Growing forests and using wood

CAN HELP FIGHT CLIMATE CHANGE

Oregon's forests provide a host of social, environmental and economic benefits, including clean air and water, wildlife habitat, recreation and timber to make wood products. Another important benefit of the abundant forests that cover nearly half the state is their ability to store atmospheric carbon in growing trees and the wood they produce.

Forests can help mitigate climate change because they absorb carbon dioxide, reducing the presence of this greenhouse gas that's a major contributor to global warming. During photosynthesis, trees turn carbon dioxide into solid carbon, which is stored in wood, and they release oxygen as a byproduct.

As a result, forests absorb significant amounts of carbon, sequestering it from the atmosphere. It remains stored even after trees are harvested and made into wood products. In the U.S., carbon stores in forests and forest products are estimated to offset 10 to 20 percent of total fossil fuel emissions.

Management enhances carbon mitigation

Active forest management to improve a forest's overall health and productivity can enhance its natural ability to capture and store atmospheric carbon. This includes steps such as thinning and prescribed burning to increase a forest's resilience to severe wildfires, which can be a major cause of forest carbon loss.

WOOD PRODUCTS STORE CARBON LONG-TERM

A hands-off approach to forest management that precludes any timber harvest ignores the environmental benefits of using wood products over alternatives. Half the dry weight of wood is carbon removed from the atmosphere by trees as they grow. This remains stored for the life of the wood product, whether it goes into housing, furniture, cabinetry or a host of other uses. Carbon can remain locked away for decades in wood products, especially when used in home and other building construction. Wood also requires less energy to produce, and therefore results in fewer carbon dioxide emissions, than steel, concrete or plastic.

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CARBON AND FORESTRY

GROWING TREES ACCUMULATE CARBON

Forests amass large quantities of carbon as trees grow, but they do not store carbon indefinitely. As forests age, trees die and start to decay, releasing carbon back into the atmosphere. During its growth, each tree reaches a peak in carbon storage after which the amount stored each year begins to decline. The rate at which stands of rapidly growing younger trees sequester carbon is much faster than stands of slow-growing larger, older trees. Eventually, that rate plateaus and can become negative if more trees in the forest die than are replaced by new growth.

SUSTAINING FORESTS FOR FUTURE CARBON STORAGE

Oregon's land-use and forest-practices laws, which require replanting trees after harvesting timber, work in tandem to help keep forests as forests. This ensures forests continue to sequester carbon – a benefit that's lost when they're converted to other uses. Fortunately, Oregon retains 94 percent of the forest cover that was present in 1907. One reason is because the use of wood products gives private landowners an economic incentive to preserve forestland for timber production rather than sell it for development.

Maximizing forest carbon-storing power

The science around the interactions between forests and carbon is complex, but what's clear is that there are a number of strategies that can work in tandem to help maximize the positive impacts forests and wood products can have on climate change mitigation. These include:

- Preventing the conversion of forests to other land uses such for residential or commercial development.
- Increasing forestland by converting non-forested areas back to forests
- Managing forests to sequester more carbon long-term by taking steps such as reducing their vulnerability to threats that can cause mass tree mortality, such as drought, insects and wildfires
- Storing carbon in durable, long-life wood products
- Using wood instead of more emissions-intensive alternatives such as steel and concrete
- Using mill waste and woody biomass to produce renewable domestic energy, or composite wood products such as particleboard

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