

# **Soil and Biogeography**

**Subject: Geography CBCS HONOURS**

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**POINT: 2.**

# **SOIL PROFILE AND COMPONENTS**

# CONTENT

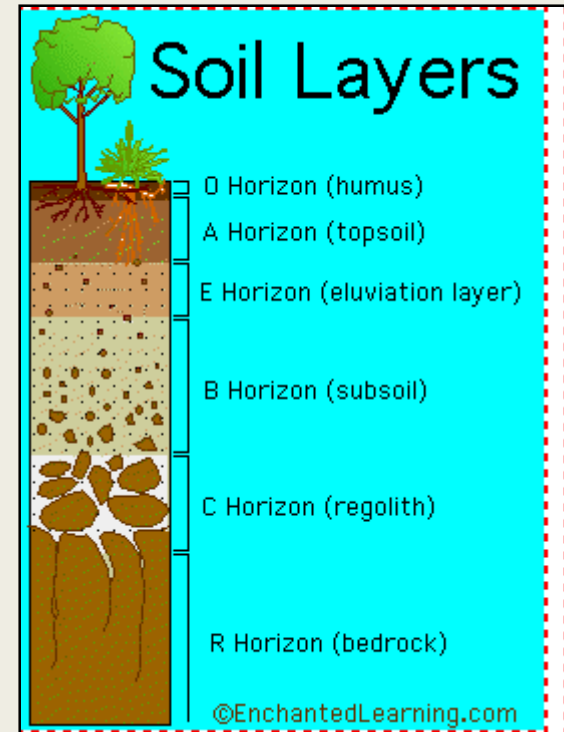
- Definition of Soils
- What is a Soil Profile?
- How to Make a Soil Profile
- Components of the Soil Profile

# Definition of Soils

- *Soil is the collection of natural bodies on earth's surface containing living matter and supporting, or capable of supporting plants. Its upper limit is the atmosphere (air) or water, and at its lateral margins it grades to deep water or barren areas of rock and ice. Its lower limit is normally considered to be the lower limit of the common rooting zone (root zone) of the native perennial plants, a boundary that is shallow in the deserts and tundra and deep in the humid tropics.*

# What is a Soil Profile?

A **Soil Profile** is a vertical cross-section of layers of soil found in a given area. Below are **two examples** of soil profiles.



# O-Horizon

## The “Organic Matter” Horizon

Surface-layer, at depths of 0-2 feet

Dark in color, soft in texture

**Humus** - rich organic material of plant and animal origin in a stage of decomposition

**Leaf litter** – leaves, needles, twigs, moss, lichens that are not decomposing

Several O-layers can occur in some soils, consisting only of O-horizons



# A-Horizon

## Topsoil” or “Biomantle” Horizon

Topmost layer of **mineral soil**, at depths of 2-10 feet

Some humus present, darker in color than layers below

**Biomantle** - most biological productive layer; earthworms, fungi, and bacteria live this layer

Smallest and finest soil particles



# E-Horizon

## The “Leaching Layer” Horizon

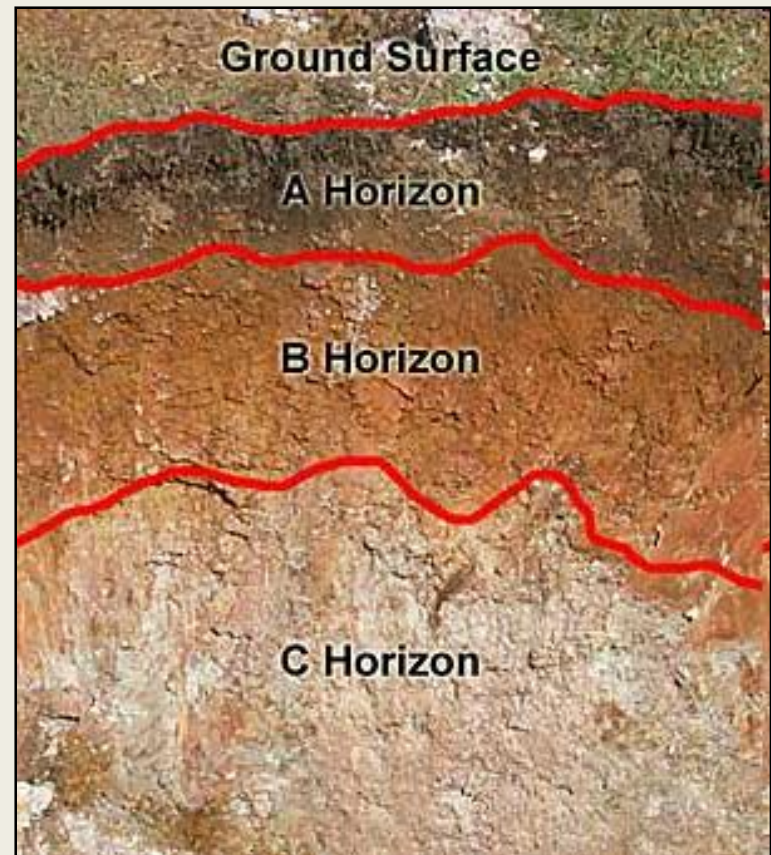
Small layer between A & B horizons

At depths of 10-15 feet

Light in color, mainly sand & silt

Poor mineral and clay content due to **leaching** – the loss of water-retaining plant nutrients to the water table

