Soil profile

A **soil profile** is a vertical section of soil from the ground surface to the parent rock.

By examining a soil profile, we can evaluate its fertility. As the soil weathers and/or organic matter decomposes, the profile of the soil changes. For instance, a highly weathered, infertile soil usually contains a light-coloured layer in the subsurface soil from which nutrients have leached away. On the other hand, a highly fertile soil often has a deep surface layer that contains high amounts of organic matter.

The soil profile is made up of distinct layers, known as **horizons**. A soil horizon is a specific layer parallel to the soil surface and possesses physical characteristics which differ from the layers above and below. Horizon formation is affected by geological, chemical and biological processes that occur over long periods of time.

There are **five master horizons** in the soil profile which are represented by the letters O, A, B, C and R, however, not all soil profiles contain all five horizons, as soil profiles differ from one location to another.

- **Horizon O** is a surface horizon that is made up of organic material at various stages of decomposition. It is most prominent in forested areas where there is an accumulation of debris fallen from trees.
- **Horizon A** is the upper layer of soil nearest the surface and is commonly called topsoil. It consists largely of minerals (sand, silt, and clay) and appreciable amounts of organic matter. This horizon is predominantly the surface layer of many soils in grasslands and agricultural lands. In native bushlands or other areas that have not been touched, ploughed or tilled, this layer would include organic litter, such as fallen leaves and twigs. The litter helps prevent erosion, holds moisture, and it decays to form a soil very rich in humus. Horizon A provides plants with nutrients needed for good plant growth.
- **Horizon B** is a subsurface horizon that has accumulated mainly mineral salts from the layer(s) above and is sometimes called the subsoil. Litter is not present and therefore there is much less humus. Horizon B is where clay and materials, washed down from Horizon A, are found; some of these elements are here because of the process of leaching. Leaching may also bring some minerals from Horizon B down to Horizon C.
- **Horizon C** consists mostly of weathered big rocks.
- **Horizon R** is a layer of partially weathered parent rock at the base of the soil profile. Unlike the above layers, horizons R largely comprise continuous masses of hard rock that cannot be excavated by hand.

Judging the soil profile

bushland: *boscaglia*
clay: *argilla*
debris: *detriti*
grassland: *prateria*
layer: *strato del terreno*
to leach away: *percolare*
litter: *scarti*
to make up: *costituire*
ploughed: *arato*
prominent: *predominante*
silt: *limo*
tilled: *coltivato*
twig: *ramoscello*
to weather: *disgregarsi con l'azione dell'acqua, vento o gelo*

1 Match these words to the right definition.

1.	Subsoil	☐	**a.**	Layer of soil immediately below the surface.
2.	Ground	☐	**b.**	A vertical section of soil showing the sequence of the various layers.
3.	Profile	☐	**c.**	The upper portion of a soil, dark coloured and rich in organic material.
4.	Litter	☐	**d.**	Waste material consisting of fallen leaves and decaying organic matter.
5.	Leaching	☐	**e.**	Eroded or altered by the action of water, wind, frost, heat, etc.
6.	Top soil	☐	**f.**	Dark organic substance consisting of decayed vegetable or animal matter.
7.	Humus	☐	**g.**	Process of removal of soluble constituents.
8.	Weathered	☐	**h.**	The solid surface of the earth.

2 Answer the questions.

1. What does a soil section look like?
2. How can we evaluate soil fertility?
3. What factors affect soil formation?
4. How many layers are there in a soil profile?
5. Do any soils have the same profile?
6. Can you describe Horizon A?
7. What does Horizon B consist of?
8. Where can you find the parent rock?

3 Match each definition to the correct horizon in the soil profile represented in the picture.

1. Partially weathered parent material
2. Loose organic matter
3. Significantly weathered big rocks
4. Materials transported from overlying horizons
5. Inorganic matter mixed with humus