

Lecture 6

Soil Morphology

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Epipedon and Endopedon

Epipedon

The epipedon refers to the topmost soil layers, but it differs from master horizon in that it can be thinner than the A horizon or may encompass portions of the E or B horizon. The main differ property among them are **organic matter**.

Epipedon

1. Mollic epipedon
2. Umbric epipedon
3. Histic epipedon
4. Folistic epipedon
5. Melanic epipedon
6. Anthropic epipedon
7. Plaggen epipedon
8. Ochric epipedon

Epipedon

1. Mollic epipedon

- Thick, dark-colored, **base saturation is > 50%**, and rich in organic matter.
- Has a high nutrient content and is ideal for plant growth.

2. Umbric epipedon

- Similar to mollic epipedon, but **base saturation is < 50%** .

3. Histic epipedon

- Thick, dark-colored, and **composed mainly of organic matter**.
- Forms in wetland soils and is often saturated with water.

4. Folistic epipedon

- Same as histic epipedon except it is **thinner**.

Epipedon

5. Melanic epipedon

- Thick, dark-colored, and formed in **volcanic soils**.
- Has a high nutrient content and is ideal for plant growth.

6. Anthropic epipedon

- Formed in soils that have been influenced by **human activity** such as **burning** or **cultivation**.
- Has a high content of **charcoal and other human-made materials**.

7. Plaggen epipedon

- Thick, dark-colored, formed by **human activity** such as **the addition of manure** or other organic materials to the surface of the soil. .

8. Ochric epipedon

- Thin, light-colored, and **organic matter** removed by leaching.

