CANADIAN SOIL CLASSIFICATION

Brunisols

Characteristics:

- Includes all soils that have developed B horizons but do not meet the requirements of any of the other orders.
- Commonly found under forested ecosystems.

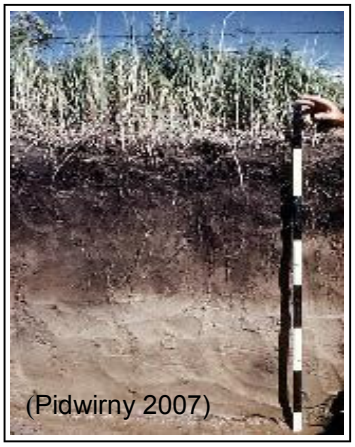
Identifying Characteristic:

- The presence of a B horizon that is brownish in colour, due to changes caused by water and oxygen.

Location:

- Occur in association with other soils in all regions south of the permafrost zone.

Chernozem



Characteristics:

- Common to grassland ecosystems.
- Have a mean annual soil temperature above 0º Celsius.

Identifying Characteristic:

- Soil is dark in colour (brown to black) and has an A horizon that is rich in organic matter (usually from decay of grass roots).

Location:

- Found in areas with semiarid and sub-humid climates.
- Majority found in the southern Interior Plains, where grass is the dominant native vegetation.
- Common in the Canadian prairies.

CANADIAN SOIL CLASSIFICATION

Cryosol


(Pidwirny 2007)

Characteristics:

- The image on the left is of tundra landscape dominated by moss and lichen vegetation.
- The soil profile has a permanently frozen ice wedge beneath.

Identifying Characteristic:

- Soil has a layer of permafrost within one meter of the soil surface.

Location:

- Common in the tundra.
- Dominant in much of Yukon and North West Territories and in northern areas of all but the Atlantic provinces (excluding Labrador).

Gleysol


(Pidwirny 2007)

Characteristics:

- Soil found in an ecosystem that is frequently flooded or permanently saturated with water and depleted of oxygen.

Identifying Characteristic:

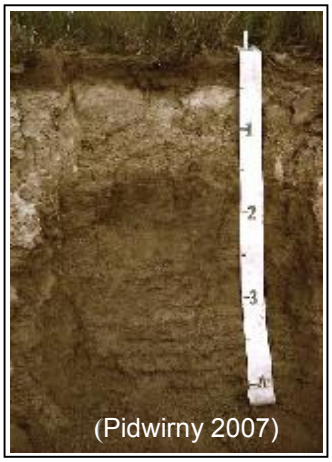
- Identified by their poor drainage and drab grey colour, sometimes accompanied by brown mottles.

Location:

- Found in shallow depressions and level areas of sub-humid and humid climate in association with other classes of soil on slopes and hills.

CANADIAN SOIL CLASSIFICATION

Luvisol

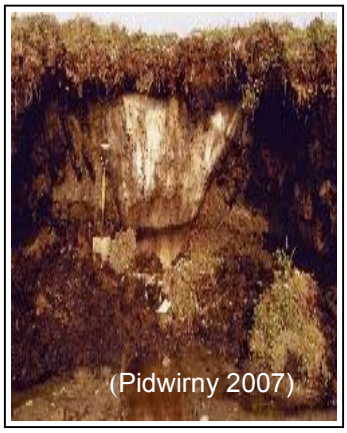

(Pidwirny 2007)

Characteristics:
- Soil that develops under forested conditions.

Identifying Characteristic:
- This soil has a calcareous parent material which results in a high pH and strong eluviations of clay from the A horizon.

Location:
- Typically found in forested areas of sub-humid to humid climates where the parent material contains appreciable amounts of clay.
- Large areas of Luvisolic soils occur in the central to northern Interior Plains.

Organic


(Pidwirny 2007)

Characteristics:
- Soil is mainly composed of organic matter in various stages of decomposition in the upper half meter and do not have any permafrost near the surface.
- The profiles of these soils have an obvious absence of mineral soil particles.

Identifying Characteristic:
- Soils containing more than 30% organic content by weight.

Location:
- Organic soils are common in fens and bogs.
- Large areas containing organic soils include: Manitoba, Ontario and northern Alberta.

CANADIAN SOIL CLASSIFICATION

Podzol


(Pidwirny 2007)

Characteristics:

- Soil commonly found under coniferous forests.
- Acidic soils with a B horizon containing accumulations of amorphous materials composed of humified organic matter associated with aluminum and iron.

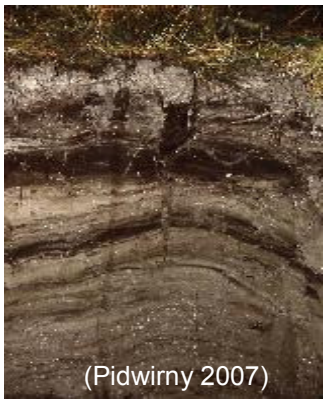
Identifying Characteristic:

- Poorly identifying traits are poorly decomposed organic layer, an eluviated A horizon, and a B horizon with illuviated organic matter, aluminum, and iron.

Location:

- Dominant in vast areas of the humid Appalachian and Canadian Shield regions and in the humid coastal region of British Columbia.

Regosol


(Pidwirny 2007)

Characteristics:

- These soils are too weakly developed to meet the limits of any other order.
- The properties of these soils are essentially those of the parent material.

Identifying Characteristic:

- Absence or weak development of genetic horizons.

Location:

- Found throughout Canada.

CANADIAN SOIL CLASSIFICATION

Solonetzic


(Pidwirny 2007)

Characteristics:

- Soils are common in the dry regions of the prairies where evapo-transpiration greatly exceeds precipitation output.
- The movement of water to the earth's surface because of capillary action, transpiration, and evaporation causes the deposition of salts when the water evaporates into the atmosphere.

Identifying Characteristic:

- H horizons are very hard when dry, swelling to a sticky, compact mass when wet.

Location:

- Mostly found in southern Alberta, because of the large areas of saline parent material and semiarid climate.

Vertisol


(NRSC 2006)

Characteristics:

- Clay-rich soils which shrink and swell markedly on drying and wetting.
- The physical disruption associated with shrinking and swelling produces shiny shear plants in the subsoil and either prevents the formation of subsurface horizons of severely disrupts and mixes them.

Identifying Characteristic:

- Soils that are extremely rich with clay.

Location:

- Develop mainly in clayey materials in semiarid to sub-humid areas of the Interior Plains of Saskatchewan, Manitoba and Alberta.

CANADIAN SOIL CLASSIFICATION

REFERENCES

McKeague, A. and H.B. Stonehouse. 2008. "Soil Classification." *The Canadian Encyclopedia.* Historica Foundation, 2008. www.thecanadianencyclopedia.com. [Retrieved February 11, 2008].

Natural Resources Conservation Service (NRCS). 2006. Vertisols. United States Department of Agriculture. http://soils.usda.gov/technical/classification/orders/vertisols.html [Retrieved February 11, 2008].

Pidwirny, Michael. 2007. Introduction to the Lithosphere: Soil Classification. University of British Columbia. http://www.physicalgeography.net/fundamentals/10v.html Last Updated: February 2, 2006. [Retrieved February 11, 2008].