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## Scientists starve aspen trees in global warming experiment

By SARA REISTAD-LONG The New York Times  
Sat. May 24 - 4:32 AM

PELLSTON, Michigan — Chain saws scream in a northern Michigan forest, but it's not the familiar sound of lumberjacks.

This time the tree killers are environmental researchers. They hope that years from now the aspens they remove will be replaced with a healthy mix of maples, oaks, beeches and pines — which should soak up more carbon dioxide from an ever warmer world.

The scientists hope to take a 40-hectare section of the University of Michigan Biological Station research forest closer to the state it was in before logging, when it was dominated by different species of trees instead of the present-day aspens.

They say the experiment is the first they're aware of that involves removing large numbers of trees to promote growth of other species that will boost carbon absorption. It comes as governments and businesses around the world look for economically feasible ways to limit climate change.

Carbon dioxide makes up more than 80 per cent of the human-produced U.S. greenhouse gas emissions that contribute to global warming, the Department of Energy says.

Scientists believe a diverse woodland will hold more carbon because it will be richer in nitrogen and use sunlight more efficiently. Both are key factors in photosynthesis, during which carbon is absorbed, said Christoph Vogel, a University of Michigan forest ecologist.

"We've been managing forests for lumber or pulp, or perhaps as habitat for deer or quail," said project leader Peter Curtis, an Ohio State University forest ecologist. "Many economists think that managing them for carbon will be a fact of life in the not-too-distant future."

Skeptics question forests' long-term reliability for sequestering carbon. They can be cut down, burned or destroyed by disease or insects. Also, it's hard to measure their storage capacity, said Jonathan Pershing, climate and energy program director for the World Resources Institute.

"Are you so sure you can tell us how much carbon is saved from your tree? That's the kind of question that makes people dubious about forest management" as a tool for limiting greenhouse gases, Pershing said.

Curtis and Vogel can't say yet how much carbon the new blend of trees will absorb, but they hope to find out.

The 4,000-hectare research forest has two steel towers, both more than 30 metres high and roughly 1.5 kilometres apart, with devices that measure carbon dioxide flowing into and out of the trees. The towers transmit air samples to computers that track the data.

After the region was clear-cut in the late 1800s and early 1900s, fast-growing aspens sprang up. They became the predominant species in many Northern forests, forming towering canopies that hogged sunlight. That stunted the growth of other varieties.

Walking down a leafy path, Vogel pointed to a scraggly white pine that was about 25 years old, but only 1.83 metres high.

"Looks like Charlie Brown's Christmas tree," he lamented.

Yet the small pine likely will outlive the aspens, most of which will reach the end of their natural life span within two or three decades.

As they die, the forest will welcome a mix of deciduous and conifer, although in different proportions than it held before logging. Curtis and Vogel don't want to wait 30 years to see how much carbon that forest will hold.

Cutting down the aspens would cause new sprouts to multiply, so scientists instead use a technique called "girdling," in which they strip a band of bark from around each tree. It starves the trees by preventing sugars produced by the leaves from traveling to the roots.

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In recent weeks, crews have girdled more than 6,700 trees — mostly aspens, with some birches — near one of the measuring towers. They should die in a year or two, allowing other species to flourish.

"I have little pangs now and then about what we've done . . . even though it's for a good reason," Vogel said. But some of the aspens and birches were already dying, and it was just a matter of time for the others, he said.

The researchers will compare carbon statistics from the woodlands where they've girdled trees with data from the woodlands where they haven't. Aspens will remain in the latter area until they die naturally.

It should take seven to 10 years to determine whether the more diverse forest takes in more carbon, Curtis said.

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