High base saturation

Mollic

Low base saturation

Umbric

Low base saturation
thin, light

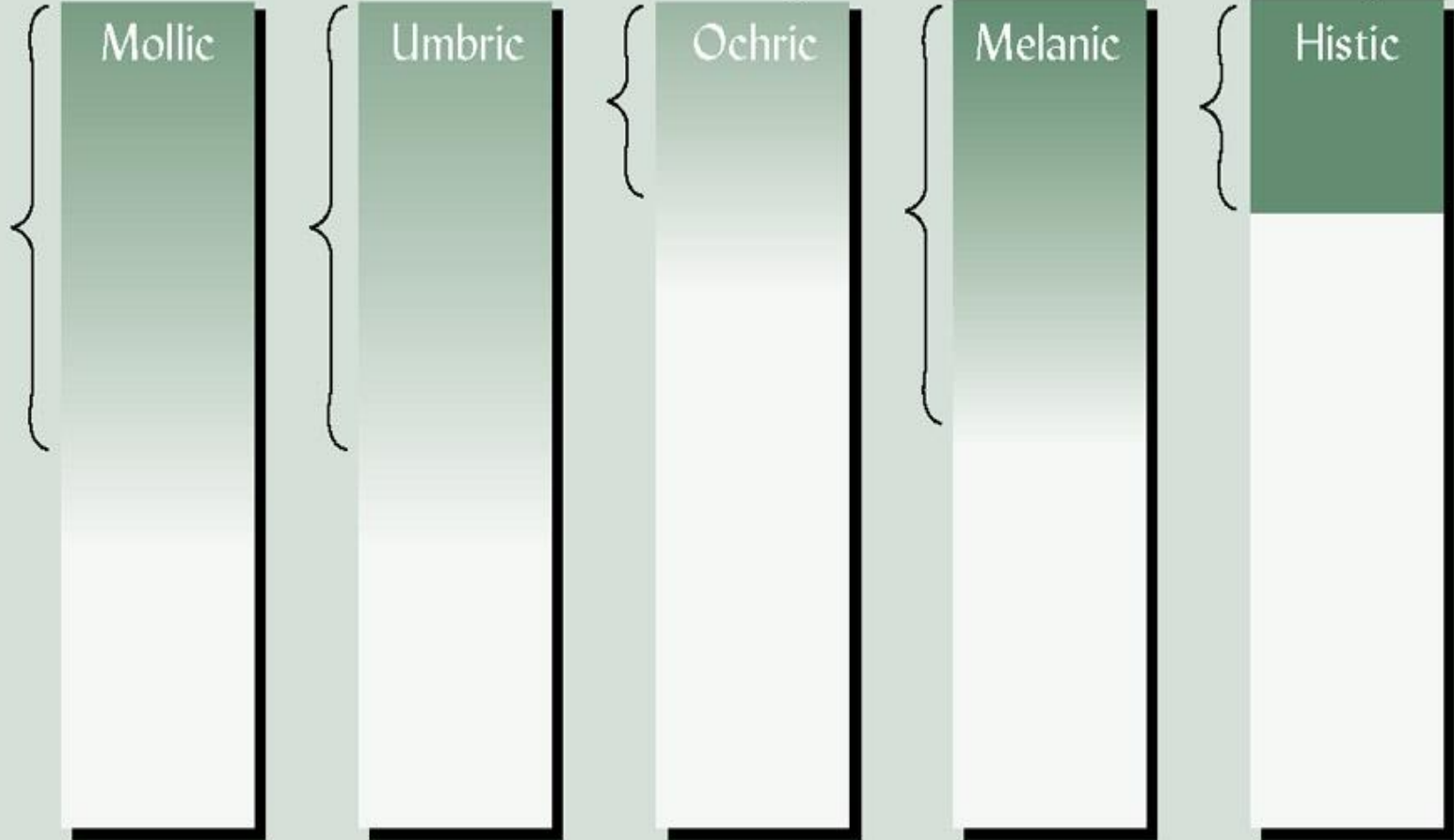
Ochric

Volcanic materials

Melanic

Peat bog

Histic



Endopedon

Endopedon

Layers of soil that are located **beneath** the **epipedon** and are characterized by specific properties such as **texture**, **structure**, or **color**. Unlike epipedons, endopedons are not defined by the presence of **organic matter**.

Endopedon

1. Albic endopedon
2. Andic endopedon
3. Argillic endopedon
4. Agric endopedon
5. Calcic and petrocalcic endopedon
6. Gypsic and petrogypsic endopedon
7. Cambic endopedon
8. Duripan endopedon
9. Fragipan endopedon
10. Kandic endopedon
11. Natric endopedon
12. Oxic endopedon
13. Placic endopedon
14. Spodic endopedon
15. Salic endopedon
16. Sombric endopedon
17. Sulphuric endopedon
18. Glossic endopedon

Endopedon

- **Argillic endopedon (Bt)**

A soil horizon that has a **high clay content** and shows evidence of **illuviation**, or the downward movement of clay particles.

- **Kandic endopedon (Bt)**

A soil horizon that has a **high clay content** (low activity clay minerals, such as kaolinite) and shows evidence of **illuviation** of clay particles.

