

# PODZOL SOIL

Presented by

BUDDHADEV SHIT

Department of Geography

Saltora Netaji centenary college

# Podzol Soils

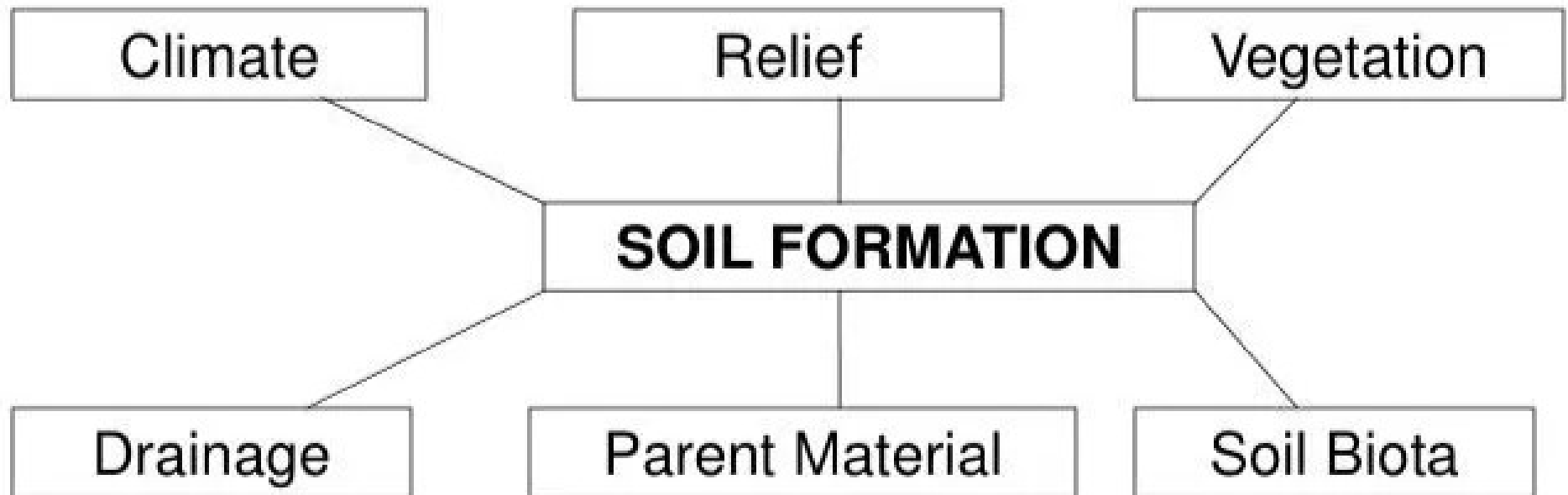
- Found in area where coniferous trees are found.
- These are mainly found in cold climates
- Horizon A has low levels of humus
- Cold weather has limited worm activity
- Between horizon A and horizon B a hardpan may develop.
- Horizon C is made of bedrock
- This is a very infertile soil

# Podzol: Soil forming factors

- Parent material
  - Acid rocks, often from granite or schist
- Climate
  - Cool
  - Precipitation greater than evaporation
- Vegetation/organisms
  - Coniferous woodland/heather moorland
  - Slow breakdown, limited or no mixing
- Topography
  - Stable sites from sea level to mountain summits
- Time
  - Since end of last ice age 10,000 years

Study the diagram below.

Describe the influence of the various soil forming factors on the formation of a Podzol soil.



# Characteristics of Podzols

- Extensive group of leached, acidic soils
- Distinctive light coloured horizon found immediately below organic debris - eluvial horizon formed due to loss of iron/aluminium by leaching
- Mor humus with no recognisable plant remains
- Brightly coloured zone of iron/aluminium deposition - illuvial horizon
- Darker zone of organic deposition
- Relatively unaltered C horizon at variable depth
- Most podzols are free draining

Where is Podzol soil found in India?



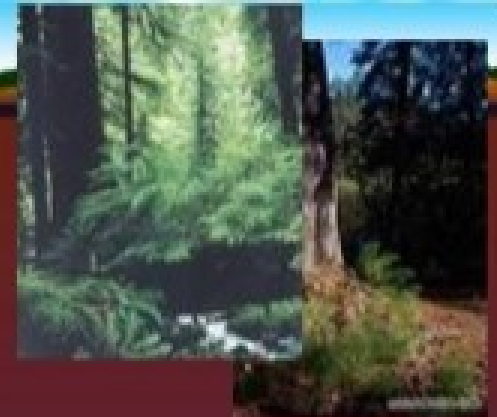
The mid-altitudinal zone in the Himalaya has Podzols. This soil is acidic with low humus and is found in **Assam, Darjeeling, Kashmir, Uttaranchal and Himachal Pradesh**. Maize, barley, wheat and temperate fruits are grown in this soil in the Himalayan region.



