

# Soils

Soils are ecosystems, and the life within them contributes to their composition and structure. They have a direct impact on wildlife, providing both food and shelter. Soils provide the medium for plant growth and therefore, are major determinants of terrestrial ecosystems. The composition and distribution of plant communities and all the services they provide for man and wildlife relate to the soil. To understand the environment, one needs to understand soils.

Soils play important roles in the cycling of essential nutrients, gases, and water. They are natural buffers and filters for pollutants, purifying and storing water. Organisms within the soil can break down harmful chemicals, helping keep them from impacting ecosystems.

Soils are the major support system for man and all terrestrial life. They support the growth of our agricultural products, which feed the human population and native vegetation that supports wildlife. They determine the agricultural and forest productivity, which provides our food source, materials for housing, economic resources, and raw materials for numerous products. They are the foundation on which we build our homes, roads, and recreational facilities, and from which the homes for wildlife grow.

Soils are a dynamic, vital natural resource on which most all terrestrial life depends. They are the source for producing some of our most important economic products and thus important to industry. Soils support the ecosystems that we enjoy for the vegetation, wildlife, recreation, and aesthetic opportunities they provide.

It is no wonder that soil is often referred to as “the wealth beneath our feet. It is also easy to understand president Franklin D. Roosevelt’s statement: “The nation that destroys its soil, destroys itself.” (The Middle School Learning Objectives go into deeper detail).

## ***High School Learning Objectives:***

- Gain a basic understanding of the soil ecosystem.
- Recognize basic soil forming factors.
- Recognize basic soil properties.
- Gain a basic understanding of soil biology.
- Learn how to use a soil survey to find specific information on soils and their use and management.
- Gain a basic understanding of the Land Capability Classification System.
- Identify various types of soil erosion.
- Identify or recommend various types of Best Management Practices for the control of accelerated soil erosion.
- Learn how basic soil science knowledge is used to make environmentally sound land use decisions when given a set of known facts.
- Know the importance of soils and be able to give examples.

## ***Middle School Learning Objectives***

- ☺ Know the definition of soil and the composition of average soil.
  - Understand the importance of pore space.
  - Know what comprises the organic matter of soil.
- ☺ Know the importance of soils and be able to give examples.
  - Know soil's role in:
    - Nutrient cycles
    - The water cycle and purification and storage of water
    - Plant growth
    - Habitat for soil dwelling organisms
    - Construction decisions
  - Know how we use soils
  
- ☺ Understand the soil ecosystem.
  - Recognize types of organisms that dwell in the soil.
  - Know some services provided by soil organisms.
  - Understand the roles of various soil organisms.
- ☺ Understand the soil's role in the cycling of essential nutrients and water.
  
- ☺ Recognize basic soil forming factors and the role of each.
  - Know the origin of parent material.
  - Recognize the processes that act on parent material.
  - Recognize the general categories of parent material.
  - Define weathering.
  - Know the definition of topography, and know what topography influences.
  - Recognize the importance of the biota.
  - Know why organic matter is important to soil.
  - Define humus, and know its importance.
- ☺ Identify parts of a soil profile.
  
- ☺ Recognize basic soil properties.
  - Know the soil particles and relative sizes.
  - Know how to use a textural triangle and how to texture soils.
  - Recognize the importance of and factors affecting soil structure.
  - Recognize the role impact of soil pH.
  
- ☺ Know how to use written soil survey report data and maps to locate specified information, including soil characteristics, drainage and potential use of the soil.
  
- ☺ Identify various types of erosion, factors affecting the rate of erosion, and the problems of sedimentation.

☺ Identify Best Management Practices (conservation practices) for the control of erosion.

☺ Recognize the impact of human actions on soil.