water to enter the soil. Worms, ants, snakes and small animals till the soil and improve its texture. Both plants and animals contribute nutrients through their waste products and dead bodies, while micro-organisms work to decompose the organic material into available nutrients.



Photo by L. Duncan

The kind of ecosystem influences the type of soil that develops in an area. Prairie grasslands create rich, dark soils. Trees in mixed deciduous forests drop a large volume of leaves each year which decompose and form a soil relatively high in nutrients, iron and aluminum. In contrast, coniferous forests drop needles and branches which are slow to decompose, form an acidic litter layer and add nutrients to the soil very slowly. Dominated by coniferous forests, the soil of the Kimberley Nature Park is largely nutrient-poor.

Many plants have developed a relationship with mycorrhizal fungi which increases the ability of the roots to absorb nutrients from the soil. The relationship increases the ability of the tree to absorb nutrients such as phosphorous. Researchers are investigating if the mycorrhizae also help in the absorption of zinc and copper and offer some protection from root diseases. On the other side of the relationship, the fungi get their carbohydrates from the tree root.

Take a moment to take a closer look at the soils found in the Kimberley Nature Park. You may be surprised at what you find in this 'simple substance'.