6 PREDACEOUS FUNGI - Left Side (300x) - Right Side (1,000x)

We all know that animals feed on plants. But there are some fungus plants in the soil that feed on animals. They help to reduce the nematode population of the soil. Biologists call them PREDACEOUS FUNGI (preh-DAY-shus FUN-jy), which simply means fungi that capture prey.

The body of a fungus consists of delicate branching filaments of living matter (F). In the predaceous fungi, the filaments produce special structures to capture eelworms. For example, some of these fungi have sticky knobs along the filaments. Any worm that touches a sticky knob becomes stuck fast and cannot escape.

Other predaceous fungi produce *loops* on their filaments. As a worm whips by, its head accidentally enters a loop, which suddenly tightens like a lasso. The worm is trapped. The left side of this slide shows one worm caught in such a loop (L).

Sometimes the worm succeeds in breaking free, carrying the loops (L) like collars around its neck (see right side of this slide). But the worm is still doomed. Soon new filaments will grow from the loops. They will penetrate the worm's body, digest the worm's tissues and absorb the digested material for food.

7 SPRINGTAIL - Scanning Electron Microscope (34x)

These tiny wingless insects feed on decaying matter and on microorganisms. They are found in all types of soil and leaf litter. They have a hollow, tube-like springing organ at the rear end. This flexible structure enables them to jump or leap from place to place.

This is how they got their name. If you watch a colony of springtails near the surface of the soil, you get the impression that sand grains are popping up and down.

8 MITE - Scanning Electron Microscope (114x)

This ferocious-looking eight-legged monster is a MITE. Though related to the spiders, mites are so tiny that they are barely visible. Many of them live in the soil where they feed on plant and animal tissues. Some mites prey on springtails *(slide 7)*; others on plants. Some mites spin tiny webs on the leaves of the plants they attack. One type, the red spider mite, often attacks house plants. They are very tiny and hard to see. But if you notice tiny red dots moving about on delicate webs, your plant is probably infected with red spider mites.

Photocredits: Fla. Dept. of Agriculture - 5, 6; A.F. Esposito, Jr. - 1, 4; R.O. Schuster - University of California at Davis - 3, 7, 8.

LIFE IN THE SOIL

INTRODUCTION

We usually think of rocks as hard things that last forever. If you look at a rock today, and then again ten years later, there does not seem to be any visible change. Constant exposure to the sun's heat and to winter's freezing cold, to driving rains and howling winds, and to other similar forces take their toll. Even the hardest rock is gradually worn away. This process is called WEATHERING.

Weathering causes rocks to break down into small fragments and fine particles. As the rock particles accumulate, they become mixed with bits of organic matter - humus, decaying plant material, bits of animal wastes, etc. The mixture forms what we call a SOIL. As years go by, thousands of plants and animals set up housekeeping in the accumulated mixture. They are called the FLORA (FLOW-ruh) (plants of the soil) and FAUNA (FAW-nuh) (animals).

These soil inhabitants form an actual part of the whole thing. Their presence and their life activities change the soil and cause it to develop special characteristics. Many of the soil inhabitants help make the soil a good place for larger plants to grow. Surely you already know some of the larger plants and animals that inhabit the soil. You know that the roots of plants dig down into the soil to get water and minerals.

You also know about woodchucks, prairie dogs, rabbits, and moles that spend their lives digging tunnels through the soil. You have probably seen earthworms crawl up out of their burrows after a heavy rain. And you know that ants and termites set up whole kingdoms under the earth.

But what do you know about the world of invisible plants and animals that also live in the soil? They are too tiny to see with your eye alone. Pick up a handful of fertile soil from a flower bed or garden. *Do you see any signs of life?* Maybe not - but that handful of soil is a zoo of miniature animals and a garden of microscopic plants. A tiny pinch of rich soil may contain a billion living organisms of microscopic size.

That is what this lesson is about - the microscopic plants and animals that live in the soil. Of course, we can only show you a few samples of the thousands of forms of life contained in the soil.

As you look at the slides, just remember that all the things we are showing you are greatly magnified. The magnification given, for example, slide 1 - (400x), means that the microscope lenses were set at that power when the photograph was taken.

By Philip Goldstein