Soil particles larger than in A horizon but smaller than in B horizon

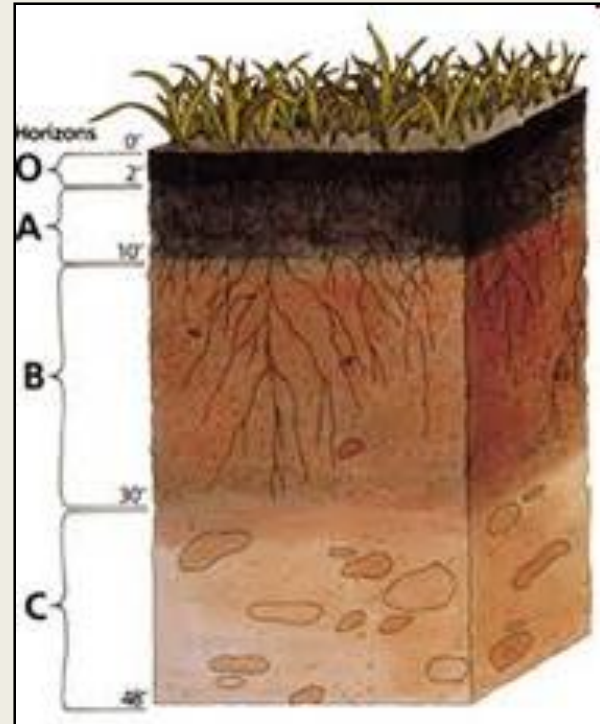




# B-Horizon

## The “Subsoil” Horizon

- At depths of 10-30 feet
- Rich in clay and minerals like Fe & Al
- Some organic material may reach here through leaching
- Plant roots can extend into this layer
- Red/brown in color due to oxides of Fe & clay



# C-Horizon

## The “Regolith” Horizon

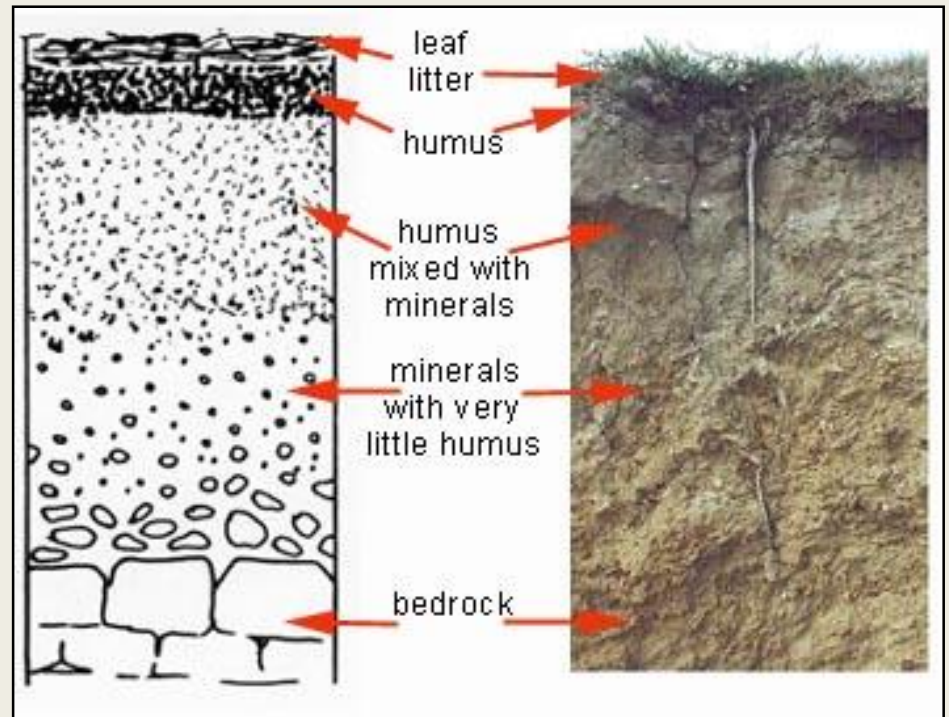
- At depths of 30-48 feet
- Made up of large rocks or lumps of partially broken bedrock
- Least affected by weathering and have changed the least since their origin
- Devoid of organic matter due to it being so far down in the soil profile



# R-Horizon

## The “Bedrock” Horizon

- At depths of 48+ feet
- Deepest soil horizon in the soil profile
- No rocks or boulders, only a continuous mass of bedrock
- Colors are those of the original rock of the area



# Components of the Soil Profile

- A soil horizon makes up a distinct layer of soil.
- The soil profile extends from the soil surface to the parent rock material.
- The regolith includes all of the weathered material within the profile. The regolith has two components:
  - Solum
  - Saprolite

# References

- **Book\_V.N. Sahay: Soil Geography**
- [www.google.com](http://www.google.com)
- [www.wikipedia.com](http://www.wikipedia.com)
- [www.studymafia.org](http://www.studymafia.org)