

Large soil carbon stores trigger rethink

September 24 2013, by Denise Cahill



"A quarter of global emissions come from land clearing" — Prof Harper. Credit: CIFOR

WA researchers will soon examine if carbon stocks found metres down in soil is inert or active after a study found significantly more carbon stored than previously thought.

Curiosity initially led Murdoch University's School of Veterinary and Life Sciences Richard Harper and Mark Tibbett from Cranfield University in the UK, to investigate whether carbon was stored in [soil](#) more than 30cm in depth.

The pair drilled down 40 to 50m below the surface on [farmland](#) that had recently been reforested in southern Western Australia, taking extensive samples.

"We were curious to know what was going on because we knew roots were reported down to 40 or 50 metres," Professor Harper says.

"Where there are roots, there is carbon."

The researchers found carbon in small concentrations all the way to the [bedrock](#), which in total measured up to five times more than commonly reported carbon levels in soils.

Their findings open up the question as to just how much carbon is stored in soils.

Prof Harper says quite a lot of the science on carbon stocks in soil comes from the northern parts of the world where the soil is quite glaciated, so measurements were typically taken from the first 30cm of soil.

The findings may have implications for managing [climate change](#) because soil represents one of the world's largest [carbon stocks](#).

"If you want to manage climate change you have got to understand where the emissions come from," he says.

"A quarter of [global emissions](#) come from land clearing.

"We are saying there is another store of carbon and we don't know what it is doing. You have got to know where your stores of carbon are and what they are doing.

"If you are going to start putting financial systems around carbon, again you need to know what is moving, what is being added and what is being taken away. It is another piece of the jigsaw."

Prof Harper says the findings could also show the amount of carbon lost

through [land clearing](#) annually is much higher than previously thought, if based on measurements from 30cm of soil.

They will now examine whether the carbon found is inert or active.

"If you have got carbon down there and it is not turning over [inert], it possibly doesn't matter," he says.

"And we don't know that."

Their findings have been published in the international journal *Plant and Soil*.

More information: link.springer.com/article/10.1007/s11104-013-1600-9

Provided by Science Network WA

Citation: Large soil carbon stores trigger rethink (2013, September 24) retrieved 2 April 2024 from <https://phys.org/news/2013-09-large-soil-carbon-trigger-rethink.html>

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