

Canada's Logging Industry Devours Forests Crucial to Fighting Climate Change

A study finds that logging has inflicted severe damage to the vast boreal forests in Ontario and Quebec, two of the country's main commercial logging regions.

By Ian Austen and Vjosa Isai

Ian Austen reported from Ottawa, and Vjosa Isai from Toronto.

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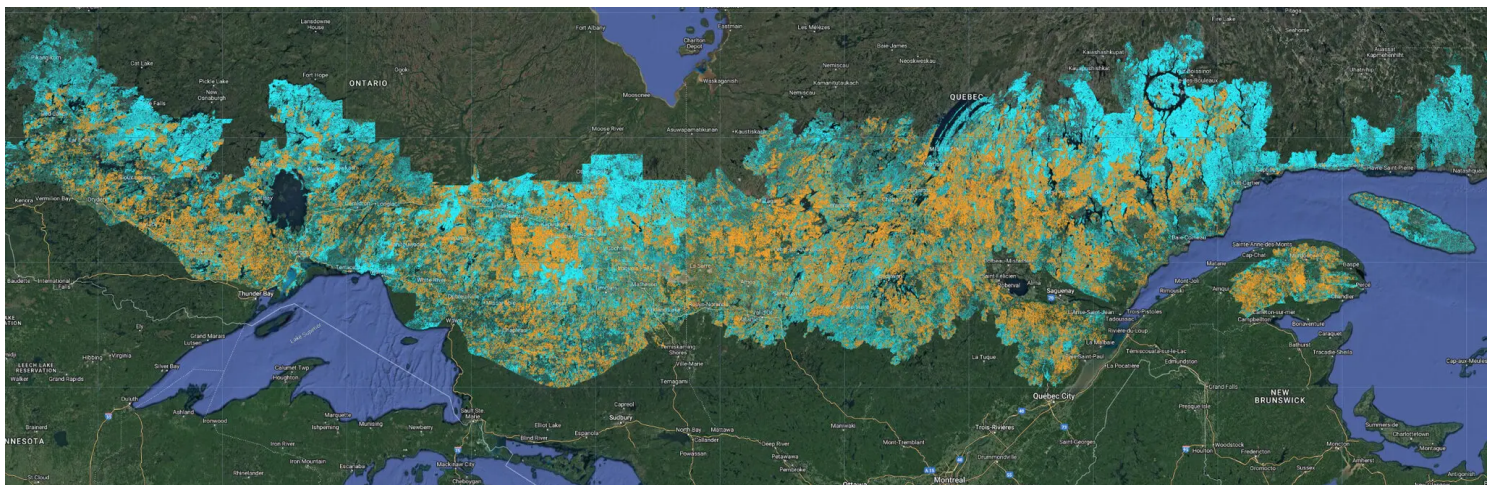
Canada has long promoted itself globally as a model for protecting one of the country's most vital natural resources: the world's largest swath of boreal forest, which is crucial to fighting climate change.

But a new study using nearly half a century of data from the provinces of Ontario and Quebec — two of the country's main commercial logging regions — reveals that harvesting trees has inflicted severe damage on the boreal forest that will be difficult to reverse.

Researchers led by a group from Griffith University in Australia found that since 1976 logging in the two provinces has caused the removal of 35.4 million acres of boreal forest, an area roughly the size of New York State.

While nearly 56 million acres of well-established trees at least a century old remain in the region, logging has shattered this forest, leaving behind a patchwork of isolated stands of trees that has created a landscape less able to support wildlife, according to the study. And it has made the land more susceptible to wildfire, scientists say.

Though Canada claims to hold logging companies to high standards, scientists involved in the peer-reviewed study, which was published in the academic journal *Land*, said their findings show that the country allows unsustainable practices that have deeply degraded the forest.



The orange patches show areas that have been logged in Ontario and Quebec since 1976. Turquoise indicates areas where the forest is at least 100 years old. Griffith Climate Action Beacon, Griffith University

Scientists not involved in the study said it provides a groundbreaking understanding about what decades of commercial logging has done to the boreal forest, which refers to northern woodlands made up mainly of evergreen trees.

“This is the first time that we have this kind of a clear view for two of the largest provinces in Canada,” said Christian Messier, a forest ecology professor at Université du Québec à Montréal, who was not involved in the study. “I think the approach, the methodology, was the most novel aspect of this paper.”

