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Logging may disrupt balance in old forests

WASHINGTON (AP) — Harvesting ancient forests in the American Northwest contributes to the global greenhouse effect by releasing millions of tons of carbon dioxide into the atmosphere, even when the old trees are replaced by new seedlings, researchers report.

Mark Harmon, a researcher at the Department of Forest Service at Oregon State University, said Thursday the "conventional wisdom" is that harvesting old trees and then planting vigorous young seedlings will have the net effect of reducing atmospheric carbon dioxide, one of the major greenhouse gases.

"When you look at the large amount of carbon stored in these old-growth forests, you can see that is not true," said Harmon. Even when new trees are planted, he said, "the young forest simply doesn't store anywhere near as much carbon as the old forest."

Harmon said more than half of the wood cut from old forests is burned or used in other ways that give off carbon dioxide into the atmosphere. The harvesting also disrupts a balance that exists in old forests. Large trees absorb carbon dioxide at about the same rate that decaying, dead tree parts on the forest floor give it off.

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> **— Mark Harmon, researcher at OSU**

He said he and his co-investigators studied the effects of old forest harvesting on the greenhouse effect because "we've been concerned that decision makers are going to make important policy decisions based on inaccurate, armchair ecology."

Carbon dioxide and some other gases in the atmosphere act as a blanket to trap heat given off by the Earth. This is called the greenhouse effect. Some experts believe that a surplus of carbon dioxide is causing the Earth to slowly overheat, and they warn that such a change could disrupt the global climate. Many scientists, however, disagree that the planet is warming up.

In a study to be published today in the journal Science, Harmon reports that old-growth forests — areas that have never been logged — capture and store much larger amounts of carbon from the atmosphere than younger forests.

He said many believe that the old trees aggravate the greenhouse effect because old forests are littered with dead branches, leaves and other material that decays and puts carbon dioxide into the atmosphere.

But Harmon said a computer study shows that an old forest, with very large trees, actually reaches a "carbon equilibrium" that neither adds nor subtracts from the total carbon dioxide in the atmosphere.

When the old trees are cut down, however, the forest litter continues to decay, giving off carbon. And Harmon said it takes new seedlings about 250 years to grow enough to reestablish the "carbon equilibrium."

Additionally, he said that only about 45 percent of the wood harvested from old for-

See 'Forests'/back page

• Forests: harvesting

Continued from front page

ests is turned into lumber or other building materials that "store" carbon for long periods. Much of the material is burned, rots or is used for paper, all releasing carbon into the atmosphere over a short period of time.

In the past century, Harmon said, about 18 billion metric tons of carbon have been released into the atmosphere from harvesting of about 17.5 million acres of old growth in western Oregon and Washington.

Land use changes, such as ripping out old forests, contribute only a fraction of the carbon dioxide that comes from the burning of fossil fuels, the scientist said. But Harmon said that on a global basis, the loss of forest land can be significant.

Old forests in the Northwest are so productive and large, he said, that felling trees there can have a greater impact per acre than clearing of the tropical forests.

Harmon estimated that of the total carbon added to the atmosphere in the past century by land use change, 2 percent came from harvesting forests in Oregon and Washngton, even though the area covers only .017 percent of the Earth's land surface.

"We have very poor records of land use change and how much carbon was in a forest before it was lost," said Harmon. "As a result, these estimates have not been as precise as fossil fuel. So I wouldn't be surprised if the actual value is substantially larger than we estimated."

The forest study was coauthored by Harmon and William K. Ferrell of Oregon State University, and Jerry F. Franklin of the University of Washington. It was published today in Science, the journal of the American Association for the Advancement of Science.