## Explaining the formation of Podzol.

- ❖ The soil forming process is very slow because of the cold climate.
- ❖ Ao Horizon - Thin humus layer because of little **humification**:
  - ❖ Trees have needles not leaves.
  - ❖ Trees do not shed their needles every year.
  - ❖ Needles break down very slowly.
  - ❖ Few biota live in this cold climate.
- ❖ **Leaching** occurs due to heavy rainfall and melt water.

# Describing Podzols



- ❖ **LOCATION** – found in Northern **coniferous** forests OR upland moorland areas.
- ❖ **CLIMATE** – cold wet climates where precipitation exceeds evaporation.
- ❖ **DESCRIPTION** – Thin top layer, A<sub>0</sub> Horizon, of needles and cones decomposing to form a raw acidic humus (mor).
- ❖ The A horizon has a ash coloured tint to it composed of insoluble silicates.
- ❖ The B horizon has a reddish tint to and an iron pan may form here.





# Podzol Soils

Fig 5.7 Podzol soil profile

## Podzol soils

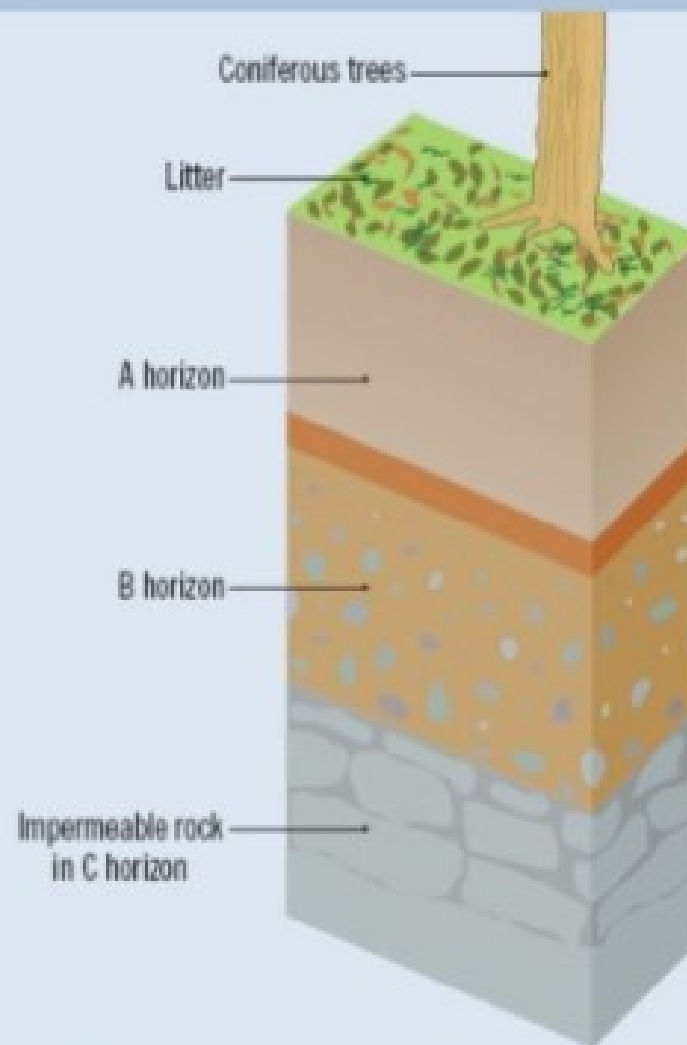
Podzol soils developed on areas that were covered by coniferous forest. The forests provided limited amounts of pine needles.

The plant litter decayed slowly in the colder temperatures to form limited amounts of humus. The cold also limits earthworm activity

Greater rainfall causes heavy leaching and hardpan may develop. This leaves the A horizon with a grey colour.

Podzol soils are relatively infertile as a result of the absence of humus. The soil is also slightly acid.

Podzol soils are found in damp uplands in counties Cork, Galway, Wexford and Tyrone.



- **Grey-brown Podzolic Soil:**
- This soil is clay to loam in texture and slightly acidic. It is widely found in Gulmarg and Pahalgam.



