

# Ecosystem Carbon sequestration: Its context



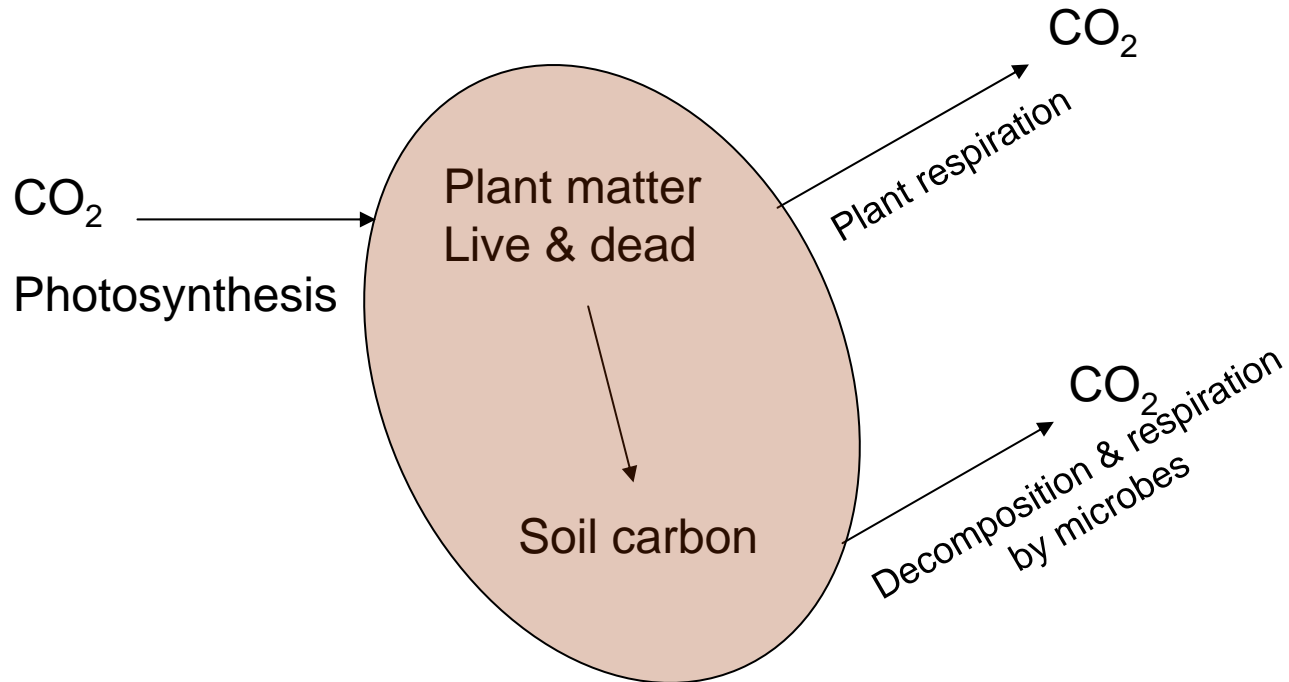
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# *What do we mean by ecosystem carbon sequestration?*

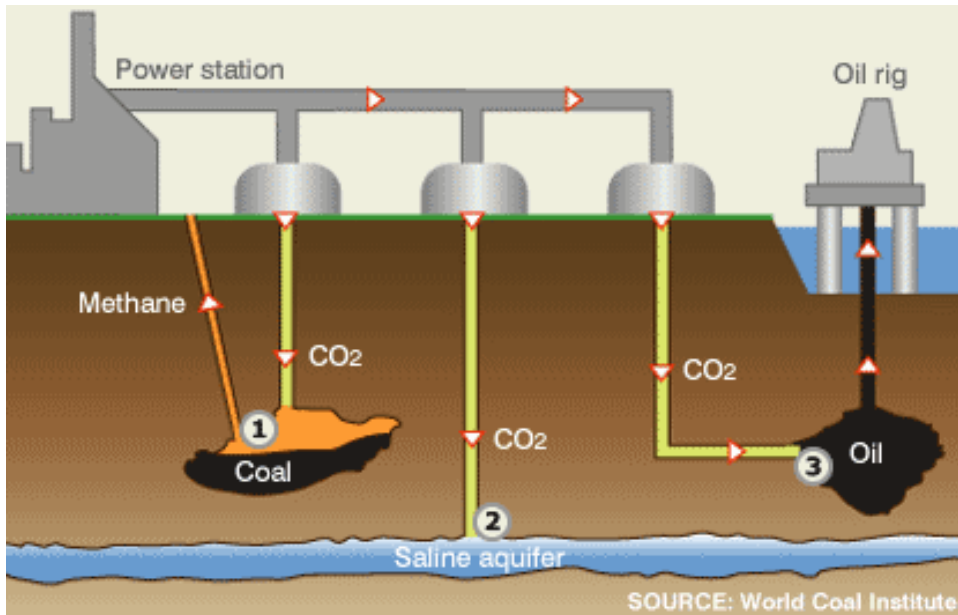


Increasing the amount plant matter and/or the amount of soil carbon in ecosystems.

