



## Climate Change, Forest Carbon & Carbon Markets

Forests are considered a natural solution to climate change because they remove carbon dioxide (CO<sub>2</sub>) - a potent greenhouse gas (GHG) - from the atmosphere and store the carbon in wood and soil. Increasing the amount of carbon stored in forests and harvested wood products can reduce the amount of CO<sub>2</sub> in the atmosphere resulting from carbon emissions[1] while providing the other critical ecosystem services that forests provide.



### Trees are carbon sequestration and storage machines

Through photosynthesis, living trees take CO<sub>2</sub> from the air to grow and maintain their trunks, branches, leaves, and roots. Conversely, dead trees and leaves on the forest floor emit carbon back into the air as they decay. Some of this released carbon is used by insects, fungi, trees, and other organisms for energy and growth. Even trees that are burned in a forest fire or felled for use as firewood release carbon into the air, feeding into the carbon cycle.

Older forests store more carbon than younger forests, but they sequester it at a slower rate. This means that age diversity within a forest and across the landscape is the best way to maximize both carbon storage[2] and sequestration[3]. Plus diversity is a good strategy for climate resilience, too.

### Forest Management and forest carbon

Harvesting trees removes carbon from the forest, but other trees will quickly occupy the newly created space in the northeast and sequester carbon as they grow, sometimes at an accelerated rate. Harvested wood that is used for long-lived products like furniture, flooring, and building materials, stores the carbon as long as it is in use. Plus, use of wood in construction or

heating instead of concrete, steel, or fossil fuels reduces carbon emissions while supporting our local forest economy and helping to keep forests as forests. Wood that is landfilled releases its carbon at a very slow rate.

[1] Carbon emissions – The rate at which carbon is released into the atmosphere. This occurs when fossil fuels or wood burns or decays.

[2] Carbon storage - is the total amount of carbon contained in a forest both aboveground (trees) and below ground (soil) at a given time.

[3] Carbon sequestration - is the process of removing carbon from the atmosphere through photosynthesis and storing it in another form that cannot immediately be released - wood. It is the rate of carbon uptake from the atmosphere.