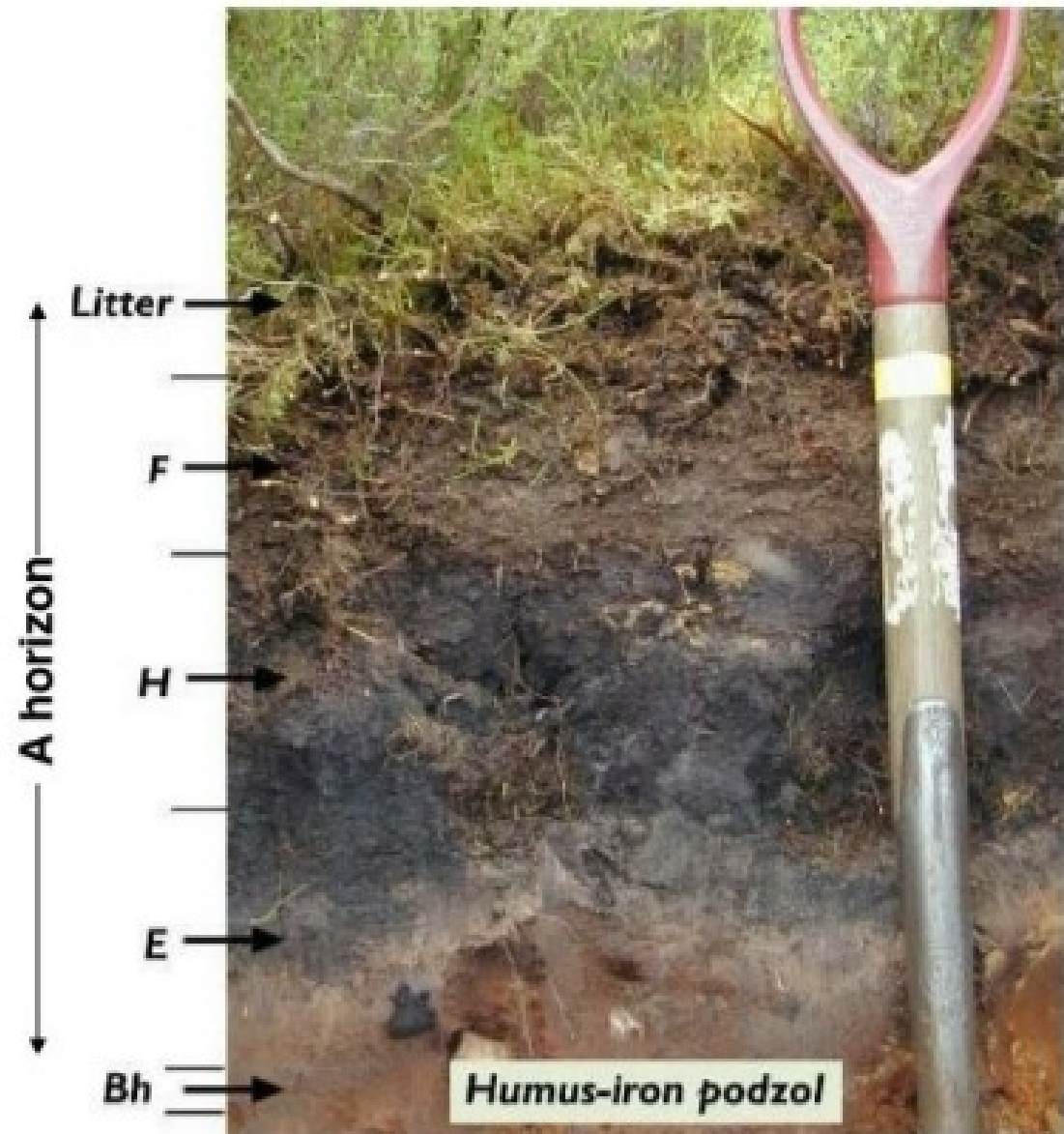
- **Red and Yellow Podzolic Soil:**
- Found in Kathua, Rajouri, Udhampur, and Poonch, this soil is coarse and has a water-holding capacity of 40%.



Red & Yellow Podzolic Soils

# Podzol Profile

- L - fresh annually supplied acidic plant material
- LF - partially decomposed organic debris
- H - mor humus
- E - eluvial horizon loss of Fe/Al oxides
- Bh - illuvial horizon-deposition of Fe/Al oxides
- Hardpan - zone of induration



lower B and C horizons not shown

# Uses of Podzols

- Generally infertile, non-productive
- Principally used for forestry and recreation (e.g. forestry plantations, grouse moors). In Scotland also used for grass production and stock rearing
- Where used for agriculture the top soil is often limed (to decrease acidity) and artificially fertilised (to increase nutrient status)
- Continual fertilisation and liming necessary to maintain adequate yields

# Bibliography

[www.docslides.com](http://www.docslides.com)

Thanks