Northwest Forest Plan has unintended benefit - carbon sequestration

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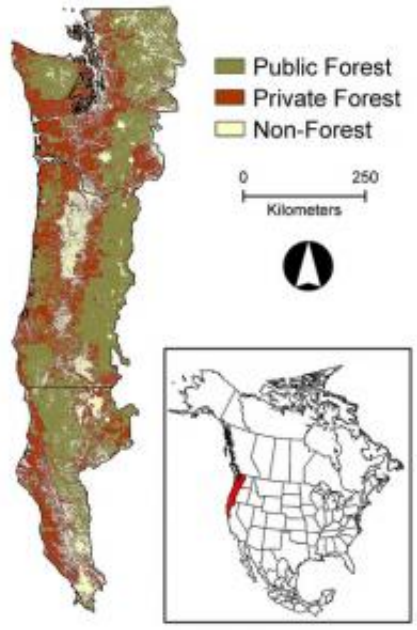

Many public lands in these areas affected by the Northwest Forest Plan passed in 1993 are now sequestering more carbon as an unintended consequence of reduced harvest levels. (Graphic courtesy of Oregon State University)

The Northwest Forest Plan enacted in 1993 was designed to conserve old-growth forests and protect species such as the northern spotted owl, but researchers conclude in a new study that it had another powerful and unintended consequence – increased carbon sequestration on public lands.

When forest harvest levels fell 82 percent on public forest lands in the years after passage of this act, they became a significant carbon "sink" for the first time in decades, absorbing much more carbon from the atmosphere than they released. At the same time, private forest lands became close to carbon neutral.

Carbon emission or sequestration is a key factor in global warming, and a concept now gaining wider interest is the role of forest lands in helping to address concerns about the greenhouse effect.

Researchers at Oregon State University and the Pacific Northwest Research Station of the USDA Forest Service created these assessments with a new system that incorporates satellite remote sensing and more accurately simulates ecological processes over broad areas. It considers such factors as the growth of trees, decomposition, fire emissions, climate variation and wood harvest.

"The original goals of the Northwest Forest Plan had nothing to do with the issue of carbon emissions, but now carbon sequestration is seen as an important ecosystem service," said David Turner, a professor in the OSU Department of Forest Ecosystems and Society.

"Forests provide many services, such as habitat protection, recreation, water purification, and wood production," he said. "Carbon sequestration has now been added to that list. And our approach can provide the kind of spatially and temporally explicit data that will help evaluate the potential trade-offs associated with management activities."

Previous estimates of forest carbon balance had suggested a significant loss of carbon from Pacific Northwest forest lands between 1953 and 1987, associated with a high rate of old-growth timber harvest. Those harvests peaked in the mid-to-late 1980s.

Forest fire is also an issue in carbon emissions, but researchers said in the study that the magnitude of emissions linked to fire was modest, compared to the impacts of logging. Even the massive Biscuit Fire in southern Oregon in 2002 released less carbon into the atmosphere than logging-related emissions that year, they said.

The findings are of some interest, researchers said, because the value of carbon sequestration is now something that can be better quantified in economic terms, and then incorporated into management decisions and policies.

This study was just published online in Forest Ecology and Management, a professional journal. The research was supported by the U.S. Department of Energy and the interagency North American Carbon Program. The area analyzed included western Oregon, western Washington and northern California.

In earlier work, Turner and other researchers had found that carbon sequestration in Oregon, much of it from forests, amounted to almost half of the state-level carbon emissions from fossil fuel combustion. Nationally, forest carbon accumulation offsets about 15 percent of U.S. fossil fuel emissions.

More information: Study: ir.library.oregonstate.edu/xmlui/handle/1957/22032

Provided by Oregon State University