Endopedon

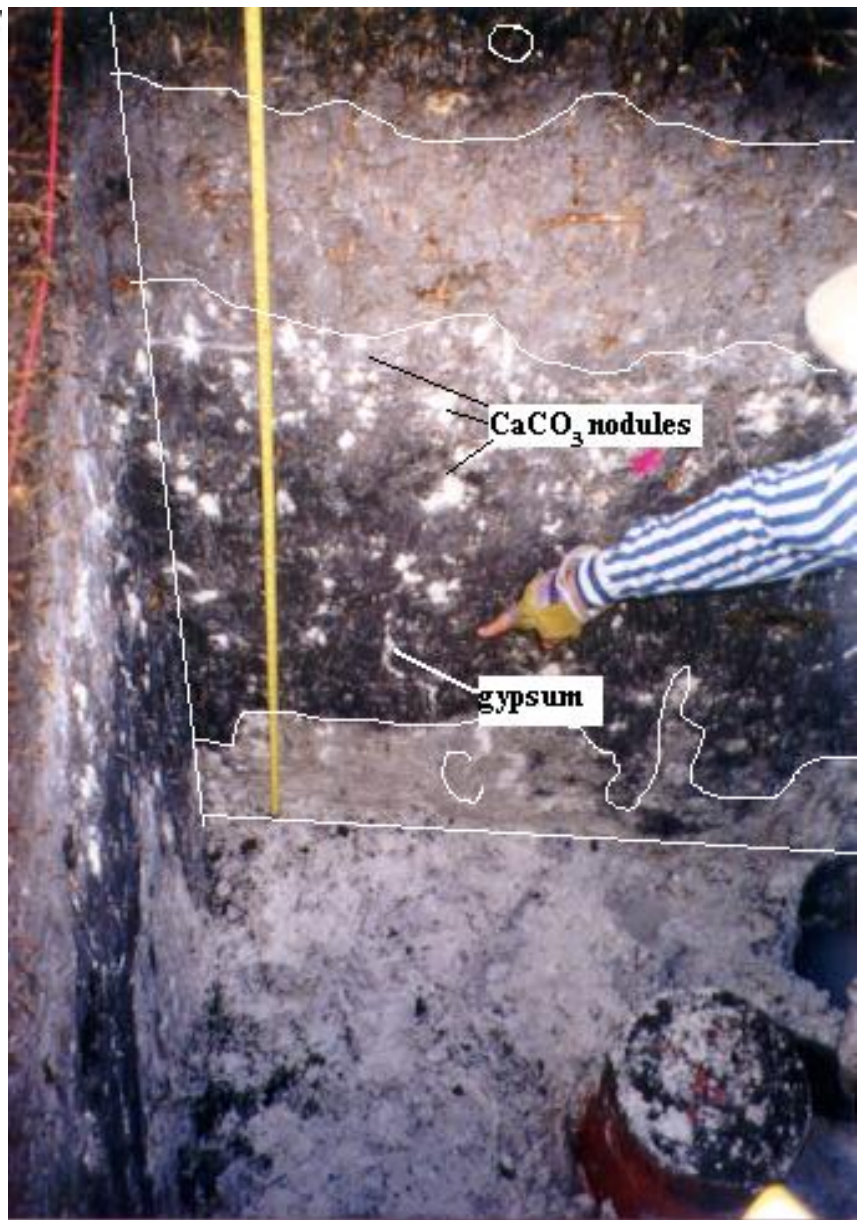
- **Calcic endopedon (Bk) (Bkk)**

A soil horizon that contains a significant amount of **calcium carbonate**, giving it a distinctive color and texture. **Petrocalcic** is cemented calcic horizon.

- **Gypsic endopedon (By) (Byy)**

A soil horizon that contains a significant amount of **gypsum**, giving it a distinctive color and texture. **Petrogypsic** is cemented gypsic horizon.

Barnes



Endopedon

- **Duripan endopedon (Bx)**

A soil horizon that is cemented by **sand**, aluminum, or iron. **Some part** of the layer is physically root-restrictive.

- **Fragipan endopedon (Bm)**

A soil horizon that is cemented by **clay**. The layer is **completely** root restrictive.