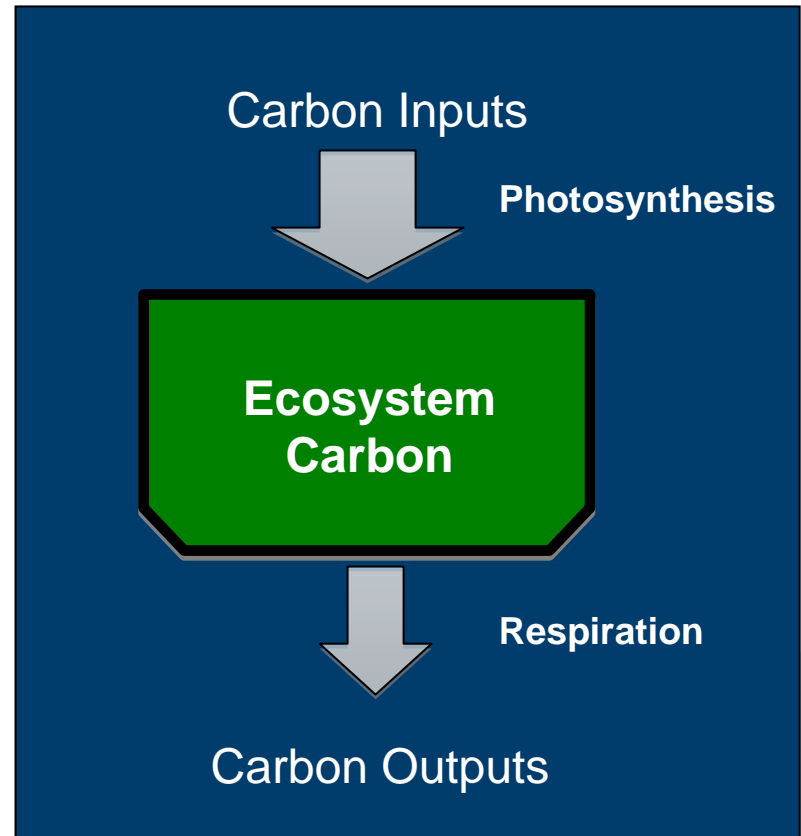
CO<sub>2</sub> uptake > CO<sub>2</sub> release

# Carbon capture and storage Ecosystem carbon sequestration

Both are called carbon sequestration



Carbon capture & storage



Ecosystem carbon sequestration

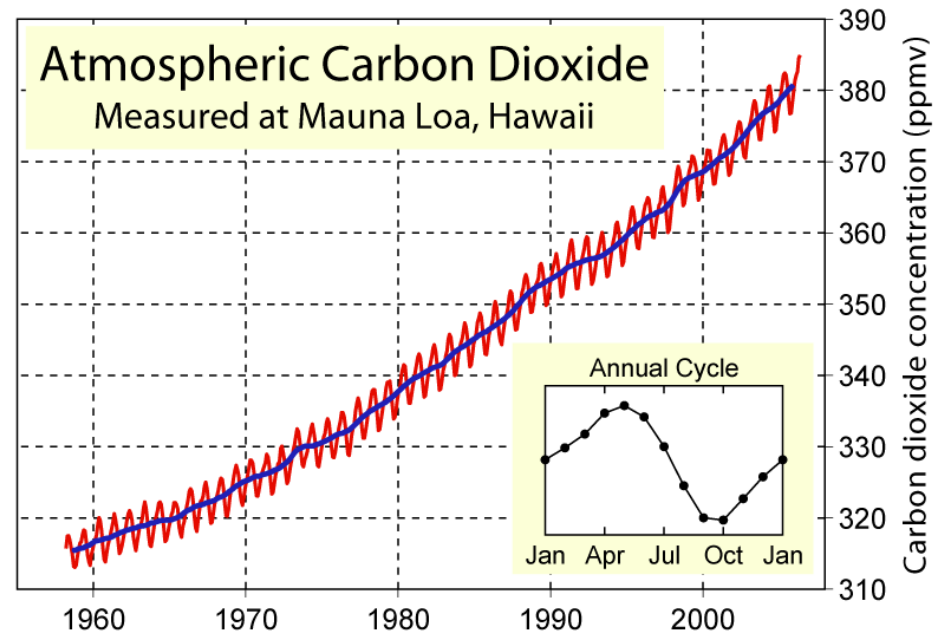
## Why is Ecosystem carbon (C) sequestration important?

