

Study disputes benefits from cutting old growth

By RICHARD L. HILL

of The Oregonian staff

A new study contradicts contentions that replacing old-growth forests with young forests will benefit the Earth's atmosphere.

Northwest researchers have found that converting old forests to young, fast-growing forests will not decrease the atmospheric concentration of carbon dioxide, a gas that traps heat close to the Earth's surface.

Advocates of harvesting old-growth timber have used the argument that logging the old timber and replanting sites with young trees is beneficial to the environment.

"The conventional wisdom was that since young trees remove carbon from the environment more actively than older trees, harvesting the old growth would actually reduce problems with the greenhouse effect," said Mark Harmon, research associate in the Department of Forest Science at Oregon State University and a principal investigator on the study.

Such reasoning "disregards the critical factor," the study states, "which is the amount of carbon stored within a forest, not the annual

rate of carbon uptake" by the trees.

Harmon said the old theories don't hold up. "We've been concerned that decision-makers are going to be making important policies based on inaccurate, armchair ecology," he said.

The study will be published Friday in the journal Science. Other co-authors are William Ferrell, OSU professor emeritus of forest science, and Jerry Franklin, professor of forest resources at the University of Washington. Franklin also is chief plant ecologist for the U.S. Forest Service Pacific Northwest Research Station in Olympia.

Carbon dioxide is considered the primary culprit in contributing to global warming, which most scientists believe could occur in the next few decades as concentrations of heat-trapping gases increase in the atmosphere. The rise in CO₂ is mainly caused by the burning of fossil fuels, but the cutting of the world's forests also is being cited for the increased atmospheric concentration of the gas.

As trees grow, they remove carbon dioxide from the air and incorporate the carbon into their wood and leaves. As long as they live, the

carbon stays locked up and cannot contribute to the greenhouse effect. When trees die and decay, the carbon is released in the form of CO₂.

Harmon said the theory that replacing old-growth forests with young ones as a way to cure the greenhouse effect "hasn't been used much by scientists; it's been used a lot by industry."

"But it's been largely an assumption," Harmon said.

The scientists point out that old-growth forests include dead woody debris, dead roots, snags and other decayed material that can store as much or more carbon as the trees themselves.

In some areas studied in the Oregon Coast Range, Ferrell said, "the supposedly dead parts of the forest actually stored more carbon than the trees, the living parts.

"And when the large trees are harvested, that decaying material continues to release carbon into the atmosphere for decades."

The conifer trees of such an ecosystem "are still very much alive," added Harmon, "and they're huge." Unlike young, small trees, the larger trees can replace the decaying material

on the ground and maintain a "carbon equilibrium" in the forest that neither greatly reduces nor increases the greenhouse effect.

The scientists, who used a computer model containing detailed data about forests, said at least 250 years would have to elapse after an old-growth area is logged before the original level of carbon storage and equilibrium would be regained.

The study also indicates that conversion of old-growth forests to young forests in the past 100 years in Oregon and Washington alone accounts for 2 percent of the total carbon released in the atmosphere caused by land-use changes.

That is particularly noteworthy, the report states, "given the small area we are considering — a mere 0.017 percent of the Earth's land surface."

In the near term, Harmon said, conversion of an acre of old-growth forest in Oregon to young forest would have more impact on carbon dioxide levels than converting an acre of Brazilian rain forest into pastureland. Tropical forests are far more extensive and have a greater overall effect on the global environment, he added.