Under Canada’s forestry standards, logging companies can clear vast areas of all trees and vegetation and are required to replant the land or demonstrate that the forest will naturally regenerate.

But, scientists say, without the thick bark of older trees, younger trees are more vulnerable to wildfire, and logging companies typically replant species more suitable for the timber industry rather than those resistant to fire.

“The Canadian government claims to have managed the forest according to the principles of sustainable forest management,” said Brendan Mackey, the study’s lead author and a professor and director of a climate research group at Griffith University in Brisbane, Australia. “But its notion of sustainability is really tied to maintaining and maximizing wood production and ensuring the regeneration of commercially desirable trees. That has a lot of implications for biodiversity.”



The boreal forest is considered crucial to fighting climate change because it locks up vast amounts of climate-warming carbon dioxide in trees and soil. Nasuna Stuart-Ulin for The New York Times

Canadian officials did not directly address questions about the study’s findings, providing only a written statement broadly citing the country’s efforts to preserve the boreal forest.

That policy focuses on “conservation, recreation, habitat, water quality, economic development and the relationship Indigenous peoples have with the land and forests,” said the statement from Carolyn Svonkin, a spokeswoman for Canada’s minister of energy and natural resources.

Peter Wood, a lecturer on forest resources management at the University of British Columbia in Vancouver, who was not involved in the study, called its findings “shocking,” adding that they highlight “what is at stake as we focus our logging on some of these older and more intact areas.”

The enormous and ecologically vital boreal forest extends through North America, northern Europe and Siberia, but the largest portion is in Canada.

Beyond being an important natural habitat for many animals and plants, the boreal forest locks up huge amounts of climate-warming carbon dioxide. The world’s boreal forests are estimated to collectively hold 703 gigatons of carbon in trees and soil. The world’s tropical forests, by comparison, store about 375 gigatons of carbon.

Prime Minister Justin Trudeau, who came to office eight years ago on a pledge to aggressively tackle climate change, has long promoted Canada’s boreal forest as essential to the world’s well being.

“Canada is home to one of the largest continuous forests in the world and we have a responsibility to protect it,” Mr. Trudeau told the U.N. Climate Summit in 2021. “We’ve seen the impact of global temperatures rising — they’ve been rising twice as fast in Canada as elsewhere in the world — on those forests. We have a responsibility to be stewards of them.”

To conduct the study on the boreal forest in Quebec and Ontario, researchers obtained publicly available inventories of harvested trees from the provinces and linked them to maps and satellite imagery to create a detailed picture of the cumulative impact of logging.

“This study starkly shows that where logging has occurred, there are fundamental characteristics of the forest that have not returned,” said Jennifer Skene, a climate policies analyst for the Natural Resources Defense Council, which helped finance the report’s research.

Replanting land after cutting older trees yields younger forests that are ecologically compromised, Professor Mackey said. They hold less carbon, are generally more vulnerable to disease and insect infestations and are poor habitats for the many animals and plants that depend on old forest homes to thrive or, in some cases, to survive.



New trees growing in part of Quebec's boreal forest. Some scientists say the younger trees are more vulnerable to wildfire than older trees. Ed Jones/Agence France-Presse — Getty Images

As part of the study, Professor Mackey and other researchers looked at the effects of logging on large groups of woodland caribou — animals that require large areas of older forest and that are affected by human disturbance. Logging roads, for example, make it easier for predators to hunt caribou, researchers said.

Of the 21 herds within the two provinces' boreal regions that researchers studied, 19 were at a high or very high risk of becoming unable to support their population.

While in other parts of the world, deforestation, or the removal of trees for uses like farming and cattle ranching, has become a major threat, the challenge in Canada is different.

“There’s been no deforestation in that sense,” Professor Mackey said. “But there has been a high level, ecologically speaking, of forest degradation.”

“You still maintain a forest cover and you might still maintain the forest in a land-use sense over time,” he added. “But you have degraded some aspect of its ecological quality.”

And most ecologists regard degradation as the consequence of the type of large scale clear-cutting that is nearly the universal method of logging in Canada.

“Forest degradation is the more important metric for Canada because it really captures more of what’s actually happening,” Mr. Wood said. “Canada has downplayed the impact of the forest industry.”

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