

Carbon rich soil, peat and peatland

The words **peat** and **peatland** mean different things to different people and are often used interchangeably. This can be confusing!

Soils are made up of **mineral** material (sand, silt and clay particles) and **organic matter** (remains of once living material) as well as air and water in varying amounts. They usually have different layers. These layers can be used to divide soils into three main classes: **mineral**, **organic** and **organo-mineral**.

When dead plant material collects in cool, wet conditions where there is very little oxygen, it breaks down slowly forming a layer of mainly organic matter. These layers typically have more than 60 % organic matter and are sometimes known as **peat** or **peaty layers**.

Mineral soils are soils made up of predominantly sand, silt and clay particles with some (< 15 %) organic matter.

When soil has an organic layer at the surface which is at least 50 cm deep, it is defined in Scotland as a **peat soil** (also referred to as an **organic soil**). Peat soils are often more than 1 m deep and can occasionally be more than 10 m deep.

When soil has an organic layer at the surface less than 50 cm thick and overlies mineral layers, it is known in Scotland as a **peaty soil** (also known as an **organo-mineral soil**). Organo-mineral and peat soils are known as **Carbon rich soils**.

There is also a relatively rare group of soils in Scotland known as **humose soils**. These have organic rich layers with between 15 and 35 % organic matter. These are mineral soils but also considered to be carbon rich.

Peatland is defined in a soil context by the presence of a peat soil or peaty soil types. This means that “peat-forming” vegetation is growing and actively forming peat or it has grown and formed peat at some point in the past.

Peatland habitats can be divided into four broad classes (blanket bog, upland raised bog, lowland raised bog, and fen) depending on the types of plants that formed the peat. **Priority peatland habitats** are sub-sets of these broad habitats which have been recognised under the Scottish Biodiversity Framework as being important to protect for their conservation and biodiversity value.

The take home message is that soils are made up of mineral and organic material in varying amounts. The organic material in soils is an important carbon store. Mineral soils have the least carbon while peat soils contain lots of carbon. Organo-mineral soils have less carbon than peat soils but can still have a significant amount.