

USFS can't cut its way out of wildfire risk

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Oct. 17, 2007*

For the third year in a row, more than eight million acres of wildfires burned in the United States, with much of that occurring in Montana and Idaho. This experience has brought the impacts of climate change home to many in the west and rightfully has forced us to think about the causes and consequences of climate change.

Unfortunately, this experience has also brought the now ritualistic series of letters demanding more aggressive forest management in hopes of stopping these fires. An interesting new twist in letters, and even in Senate hearings, is to blame fires for loading the atmosphere with greenhouse gases equivalent to that of 'millions of automobiles' and further claims that harvesting timber stores carbon.

Short of clearing all trees from the landscape, timber harvests will not stop fires nor will such harvests avert the causes or impacts of climate change. And while fire does release carbon to the atmosphere, this addition cannot be compared with that of burning fossil fuels.

Forest fires release carbon dioxide and carbon monoxide, both of which are greenhouse gases. However, all of carbon released in a fire is carbon that has been cycling back and forth between forests and the atmosphere for millennia. Fire or decay releases carbon to the atmosphere, and regrowth ties it back down. Fire changes the location and the state of carbon in the system, but it does not change the amount. Burning fossil fuels, by comparison, takes carbon out of geological deposits and adds this paleo, non-cycling carbon to the atmosphere, thereby causing a net increase in total ecosystem carbon.

When a forest fire burns, typically only about 20 percent of the biomass is consumed by fire and converted to gaseous carbon. The majority of biomass remains on site as dead trees, live trees, and as charcoal. Live trees will continue to store carbon and dead trees will decay and slowly release carbon dioxide for tens of years. Regrowth after fires fixes carbon from the atmosphere reversing the emissions caused by fire.

Importantly, about 5-10 percent of the biomass killed by wildfire is converted to charcoal, a uniquely stable form of carbon which, if mixed into mineral soil or washed into water bodies, will remain there for thousands of years. Over millennia, charcoal formation makes a forest exposed to fire 'carbon negative.' In other words, over the long run, fire may help forests /store/ carbon, not release it.

Harvesting timber does not engender /permanent/ carbon storage. Nearly half of the carbon in a harvested tree is left in the woods, much of which is burned as slash (releasing carbon to the atmosphere), and another quarter of the tree's carbon is lost as mill residue (often burned as hog fuel and again released to the

atmosphere). In the end, only about 15 percent of the harvested tree's carbon, corrected for transportation emissions, winds up stored in durable woody products. Even then, softwood lumber has a half-life of less than 40 years, clearly not permanent carbon storage.

What should we do about climate change? The best thing we could do for climate change is to reduce fossil-fuel consumption. This is best accomplished by simply consuming less energy, whether in home heating, transportation, or recreation. At the same time the federal government must pursue real alternatives to the burning of coal, oil and natural gas by investing in solar, wind, and biomass.

What should we do about fire? Ecological restoration of low elevation, previously managed forests with a combination of thinning and prescribed fire will move forests towards a more natural and fire tolerant state. Aggressive clearing of timber and biomass around homes in exurban forest landscapes also will help protect investments and lives.

Currently, the Forest Service actively suppresses more than 85 percent of fires. Fires in natural, wild landscapes far from communities may be allowed to burn for the forest's long-term health. This will save taxpayer money and allow forests to adjust to a warming, more fire-prone climate.

Climate change will not be solved through massive timber harvests and fire suppression. The Forest Service recognizes this and is moving in the right direction. It is time to leave behind misinformation and instead look to improve the resilience and health of our forests through ecologically sound management.

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