The Significance of Carbon Emissions from Logging on Federal Forests

Scientific research indicates that logging on federal forests is a substantial source of carbon dioxide emissions to the atmosphere that is at least comparable to and likely greater than levels associated with wildfires.

Featured: Black Ram National Forest

Emissions from logging scale up faster than those from fire. When mature trees are logged, a significant proportion of their carbon is emitted to the atmosphere shortly after logging, even when accounting for carbon stored in wood products that are made from the logged trees. In contrast, when mature trees are affected by fire, they often survive with their carbon stores intact—protected by adaptations such as thick bark and high crowns—and continue to grow. Even when severe fire does kill these mature trees, field research indicates that only a relatively small amount of their carbon is combusted into the atmosphere, and the remainder can remain in the forest for decades or even centuries, as the trees slowly decompose. This is why, even in dry forests, on a per acre basis, emissions from logging are generally greater than those from wildfire and often substantially so—up to 8 times greater in certain circumstances.

As a result, total national carbon emissions from logging exceed those from fire, even though in many areas more acres of land are affected by fire. The government's own assessment found this to be true on forests owned and managed by the federal government across the country, where overall fire affects many more acres than logging. In a first-of-its-kind assessment from

2018 focused on carbon emissions associated with federal lands, the United States Geological Survey estimated that across the conterminous U.S., carbon emissions from logging of federal forests were more than double those from fire on those lands.

Other assessments of carbon emissions across all forests in the United States, including forests on state and private land, corroborate the disproportionate relationship between logging and fire emissions. A comprehensive 2016 study of forests across all ownerships in the conterminous U.S., for example, found that carbon losses from logging were more than five times higher than from all other disturbance sources combined—including fire, insects, wind, land conversion, and drought. Other independent studies underscore logging's larger carbon impact., Government reporting on U.S.-wide emissions is similar: wildfire emissions reported in EPA's greenhouse gas inventory are approximately one-third of the logging emissions reported in the *Second State of the Carbon Cycle Report* from the U.S. Global Change Research Program., And a recent assessment of carbon emissions incorporating the intense 2020 fire season found that even in the more fire-prone western United States, the ten-year average emissions from logging were significant, including in comparison to fire—50 TgCO2/year and 60 TgCO2/year respectively.

Taken together, these studies—which approach carbon emission assessment using different assumptions and analytic directions—uniformly demonstrate the ongoing significance of carbon emissions from logging, particularly in the timeframes critical to meeting U.S. commitments under the Paris Agreement.

Indeed, they collectively indicate that logging across federal forests remains a source of carbon emissions at least comparable to fire, and likely larger. Given these emissions, the only way USFS and BLM can meet the direction set out in President Biden's Executive Order to "conserv[e] old growth and mature forests on federal lands," is by ensuring such forests are protected from logging, while allowing for necessary measures to manage wildfire.

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