

Carbon stocks

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Where is carbon stored?

Carbon (C) is stored in five different pools: (1) aboveground biomass; (2) belowground biomass; (3) litter; (4) deadwood/woody debris; and (5) soil.

All of them can be assessed and quantified systematically using 1-ha plots, which contain 6 sub-plots as shown in the panel on the right. Replicates can be established as necessary.

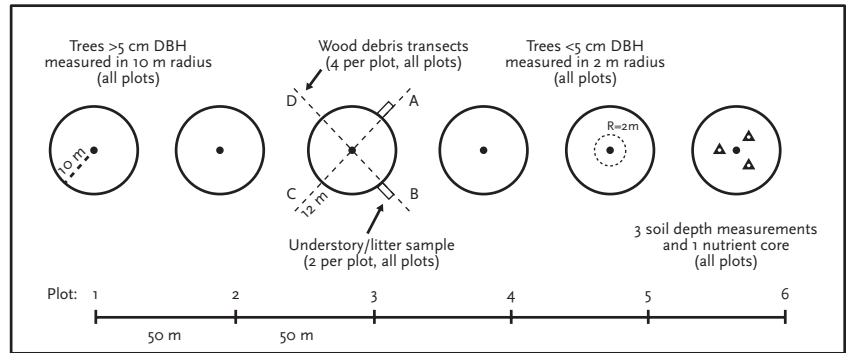
Tree biomass can be estimated using allometric equations. Otherwise destructive sampling should be carried out to estimate above and belowground biomass. Litter and woody debris are directly measured as dry weight. Soil C stocks are estimated from samples taken at various depths.

Ecosystem C stock is calculated by summing all compartment of C pools:

$$C_{total} = C_{aboveground} + C_{belowground} + C_{litter} + C_{woody\ debris} + C_{soil}$$

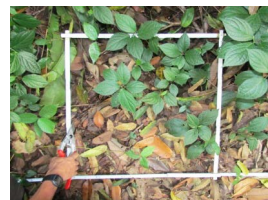
Facts and figures

- Tropical peatlands can store around 4,000 Mg C ha⁻¹ and are the most C-rich biome on earth.
- Peatlands are the most threatened ecosystem, especially in Southeast Asia, due to agricultural development.
- Indonesian peatlands cover an area of around 20 million ha and store about 55 Pg C or more than 60% of the global peat warehouse.

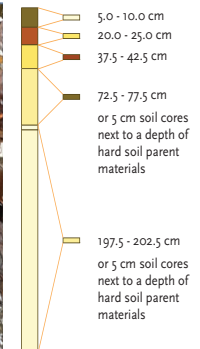


Sub-plots within each study plot

How do we assess C stocks?



Clockwise: Measuring tree diameter, woody debris, soil sampling at various depths, and litter biomass.



References

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