

Canada's forests, once a help on greenhouse gases, now contribute to climate change

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As relentlessly bad as the news about global warming seems to be, with ice at the poles melting faster than scientists had predicted and world temperatures rising higher than expected, there was at least a reservoir of hope stored here in Canada's vast forests.

The country's 1.2 million square miles of trees have been dubbed the "lungs of the planet" by ecologists because they account for more than 7 percent of Earth's total forest lands. They could always be depended upon to suck in vast quantities of carbon dioxide, naturally cleansing the world of much of the harmful heat-trapping gas.

But not anymore.

In an alarming yet little-noticed series of recent studies, scientists have concluded that Canada's precious forests, stressed from damage caused by global warming, insect infestations and persistent fires, have crossed an ominous line and are now pumping out more climate-changing carbon dioxide than they are sequestering.

Worse yet, the experts predict that Canada's forests will remain net carbon sources, as opposed to carbon storage "sinks," until at least 2022, and possibly much longer.

"We are seeing a significant distortion of the natural trend," said Werner Kurz, senior research scientist at the Canadian Forest Service and the leading expert on carbon cycles in the nation's forests. "Since 1999, and

especially in the last five years, the forests have shifted from being a carbon sink to a carbon source."

Translation: Earth's lungs have come down with emphysema. Canada's forests are no longer our friends.

So serious is the problem that Canada's federal government effectively wrote off the nation's forests last year as officials submitted their plans to abide by the international Kyoto Protocol, which obligates participating governments to reduce their greenhouse gas emissions.

Under the Kyoto agreement, governments are permitted to count forest lands as credits, or offsets, when calculating their national carbon emissions. But Canadian officials, aware of the scientific studies showing that their forests actually are emitting excess carbon, quietly omitted the forest lands from their Kyoto compliance calculations.

"The forecast analysis prepared for the government ... indicates there is a probability that forests would constitute a net source of greenhouse gas emissions," a Canadian Environment Ministry spokesman told the Montreal Gazette.

Canadian officials say global warming is causing the crisis in their forests. Inexorably rising temperatures are slowly drying out forest lands, leaving trees more susceptible to fires, which release huge amounts of carbon into the atmosphere.

Warmer temperatures also are accelerating the spread of a deadly pest known as the mountain pine beetle, which has devastated pine forests across British Columbia and is threatening vital timber in the neighboring province of Alberta. More than 50,000 square miles of British Columbia's pine forest have been stricken so far with the telltale markers of death: needles that turn bright red before falling off the tree.

Bitter cold Canadian winters used to kill off much of the pine beetle population each year, naturally keeping it in check. But the milder winters of recent years have allowed the insect to proliferate.

"That's what's causing some of our forests to switch from a carbon sink position to a source position," said Jim Snetsinger, British Columbia's chief forester. "Once those infested trees are killed by the pine beetle, they are no longer sequestering carbon - they are giving it off."

Snetsinger noted that eventually, over the course of a generation, some of the dying forests will begin to regenerate and once again begin storing more carbon than they release. But for the foreseeable future, experts say, their models show that Canada's forests will stay stuck in a vicious global-warming cycle, both succumbing to the effects of climate change and, as they decay and release more carbon, helping to accelerate it.

That grim reality is stoking a new debate over commercial logging, one of Canada's biggest industries.

Environmentalists contend that the extreme stresses on Canada's forests, particularly the old-growth northern forest, mean that logging ought to be sharply curtailed to preserve the remaining trees - and the carbon stored within them - for as long as possible.

Moreover, they argue that the disruptive process of logging releases even more carbon stored in the forest peat, threatening to set off what they describe as a virtual "carbon bomb" - the estimated 186 billion tons of carbon stored in Canada's forests, which is equivalent to 27 years worth of global carbon emissions from the burning of fossil fuels.

"There's only one thing which hauls all that carbon out of the forest, and that's logging," said Merran Smith, director of the climate program at the environmental group ForestEthics. "What we need to do is maintain as

much biodiversity as we can, so we are prepared to adapt as temperatures change, so we have resilience."

But Kurz and other government scientists contend that a logging moratorium is no solution to the global warming problem and would in fact increase carbon emissions over the long term.

That's because, they argue, essential wood products for construction, furniture and other uses would have to be replaced with other man-made materials, such as plastic, steel or concrete, which require the burning of even more fossil fuels - and therefore carbon emissions - during their manufacturing process.

"It's not as simple as saying, 'Log less and therefore have more carbon sequestered in the forests,' " Kurz said. "That is true, but if in order to do that you have more fossil fuel emitted elsewhere, your impact on the climate may be negative."

Instead, some scientists argue for more extensive logging of the remaining commercial forests so that older forest stands, which are most vulnerable to insect infestations and have nearly reached their carbon-storage capacity, can be replanted with younger trees that will take in even more carbon during their growing years.

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