

LANDMARK

LAND MANAGEMENT: ASSESSMENT, RESEARCH, KNOWLEDGE BASE

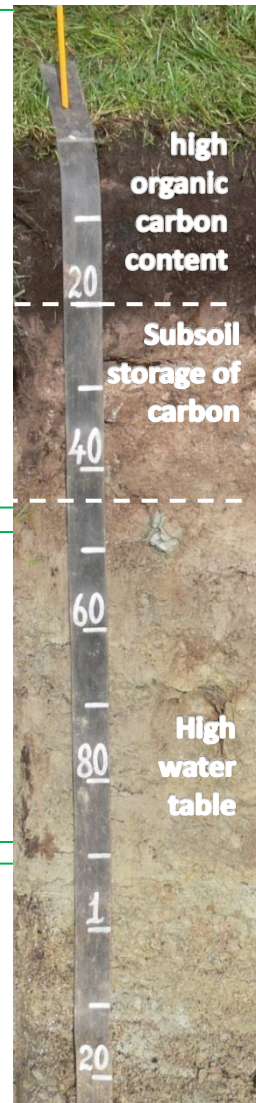
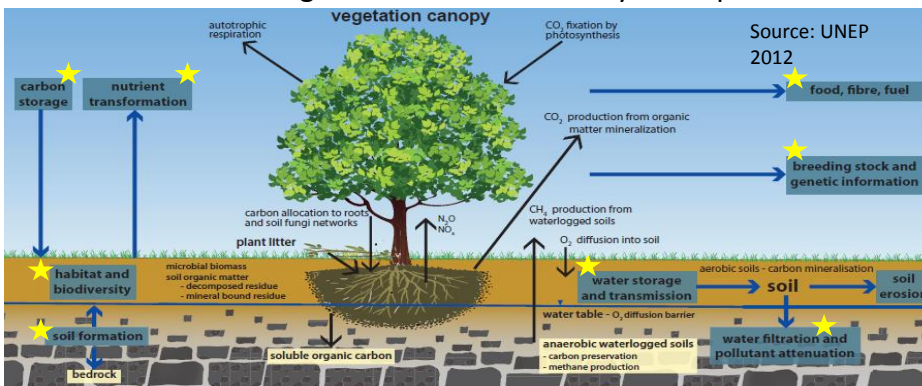
Carbon sequestration cycling and regulation



The capacity of a soil to reduce the negative impact of increased greenhouse gas (i.e., CO₂, CH₄, and N₂O) emissions on climate and the capacity to store carbon in a non-labile form with the aim to reduce the CO₂ concentration

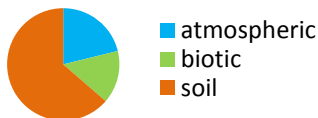
Soil-plant carbon cycle and associated ecosystem services

The conversion of living matter to carbon is a dynamic part of the carbon cycle.



Soil Organic Carbon stock

Terrestrial carbon pool
(t ha⁻¹)



Globally

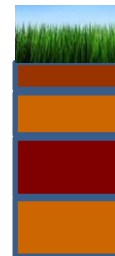
Topsoil 615 Gt
Total soil 1500 Gt

Source: Stockmann *et al.*, 2013

Ireland

Topsoil 0.888 Gt
Total soil 1.832 Gt

Source: Khalil *et al.*, 2013



The benefits of soil carbon

Good management practices

Soil carbon storage

Multiple economic, societal and environmental benefits

Soil carbon provides **ecosystem services** essential to human well-being.

supporting
regulating
provisioning

Histic groundwater gley
county CORK

Source: Irish Soil Information System, 2014
Picture: prof. Otto Spaargaren