Atmospheric carbon dioxide (CO<sub>2</sub>) concentrations are increasing and causing global warming and climate change.

Increasing the amount of carbon in ecosystems removes CO<sub>2</sub> from the atmosphere.

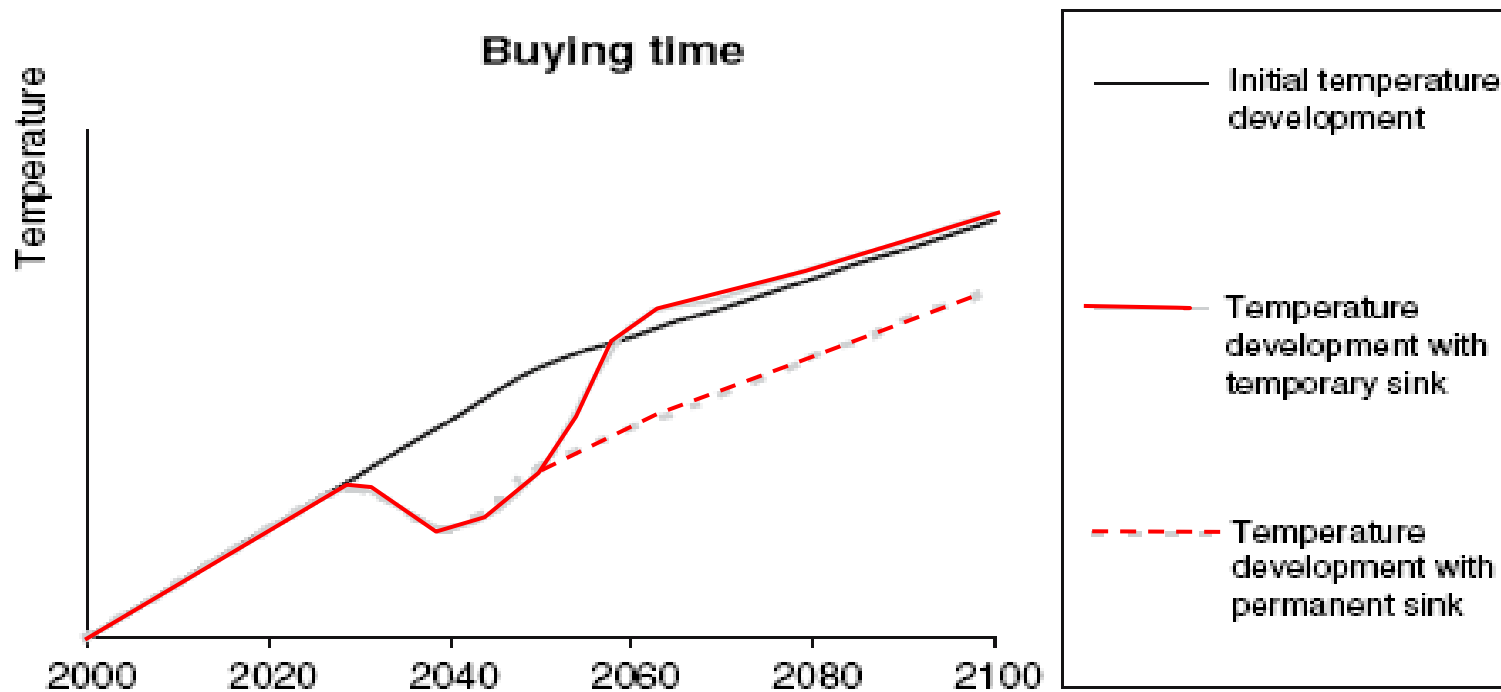
Enhancing ecosystem carbon sequestration is one of many strategies for reducing atmospheric CO<sub>2</sub>.

Enhancing ecosystem carbon sequestration in plants and soils is also good for other things – soil water holding capacity, soil nutrient availability, crop productivity etc.



## How much of difference could ecosystem sequestration make?

- Since ecosystem carbon will eventually “saturate”, ecosystem sequestration is a “bridge” technology that buys time until new energy sources are adopted and existing capital turns over (McCarl & Sands 2007; Dornburg & Marland 2007)



# Some estimates of the magnitude of potential ecosystem sequestration:

current fossil C emissions are ~ 7Pg/yr

<b>Technology</b>	<b>Global quantity</b>
<b>Soil carbon – conventional</b>	<b>55 Pg</b>
<b>Forestry - conventional</b> <b>(By 2105.. Rokityanskiy et al 2007)</b>	<b>70-113 Pg</b>
<b>Deep soil sequestration</b>	<b>165 Pg</b>
<b>Forest and soil carbon next 50 years</b> Pacala & Socolow 2004	<b>50-62 Pg</b>

# Thank – You