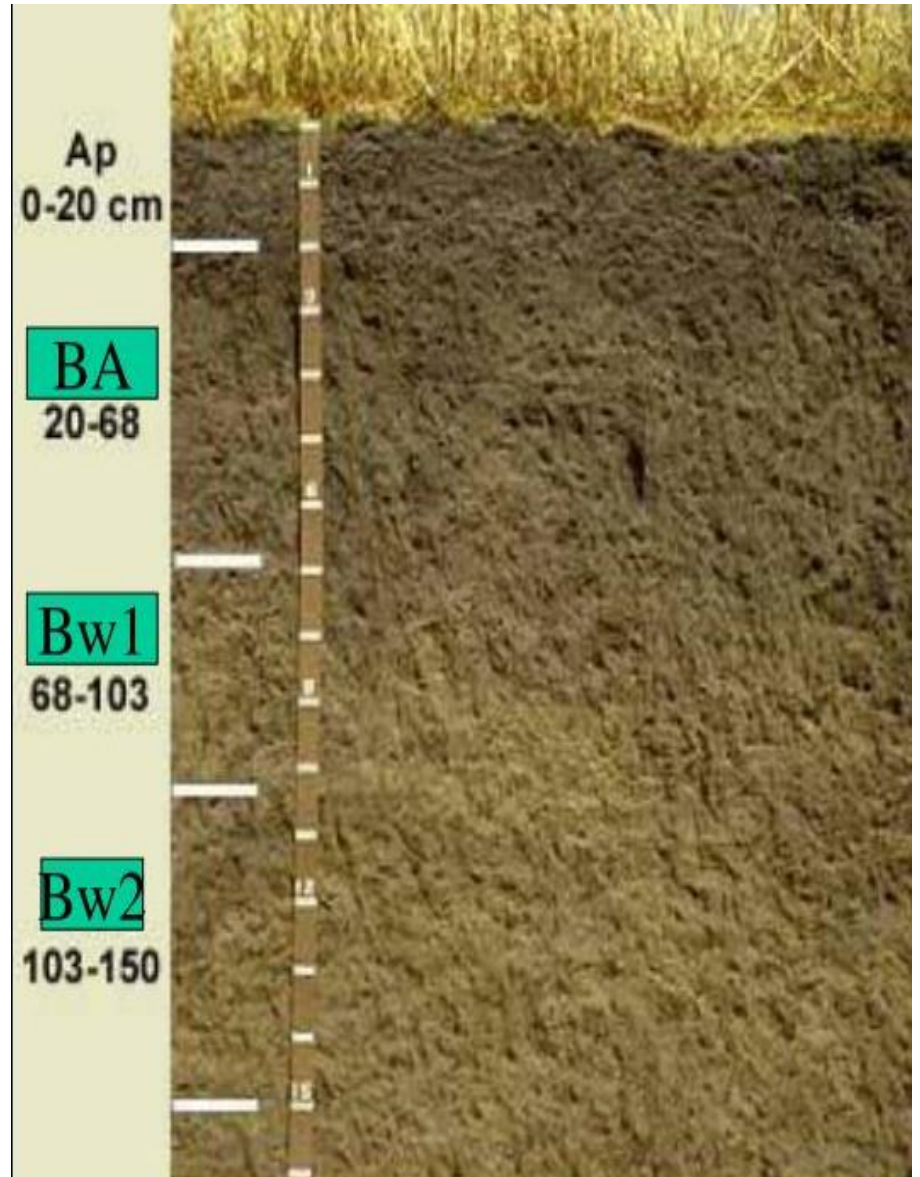
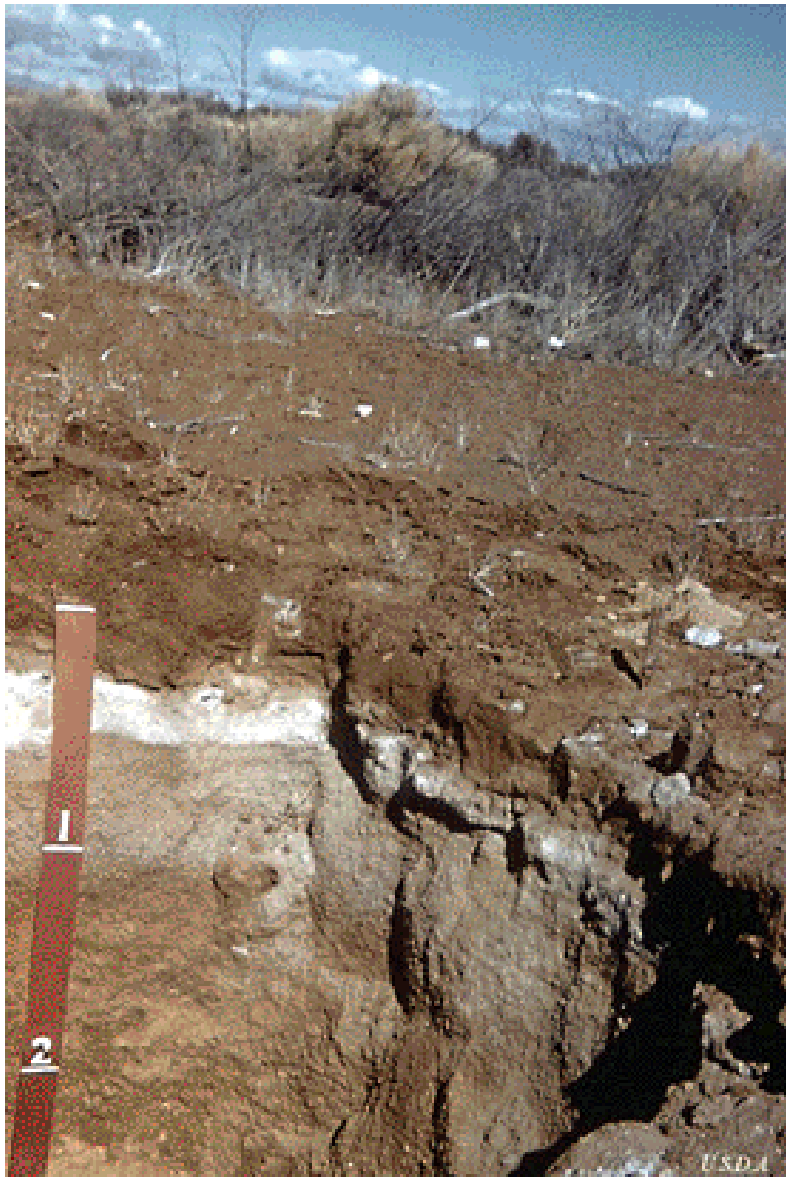
Endopedon

- **Cambic endopedon (Bw)**

A soil horizon that has been modified by physical or chemical processes, but **does not meet the criteria for any of the other endopedon types.**

- **Salic endopedon (Bz)**

A soil horizon that contains a significant amount of **soluble salts**, which can cause problems for plant growth and irrigation.



Endopedon

- **Agric endopedon (A or B)**

This horizon is formed directly under the **plow** layer.



Questions?