



The Issue of Deadwood in The Global Carbon Cycle

Deadwood plays a significant role in the global carbon cycle. Not only does the decomposition of wood help to maintain a rich biodiversity but it also affects the circulation of carbon in forests and the atmosphere. While it is widely known that living trees absorb a significant amount of carbon dioxide from our atmosphere which helps to protect our climate, little is known about the issue of deadwood in the global carbon cycle. Earlier this year, a study found that a massive 10.9 billion tonnes of carbon is released into the atmosphere by decaying forest wood per year, a number that will only increase under climate change. This number is higher than the world's emissions from burning fossil fuels.

It has been found that insects such as termites further contribute to this decaying process, only speeding up the release of carbon dioxide into the atmosphere. This rate, however, is massively dependant on climate, more specifically raising temperature, and was disproportionately greater in the tropics compared to other regions that have a cooler climate. This is because that these regions have a greater biodiversity to accelerate decomposition – as the insects and fungi consume the wood, they break it down into smaller particles which speeds up the decay. It is estimated that insect activity is responsible for 29% of the carbon dioxide released by deadwood each year.

So, what does this mean for a world with a changing climate? Obviously, insects react sensitively to climate change and with the decline seen in the insect population as a result of the changing temperatures, the future role of insects in this issue is uncertain. However, given that the rate of carbon dioxide release is significantly greater in the tropics, a region set to become wetter and warmer as a result of climate change, it is likely that this rate will only increase.

Despite all of this, it is important to note that 85% of the global carbon stock remains on forest floors all over the world, only a fraction of this is released into the atmosphere each year.

Points to consider

- Should our focus be on dealing with the problems we have currently, or on preventing them?
- Should we remove deadwood? If so, how would this affect biodiversity?
- Would the process of removing deadwood increase atmospheric carbon?
- Should we focus on the issue of deadwood or more manageable pollutants such as fossil fuels?
- How do we deal with the deaths of specific, most-affected species that could occur from this issue, and the impacts that such consequences would have on biodiversity?
- What steps should we take to ensure that CO₂ levels will not increase further due to deadwood?

Useful links

- <https://www.sciencedaily.com/releases/2021/09/210901124111.htm>
- <https://www.fs.usda.gov/sites/default/files/Forest-Carbon-FAQs.pdf>



- <https://scitechdaily.com/deadwood-releasing-10-9-gigatons-of-carbon-every-year-more-than-all-fossil-fuel-emissions-combined/>
- <https://www.nature.com/articles/d41586-021-02391-z>
- <https://www.weforum.org/agenda/2021/09/decaying-forest-wood-carbon-climate-change-co2/>