

Healthy Soil: It Is Alive!

Did you know that it can take 1,000 years or more to create 1/2 inch of new soil?

Soils are a mixture of rocks, minerals, and dead, decaying plants, and animals. Soil can be very different from one location to another, but generally consists of organic and inorganic materials, water and air. The inorganic materials are the rocks that have been weathered and broken down into smaller pieces. The size of the pieces varies and may appear as pebbles, gravel, or as small as particles of sand or clay.

The organic material is decaying living matter. This could be plants or animals that have died and decay until they become part of the soil. Over time this creates a thin layer of soil.

Plants help the development of the soil. How? The plants attract animals, and when the animals die, their bodies decay. Decaying matter makes the soil thick and rich. This continues until the soil is fully formed. The soil then supports many different plants and most forms of life.

Healthy Soil

Healthy soil includes not only the physical particles making up the soil, but also adequate pore space between the particles for the movement and storage of air and water. This is necessary for plant growth, and for a favorable environment for soil organisms to live. Compaction occurs when soil particles are pressed together, thereby reducing the amount of pore space. Compaction alters the movement of air and water in the soil and may decrease root growth, the biological diversity and activity in the soil. For proper plant growth, void space must be available for air and water movement.



Soil is Alive!

Did you know that a single shovel full of rich garden soil contains more species of organisms than can be found above ground in the entire Amazon rain forest?



Soil organisms, an important part of the underground living system, can be divided into six groups: bacteria, fungi, protozoa, nematodes, arthropods and earthworms. Although most soil organisms are too small to see with the unaided eye, some nematodes, arthropods and earthworms can be easily removed from the soil and then observed.

What Does Soil Do for Us?

Soil provides several essential services or functions:

- ◆ **Soil** supports the growth and diversity of plants and animals by providing a physical, chemical, and biological environment for the exchange of water, nutrients, energy and air.
- ◆ **Soil** regulates the distribution of rain or irrigation water between infiltration and runoff, and regulates the flow and storage of water and solutes, including nitrogen, phosphorus, pesticides, and other nutrients and compounds dissolved in the water.
- ◆ **Soil** stores, moderates the release of and cycles plant nutrients and other elements.
- ◆ **Soil** acts as a filter to protect the quality of air, water and other resources.



- ◆ **Soil** helps to make our climate moderate by absorbing and releasing heat

The amount of water in soil is directly linked with the climate and other characteristics of the region. The amount of water found in the soil affects the amount of air found in the soil. For example, very wet soil, like you would find in a wetland, has very little air. The composition of the soil affects the plants, and therefore the animals that can live there.

Wetlands



In the past, many people thought of wetlands as mucky, mosquito-infested wasteland, but we now recognize their importance.

Wetlands are vital to the ecological balance of Earth. They serve many

functions for both man and wildlife.

Wetlands can help prevent some of the flooding in low areas. They act like a sponge by soaking up the excess water. In wetlands, the water slowly goes back into surrounding areas at a rate that the ground can handle. Many present day flood zones are at risk of

flooding because surrounding wetland areas have been destroyed.

Wetlands are like rainforests, they have an amazingly wide diversity of wildlife. They contain all classifications of animals including amphibians, reptiles, birds, mammals, insects and arachnids. A third of our nation's endangered and threatened species live in wetlands their entire lives. Many others live in wetlands at least part of their lives. Some animals can live nowhere else. Wetlands provide habitat for more than a third of all bird species and migratory birds depend upon these areas for resting areas on their migratory paths.



***Soil is an important resource
that we all must protect.
Without soil there is no life.***

NEW JERSEY'S SOIL CONSERVATION DISTRICTS

New Jersey's 15 Soil Conservation Districts are special purpose subdivisions of the State serving all 21 counties. Districts are empowered to conserve and manage soil and water resources in cooperation with the State Soil Conservation Committee.

SCDs address stormwater, soil erosion and sedimentation problems that may result from land disturbance activities and most Districts offer a variety of free environmental educational outreach programs.

Working to Conserve New Jersey's Natural Resources

**NJ Conservation Partnership
NJ Department of Agriculture —
NJ Association of
Conservation Districts
609-292-5540**

For a list of all 15 districts visit:
www.nj.gov/agriculture/divisions/anr/nrc/conservdistricts.html

